INTERNET
REFERENCE GUIDE

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900
ACRONYMS &
TERMINOLOGIES

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TO WHOM IT MAY CONCERN

I highly appreciate the efforts of Mr. Ahmed Nadeem Syed on compiling and preparing the reference books related to Internet and Telecommunications. I have found these books very useful as immediate reference guides, explaining all the major terms and acronyms related to Internet and telecommunication in an easy and elaborative manner.

Mr. Ahmed Nadeem Syed is a telecom professional and has played an important role in preparation of IT policy as well as the development of Internet in Pakistan. I congratulate him on yet another contribution from his side.

Telecom professionals and the libraries should find these books of much use.

(Prof. Dr. Atta-ur-Rahman)
Minister

Internet Reference Book

900

Acronyms & Terminologies

Dedicated
To
My dear Pakistan
Which is my identity
And which
Deserves to be returned
More than
It gave me

Preface

Being an Internet and Telecommunication student, I am always on a learning curve of understanding various aspects of technology. To go along the curve, I have to keep myself updated through reading. However, the major problem, I always came across, was the endless presence of various jargons, terminologies and technical acronyms in any article, book or brochure. I needed something handy, to which I could immediately refer. The rarely available Internet dictionaries, being very brief, are no good and searching Internet for each terminology, while reading, is next to impossible. There is nothing available in the market, which goes beyond mere definitions and could explain by examples.

The solution was found from Internet. I downloaded over 900 terminologies & acronyms and compiled them in the form of a good handy reference book for my use. I can now read and understand any Internet related material with ease, during travel or at my bedtime. It also gives me pleasure of understanding the technology even when read independently. I am now publishing this material for the benefit of all the young and old Internet students of Pakistan and expect that all of the readers will be equally benefited from this of my effort.

The book is organized in alphabetical order on the pattern of any dictionary. Each term has been presented in the form of a continuous paragraph for continuity purpose. Wherever necessary, bullet points have been used to describe features, types and characteristics. The terms and acronyms are not merely defined but are explained in detail. Any term/acronym used within each of the explanation is underlined so that the reader not only becomes aware but also registers the same in mind subconsciously. The reader will be able to study the related terms so underlined generally within the same book elsewhere. The book also describes, certain products, services and protocols, which are offered by various international organizations of the industry and have become world industry standards. All the terms have been presented without any changes or amendments as they were downloaded from highly authentic websites (Please refer to bibliography at the end).

I am thankful to all my friends who assisted me in organizing this book, especially Mr. Naseemullah Malik, who designed its beautiful and meaningful cover.

I hope this small effort will be appreciated.

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AAA

Authentication, authorization, and accounting (AAA) is a term for a framework for intelligently controlling <u>access</u> to computer resources, enforcing policies, auditing usage, and providing the information necessary to bill for services. These combined processes are considered important for effective network management and security. As the first process, <u>authentication</u> provides a way of identifying a user, typically by having the user enter a valid user name and valid password before access is granted. The process of authentication is based on each user having a unique set of criteria for gaining access. The AAA server compares a user's authentication credentials with other user credentials stored in a database. If the credentials match, the user is granted access to the network. If the credentials are at variance, authentication fails and network access is denied. Following authentication, a user must gain <u>authorization</u> for doing certain tasks. After logging into a system, for instance, the user may try to issue commands. The authorization process determines whether the user has the authority to issue such commands. Simply put, authorization is the process of enforcing policies: determining what types or qualities of activities, resources, or services a user is permitted. Usually, authorization occurs within the context of authentication. Once you have authenticated a user, they may be authorized for different types of access or activity. The final plank in the AAA framework is accounting, which measures the resources a user consumes during access. This can include the amount of system time or the amount of data a user has sent and/or received during a session. Accounting is carried out by logging of session statistics and usage information and is used for authorization control, billing, trend analysis, resource utilization, and capacity planning activities. Authentication, authorization, and accounting services are often provided by a dedicated <u>AAA server</u>, a program that performs these functions. A current standard by which network access servers interface with the AAA server is the Remote Authentication Dial-In User Service (<u>RADIUS</u>).

AAA server

An AAA server is a <u>server</u> program that handles user requests for <u>access</u> to computer resources and, for an enterprise, provides <u>authentication</u>, <u>authorization</u>, and accounting (AAA) services. The AAA server typically interacts with network access and <u>gateway</u> servers and with databases and directories containing user information. The current standard by which devices or applications communicate with an AAA server is the Remote Authentication Dial-In User Service (<u>RADIUS</u>

Access log

An access log is a list of all the requests for individual files that people have requested from a Web site. These files will include the HTML files and their imbedded graphic images and any other associated files that get transmitted. The access log (sometimes referred to as the "raw data") can be analyzed and summarized by another program. In general, an access log can be analyzed to tell you:

- The number of visitors (unique first-time requests) to a home page
- The origin of the visitors in terms of their associated server's domain name (for example, visitors from .edu, .com, and .gov sites and from the online services)
- How many requests for each page at the site, which can be presented with the pages with most requests listed first
- Usage patterns in terms of time of day, day of week, and seasonally

Access provider

An access provider is any organization that arranges for an individual or an organization to have access to the Internet. Access providers are generally divided into two classes: Internet access providers (ISPs) and online service providers (OSPs). ISPs can be local businesses that pay for a high-speed connection to one of the companies (such as AT&T, Sprint, or MCI in the U.S.) that are part of the Internet. They can also be national or international companies that have their own networks (such as AT&T's WorldNet or IBM's Global Services). OSPs, sometimes just called "online services," also have their own networks but provide additional information services not available to non-subscribers. America Online is the most successful example of an OSP. Hours of use beyond the arranged number are billed as an extra charge at an hourly rate. Both national and local access providers compete for business in national and local publications. Microsoft's Windows systems offer personal computer users access to the Microsoft Internet service as well as to America Online, IBM, and several other services. An access provider may have its own point-of-presence (POP) on the Internet, or it may be a company that has a telecommunication connection to someone else with a POP. An access provider is not the same as a "space provider" (virtual host), a company that provides space and management for individual or business Web sites. However, some access providers do provide a certain amount of space for a Web site as part of their service.

ActionScript

ActionScript is an object-oriented programming (OOP) language that is designed specifically for Web site animation. Originally released with Macromedia Flash 4 and enhanced for Flash 5, ActionScript is a sophisticated version of the script language introduced in Flash 3. ActionScript makes it possible for developers to create

onscreen environments (such as games, tutorials, and e-commerce applications) that can respond to user input through the keyboard or mouse. ActionScript is an *event-based* language: just as is the case in real life, actions are triggered by events. ActionScript was modeled on ECMA (European Computer Manufacturers Association)-262, an international standard for JavaScript. In the Flash 5 version, new ActionScript syntax, conventions, and features were introduced that make it similar to JavaScript, which in turn makes the language automatically familiar to most Web developers. Flash 5 also includes a new ActionScript editing environment that automates editing tasks and reduces development time.

Active Server Page

An Active Server Page (ASP) is an HTML page that includes one or more scripts (small embedded programs) that are processed on a Microsoft Web server before the page is sent to the user. An ASP is somewhat similar to a server-side include or a common gateway interface (CGI) application in that all involve programs that run on the server, usually tailoring a page for the user. Typically, the script in the Web page at the server uses input received as the result of the user's request for the page to access data from a database and then builds or customizes the page on the fly before sending it to the requestor. ASP is a feature of the Microsoft Internet Information Server (IIS), but, since the server-side script is just building a regular HTML page, it can be delivered to almost any browser. You can create an ASP file by including a script written in VBScript or JScript in an HTML file or by using ActiveX Data Objects (ADOs) program statements in the HTML file. You name the HTML file with the ".asp" file suffix. Microsoft recommends the use of the server-side ASP rather than a client-side script, where there is actually a choice, because the server-side script will result in an easily displayable HTML page. Client-side scripts (for example, with JavaScript) may not work as intended on older browsers. ASP is also an abbreviation for application service provider.

Acceptable Use Policy
Pl. see AUP

Address

People use this word several ways. You can ask someone for the address of their server, or for their home page on the Web, or where to send e-mail. So an "address" can mean the unique location of either (1) an Internet server, (2) a specific file (for example, a Web page), or (3) an e-mail user. It is also used to specify the location of data within computer storage. An **Internet address** or IP address is a unique computer (host) location on the Internet (expressed either as a unique string of numbers or as its associated domain name). For more information, see IP address.

- Example of an IP address expressed in dot notation: 205.245.172.72
- Example of the domain name version: Yahoo.com

Address Resolution Protocol

Pl. see ARP

Address Sign
Pl. see @

A file (or home page) address is expressed as the defining directory path to the file on a particular server. (A Web page address is also called a Uniform Resource Locator, or URL.) Example: http://www.hitmill.com/computers/computerhx1.html. An **e-mail address** is the location of an e-mail user (expressed by the user's e-mail name followed by an "at" sign followed by the user's server domain name.) Example: **missmuffet@tuffet.org**. In a computer, a **storage address** is the beginning location of a sequence of data that is stored on some electronic storage medium.

Address Space
Address space is the amount of memory allocated for all possible addresses for a computational entity, such as a device, a file, a server, or a networked computer. Address space may refer to a range of either physical or virtual addresses accessible to a processor or reserved for a process. As unique identifiers of single entities, each address specifies an entity's *location* (unit of memory that can be addressed separately). On a computer, each computer device and process is allocated address space, which is some portion of the processor's address space. A processor's address space is always limited by the width of its address bus and registers. Address space may be differentiated as either *flat*, in which addresses are expressed as incrementally increasing integers starting at zero, or *segmented*, in which addresses are expressed as separate segments augmented by *offsets* (values added to produce secondary addresses). In some systems, address space can be converted from one format to the other through a process known as thunking. In terms of IP address space, there has been concern that IPv4 (Internet Protocol Version 4) had not anticipated the enormous growth of the Internet, and that its 32-bit address space would not be adequate. For that reason, IPv6 has been developed with 128-bit address space

Advertising terminology on the Internet
Ad: For Web advertising, an ad is almost always a **banner**, a graphic image or set of animated images (in a file called an animated GIF) of a designated pixel size and byte size limit. An ad or set of ads for a campaign is often referred to as "the creative." Banners and other special advertising that include an interactive or visual element beyond the usual are known as **rich media**.
Ad rotation: Ads are often rotated into ad spaces from a list. This is usually done automatically by software on the Web site or at a central site administered by an ad broker or server facility for a network of Web sites.

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Ad space: An ad space is a space on a Web page that is reserved for ads. An *ad space group* is a group of spaces within a Web site that share the same characteristics so that an ad purchase can be made for the group of spaces.

Ad view: An ad view, synonymous with ad **impression**, is a single ad that appears on a Web page when the page arrives at the viewer's display. Ad views are what most Web sites sell or prefer to sell. A Web page may offer space for a number of ad views. In general, the term **impression** is more commonly used.

Affiliate marketing: Affiliate marketing is the use by a Web site that sells products of other Web sites, called *affiliates*, to help market the products. Amazon.com, the book seller, created the first large-scale affiliate program and hundreds of other companies have followed since.

Banner: A banner is an advertisement in the form of a graphic image that typically runs across a Web page or is positioned in a margin or other space reserved for ads. Banner ads are usually Graphics Interchange Format (GIF) images. In addition to adhering to size, many Web sites limit the size of the file to a certain number of bytes so that the file will display quickly. Most ads are animated GIFs since animation has been shown to attract a larger percentage of user clicks. The most common larger banner ad is 468 pixels wide by 60 pixels high. Smaller sizes include 125 by 125 and 120 by 90 pixels. These and other banner sizes have been established as standard sizes by the Internet Advertising Bureau.

Beyond the banner: This is the idea that, in addition to banner ads, there are other ways to use the Internet to communicate a marketing message. These include sponsoring a Web site or a particular feature on it; advertising in e-mail newsletters; co-branding with another company and its Web site; contest promotion; and, in general, finding new ways to engage and interact with the desired audience. "Beyond the banner" approaches can also include the interstitial and streaming video infomercial. The banner itself can be transformed into a small **rich media** event.

Booked space: This is the number of ad views for an ad space that are currently sold out.

Brand, brand name, and branding: A brand is a product, service, or concept that is publicly distinguished from other products, services, or concepts so that it can be easily communicated and usually marketed. A brand name is the name of the distinctive product, service, or concept. Branding is the process of creating and disseminating the brand name. Branding can be applied to the entire corporate identity as well as to individual product and service names. In Web and other media advertising, it is recognized that there is usually some kind of branding value whether or not an immediate, direct response can be measured from an ad or campaign. Companies like Proctor and Gamble have made a science out of creating and evaluating the success of their brand name products.

Caching: In Internet advertising, the caching of pages in a cache server or the user's computer means that some ad views won't be known by the ad counting programs and is a source of concern. There are several techniques for telling the

browser not to cache particular pages. On the other hand, specifying no caching for all pages may mean that users will find your site to be slower than you would like.

Click: According to ad industry recommended guidelines from **FAST**, a click is "when a visitor interacts with an advertisement." This does not apparently mean simply interacting with a **rich media** ad, but actually clicking on it so that the visitor is headed toward the advertiser's destination. (It also does not mean that the visitor actually waits to fully arrive at the destination, but just that the visitor started going there.)

Click stream: A click stream is a recorded path of the pages a user requested in going through one or more Web sites. Click stream information can help Web site owners understand how visitors are using their site and which pages are getting the most use. It can help advertisers understand how users get to the client's pages, what pages they look at, and how they go about ordering a product.

Clickthrough: A clickthrough is what is counted by the sponsoring site as a result of an ad click. In practice, *click* and *clickthrough* tend to be used interchangeably. A clickthrough, however, seems to imply that the user actually received the page. A few advertisers are willing to pay only for clickthroughs rather than for ad impressions.

Click rate: The click rate is the percentage of ad views that resulted in clickthroughs. Although there is visibility and branding value in ad views that don't result in a clickthrough, this value is difficult to measure. A clickthrough has several values: it's an indication of the ad's effectiveness and it results in the viewer getting to the advertiser's Web site where other messages can be provided. A new approach is for a click to result not in a link to another site but to an immediate product order window. What a successful click rate is depends on a number of factors, such as: the campaign objectives, how enticing the banner message is, how explicit the message is (a message that is complete within the banner may be less apt to be clicked), audience/message matching, how new the banner is, how often it is displayed to the same user, and so forth. In general, click rates for high-repeat, branding banners vary from 0.15 to 1%. Ads with provocative, mysterious, or other compelling content can induce click rates ranging from 1 to 5% and sometimes higher. The click rate for a given ad tends to diminish with repeated exposure.

Co-branding: Co-branding on the Web often means two Web sites or Web site sections or features displaying their logos (and thus their brands) together so that the viewer considers the site or feature to be a joint enterprise. (Co-branding is often associated with cross-linking between the sites, although it isn't necessary.)

Cookie: A cookie is a file on a Web user's hard drive (it's kept in one of the subdirectories under the browser file directory) that is used by Web sites to record data about the user. Some ad rotation software uses cookies to see which ad the user has just seen so that a different ad will be rotated into the next page view.

Cost-per-action: Cost-per-action is what an advertiser pays for each visitor that takes some specifically defined action in response to an ad beyond simply clicking on it. For example, a visitor might visit an advertiser's site and request to be subscribe to their newsletter.

Cost-per-lead: This is a more specific form of cost-per-action in which a visitor provides enough information at the advertiser's site (or in interaction with a rich media ad) to be used as a sales lead. Note that you can estimate cost-per-lead regardless of how you pay for the ad (in other words, buying on a **pay-per-lead** basis is not required to calculate the cost-per-lead).

Cost-per-sale: Sites that sell products directly from their Web site or can otherwise determine sales generated as the result of an advertising sales lead can calculate the cost-per-sale of Web advertising.

CPA: See **cost-per-action**.

CPC: See **cost-per-click**.

CPM: CPM is "cost per thousand" ad impressions, an industry standard measure for selling ads on Web sites. This measure is taken from print advertising. The "M" has nothing to do with "mega" or million. It's taken from the Roman numeral for "thousand."

CPS: See **cost-per-sale**.

CPTM: CPTM is "cost per thousand targeted" ad impressions, apparently implying that the audience you're selling is targeted to particular demographics.

(the) creative: Ad agencies and buyers often refer to ad banners and other forms of created advertising as ""the creative." Since the creative requires creative inspiration and skill that may come from a third party, it often doesn't arrive until late in the preparation for a new campaign launch.

CTR: See **clickthrough rate**.

Demographics: Demographics is data about the size and characteristics of a population or audience (for example, gender, age group, income group, purchasing history, personal preferences, and so forth).

FAST: FAST is a coalition of the Internet Advertising Bureau (), the ANA, and the ARF that has recommended or is working on guidelines for consumer privacy, ad models and creative formats, audience and ad impression measurement, and a standard reporting template together with a standard **insertion order**. FAST originated with Proctor and Gamble's Future of Advertising Stakeholders Summit in August, 1998. FAST's first guideline, available in March, 1999, was a guideline on "Basic Advertising Measures." Our definitions in this list include the FAST definitions for **impression** and **click**.

Filtering: Filtering is the immediate analysis by a program of a user Web page request in order to determine which ad or ads to return in the requested page. A Web page request can tell a Web site or its ad server whether it fits a certain characteristic such as coming from a particular company's address or that the user is using a particular level of browser. The Web ad server can respond accordingly.

Fold: "Above the fold," a term borrowed from print media, refers to an ad that is viewable as soon as the Web page arrives. You don't have to scroll down (or sideways) to see it. Since screen resolution can affect what is immediately viewable, it's good to know whether the Web site's audience tends to set their resolution at 640 by 480 pixels or at 800 by 600 (or higher).

Hit: A hit is the sending of a single file whether an HTML file, an image, an audio file, or other file type. Since a single Web page request can bring with it a number of individual files, the number of hits from a site is a not a good indication of its actual use (number of visitors). It does have meaning for the Web site space provider, however, as an indicator of traffic flow.

Impression: According to the "Basic Advertising Measures," from **FAST**, an ad industry group, an impression is "The count of a delivered basic advertising unit from an ad distribution point." Impressions are how most Web advertising is sold and the cost is quoted in terms of the cost per thousand impressions (**CPM**).

IO: See **insertion order**.

Insertion order: An insertion order is a formal, printed order to run an ad campaign. Typically, the insertion order identifies the campaign name, the Web site receiving the order and the planner or buyer giving the order, the individual ads to be run (or who will provide them), the ad sizes, the campaign beginning and end dates, the CPM, the total cost, discounts to be applied, and reporting requirements and possible penalties or stipulations relative to the failure to deliver the impressions.

Inventory: Inventory is the total number of ad views or impressions that a Web site has to sell over a given period of time (usually, inventory is figured by the month).

Media broker: Since it's often not efficient for an advertiser to select every Web site it wants to put ads on, media brokers aggregate sites for advertisers and their media planners and buyers, based on demographics and other factors.

Media buyer: A media buyer, usually at an advertising agency, works with a media planner to allocate the money provided for an advertising campaign among specific print or online media (magazines, TV, Web sites, and so forth), and then calls and places the advertising orders. On the Web, placing the order often includes requesting proposals and negotiating the final cost.

Opt-in e-mail: Opt-in e-mail is e-mail containing information or advertising that users explicitly request (opt) to receive. Typically, a Web site invites its visitors to fill out forms identifying subject or product categories that interest them and about which they are willing to receive e-mail from anyone who might send it. The Web site sells the names (with explicit or implicit permission from their visitors) to a company that specializes in collecting mailing lists that represent different interests. Whenever the mailing list company sells its lists to advertisers, the Web site is paid a small amount for each name that it generated for the list. You can sometimes identify opt-in e-mail because it starts with a statement that tells you that you have previously agreed to receive such messages.

Pay-per-click: In pay-per-click advertising, the advertiser pays a certain amount for each **clickthrough** to the advertiser's Web site. The amount paid per clickthrough is arranged at the time of the **insertion order** and varies considerably. Higher pay-per-click rates recognize that there may be some "no-click" **branding** value as well as clickthrough value provided.

Pay-per-lead: In pay-per-lead advertising, the advertiser pays for each sales lead generated. For example, an advertiser might pay for every visitor that clicked on a site and then filled out a form.

Pay-per-sale: Pay-per-sale is not customarily used for ad buys. It is, however, the customary way to pay Web sites that participate in **affiliate programs**, such as those of Amazon.com and Beyond.com.

Pay-per-view: Since this is the prevalent type of ad buying arrangement at larger Web sites, this term tends to be used only when comparing this most prevalent method with pay-per-click and other methods.

Proof of performance: Some advertisers may want proof that the ads they've bought have actually run and that clickthrough figures are accurate. In print media, *tearsheets* taken from a publication prove that an ad was run. On the Web, there is no industry-wide practice for proof of performance. Some buyers rely on the integrity of the media broker and the Web site. The ad buyer usually checks the Web site to determine the ads are actually running. Most buyers require weekly figures during a campaign. A few want to look directly at the figures, viewing the ad server or Web site reporting tool.

Psychographic characteristics: This is a term for personal interest information that is gathered by Web sites by requesting it from users. For example, a Web site could ask users to list the Web sites that they visit most often. Advertisers could use this data to help create a demographic profile for that site.

Reporting template: Although the media have to report data to ad agencies and media planners and buyers during and at the end of each campaign, no standard report is yet available. **FAST**, the ad industry coalition, is working on a proposed standard reporting template that would enable reporting to be consistent.

Rich media: Rich media is advertising that contains perceptual or interactive elements more elaborate than the usual **banner** ad. Today, the term is often used for banner ads with popup menus that let the visitor select a particular page to link to on the advertiser's site. Rich media ads are generally more challenging to create and to serve. Some early studies have shown that rich media ads tend to be more effective than ordinary animated banner ads.

ROI: ROI (return on investment) is "the bottom line" on how successful an ad or campaign was in terms of what the returns (generally sales revenue) were for the money expended (invested).

RON: See **run-of-network**.

ROS: See **run-of-site**.

Run-of-network: A run-of-network ad is one that is placed to run on all sites within a given network of sites. Ad sales firms handle run-of-network insertion orders in such a way as to optimize results for the buyer consistent with higher priority ad commitments.

Run-of-site: A run-of-site ad is one that is placed to rotate on all nonfeatured ad spaces on a site. CPM rates for run-of-site ads are usually less than for rates for specially-placed ads or sponsorships.

Splash page: A splash page (also known as an interstitial) is a preliminary page that precedes the regular home page of a Web site and usually promotes a particular site feature or provides advertising. A splash page is timed to move on to the home page after a short period of time.

Sponsor: Depending on the context, a sponsor simply means an advertiser who has sponsored an ad and, by doing so, has also helped sponsor or sustain the Web site itself. It can also mean an advertiser that has a special relationship with the Web site and supports a special feature of a Web site, such as a writer's column, a Flower-of-the-Day, or a collection of articles on a particular subject.

Sponsorship: Sponsorship is an association with a Web site in some way that gives an advertiser some particular visibility and advantage above that of **run-of-site** advertising. When associated with specific content, sponsorship can provide a more targeted audience than run-of-site ad buys. Sponsorship also implies a "synergy and resonance" between the Web site and the advertiser. Some sponsorships are available as value-added opportunities for advertisers who buy a certain minimum amount of advertising.

Targeting: Targeting is purchasing ad space on Web sites that match audience and campaign objective requirements. Techtarget.com, with over 20 Web sites targeted to special information technology audiences, is an example of an online publishing business built to enable advertising targeting.

Unique visitor: A unique visitor is someone with a unique address who is entering a Web site for the first time that day (or some other specified period). Thus, a visitor that returns within the same day is not counted twice. A unique visitors count tells you how many different people there are in your audience during the time period, but not how much they used the site during the period.

User session: A user session is someone with a unique address that enters or reenters a Web site each day (or some other specified period). A user session is sometimes determined by counting only those users that haven't reentered the site within the past 20 minutes or a similar period. User session figures are sometimes used, somewhat incorrectly, to indicate "visits" or "visitors" per day. User sessions are a better indicator of total site activity than "unique visitors" since they indicate frequency of use.

View: A view is, depending on what's meant, either an ad view or a page view. Usually an ad view is what's meant. There can be multiple ad views per page views. View counting should consider that a small percentage of users choose to turn the graphics off (not display the images) in their browser.

Visit: A visit is a Web user with a unique address entering a Web site at some page for the first time that day (or for the first time in a lesser time period). The number of visits is roughly equivalent to the number of different people that visit a site. This term is ambiguous unless the user defines it, since it could mean a user session or it could mean a unique visitor that day.

Adware

Adware is any software application in which advertising banners are displayed while the program is running. The authors of these applications include additional code that delivers the ads, which can be viewed through pop-up windows or through a bar that appears on a computer screen. The justification for adware is that it helps recover programming development cost and helps to hold down the cost for the

user. Adware has been criticized for occasionally including code that tracks a user's personal information and passes it on to third parties, without the user's authorization or knowledge. This practice has been dubbed <u>spyware</u> and has prompted an outcry from computer security and privacy advocates, including the Electronic Privacy Information Center. Noted privacy software expert Steve Gibson of Gibson Research explains: "Spyware is any software (that) employs a user's Internet connection in the background (the so-called 'backchannel') without their knowledge or explicit permission. Silent background use of an Internet 'backchannel' connection must be preceded by a complete and truthful disclosure of proposed backchannel usage, followed by the receipt of explicit, informed consent for such use. Any software communicating across the Internet absent of these elements is guilty of information theft and is properly and rightfully termed: Spyware." A number of software applications, including Ad-Aware and OptOut (by Gibson's company), are available as freeware to help computer users search for and remove suspected spyware programs.

AFC

Anti-Ferromagnetically-coupled (AFC) is IBM's media technology known as Pixie dust as well, which can increase the data capacity of hard drives to up to four times the density possible with current drives. AFC overcomes limits of current hard drives caused by a phenomenon called the *superparamagnet effect* (basically, alterations in magnetic orientation). The "pixie dust" used is a 3-<u>atom</u> thick magnetic coating composed of the element *ruthenium* sandwiched between two magnetic layers. The technology is expected to yield 400 GB (<u>gigabyte</u>) hard drives for desktop computers, and 200 GB hard drives for laptops by 2003. In information technology, the term "pixie dust" is often used to refer to a technology that seemingly does the impossible. IBM's use of AFC for hard drives overcomes what was considered an insuperable problem for storage: the physical limit for data stored on hard drives. Hard drive capacities have more or less doubled in each of the last five years, and it was assumed in the storage industry that the upper limit would soon be reached. The superparamagnetic effect has long been predicted to appear when densities reached 20 to 40 gigabits per square inch - close to the data density of current products. AFC increases possible data density, so that capacity is increased without using either more <u>disk</u>s or more heads to read the data. Current hard drives can store 20 gigabits of data per square inch. IBM began shipping Travelstar hard drives in May 2001 that are capable of storing 25.7 gigabits per square inch. Drives shipped later in the year are expected to be capable of 33% greater density. Because smaller drives will be able to store more data and use less power, the new technology may also lead to smaller and quieter devices. IBM discovered a means of adding AFC to their standard production methods so that the increased capacity costs little or nothing. The company, which plans to implement the process across their entire line of products, chose not to publicize the technology in advance. Many companies have focused research on the use of AFC in hard drives; a number of

vendors, such as Seagate Technology and Fujitsu, are expected to follow IBM's lead.

AGate

AGate (for *application gateway*) is the major component of the Internet Transaction Server (ITS) from SAP, the software company that provides a popular set of programs for managing a large enterprise. The AGate, along with the WGate (for *Web gateway*), performs the tasks that enable an end user to access a SAP R/3 application over the Internet. The WGate establishes the connection between ITS and the Web server and forwards user requests to the AGate, which establishes the connection to the R/3 system and performs processing tasks that are required to move data between R/3 applications and the Internet. The WGate resides on the same computer as the Web server, as a server extension. Although the AGate can reside on that computer as well, SAP suggests that it is better located on a different system, in the interests of efficiency and security. The AGate and the WGate communicate using TCP/IP through the SAP Network Interface (NI).

Aggregate

In general, to aggregate (verb, from Latin *aggregare* meaning to add to) is to collect things together. An aggregate (adjective) thing is a collection of other things. An aggregation is a collection.
In information technology, individual items of data are sometimes aggregated into a database. Unlike marshalling, aggregation doesn't require giving one thing precedence over another thing.
The noun has special meanings in geology and in building construction.

AIM

Instant messaging (sometimes called IM or IMing) is the ability to easily see whether a chosen friend or co-worker is connected to the Internet and, if they are, to exchange messages with them. Instant messaging differs from ordinary e-mail in the immediacy of the message exchange and also makes a continued exchange simpler than sending e-mail back and forth. Most exchanges are text-only. However, some services allow attachments. See also IRC (Internet Relay Chat) and ICQ (I Seek You).
In order for IMing to work, both users (who must subscribe to the service) must be online at the same time, and the intended recipient must be willing to accept instant messages. (It is possible to set your software to reject messages.) An attempt to send an IM to someone who is not online, or who is not willing to accept IMs, will result in notification that the transmission cannot be completed. If the online software is set to accept IMs, it alerts the recipient with a distinctive sound, a window that indicates that an IM has arrived and allowing the recipient to accept or reject it, or a window containing the incoming message. Under most conditions, IMing is truly "instant." Even during peak Internet usage periods, the delay is rarely

more than a second or two. It is possible for two people to have a real-time online "conversation" by IMing each other back and forth. Once in a while, a person might receive an IM from someone while already engaged in a chat with someone else, and decide to carry on IM chats with both people independently and concurrently. This requires mental alertness to avoid the embarrassment of sending one IM companion a message intended for the other.

Akamaize

For a Web site, to akamaize (pronounced AHK-uh-myez) is to accelerate the delivery of Web files by placing copies on servers closer to the user than the server that delivers the main file for a Web page. To akamaize, a Web site uses the FreeFlow product from Akamai, a company that has managed to persuade a number of its clients and other Web users to adopt the term. Essentially, the FreeFlow process lets a Web site use Akamai's network of dispersed servers as a cache for multimedia and other files that ordinarily slow down the time it takes to download the complete Web page to a user. FreeFlow manages balancing traffic among different servers and identifying the server that should be used for any specific request. Akamaizing is one particular company's approach to what the industry calls content delivery. Also see content delivery.

Alphanumerish

Alphanumerish is the new term coined to define the shorthand typing language that has developed from computer users' habit of substituting numerals for (sometimes multiple) letters, and substituting letters for words or word parts. For example, the Alphanumerish phrase "c u l8r" can take the place of "see you later," while the computer smiley " :-) " and other emoticons can substitute for entire sentences. The term internationalization is an example of a long term that has been given an easier-to-type form, I18N (meaning the initial "I", 18 more letters, and the final "N").

Alias

In general, as a noun, an alias (pronounced AY-lee-uhs) is an alternate name for someone or something. In literature, a "pen name" is an alias for the author's real name. The noun is derived from the Latin adverb *alias*, meaning "otherwise" and by extension "otherwise known as" and the latter meaning is still used in English, as in: Clark Kent, alias Superman. In information technology, the noun has at least two different usages. 1) In some computer operating systems and programming languages, an alias is an alternative and usually easier-to-understand or more significant name for a defined data object. The data object can be defined once and later a programmer can define one or more equivalent aliases that will also refer to the data object. In some languages, this is known as an "equate" instruction. In Macintosh operating systems, an alias is a desktop icon for a particular program or data object.

ALE

Application Link Enabling (ALE) is a mechanism for the exchange of business data between loosely-coupled R/3 applications built by customers of SAP, the enterprise resource management program. ALE provides SAP customers with a program distribution model and technology that enables them to interconnect programs across various platforms and systems. There are three layers in the ALE system: application services, distribution services, and communication services. The vehicle for data transfer is called an *IDoc* (*intermediate document*), which is a container for the application data to be transmitted. After a user performs an SAP transaction, one or more IDocs are generated in the sending database and passed to the ALE communication layer. The communication layer performs a Remote Function Call (RFC), using the port definition and RFC destination specified by the customer model. The IDoc is transmitted to the receiver, which may be an R/3, R/2, or some external system. If the data is distributed from a master system, the same transaction performed by the sender will be performed by the receiving system, using the information contained in the IDoc. Changes made to fields in master data tables can be set to trigger distribution of the changes to slave systems, so that multiple database servers can update the same information simultaneously. IDocs carry information directly between SAP systems. In order to communicate with a non-SAP system, an IDoc is first transmitted to an intermediary system that translates the data to a format that will be understood by the receiver. Return data also passes through the translating system, where it is again encapsulated into an IDoc.

AltaVista

AltaVista is a popular search engine on the Web. In addition to full-text searches, AltaVista can also search graphic images and tell you who is linked to your own Web pages. AltaVista's search robot, known as Scooter, can look at and collect data from three million Web pages per day. Its indexer, Ni2, indexes one gigabyte of data per hour.

Alt.

"alt." is the prefix for any of the hundreds of "alternate" user-originated newsgroups that are part of Usenet. Like other newsgroups, each "alt." newsgroup is arranged in a hierarchy of topical discussion boards that you may read or post to. "alt" is one of many major newsgroups; others include: news, rec (recreation), comp (computers), and soc (social). The "alt" newsgroups are known (and used most frequently) for their alt.sex and related categories, but are also known for including a wide and inventive range of discussion topics. The easiest way to get access to newsgroups is through the Google Web site.

Amaya

Amaya is the Web browser that was developed by members of the World Wide Web Consortium (W3C) as a practical tool as well as a testing ground for W3C ideas.

Amaya includes an HTML editor as well as a viewer and can be downloaded freely from the W3C Web site for use in either Linux or Windows 95/NT/2000 operating system. Amaya is distributed as open source software, meaning that software developers are free to add to or modify its code and extend its capabilities. According to Web inventor and W3C Director Tim Berners-Lee, Amaya was developed because at the time no commercially available browser included editing capabilities. The idea was to develop the browser as a way to see why such capabilities hadn't been provided and perhaps help solve any problems that were in the way. Amaya also offers a testing platform for other W3C developments such as MathML, a user interface for creating complex mathematical expressions. Berners-Lee and staff members use Amaya as their primary browser. Here are some interesting features of Amaya: (1) A what-you-see-is-what-you-get (WYSIWYG) authoring interface similar to that of commercial products such as Microsoft's FrontPage and the ability to upload the pages to a server, (2) Support for the latest level of HTML, XHTML, (3) The ability to work on either the coded HTML view or the WYSIWYG source view of the page, (4) Special support for people with disabilities, (5) Assurance that the Web page you create will be properly constructed so that other tools will know what to expect when they work with your page, (6) Assistance in creating and viewing hypertext links, (7) The ability to display images in the Portable Network Graphics format, a more capable graphic format than the Graphics Interchange Format format that is also free from licensing requirements, (8) The ability to print the table of contents or the table of links in a document, (9) An application program interface (API) in C for adding new functions or modifying existing ones. Amaya is also used within the W3C to experiment with the Java API used in the Document Object Model (DOM), (10) Amaya is the client counterpart to the W3C's experimental Web server, *Jigsaw* (but you don't need Jigsaw to use Amaya).

Ananova
Ananova is a Web-oriented news service that features a computer-simulated animation of a woman newscaster, named "Ananova," who has been programmed to "read" newscasts to Web users. Described as "the world's first virtual newscaster," Ananova, the animation, is really a novel user interface to a Web service that allows users to receive customized news. Ananova can be requested to: (1) Read a two-minute newscast summary, (2) Read a customized newscast based on selected preferences, (3) Give you selected sports scores and weather information as it develops, (4) Alert you by e-mail when a story you're interested in becomes available and (5) Periodically scan a targeted group of Web sites and notify you of new changes. Ananova combines live Web newscasting from an animated "talking head" with intelligent agent service. The animation is described by her designers as 28 years old, 5 feet 8 inches tall, and with a "pleasant, quietly intelligent manner."

Anonymous e-mail

Anonymous e-mail is e-mail that has been directed to a recipient through a third-party server that does not identify the originator of the message.

Anonymous FTP
Using the Internet's File Transfer Protocol (FTP), anonymous FTP is a method for giving users access to files so that they don't need to identify themselves to the server. Using an FTP program or the FTP command interface, the user enters "anonymous" as a user ID. Usually, the password is defaulted or furnished by the FTP server. Anonymous FTP is a common way to get access to a server in order to view or download files that are publicly available. If someone tells you to use anonymous FTP and gives you the server name, just remember to use the word "anonymous" for your user ID. Usually, you can enter anything as a password.

Anonymizer
An anonymizer (sometimes called a *Web anonymizer*) is a privacy service that allows a user to visit Web sites without allowing anyone to gather information about which sites they visit and without allowing a visited Web site to gather information about them, such as their IP address. People use anonymizers for two reasons: to protect their privacy and/or to bypass blocking applications that would prevent access to Web sites or parts of sites that they want to visit. Among the services provided by Web anonymizing services are: IP address masking; disabling pop-up windows; and disabling profiling cookies, as well as sometimes collecting information about the people who are trying to create user profiles. In general, once the anonymizer software has been downloaded, the service is activated through clicking a button that appears on the user's toolbar. An anonymizer is usually a Web site that uses a proxy server to process each HTTP request: when the user requests a Web page (by clicking a hyperlink or typing a URL into their browser), the anonymizing server retrieves and displays the information using its own server, which the client has accessed. The remote server (where the requested Web page resides) receives information about the anonymizer server, in place of information about the user's computer. An anonymizer makes a user feel more secure on the Internet, but doesn't permit personalization, which means that the a site cannot tailor its content to suit the individual user, and the user must reenter personal identification repeatedly for sites or services that require that information. SafeWeb and the Anonymizer are the most commonly used such services. Lucent's Bell Labs has created its own version, called Lucent Personalized Web Assistant (LPWA), as have the Naval Research Labs, whose project was called *Onion Routing*. Both of these projects are now completed.

Antigen
Sybari's Antigen is antivirus software for Lotus Domino and Microsoft Exchange. AntiGen (with a capital G) is freeware developed by Fresh Software to detect the presence of Back Orifice on a machine running Microsoft Windows. AntiGen

removes Back Orifice and cleans up system changes that have been made, using a wizard interface. According to Fresh Software, AntiGen was the first application to offer protection from Back Orifice in 1998. These product names are apparently derived from the biological term, antigen, which is a foreign substance in the body that stimulates the production of an antibody (which fights disease).

Anti-replay protocol

The anti-replay protocol is part of the Internet Engineering Task Force (IETF) Internet Protocol Security (IPsec) standard. Anti-replay ensures IP packet-level security by making it impossible for a hacker to intercept message packets and insert changed packets into the data stream between a source computer and a destination computer. By detecting packets that match the sequence numbers of those that have already arrived, the anti-replay mechanism helps to ensure that invalid packets are discarded. Both of the main protocols in the IPSec standard, the Encapsulating Security Payload (ESP) and the Authentication Header (AH), use anti-replay protection. The anti-replay mechanism works by keeping track of the sequence numbers in packets as they arrive. Whether the mechanism is used at the receiving end depends upon a security level setting set by the receiver. When a security association has been established between a sender and a receiver, their counters are initialized at zero. The first packet sent will have a sequence number of 1, the second 2, and so on. Each time a packet is sent, the receiver verifies that the number is not that of a previously sent packet. When detection of a replayed packet occurs, the program sends an error message, discards the replayed packet, and logs the event - including in the log entry identifiers such as the date/time received, source address, destination address, and the sequence number.

Antiferromagnetically-coupled media

Pl. see AFC

Antidisintermediation

In commerce, antidisintermediation is a term used to describe the preservation of intermediary positions. Today's consumer can access goods or information on the Internet that traditionally required the assistance of an intermediary such as a retailer, travel agent, or banker. By cutting out the middleman (disintermediation), e-businesses are able to sell goods and services more quickly and efficiently, and for lower prices. Antidisintermediation measures are carried out through business incentives (or disincentives) and legal actions to ensure that intermediary positions are not eliminated. Since a good deal of profit is made by individuals or businesses serving as intermediaries between the primary source of a good or service and the consumer, intermediaries are using antidisintermediation measures to re-establish their niche in the changing economy.

Anycast

In Internet Protocol Version 6 (IPv6), anycast is communication between a single sender and the nearest of several receivers in a group. The term exists in contradistinction to multicast, communication between a single sender and multiple receivers, and unicast, communication between a single sender and a single receiver in a network. Anycasting is designed to let one host initiate the efficient updating of router tables for a group of hosts. IPv6 can determine which gateway host is closest and sends the packets to that host as though it were a unicast communication. In turn, that host can anycast to another host in the group until all routing tables are updated.

Apache

Apache is a freely available Web server that is distributed under an "open source" license. Version 2.0 runs on most UNIX-based operating systems (such as Linux, Solaris, Digital UNIX, and AIX), on other UNIX/POSIX-derived systems (such as Rhapsody, BeOS, and BS2000/OSD), on AmigaOS, and on Windows 2000. Apache complies with the newest level of the Hypertext Transport Protocol, HTTP 1.1. Free support is provided through a bug reporting system and several Usenet newsgroups. Several companies offer priced support.

Apps-on-tap

Apps-on-tap (short for "applications on tap") is computer industry jargon for application programs or other services (Hewlett-Packard calls them e-services) that are available online for businesses or consumers. ("On tap" is an idiomatic expression for "available.") The businesses that furnish apps-on-tap are called application service providers. The use of apps-on-tap is a form of outsourcing.

APIPA

Automatic Private IP Addressing (APIPA) is a feature of Windows-based operating systems (included in Windows 98, ME, 2000, and XP) that enables a computer to automatically assign itself an IP address when there is no Dynamic Host Configuration Protocol (DHCP) server available to perform that function. APIPA serves as a DHCP server failover mechanism and makes it easier to configure and support small local area networks (LANs). If no DHCP server is currently available (either because the server is temporarily down or because none exists on the network), the computer selects an IP address from a range of addresses (from 169.254.0.0 - 169.254.255.255) reserved by the Internet Assigned Numbers Authority (IANA) for that purpose. The client uses Address Resolution Protocol (ARP) to ensure that the chosen address is not already being used by another network computer. Once the computer has assigned itself an IP address, it can communicate over TCP/IP with other computers on the LAN that are either configured for APIPA or are manually set to the correct address range and a subnet mask value of 255.255.0.0. APIPA is enabled by default, but can be disabled in some cases. DHCP messages notify the user when they are switched between DHCP addressing and APIPA.

Appliance computing
Appliance computing is an Internet-based computing architecture where software applications reside on a Web server rather than on the end-user's workstation. The workstation, or appliance, is a thin client; it does not have a CD-ROM or floppy drive. The appliance typically has only an operating system and a connectivity program, such as a Web browser, which allows the appliance to connect to the server in order to access applications the end-user needs. The purpose of appliance computing is to make remote management easier and more cost effective

Application Link Enabling
Pl. see ALE

Application Server
An application server is a server program in a computer in a distributed network that provides the business logic for an application program. The application server is frequently viewed as part of a three-tier application, consisting of a graphical user interface (GUI) server, an application (business logic) server, and a database and transaction server. More descriptively, it can be viewed as dividing an application into:

- A first-tier, front-end, Web browser-based graphical user interface, usually at a personal computer or workstation
- A middle-tier business logic application or set of applications, possibly on a local area network or intranet server
- A third-tier, back-end, database and transaction server, sometimes on a mainframe or large server

Older, legacy application databases and transaction management applications are part of the back end or third tier. The application server is the middleman between browser-based front-ends and back-end databases and legacy systems. In many usages, the application server combines or works with a Web (Hypertext Transfer Protocol) server and is called a *Web application server*. The Web browser supports an easy-to-create HTML-based front-end for the user. The Web server provides several different ways to forward a request to an application server and to forward back a modified or new Web page to the user. These approaches include the Common Gateway Interface (CGI), FastCGI, Microsoft's Active Server Page, and the Java Server Page. In some cases, the Web application servers also support request "brokering" interfaces such as CORBA Internet Inter-ORB Protocol (IIOP).

Arachnotaxis
Arachnotaxis is the use of a table or structured list of URLs for Web sites (or words that hyperlink to Web sites) in order to help locate them. A structured bookmark list or a portal directory (such as the ones at Yahoo.com or SearchServiceWebManagent.com) exemplify arachnotaxis, a term derived from

Arachne, the weaver who in Greek legend was turned into a spider, and thence *arachnion*, a variation that meant the spider's web, and *taxis*, a Greek word for an orderly or systematic arrangement of items or terms, especially by classification. As a term, arachnotaxis could be considered a "serious" sniglet (a meaning in search of a term) until such time as its use is more widely adopted. Its inventor, Steve Gruenwald, first used the term in mid-1998, when he was searching for something to describe a taxonomy used to guide users to Web sites. (TechTarget sites use the term taxonomy to describe our catogorized lists of Web sites.) Also see arachniography, an independently-coined synonym.

Archie
Archie is a program that allows you to search the files of all the Internet FTP servers that offer anonymous FTP. Archie is actually an indexing spider that visits each anonymous FTP site, reads all the directory and file names, and then indexes them in one large index. A user can then query Archie, which checks the query against its index. To use Archie, you can Telnet to a server that you know has Archie on it and then enter Archie search commands. However, it's easier to use a forms interface on the Web called ArchiePlex. Archie has become less important with the growth of the World Wide Web. It is perhaps of most use for serious researchers who have already tried the Web's main search engines first or who already know that the topic of their search is likely to be found on FTP servers. Veronica is a program similar to Archie that indexes and searches the files on Gopher

Archive of Web sites
Pl. see Wayback Machine

ARQ
Automatic repeat request (ARQ) is a protocol for error control in data transmission. When the receiver detects an error in a packet, it automatically requests the transmitter to resend the packet. This process is repeated until the packet is error free or the error continues beyond a predetermined number of transmissions. ARQ is sometimes used with Global System for Mobile (GSM) communication to guarantee data integrity.

Auditor
In Web advertising, this usually means a third-party company that audits the number of visitors to or impression sent from a Web site during some time period. When you try to sell advertising, having a third-party auditor gives the prospect more confidence in your audience numbers.

AUP
An acceptable use policy (AUP) is a policy that a user must agree to follow in order to be provided with access to a network or to the Internet. It is common practice for many businesses and educational facilities to require that employees

or students sign an acceptable use policy before being granted a network ID. When you sign up with an Internet service provider (ISP), you will usually be presented with an AUP, which states that you agree to adhere to stipulations such as (1) Not using the service as part of violating any law (2) Not attempting to break the security of any computer network or user (3) Not posting commercial messages to Usenet groups without prior permission (4)Not attempting to send junk e-mail or spam to anyone who doesn't want to receive it (5)Not attempting to mail bomb a site with mass amounts of e-mail in order to flood their server (6)Users also typically agree to report any attempt to break into their accounts.

Authentication authorization and accounting
Pl see AAA

Automatic Private IP Addressing
Pl. see (APIPA)

Autofax
Autofax is the automatic (computer-initiated) sending of a facsimile (fax) message over a network in one of two ways: (1) to a receiving computer or fax machine that is always ready to receive and store or immediately print such transmissions or (2), in some cases, as an e-mail note. In the banking industry, autofax allows detailed statements to be sent to account holders on a daily, weekly, or monthly basis, or at any other interval the account holder might specify. The process does not require any action on the part of the account holder, other than to ensure that a fax machine, or a computer equipped with a fax program, is continuously online. The messages are transmitted by the bank with computer fax programs. This service can also be used for invoicing purposes, and for sending general reminders and newsletters on a periodic basis. E-mail autofax services allow small fax messages to be received as e-mail (if only plain text is involved) or as e-mail attachments (if images are involved). The user can select the file format if image attachments are used; the most common are TIFF and JPEG. Some e-mail fax services allow the transmission, as well as reception, of fax messages by the e-mail subscriber. This is done by uploading a text or image file to the service provider, who then sends the file to the ultimate destination as a fax message. Some e-mail autofax services send e-mail messages to dedicated fax machines. This option is useful for people who don't have a computer that is continuously online to receive e-mail. It can also be useful for people in remote locations where a fax machine is available but a computer is not.

Autonomous System
On the Internet, an autonomous system (AS) is the unit of router policy, either a single network or a group of network that is controlled by a common network administrator (or group of administrators) on behalf of a single administrative entity (such as a university, a business enterprise, or a business division). An autonomous

system is also sometimes referred to as a routing <u>domain</u>. An autonomous system is assigned a globally unique number, sometimes called an Autonomous System Number (ASN). Networks within an autonomous system communicate routing information to each other using an Interior Gateway Protocol (<u>Interior Gateway Protocol</u>). An autonomous system shares routing information with other autonomous systems using the Border Gateway Protocol (<u>Border Gateway Protocol</u>). Previously, the Exterior Gateway Protocol (<u>Exterior Gateway Protocol</u>) was used. In the future, the BGP is expected to be replaced with the <u>OSI</u> Inter-Domain Routing Protocol (IDRP). The Internet's protocol guideline for autonomous systems, after offering a definition similar to the one above, provides a more technical definition as follows: An AS is a connected group of one or more <u>Internet Protocol</u> prefixes run by one or more network operators which has a SINGLE and CLEARLY DEFINED routing policy.

Avatar

In <u>3D</u> or <u>virtual reality</u> games and in some chat forums on the Web, your avatar is the visual "handle" or display appearance you use to represent yourself. On Worlds Chat and similar sites, you can be a unicorn, a bluebird, or any kind of creature or object that seems right. In the Hindu religion, an avatar is an incarnation of a deity; hence, an embodiment or manifestation of an idea or greater reality.

B Channel

In the Integrated Services Digital Network (ISDN), the B-channel is the channel that carries the main data. (The "B" stands for "bearer" channel.) In ISDN, there are two levels of service: the Basic Rate Interface (BRI) , intended for the home and small enterprise, and the Primary Rate Interface, for larger users. Both rates include a number of B- (bearer) channels and a D-channel. The B-channels carry data, voice, and other services. The D-channel carries control and signaling information. The Basic Rate Interface (BRI) consists of two 64 Kbps B-channels and one 16 Kbps D-channel. Thus, a Basic Rate Interface user can have up to 128 Kbps service. The Primary Rate Interface consists of 23 B-channels and one 64 Kpbs D-channel in the United States or 30 B-channels and 1 D-channel in Europe.

B2B

On the Internet, B2B (business-to-business), also known as e-biz, is the exchange of products, services, or information between businesses rather than between businesses and consumers. Although early interest centered on the growth of retailing on the Internet (sometimes called e-tailing), forecasts are that B2B revenue will far exceed business-to-consumers (B2C) revenue in the near future. The volume of investment in B2B by venture capitalists was reported to be accelerating sharply although profitable B2B sites were not yet easy to find. B2B Web sites can be sorted into:

Company Web sites, since the target audience for many company Web sites is other companies and their employees. Company sites can be thought of as round-the-clock mini-trade exhibits. Sometimes a company Web site serves as the entrance to an exclusive extranet available only to customers or registered site users. Some company Web sites sell directly from the site, effectively e-tailing to other businesses.

Product supply and procurement exchanges, where a company purchasing agent can shop for supplies from vendors, request proposals, and, in some cases, bid to make a purchase at a desired price. Sometimes referred to as e-procurement sites, some serve a range of industries and others focus on a niche market.

Specialized or vertical industry portals which provide a "subWeb" of information, product listings, discussion groups, and other features. These vertical portal sites have a broader purpose than the procurement sites (although they may also support buying and selling).

Brokering sites that act as an intermediary between someone wanting a product or service and potential providers. Equipment leasing is an example.

Information sites (sometimes known as infomediary), which provide information about a particular industry for its companies and their employees. These include specialized search sites and trade and industry standards organization sites. Many

B2B sites may seem to fall into more than one of these groups. Models for B2B sites are still evolving. Another type of B2B enterprise is software for building B2B Web sites, including site building tools and templates, database, and methodologies as well as transaction software. B2B is e-commerce between businesses. An earlier and much more limited kind of online B2B prior to the Internet was Electronic Data Interchange (EDI), which is still widely used.

B2C
B2C is short for *business-to-consumer*, or the retailing part of e-commerce on the Internet. It is often contrasted to B2B or *business-to-business*.

B2E
B2E is business-to-employee, an approach in which the focus of business is the employee, rather than the consumer (as it is in business-to-consumer, or B2C) or other businesses (as it is in business-to-business, or B2B). The B2E approach grew out of the ongoing shortage of information technology (IT) workers. In a broad sense, B2E encompasses everything that businesses do to attract and retain well-qualified staff in a competitive market, such as aggressive recruiting tactics, benefits, education opportunities, flexible hours, bonuses, and employee empowerment strategies. More specifically, the term "B2E" is frequently used to refer to the B2E portal (sometimes called a *people portal*, which is a customized home page or desktop for everyone within an organization. The B2E portal is sometimes considered to be synonymous with an intranet, but it differs in its focus on the employee's desires. The intranet's focus is the organization; the B2E portal focus is the individual. The B2E portal is designed to include not only everything that an employee might hope to find on an intranet (such as a corporate directory, or customer support information), but also any personal information and links that the employee might want (such as stocks information, or even games). The intention is to increase not only efficiency, but also employee satisfaction and a sense of community within the organization. A B2E portal has three distinguishing characteristics: (1) A single point of entry: one URL for everyone within an organization (2) A mixture of organization-specific and employee-defined components (3)The potential to be highly customized and easily altered to suit the particular employee. Corporations may develop their own portals or they may rely on the services of any of the large and growing number of B2E portal developers

B2G
On the Internet, B2G is business-to-government (a variation of the term B2B or business-to-business), the concept that businesses and government agencies can use central Web sites to exchange information and do business with each other more efficiently than they usually can off the Web. For example, a Web site offering B2G services could provide businesses with a single place to locate applications and tax forms for one or more levels of goverment (city, state or province, country, and so forth); provide the ability to send in filled-out forms and payments; update corporate information; request answers to specific questions; and so forth. B2G may

also include e-procurement services, in which businesses learn about the purchasing needs of agencies and agencies request proposal responses. B2G may also support the idea of a virtual workplace in which a business and an agency could coordinate the work on a contracted project by sharing a common site to coordinate online meetings, review plans, and manage progress. B2G may also include the rental of online applications and databases designed especially for use by government agencies.

Backlink

In Hyper-G and possibly other hypertext systems, a backlink is a link back to the page or one of the pages that currently link to the page you're using. Backlinks are already supported to some extent in the present Web system. Using JavaScript or a similar technique, you can add a button to your page that, when clicked, results in a request to the Alta Vista search engine to locate all the Web sites that link to your page (that is, to your home page backlinks). Incidentally, you don't have to create a button or put this information on a page. You may just want to find out how many people on the Web have linked to your home page.

BBS

A bulletin board system (BBS), is a computer that can be reached by computer modem dialing (and, in some cases, by Telnet) for the purpose of sharing or exchanging messages or other files. Some BBS's are devoted to specific interests; others offer a more general service. The definitive *BBS List* says that there are 40,000 BBS's world-wide. Among special interests represented on BBS's are dentistry, law, guns, multi-player games, Druidic practices, and information for the disabled. A significant number of BBS sites offer "adult-oriented" chat and images that can be downloaded. Many BBS's are free; some charge a membership or use fee. Essentially, a bulletin board system is a host computer that is accessible by dial-up phone (you need to know the phone number) or, at some sites, via Telnet. Since calling a bulletin board system can involve long-distance charges, you may want to try starting with some in your area. Bulletin board systems originated and generally operate independently of the Internet. However, many BBS's have Web sites. And many Internet access providers have bulletin board systems from which new Internet users can download the necessary software to get connected. BBS's have their own culture and jargon. A sysop is the person who runs the site (many BBS's are on small home computers that have simply added the necessary software to keep track of files and users). Many BBS users chat online (see chat acronyms).

Bcc

In Eudora and perhaps other e-mail facilities, you'll see the abbreviations "Fcc" and "Bcc". "Fcc" is the same as "cc" or carbon copy - that is, send a copy of the message to the address you fill in. "Bcc" stands for "Blind carbon copy" which says:

send a copy to another address...but in this case, don't indicate to the Fcc recipient that you also sent this copy

Bandwidth Test
A bandwidth test is a program that sends one or more files of known size over a network to a distant computer (for example, your own computer), measures the time required for the file(s) to successfully download at the destination, and thereby obtains a theoretical figure for the data speed between two or more points, usually in kilobits per second (Kbps) or megabits per second (Mbps). Bandwidth test results vary greatly, even from moment to moment, and occasionally produce absurd or improbable figures. Factors that affect test results include:
- Internet traffic (speed generally decreases as volume increases)
- Variable propagation delays (can artificially inflate or degrade the result)
- Noise on data lines (has a real detrimental effect)
- The size(s) of file(s) used for the test
- The number of files used for the test
- The demand load on the test server at time of test
- Geomagnetic and/or thunderstorm activity

In order to get a reasonable estimate of bandwidth (sometimes referred to as throughput), experts suggest that three or more different test sites be used, and that each test be conducted six times at each site. Then the top and bottom 1/3 of the figures should be disregarded. Finally, the middle 1/3 of the results should be averaged.

Basic Rate Interface
Pl. see B Channel

Bearer Independent Call Control
Pl. see BICC

BGP
BGP (Border Gateway Protocol) is a protocol for exchanging routing information between gateway hosts (each with its own router) in a network of autonomous systems. BGP is often the protocol used between gateway hosts on the Internet. The routing table contains a list of known routers, the addresses they can reach, and a cost metric associated with the path to each router so that the best available route is chosen. Hosts using BGP communicate using the Transmission Control Protocol (TCP) and send updated router table information only when one host has detected a change. Only the affected part of the routing table is sent. BGP-4, the latest version, lets administrators configure cost metrics based on policy statements. (BGP-4 is sometimes called BGP4, without the hyphen.) BGP communicates with autonomous (local) networks using Internal BGP (IBGP) since it doesn't work well with IGP. The routers inside the autonomous network thus maintain two routing

tables: one for the interior gateway protocol and one for IBGP. BGP-4 makes it easy to use Classless Inter-Domain Routing (CIDR), which is a way to have more addresses within the network than with the current IP address assignment scheme. BGP is a more recent protocol than the Exterior Gateway Protocol (EGP).

Also see the Interior Gateway Protocol (IGP) and the Open Shortest Path First (OSPF) interior gateway protocol.

BICC

Bearer Independent Call Control (BICC) is a signaling protocol based on N-ISUP that is used to support narrowband ISDN service over a broadband backbone network without interfering with interfaces to the existing network and end-to-end services. Specified by the International Telecommunications Union - Telecommunications Standardization Sector (ITU-T) in recommendation Q.1901, BICC was designed to be fully compatible with existing networks and any system capable of carrying voice messages. BICC supports narrowband ISDN services independently of bearer and signaling message transport technology. ISUP messages carry both call control and bearer control information, identifying the physical bearer circuit by a Circuit Identification Code (CIC). However, CIC is specific to time-division multiplexed (TDM) networks. BICC was developed to be interoperable with any type of bearer, such as those based on asynchronous transfer mode (ATM) and Internet Protocol (IP) technologies, as well as TDM. BICC separates call control and bearer connection control, transporting BICC signaling independently of bearer control signaling. The actual bearer transport used is transparent to the BICC signaling protocol - BICC has no knowledge of the specific bearer technology, which is referenced in the binding information. The ITU announced the completion of the second set of BICC protocols (BICC Capability Set 2, or CS 2) in July 2001; these are expected to help move networks from the current model - which is based on public-switching systems - to a server-based model. The BICC deployment architecture comprises a server, proxy, and a media gateway to support the current services over networks based on circuit-switched, ATM, and Internet Protocol (IP) technologies, including third-generation wireless. According to ITU spokesman Yukio Hiramatsu, the completion of the BICC protocols is an historic step toward broadband multimedia networks, because it will enable the seamless migration of circuit-switched TDM networks to high-capacity broadband multimedia networks. The Third Generation Partnership Project (3GPP) has included BICC CS 2 in the Universal Mobile Telecommunications Service (UMTS) release 4. Among the future ITU-T plans for BICC are the inclusion of more advanced service support and more utilization of proxies, such as the Session Initiation Protocol (SIP) proxy.

Bis

The word (also used as a prefix or suffix) *bis*, applied to some modem protocol standards, is Old Latin for "repeat" (akin to Old High German "twice"). When a protocol ends with "bis," it means that it's the second version of that protocol. Similarly, *ter* is from Old Latin meaning "three times." The suffix *terbo* in the V.xx

modem protocol is an invented word based on the Old Latin *ter* and the word *turbo* (Latin for "whirling top" or "whirlwind") meaning "speed." V.32terbo is the third version developed of the V.32 modem protocol.

Black Hat

Black hat is used to describe a hacker (or, if you prefer, cracker) who breaks into a computer system or network with malicious intent. Unlike a white hat hacker, the black hat hacker takes advantage of the break-in, perhaps destroying files or stealing data for some future purpose. The black hat hacker may also make the exploit known to other hackers and/or the public without notifying the victim. This gives others the opportunity to exploit the vulnerability before the organization is able to secure it. The term comes from old Western movies, where heros often wore white hats and the "bad guys" wore black hats.

Blade Server

A blade server is a thin, modular electronic circuit board, containing one, two, or more microprocessors and memory, that is intended for a single, dedicated application (such as serving Web pages) and that can be easily inserted into a space-saving rack with many similar servers. One product offering, for example, makes it possible to install up to 280 blade server modules vertically in multiple racks or rows of a single floor-standing cabinet. Blade servers, which share a common high-speed bus, are designed to create less heat and thus save energy costs as well as space. Large data centers and Internet service providers (ISPs) that host Web sites are among companies most likely to buy blade servers. A blade server is sometimes referred to as a *high-density server* and is typically used in a clustering of servers that are dedicated to a single task, such as:

- file sharing - Web page serving and caching
- SSL encrypting of Web communication
- transcoding of Web page content for smaller displays Streaming audio and video content Like most clustering applications, blade servers can also be managed to include load balancing and failover capabilities. A blade server usually comes with an operating system and the application program to which it is dedicated already on the board. Individual blade servers are usually hot-pluggable and come in various heights, including 5.25 inches (the 3U model), 1.75 inches (1U), and possibly "sub-U" sizes. (A U is a standard measure of vertical height in an equipment cabinet and is equal to 1.75 inches.)
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Blind Carbon Copy

Pl. see Bcc

Blog

On a Web site, a blog, a short form of *Web log* or *weblog*, is a personal journal that is frequently updated and intended for general public consumption. Blogs generally

represent the personality of the author or the Web site and its purpose. Topics sometimes include brief philosophical musings, commentary on Internet and other social issues, and links to other sites the author favors. The essential characteristics of the blog are its journal form, typically a new entry each day, and its informal style. The author of a blog is often referred to as a blogger. People who post new journal entries to their blog may often say they blogged today, they blogged it to their site, or that they still have to blog.

Blogging
Pl. see Blog

Board
In computers, a board, depending on usage, can be short for motherboard, the physical arrangement of a computer's basic components and circuitry, or it can refer to an expansion board (or *card* or *adapter*), which fits into one of the computer's expansion slots and provides expanded capability.

Bookmark
Using a World Wide Web browser, a bookmark is a saved link to a Web page that has been added to a list of saved links. When you are looking at a particular Web site or home page and want to be able to quickly get back to it later, you can create a bookmark for it. You can think of your browser as a book full of (millions of) Web pages and a few well-placed bookmarks that you have chosen. The list that contains your bookmarks is the "bookmark list" (and sometimes it's called a "hotlist.") Netscape and some other browsers use the bookmark idea. Microsoft's Internet Explorer uses the term "favorite."

Bookmark Portal
A bookmark portal is a free application service provider (ASP) Web site that allows registered users to save "bookmark" (Netscape) or "favorite" (Internet Explorer) Web links so that they can be accessed at any time from any Internet-connected device. With a bookmark portal, it is not necessary to transfer bookmarks from browser to browser or from machine to machine; instead, the user simply logs on to the ASP's Web site to access their bookmarks. Many bookmark sites give users the option of creating a "personal web portal" where it is possible to manage multiple e-mail accounts and calendars, share files as well as bookmarks, and synchronize personal digital assistant (PDA) devices remotely.

Bookmark Management Site
A bookmark portal is a free application service provider (ASP) Web site that allows registered users to save "bookmark" (Netscape) or "favorite" (Internet Explorer) Web links so that they can be accessed at any time from any Internet-connected device. With a bookmark portal, it is not necessary to transfer bookmarks from browser to browser or from machine to machine; instead, the user simply logs on to the ASP's Web site to access their bookmarks. Many bookmark sites give users the option of

creating a "personal web portal" where it is possible to manage multiple e-mail accounts and calendars, share files as well as bookmarks, and synchronize personal digital assistant (PDA) devices remotely.

Bolt-on
On the Internet, bolt-on, perhaps inspired by add-on, is used to describe products and systems that can be quickly but securely attached to an existing Web site. The term most often describes some e-commerce solution for adding an online store to a Web site. A "bolt-on e-commerce solution" typically allows a Web site owner to create customized Web catalog pages, using a furnished template that includes a shopping cart approach for multiple item orders, and to have these pages hosted at the solution provider's server, where orders can be taken and reported to the Web site. Solution packages typically include the handling of credit-card applications and credit checking.

Bot
A bot (short for "robot") is a program that operates as an agent for a user or another program or simulates a human activity. On the Internet, the most ubiquitous bots are the programs, also called spiders or crawlers, that access Web sites and gather their content for search engine indexes. A chatterbot is a program that can simulate talk with a human being. One of the first and most famous chatterbots (prior to the Web) was Eliza, a program that pretended to be a psychotherapist and answered questions with other questions. Red and Andrette were names of two early programs that could be customized to answer questions from users seeking service for a product. Such a program is sometimes called a *virtual representative* or a *virtual service agent*. A *shopbot* is a program that shops around the Web on your behalf and locates the best price for a product you're looking for. There are also bots such as OpenSesame that observe a user's patterns in navigating a Web site and customize the site for that user. A knowbot is a program that collects knowledge for a user by automatically visiting Internet sites and gathering information that meets certain specified criteria.

Bounce e-mail
Bounce e-mail (sometimes referred to as *bounce mail*) is electronic mail that is returned to the sender because it cannot be delivered for some reason. Unless otherwise arranged, bounce e-mail usually appears as a new note in your inbox. There are two kinds of bounce e-mail: hard bounce and soft bounce. Hard bounce e-mail is permanently bounced back to the sender because the address is invalid. Soft bounce e-mail is recognized by the recipient's mail server but is returned to the sender because the recipient's mailbox is full, the mail server is temporarily unavailable, or the recipient no longer has an e-mail account at that address. Bounce e-mail can be handled by a program when sending e-mail to a distribution list and most e-mail distribution list vendors include this capability. Such a bounce handler can retry later, unsubscribe the addressee from the list, or take some other action. Some products and individuals have developed bounce e-mail

handlers that recognize spam messages and return a bounce message so that the recipient will be taken off the list. Some products and users use the term *bounce* to mean "forward a received note to someone else."

Border Gateway Protocol
Pl. See BGP

Braille-ready file
A Braille-ready file is a data file in a special format that can be read on a Braille display or transmitted to a Braille embosser. Braille-ready files typically have the extension .brf. The Braille codes in Braille-ready files allow blind people to read electronic documents from computer disks or from the Internet. When read or downloaded from the Internet, Braille-ready files are called Web-Braille. Braille-ready files generally contain 25 lines per page, with each line holding up to 39 characters. A single printed page translates into several Braille pages; the exact ratio depends on the nature of the document. Mathematical expressions and symbols, as well as graphics, can be converted into words before being translated into Braille-ready files. Complex mathematical documents have the highest Braille-to-text page conversion ratios. Several thousand Web-Braille books are available for downloading from the National Library Service (NLS) in the U.S. About 40 new books are published online in this format every month. The NLS Web-Braille material is available only to citizens or residents of the United States, or to qualified institutions.

BRI
Pl. see B Channel

Bricks and mortar
Bricks and mortar refers to businesses that have physical (rather than virtual or online) presences - in other words, stores (built of physical material such as bricks and mortar) that you can drive to and enter physically to see, touch, and purchase merchandise. This term is used as the basis for the term clicks and mortar, a business that sells products and services on the Web as well as from physical locations. In an ongoing trend, large businesses that existed before the invention of the Web (and were therefore bricks and mortar businesses) are becoming clicks and mortar businesses. Companies like Amazon.com and others that have never owned a bricks and mortar storefront are generally known as dotcom companies.

Browser
A browser is an application program that provides a way to look at and interact with all the information on the World Wide Web. The word "browser" seems to have originated prior to the Web as a generic term for user interfaces that let you browse (navigate through and read) text files online. By the time the first Web browser with a graphical user interface was generally available (Mosaic, in 1993), the term seemed to apply to Web content, too. Technically, a Web browser is a client

program that uses the Hypertext Transfer Protocol (HTTP) to make requests of Web servers throughout the Internet on behalf of the browser user. A commercial version of the original browser, Mosaic, is in use. Many of the user interface features in Mosaic, however, went into the first widely-used browser, Netscape Navigator. Microsoft followed with its Microsoft Internet Explorer. Today, these two browsers are the only two browsers that the vast majority of Internet users are aware of. Although the online services, such as America Online, originally had their own browsers, virtually all now offer the Netscape or Microsoft browser. Lynx is a text-only browser for UNIX shell and VMS users. Another recently offered and well-regarded browser is Opera. While some browsers also support e-mail (indirectly through e-mail Web sites) and the File Transfer Protocol (FTP), a Web browser is not required for those Internet protocols and more specialized client programs are more popular.

Brochureware

Brochureware refers to Web sites or pages that are produced by taking an organization's printed brochure and translating it directly to the Web without regard for the possibilities of the new medium. In extreme cases, all the copy in the brochure will be used as-is and visual images will be copied as well. The result will almost always be static and uninteresting. Web designers usually suggest making a fresh start, using existing printed material as possible source material. While a Web site can be thought of as an "online brochure," most designers suggest taking advantage of the Web's interactive and dynamic capabilities, including hypertext, built-in programming, and streaming video.

BTP

The Business Transaction Protocol (BTP) is an XML-based protocol being developed by the Business Transactions Technical Committee (BT TC) of the Organization for the Advancement of Structured Information Standards (OASIS) as a standardized Internet-based means of managing complex, ongoing business-to-business (B2B) transactions among multiple organizations. The protocol is intended to be especially useful in a Web services environment. The BT TC criteria specify that the new protocol work in conjunction with current business messaging standards, especially those in development by the ebXML Initiative. BTP can be layered over any transport technology, such as the Simple Object Access Protocol (SOAP), RosettaNet, or ebXML messaging. A major challenge of B2B development has been the problem of how to coordinate the information systems of separate businesses -- which typically use different business practices, equipment, and technologies -- so that they can communicate effectively. One way to side-step this problem is to establish mechanisms that are not specific to existing technologies. BTP works independently of transport protocols and messaging frameworks. Complex XML message exchanges among multiple businesses are tracked and managed as ongoing, loosely coupled 'conversations.' BTP defines the roles that a business' software agents (called *actors*) may perform, the messages that will be

exchanged by those actors, and the responsibilities of the actors in those defined roles. According to the technical committee, because BTP is based on a "permissive and minimal" approach, it avoids dependencies on other standards and constraints on implementation choices. BEA Systems, a prominent vendor of e-Business products, submitted an initial proposal for BTP to OASIS in early 2001 and the Committee released a pre-final draft of the specifications in October 2001. **BYE packet** A BYE (or *Goodbye*) packet is a type of Real- Time Transport Control Protocol (RTCP) packet that is sent when a participant in a multicast event leaves the session. Along with the media data transmitted, RTCP packets are periodically sent to each participant in a multicast session. These contain information related to quality of service (QoS), information about the data source, and so on. When a source is no longer active, it sends a BYE packet, which reports that the source has left the session and, optionally, the reason for leaving.

Buddy list

In instant messaging (IM) applications on a personal computer (PC), or on a cellular telephone with text display, a buddy list is a list of people a user wants to keep track of. A buddy list can be used to see who is offline, who is online, who is online but away from their computer, who has their phone turned off, who has their phone turned on, or who is currently talking on their phone. When the user launches their instant messaging application, it connects to the instant messaging server, logs the user on, and displays the screen names of people the user has put on their buddy list. The server checks the user's buddy list and visually lets the user know which buddies are available for messaging. At the same time, the server updates the buddy lists of the user's buddies to indicate that the user is currently available for messaging. With some instant messaging applications, it's possible to store a message on the instant messaging server temporarily if a buddy is unavailable, so that when the buddy does become available, the message will be sent.

Bulletin Board System

Pl. see BBS

Business Information Warehouse

Business Information Warehouse (sometimes shortened to "Business Warehouse" or BW) is a packaged, comprehensive business intelligence product centered around a data warehouse that is optimized for (but not limited to) the R/3 environment from SAP. Like most data warehouses, BW is a combination of databases and database management tools that are used to support management decision making. BW supplies the infrastructure typical of data warehouses, but also includes preconfigured data extractors, analysis and report tools, and business process models. Among the other features of BW are: Business Application Programming Interfaces (BAPIs) that enable connections to non-R/3 applications; preconfigured business content; an integrated OLAP processor; automated data extraction and loading routines; a metadata repository; administrative tools; multiple

language support; and Business Explorer, a Web-based user interface. SAP Business Warehouse is an integral component of the company's <u>mySAP</u> Business Intelligence group of products.

Business Warehouse

Business-to-Business
Pl. see B2B

BW
Pl. see Business Information Warehouse

Cable head-end

A cable head-end is the facility at a local cable TV office that originates and communicates cable TV services and cable modem services to subscribers. In distributing cable television services, the head-end includes a satellite dish antenna for receiving incoming programming. This programming is then passed on to the subscriber. (Cable TV companies may also play videotapes and originate live programming.) Normally, all signals are those that are sent downstream to the subscriber, but some are received upstream such as when a customer requests a pay-per-view program. When a cable company provides Internet access to subscribers, the head-end includes the computer system and databases needed to provide Internet access. The most important component located at the head-end is the Cable Modem Termination System (CMTS), which sends and receives digital cable modem signals on a cable network and is necessary for providing Internet services to cable subscribers.

Cache

A cache (pronounced CASH) is a place to store something temporarily. The files you automatically request by looking at a Web page are stored on your hard disk in a cache subdirectory under the directory for your browser (for example, Internet Explorer). When you return to a page you've recently looked at, the browser can get it from the cache rather than the original server, saving you time and the network the burden of some additional traffic. You can usually vary the size of your cache, depending on your particular browser. Computers include caches at several levels of operation, including cache memory and a disk cache. Caching can also be implemented for Internet content by distributing it to multiple servers that are periodically refreshed. (The use of the term in this context is closely related to the general concept of a distributed information base.) Altogether, we are aware of these types of caches:

- International, national, regional, organizational and other "macro" caches to which highly popular information can be distributed and periodically updated and from which most users would obtain information.
- Local server caches (for example, corporate LAN servers or access provider servers that cache frequently accessed files). This is similar to the previous idea, except that the decision of what data to cache may be entirely local.
- Web browser's cache, which contains the most recent Web files that you have downloaded and which is phyically located on your hard disk (and possibly some of the following caches at any moment in time)
- A disk cache (either a reserved area of RAM or a special hard disk cache) where a copy of the most recently accessed data and adjacent (most likely to be

accessed) data is stored for fast access. RAM itself, which can be viewed as a cache for data that is initially loaded in from the hard disk (or other I/O storage systems).

- L2 <u>cache memory</u>, which is on a separate chip from the microprocessor but faster to access than regular RAM.
- L1 cache memory on the same chip as the microprocessor.

Another type of temporary data place is called <u>buffer</u>, the primary purpose of which is coordinating communication between programs or hardware rather than improving process speed.

Cancelbot
A cancelbot is a program or <u>bot</u> (robot) that sends a message to one or more <u>Usenet</u> newsgroups to cancel (remove from posting) a certain type of message. It searches for messages matching a certain pattern, whether it be a duplicate message or offensive material, and sends out cancels for them. When a message has been canceled, its status is changed to "cancel," and the Usenet servers will no longer post them. Some Usenet users consider cancelbots a form of censorship. Many Usenet newsgroup administrators, however, believe that they have a right to cancel material they consider to be offensive or unwanted, such as <u>spam</u> (bulk mail). Anyone with authority to send a cancelbot has to be careful to make sure that they don't cancel more messages than they intended to.

Capture board
Pl. see whiteboard.

Cascading style sheet
Pl. see CSS

Carbon copy
In <u>e-mail</u>, a carbon copy (abbreviated "cc," and sometimes "fcc" for "first carbon copy") is a copy of a note sent to an addressee other than the main addressee. A blind carbon copy is a copy sent to an addressee that is not visible to the main and carbon copy addressees. For example, you may have a work colleague that acts as a back-up when you're on vacation or not at work. You don't necessarily want the people you correspond with to know that you have a back-up. So, to keep your back-up informed, you always send the back-up a blind carbon copy. The fact that a blind carbon copy was sent is not apparent to the main and carbon copy recipients. The term is borrowed from the days of the mechanical and later the electronic typewriter (circa 1879-1979) when copies of typed sheets of paper were made by inserting a special sheet of inked paper called carbon paper into the typewriter. For two copies, you would insert carbon paper (sometimes just called a "carbon") between the original being typed and each of the two sheets that would become the carbon copies.

CFML

CFML (ColdFusion Markup Language) is a Web page markup language that allows a Web site developer to create pages with variable information (text or graphics) that is filled in dynamically (on the fly) in response to variables such as user input. Along with the usual Hypertext Markup Language (HTML) tags that determine page layout and appearance, the page creator uses CFML tags to bring in content based on the results of a database query or user input. CMFL is a proprietary language developed for use with ColdFusion, a product from Allaire. CFML tags perform all server-side tasks (such as database queries) by condensing complex processes, that would normally require knowledge of programming languages such as Java or C++, into four basic tags: CFQUERY, which is used to submit a structured query language (SQL) request to the database; CFOUTPUT, which is used to display the result of a query; and CFTABLE or CFCOL, which are used to display a preformatted table containing the results of a set of queries. Files created with CFML are saved as ColdFusion templates and use a ".cfm" extension.

CGI

The common gateway interface (CGI) is a standard way for a Web server to pass a Web user's request to an application program and to receive data back to forward to the user. When the user requests a Web page (for example, by clicking on a highlighted word or entering a Web site address), the server sends back the requested page. However, when a user fills out a form on a Web page and sends it in, it usually needs to be processed by an application program. The Web server typically passes the form information to a small application program that processes the data and may send back a confirmation message. This method or convention for passing data back and forth between the server and the application is called the common gateway interface (CGI). It is part of the Web's Hypertext Transfer Protocol (HTTP). If you are creating a Web site and want a CGI application to get control, you specify the name of the application in the uniform resource locator (URL) that you code in an HTML file. This URL can be specified as part of the FORMS tags if you are creating a form. For example, you might code: FORM METHOD=POST ACTION=http://www.mybiz.com/cgi-bin/formprog.pl and the server at "mybiz.com" would pass control to the CGI application called "formprog.pl" to record the entered data and return a confirmation message. (The ".pl" indicates a program written in Perl but other languages could have been used.) The common gateway interface provides a consistent way for data to be passed from the user's request to the application program and back to the user. This means that the person who writes the application program can makes sure it gets used no matter which operating system the server uses (PC, Macintosh, UNIX, OS/390, or others). It's simply a basic way for information to be passed from the Web server about your request to the application program and back again. Because the interface is consistent, a programmer can write a CGI application in a number of different languages. The most popular languages for CGI applications are: C, C++, Java, and Perl. An

alternative to a CGI application is Microsoft's <u>Active Server Page</u> (ASP), in which a <u>script</u> embedded in a Web page is executed at the server before the page is sent.

Chatting

On the Internet, chatting is talking to other people who are using the Internet at the same time you are. Usually, this "talking" is the exchange of typed-in messages requiring one site as the repository for the messages (or "chat site") and a group of users who take part from anywhere on the Internet. In some cases, a private chat can be arranged between two parties who meet initially in a group chat. Chats can be ongoing or scheduled for a particular time and duration. Most chats are focused on a particular topic of interest and some involve guest experts or famous people who "talk" to anyone joining the chat. (Transcripts of a chat can be archived for later reference.) Chats are conducted on online services (especially America Online), by bulletin board services, and by Web sites. Several Web sites, notably Talk City, exist solely for the purpose of conducting chats. Some chat sites such as Worlds Chat allow participants to assume the role or appearance of an <u>avatar</u> in a simulated or *virtual reality* environment. Talk City and many other chat sites use a protocol called <u>Internet Relay Chat</u>. A chat can also be conducted using sound or sound and video, assuming you have the bandwidth access and the appropriate programming.

Chat Room

A chat room is a Web site, part of a Web site, or part of an online service such as America Online, that provides a venue for communities of users with a common interest to communicate in real time. Forums and discussion groups, in comparison, allow users to post messages but don't have the capacity for interactive messaging. Most chat rooms don't require users to have any special software; those that do, such as Internet Relay Chat (<u>IRC</u>) allow users to download it from the Internet. Chat room users register for the chat room of their choice, choose a user name and password, and log into a particular room (most sites have multiple chat rooms). Inside the chat room, generally there is a list of the people currently online, who also are alerted that another person has entered the chat room. To chat, users type a message into a text box. The message is almost immediately visible in the larger communal message area and other users respond. Users can enter chat rooms and read messages without sending any, a practice known as <u>lurking</u>. Because chat room messages are spontaneous and instantly visible, there is a potential for abuse, which may or may not be intentional. Site hosts typically post a frequently asked questions (<u>FAQ</u>) list to guide users to appropriate chat room behavior, such as introducing yourself when you enter a room, making it clear when you are directing a question or response to a specific user, and reporting disruptive users, for example. Disruptive users may verbally abuse other chatters, monopolize the conversation, or even just disable it by repeatedly typing the same word or phrase into the conversation, a practice (much frowned upon) known as *scrolling*. Chat rooms can be found that focus on virtually any aspect of human endeavor or interest: there are current communities based on classic movies, Irish ancestry, baton twirling, and psychic readings, for example. Various sites, such as Yahoo, provide a directory of

chat sites. Others, such as MSN Web Communities, guide users through the steps required to create their own chat room.

CHTML

Compact HTML (CHTML or cHTML) is a subset of standard Hypertext Markup Language (HTML) adapted for use with small computing devices such as personal digital assistants (PDAs), cellular phones, and smartphones. Access Company Ltd., a Japanese company, developed Compact HTML for use with i-Mode devices. Because handheld devices have display constraints, and limited power, storage, and memory resources, Compact HTML was created as a stripped-down version of the standard, excluding support for the more demanding features of HTML pages, such as image maps, backgrounds, varieties of fonts, frames , style sheets, and JPEG images. Compact HTML includes support for GIF images, and uses four buttons for operation, rather than two-dimensional cursor movement. Scrolling is not featured, because it is assumed that pages properly designed will fit the screen. Because Compact HTML is based on the universally used standard, it will enable small devices to connect to the open Web, rather than merely a section of it. It is expected that, in the future, several different levels of Compact HTML will be developed to adapt to the requirements of different applications. Also see Wireless Markup Language (WML), a similar markup language used with the Wireless Application Protocol (WAP).

CIFS

Common Internet File System (CIFS) is a proposed standard protocol that lets programs make requests for files and services on remote computers on the Internet. CIFS uses the client/server programming model. A client program makes a request of a server program (usually in another computer) for access to a file or to pass a message to a program that runs in the server computer. The server takes the requested action and returns a response. CIFS is a public or open variation of the Server Message Block Protocol developed and used by Microsoft. The SMB Protocol is widely used in today's local area networks for server file access and printing. Like the SMB protocol, CIFS runs at a higher level than and uses the Internet's TCP/IP protocol. CIFS is viewed as a complement to the existing Internet application protocols such as the File Transfer Protocol (FTP) and the Hypertext Transfer Protocol (HTTP). CIFS lets you:

- Get access to files that are local to the server and read and write to them
- Share files with other clients using special locks
- Restore connections automatically in case of network failure
- Use Unicode file names

In general, CIFS gives the client user better control of files than the File Transfer Protocol. It provides a potentially more direct interface to server programs than currently available through the Web browser and its use of the HTTP protocol. CIFS is an Open Group standard, X/Open CAE Specification C209, and has been

proposed to the Internet Engineering Task Force (IETF) as an Internet application standard.

Click Rate

In Web advertising, the click rate is the number of clicks on an ad on an HTML page as a percentage of the number of times that the ad was downloaded with a page. Thus, the click rate on a particular page with an ad would be 10% if one in ten people who downloaded the page clicked on the ad.

Click Stream

In Web advertising, a click stream is the sequence of clicks or pages requested as a visitor explores a Web site.

Clickstream Analysis

On a Web site, clickstream analysis (sometimes called clickstream analytics) is the process of collecting, analyzing, and reporting aggregate data about which pages visitors visit in what order - which are the result of the succession of mouse clicks each visitor makes (that is, the clickstream). There are two levels of clickstream analysis, traffic analysis and e-commerce analysis. Traffic analysis operates at the server level by collecting clickstream data related to the path the user takes when navigating through the site. Traffic analysis tracks how many pages are served to the user, how long it takes pages to load, how often the user hits the browser's back or stop button, and how much data is transmitted before a user moves on. E-commerce-based analysis uses clickstream data to determine the effectiveness of the site as a channel-to-market by quantifying the user's behavior while on the Web site. It is used to keep track of what pages the user lingers on, what the user puts in or takes out of their shopping cart, and what items the user purchases. Because a large volume of data can be gathered through clickstream analysis, many e-businesses rely on pre-programmed applications to help interpret the data and generate reports on specific areas of interest. Clickstream analysis is considered to be most effective when used in conjunction with other, more traditional, market evaluation resources.

Clickthrough

Pl. See Advertising

Clickthrough Rate

Pl. see CTR

CMR

Pl. see customer-managed

CMS

A content management system (CMS) is a system used to manage the content of a Web site. Typically, a CMS consists of two elements: the content management application (CMA) and the content delivery application (CDA). The CMA element

allows the content manager or author, who may not know Hypertext Markup Language (HTML), to manage the creation, modification, and removal of content from a Web site without needing the expertise of a Webmaster. The CDA element uses and compiles that information to update the Web site. The features of a CMS system vary, but most include Web-based publishing, format management, revision control, and indexing, search, and retrieval. The Web-based publishing feature allows individuals to use a template or a set of templates approved by the organization, as well as wizards and other tools to create or modify Web content. The format management feature allows documents including legacy electronic documents and scanned paper documents to be formatted into HTML or Portable Document Format (PDF) for the Web site. The revision control feature allows content to be updated to a newer version or restored to a previous version. Revision control also tracks any changes made to files by individuals. An additional feature is indexing, search, and retrieval. A CMS system indexes all data within an organization. Individuals can then search for data using keywords, which the CMS system retrieves. A CMS system may also provide tools for one-to-one marketing. One-to-one marketing is the ability of a Web site to tailor its content and advertising to a user's specific characteristics using information provided by the user or gathered by the site (for example, a particular user's page sequence pattern). For example, if you visit a search engine and search for "digital camera," the advertising banners will advertise businesses that sell digital cameras instead of businesses that sell garden products. Two factors must be considered before an organization decides to invest in a CMS. First, an organization's size and geographic dispersion must be considered especially if an organization is spread out over several countries. For these organizations, the transition to CMS is more difficult. Secondly, the diversity of the electronic data forms used within an organization must be considered. If an organization uses text documents, graphics, video, audio, and diagrams to convey information, the content will be more difficult to manage.

Co-Browsing
Collaborative browsing (also known as *co-browsing*) is a software-enabled technique that allows someone in an enterprise contact center to interact with a customer by using the customer's Web browser to show them something. For example, a B2B customer having difficulty placing an order could call a customer service representative who could then show the customer how to use the ordering pages as though the customer were using their own mouse and keyboard. Collaborative browsing can include e-mail, fax, regular telephone, and Internet phone contact as part of an interaction. Effectively, collaborative browsing allows a company and a customer to "be on the same page."

Collaborative Browsing
Pl. see co-browsing

Cold Fusion

ColdFusion, developed by Allaire which has recently merged with Macromedia, is a popular and sophisticated set of products for building Web sites and serving pages to users. With ColdFusion, a company can build a content database using input templates and combine these with application programs to create a Web site in which pages are developed dynamically as they are served. ColdFusion consists of ColdFusion Studio, which is used to build a site, and ColdFusion Server, which serves the pages to users. ColdFusion Studio is described as "a complete integrated development environment (IDE)" and ColdFusion Server as "a deployment platform." The most valuable feature for many companies that use ColdFusion is the ability to build Web sites as "piece parts" that can be stored in a database and then reassembled for Web pages, e-mail newsletters, and other uses. ColdFusion provides a visual interface for building Web pages directly or for building the "piece parts." For example, a newspaper with a Web site can have a reporter enter a story, dateline, author, and other information, using a text entry form free of all Web page formatting and structure details or language tags. (The newspaper uses ColdFusion to design the forms and to define the database.) The content entered by the reporter is later gathered and formatted into a Web page when it is requested. The reporter is free from having to understand HTML and other details. ColdFusion is also a popular tool for building e-commerce sites. ColdFusion has its own page markup language, called ColdFusion Markup Language (CFML). CFML encompasses the Web's Hypertext Markup Language (HTML) and Extensible Markup Language (XML). A just-in-time (JIT) compiler turns the CFML into the pages that get served. Allaire emphasizes that their product set is open and "extensible". Applications can access databases using Microsoft's OLE DB, Open Database Connectivity (ODBC), or drivers that access Oracle and Sybase databases. ColdFusion can be coordinated with distributed applications that use Common Object Request Broker Architecture (CORBA) or Microsoft's Distributed Component Object Model (DCOM) to interact with other network applications. Allaire also says that ColdFusion is scalable, allowing both the size of a database and the number of users that can be served to grow. For large Web sites, multiple ColdFusion servers can be run together as a cluster.

Com

On the Internet, "com" is one of the top-level domain names that can be used when choosing a domain name. It generally describes the entity owning the domain name as a commercial organization. Along with the second-level domain name, the top-level domain name is required in Web and e-mail addresses. The Internet Corporation for Assigned Names and Numbers (ICANN) has overall responsibility for domain names (as well as for Internet Protocol addresses and many other Internet parameters). Day-to-day responsibility is delegated to specific registrars, such as Network Solutions and a number of competing companies for .com, .org, .net, and .edu top-level domains. Specific criteria are set forth for the use of the top-level domain name in RFC 1591 - Domain Name System Structure and Delegation. The top-level domain names administered by ICANN and its delegate agencies are:

com, edu, gov, int, mil, net, and org. In addition to these, domain name applicants within the United States may also be able to register a name under a U.S. top-level domain name based on geography. Top-level domain names for countries other than the United States are administered by each country and are based on the ISO-3166 list of country codes.

Common Gateway Interface
Pl. See CGI

Common Internet File System
Pl. See CIFS

Compact HTML
Compact HTML (CHTML or cHTML) is a subset of standard Hypertext Markup Language (HTML) adapted for use with small computing devices such as personal digital assistants (PDAs), cellular phones, and smartphones. Access Company Ltd., a Japanese company, developed Compact HTML for use with i-Mode devices. Because handheld devices have display constraints, and limited power, storage, and memory resources, Compact HTML was created as a stripped-down version of the standard, excluding support for the more demanding features of HTML pages, such as image maps, backgrounds, varieties of fonts, frames , style sheets, and JPEG images. Compact HTML includes support for GIF images, and uses four buttons for operation, rather than two-dimensional cursor movement. Scrolling is not featured, because it is assumed that pages properly designed will fit the screen. Because Compact HTML is based on the universally used standard, it will enable small devices to connect to the open Web, rather than merely a section of it. It is expected that, in the future, several different levels of Compact HTML will be developed to adapt to the requirements of different applications.

Computational grid
Pl. see Grid Computation

Computer-supported Cooperative Work Systems
Pl. see Synchronous groupware

Connectoid
A connectoid is a dial-up connection profile using the Microsoft Windows 95 or the Windows 98 operating system. The connection profiles allow a user to dial out (or really have the computer dial out) to a number of different Internet connection points such as Compuserve or a local Internet service provider (ISP). Any user that connects to an Internet provider can decrease logon time by specifying only those services and protocol that are necessary in the Server Type settings for your connectoid.

Connection

In telecommunication and computing in general, a connection is the successful completion of necessary arrangements so that two or more parties (for example, people or programs) can communicate at a long distance. In this usage, the term has a strong physical (hardware) connotation although logical (software) elements are usually involved as well. A dialup (sometimes called a switched) connection is a telephonic arrangement that is set up only when needed, using shared, circuit-switched communication lines (as in "plain old telephone service"). A dedicated (sometimes called a nonswitched) connection is a continuous, always available connection (familiar to users of Digital Subscriber Line or DSL service). A leased line is a line rented from a telephone company that provides dedicated connection between two points (such as a headquarters office and a manufacturing plant). In computer programming, a connection is the setting up of resources (such as computer memory and buffers) so that a particular object such as a database or file can be read or written to. Typically, a programmer encodes an OPEN or similar request to the operating system that ensures that system resources such as memory are set up, encodes READs and WRITES or similar requests, and then encodes a CLOSE when a connection is no longer needed so that the resources are returned to the system for other users. A closely related term is session, which is sometime used to distinguish the ability to communicate for some duration in a logical sense. In this usage, the connection is regarded as the physical setup and the session is regarded as the logical setup. A session could be terminated and the connection maintained with the expectation of a new session later.

Constellation

Constellation was the early name for the Communicator browser and related programs from Netscape Communications. It was intended to "make the information the interface," according to Netscape. Much as Windows lets a user set up a Web-oriented view of the computer desktop, Constellation (and later Communicator) created a view of user information objects and tasks in either a browser window or a full-screen display that includes both local objects and Web-located information. In the Constellation concept, the customized version of work objects in a window or a full-screen display was called a Homeport. The Homeport might display, for example, icons for your current work projects and documents, the latest news that has streamed in from news sources you have set up, and links back to the operating system interface. You could create multiple project views or desktops and switch back and forth. Netscape did not implement all of the Constellation ideas and ceased to use the name once Communicator shipped.

Content

On the World Wide Web, "content is King. Good content is an abundant amount of well-presented subject information organized for interesting and useful access in a hypertext structure.

Content Management System

Pl. see CMS

Contact center

A contact center (also referred to as a *customer interaction center* or *e-contact center*) is a central point in an enterprise from which all customer contacts are

managed. The contact center typically includes one or more online <u>call center</u>s but may include other types of customer contact as well, including e-mail newsletters, postal mail catalogs, Web site inquiries and chats, and the collection of information from customers during in-store purchasing. A contact center is generally part of an enterprise's overall customer relationship management (<u>CRM</u>). A contact center would typically be provided with special software that would allow contact information to be routed to appropriate people, contacts to be tracked, and data to be gathered. A contact center is considered to be an important element in <u>multichannel marketing</u>.

Content Caching
<small>Pl. see</small> content delivery

Content Delivery
On the Internet, content delivery (sometimes called *content distribution*, *content distribution delivery*, or *content caching*) is the service of copying the pages of a Web site to geographically dispersed <u>server</u>s and, when a page is requested, dynamically identifying and serving page content from the closest server to the user, enabling faster delivery. Typically, high-traffic Web site owners and Internet service providers (<u>ISP</u>s) hire the services of the company that provides content delivery. A common content delivery approach involves the placement of <u>cache</u> servers at major Internet access points around the world and the use of a special routing code that redirects a Web page request (technically, a Hypertext Transfer Protocol - <u>HTTP</u> - request) to the closest server. When the Web user clicks on a <u>URL</u> that is content-delivery enabled, the content delivery network re-routes that user's request away from the site's originating server to a cache server closer to the user. The cache server determines what content in the request exists in the cache, serves that content, and retrieves any non-cached content from the originating server. Any new content is also cached locally. Other than faster loading times, the process is generally transparent to the user, except that the URL served may be different than the one requested. The three main techniques for content delivery are: HTTP redirection, Internet Protocol (IP) redirection, and domain name system (<u>DNS</u>) redirection. In general, DNS redirection is the most effective technique. Content delivery can also be used for specific high-traffic events such as live Web broadcasts by continually dispersing content from the originating server to other servers via <u>satellite</u> links. Content delivery is similar to but more selective and dynamic than the simple copying or <u>mirror site</u> of a Web site to one or several geographically dispersed servers.

Content Distribution
Pl. see content delivery

Cookie
A cookie is information that a <u>Web site</u> puts on your <u>hard disk</u> so that it can remember something about you at a later time. (More technically, it is information for future use that is stored by the <u>server</u> on the <u>client</u> side of a <u>client/server</u> communication.) Typically, a cookie records your preferences when using a particular site. Using the Web's Hypertext Transfer Protocol (<u>HTTP</u>), each request for a Web page is independent of all other requests. For this reason, the Web page server has no memory of what pages it has sent to a user previously or anything about your previous visits. A cookie is a mechanism that allows the <u>server</u> to store

its own information about a user on the user's own computer. You can view the cookies that have been stored on your hard disk (although the content stored in each cookie may not make much sense to you). The location of the cookies depends on the browser. Internet Explorer stores each cookie as a separate file under a Windows subdirectory. Netscape stores all cookies in a single cookies.txt fle. Opera stores them in a single cookies.dat file. Cookies are commonly used to rotate the banner ads that a site sends so that it doesn't keep sending the same ad as it sends you a succession of requested pages. They can also be used to customize pages for you based on your browser type or other information you may have provided the Web site. Web users must agree to let cookies be saved for them, but, in general, it helps Web sites to serve users better

COPS

COPS (Common Open Policy Service Protocol) is a proposed standard protocol for exchanging network policy information between a policy decision point (PDP) in a network and policy enforcement points (PEPs) as part of overall Quality of Service (QoS) - the allocation of network traffic resources according to desired priorities of service. The policy decision point might be a network server controlled directly by the network administrator who enters policy statements about which kinds of traffic (voice, bulk data, video, teleconferencing, and so forth) should get the highest priority. The policy enforcement points might be routers or layer 3 switches that implement the policy choices as traffic moves through the network. Currently, COPS is designed for use with the Resource Reservation Protocol (RSVP), which lets you allocate traffic priorities in advance for temporary high-bandwidth requirements (for example, video broadcasts or multicasts). It is possible that COPS will be extended to be a general policy communications protocol. In operation, RSVP makes two determinations when an RSVP request arrives at a router or layer 3 switch. First, it determines whether there are enough resources to satisfy the bandwidth reservation request. If there are, RSVP determines whether the user is authorized to make the reservation. The first determination is known as the *admission control* decision; the second is known as the *policy control* decision. COPS allows the router or layer 3 switch to communicate with the policy decision point about whether the request for the bandwidth reservation should be permitted. Without COPS, all resources would be reserved on a first come-first served basis only, and one or more requesters could easily take all the bandwidth. The current COPS protocol is specified in an Internet-Draft working document of the Internet Engineering Task Force (IETF).

Copy Board

Pl. See White board

Corporate portal or corportal

Corportal is short for "corporate portal." Many corporations are building and, in some cases, rebuilding their Web sites along the model of the enterprise information portal, a model that emphasizes the exploitation of a company's information resources. A corportal can be internal (an intranet), a public site, or, with appropriate safeguards, both combined

Counter

On the Web, a counter is a program that counts and typically displays how many people have visited an HTML page (usually the home page). Many sites include a counter, either as a matter of interest or to show that the site is popular. The counter can be part of the common gateway interface application that logs and analyzes requests. At least one company provides the service of monitoring sites that request it, counting home page requests, and updating the number of visitors each time the home page is sent. A third-party who monitors the counting of site visitors is called an auditor.

CPM
Pl. see under Advertising

CRA
Customer relationship analysis (CRA), sometimes termed *customer relationship analytics*, is the processing of data about customers and their relationship with the enterprise in order to improve the enterprise's future sales and service and lower cost. This term is generally a synonym for CRM analytics. Customer relationship analysis can be considered a form of online analytical processing (OLAP) and may employ data mining. As Web sites have added a new and often faster way to interact with customers, the opportunity and the need to turn data collected about customers into useful information has become generally apparent. As a result, a number of software companies have developed products that do customer data analysis. According to an article in *InfoWorld*, customer relationship analysis can provide customer segmentation groupings (for example, at its simplest, dividing customers into those most and least likely to repurchase a product); profitability analysis (which customers lead to the most profit over time); personalization (the ability to market to individual customers based on the data collected about them); event monitoring (for example, when a customer reaches a certain dollar volume of purchases); what-if scenarios (how likely is a customer or customer category that bought one product to buy a similar one); and predictive modeling (for example, comparing various product development plans in terms of likely future success given the customer knowledge base). Data collection and analysis are viewed as a continuing and iterative process and ideally over time business decisions are refined based on feedback from earlier analysis and consequent decisions. Benefits of customer relationship analysis are said to lead not only to better and more productive customer relations in terms of sales and service but also to improvement in supply chain management (lower inventory and speedier delivery) and thus lower costs and more competitive pricing. One of the major challenges implicit in customer relationship analysis is how to integrate the analytical software with existing legacy systems as well as with other new systems. A new area of application and data collection has to do with Web site customer usage.

Cracker
A cracker is someone who breaks into someone else's computer system, often on a network; bypasses passwords or licenses in computer programs; or in other ways intentionally breaches computer security. A cracker can be doing this for profit, maliciously, for some altruistic purpose or cause, or because the challenge is there. Some breaking-and-entering has been done ostensibly to point out weaknesses in a site's security system. The term "cracker" is not to be confused with "hacker". Hackers generally deplore cracking. A classic story of the tracking down of a cracker on the Internet who was breaking into U.S. military and other computers

CRM

A customer-managed relationship (CMR) is a relationship in which a business uses a methodology, software, and perhaps Internet capability to encourage the customer to control access to information and ordering. CMR can be viewed as an alternative to or as a possible approach to include in CRM (customer relationship management). According to one industry view, there are three aspects of CMR. The first is that customers should own their own information including their profile, transaction history, and any inferred information such as marital history and even behavior. The second aspect is that customers should have access to this information across all departments. The third aspect is that the entire system should be designed with the customer's needs and feelings having priority or equal weight to the company's needs and desires. CMR allows a customer to define how they communicate with the company, what services or products they will purchase, and how they will pay for them. CMR is an attempt by enterprises to change with the times by addressing customer demand for more control.

Crawler

A crawler is a program that visits Web sites and reads their pages and other information in order to create entries for a search engine index. The major search engines on the Web all have such a program, which is also known as a "spider" or a "bot." Crawlers are typically programmed to visit sites that have been submitted by their owners as new or updated. Entire sites or specific pages can be selectively visited and indexed. Crawlers apparently gained the name because they crawl through a site a page at a time, following the links to other pages on the site until all pages have been read. The crawler for the AltaVista search engine and its Web site is called Scooter. Scooter adheres to the rules of politeness for Web crawlers that are specified in the Standard for Robot Exclusion (SRE). It asks each server which files should be excluded from being indexed. It does not (or can not) go through firewalls. And it uses a special algorithm for waiting between successive server requests so that it doesn't affect response time for other users.

Crypto

Depending on its usage, crypto can be a short form for cryptography or for encryption. The term is sometimes used to broadly encompass the major aspects and issues of developing and using cryptography technologies.

CSS

A cascading style sheet (CSS) is a Web page derived from multiple sources with a defined order of precedence where the definitions of any style element conflict. The Cascading Style Sheet, level 1 (CSS1) recommendation from the World Wide Web Consortium (W3C), which is implemented in the latest versions of the Netscape and Microsoft Web browsers, specifies the possible style sheets or statements that may determine how a given element is presented in a Web page. CSS gives more control over the appearance of a Web page to the page creator than to the browser designer or the viewer. With CSS, the sources of style definition for a given document element are in this order of precedence:

- The STYLE attribute on an individual element tag
- The STYLE element that defines a specific style sheet containing style declarations or a LINK element that links to a separate document containing

the STYLE element. In a Web page, the STYLE element is placed between the TITLE statement and the BODY statement.

- An imported style sheet, using the CSS @import notation to automatically import and merge an external style sheet with the current style sheet
- Style attributes specified by the viewer to the browser
- The default style sheet assumed by the browser

In general, the Web page creator's style sheet takes precedence, but it's recommended that browsers provide ways for the viewer to override the style attributes in some respects. Since it's likely that different browsers will choose to implement CSS1 somewhat differently, the Web page creator must test the page with different browsers.

CSCW
Pl. see Synchronous groupware

CTR
In banner advertising on a Web site, the clickthrough rate (CTR) is the percentage of times that viewers of a Web page click on a given banner ad, causing a request for the advertiser's Web site to be transmitted to the viewer. For example, if two out of every 100 visitors to a Web page clicked on a given ad, that ad would be said to have a 2% clickthrough rate. (In most cases, a 2% clickthrough rate would be considered very successful, by the way. In many campaigns, especially as ads become familiar to users, the clickthrough rate is well below 1%.). Many advertisers rate the success of a given ad placement on clickthrough rate alone. Other advertisers also place a value on the visitor's viewing of the ad, which is believed to create a desired company or product brand impression over time.

Cuckoo egg
A cuckoo egg is an MP3 file that typically contains 30 seconds of the original song with the remainder of the song overwritten with cuckoo clock noises, white noise, and/or voice messages such as, "Congratulations, you must've goofed up somewhere." Ideally, a cuckoo egg should have the same playing length as the music it pretends to be. The purpose of cuckoo eggs is to deter the downloading and sharing of MP3 files using Napster and similar approaches. Typically, a Napster user downloads an MP3 file and sometimes share it with others before listening to it. Recognizing this, a cuckoo egg creator creates the cuckoo egg to look exactly like a real MP3 file. The user then unknowingly shares the cuckoo egg with other unsuspecting users spreading the cuckoo egg like a virus. Unlike a virus, cuckoo eggs do not damage computers, but simply annoy and waste the time of those who download the files. The Cuckoo Egg Project began with Michael and Stephanie Fix. Stephanie Fix is a musician who is concerned about the illegal availability of copyrighted music through Napster. The concept centers on the idea of how a real cuckoo bird lays its eggs in another bird's nest. To the Fixes, the Napster system is like a huge nest of MP3 files, a perfect environment in which to lay cuckoo eggs The first cuckoo egg was laid on June 10, 2000. Since then, Napster users have posted hundreds of angry messages at the Cuckoo Egg Project's Web site. Whether it's deterring them from downloading other songs has not been determined. There is an ironic twist to the Cuckoo Egg Project. According to the official Web site's FAQ, cuckoo eggs are also not legal, because they also

use unauthorized portions of copyrighted songs. But they claim that only a sample portion is used compared to the entire song being used with Napster, which is more defendable according to fair use laws. Anyone who creates and distributes MP3 files can create cuckoo eggs.

CUSeeMe

CUseeMe is a low-cost product for Internet videoconferencing. Each user installs the CUseeMe software and, assuming they have an Internet connection, can then have person-to-person or group discussions. A "whiteboard" allows users to exchange messages and collaborate. Users can also chat online. Users with a small attached video camera (optional) can transmit their picture to other users in a conference.

Customer Interaction center

Pl. see contact center

Customer Managed Relationship

CRM

Customer Relationship Analysis

Pl. see CRA

Customer-Facing

Customer-facing is an adjective used to describe a hardware or software product, technology, or anything that the customer of a business deals with directly. This can include the user interface of a software application, the help desk that a customer can phone into, any mailing or other contact that a customer receives, or policies that describe how to interact with customers (since the customer will experience the effect of these policies). Since both customers and companies perceive value in a company's keeping track of and anticipating customer needs, customer-facing software is now sold for the purpose of customer relationship management.

Cyber

"Cyber" is a prefix used to describe a person, thing, or idea as part of the computer and information age. Taken from *kybernetes*, Greek for "steersman" or "governor," it was first used in cybernetics, a word coined by Norbert Wiener and his colleagues. Common usages include cyberculture, cyberpunk, and cyberspace.

Cyborg

Cyborg, a compound word derived from cybernetics and organism, is a term coined by Manfred Clynes in 1960 to describe the need for mankind to artificially enhance biological functions in order to survive in the hostile environment of Space. Originally, a cyborg referred to a human being with bodily functions aided or controlled by technological devices, such as an oxygen tank, artificial heart valve or insulin pump. Over the years, the term has acquired a more general meaning, describing the dependence of human beings on technology. In this sense, cyborg can be used to characterize anyone who relies on a computer to complete their daily work.

Cybercafe

A cybercafe is a cafe, coffee or espresso shop, or similar food and/or beverage-serving place that has a number of personal computers connected to the Internet and available for use by customers.

Cybercitizen
The term "cybercitizen" denotes a "citizen of the Internet" or a member of the "cybercommunity."
Netizen has the same meaning

Cybernetics
Cybernetics is a word coined by group of scientists led by Norbert Wiener and made popular by Wiener's book of 1948, *Cybernetics or Control and Communication in the Animal and the Machine*. Based on the Greek "kybernetes," meaning steersman or governor, cybernetics is the science or study of control or regulation mechanisms in human and machine systems, including computers.

cyberprise
A cyberprise is a Web-enabled enterprise. The word combines the ideas of cyberspace and enterprise so well that a company named Wall Data has trademarked it. Wall Data's Cyberprise(TM) products, which include a Web server, a database manager for Web pages, and a Web page publisher, are aimed at allowing an enterprise to quickly get new and existing information on their public Web site or on an intranet or extranet.

Cyberpunk
Cypherpunk, a term that appeared in Eric Hughes' "A Cypherpunk's Manifesto" in 1993, combines the ideas of cyberpunk, the spirit of individualism in cyberspace, with the use of strong encryption (ciphertext is encrypted text) to preserve privacy. Cypherpunk advocates believe that the use of strong encryption algorithms will enable individuals to have safely private transactions. They oppose any kind of government regulation of cryptography. They admit the likelihood that criminals and terrorists will exploit the use of strong encryption systems, but accept the risk as the price to be paid for the individual's right to privacy. Cyberpunk is a sensibility or belief that a few outsiders, armed with their own individuality and technological capability, can fend off the tendencies of traditional institutions to use technology to control society. The term, combining "cyber" and punk, possibly originated in 1980. There are several categories of groups associated with cyberpunk: (1) hacker, who represent the best kind of cyberpunk, (2) cracker, who attempt to break into computer systems, (3) phreak, who attempt to break into telephone systems, (4) Cypher-punks, who attempt to break codes and foil security systems. Additional groups include "transhumans," who attempt to exploit technology to increase life expectancy and human potential and "extropians," a kind of libertarian group that believes in something called "spontaneous order.

Cyberspace
Cyberspace is the total interconnectedness of human beings through computers and telecommunication without regard to physical geography.

Cybersquatting

Cybersquatting, according to the U.S. federal law known as the Anti-Cybersquatting Consumer Protection Act, is registering, trafficking in, or using a domain name with bad-faith intent to profit from the goodwill of a trademark belonging to someone else. Commercial <u>domain name</u>s (technically, you reserve a <u>second-level domain</u> name) are obtained from one of several registries, companies authorized to ensure that a domain name you want is unique (no one else already has it) and issue it to you if it is. However, these registries make no attempt to determine whether the domain name is one that rightfully ought to go to someone else. The principle is "First come, first served." For this reason, a number of enterprising individuals and companies have applied for and reserved domain names, either new or expired, that they think someone else will want, either now or in the future. Well-known companies or their products, sports figures and other celebrities, political candidates, and others often discover that someone else has already reserved the domain name (for example, "sammysosa.com") they would most likely want to use. Although trademark laws may offer some protection, it is often cheaper to buy the domain name from the cybersquatter than it is to sue for its use. Many cybersquatters reserve common English words, reasoning that sooner or later someone will want to use one for their Web site. Examples of words sold by cybersquatters to companies developing significant Web sites include drugstore.com, furniture.com, gardening.com, and Internet.com. Cybersquatters may also regularly comb lists of recently expired domain names, hoping to sell back the name to a registrant who inadvertently let their domain name expire. eBay, the auction site, sometimes lists domain names for sale. Several cybersquatter companies offer their wares at their own Web sites. Since there is an initial and yearly fee for owning a domain name, some cybersquatters reserve a long list of names and defer paying for them until forced to - preempting their use by others at no cost to themselves. The registry companies are working on this problem. Meanwhile, the Internet Corporation for Assigned Names and Numbers (<u>ICANN</u>), which licenses the domain name registrars, is working on a process for resolving domain name disagreements outside of the regular court system. The term derives from *squatting*, the practice of building some kind of home or dwelling or in some way using someone else's landed property without their permission.

Cyberterrorism

Cyberterrorism, according to the U.S. Federal Bureau of Investigation, is any "premeditated, politically motivated attack against information, computer systems, computer programs, and data which results in violence against non-combatant targets by sub-national groups or clandestine agents."

Unlike a nuisance <u>virus</u> or computer attack that results in a <u>denial of service</u>, a cyberterrorist attack is designed to cause physical violence or extreme financial harm. According to the U.S. Commission of Critical Infrastructure Protection, possible cyberterrorist targets include the banking industry, military installations, power plants, air traffic control centers, and water systems.

Cyberterrorism is sometimes referred to as electronic terrorism or information war.

Cyberwoozling

According to Content Technologies (formerly called Integralis), makers of MIMEsweeper, cyberwoozling is the practice of gathering data from a Web user's PC when the user visits a Web site. Cyberwoozles, along with <u>viruses</u>, junk e-mail (<u>spam</u>), and inappropriate content are among the threats seen as requiring

measures to ensure *content security*. While Integralis doesn't clearly spell out exactly how cyberwoozling would work, it does describe cyberwoozles as "a combination of <u>cookie</u> and <u>browser</u>-side add-in code" (meaning code sent to the user's PC rather than run at the Web site). Among other uses, cookies allow a Web site to put a small file on the user's own hard disk (within the browser directory structure) that allows the Web site to remember information about the user - for example, when the user last visited the site. Although cookies are commonly used on the Web and most users accept their use, some corporations might prefer not to allow them. MIMEsweeper can screen for cookies and allow or disallow them, depending on a company's wishes. Browser-side code, such as <u>Java applet</u>, another commonly used Web device, could conceivably contain code designed to return information to the Web server that sent it. Again, MIMEsweeper can detect such code and handle it based on a company's instructions. MIMEsweeper derives its name from the header that is included in e-mail and Web messages.

Cybrarian
A cybrarian (pronounced sai-BREHR-i-uhn, a compound of <u>cyber</u> and librarian) is a library and information science professional that specializes in using the Internet as a resource tool. The term has gained currency among many librarians who use the Internet. The American Library Association hosts a section called Cyberlib.net, written by Pat Sensor, author of *The Cybrarian's Manual*.

Daemon

A daemon (pronounced DEE-muhn) is a program that runs continuously and exists for the purpose of handling periodic service requests that a computer system expects to receive. The daemon program forwards the requests to other programs (or processes) as appropriate. Each server of pages on the Web has an *HTTPD* or Hypertext Transfer Protocol daemon that continually waits for requests to come in from Web clients and their users. In mythology, a daemon, according to Webster's, was "an attendant power or spirit." Daemon can be confused with demon, which has a different but similar meaning. *The New Hacker's Dictionary* says that a daemon is a program that runs by itself directly under the operating system whereas a demon is part of a larger application program.

DAML

DAML (DARPA Agent Markup Language) is a markup language for the U.S. Defense Advanced Research Project Agency (DARPA) that is based on the Extensible Markup Language (XML). DAML is designed to have a greater capacity than XML for describing objects and the relationships between objects, to express semantics, and to create a higher level of interoperability among Web sites. As the central research and development agency for the U. S. Department of Defense, DARPA was instrumental in the creation of the Internet and many of its technologies. DARPA is developing DAML as a technology with intelligence built into the language through the behaviors of agents, programs that can dynamically identify and comprehend sources of information, and interact with other agents in an autonomous fashion. DAML agents can be embedded in code and maintain awareness of their environment, are user-directed, but have the capacity to behave autonomously. They also have the capacity to "learn" from experience, so that they improve their behavior over time. DAML uses a number of different types of agents (such as *information agents*, *event monitoring agents*, and *secure agents*) for different purposes. DAML's semantic knowledge and autonomous behavior is expected to make it capable of processing large volumes of data much as a human being would process it. DAML includes a type of query language with a specialized ability to find and process relevant information - for example, finding related information on separate Web sites and processing it into a comprehensive report.

Dashboard

In information technology, a dashboard is a user interface that, somewhat resembling an automobile's dashboard, organizes and presents information in a way that is easy to read. However, a computer dashboard is more likely to be interactive than an automobile dashboard (unless it is also computer-based). To some extent, most graphical user interfaces (GUIs) resemble a dashboard. However, some product developers consciously employ this metaphor (and

sometimes the term) so that the user instantly recognizes the similarity. Some products that aim to integrate information from multiple components into a unified display refer to themselves as dashboards. For example, a product might obtain information from the local operating system in a computer, from one or more applications that may be running, and from one or more remote sites on the Web and present it as though it all came from the same source. Hewlett Packard developed the first such product, which began as a tool for customizing Windows desktops. Called *Dashboard*, the HP product was subsequently acquired by Borland and then a company called Starfish. Microsoft's *Digital Dashboard* tool incorporates Web-based elements (such as news, stock quotes, and so on) and corporate elements (such as e-mail, applications, and so on) into Outlook. Dashboards may be customized in a multitude of ways and named accordingly, generally, for example as a general *corporate* or enterprise dashboard, or more specifically, as a CIO or CEO dashboard.

Datagram

A datagram is, to quote the Internet's Request for Comments 1594, "a self-contained, independent entity of data carrying sufficient information to be routed from the source to the destination computer without reliance on earlier exchanges between this source and destination computer and the transporting network." The term has been generally replaced by the term packet. Datagrams or packets are the message units that the Internet Protocol deals with and that the Internet transports. A datagram or packet needs to be self-contained without reliance on earlier exchanges because there is no connection of fixed duration between the two communicating points as there is, for example, in most voice telephone conversations. (This kind of protocol is referred to as *connectionless.*)

Data Rates

The data rate is the speed at which the data flows from one point to another through an electronic media. The unit of measure is "Kbps" as the abbreviation for "thousands of bits per second." In international English outside the U.S., the equivalent usage is "kbits s^{-1}" or "kbits/s". Data rate and speed are synonyms in this regard. Engineers use *data rate* rather than *speed*, but speed seems more meaningful for the less technically inclined. Many of us tend to think that the number of bits getting somewhere over a period of time is their speed of travel. Relative to data transmission, a related term, bandwidth or "capacity," means how wide the pipe is and how quickly the bits can be sent down the channels in the pipe. (The analogy of multiple lanes on a superhighway with cars containing speed governors may help. One reason why digital traffic flows faster than voice traffic on the same copper line is because digital has managed to convert a one-lane or narrowband highway into a many-lane or broadband highway.) These "speeds" are aggregate speeds. That is, the data on the multiple signal channels within the carrier is usually allocated by channel for different uses or among different users. Key: "T" = T-carrier system in U.S., Canada, and Japan...."DS"= digital signal (that travels on the T-carrier or E-carrier)..."E" = Equivalent of "T" that uses all 8 bits per channel; used in countries other than U.S. Canada, and Japan...."OC" = optical carrier (Synchronous Optical Network)...."STM" = Synchronous Transport Modules (see Synchronous Digital Hierarchy) Only the most common technologies are shown. "Physical medium" is stated generally and doesn't specify the classes or numbers of pairs of twisted pair or whether optical fiber is single-mode or

multimode. The effective distance of a technology is not shown. There are published standards for many of these technologies. Some of these are indicated on pages linked to from the table.

D-Channel

In the Integrated Services Digital Network (ISDN), the D-channel is the channel that carries control and signalling information. (The "D" stands for "delta" channel.) The B-channel ("B" for "bearer") carries the main data. In ISDN, there are two levels of service: the Basic Rate Interface, intended for the home and small enterprise, and the Primary Rate Interface, for larger users. Both rates include a number of B-(bearer) channels and a D- (delta) channel. The B-channels carry data, voice, and other services. The D-channel carries control and signaling information. The Basic Rate Interface consists of two 64 Kbps B-channels and one 16 Kbps D-channel. Thus, a Basic Rate Interface user can have up to 128 Kbps service. The Primary Rate Interface consists of 23 B-channels and one 64- Kpbs D channel in the United States or 30 B-channels and 1 D-channel in Europe.

DCE

In network computing, DCE (Distributed Computing Environment) is an industry-standard software technology for setting up and managing computing and data exchange in a system of distributed computers. DCE is typically used in a larger network of computing systems that include different size servers scattered geographically. DCE uses the client/server model. Using DCE, application users can use applications and data at remote servers. Application programmers need not be aware of where their programs will run or where the data will be located. Much of DCE setup requires the preparation of distributed directories so that DCE applications and related data can be located when they are being used. DCE includes security support and some implementations provide support for access to popular databases such as IBM's CICS, IMS, and DB2 databases. DCE was developed by the Open Software Foundation (OSF) using software technologies contributed by some of its member companies. In computer data transmission, DCE (Data Communication Equipment) is the RS-232C interface that a modem or other serial device uses in exchanging data with the computer. For further information about the DCE interface and its relationship to the Data Terminal Equipment (DTE) interface, see RS-232C.

Dedicated Hosting

Pl. See Dedicated Server

Dedicated Server

In the Web hosting business, a dedicated server refers to the rental and exclusive use of a computer that includes a Web server, related software, and connection to the Internet, housed in the Web hosting company's premises. A dedicated server is usually needed for a Web site (or set of related company sites) that may develop a considerable amount of traffic - for example, a site that must handle up to 35 million hits a day. The server can usually be configured and operated remotely from the client company. Web hosting companies claim that the use of a dedicated server on their premises saves router, Internet connection, security system, and network administration costs. In renting a dedicated server, the client company may be required to use a specified computer system or may be offered a choice of several

systems. Some host providers allow a client company to purchase and install its own computer server at the host provider's location, a service known as <u>colocation</u>. Typically, a dedicated server is rented that provides a stated amount of <u>memory</u>, hard disk space, and bandwidth (here meaning the number of <u>gigabyte</u>s of data that can be delivered each month). Some hosting companies allow the renter of a dedicated server to do <u>virtual hosting</u>, in turn renting services on the server to third parties for their Web sites. <u>domain name system</u>, e-mail, and File Transfer Protocol (<u>FTP</u>) capabilities are typically included and some companies provide an easy-to-use control interface.

Deep link

A deep link is a <u>hypertext</u> <u>link</u> to a <u>page</u> on a <u>Web site</u> other than its <u>home page</u>. The "deep" refers to the depth of the page in a site's hierarchical structure of pages. Any page below the top page in the hierarchy (the home page) can thus be considered deep. The term has been given prominence in the legal suit of the Ticketmaster Corporation against Microsoft. A Microsoft-owned site (one of its Sidewalk sites) linked to a page of useful information within the Ticketmaster site, avoiding the Ticketmaster home page. Ticketmaster sued Microsoft for linking without permission, claiming that they were thus being deprived of advertising viewers for the ads on their home page. In fact, their content was appearing within a Microsoft page containing their advertising. In his TBTF Newsletter, Keith Dawson refers to deep links as "rifle shots," suggesting that they get the Web surfer immediately to the information they want. Although no one has quantified the number of deep links between Web sites, it would certainly seem to be a very large number. Most major search engine and directory sites like Yahoo invite Web sites to request inclusion with the assumption that all pages will be indexed unless explicitly excluded. And, undoubtedly, most sites welcome links from anywhere to any of their pages. Although the issue is still to be fully resolved, some observers think it likely that the prevalence of deep links on the Web will continue as an essential characteristic. Brad Templeton, writing at one Web site, suggests that most Web sites implicitly encourage both home page and deep links simply by being part of the Web. He suggests that those sites that want to inhibit deep links to their site could state it clearly as a way to discourage such links. Many feel that the practice of "framing" another site within a <u>frame</u> on your site poses some liability for the framing site, unless permission to frame is received first.

Deep Web

The deep Web is the hidden part of the Web, containing a huge volume of content that is inaccessible to conventional <u>search engine</u>s, and consequently, to most users. According to a recent study by BrightPlanet, a search technology company, the deep web may contain 550 billion documents, perhaps 500 times the content of the surface Web that most of us are familiar with. In comparison, Google - which claims to index the most comprehensive collection of documents on the Internet - has identified 1.2 billion documents and is actually capable of searching a mere 600 million of those. An article in *Nature* reported that even a large search engine such as Northern Light only indexes 16% of even the surface Web's content. These figures indicate that an Internet search typically searches .03% (1/3000) of available content. In addition to the surprising quantity of deep Web content in existence, BrightPlanet found that the deep Web was growing much more quickly than the surface Web, and that the quality of the content within it - 95% of which is

publicly accessible - was significantly higher than the vast majority of surface Web content. According to *The Standard*, among the myriad offerings of the deep Web are: Securities and Exchange Commission filings, telephone yellow pages, IBM's patent database, the Merriam-Webster Dictionary, and Kelly Blue Book information on automobiles. In order to access these and other deep Web content, however, a user must know the exact URL of the target Web page. A number of companies are now offering search tools with the capacity to simultaneously search through multiple deep Web databases, including IntelliSeek's Bulls Eye software and BrightPlanet's own LexiBot.

Defense Message System
Pl. see DMS
Demo
In Internet terminology, a demo (sometimes called a *PC demo*, although generally the PC is considered to be implicit) is a non-interactive multimedia presentation, the computer world's equivalent of a music video. Demos are usually made to showcase some or all of the following: computer hardware and/or software capabilities (such as multi-channel sound or 3-D effects); the subject of the demo (such as a product or a musician); and the abilities of the programmer (such as complex motion). Demos are frequently played in competitions, which classify them as belonging to one of three subsets: the *intro 4k*, which is fairly basic and generally has no music; the *intro 64k*, no restrictions other than size; and the full-fledged *demo*, which may contain any possible media. Demos are the work of computer enthusiasts who often spend many days (or even weeks or months) creating a demo that may not have any external motivation (such as money, or acclaim in the broader world). The typical demo creator (known as a *demomaker*) is a male between the ages of 15 and 30, typically a student who is identified by a pseudonym. Demomakers are part of a subculture called the demoscene, an underground community that is reported to number among its members the elite from the worlds of programming and computer-assisted composing and art. Because each demo may showcase several talents, demomakers with complementary skills often collaborate to form *demogroups* that, like demomakers themselves, are identified by a special name and create their own mystique and reputation. Demomakers gather frequently for *demoparties*, which are arranged around competitions. Some of the largest demoparties have assembled over 4,300 demomakers. The demoscene originated in Europe and is most active in Scandinavia, Denmark, Germany, The Netherlands, Switzerland, Poland and France, although it is gradually making its presence felt in the rest of the world.

Demo and Demoscene
Pl. see Demo

Demogroup
Pl. see Demo

Demomaker
Pl. see Demo

Demoparty
Pl. see Demo

Denial of Service

On the Internet, a denial of service (DoS) attack is an incident in which a user or organization is deprived of the services of a resource they would normally expect to have. Typically, the loss of service is the inability of a particular network service, such as e-mail, to be available or the temporary loss of all network connectivity and services. In the worst cases, for example, a Web site accessed by millions of people can occasionally be forced to temporarily cease operation. A denial of service attack can also destroy programming and files in a computer system. Although usually intentional and malicious, a denial of service attack can sometimes happen accidentally. A denial of service attack is a type of security breach to a computer system that does not usually result in the theft of information or other security loss. However, these attacks can cost the target person or company a great deal of time and money.

Common forms of denial of service attacks are:

- **Buffer Overflow Attacks** - The most common kind of DoS attack is simply to send more traffic to a network address than the programmers who planned its data buffers anticipated someone might send. The attacker may be aware that the target system has a weakness that can be exploited or the attacker may simply try the attack in case it might work. A few of the better-known attacks based on the buffer characteristics of a program or system include:
    - Sending e-mail messages that have attachments with 256-character file names to Netscape and Microsoft mail programs
    - Sending oversized Internet Control Message Protocol (ICMP) packets (this is also known as the Packet Internet or Inter-Network Groper (ping) of death)
    - Sending to a user of the Pine e-mail progam a message with a "From" address larger than 256 characters
- **SYN Attack** - When a session is initiated between the Transport Control Program (TCP) client and server in a network, a very small buffer space exists to handle the usually rapid "hand-shaking" exchange of messages that sets up the session. The session-establishing packets include a SYN field that identifies the sequence in the message exchange. An attacker can send a number of connection requests very rapidly and then fail to respond to the reply. This leaves the first packet in the buffer so that other, legitimate connection requests can't be accommodated. Although the packet in the buffer is dropped after a certain period of time without a reply, the effect of many of these bogus connection requests is to make it difficult for legitimate requests for a session to get established. In general, this problem depends on the operating system providing correct settings or allowing the network administrator to tune the size of the buffer and the timeout period.
- **Teardrop Attack** - This type of denial of service attack exploits the way that the Internet Protocol (IP) requires a packet that is too large for the next router to handle be divided into fragments. The fragment packet identifies an offset to the beginning of the first packet that enables the entire packet to be reassembled by the receiving system. In the teardrop attack, the attacker's IP puts a confusing offset value in the second or later fragment. If the receiving operating system does not have a plan for this situation, it can cause the system to crash.

- **Smurf Attack** - In this attack, the perpetrator sends an IP ping (or "echo my message back to me") request to a receiving site The ping packet specifies that it be broadcast to a number of hosts within the receiving site's local network. The packet also indicates that the request is from another site, the target site that is to receive the denial of service. (Sending a packet with someone else's return address in it is called spoofing the return address.) The result will be lots of ping replies flooding back to the innocent, spoofed host. If the flood is great enough, the spoofed host will no longer be able to receive or distinguish real traffic.
- **Viruses** - Computer viruses, which replicate across a network in various ways, can be viewed as denial-of-service attacks where the victim is not usually specifically targetted but simply a host unlucky enough to get the virus. Depending on the particular virus, the denial of service can be hardly noticeable ranging all the way through disastrous.
- **Physical Infrastructure Attacks** - Here, someone may simply snip a fiber optic cable. This kind of attack is usually mitigated by the fact that traffic can sometimes quickly be rerouted.

DeviceCOM
DeviceCOM, from Intrinsyc Software, is a line of device and network integration products that is used to make Internet or PC devices work with each other on a network. Developed to provide Distributed Component Object Model (DCOM) services for Windows CE, Microsoft's embedded operating system for mobile devices, deviceCOM provides a development environment in which device-to-device communication is automatically managed so that application developers don't have to write programs to handle it. DCOM provides a development framework for distributed applications; deviceCOM supplies a connectivity framework between Windows CE-based devices and an enterprise's networked computers, through Microsoft's Web solution platform. DeviceCOM was created specifically for distributed embedded applications and is said to have a small footprint and flexible protocol support, and to be fault-tolerant and firewall-friendly. Available for either Windows or Linux operating systems, deviceCOM is currently being used in a number of products, including industrial automation, mobile computing, and point-of-sale applications.

Digital Cash
Digital cash is a system of purchasing cash credits in relatively small amounts, storing the credits in your computer, and then spending them when making electronic purchases over the Internet. Theoretically, digital cash could be spent in very small increments, such as tenths of a cent (U.S.) or less. Most merchants accepting digital cash so far, however, use it as an alternative to other forms of payment for somewhat higher price purchases. There are several commercial approaches to digital cash on the Web. Among these are eCash from DigiCash and Cybercash.
Digital cash can also be stored on an electronically sensitive card. See smart card and micropayment.

Digital Dashboard
In information technology, a dashboard is a user interface that, somewhat resembling an automobile's dashboard, organizes and presents information in a

way that is easy to read. However, a computer dashboard is more likely to be interactive than an automobile dashboard (unless it is also computer-based). To some extent, most graphical user interfaces (GUIs) resemble a dashboard. However, some product developers consciously employ this metaphor (and sometimes the term) so that the user instantly recognizes the similarity. Some products that aim to integrate information from multiple components into a unified display refer to themselves as dashboards. For example, a product might obtain information from the local operating system in a computer, from one or more applications that may be running, and from one or more remote sites on the Web and present it as though it all came from the same source. Hewlett Packard developed the first such product, which began as a tool for customizing Windows desktops. Called *Dashboard*, the HP product was subsequently acquired by Borland and then a company called Starfish. Microsoft's *Digital Dashboard* tool incorporates Web-based elements (such as news, stock quotes, and so on) and corporate elements (such as e-mail, applications, and so on) into Outlook. Dashboards may be customized in a multitude of ways and named accordingly, generally, for example as a general *corporate* or enterprise dashboard, or more specifically, as a CIO or CEO dashboard.

Digital Library

A digital library is a collection of documents in organized electronic form, available on the Internet or on CD-ROM (compact-disk read-only memory) disks. Depending on the specific library, a user may be able to access magazine articles, books, papers, images, sound files, and videos. On the Internet, the use of a digital library is enhanced by a broadband connection such as cable modem or DSL. Dial-up connections can be used to access plain-text documents and some documents containing images, but for complex files and those with animated video content, a downstream data speed of at least several hundred kilobits per second (Kbps) can make the user's experience less tedious, as well as more informative. Internet-based digital libraries can be updated on a daily basis. This is one of the greatest assets of this emerging technology. On CD-ROM, the amount of data is limited to several hundred megabytes (MB) per disk, but access is generally much faster than on an Internet connection. Several CD-ROMs can be combined in a set, and because the disks are small, a large library can be accommodated in a reasonable physical space. The main limitation of CD-ROM is the fact that updating cannot be done as frequently as on the Internet. In addition, producing and distributing CD-ROMs involves overhead costs that are largely nonexistent in Internet-based libraries. Some institutions have begun the task of converting classic books to electronic format for distribution on the Internet. Some files can be viewed directly in HTML format; others can be downloaded in PDF format and printed. Some publishers keep electronic files of books and produce them one unit at a time in printed and bound form on demand. Electronic distribution of intellectual and artistic property has authors, agents, and publishers concerned about the possibility of copyright infringement. It is much easier to copy a CD-ROM, or to download an electronic book and make unauthorized copies of it, than it is to reproduce bound volumes and distribute them illegitimately. Fundamental changes in copyright law - and/or changes in the way in which the laws are enforced - are likely to occur as digital libraries expand and their use becomes more widespread.

Digital object identifier
Pl. see DOI

Digital Silhouettes
Digital Silhouettes is the trademarked name that Predictive Networks has given to user profiles that are established through gathered click stream data and artificial intelligence (AI) processes. The profile, or cybersignature, is built from a mathematical analysis of an individual's interests as well as their keyboard and mouse activity. A "fusion" algorithm composed of clickstream, keystroke, and mouse or pointer behavior is used to track recurring patterns. By examining the patterns over a long period of time, Digital Silhouettes is able to indentify a specific user (as opposed to device) and assign the user to one of over 140 demographic and content-related categories. The selected demographics fall into the six major categories of gender, age, income, education, and race - all of which break down to subcategories. There are more than 90 content affinity subcategories, such as golf, pets, and car accessories, for example. Every time a user visits a Web site that is listed in an extensive Predictive Networks database, demographic and content characterization congruent with that site are added to the user's Digital Silhouette. The more Web sites the user visits, and the longer the user is monitored, the more refined the Digital Silhouette will become. Useful statistics include average double-click intervals, ratio of double to single clicks, average mouse velocity and acceleration, and ratio of mouse to keyboard activity. Once the profile reaches a level of mathematical accuracy, participating content providers can target their marketing messages to individual Digital Silhouettes. Predictive Networks claims that Digital Silhouettes are identified by randomly assigned and anonymous ID numbers. The company insists that Personally Identifiable Information (PII) such as names, addresses, and other private information is not known to Predictive Networks. Because of the volume and sensitivity of data gathered, however, privacy issues have been raised about Digital Silhouettes.

DirXML
DirXML is Novell's directory interchange software that uses XML to keep different directories synchronized. With DirXML, an IT manager can administer multiple user databases from a single interface, using Novell Directory Services (NDS) eDirectory to replicate the information. DirXML works within an existing network infrastructure and integrates NDS with directories in Microsoft Exchange, Lotus Notes, Windows 2000 Active Directory, and others. As data flows into DirXML, it is translated into XML. The data is also converted into the target directory's native data format. Novell is the first software vendor to utilize XML as the key language for directory schema publishing, data interchange, and query. Using DirXML, a company only has to enter information once and it will be identically replicated across its entire network. For instance, should a company insert address changes into a customer service database, those changes will automatically appear in its billing, shipping, and marketing directories. Thus, DirXML reduces manual labor costs, minimizes the possibility for human error, and saves in redundant data management expenses. DirXML supports Windows 2000, Windows NT, Sun Solaris, NetWare, and Linux. Novell plans to add support for UNIX Tru64.

Disappearing e-mail

Disappearing e-mail is a message sent using a type of distribution management tool for e-mail. A message sent with one of these products may disappear from the recipient's inbox, or may be still there, but altered by the sender. A user of the software can set various policies on messages that control a recipient's access to them after they are sent. For example, a user or company may stipulate a limit on how long a message will be held on the server, or whether a message can be copied, printed, forwarded, or saved. Some of the products allow a sender to retrieve messages from a recipient's inbox or to revise them, a capability that would be appreciated by a sender who had succumbed to e-mail rage or by an e-mail newsletter editor who discovered a serious error too late. According to Omniva (formerly called *Disappearing Inc*), their product, Policy Manager, enables the electronic equivalent of sending a message written with disappearing ink: at a certain point, the message - which contains a stored encryption key that expires when the sender stipulates - is no longer readable. There are several other products available, including Atabok's VCNMail 2.0, Authentica's MailRecall. Larger companies, including Lotus Notes and Microsoft Outlook, are also including distribution management features in their most recent versions.

Discussion Board

A discussion board is a general term for any online "bulletin board" where you can leave and expect to see responses to messages you have left. Or you can just read the board. Bulletin board services were invented for this purpose (as well as to allow for the exchange of uploaded/downloaded files). On the Internet, Usenet provides thousands of discussion boards. Discussion board software is now available that allows discussion boards to be added to a Web site.

Distance Education

Distance education is a formalized teaching system specifically designed to be carried out remotely. The students and the teacher are in different locations and lectures are transmitted through some type of technology such as closed-circuit or public television or an interactive Web site. Distance education methods include: (1) Voice-centered techniques, such as recordings, audioconferencing, and short-wave radio, (2) Video techniques, such as video cassettes, videoconferencing, or Web cameras, (3) Computer-centered techniques, such as computer-assisted instruction (CAI), which uses the computer as a teaching machine to present individual lessons, computer-mediated education (CME), which uses computer applications (e-mail, fax, or online chatting, for example) for delivery of instruction and (4) Print, such as books and hand-outs. Because distance education is less expensive to support and is not constrained by geographic considerations, it offers opportunities in situations where traditional education has difficulty operating. Students with scheduling or distance problems can benefit, as can workers, because distance education can be more flexible in terms of time and can be delivered virtually anywhere. Studies indicate that distance learning can be as effective as the traditional format when the methods are appropriate to the teaching tasks, there is student-teacher interaction, and the teachers provide students with appropriate and timely feedback.

Distributed Computing

In general, distributed computing is any computing that involves multiple computers remote from each other that each have a role in a computation problem or

information processing. In business enterprises, distributed computing generally has meant putting various steps in business processes at the most efficient places in a network of computers. In the typical transaction using the 3-tier model, user interface processing is done in the PC at the user's location, business processing is done in a remote computer, and database access and processing is done in another computer that provides centralized access for many business processes. Typically, this kind of distributed computing uses the client/server communications model. The Distributed Computing Environment (DCE) is a widely-used industry standard that supports this kind of distributed computing. On the Internet, third-party service providers now offer some generalized services that fit into this model. More recently, distributed computing is used to refer to any large collaboration in which many individual personal computer owners allow some of their computer's processing time to be put at the service of a large problem. The best-known example is the SETI@home project in which individual computer owners can volunteer some of their multitasking processing cycles (while concurrently still using their computer) to the Search for Extraterrestrial Intelligence (SETI) project. This computing-intensive problem uses your computer (and thousands of others) to download and search radio telescope data. One of the first uses of distributed computing was the breaking of a cryptographic code by a group that is now known as distributed net.

Distributed Computing Environment
Pl. see DCE

DMS
The Defense Message System (DMS) is a secure X.400-based e-mail system developed by the United States government in conjunction with industry partners to ensure safety for critical operations. Essentially an enhanced version of various commercial e-mail products, DMS was developed for the United States Department of Defense (DoD). DMS has replaced AUTODIN (*automated digital network*), the previous official DoD e-mail system as well as 45 separate e-mail systems that functioned within the DoD. At the client level, DMS looks like a typical e-mail application and is designed to feature familiar user-friendly functionality, such as global X.500 Directory Service, and transmission support for digital files of any type and size. Security and delivery assurance mechanisms are approved by the National Security Agency (NSA) for information classified at all levels, up to and including those designated as top secret. Because sending message attachments between the unclassified and secret domains (known, respectively, as *NIPRNET* and *SIPRNET*) requires protection against leakage of classified information, DMS policies require that all organizational messages be signed and encrypted with Class IV Public Key Infrastructure (PKI) protection through Fortezza, NSA's trademarked security products suite. Originally policies permitted organizational message attachments to be sent only from a low security domain to a high security domain, but security mechanisms (both technological and policy-based) are now in place to allow the information to flow in either direction. DMS was designed to incorporate components from a variety of leading hardware and software vendors and to leverage the best current and emerging messaging technologies within the Defense Information Infrastructure (DII, a worldwide connectivity transport infrastructure). The DMS development program began in response to Joint Staff requirements for an integrated messaging service that could be accessed from any

DoD location in the world, as well as by designated government users or contractors. DMS has been recommended to become the standard messaging system throughout the United States government.

DNS

The domain name system (DNS) is the way that Internet <u>domain name</u>s are located and translated into <u>Internet Protocol</u> addresses. A domain name is a meaningful and easy-to-remember "handle" for an Internet address. Because maintaining a central list of domain name/IP address correspondences would be impractical, the lists of domain names and IP addresses are distributed throughout the Internet in a hierarchy of authority. There is probably a DNS server within close geographic proximity to your <u>access provider</u> that maps the domain names in your Internet requests or forwards them to other servers in the Internet.

Document Style Semantics and Specification Language

Pl. see DSSSL

Domain sniper

A domain sniper is a person or company that locates and registers a Web site <u>domain name</u> that has lapsed from registration in the expectation that the original registrant will be willing to buy the name back. Anyone who has registered a domain name for a Web site must renew it periodically and, if they forget to renew it, it then becomes available for someone else to register. The domain sniper typically has no intention of using the domain name other than to resell it back to its original owner. If unable to do that, they sometimes try to sell it on eBay. The most aggressive domain snipers redirect visitors expecting to see the old Web site to a porn site as a way to pressure the original owner to pay more or more quickly. There have been calls for <u>ICANN</u> to require registration agencies to provide for a 30-day or longer waiting period before a lapsed registration can be reregistered by someone other than the original registrant.

Dot NET

.NET is both a business strategy from Microsoft and its collection of programming support for what are known as <u>Web services</u>, the ability to use the Web rather than your own computer for various services. Microsoft's goal is to provide individual and business users with a seamlessly interoperable and Web-enabled interface for applications and computing devices and to make computing activities increasingly Web <u>browser</u>-oriented. The .NET platform includes servers; building-block services, such as Web-based data storage; and device software. It also includes Passport, Microsoft's fill-in-the-form-only-once identity verification service. The .NET platform is expected to provide: (1) The ability to make the entire range of computing devices work together and to have user information automatically updated and synchronized on all of them, (2) Increased interactive capability for Web sites, enabled by greater use of <u>XML</u> (Extensible Markup Language) rather than <u>HTML</u>. (3) A premium online subscription service, that will feature customized access and delivery of products and services to the user from a central starting point for the management of various applications, such as e-mail, for example, or software, such as Office .NET, (4) Centralized data storage, which will increase efficiency and ease of access to information, as well as synchronization of information among

users and devices, (5) The ability to integrate various communications media, such as e-mail, faxes, and telephones, (6) For developers, the ability to create reusable modules, which should increase productivity and reduce the number of programming errors.

DOI

A DOI (Digital Object Identifier) is a permanent identifier given to a Web file or other Internet document so that if its Internet address changes, users will be redirected to its new address. You submit a DOI to a centrally-managed directory and then use the address of that directory plus the DOI instead of a regular Internet address. The DOI system was conceived by the Association of American Publishers in partnership with the Corporation for National Research Initiatives and is now administered by the International DOI Foundation. Essentially, the DOI system is a scheme for Web page redirection by a central manager. Initially, the only central directory is the one maintained by the DOI Foundation. It's envisioned, however, that other directories might be created and maintained, perhaps by each major industry. Here's what a typical DOI might look like: 10.1002/ISBNJ0-471-58064-3. In this example, the "10.1002" identifies the directory and the part after the "/" is the rest of the DOI - in this case, the ISBN number of a particular book that has been published. The "-3" indicates a specific part or chapter in the book. The DOI would be associated with a specific Web page or Uniform Resource Locator in the directory. If you wanted to link to the document in a Web page, you would link to this URL: http://www.doi.org/10.1002/ISBNJ0-471-58064-3. Here, "www.doi.org" happens to be the current and only directory manager. A user clicking on this link would be linking to the directory page which in turn would locate and send back the URL associated with the DOI. Assuming the directory was up-to-date, the page owner and the user could both be sure that the latest page would be returned. Early users of the DOI system are principally major publishers with thousands of documents to keep track of, many available on the Web. Relocating files from time to time for such a large number of documents would require many link changes on the publisher's site and perhaps a redirection page for users. With the DOI system, any future location change will require only updating the central directory and will not affect other site's links (if they also use the DOI in their link).

DOLS

Domino Off-Line Services (DOLS) is an add-on toolkit, based on Domino replication and security features, that allows users to access and interact with Domino Web applications through a browser without requiring a network connection, and to synchronize changes to source data when they reconnect. Applications such as e-mail and discussion groups are fully functional. Work completed offline is synchronized when the user next connects to the network through a tool called the iNotesSync Manager. DOLS decreases demands on network resources, and facilitates interactivity for a mobile workforce. Using DOLS, a mobile worker could, for example, bring up a Web form in a Domino-based application and work with it, offline, in a meeting with a client. Changes specified could be sent out to work group members through the iNotes sync manager when the worker next connects to the network. The work group might meet, through teleconference, to discuss the changes. Online, after the discussion, the mobile worker could replicate the discussion database, and later, offline, respond to questions. The changes to the

discussion database would be synchronized again whenever the worker next had an opportunity to connect to the network.

Domain

In general, a domain is an area of control or a sphere of knowledge. In computing and telecommunication in general, a domain is a sphere of knowledge identified by a name. Typically, the knowledge is a collection of facts about some program entities or a number of network points or addresses. On the Internet, a domain consists of a set of network addresses. This domain is organized in levels. The top level identifies geographic or purpose commonality (for example, the nation that the domain covers or a category such as "commercial"). The second level identifies a unique place within the top level domain and is, in fact, equivalent to a unique address on the Internet (an IP address). Lower levels of domain may also be used. Strictly speaking, in the Internet's domain name system (DNS), a domain is a name with which name server records are associated that describe subdomains or host. In Windows NT and Windows 2000, a domain is a set of network resources (applications, printers, and so forth) for a group of users. The user need only to log in to the domain to gain access to the resources, which may be located on a number of different servers in the network.

Also see domain name

Domain Name

A domain name locates an organization or other entity on the Internet. For example, the domain name www.totalbaseball.com locates an Internet address for "totalbaseball.com" at Internet point 199.0.0.2 and a particular host server named "www". The "com" part of the domain name reflects the purpose of the organization or entity (in this example, "commercial") and is called the top-level domain name. The "totalbaseball" part of the domain name defines the organization or entity and together with the top-level is called the second-level domain name. The second-level domain name maps to and can be thought of as the "readable" version of the Internet address. A third level can be defined to identify a particular host server at the Internet address. In our example, "www" is the name of the server that handles Internet requests. (A second server might be called "www2".) A third level of domain name is not required. For example, the fully-qualified domain name could have been "totalbaseball.com" and the server assumed. Subdomain levels can be used. For example, you could have "www.nyyankees.totalbaseball.com". Together, "www.totalbaseball.com" constitutes a *fully-qualified domain name*. Second-level domain names must be unique on the Internet and registered with one of the ICANN-accredited registrars for the COM, NET, and ORG top-level domains. Where appropriate, a top-level domain name can be geographic. (Currently, most non-U.S. domain names use a top-level domain name based on the country the server is in.) To register a U. S. geographic domain name or a domain name under a country code, see an appropriate registrar. On the Web, the domain name is that part of the Uniform Resource Locator(URL) that tells a domain name server using the domain name system (DNS) whether and where to forward a request for a Web page. The domain name is mapped to an IP address (which represents a physical point on the Internet). More than one domain name can be mapped to the same Internet address. This allows multiple individuals, businesses, and organizations to have separate Internet identities while sharing the same Internet server. To see the IP address for a domain name, (ping). It may be worth noting that the domain name

system contains an even higher level of domain than the top-level domain. The highest level is the *root domain*, which would be represented by a single dot (just as in many hierarchical file systems, a root directory is represented by a "/") if it were ever used. If the dot for the root domain were shown in the URL, it would be to the right of the top-level domain name. However, the dot is assumed to be there, but never shown.

Domain Name System
Pl. see DNS

Domino Extensible Language
Pl. see DXL

Domino Off-Line Services
Pl. see DOLS

Dot address
A dot address (sometimes known as a dotted quad address) refers to the notation that expresses the four-byte (32-bit) IP address as a sequence of four decimal numbers separated by dots. Each number represents the binary value of one of four bytes. Look at this Internet address, for example: 205.245.172.72 The first byte in the 32-bit sequence contains the binary equivalent of decimal 205, the second byte contains the equivalent of 245, the third of 172, and the fourth of 72. The separation of the four numbers with dots makes the address easier to read. Of course, most of us remember an Internet location with a domain name rather than an Internet address. But we sometimes need the dot address form when we configure a Web browser or get set up with an access provider. Tip:To find out the dot address (such as 205.245.172.72) for a given domain name, Windows users can go to their MS DOS prompt screen and enter: ping xxx.yyy where xxx is the second-level domain name like "Yahoo" and yyy is the top-level domain name like "com").

Dotcom
A dotcom is any Web site intended for business use and, in some usages, it's a term for any kind of Web site. The term is based on the com that forms the last part of the address for most commercial Web sites. The term is popular in news stories about how the business world is transforming itself to meet the opportunities and competitive challenges posed by the Internet and the World Wide Web. Beginning in mid-2000, as the stock market began to devalue many Internet stocks, the term became associated with a number of Web businesses that failed or suffered cutbacks. Alternative spellings seen include: dot.com, dot-com, and dot com.

Dotted Quad
Pl. see Dot address

Downloading
Downloading is the transmission of a file from one computer system to another, usually smaller computer system. From the Internet user's point-of-view, to download a file is to request it from another computer (or from a Web page on another computer) and to receive it. uploading is transmission in the other direction: from one, usually smaller computer to another computer. From an Internet user's

point-of-view, uploading is sending a file to a computer that is set up to receive it. People who share images with others on bulletin board systems (BBS) upload files to the BBS.

The File Transfer Protocol (FTP) is the Internet protocol for downloading and uploading files and a number of special applications can furnish FTP services for you. (However, if you are downloading through a Web page, the FTP request is set up for you by the Web page. You are usually asked where you want the downloaded file placed on your hard disk, and then the downloading transmission takes place.) When you send an attached file with an e-mail note, this is just an attachment, not a download or an upload. In practice, many people use "download" and "upload" rather indiscriminately so you just have to understand the context. For example, if someone says to you "Download (or upload) such--and-such a file to me by e-mail," they clearly mean "Send it to me as an attachment." In general, from the ordinary workstation or small computer user's point-of-view, to download is to receive a file and to upload is to send a file.

DSSSL

DSSSL (Document Style Semantics and Specification Language) is a standard for the processing of SGML (Standard Generalized Markup Language) documents. Whereas SGML is a standard for describing documents in terms of logical structure (rather than presentation), DSSSL describes how such a structured document might be presented visually, or converted to something else, or processed in some other way. SGML is a document structure language; DSSSL is a document processing language, especially for presentation or transformation. A quick example: the Web page you're looking at right now is an HTML (Hypertext Markup Language) document. HTML is a usage of SGML. Using DSSSL as a standard, someone could write a definition that would convert the Web page (HTML document) you're looking at into a (let's call it) Tactile Markup Language (TML) document that could be processed by an online reader-and-sound converter for the blind. Or someone could write a definition that would transform the HTML document into a Microsoft Word document. DSSSL describes how you write such a definition, effectively how you map each markup tag from one definition (such as HTML) into some formatting process or markup tag in another "language."

DSSL contains separate parts and you can choose which parts of the standard to use when creating a DSSSL definition. It contains standards for:

- A style language
- Flow objects
- A transformation language
- A document model
- A query language

The style language lets you describe how each document element (heading, paragraph, list, and so forth) will be formatted for displaying, printing, or other presentation in terms of such things as fonts, colors, and space measurements. Flow objects are the formatted objects themselves - for example, the paragraph described in terms of its typographic fonts. Flow objects are usually described as part of a style specification. The transformation language is a language for mapping a document in one SGML format to a document in another SGML format. The document model is a view of how any document is organized that uses a "grove, tree, branch, leaf..." metaphor. The query language lets you access parts of a

document just as SQL lets you access particular data from a database. Several DSSSL processors have been written that are available for downloading from the Web.

Dumpster Diving

Dumpster diving is looking for treasure in someone else's trash. (A dumpster is a large trash container.) In the world of information technology, dumpster diving is a technique used to retrieve information that could be used to carry out an attack on a computer network. Dumpster diving isn't limited to searching through the trash for obvious treasures like access codes or passwords written down on sticky notes. Seemingly innocent information like a phone list, calendar, or organizational chart can be used to assist an attacker using social engineering techniques to gain access to the network. To prevent dumpster divers from learning anything valuable from your trash, experts recommend that your company establish a disposal policy where all paper, including print-outs, is shredded in a cross-cut shredder before being recycled, all storage media is erased, and all staff is educated about the danger of untracked trash.

DXL

DXL (Domino Extensible Language) is a specific version of Extensible Markup Language (XML) for Lotus Domino data. Domino is a server program for Lotus Notes, a groupware application that is used by many businesses. The Document Type Definition (DTD) for DXL defines the markup tags needed for working with XML within the Domino environment. This provides a consistent data format for non-Domino-equipped businesses when they access Domino data. Future versions of DXL will support Domino design elements, so non-Domino-equipped organizations can create or modify Domino documents. DXL data must be converted to conventional XML when used outside the Domino environment. Conversely, XML data must be converted to DXL before it can be used in the Domino environment. Conversions in either direction are done by an Extensible Stylesheet Language Transformation (XSLT) processor.

Dynamic DNS Service

A dynamic DNS (domain name system) service is a company that charges a small fee to allow a user connecting to the Internet with a dynamic IP address to be able to use applications that require a static IP address. Using a dynamic DNS service works as if there was an old-fashioned telephone message service at your computer's disposal. When a user registers with a DNS service and connects to the Internet with a dynamic IP address, the user's computer contacts the DNS service and lets them know what dynamic IP address it has been assigned from the pool; the service works with the DNS server to forward the correct address to the requesting computer. (Think of calling the message service and saying "Hi. I can be reached at 435.44.32.111 right now. Please tell anyone who tries to reach me to call that number.) Using a dynamic DNS service to arrange for computers to find you even though you are using a dynamic IP address is the next-best thing to having a static IP.

Dynamic Fonts

Dynamic fonts are a feature of Netscape's Communicator suite of products that enables a Web page designer to specify or create a special font style for a Web page or site. A font file (which describes how to display a particular set of font images) is downloaded as a plug-in from the Web server along with the first page that uses it. Netscape's viewing support uses TrueDoc Technology from Bitstream

Dynamic IP

Pl. see dynamic port numbers

Dynamic Port Numbers

The dynamic port numbers (also known as the *private port numbers*) are the port numbers that are available for use by any application to use in communicating with any other application, using the Internet's Transmission Control Protocol (TCP) or the User Datagram Protocol (UDP). When one application communicates with another application at another host computer on the Internet, it specifies that application in each data transmission by using its port number. The port numbers range from 0 through 65535. However, certain port numbers - the well-known port numbers and the registered port numbers - are registered and administered by the Internet Corporation for Assigned Names and Numbers (ICANN) for use by certain classes of applications. The dynamic port numbers are in the highest range, from 49152 through 65535. Before the arrival of ICANN, the port numbers were administered by the Internet Internet Assigned Numbers Authority (IANA).

e-biz
Pl. see B2B

E2E
On the Internet, E2E has been used to mean exchange-to-exchange - that is, the exchange of information or transactions between Web sites that themselves serve as exchanges or brokers for goods and services between businesses. E2E can be thought of as a form of B2B.

e-Book
An eBook is an *electronic* version of a traditional print book that can be read by using a personal computer or by using an eBook reader. (An eBook reader can be a software application for use on a computer, such as Microsoft's free *Reader* application, or a book-sized computer that is used solely as a reading device, such as Nuvomedia's Rocket eBook.) Users can purchase an eBook on diskette or CD, but the most popular method of getting an eBook is to purchase a downloadable file of the eBook (or other reading material) from a Web site (such as Barnes and Noble) to be read from the user's computer or reading device. Generally, an eBook can be downloaded in five minutes or less. Although it is not necessary to use a reader application or device in order to read an Ebook (most books can be read as PDF files), they are popular because they enable options similar to those of a paper book - readers can bookmark pages, make notes, highlight passages, and save selected text. In addition to these familiar possibilities, eBook readers also include built-in dictionaries, and alterable font sizes and styles. Typically, an eBook reader hand-held device weighs from about twenty-two ounces to three or four pounds and can store from four thousand to over half a million pages of text and graphics. A popular feature is its back-lit screen (which makes reading in the dark possible). Some eBooks can be downloaded for free or at reduced cost, however, prices for many eBooks - especially bestsellers - are similar to those of hardcover books, and are sometimes higher. Most eBooks at Barnes and Noble, for example, are comparable in price to their traditional print versions.

E-brokerage
An e-brokerage is a brokerage house that allows you to buy and sell stocks and obtain investment information from its Web site. Some e-brokerages are provided by traditional and well-established "offline" brokerage houses and a few are exclusively online only. Traditional investing has experienced a revolution due to the rise of the e-brokerage industry, which enables investors to use the Internet to conduct secure trading. Two factors are contributing to the enormous growth of online investing. First, the Internet gives ready access to raw data. Second,

investment houses can offer transactions at lower prices than traditional methods by eliminating the need for brokers or financial advisers. The online brokerage industry has yet to attract mainstream investors, who represent 85 percent of the retail investment community. These investors prefer a combination of brokerage services, including not only online trading, but also financial advice and guidance.

EAI

EAI (enterprise application integration) is a business computing term for the plans, methods, and tools aimed at modernizing, consolidating, and coordinating the computer applications in an enterprise. Typically, an enterprise has existing legacy applications and databases and wants to continue to use them while adding or migrating to a new set of applications that exploit the Internet, e-commerce, extranet, and other new technologies. EAI may involve developing a new total view of an enterprise's business and its applications, seeing how existing applications fit into the new view, and then devising ways to efficiently reuse what already exists while adding new applications and data. EAI encompasses methodologies such as object-oriented programming, distributed, cross-platform program communication using message brokers with Common Object Request Broker Architecture and COM+, the modification of enterprise resource planning (ERP) to fit new objectives, enterprise-wide content and data distribution using common databases and data standards implemented with the Extensible Markup Language (XML), middleware, message queueing, and other approaches.

EBPP

On the Internet, electronic bill presentment and payment (EBPP) is a process that enables bills to be created, delivered, and paid over the Internet. The service has applications for many industries, from financial service providers to telecommunications companies and utilities. Although buying products over the Internet with a credit card has become a common occurrence, viewing the credit card bill itself - and making payments to settle the bill electronically - has not. This is expected to dramatically change as new EBPP products are introduced that include features such as secure e-mail delivery, and also as EBPP technology becomes more common in business-to-business e-commerce. One of the obstacles to widespread adoption of EBPP lies in the complexity of billing systems and processes used by competing banks and financial institutions. Some have resisted implementing EBPP for fear of being unable to cross-promote other services to customers, although experts claim EBPP appears ideal for this type of marketing. The banking industry also has been resistant for fear of losing out on lucrative cash-management services, reminiscent of the battle the industry fought and lost over credit card transactions. Disputes over adopting uniform security and implementation standards also have stalled the adoption of EBPP. The common protocol known as the Open Financial Exchange would allow firms to integrate their systems. But the protocol has not been widely embraced, especially by banks, which are concerned about possibly losing control of their vital customer information. A second competing standard also is emerging. Spectrum, a joint venture of The Chase Manhattan Corp., First Union Corp. and Wells Fargo & Co., is adopting the Interactive Financial Exchange (IFX) protocol. The IFX Forum, an organization that comprises financial institutions, billers, insurance companies and vendors, is developing IFX. Despite these difficulties, experts predict the industry will experience a growth spurt, driven by customers who want the convenience and

time savings associated with being able to access, view and remit their bills directly online.

E-Cash
Pl. see Digital cash

E-Contact center
A contact center (also referred to as a *customer interaction center* or *e-contact center*) is a central point in an enterprise from which all customer contacts are managed. The contact center typically includes one or more online call centers but may include other types of customer contact as well, including e-mail newsletters, postal mail catalogs, Web site inquiries and chats, and the collection of information from customers during in-store purchasing. A contact center is generally part of an enterprise's overall customer relationship management (CRM). A contact center would typically be provided with special software that would allow contact information to be routed to appropriate people, contacts to be tracked, and data to be gathered. A contact center is considered to be an important element in multichannel marketing.

E-copy
An e-copy is an electronic copy of a document. For example, when you send someone an e-mail note and specify that a copy of the note should be sent to someone else, the copy could be called an e-copy. The term does not seem to be very widely used, perhaps because, like e-mail, electronic copying is becoming so commonplace that identifying the copy as "electronic" seems unnecessary. Notice how often people today say "I'll send you a note" or "I'll send you some mail," because the electronic context is understood.

Edutainment
Edutainment is a neologism (new term coinage), similar to infotainment, that expresses the marriage of education and entertainment in a work or presentation such as a television program or a Web site. The most educationally effective children's programs on television (Sesame Street, The Electric Company, Mr. Rogers) could be classed as edutainment. Outstanding Web sites that "edutain" include Learn2.com and HowStuffWorks.com.

E-Form
An e-form (electronic form) is a computer program version of a paper form. Aside from eliminating the cost of printing, storing, and distributing pre-printed forms, and the wastage of obsolete forms, e-forms can be filled out faster because the programming associated with them can automatically format, calculate, look up, and validate information for the user. With digital signatures and routing via e-mail, approval cycle times can be significantly reduced. With electronic submission of completed forms, you can eliminate the cost of rekeying data and the associated errors. Compared to paper forms, e-forms allow more focus on the business process or underlying problem for which they are designed (for example, expense reporting, purchasing, or time reporting). They can understand the roles and responsibilities of the different participants of the process and, in turn, automate routing and much of the decision making necessary to process the form. Some e-form products now support many of the well established Internet/intranet protocols.

Organizations that rely on intranets and the Internet for internal, public, and business-to-business communications can further benefit by integrating intelligent e-forms for data collection and process automation. Many software programs include e-forms as an integral part of the application.

Egosurfing

Egosurfing is looking to see how many places on the Web your name appears. On Alta Vista, you can also see how many times it appears in Usenet postings. On Google or Alta Vista and most other search engines, simply enter your name surrounded by double quotes in the search field like this: "Your Name"and you may be surprised to discover that you're a celebrated personage on someone's Web page or that the local task force report you helped write got put on the Web. Egosurfing is also a way to find out how many of your site's Web pages are either indexed by the search engine or referred to by other sites. Just enter your second-level domain name, enclosed in quotes.

E-Ink

E Ink is an electronic device that is similar to a computer display, but with qualities that enable it to be used for applications such as eBooks, electronic newspapers, portable signs, and foldable, rollable displays. E Ink Corp. (a Cambridge, Massachusetts company) and Lucent are developing the device, which combines E Ink's electronic ink with Lucent's flexible transistors. Prototypes have featured 25-inch display areas involving several hundred pixels. Although the new technology's more complex applications - such as electronic newspapers and improved e-books that are very similar to traditional books - are likely still at least 10 years in the future, E Ink is currently being tried for simpler applications, such as retail signage. The E Ink prototypes combine thin, plastic transistors with polymer LEDs (light-emitting diodes) to create what are called smart pixels. The process involved - which is not dissimilar to traditional printing processes - uses silicon rubber stamps to actually print tiny computer circuits onto the surface. The electronic ink used is a liquid substance consisting of millions of tiny capsules floating in a substance like vegetable oil. The capsules, which are filled with a dark dye, contain negatively charged white chips that move either up or down within the capsules in response to a positive charge applied to the medium's surface. Information to be displayed is downloaded through a connection to a computer or a cell phone, or created with mechanical tools such as an electronic "pencil," and remains fixed until another charge is applied to change it. The devices use very low power: according to a spokesperson, prototypes of the device have been running on watch batteries. Xerox, in partnership with 3M is working on a competing technology, called Gyricon.

E-government

E-Business

E-business (electronic business), derived from such terms as "e-mail" and "e-commerce," is the conduct of business on the Internet, not only buying and selling but also servicing customers and collaborating with business partners. One of the first to use the term was IBM, when, in October, 1997, it launched a thematic campaign built around the term. Today, major corporations are rethinking their businesses in terms of the Internet and its new culture and capabilities. Companies

are using the Web to buy parts and supplies from other companies, to collaborate on sales promotions, and to do joint research. Exploiting the convenience, availability, and world-wide reach of the Internet, many companies, such as Amazon.com, the book sellers, have already discovered how to use the Internet successfully. Increasingly, much direct selling (or e-tailing) is taking place on the Internet of computer-related equipment and software. One of the first to report sales in the millions of dollars directly from the Web was Dell Computer. Travel bookings directly or indirectly as a result of Web research are becoming significant. Custom-orderable golf clubs and similar specialties are considered good prospects for the immediate future. With the security built into today's browsers and with digital certificates now available for individuals and companies from Verisign, a certificate issuer, much of the early concern about the security of business transaction on the Web has abated and e-business by whatever name is accelerating. IBM considers the development of intranets and extranets to be part of e-business. e-business can be said to include *e-service*, the provision of services and tasks over the Internet by application service providers (ASP).

E-commerce
E-commerce (electronic commerce or EC) is the buying and selling of goods and services on the Internet, especially the World Wide Web. In practice, this term and a newer term, e-business, are often used interchangably. For online retail selling, the term e-tailing is sometimes used. E-commerce can be divided into:
- E-tailing or "virtual storefronts" on Web sites with online catalogs, sometimes gathered into a "virtual mall"
- The gathering and use of demographic data through Web contacts
- Electronic Data Interchange (EDI), the business-to-business exchange of data
- e-mail and fax and their use as media for reaching prospects and established customers (for example, with newsletters)
- Business-to-business buying and selling
- The security of business transactions
- E-tailing or The Virtual Storefront and the Virtual Mall

As a place for direct retail shopping, with its 24-hour availability, a global reach, the ability to interact and provide custom information and ordering, and multimedia prospects, the Web is rapidly becoming a multibillion dollar source of revenue for the world's businesses. A number of businesses already report considerable success. As early as the middle of 1997, Dell Computers reported orders of a million dollars a day. By early 1999, projected e-commerce revenues for business were in the billions of dollars and the stocks of companies deemed most adept at e-commerce were skyrocketing. Although many so-called dotcom retailers disappeared in the economic shakeout of 2000, Web retailing at sites such as Amazon.com, CDNow.com, and CompudataOnline.com continues to grow.

Electronic Data Interchange
Pl. see EDI

E-commerce hosting
E-commerce hosting is a business in which a company provides other companies whatever they need to sell their products and services on the World Wide Web - including a Web server to serve a company's pages, possibly the Web site design

(including catalog pages), and the special capabilities needed to accept, process, and confirm sales orders. e-commerce hosting usually includes providing templates for building virtual storefronts or online catalogs, providing software for customized electronic "shopping carts," taking and filling customer orders, arranging for secure credit-card purchasing, and providing tools for tracking and managing inventory. Here's how it typically works: A company contracts with an e-commerce hosting provider to purchase hosting space on its computer server. This space usually is billed monthly, along with any leasing of computer software for processing online orders. The computer server may be shared with other clients, or in the case of companies expecting a substantial amount of traffic, may be dedicated exclusively to one client. To ensure secure payment processes, these providers also usually assist with setting up Internet merchant accounts, which are bank accounts established to process Visa, MasterCard, American Express and Discover credit-card transactions. Some hosting providers will register a company's domain name as part of the package. E-commerce hosting firms customarily manage all the technical aspects of creating and maintaining a commercial Web site for its customers. For smaller companies, this is often more effective and cost-efficient than setting up and manageing their own e-commerce site themselves since they are essentially sharing the cost of expensive equipment and Internet connections with other companies. An e-commerce hosting provider may also provide services other than managing online transactions, including EDI, the gathering of demographic or other information (usually for marketing purposes), or transactions between businesses (business-to-business e-commerce).

EDI

EDI is the exchange of business data using an understood data format. It predates today's Internet. EDI involves data exchange among parties that know each other well and make arrangements for one-to-one (or point-to-point) connection, usually dial-up. EDI is expected to be replaced by one or more standard XML formats, such as ebXML.

E-Mail, Fax, and Internet Telephony. E-commerce is also conducted through the more limited electronic forms of communication called e-mail, facsimile or fax, and the emerging use of telephone calls over the Internet. Most of this is business-to-business, with some companies attempting to use e-mail and fax for unsolicited ads (usually viewed as online junk mail or spam) to consumers and other business prospects. An increasing number of business Web sites offer e-mail newsletters for subscribers. A new trend is opt-in e-mail in which Web users voluntarily sign up to receive e-mail, usually sponsored or containing ads, about product categories or other subjects they are interested in. Business-to-Business Buying and Selling. Thousands of companies that sell products to other companies have discovered that the Web provides not only a 24-hour-a-day showcase for their products but a quick way to reach the right people in a company for more information.

The Security of Business Transactions - Security includes authenticating business transactors, controlling access to resources such as Web pages for registered or selected users, encrypting communications, and, in general, ensuring the privacy and effectiveness of transactions. Among the most widely-used security technologies is the Secure Sockets Layer (SSL), which is built into both of the leading Web browsers.

Eggdrop

Eggdrop is an Internet Relay Chat (IRC) program for Linux or UNIX users that sits in the background of an IRC channel to manage and protect a chat. Eggdrop, sometimes referred to as a "bot" (short for "robot") program, allows the chat manager to keep a list of users, erase users who haven't been on the channel within a specific time period, keep a list of users who have been banned, prevent channel flooding, and perform other common chat channel management tasks. Assuming that the IRC chat manager's network allows robot programs to be installed, the chat manager must first install TCL (Tool Command Language) on the system so that Eggdrop can be compiled and run. A unique feature of Eggdrop is its ability to allow Eggdrop bots to connect to one another and create a mini-network called a "botnet". Eggdrop has become a standard in IRC, and, as an open source program, is constantly updated and improved by users. It is written in C and distributed according to the GNU General Public License.

Edu

edu" is one of the top-level domain names that can be used when choosing a domain name. It generally describes the entity owning the domain name as a four-year college or similar educational institution. (Educational institutions below four-year colleges are encouraged to use the geographic "us" top-level domain name.) Along with the second-level domain name (for example: "umich" in umich.edu), the top-level domain name is required in Web and e-mail addresses. For more information, see gTLD (generic top-level domain name).

EIP

The enterprise information portal (EIP) is a concept for a Web site that serves as a single gateway to a company's information and knowledge base for employees and possibly for customers, business partners, and the general public as well. In one model, an EIP is made up of these elements: access/search, categorization, collaboration, personalization, expertise and profiling, application integration, and security.

Access/search: Access/search allows a user to get all the information needed (but no more) in the desired context. For example, a loan officer does not need marketing information to approve a loan. An EIP makes sure the loan officer gets only the information needed.

Categorization: An EIP categorizes all information so that it is delivered to the user within the context needed (think of the subject structure on Yahoo)

Collaboration: An EIP allows individuals to collaborate regardless of geographical location.

Personalization: The information provided to individuals using an EIP is personalized to that person?s role, preferences, and habits.

Expertise and profiling: Expertise and profiling is essential for the collaboration element of an EIP. Individuals within an enterprise are profiled according to their experience and competencies. If an individual needs to collaborate with others, he can choose those that are qualified for the project. <LI**Application integration:** This allows individuals to deliver, access, and share information regardless of applications used.

Security: This provides information to users based on security clearance. The user logs on and is given access only to information that the user is authorized to access.

Electronic Postmaster

An electronic postmaster is the capability in a program, usually a special program designated as an e-mail server, for handling the distribution, forwarding, and receiving of e-mail in a network. For example, an Simple Mail Transfer Protocol server at your access provider acts as an electronic postmaster by forwarding your outgoing messages to their destinations in the network and by collecting your incoming messages so that you can request them from a POP3 server that holds your messages until you request that they be sent to your workstation client. When you send a message with an e-mail address that can't be located, the term "electronic postmaster" may appear in the message sent to you by the SMTP server.

Electronic ticket

Pl. see E-ticket

E-mail

E-mail (electronic mail) is the exchange of computer-stored messages by telecommunication. (Some publications spell it *email*; we prefer the currently more established spelling of *e-mail*.) E-mail messages are usually encoded in ASCII text. However, you can also send non-text files, such as graphic images and sound files, as attachments sent in binary streams. E-mail was one of the first uses of the Internet and is still the most popular use. A large percentage of the total traffic over the Internet is e-mail. E-mail can also be exchanged between online service provider users and in networks other than the Internet, both public and private. E-mail can be distributed to lists of people as well as to individuals. A shared distribution list can be managed by using an e-mail reflector. Some mailing lists allow you to subscribe by sending a request to the mailing list administrator. A mailing list that is administered automatically is called a list server. E-mail is one of the protocols included with the Transport Control Protocol/Internet Protocol (TCP/IP) suite of protocols. A popular protocol for sending e-mail is Simple Mail Transfer Protocol and a popular protocol for receiving it is POP3. Both Netscape and Microsoft include an e-mail utility with their Web browsers.

e-mail rage

E-mail rage is the online equivalent of "road rage" - in fact, the new social disorder is sometimes referred to as "road rage on the information superhighway." E-mail's immediacy and informal nature have made it a unique medium for messages: communications are sent without the time for consideration involved in traditional written letters, and without the inhibiting social factors involved in face-to-face communication. In an Internet discussion group, sending a message under the influence of e-mail rage is sometimes called flaming. As in incidents of road rage, e-mail rage happens when people are in an environment where they may tend to respond reflexively, rather than to stop and consider how to effectively react to a given situation. Also as with episodes of road rage, e-mail rage can quickly escalate if the parties communicating both get caught up in the emotion, as the recipient of an offensive or angry e-mail can all too easily hit the "reply" button and have an irate response back to the sender within seconds. Although e-mail rage is less likely than road rage to result in actual physical carnage, careers and reputations have certainly been damaged by it and, at the very least, time has been taken up unnecessarily. To avoid falling prey to e-mail rage, some experts advise

that you should wait a while before sending - or replying to - an angry message, and always try to express yourself without resorting to abusive language.

E-mail reflector
An e-mail reflector is a program that acts as the forwarding broadcaster of e-mail messages to the names on a distribution list. Here's how it works: (1) One member of the distribution list composes an e-mail message or replies to one. (2) The user sends the message to the e-mail reflector (which to the user usually appears to be the list itself) on the server of whomever is managing the e-mail reflector. (3) The e-mail reflector receives the message and automatically forwards a copy to each person on the distribution list. (4) The advantage is that the distribution list can be centrally managed so that everyone will always have the most up-to-date version. Some Internet server products come with an e-mail reflector utility.

Emoticons (Japanese)
In Japan, users have worked out emoticons (or keyboard "smiley faces") adapted to their culture. According to *The New York Times* (August 12, 1996), the Japanese are using emoticons even more than Westerners. Because their PC keyboards handle the two-byte characters of Kanji, users can choose between single- and double-byte versions of certain characters such as underscore characters, allowing a further degree of expression.

End-of-message
Pl. see EOM

Enterprise application integration
Pl. see EAI

Eenterprise Information Portal
Pl. see EIP

Enterprise Resource planning
Pl. see ERP

Enterprise Spend Management
In an enterprise, spend management is managing how to spend money to best effect in order to build products and services. The term is intended to encompass such processes as outsourcing, procurement, e-procurement, and supply chain management. Since the "spend manager" could have a significant impact on a company's results, it has been advocated that this manager have a senior voice in running the company. Ariba is considered the leader in selling software for spend management. It says that its Enterprise Spend Management (TM) Suite encompasses analysis, sourcing, buying, contracting, invoicing, and managing the workforce.

EOM
stands for "end of message." People who exchange a great deal of e-mail sometimes write a very short message in the subject line of an e-mail note and conclude it with: (EOM). This is a little faster to send and saves the receiver from having to take the time to open the note, since the entire message is visible in

the subject line. The "(EOM)" is a signal that the message is wholly contained in the subject line

E-outsourcing

For a business, e-outsourcing is buying information technology products and services that could be furnished in-house from one or a variety of sources on the Internet. For example, an organization might hire a Web hosting firm to set up and run its Web site, an application service provider (ASP) to provide specific back- and front-office applications, and an outside security firm to install and maintain a firewall and a virtual private network (VPN). In a sense, the vendors act as the IT departments for the company, which is then free to focus on its core competency. E-outsourcing may also be provided in a package from one vendor that provides a wide range of services from other vendors. Usually e-outsourcing enables a business running faster than if it tried to deploy the same technology using in-house staff. In the evolving Internet economy, where time to market is crucial and skilled IT labor is scarce, e-outsourcing is gaining in popularity. E-outsourcing isn't without potential pitfalls, though. Some firms are less than confident when it comes to giving e-outsourcers access to their sensitive data. Also, some question how much responsibility an e-outsourcer will accept when its service isn't sufficient and whether it can integrate its offerings with a business's existing infrastructure and legacy applications.

E-Procurement

E-procurement is the business-to-business purchase and sale of supplies and services over the Internet. An important part of many B2B sites, e-procurement is also sometimes referred to by other terms, such as *supplier exchange*. Typically, e-procurement Web sites allow qualified and registered users to look for buyers or sellers of goods and services. Depending on the approach, buyers or sellers may specify prices or invite bids. Transactions can be initiated and completed. Ongoing purchases may qualify customers for volume discounts or special offers. E-procurement software may make it possible to automate some buying and selling. Companies participating expect to be able to control parts inventories more effectively, reduce purchasing agent overhead, and improve manufacturing cycles. E-procurement is expected to be integrated with the trend toward computerized *supply chain management*.

E-Paper

E-paper (sometimes called *radio paper* or just *electronic paper*) is a portable, reusable storage and display medium that looks like paper but can be repeatedly written on (refreshed) - by electronic means - thousands or millions of times. E-paper will be used for applications such as e-books, electronic newspapers, portable signs, and foldable, rollable displays. Information to be displayed is downloaded through a connection to a computer or a cell phone, or created with mechanical tools such as an electronic "pencil". There are a number of different technologies being developed: Xerox, in partnership with 3M, has created an e-paper called Gyricon that is expected to be marketed in the not-distant future and Lucent, in partnership with a company called E Ink, is working on a device (also called E Ink) that is expected to be available within the next few years. Both of these technologies enable a black (or other color) and white display; Philips is working on a type of e-paper that will be full-color, but say that the product is at least 10-15 years away. The Gyricon version consists of a single sheet of

transparent plastic, containing millions of tiny bichromal (two color) beads in oil-filled pockets. Text and images are displayed through a rotation of the beads that occurs in response to an electrical impulse: a full rotation displays as black or white, and a partial rotation displays as gray shades. Like traditional paper, Gyricon has - and needs - no lighting component. Lucent's E Ink device uses electronic ink and combines thin, plastic, flexible transistors with polymer LEDs (light-emitting diodes) to create what are called smart pixels. The process involved - which is not dissimilar to traditional printing processes - uses silicon rubber stamps to actually print tiny (as small as those for the Pentium III processor) computer circuits onto the surface. E Ink uses electronic ink for display: a liquid plastic substance consisting of millions of tiny capsules filled with light and dark dyes that change color - charged dye particles move either up or down within the capsules - when exposed to an electric charge. According to Paul Drzaic, the director of display technologies, prototypes of the device have been running on watch batteries. The E Ink technology has been used for retail signs. Neither the Lucent/E Ink version nor the Gyricon version require a constant power source; the initial charge creates the display, which then remains fixed until another charge is applied to change it. Low power demand is an important consideration for a technology that is intended to - at least partially - supplant a power-independent, standalone application like paper. The challenge involved in creating viable e-paper is to develop a material that has the desirable characteristics of traditional paper in addition to its own intrinsic benefits (such as being automatically refreshable). Like traditional paper, e-paper must be lightweight, flexible, glare-free, and affordable, if it is to gain consumer approval. Developers of both the competing e-papers claim to have accomplished most of these qualities in their products. The first e-paper products will be Gyricon-based: portable, reusable pricing signs for stores that can be changed instantly through a computer link; the first Gyricon-based electronic newspaper is expected to be available within the next 3 years.

ERP
ERP (Enterprise resource planning) is an industry term for the broad set of activities supported by multi-module application software that helps a manufacturer or other business manage the important parts of its business, including product planning, parts purchasing, maintaining inventories, interacting with suppliers, providing customer service, and tracking orders. ERP can also include application modules for the finance and human resources aspects of a business. Typically, an ERP system uses or is integrated with a relational database system. The deployment of an ERP system can involve considerable business process analysis, employee retraining, and new work procedures. In a recent trend, SAP, Peoplesoft, and J. D. Edwards are among ERP product providers offering ERP outsourcing.

E-Services
E-services, a business concept developed by Hewlett Packard (HP), is the idea that the World Wide Web is moving beyond e-business and e-commerce (that is, completing sales on the Web) into a new phase where many business services can be provided for a business or consumer using the Web. Some e-services, such as remote bulk printing, may be done at a Web site; other e-services, such as news updates to subscribers, may be sent to your computer. Other e-services will be done in the background without the customer's immediate knowledge. HP defines e-services as "modular, nimble, electronic services that perform work, achieve

tasks, or complete transactions." Using HP's e-services concept, any application program or information resource is a potential e-service and Internet service providers (ISPs) and other companies are logical distributors or access points for such services. The e-services concept also sees services being built into "cars, networked devices, and virtually anything that has a microchip in it." HP's vision is that IT departments will increasingly address their needs in a modular way so that individual modules can potentially be addressed by some e-service.

HP notes three trends:

The increasing availability of "apps-on-tap" - for accounting, payment systems, purchasing, and enterprise resource planning (ERP). (HP offers several of these services.)

An increase in the number of specialized Web portal sites such as OpenSkies (travel services) and Ariba.com's e-procurement services.

More on-the-fly handling of service requests that may require handling by several companies.

HP sees its e-speak application development facilities as supporting e-services. Also see application service provider (ASP).

E-Tailware

E-tailware is software for creating online catalogs, ordering forms, credit checking, and similar services for Web sites that sell goods and services to consumers. A number of e-tailware products provide a complete range of support so that a company that already has a Web site can easily add e-tailing capability to the site.

ETRN

ETRN (Extended Turn) is an extension to the Simple Mail Transfer Protocol (SMTP) that allows an SMTP server to send a request to another SMTP server to send any e-mail messages it has. Typically, SMTP is used with two other protocols, Post Office Protocol 3 (POP3) or Internet Message Access Protocol (IMAP), to request messages from a server because SMTP by itself cannot request mail to be sent. ETRN is designed for use by anyone who is traveling and wants to get access to their mail. ETRN can only be used with Internet service providers that support ETRN. The latest version of the widely used SMTP server, sendmail, supports ETRN. The details of ETRN are in Request for Comments 1985 of the Internet Engineering Task Force (IETF), *SMTP Service Extension for Remote Message Queue Starting*.

ESMTP

ESMTP (Extended Simple Mail Transfer Protocol) specifies extensions to the original protocol for sending e-mail that supports graphics, audio and video files, and text in various national languages. The original Internet protocols for sending e-mail are described in Request for Comments (RFC) 822, Standard for the Format of ARPA Internet Text Messages, and in RFC 821, Simple Mail Transfer Protocol (SMTP). As users began to want to attach various kinds of files to e-mail, the need for additional capabilities arose and resulted in RFC 1869, Extended Simple Mail Transfer Protocol. ESMTP provides the capability for a client e-mail program to ask a server e-mail program which capabilities it supports and then communicate accordingly. Currently, most commercial e-mail servers and clients support ESMTP.

E-Speak

E-speak is an open software platform designed by HP to facilitate the delivery of e-services (electronic services) over the Internet. Based on Extensible Markup Language (XML) and often compared to Microsoft's .NET initiative, e-speak was designed to automate tasks people would have to complete personally by letting the computers involved talk to each other. To understand e-speak, pretend you are thinking of taking a vacation to Paris. Instead of searching the Web for an airline, hotel, and rental car (and then spending hours looking through individual Web sites to see which services/prices fit your criteria), you would submit your criteria to a registered e-services site and and a services agent would find the registered providers that met your requirements. An added advantage of using a registered e-service site would be that if for some reason you missed your flight and had to take a later one, all the e-services site computers involved in your travel arrangements would notify each other and re-adjust your reservations accordingly.

Electronic ink

Electronic ink is a liquid substance, in development at MIT's Media Lab in partnership with a company called E Ink, that responds to electrical impulses to enable changeable text and image displays on a flexible surface. Electronic ink will be used for applications such as e-books, electronic newspapers, portable signs, and foldable, rollable displays. Electronic ink consists of millions of tiny capsules filled with dark dyes and containing negatively charged white chips, floating in a substance like vegetable oil. With a printer-like device, the electronic ink-coated material - which, according to researchers, could be just about any flat surface - is subjected to electrical impulses that act upon the white chips to make them display as light or dark-colored. A positive charge applied to an area on the top of the display medium causes the white chips to float to the top surface, and a charge applied to an area on the bottom of the medium causes them to drop to the bottom. The pattern of charges applied in concert enables the display of images and text. Information to be displayed is downloaded through a connection to a computer or a cell phone, or created with mechanical tools such as an electronic "pencil". Lucent and E Ink are developing a device (also called E Ink) that uses electronic ink and combines thin, plastic, flexible transistors with polymer LEDs (light-emitting diodes) to create what are called smart pixels. The process involved - which is not dissimilar to traditional printing processes - uses silicon rubber stamps to actually print tiny computer circuits onto the surface. Electronic ink has been used for simple displays, such as retail signs. Researchers say that more complex displays using the technology are still several years away. Displays written in electronic ink are bi-stable: they remain fixed until another charge is applied to change them. Once you had read the first section of your electronic newspaper you would select the next section that you wanted to read, download it from a wireless Internet connection and have the paper automatically refreshed to display, for example, the arts or sports news that you wanted to read. Another expected application of electronic ink is a more book-like version of the e-book. Consisting of a similar number of e-paper pages, and having the same look and feel as a traditional book, the future technology would allow the reader to download book after book to the same physical device. E Ink claims that a device written with electronic ink could be rewritten as many as 300 million times.

Electronic newspaper

An electronic newspaper is a self-contained, reusable, and refreshable version of a traditional newspaper that acquires and holds information electronically. (The electronic newspaper should not be confused with newspapers that offer an online version at a Web site.) The near-future technology - researchers expect to have the product available as soon as 2003 - will use e-paper (electronic paper) as the major component. Information to be displayed will be downloaded through a wireless Internet connection. A number of versions of the future technology are in development, although there are two frontrunners: Xerox's Palo Alto Research Center (PARC) is working on a newspaper that would consist of a single sheet of their e-paper (called Gyricon), while Lucent, in partnership with a company called E Ink, is working on a multi-page device (also called E Ink). The Gyricon version consists of a single sheet of transparent plastic, containing millions of tiny bichromal (two color) beads in oil-filled pockets. Text and images are displayed through rotation of the beads that occurs in response to electrical impulses: a full rotation displays as black or white, and a partial rotation displays as gray shades. Nick Sheridon, a senior research fellow at PARC, has been working towards a viable electronic newspaper for over twenty years. Sheridon sees Xerox's device as consisting of a sheet of Gyricon wound around a spring mechanism in a lightweight cylinder. The user would pull the page out of a slit in the cylinder; in the process, the page would pass over a printer-like device which had downloaded data from the Internet through a wireless connection. To access another page, the reader would return the sheet to the cylinder, select the page, and draw the sheet from the scroll. The device could be carried like an umbrella, and would fit in a large purse or a briefcase. Sheridon projects that a Gyricon-based electronic newspaper could be available within three years. Currently, Gyricon uses 50-micron beads for a resolution of 200 dpi (dots per inch); the use of 30-micron beads will increase resolution to 300 dpi, slightly better than that of traditional newspapers.

Electronic program guide
Pl. see EPG.

Enterprise Information Portal
Pl. See EIP

ENUM
ENUM is a standard adopted by the Internet Engineering Task Force (IETF) that uses the domain name system (DNS) to map telephone numbers to Web addresses or uniform resource locators (URL). The goal of the ENUM standard is to provide a single number to replace the multiple numbers and addresses for an individual's home phone, business phone, fax, cell phone, and e-mail. The ENUM standard is a joint effort of Telecordia and Verisign. Every toll-free call in the United States depends on Telecordia software. Verisign is the leader in translating over 24 million .com, .NET, and .org domain names on the Internet. Verisign is also a leader in Internet security.

Environment Variable
An environment variable defines some aspect of a user's environment that can vary. Generally set during the login procedure, the environment variable establishes some component of the user's working environment, such as the default printer, browser, or text editor to be used. Because these are preset as values specific to the identified user, they save time that would be used selecting

them at each login. Environment variables are used across multiple languages and operating systems to provide information to applications that may be specific to the user request. The UNIX shell uses environment variables to send information about the user's environment (such as the current working directory or the terminal type, for example) to the programs being run. The variable definitions are passed on to any program that is not built into the shell, and can be consulted, or modified by the program. For example, "TERM" (environment variables are expressed as upper case by programming convention) defines the type of terminal used, "PATH" defines the directories to be searched for programs corresponding to command names, and "USER" defines the particular user, so that access permissions may be checked for each request. The common gateway interface (CGI) uses environment variables that are set when the server executes the gateway program, to pass information about requests from the server to the script. The server sends out environment variable definitions such as "SERVER_SOFTWARE," which identifies the name and version of the responding server software; "SERVER_NAME," which identifies the server's hostname, DNS alias, or Internet Protocol (IP) address; and "GATEWAY_INTERFACE," which identifies the CGI specification used. These environment variables are not request-specific, and are sent with every request. Other environment variables are specific to the type of request being sent, such as "SERVER_PROTOCOL," which identifies the name and revision of the protocol used for the request, and "REQUEST_METHOD," which identifies the method used for the request.

EPG

An electronic program guide (EPG) is an application used with digital set-top boxes and newer television sets to list current and scheduled programs that are or will be available on each channel and a short summary or commentary for each program. EPG is the electronic equivalent of a printed television program guide. An EPG is accessed using a remote control device. Menus are provided that allow the user to view a list of programs scheduled for the next few hours up to the next seven days. A typical EPG includes options to set parental controls, order pay-per-view programming, search for programs based on theme or category, and set up a VCR to record programs. Each digital television (DTV) provider offers its own user interface and content for its EPG.

E-ticket

An e-ticket (electronic ticket) is a paperless electronic document used for ticketing passengers, particularly in the commercial airline industry. Virtually all major airlines now use this method of ticketing. When a customer books a flight by telephone or using the Web, the details of the reservation are stored in a computer. The customer can request that a hardcopy confirmation be sent by postal mail, but it is not needed at the check-in desk. A confirmation number is assigned to the passenger, along with the flight number(s), date(s), departure location(s), and destination location(s). When checking in at the airport, the passenger simply presents positive identification. Then necessary boarding passes are issued, and the passenger can check luggage and proceed through security to the gate area. The principal advantage of e-ticketing is the fact that it reduces booking expense by eliminating the need for printing and mailing paper documents. Another advantage is that it eliminates the possibility of critical documents getting lost in the mail or being sent to the wrong address.

Evernet
The term *Evernet* has been used to describe the convergence of <u>wireless</u>, <u>broadband</u>, and Internet telephony technologies that will result in the ability to be continuously connected to the Web anywhere using virtually any information device. Considered the next generation of Internet access, the Evernet assumes the emergence of an amount of <u>bandwidth</u> that would enable millions of homes to access the Web through inexpensive <u>cable modem</u>, <u>DSL</u>, or wireless connections. The "Evernet" can also be considered to include common household appliances and home and office networks that include devices that control the environment; such networks require an "always on" capability. In addition, portable devices that can connect quickly and easily without wires to other devices (see <u>Bluetooth</u>) might also be considered part of the Evernet.

Evergreen
On the Internet, *evergreen* is a term used by some ad agencies to describe a <u>Web site</u> that is updated on a daily or other frequent basis. A Web site that is evergreen is considered more likely to attract both first-time and repeat visitors. If a media buyer for an ad agency is selecting a number of sites for an ad campaign, whether a site is considered evergreen may determine whether it's included in the campaign. A Web site that is not updated frequently enough is termed *brown*. Web sites or tools (such as Alexa) that evaluate other sites sometimes rate a site for *freshness*. One obvious way to change a site every day is to include <u>JavaScript</u> code on the home page that automatically changes the date. This is not usually enough to warrant a rating of "evergreen," however.

Exchange-to-Exchange
Pl. see E2E

Exim
Exim is an <u>open source</u> mail transfer agent (MTA), which is a program responsible for receiving, routing, and delivering e-mail messages (this type of program is sometimes referred to as an *Internet mailer*, or a *mail server program*). MTAs receive e-mail messages and recipient addresses from local users and remote <u>host</u>s, perform <u>alias</u> creation and forwarding functions, and deliver the messages to their destinations. Exim was developed at the University of Cambridge for the use of <u>UNIX</u> systems connected over the Internet. The software can be installed in place of <u>sendmail</u>, the most common MTA for UNIX and <u>Linux</u> systems; in comparison to sendmail, Exim is said to feature more straightforward configuration and task management. Exim was developed in 1995, by Philip Hazel, in response to demands created by the growing (and changing) Internet. Early MTAs were usually run as open relays, just routing and delivering mail without applying many rules or security controls. Hazel realized that MTAs had to include more options for controlling mail acceptance. Also, MTAs at that time included support for older technologies (such as <u>UUCP</u>), which made their coding and configuration more complicated than necessary. Exim features include user options for defense against <u>mail bomb</u>s and unsolicited junk mail: users can set options to refuse messages from particular senders, hosts, or networks. Exim can be run on any TCP/IP network, in conjunction with any combination of host and user software, and is the default MTA included on some Linux systems.

Exploit
In computing, an exploit is an attack on a computer system, especially one that takes advantage of a particular vulnerability that the system offers to intruders. Used as a verb, the term refers to the act of successfully making such an attack. Many crackers (or hackers, if you prefer that term) take pride in keeping tabs of such exploits and post their exploits (and discovered vulnerabilities) on a Web site to share with others. Where an exploit takes advantage of a weakness in an operating system or vended application program, the owners of the system or application issue a "fix" or patch in response. Users of the system or application are responsible for obtaining the patch, which can usually be downloaded from the Web. Failure to install a patch for a given problem exposes the user to a security breach. (However, it can be difficult to keep up with all the required patches.)

Extended Simple Mail Transfer Protocol
Pl. see ESMTP

Extensible Hypertext Markup Language
Pl. XHTML

Extensible Markup Language
Pl. see XML

Extensible Stylesheet Language
Pl. see XSL

Extranet
An extranet is a private network that uses the Internet protocol and the public telecommunication system to securely share part of a business's information or operations with suppliers, vendors, partners, customers, or other businesses. An extranet can be viewed as part of a company's intranet that is extended to users outside the company. It has also been described as a "state of mind" in which the Internet is perceived as a way to do business with other companies as well as to sell products to customers. An extranet requires security and privacy. These require firewall server management, the issuance and use of digital certificates or similar means of user authentication, encryption of messages, and the use of virtual private networks (VPN) that tunnel through the public network. Companies can use an extranet to:
- Exchange large volumes of data using Electronic Data Interchange (EDI)
- Share product catalogs exclusively with wholesalers or those "in the trade"
- Collaborate with other companies on joint development efforts
- Jointly develop and use training programs with other companies
- Provide or access services provided by one company to a group of other companies, such as an online banking application managed by one company on behalf of affiliated banks
- Share news of common interest exclusively with partner companies

Netscape, Oracle, and Sun Microsystems formed an alliance to ensure that their extranet products can work together by standardizing on JavaScript and the Common Object Request Broker Architecture (CORBA). Microsoft supports the Point-to-Point Tunneling Protocol (PPTP) and is working with American Express and other companies on an Open Buying on the Internet (OBI) standard. The Lotus

Corporation is promoting its groupware product, <u>Notes</u>, as well-suited for extranet use.

ezine

The term *ezine* is short for "electronic magazine." "E-zine" and "e-Zine" are spelling variations. A similar term is "ejournal." There are several usages of the term *ezine*. The term is similar to *zine*, which is derived from *magazine* and is used to describe "small press" or personally distributed magazines or newsletters. An early use of the term *ezine* described a new kind of Web site that contained a stylized mixture of content (articles, pictures, poetry, fiction, and comment) conveyed in a way that exploited and celebrated the Web as a new information medium. Examples include Salon and HotWired. Some ezines publishers saw ezines as an opportunity to reach an audience electronically and more economically than was possible with print medium. As a result, hundreds of Web site ezines were created, each devoted to a special cause, subject, or sensibility. This kind of ezine is roughly the cyberspace equivalent of the printed version and when printed out, is in fact, the equivalent. The term is also used to describe any print magazine such as *National Geographic* or *Newsweek* that also has an electronic edition. The term also sometimes includes e-mail newsletters, of which there are thousands that can be subscribed to. Some of these refer to themselves as zines or ezines.

Fast Retransmit and Recovery
Pl. see FRR

FastCGI
FastCGI is a programming interface that can speed up Web applications that use the most popular way to have the Web server call an application, the common gateway interface (CGI). According to one FastCGI implementor, user requests coming to a Web site and using a specific application program can be handled 3 to 30 times faster using FastCGI. FastCGI is a plug-in to the Web server. It requires only small changes to existing server applications (such as Perl or Tcl scripts and C and C++ programs) to get the performance benefits. Basically, FastCGI is a program that manages multiple CGI requests within a single process, saving many program instructions for each request. Without FastCGI, each instance of a user requesting a service causes the Web server to open a new process that gets control, performs the service, and then is closed. With FastCGI, the overhead for one process is shared among all currently processing requests. Unlike CGI, with FastCGI, a process runs independently of the Web server, isolating it and thus providing more security. FastCGI is language-independent. It was developed and is copyrighted by Open Market, Inc., which makes it freely available and offers it as an open standard. It offers a single non-proprietary approach for use across platforms and on any Web server.

FC/IP
Fibre Channel over IP (FCIP or FC/IP, also known as *Fibre Channel tunneling* or *storage tunneling*) is an Internet Protocol (IP)-based storage networking technology developed by the Internet Engineering Task Force (IETF). FCIP mechanisms enable the transmission of Fibre Channel (FC) information by tunneling data between storage area network (SAN) facilities over IP networks; this capacity facilitates data sharing over a geographically distributed enterprise. One of two main approaches to storage data transmission over IP networks, FCIP is among the key technologies expected to help bring about rapid development of the storage area network market by increasing the capabilities and performance of storage data transmission.

FCIP Versus iSCSI
The other method, iSCSI, generates SCSI codes from user requests and encapsulates the data into IP packets for transmission over an Ethernet connection. Intended to link geographically distributed SANs, FCIP can only be used in conjunction with Fibre Channel technology; in comparison, iSCSI can run over existing Ethernet networks. SAN connectivity, through methods such as FCIP and iSCSI, offers benefits over the traditional point-to-point connections of earlier

data storage systems, such as higher performance, availability, and fault-tolerance. A number of vendors, including Cisco, Nortel, and Lucent have introduced FCIP-based products (such as switches and routers). A hybrid technology called *Internet Fibre Channel Protocol* (iFCP) is an adaptation of FCIP that is used to move Fibre Channel data over IP networks using the iSCSI protocols.

Fibre Channel over TCP/IP
Pl. see FCIP

FidoNet
Started in 1984, FidoNet is a system for exchanging e-mail and discussion group and other files among users of over 30,000 bulletin board services. FidoNet messages are sent using the UNIX-to-UNIX Copy Protocol (UUCP). Messages can travel over the Internet after being converted to TCP/IP format by computer servers that act as Internet gateway.

File Transfer
File transfer is the movement of one or more files from one location to another. A collection of electronically-stored files can be moved by physically moving the electronic storage medium, such as a computer diskette, hard disk, or compact disk from one place to another or by sending the files over a telecommunications medium. On the Internet, the File Transfer Protocol (FTP) is a common way to transfer a single file or a relatively small number of files from one computer to another. For larger file transfers (a single large file or a large collection of files), file compression and aggregation into a single archive is commonly used. (A zip file is a popular implemention.) Electronic Data Interchange (EDI) is a popular protocol for transferring files in a routine manner between businesses.

File Transfer Protocol
Pl. see FTP

Financial Products Markup Language
Pl. see FPML

Finger
Finger is a program that tells you the name associated with an e-mail address. It may also tell you whether they are currently logged in at their system or their most recent logon session and possibly other information, depending on the data that is maintained about users on that computer. Finger originated as part of BSD UNIX. To finger another Internet user, you need to have the finger program on your computer or you can go to a finger gateway on the Web and enter the e-mail address. The server at the other end must be set up to handle finger requests. A ".plan" file can be created for any user that can be fingered. Commonly, colleges, universities, and large corporations set up a finger facility. Your own Internet access provider may also set up information about you and other subscribers that someone else can "finger." (To find out, enter your own e-mail address at a finger gateway.)
Ph and LDAP are somewhat similar facilities.

First Mover

In the business world, a first mover is a company that aims to gain an advantageous and perhaps insurmountable market position by being the first to establish itself in a given market. Since the arrival of the World Wide Web, many new companies (called "start-ups" until their IPO) have established themselves as first movers in their respective marketplace on the Web. Perhaps the quintessential example of being a first mover on the Web is Yahoo, which provided early Web users with the first popular directory and search engine. Although Yahoo has competition from Alta Vista, Google, and several other companies, its well-entrenched position as the one that got there first along with its easy-to-remember brand name and aggregation of content combine to make it difficult to compete with. Other examples of first movers include Amazon.com (books), Travelocity (airline tickets), and eBay (online auctions). Although each of these has encountered competition, their early arrival and commitment to becoming the predominant owner of their market has seemed to assure their success. One of the usual creeds of companies who attempt to be a first mover and command a market niche is "go big or stay home (GOBOSH)." Once a first mover has become established, the fact that someone has already arrived becomes in itself a barrier to entry for prospective competitors.

Flaming
On the Internet, flaming is giving someone a verbal lashing in public. Often this is on a Usenet newsgroup but it could be on a Web forum or perhaps even as e-mail with copies to a distribution list. Unless in response to some rather obvious flamebait, flaming is poor netiquette. Certain issues tend to provoke emphatically stated responses, but flaming is often directed at a self-appointed expert rather than at the issues or information itself and is sometimes directed at unwitting but opinionated newbies who appear in a newsgroup.

Flamebait
On the Internet, flamebait is a "posting" or note on a Web site discussion forum, an online bulletin board, a Usenet newsgroup, or other public forum that is intended to elicit the extremely strong responses characteristic of flaming and active public discussions. To be effective, flamebait should be a bit subtle (but not too subtle) so that potential flamers will "take the bait." This term is similar to troll, which is an effort to get a reaction from readers but not necessarily for the purpose of eliciting flames. Sometimes flamebait is used just to get a discussion started.

Footbath
In computers, a sheepdip (or, variously, sheep dipping or a footbath) is the checking of media, usually diskettes or CD-ROMs, for viruses before they are used in a computer or network. A sheepdip computer is used only for virus-checking. The computer makes use of one or two antivirus programs that are kept current on a daily basis. Sheep dipping is generally used only for data on external media, not for data directly downloaded from the Internet. However, when files or programs are downloaded from the Internet, an ideal approach for safety's sake is to put them on removable media initially. The removable media can then be run through the sheepdip before transferring the data to the hard disk of a proprietary computer. In sheep farming, sheepdip is a chemical bath given to sheep to rid them of vermin or sheep scab or to clean their wool before shearing.

Forward carbon copy

Forward DNS lookup

Forward DNS lookup is using an Internet domain name to find an IP address. Reverse DNS lookup is using an Internet IP address to find a domain name. When you enter the address for a Web site at your browser (the address is formally called the Uniform Resource Locator, or URL), the address is transmitted to a nearby router which does a forward DNS lookup in a routing table to locate the IP address. Forward DNS (which stands for domain name system) lookup is the more common lookup since most users think in terms of domain names rather than IP addresses. However, occasionally you may see a Web page with a URL in which the domain name part is expressed as an IP address (sometimes called a dot address) and want to be able to see its domain name. An Internet facility that lets you do either forward or reverse DNS lookup yourself is called nslookup. It comes with some operating systems or you can download the program and install it in your computer.

FQDN

A fully-qualified domain name (FQDN) is that portion of an Internet Uniform Resource Locator (URL) that fully identifies the server program that an Internet request is addressed to. The FQDN includes the second-level domain name (such as "Hotmail.com") and any other levels (for example, "www.Yahoo.com" or "www1.somesite.com"). The prefix "http://" added to the fully-qualified domain name completes the URL.

Frames

In creating a Web site, frames is the use of multiple, independently controllable sections on a Web presentation. This effect is achieved by building each section as a separate HTML file and having one "master" HTML file identify all of the sections. When a user requests a Web page that uses frames, the address requested is actually that of the "master" file that defines the frames; the result of the request is that multiple HTML files are returned, one for each visual section. Links in one frame can request another file that will appear in another (or the same) frame. A typical use of frames is to have one frame containing a selection menu in one frame and another frame that contains the space where the selected (linked to) files will appear. Frames, originally created by Netscape as an HTML extension and now part of the HTML 4.0, specification are defined with HTML FRAMESET and FRAME tags. Sites that use frames need to create an alternative scheme of pages for requests from browsers that don't support them and possibly for users that prefer a non-frames version. Frames are described differently in various technologies as explained below:

- In telecommunications, a frame is data that is transmitted between network points as a unit complete with addressing and necessary protocol control information. A frame is usually transmitted serial bit by bit and contains a header field and a trailer field that "frame" the data. (Some control frames contain no data.) Here is a simple representation of a frame, based on the frame used in the frame relay access standard:

Header		Data	Trailer	
Flag (01111110)	Address field	Information (data) field (0-4096 bytes)	Frame check sequence	Flag (01111110)

In the figure above, the flag and address fields constitute the header. The frame check sequence and second flag fields constitute the trailer. The information or data in the frame may contain another encapsulated frame that is used in a higher-level or different protocol. In fact, a frame relay frame typically carries data that has been framed by an earlier protocol program.

- In time-division multiplexing (TDM), a frame is a complete cycle of events within the time division period.
- In film and video recording and playback, a frame is a single image in a sequence of images that are recorded and played back.
- In computer video display technology, a frame is the image that is sent to the display image rendering devices. It is continuously updated or refreshed from a *frame buffer*, a highly accessible part of video RAM.
- In artificial intelligence (AI) applications, a frame is a set of data with information about a particular object, process, or image. An example is the iris-print visual recognition system used to identify users of certain bank automated teller machines. This system compares the frame of data for a potential user with the frames in its database of authorized users.

Freemail

Freemail is a service that provides free e-mail delivery to anyone in exchange for exposure to advertising on the site where you request your e-mail and, in some cases, for some personal information. Assuming you currently get e-mail as part of your Web browser, the advantage to freemail is that you can log in to the freemail provider from anyone's Internet access and don't have to use your own Internet service provider or remember its phone number. If you don't have your own Web account, you can use someone else's computer but still get your own e-mail from the freemail Web site. For example, college students who don't have their own computers or Internet access can register for freemail and send and receive e-mail at their nearest cybercafe. Unlike your regular e-mail interface which is a separate program (although it comes integrated with the popular Web browsers), most freemail providers require using a forms interface with a Web site that is more time-consuming than programs designed expressly for e-mail. In general, freemail is simpler but offers fewer services than when using the e-mail program with your browser and being connected to your own Internet access provider. Among the most popular freemail providers are Hotmail and Yahoo.

FRR

In TCP/IP, fast retransmit and recovery (FRR) is a congestion control algorithm that makes it possible to quickly recover lost data packets. Without FRR, the TCP uses a timer that requires a retransmission timeout if a packet is lost. No new or duplicate packets can be sent during the timeout period. With FRR, if a receiver receives a data segment that is out of order, it immediately sends a duplicate acknowledgement to the sender. If the sender receives three duplicate acknowledgements, it assumes that the data segment indicated by the acknowledgements is lost and immediately retransmits the lost segment. With FRR, time is not lost waiting for a timeout in order for retransmission to begin. FRR works most efficiently when there are isolated packet losses. It does not work efficiently when there are multiple data packet losses occurring over a short

period of time. The fast retransmit/fast recovery algorithm was introduced in 4.3BSD Reno release and is described in RFC 2001 and RFC 2581.

FPML

Financial Products Markup Language (FpML) is a business information exchange standard based on Extensible Markup Language (XML) that enables business-to-business over-the-counter (OTC) financial derivative transactions using the Internet. FpML is used between participating companies for communicating OTC transaction details, within a company for the purpose of sharing OTC transaction information, and between a participating company and an outside firm offering a service related to the OTC transaction. FpML is freely licensed and, because it is independent of the software or hardware used by participating companies, ensures interoperability. FpML focuses on interest rate swaps and Forward Rate Agreements (FRA) but will eventually be used for all aspects of OTC transactions. OTC contracts shared between two companies are highly customized based on the needs of the parties involved. For this reason, prior to the arrival of the Internet and XML, it was not feasible to efficiently carry out the OTC contract process online. Today, companies can electronically structure and negotiate the terms of an OTC contract, execute and confirm the contract, communicate settlement details, and analyze risks using FpML. Chase Manhattan Bank has reviewed and adopted FpML for their OTC Interest Rate Derivative applications. Fuji Capital Markets Corporation used the FpML definition to design their XML-based FRA confirmation prototype. And J.P. Morgan developed an FpML interest rate swap prototype application. Organizations participating in the development and application of FpML include Bank of America, Citigroup, Deutsche Bank, IBM, PricewaterhouseCoopers, J.P. Morgan, Reuters, and UBS Warburg.

FSP

On the Internet, an FSP (full-service provider) is an application service provider (ASP) that offers a wide range of Web-based information technology services to other companies - including the planning and creation of a Web presence, providing needed software applications, and hosting and maintaining the Web site. The FSP aims to consolidate and streamline a customer's Internet operations and to offer a single point of contact for an array of services.

FTP

File Transfer Protocol (FTP), a standard Internet protocol, is the simplest way to exchange files between computers on the Internet. Like the Hypertext Transfer Protocol (HTTP), which transfers displayable Web pages and related files, and the Simple Mail Transfer Protocol (SMTP), which transfers e-mail, FTP is an application protocol that uses the Internet's TCP/IP protocols. FTP is commonly used to transfer Web page files from their creator to the computer that acts as their server for everyone on the Internet. It's also commonly used to download programs and other files to your computer from other servers. As a user, you can use FTP with a simple command line interface (for example, from the Windows MS-DOS Prompt window) or with a commercial program that offers a graphical user interface. Your Web browser can also make FTP requests to download programs you select from a Web page. Using FTP, you can also update (delete, rename, move, and copy) files at a server. You need to logon to an FTP server. However, publicly available files are easily accessed using anonymous FTP. Basic FTP

support is usually provided as part of a suite of programs that come with TCP/IP. However, any FTP client program with a graphical user interface usually must be downloaded from the company that makes it.

FTP Cable

FTP (foil screened twisted pair) cable is a cable containing multiple pairs of copper wire enclosed in a sheath of aluminum foil. It's used in wiring systems in buildings or other environments where heavy noise adjacent to the wire might cause interference. The foil provides insulation not afforded by UTP (unshielded twisted pair), the most common kind of structural wiring. The disadvantage of FTP is that it requires somewhat more care in "earthing" (grounding) than UTP and electrical impedances must be matched when connecting to UTP. Typically, FTP might be used in a factory setting and UTP in an office setting.

FUBAR

FUBAR is an acronym that originated in the military to stand for the words "f***ed up beyond all repair." This is often softened to "fouled up beyond all repair" in reference to hardware. The programming and documentation equivalent is "fouled up beyond all recognition." Sometimes the last word is "recovery" or "reconciliation" or "reason." In a Virtual Address Extension (VAX), the acronym FUBAR has been adapted to refer to the words "failed UniBus address register." Some programmers apparently managed to sneak this by humorless higher-ups, and the term stuck. F.U.B.A.R.

Fully Qualified domain name
Pl. see FQDN

Full-Service Provider
Pl. see FSP

Gateway
A gateway is a <u>network</u> point that acts as an entrance to another network. On the Internet, a <u>node</u> or stopping point can be either a gateway node or a <u>host</u> (end-point) node. Both the computers of Internet users and the computers that serve pages to users are host nodes. The computers that control traffic within your company's network or at your local Internet service provider (<u>ISP</u>) are gateway nodes. In the network for an <u>enterprise</u>, a computer <u>server</u> acting as a gateway node is often also acting as a <u>proxy server</u> and a <u>firewall</u> server. A gateway is often associated with both a <u>router</u>, which knows where to direct a given <u>packet</u> of data that arrives at the gateway, and a <u>switch</u>, which furnishes the actual path in and out of the gateway for a given packet

Geek Speak
Geek speak is how the uninitiated refer to the jargon and special vocabulary used by those immersed in computers and other fields of information technology. Geek speak is usually something that someone else uses. (That person may be viewed as a <u>geek</u> or just someone who knows more than you.) As a person learns about computers, the terms they use become familiar and only the ones they haven't mastered yet continue to be geek speak. The term was used in press coverage of the 1998 (and ongoing) Microsoft antitrust case in which a great deal of industry jargon was heard from witnesses and in e-mail introduced as evidence. Geek speak often sounds like normal English that doesn't quite make sense because familiar words have been given a new meaning. A <u>port</u> is no longer where a ship docks and a <u>spool</u> is no longer what thread comes on. And for that matter, a <u>thread</u> is no longer a thin strand of cotton. And executing a program is not at all the same thing as killing it. <u>chat acronyms</u> could be considered a special branch of geek speak.

Generic Top-level Domain Name
Pl. see GTLD

Giant
In networks, a giant is a <u>packet</u>, <u>frame</u>, cell, or other transmission unit that is too large. Network protocols specify maximum and minimum sizes (and sometimes a single uniform size) for any transmission unit. For example, <u>ATM</u> packages all data into 53-byte cells. Any cell larger than that is discarded and recorded as a giant by network monitoring tools. The Remote Network Monitoring (<u>RMON</u>) standard information base for network adminstration calls them "oversize packets". Pl. also see Runt

Gigapop

Gigapop is short for gigabit point-of-presence, an access point to Internet2, the network collaboration between universities and partners in industry and government to develop advanced Internet technologies and applications such as telemedicine and digital libraries. Currently, over 170 U.S. universities take part using approximately 30 gigapops for access. Gigapops are distributed geographically across the United States and generally support data transfer rates of at least one gigabit per second (Gbps). One gigapop is intended to serve up to 12 participating institutions. A Type I gigapop provides access to the network shared with other gigapops. A Type II gigapop provides access to additional networks needed for research purposes. The Type 2 gigapop requires routing policies and authorization mechanisms. Today's Internet began as an academic and defense research network. Although Internet2 has a similar beginning, it is expected to lead to enhancements to the existing Internet, not to a new or alternative Internet.

Gnutella

Gnutella is a system in which individuals can exchange files over the Internet directly without going through a Web site in an arrangement sometimes described as peer-to-peer (here meaning "person-to-person"). Like Napster and similar Web sites, Gnutella is often used as a way to download music files from or share them with other Internet users and has been an object of great concern for the music publishing industry. Unlike Napster, Gnutella is not a Web site, but an arrangement in which you can see the files of a small number of other Gnutella users at a time, and they in turn can see the files of others, in a kind of daisy-chain effect. Gnutella also allows you to download any file type, whereas Napster is limited to MP3 music files. After installing and launching Gnutella, a user's computer (node) becomes both a client and a server in the network (which is called GnutellaNet) and is able to share files that other Gnutella users have set up to make available. Gnutella, whose name pays homage to both the hazelnut/chocolate spread "Nutella" and the GNU project of the Free Software Foundation, was originally developed by Nullsoft (creators of MP3 and WinAMP). It was never publicly released because Nullsoft's parent corporation (AOL) declared the work an "unauthorized publication". However, the beta version that was made available for preview was an open source program, which resulted in any number of clone variations becoming available that AOL does not own. Although Gnutella and its variants have incurred the wrath of some musicians and the music industry, the defenders of the peer-to-peer approach view it as a new movement that frees individuals to exchange information with each other directly without the supervision and restrictions of brokering Web sites or other third-parties. Sadly, the 25-year old developer of Gnutella, Gen Kan, who suffered from depression, took his own life in July, 2002.

Goat

In biometric verification, a goat is a system end-user who is refused access to the system because their biometric data pattern is outside the range recognized by the system. The term comes from a research paper on speech recognition published in 1998 by George L. Doddington. The paper, "Sheep, Goats, Lambs and Wolves - An Analysis of Individual Differences in Speaker Recognition Performance" used a menagerie analogy to explain the differences in speech recognition. Sheep were

speakers whose voice patterns were easily accepted by the system, goats were speakers who were exceptionally unsuccessful at being accepted, lambs were speakers who were exceptionally vulnerable to impersonation, and wolves were speakers who were exceptionally successful at impersonation. Because false rejection rates are often high when testing a biometric verification system, goats are probably better known than the other animals in Doddington's menagerie.

Google
Google is a popular Web search engine that says it offers search access to over three million Web documents in over 30 languages. Almost half of Google's over 150 million searches a day are said to originate from U.S. locations; the rest come from places as far-flung as Antarctica and Ghana. During its peak traffic hours between six a.m. and noon PST, Google processes over 2,000 user searches per second. The central component of Google searching is its trademarked *PageRank* technology that rates Web pages for usefulness and lists result links accordingly. This works a bit like a Web page popularity contest: the more frequently a page turns up in response to a search query, the more highly it will be ranked and, consequently, the more prominently it will be placed in future search results

Googlewhack
Googlewhack is the challenging pursuit of searching the popular Google search engine with a two-word or more search argument that will produce exactly (no less and no more than) one result. That is, only one Web page in the world (at least as indexed by Google) will happen to have the combination of words you've entered in the search box. Here are some examples of past "Googlewhacks" that have been successful: (1) comparative unicyclist, (2) maladroit wheezer, (3) blithering clops, (4) demurrable insufficiencies and (5) fringe willowing phenomenon. Note that, now that these Googlewhacks have been listed here, they will no longer successfully qualify because once they have been added to another Google-indexed page (such as this one), Google will find more than one result. Although Googlewhacking gained fame with two-word combinations, it is easier to achieve a Googlewhack with three words (hint: use two words to narrow down to a small number of results, then add a third word to the search argument to narrow down to one). Both the term and the occupation of Googlewhacking are the inventions of Gary Stock, a former cryptanalyst, software entrepreneur, and general Web idea man whose current job title is Chief Innovation Officer and Technical Compass of the technology firm Nexcerpt, Inc. Stock maintains a list of Googlewhacks (and made-up meanings) that searchers have contributed to his personal Web site, unblinking.com. Googlewhacking can easily be confused with Googling, the use of Google to locate people and information about them.

Gopher
Gopher was an Internet application (From about 1992 through 1996) in which hierarchically-organized text files could be brought from servers all over the world to a viewer on your computer. Especially in universities, Gopher was a step toward the World Wide Web's Hypertext Transfer Protocol (HTTP), which effectively replaced it within a short time. With hypertext links, the Hypertext Markup Language (HTML), and the arrival of a graphical browser, Mosaic, the Web quickly transcended Gopher. Gopher was developed at the University of Minnesota, whose sports teams are called "the Golden Gophers." Although most Gopher browsers

and files are text-based, Gopher browsers, notably HyperGopher, were developed that displayed graphic images (GIF and JPEG files) that were included in Gopher file directories. Two tools for searching Gopher file hierarchies were Veronica and Jughead. Although the root directory for Gopher is sometimes still accessible at the University of Minnesota or elsewhere and despite some efforts to revive Gopher, virtually all Gopher servers are no longer active. It seems likely that almost all of the original Gopher content has been made accessible on the World Wide Web.

Gopherspace

Gopherspace is a term used to describe the aggregate of all the information on the thousands of Gopher servers in the world. This information consists of individual files (abstracts, full-length documents or papers, lists, and other file types) organized as a hierarchy of subject categories that can be limited to one server or span multiple Gopher servers. Gopher text files are plain files that lack the kinds of formatting control and font variation that HTML files have. One can think of gopherspace as that portion of cyberspace that is accessible through Gopher servers. Users of most Web browsers will find that their Web browser also includes a Gopher client. This means that you can go directly to any Gopher server from your Web browser providing you know the server's address. For example, you can access the University of Utah's Gopher from your Web browser by entering this Uniform Resource Locator: **gopher://gopher.cc.utah.edu**. As the files on Gopher servers are gradually converted to HTML files, gopherspace will become less important. Currently, many useful files can be found only on Gopher servers.

gov

"gov" is one of the top-level domain names that can be used when choosing a domain name. It generally describes the entity owning the domain name as a branch or an agency of the U.S. Federal government. (Other U.S. government levels are encouraged to use the geographic top-level domain name of "us".) Along with the second-level domain name (for example: "whitehouse" in whitehouse.gov), the top-level domain name is required in Web and e-mail addresses.
For more information, see gTLD (generic top-level domain name).

Gray Hat

Gray hat describes a cracker (or, if you prefer, hacker) who exploits a security weakness in a computer system or product in order to bring the weakness to the attention of the owners. Unlike a black hat, a gray hat acts without malicious intent. The goal of a gray hat is to improve system and network security. However, by publicizing a vulnerability, the gray hat may give other crackers the opportunity to exploit it. This differs from the white hat who alerts system owners and vendors of a vulnerability without actually exploiting it in public.

Grid Computing

Grid computing (or the use of a *computational grid*) is applying the resources of many computers in a network to a single problem at the same time - usually to a scientific or technical problem that requires a great number of computer processing cycles or access to large amounts of data. A well-known example of grid computing in the public domain is the ongoing SETI (Search for Extraterrestrial Intelligence) @Home project in which thousands of people are sharing the unused processor cycles of their PCs in the vast search for signs of "rational" signals from outer

space. Grid computing requires the use of software that can divide and farm out pieces of a program to as many as several thousand computers. Grid computing can be thought of as distributed and large-scale cluster computing and as a form of network-distributed parallel processing. It can be confined to the network of computer workstations within a corporation or it can be a public collaboration (in which case it is also sometimes known as a form of peer-to-peer computing). Grid computing appears to be a promising trend for three reasons: (1) its ability to make more cost-effective use of a given amount of computer resources, (2) as a way to solve problems that can't be approached without an enormous amount of computing power, and (3) because it suggests that the resources of many computers can be cooperatively and perhaps synergistically harnessed and managed as a collaboration toward a common objective. In some grid computing systems, the computers may collaborate rather than being directed by one managing computer. One likely area for the use of grid computing will be pervasive computing applications - those in which computers pervade our environment without our necessary awareness.

GTLD

A gTLD (generic top-level domain name) is the top-level domain name of an Internet address that identifies it generically as associated with some domain class, such as .com (commercial), .net (originally intended for Internet service providers, but now used for many purposes), .org (for non-profit organizations, industry groups, and others), .gov (U.S. government agencies), .mil (for the military), .edu (for educational institutions); and .int (for international treaties or databases and not much used). For example, in the domain name, www.ibm.com, .com is the chosen gTLD. In addition to the gTLD, there is the ccTLD (country code top-level domain name) that identifies a specific national domicile for an address. (For instance, .fr for France and .mx for Mexico.) In November 2000, the Internet Corporation for Assigned Names and Number (ICANN), a Los Angeles-based non-profit group that oversees the distribution of domain names, approved seven additional gTLDs. The new gTLDs are .biz, restricted to businesses; .info, open to anyone; .name, for personal registrations; .pro, for licensed professionals such as lawyers, doctors and accountants; .aero, for anything related to air transport; .museum, for museums; and .coop, for co-operative businesses such as credit unions. The group selected these new gTLDs from among more than 40 proposed suffixes. It rejected gTLDs such as .kid, .site, .xxx, .home, .dot, and .site. ICANN is currently negotiating registry agreements with the gTLD applicants it chose. Proponents of adding new gTLDs argue that they are easy to create and free up new space for Internet addresses. Those opposed say more gTLDs only lead to confusion and pose an increased risk of trademark infringement, cybersquatting, and cyberpiracy. ICANN has approved several organizations to register domain names for individuals and businesses. The group has not yet accredited anyone to pre-register names in any of the new gTLDs, and those attempting it do so at their own risk.

Gyricon

Gyricon is a type of electronic paper (sometimes called e-paper) developed at Xerox's Palo Alto Research Center (PARC). The Xerox technology is expected to yield the first complex e-paper products, although other companies (such as Lucent and Philips) are also working on their own versions of e-paper. Gyricon will be used for products such as e-books, electronic newspapers, portable signs, and foldable,

rollable displays. Gyricon consists of a double sided plastic sheet almost as thin as a standard transparency. Within the sheet are millions of bichromal (two color) balls just .1 mm wide, contained in tiny oil-filled pockets in the material. The balls are rotated by exposure to an electrical charge; they rotate fully to display as black or white, or partially (in response to lower electrical pulses), to display a range of grey shades. Images and text are created by the combined display, and are bi-stable: they remain fixed in position until another electrical pulse is applied to change the orientation of the balls. Data will be downloaded to the ePaper through a wireless connection to a computer or a cell phone. PARC, in conjunction with 3M, has already manufactured a large roll of Gyricon, to prove the viability of volume production of the ePaper. Xerox has created a subsidiary company, Gyricon Media Inc. to develop and market the technology, which will be seen as early as the end of 2001 in portable, reusable pricing signs for stores that can be changed instantly through a computer link. Nick Sheridon, a senior research fellow at PARC, projects that a Gyricon-based electronic newspaper could be available within the next few years.

H.248
Pl. see MGCP

Hacker
Hacker is a term used by some to mean "a clever programmer" and by others, especially journalists or their editors, to mean "someone who tries to break into computer systems. A "good hack" is a clever solution to a programming problem and "hacking" is the act of doing it. Thre are five possible characteristics that qualify one as a hacker.
- A person who enjoys learning details of a programming language or system
- A person who enjoys actually doing the programming rather than just theorizing about it
- A person capable of appreciating someone else's hacking
- A person who picks up programming quickly
- A person who is an expert at a particular programming language or system, as in "UNIX hacker"

The term is also genrelary used for someone who attempts to crack someone else's system or otherwise uses programming or expert knowledge to act maliciously. Howver, the preferred term for such person is cracker for this meaning. Journalists or their editors almost universally use hacker to mean someone who attempts to break into computer systems. Typically, this kind of hacker would be a proficient programmer or engineer with sufficient technical knowledge to understand the weak points in a security system. For more on this usage, see cracker.

Hacktivism
Hacktivism is the act of hacking, or breaking into a computer system, for a politically or socially motivated purpose. The individual who performs an act of hacktivism is said to be a *hacktivist*. A hacktivist uses the same tools and techniques as a hacker, but does so in order to disrupt services and bring attention to a political or social cause. For example, one might leave a highly visible message on the home page of a Web site that gets a lot of traffic or which embodies a point-of-view that is being opposed. Or one might launch a denial-of-service attack to disrupt traffic to a particular site. Whether hacktivism is a crime may be debated. Opponents argue that hacktivism causes damage in a forum where there is already ample opportunity for nondisruptive free speech. Others insist that such an act is the equivalent of a protest and is therefore protected as a form of free speech.

Hacktivist
Pl. see hacktivism

HailStorm

Part of Microsoft's .NET initiative, HailStorm is the company's plan to provide a single place on the Web where any individual user (who pays a fee) may securely store personal and financial information that can be shared with others when desired (for example, to pay for something at an online store). HailStorm makes use of the Extensible Markup Language (XML) and the Simple Object Access Protocol (SOAP). The initial set of HailStorm services includes the storing of subscribers' personal information, contacts, locations, profiles, favorite Web sites, and device settings. HailStorm also can provide calendar services and management of inbox items such as e-mail and voice mail. Users pay for all selected services. An example of a HailStorm service might involve an individual booking an airline flight using an online travel reservation service. With the user's permission, the flight is automatically scheduled into his HailStorm-enabled calendar. If the flight is delayed or canceled, the user is automatically notified. HailStorm services can be accessed from any computer, smartphone, personal digital assistant (PDA), or other Internet-connected device. Microsoft believes that HailStorm offers users online privacy that is not currently available at most Web sites. Today, any information entered into an online form at a Web site becomes the property of that Web site. With HailStorm, the user controls all personal information and decides who gets to use it, how long they may use it, and how they may use it. A user can also revoke access to personal information. Microsoft binds HailStorm licensees to specific terms of use that control how data is used. HailStorm services are expected to be available as a beta test in late 2001. Full release is expected in 2002. Industry commentators and competitors express concerns about Microsoft's ability to keep its users' personal information secure and about the need for an open cross-competitor standard as opposed to a proprietary service that becomes a de facto standard.

Hard Bounce

A hard bounce is an e-mail message that has been returned to the sender because the recipient's address is invalid. A hard bounce might occur because the domain name doesn't exist or because the recipient is unknown. When the recipient's name is known, e-mail may be rejected because the sender's mail box is full or for other reasons. This is known as a soft bounce. See bounce e-mail.

Headend

Pl. see Cable Headend

HELLO packet

In the Open Shortest Path First (OSPF) communications protocol - which enables network routers to share information with each other, a HELLO packet is a special packet (message) that is sent out periodically from a router to establish and confirm network adjacency relationships. On networks capable of broadcast or multicast transmission, a HELLO packet can be sent from a router simultaneously to other routers to discover neighboring routers. A BYE packet is a packet transmitted by a multicast participant to signify that the router is leaving the session.

History

In a Web browser, the history is a detailed list of Web sites the computer has visited which remains in a computer's memory for a pre-determined number of

days. (The number of days the computer retains its history can be set in the browser's preferences.) History can be used to backtrack where you have gone on the Web; the list of Web sites in a browser's history can be viewed by date, time of day, title, address (URL), alphabetical order, or number of repeat visits. Many parent groups advocate checking the history of a family computer to monitor where children have gone online. Internet Explorer history can be viewed by clicking on the History icon (which resembles a sun dial) in the browser toolbar. Netscape history can be viewed by clicking on the word "Communicator" followed by "Tools" and then "History".

Hit

A hit is a single file request in the access log of a Web server. A request for an HTML page with three graphic images will result in four hits in the log: one for the HTML text file and one for each of the graphic image files. While a hit is a meaningful measure of how much traffic a server handles, it can be a misleading indicator of how many pages are being looked at. Instead, advertising agencies and their clients look at the number of pages delivered and ad impressions or views

Home Page

For a Web user, the home page is the first Web page that is displayed after starting a Web browser like Netscape's Navigator or Microsoft's Internet Explorer. The browser is usually preset so that the home page is the first page of the browser manufacturer. However, you can set it to open to any Web site. For example, you can specify that "http://www.yahoo.com" or "http://Ilor.com" be your home page. You can also specify that there be no home page (a blank space will be displayed) in which case you choose the first page from your bookmark list or enter a Web address. For a Web site developer, a home page is the first page presented when a user selects a site or presence on the World Wide Web. The usual address for a Web site is the home page address, although you can enter the address (Uniform Resource Locator) of any page and have that page sent to you.

Home School

A home school, a new concept of education in US, is a school in which parents teach their children an academic curriculum at home instead of sending them out to a public or private school. Home schooling education models range from *unschooling* to traditional classroom schooling. Unschooling is based on interest-based learning in which the child expresses interest in a particular subject, and the parents take steps to provide the materials for that subject. Most parents who home school, however, have a traditional setting in which the children are taught subjects such as math, reading, history, science, grammar, and spelling within a structured schedule created by the parents. There are many vendors and satellite schools that provide a packaged curriculum, but many parents like to design their own curriculum with various books and materials from different vendors In most communities, the home school family can take advantage of a local support group. A home school support group organizes monthly meetings in which new and existing home school families discuss different home schooling issues. The group may also arrange for cooperative teaching in which parents with different skills teach a group of home schooled children once a week in a rented or donated building. In some places, the home school group shares in hiring a professional teacher to teach a particular subject. The group may also

arrange field trips and sports activities. A number of home school groups field sports teams that compete against each other or with local private schools. These activities are intended to provide socialization skills for the students Home school families take advantage of technology to supplement traditional teaching. There are many educational software packages that enhance the curriculum and provide variety. The Internet is another useful tool that is literally brimming with educational ideas and resources. There are online libraries, dictionaries, museums, and encyclopedias. Some home school families enroll their children in an online school or course as a supplement to their own teaching. Some home school families teach their children through high school graduation. Others teach their children until they feel they are mature enough to handle peer pressure and other social influences. If a family decides to teach their children through graduation, they must keep records of the schooling that vary from state to state. For those who home school through graduation, the home school community holds a ceremony complete with caps, gowns, and diplomas printed at the local print shop just as public schools do. Colleges do recognize a home school diploma, but most are more interested in high school transcripts and SAT and ACT scores. There are currently over 800 colleges that accept home-schooled graduates including Harvard, Yale, and Stanford. The military also accepts home-schooled graduates who meet the same requirements as those who were taught in conventional schools. The home school movement is getting the attention of private and public schools. In response, some schools are providing support and materials such as books, videos, educational software, science kits, computers, field trips, workshops, and special classes.

Honey Pot

A honey pot is a computer system on the Internet that is expressly set up to attract and "trap" people who attempt to penetrate other people's computer systems. (This includes the hacker, cracker, and script kiddy.) To set up a honey pot, it is recommended that you:

- Install the operating system without patches installed and using typical defaults and options
- Make sure that there is no data on the system that cannot safely be destroyed
- Add the application that is designed to record the activities of the invader
- Maintaining a honey pot is said to require a considerable amount of attention and may offer as its highest value nothing more than a learning experience (that is, you may not catch any hackers).

Host

The term "host" is used in several contexts, in each of which it has a slightly different meaning: In Internet protocol specifications, the term "host" means any computer that has full two-way access to other computers on the Internet. A host has a specific "local or host number" that, together with the network number, forms its unique IP address. If you use Point-to-Point Protocol to get access to your access provider, you have a unique IP address for the duration of any connection you make to the Internet and your computer is a host for that period. In this context, a "host" is a node in a network. For companies or individuals with a Web site, a host is a computer with a Web server that serves the pages for one or more Web sites. A host can also be the company that provides that service, which is known as hosting. In IBM and perhaps other mainframe computer environments, a host is a

mainframe computer (which is now usually referred to as a "large server"). In this context, the mainframe has intelligent or "dumb" workstations attached to it that use it as a host provider of services. (This does not mean that the host only has "servers" and the workstations only have "clients." The server/client relationship is a programming model independent of this contextual usage of "host.") In other contexts, the term generally means a device or program that provides services to some smaller or less capable device or program.

Hosting

Hosting (also known as *Web site hosting*, *Web hosting*, and *Webhosting*) is the business of housing, serving, and maintaining files for one or more Web sites. More important than the computer space that is provided for Web site files is the fast connection to the Internet. Most hosting services offer connections on T-carrier system lines. Typically, an individual business hosting its own site would require a similar connection and it would be expensive. Using a hosting service lets many companies share the cost of a fast Internet connection for serving files. A number of Internet access providers, such as America Online, offer subscribers free space for a small Web site that is hosted by one of their computers. Geocities is a Web site that offers registered visitors similar free space for a Web site. While these services are free, they are also very basic. A number of hosting companies describe their services as virtual hosting. Virtual hosting usually implies that their services will be transparent and that each Web site will have its own domain name and set of e-mail addresses. In most usages, *hosting* and *virtual hosting* are synonyms. Some hosting companies let you have your own virtual server, the appearance that you are controlling a server that is dedicated entirely to your site. *Dedicated hosting* is the provision of a dedicated server machine that is dedicated to the traffic to your Web site. Only very busy sites require dedicated hosting. Many companies purchase their own servers and place them on a site that provides fast access to the Internet. This practice is called colocation.

Hosting Reseller

Reseller hosting is the provision of Web hosting services to companies that in turn act as Web hosts for other companies, typically providing Web site design and management services as well as acting as host for the site and serving its pages to users. For example, a hypothetical Sports Site Server Inc. could provide a package for professional or amateur sports teams that included an easy-to-use approach to creating a Web site as well as the space for the Web site's pages and an easy-to-use interface for keeping the site up-to-date. Sports Site Server would actually use the computer and storage facilities of Giant Host, Inc., a hosting company that offered similar reselling capabilities to many companies like Sports Site Server. A large hosting company that allowed reselling (like Giant Host) might actually host hundreds of Web sites. In general, a reseller is a company that buys a product or service from another company and repackages it, usually adding something to it, to other companies under its own company or brand name.

Hot Standby Router Protocol
Pl. see HSRP

HSRP

Hot Standby Router Protocol (HSRP) is a routing protocol that allows host computers on the Internet to use multiple routers that act as a single virtual router, maintaining connectivity even if the first hop router fails, because other routers are on "hot standby" - ready to go. Configured on Cisco routers running the Internet Protocol (IP) over Ethernet, Fiber Distributed-Data Interface (FDDI), and token ring local area networks (LANs), HSRP provides automatic router backup. The protocol is fully compatible with Novell's Internetwork Packet Exchange (IPX), AppleTalk, and Banyan VINES, and (in some configurations) with Xerox Network Systems (XNS) and DECnet. Developed by Cisco and specified in IETF Request for Comments (RFC) 2281, HSRP ensures that only a single router (called the *active router*) is forwarding packets on behalf of the virtual router at any given time. A standby router is chosen to be ready to become the active router, in the event that the current active router fails. HSRP defines a mechanism used to determine active and standby routers by referring to their IP addresses. Once these are determined, the failure of an active router will not cause any significant interruption of connectivity. On any given LAN, there may be multiple, possibly overlapping, hot standby groups, each with a single Media Access Control (Mac) address and IP address; the IP address should belong to the primary subnet, but must be different from any actual or virtual addresses allocated to any routers or hosts on the network.

HTTP

HTTP (Hypertext Transfer Protocol), the World Wide Web application protocol that runs on top of the Internet's TCP/IP suite of protocols, now exists in a newer version, HTTP 1.1, that promises to bring Web pages a little faster to your browser and reduce some of the Web's enormous traffic. Developed by a committee of the Internet Engineering Task Force (IETF) that includes the Web's chief creator Tim Berners-Lee, HTTP 1.1 exists as a "proposal," but in fact, most major Web servers and browser clients are at some stage of supporting it. Here's a summary of how HTTP 1.1 makes information flow faster: Instead of opening and closing a connection for each application request, HTTP 1.1 provides a *persistent connection* that allows multiple requests to be batched or *pipelined* to an output buffer . The underlying Transmission Control Protocol layer can put multiple requests (and responses to requests) into one TCP *segment* that gets forwarded to the Internet Protocol layer for packet transmission. Because the number of connection and disconnection requests for a sequence of "get a file" requests is reduced, fewer packets need to flow across the Internet. Since requests are pipelined, TCP segments are more efficient. The overall result is less Internet traffic and faster performance for the user. Persistent connection is similar to Netscape's HTTP 1.0 extension called KeepAlive, but provides better handling of requests that go through proxy servers. When a browser supporting HTTP 1.1 indicates it can decompress HTML files, a server will compress them for transport across the Internet, providing a substantial aggregate savings in the amount of data that has to be transmitted. (Image files are already in a compressed format so this improvement applies only to HTML and other non-image data types.) In addition to persistent connections and other performance improvements, HTTP 1.1 also provides the ability to have multiple domain name share the same Internet address (IP address). This will simplify processing for Web servers that host a number of Web sites in what is sometimes called virtual hosting.

HTTPD
On the Web, each server has an *HTTPD* or Hypertext Transfer Protocol daemon that waits in attendance for requests to come in from the rest of the Web. A *daemon* is a program that is "an attendant power or spirit" (Webster's). It sits waiting for requests to come in and then forwards them to other processes as appropriate.

HTTP over SSL
Pl. see HTTPS

HTTPS
HTTPS (Hypertext Transfer Protocol over Secure Socket Layer, or HTTP over SSL) is a Web protocol developed by Netscape and built into its browser that encrypts and decrypts user page requests as well as the pages that are returned by the Web server. HTTPS is really just the use of Netscape's Secure Socket Layer (SSL) as a sublayer under its regular HTTP application layering. (HTTPS uses port 443 instead of HTTP port 80 in its interactions with the lower layer, TCP/IP.) SSL uses a 40-bit key size for the RC4 stream encryption algorithm, which is considered an adequate degree of encryption for commercial exchange. Suppose you use a Netscape browser to visit a Web site to view their online catalog. When you're ready to order, you will be given a Web page order form with a Uniform Resource Locator (URL) that starts with https://. When you click "Send," to send the page back to the catalog retailer, your browser's HTTPS layer will encrypt it. The acknowledgement you receive from the server will also travel in encrypted form, arrive with an https:// URL, and be decrypted for you by your browser's HTTPS sublayer. HTTPS and SSL support the use of X.509 digital certificates from the server so that, if necessary, a user can authenticate the sender. SSL is an open, nonproprietary protocol that Netscape has proposed as a standard to the World Wide Consortium (W3C). HTTPS is not to be confused with S-HTTP, a security-enhanced version of HTTP developed and proposed as a standard by EIT.

Hyper
As an adjective, *hyper* is slang for "keyed up" or "overwrought." Hyper is also a prefix, from the Greek *hyper-*, meaning over, above, or excessive, used in such terms as *hyperbole* (exaggeration in describing something) and hypertext (text that extends to point to or include other text). In science, also as a prefix, hyper- is something that exists in a space of four or more dimensions, such as a *hyperplane*.

Hypertext Transfer Protocol daemon
Pl. see HTPD

Hypertext
Hypertext is the organization of information units into connected associations that a user can choose to make. An instance of such an association is called a link or hypertext link. (And the highlighted word "link" in the previous sentence is an example of a hypertext link.) Hypertext was the main concept that led to the invention of the World Wide Web, which is, after all, nothing more (or less) than an enormous amount of information content connected by an enormous number of hypertext links. The term was first used by Ted Nelson in describing his Xanadu system.

IBF

Internet Business Framework (IBF) is the group of programs that form the technological basis for the mySAP product from SAP, the German company that markets a leading enterprise resource management line of products. An extension of an earlier product called Business Framework Architecture, IBF includes that system's application integration technologies, such as the Business Application Programming Interface (BAPI) and Application Link Enabling (ALE). To enable Internet-based connectivity for R/3 applications, IBF incorporates Internet technologies such as HTML, XML, and HTTP. BAPI and ALE components pass messages that allow R/3 applications to interface with external systems. Within the IBF system, a product called the *SAP Business Connector* translates these messages into a suitable format for the Internet, such as XML, and translates Internet data into a format that can be used by the R/3 application. IBF and similar products were created to spur the development of e-business and Web-based collaboration. According to a recent Gartner Group study, the average midsized company has 30 different systems that are neither integrated, nor Web-enabled. Integration is further problematized because each company's business processes may be different from those of potential trading partners. IBF was developed to overcome those specific hurdles. It integrates business processes through its use of Internet standards for the exchange of data and enables Web-based collaboration, as well as a Web-based point of access for the end user.

Ice

Ice, jello, and liquid are related terms describing three approaches to controlling content placement on a Web page. Because the browser user can control and change both screen resolution and window size, the Web page designer is challenged to design a page that will achieve its intended effect in spite of user resizing. An ice page is one in which the primary content has a fixed width in pixel and assumes a left margin alignment. Such a page is designed to display optimally on one particular display resolution setting and window size and either specifies or assumes that size. If the resolution is set to a different setting, the page may have unneeded space on the right size of the display window, but this is a risk that the designer chooses to take. A jello page is one in which the primary content is centered on the page. It also has a fixed-width column, but it is always centered in any size window and at any display resolution. Its center alignment eliminates the excessive right margin seen in an "ice" page (when viewed on a large monitor). But it can have excessive margins on both sides of the centered content. A liquid page, according to Glenn Davis of Project Cool, is (to paraphrase slightly):..."a Web page that will reflow to fit no matter what size window you pour it into." Unlike the ice and jello approaches, a liquid page or content area leaves no blank margin on the right or the left. However, unless special care is taken, elements in a liquid page can

sometimes have too much or too little space between them. More sophisticated designers sometimes use a combination of tables and tables-within-tables to define and control layout space and element placement in the various resolutions and windows sizes users may choose to use. To create liquid content spaces or pages, you may be able to determine the window size and dynamically adjust your content layout to meet each user's requirements. For ICE, see Information and Content Exchange.

IceNewk
Pl. see Ping of Death

ICMP bug
Pl see Icenetwork

ICP
An ICP (Internet commerce provider) is a company that sells software and services that enable a merchant with a Web site to build an online store on the merchant's own site or on the provider's site. Products and services can be pre-packaged or customized or some combination. Typically, a pre-packaged ICP product lets a merchant set up an online store using one of several design templates, arranges for secure credit card transactions, and provides order tracking. An ICP may also provide services related to order fulfillment, such as shipping and customer relations. Some Internet access providers (IAP) and Web design shops also act as ICPs, offering customized services or serving as a vendor of packaged products.

ICQ
ICQ ("I Seek You") is a program you can download that will let you know when friends and contacts are also online on the Internet. ICQ allows you to page them, chat with them, and initiate and participate in PC-to-PC calls, PC-to-phone and phone-to-phone calling cards calls. Like AOL's Instant Messenger (AIM), in order to use ICQ, both parties must have downloaded the program. The free download and registration procedures are user friendly. ICQ enables you to send messages, files (single, multiple or whole directories), and URLs directly to your friends. In addition, you can initiate an IRC-style chat session or voice and video-voice connection and play games with other ICQ members that you are in touch with. Your contact is signalled of an incoming event in real time and has immediate access to it.

IFCP
IFCP (Internet Fibre Channel Protocol) is an emerging standard for extending Fibre Channel storage networks across the Internet. iFCP provides a means of passing data to and from Fibre Channel storage devices in a local storage area network (SAN) or on the Internet using TCP/IP. TCP provides congestion control as well as error detection and recovery services. iFCP merges existing SCSI and Fibre Channel networks into the Internet. iFCP can either replace or be used in conjunction with existing Fibre Channel protocols, such as FCIP (Fibre Channel over IP). iFCP addresses some problems that FCIP does not. For example, FCIP is a tunneling protocol that simply encapsulates Fibre Channel data and forwards it over a TCP/IP network as an extension of the existing Fibre Channel network. However, FCIP is only equipped to work within the Fibre Channel environment, while the storage industry trend is increasingly towards the Internet-based storage area network. Because iFCP gateways can either replace or complement existing

Fibre Channel fabrics, iFCP can be used to facilitate migration from a Fibre Channel SAN to an IP SAN or a hybrid network.

IGMP
The Internet Group Management Protocol (IGMP) is an Internet protocol that provides a way for an Internet computer to report its multicast group membership to adjacent routers. Multicasting allows one computer on the Internet to send content to multiple other computers that have identified themselves as interested in receiving the originating computer's content. Multicasting can be used for such applications as updating the address books of mobile computer users in the field, sending out company newsletters to a distribution list, and "broadcasting" high-bandwidth programs of streaming media to an audience that has "tuned in" by setting up a multicast group membership. Using the Open Systems Interconnection (OSI) communication model, IGMP is part of the Network layer. IGMP is formally described in the Internet Engineering Task Force (IETF) Request for Comments (RFC) 2236.

IIS
IIS (Internet Information Server) is a group of Internet servers (including a Web or Hypertext Transfer Protocol server and a File Transfer Protocol server) with additional capabilities for Microsoft's Windows NT and Windows 2000 Server operating systems. IIS is Microsoft's entry to compete in the Internet server market that is also addressed by Apache, Sun Microsystems, O'Reilly, and others. With IIS, Microsoft includes a set of programs for building and administering Web sites, a search engine, and support for writing Web-based applications that access databases. Microsoft points out that IIS is tightly integrated with the Windows NT and 2000 Servers in a number of ways, resulting in faster Web page serving. A typical company that buys IIS can create pages for Web sites using Microsoft's Front Page product (with its WYSIWYG user interface). Web developers can use Microsoft's Active Server Page (ASP)technology, which means that applications - including ActiveX controls - can be imbedded in Web pages that modify the content sent back to users. Developers can also write programs that filter requests and get the correct Web pages for different users by using Microsoft's Internet Server Application Program Interface (ISAPI) interface. ASPs and ISAPI programs run more efficiently than common gateway interface (CGI) and server-side include (SSI) programs, two current technologies. (However, there are comparable interfaces on other platforms.) Microsoft includes special capabilities for server administrators designed to appeal to Internet service providers (ISPs). It includes a single window (or "console") from which all services and users can be administered. It's designed to be easy to add components as snap-ins that you didn't initially install. The administrative windows can be customized for access by individual customers. Microsoft has been criticized for IIS's susceptibility to computer virus attacks such as Code Red and Nimda.

IM
Instant messaging (sometimes called IM or IMing) is the ability to easily see whether a chosen friend or co-worker is connected to the Internet and, if they are, to exchange messages with them. Instant messaging differs from ordinary e-mail in the immediacy of the message exchange and also makes a continued exchange simpler than sending e-mail back and forth. Most exchanges are text-only.

However, some services allow attachments. AOL first popularized instant messaging and, with its large membership, is likely to be the most popular service for some time to come. AOL's Instant Messenger can be used by AOL members but there is no requirement to be connected to the Internet through AOL. An open source alternative to AOL's instant messaging is called Jabber. In order for IMing to work, both users (who must subscribe to the service) must be online at the same time, and the intended recipient must be willing to accept instant messages. (It is possible to set your software to reject messages.) An attempt to send an IM to someone who is not online, or who is not willing to accept IMs, will result in notification that the transmission cannot be completed. If the online software is set to accept IMs, it alerts the recipient with a distinctive sound, a window that indicates that an IM has arrived and allowing the recipient to accept or reject it, or a window containing the incoming message. Under most conditions, IMing is truly "instant." Even during peak Internet usage periods, the delay is rarely more than a second or two. It is possible for two people to have a real-time online "conversation" by IMing each other back and forth. Once in a while, a person might receive an IM from someone while already engaged in a chat with someone else, and decide to carry on IM chats with both people independently and concurrently. This requires mental alertness to avoid the embarrassment of sending one IM companion a message intended for the other.

IMing
Pl. See IM

IMHO
Like FYI (for your information), IMHO (in my humble opinion) is an abbreviation for a phrase sometimes used in online chatting and e-mail. Variations include IMNSHO (in my not so humble opinion). For similar terms, see chat acronyms.

Impression
In Web advertising, the term *impression* is sometimes used as a synonym for *view*, as in *ad view*. Online publishers offer and their customers buy advertising measured in terms of ad views or impressions. Since a single Web page can contain multiple ads (depending on its design), a site usually registers more ad views per unit of time than Web pages per unit of time. (*Hits* is the term for any requested file, including each of a page's images. Although hits are of interest for traffic measurement purposes, they have no significance for advertisers.) Page or ad impressions are logged in a log that is maintained by the site server. Programs like Web Trends read the log, abstract meaning from it, and generate a report about site usage. Other programs, such as Central Ad, can keep track of all ad impressions that have been sent and how many of these were clicked on by users.

i-Net
An iNet (pronounced AI-neht) is any network that uses the Internet Protocol (IP). Within AT&T, the word is used as a convenient "umbrella" term that includes the Internet, intranet, and extranet.

Internet commerce provider
Pl. see ICP

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Infomediary

An infomediary is a <u>Web site</u> that provides specialized information on behalf of producers of goods and services and their potential customers. The term is a composite of *information* and *intermediary.* The advent of the Web has made possible quick 24-hour access to information databases that previously were not available. Gathering these information aggregates and adding services to them is now the business of companies like the Thomas Register of Manufacturers that can bring a base of information from the print medium to the Web. Perhaps more importantly as infomediaries are Web sites that are gathering, organizing, and linking to the new information and services that is being added to the Web. Infomediaries can be divided into those intended for consumers and those intended for businesses. Any consumer <u>e-commerce</u> site that provides information as well as an order form could be classed as an infomediary. However, the term is more frequently used to refer to sites that offer information for businesses about suppliers and other businesses. Many infomediary sites intended for businesses require users to register and log in in order to access information.

Information war

Pl. see cyber terrorism

Infosurfing

Infosurfing is using the Internet and World Wide Web so that you get maximum information in the shortest amount of time, which for many people means favoring textual content over images. Infosurfing is practiced by librarians, professional researchers, journalists, people addicted to news, and almost anyone that gets impatient with multimedia or likes the focus of just plain text. The simplest way to infosurf is to turn the pictures (images) off, using your browser option. Many sites specify an alternate text string in the HTML image tag that provides a brief textual descripion of each image in the space allocated for it. Otherwise, you'll get a broken image icon from your browser. Turning off graphics is best when you're familiar with most sites and know what you're missing. Some infosurfers also turn off Java and JavaScript, turning them back on only when wanted. Once you get the idea of turning things off, some infosurfers also turn off <u>cookie</u> though cookies don't in themselves impede the downloading of text. If you have the latest levels of Netscape Communicator and Microsoft Internet Explorer, you can specify that cookies be disabled entirely or that you be prompted about whether to accept one. If you infosurf for certain kinds of information, you'll obviously want to bookmark the sites that specialize in what you're interested in. You may want to subscribe to e-mail newsletters such as those at ZDNet, Women's Wire, or Google.com. These newsletters summarize stories you can choose to link to or not. Other techniques include: opening the browser several times and looking in one window while downloading to another and increasing the size of your browser <u>cache</u>. If you're constantly checking the latest news, you might set your start page at a news site.

Internet Explorer

Microsoft Internet Explorer (MSIE) is the most widely used World Wide Web <u>browser</u>. It comes with the Microsoft Windows operating system and can also be downloaded from Microsoft'w Web site. The MSIE browser competes with an

earlier browser, <u>Netscape</u> Navigator. Three other browsers are <u>Mosaic</u> (the browser on which Netscape's browser was based), <u>Lynx</u>, and <u>Opera</u>.

Internet Explorer Administration Kit
Internet Explorer Administration Kit (IEAK) is a product from Microsoft that enables an organization to centrally manage the customizing, deployment, and maintenance of Microsoft's Web <u>browser</u>, Internet Explorer, for users on different computer <u>platform</u>s. There is no royalty on the deployed copies. Using IEAK, a company can set up every user's browser the same way. Microsoft offers a step-by-step process for using the kit.

Intellectual Capital
Intellectual capital is <u>knowledge</u> that can be exploited for some money-making or other useful purpose. The term combines the idea of the intellect or brain-power with the economic concept of capital, the saving of entitled benefits so that they can be invested in producing more goods and services. Intellectual capital can include the skills and knowledge that a company has developed about how to make its goods or services; individual employees or groups of employees whose knowledge is deemed critical to a company's continued success; and its aggregation of documents about processes, customers, research results, and other information that might have value for a competitor that is not common knowledge.

Intertainment
Intertainment is the name of an <u>e-business</u> initiative that encourages shopping malls and other public places to provide visitors with free high-speed Internet access. The goal of Intertainment is to expose the non-surfing public to the Internet and encourage Internet growth. One major target of Internet service providers (<u>ISP</u>s) is the American shopping mall. According to the International Council of Shopping Centers, millions of Americans still don't have access to the Internet, but more than 90 percent of them visit a shopping center each month. A typical Intertainment center in a mall consists of a dozen computers arranged in a circle using a <u>DSL</u>, <u>cable modem</u>, or other high-speed Internet connection. Passing shoppers are encouraged to stop for a moment and check mail, visit e-commerce Web sites and surf. Unlike a <u>cybercafe</u>, where a user might pay for personal use of a computer, sit for a while, and expect a little privacy, Intertainment centers are set up to encourage people to stand while browsing. There is no illusion of privacy. Part of the fun is being able to pass by and look to see what others are doing. By providing a free and fast Internet connection in such a casual atmosphere, Intertainment providers hope to remove the mystique of surfing the Web for potential new users. Mall owners are receptive to Intertainment initiatives, because the ISP pays rental fees for <u>kiosk</u> space and shoppers are encouraged to extend their stay at the mall. ISPs who provide the Intertainment centers see it as one more way to promote their fastest Internet service. It is often a profitable venture because the center's high visibility in the mall allows the provider to sell ads for products and services that can be displayed as part of the kiosk.

Insecure Relay
Pl. see Open Relay

Instant Messaging

Instant Translation

Instant translation is the translation from one language to another of Web pages, e-mail, and online chat text by a computer program so that the translated results appear almost instantly. Instant translation services are gaining in popularity because they help people who work for global businesses communicate and enable e-commerce sites to appeal to customers in other countries. Because much of the material on the Web is written in English and the majority of the world speaks other languages, most instant translation is from English to another language. Most instant translation tools store frequently-encountered words, sentences, and phrases in a database that is accessed when a new document is translated. Until recently, vendors like Lernout & Hauspie, Systran, and Transparent Language dominated the instant translation space. However, IBM is entering the arena with the WebSphere Translation Server, targeting Internet service providers and other companies that run their own servers. The IBM product creates and distributes Web content globally without the need for special Web pages or separate infrastructure. WebSphere Translation Server translates material from English to French, Spanish, German, Italian, Chinese, Japanese, and Korean but does not convert material into English. Some companies are especially cautious when using instant translation software, having discovered that even small translation errors can result in big business problems. Also see automatic language translation.

Int

int" is one of the top-level domain names that can be used when choosing a domain name. This domain name is intended for sites related to international treaties or containing international databases. (For this reason, the domain name is not widely used.) Along with the second-level domain name, the top-level domain name is required in Web and e-mail addresses. For more information, see gTLD (generic top-level domain name).

Internesia

Internesia is an inability to remember which Web site or other Internet facility you saw an item of information on. It is an important form of the more general condition known as infonesia, which is the inability to remember where you saw an item of information from any source (newspapers, television, and so forth). Infojunkies are especially susceptible to internesia. A person who can never remember a Web site is an internesiac. Bookmarks may help, but many internesiacs bookmark so many sites, they can't find anything on their bookmark list or remember the right search word.

Integration Server

An integration server is a server used to facilitate interaction between diverse operating systems and applications across internal and external networked systems. An enterprise integration server may include prepackaged applications, customized applications, and legacy applications. Typically, an integration server has one of two architectures: the hub-and-spoke model or the network-centric bus model, also called the message-bus model. In the hub-and-spoke model, all applications connect through a central server. The integration server manages all communication, data translation, and process interactions among the connected operating systems and applications. When a new operating system or application is

connected, it is automatically integrated with all other systems. The hub-and-spoke model is better for companies with limited information technology (IT) resources with only a handful of systems handling a moderate volume of transactions. In the network-centric bus model, all <u>node</u>s are linked in a series along a common backbone. Communication between interconnected operating systems and applications travel along the backbone to the integration server that handles the data transformation, translation, and routing to the receiving nodes. The network-centric bus model is better for large enterprises that have dozens or even hundreds of systems handling heavy transaction volumes. Integration server applications are built to follows standards such as Extensible Markup Language (<u>XML</u>), Hypertext Transfer Protocol (<u>HTTP</u>), Java Message Service (<u>JMS</u>), Simple Object Access Protocol (<u>SOAP</u>), and Lightweight Directory Access Protocol (<u>LDAP</u>). Vitria, SeeBeyond, Tibco, and webMethods are leading integration server providers.

Intelligent Agent
On the Internet, an intelligent agent (or simply an *agent*) is a program that gathers information or performs some other service without your immediate presence and on some regular schedule. Typically, an agent program, using parameters you have provided, searches all or some part of the Internet, gathers information you're interested in, and presents it to you on a daily or other periodic basis. An agent is sometimes called a <u>bot</u> (short for robot). Other agents have been developed that personalize information on a Web site based on registration information and usage analysis. Other types of agents include specific site watchers that tell you when the site has been updated or look for other events and analyst agents that not only gather but organize and interpret information for you. The practice or technology of having information brought to you by an agent is sometimes referred to as <u>push</u> technology

Internet Open Trading Protocol
Pl. see IOTP

Internet Presence Provider and Promoter
Internet presence provider and promoter is a company that helps an enterprise create a <u>Web site</u>, arrange for <u>hosting</u> (housing, maintaining, and providing Internet access) for the Web site, and promote an audience for it. Many Internet service providers (<u>ISP</u>s) are also IPPPs, but some ISPs simply offer users <u>access</u> to the Internet.

Interactive Voice Response
Pl. see IVR

Interactivity
In computers, interactivity is the dialog that occurs between a human being (or possibly another live creature) and a computer <u>program</u>. (Programs that run without immediate user involvement are not interactive; they're usually called <u>batch</u> or background programs.) Games are usually thought of as fostering a great amount of interactivity. However, order entry applications and many other business applications are also interactive, but in a more constrained way (offering fewer options for user interaction). On the World Wide Web, you not only interact with the <u>browser</u> (the Web application program) but also with the pages that the browser brings to you. The implicit invitations called <u>hypertext</u> that link you to other pages

provide the most common form of interactivity when using the Web (which can be thought of as a giant, interconnected application progam). In addition to hypertext, the Web (and many non-Web applications in any computer system) offer other possibilities for interactivity. Any kind of user input, including typing commands or clicking the mouse, is a form of input. Displayed images and text, printouts, motion video sequences, and sounds are output forms of interactivity. The earliest form of interaction with computers was indirect and consisted of submitting commands on punched cards and letting the computer read them and perform the commands. Later computer systems were designed so that average people (not just programmers) could interact immediately with computers, telling them what programs to run and then interacting with those programs, such as word processors (then called "editors"), drawing programs, and other interactive programs. The first interactive human-computer interfaces tended to be input text sequences called "commands" (as in "DOS commands") and terse one-line responses from the system. In the late 1970's, the first graphical user interfaces (GUIs) emerged from the Xerox PARC Lab, found their way into the Apple Macintosh personal computer, and then into Microsoft's Windows operating systems and thus into almost all personal computers available today.

Intermediary
On the World Wide Web, the role of an intermediary is sometimes said to be no longer necessary as, for example, when you look up legal or medical information directly yourself or when you share files with other Internet users directly (see peer-to-peer). This idea is sometimes known as disintermediation. Any attempt by the third party to discourage this or to encourage use of the third party's services is known as antidisintermediation. An intermediary is a program or set of programs that in some way evaluates, filters, modifies, or otherwise interjects some function between two end users or end-use programs (such as a client/server). An example is the proxy server that most companies place between their internal Web users and the public Internet. At IBM Research, a formal structure for developing, distributing, and managing this kind of intermediary has been created and is known as Web Intermediaries.

Intermediate System-to-Intermediate System protocol
Pl. see IS-IS

Internalnet
An internalnet is a network that transmits information between computing devices located inside (and perhaps on) a living body. The internalnet can be thought of as an *extremely* localized local area network (LAN), which may or may not be connected to external devices and/or networks. As computer science and nanotechnology advance, the possibility of functional nanomedicine (the use of molecular-level devices for medical purposes, such as repair of tissue damage, or immune system support) applications becomes increasingly realistic. An internalnet might connect devices such as nanochondria (nanomachines within cells, either working with the cells' biochemistry or assembling physical structures), bionic implants, and wearable computers, for example, managing the flow of data among the devices.

Internet

The Internet, sometimes called simply "the Net," is a worldwide system of computer networks - a network of networks in which users at any one computer can, if they have permission, get information from any other computer (and sometimes talk directly to users at other computers). It was conceived by the Advanced Research Projects Agency (ARPA) of the U.S. government in 1969 and was first known as the ARPANET. The original aim was to create a network that would allow users of a research computer at one university to be able to "talk to" research computers at other universities. A side benefit of ARPANet's design was that, because messages could be routed or rerouted in more than one direction, the network could continue to function even if parts of it were destroyed in the event of a military attack or other disaster. Today, the Internet is a public, cooperative, and self-sustaining facility accessible to hundreds of millions of people worldwide. Physically, the Internet uses a portion of the total resources of the currently existing public telecommunication networks. Technically, what distinguishes the Internet is its use of a set of protocols called TCP/IP (for Transmission Control Protocol/Internet Protocol). Two recent adaptations of Internet technology, the intranet and the extranet, also make use of the TCP/IP protocol. For many Internet users, electronic mail (e-mail) has practically replaced the Postal Service for short written transactions. Electronic mail is the most widely used application on the Net. You can also carry on live "conversations" with other computer users, using Internet Relay Chat (IRC). More recently, Internet telephony hardware and software allows real-time voice conversations. The most widely used part of the Internet is the World Wide Web (often abbreviated "WWW" or called "the Web"). Its outstanding feature is hypertext, a method of instant cross-referencing. In most Web sites, certain words or phrases appear in text of a different color than the rest; often this text is also underlined. When you select one of these words or phrases, you will be transferred to the site or page that is relevant to this word or phrase. Sometimes there are buttons, images, or portions of images that are "clickable." If you move the pointer over a spot on a Web site and the pointer changes into a hand, this indicates that you can click and be transferred to another site. Using the Web, one has access to millions of pages of information. Web browsing is done with a Web browser, the most popular of which are Microsoft Internet Explorer and Netscape Navigator. The appearance of a particular Web site may vary slightly depending on the browser you use. Also, later versions of a particular browser are able to render more "bells and whistles" such as animation, virtual reality, sound, and music files, than earlier versions.

Internet Information Server
Pl. see IIS

iNotes
Pl. see LotusiNotes

IOTP
Internet Open Trading Protocol (IOTP) is a set of standards that makes all electronic purchase transactions consistent for customers, merchants, and other involved parties, regardless of payment system. IOTP accommodates a wide range of payment systems such as Secure Electronic Transaction, digital cash, e-checks,

and debit cards. Payment system data is encapsulated within IOTP messages. IOTP is designed to handle a transaction that involves a number of different parties: the customer, merchant, credit checker and certifier, bank, and delivery handler. IOTP uses the Extensible Markup Language (XML) to define data that encompasses everything that may be needed in a transaction. In the "real world," you can negotiate certain factors when considering a purchase. These include choosing who you conduct business with, whether it will be conducted in person or by phone, the method of payment, the provision of a payment receipt, and the delivery of the product. In the virtual world, IOTP is designed to ensure that all of these factors are successfully and securely performed. Companies contributing to the development of IOTP include Hewlett Packard, IBM, JCP, MasterCard International, Smart Card Integrations, Sun Microsystems, and Wells Fargo Bank.

Internet Map

An Internet map is any kind of map that attempts to portray all or some aspect of the Internet. Since the Internet began developing about 25 years ago, there has always been some kind of map showing what it looks like. Maps, even partial ones, of today's enormous Internet, whether of its physical wiring, its information content, or some other aspect, challenge both creator and user. Yet a map, even a complicated one, has a way of bounding chaos and giving us a ready-packaged mental construct. Some time ago, we discovered Martin Dodge's remarkable collection of Internet maps at the Centre for Advanced Spatial Analysis, University College London. His Atlas of Cyberspaces (**http://www.cybergeography.org/atlas/atlas.html**) contains separate collections for maps of: ISP and Internet backbone networks, Three-dimensional information spaces, Information landscapes or visualizations, Cyberspace using geographic metaphors

Internet presence provider
Pl. see IPP

Internet Service Provider
Pl. see ISP

Internet Time
Internet time is the concept that events occur at a faster rate on the Internet than elsewhere or that, everywhere, the Internet is affecting the pace of change. Andy Grove, CEO of Intel, is quoted as saying, "The world now runs on Internet time."

Internet Transaction Server
Pl. see ITS

Internet2
Internet2 is a collaboration among more than 100 U.S. universities to develop networking and advanced applications for learning and research. Since much teaching, learning, and collaborative research may require real-time multimedia and high-bandwidth interconnection, a major aspect of Internet2 is adding sufficient network infrastructure to support such applications. But Internet2 also intends to investigate and develop new ways to use the Internet and the Internet2 infrastructure for its educational purposes. Although Internet2 is not envisioned as a future replacement for the Internet, its organizers hope to share their developments

with other networks, including the Internet. Internet2 will include and further develop the National Science Foundation's very high-speed Backbone Network Service (vBNS) that currently interconnects research supercomputer centers in the U.S. The involved institutions plan to continue using the existing Internet for "ordinary" services such as e-mail, personal Web access, and newsgroups. Internet2 collaborators plan to use Quality-of-Service (QoS) tools so that participants can reserve and use bandwidth for special events or in certain time periods. Here are some possibilities envisioned by Internet2:

Distributed learning modules: Conceptually, teachers and students can be share materials in cyberspace with students learning in a self-directed manner under the supervision of an educational system or teacher. Internet2 foresees tools that would make it easy to create what they call LearningWare, using existing methodologies. Internet2 may also help realize the Instructional Management System (IMS), a standard process for using the Internet in developing and delivering learning packages and tracking outcomes. One can think of the IMS as a more structured way to exploit the potential learning materials on the World Wide Web.

New ways to envision and retrieve information: In the future, today's text-oriented models of information structure could be replaced by interactive pictures of information structure (compare a textual taxonomy or table of contents with illustrations of interlinked and explodable animal forms, for example). With Internet2's high-bandwidth connections, experiments in such information visualization will be possible; new ideas can be tried out. In environments where up-to-date information is valuable, information can be pushed to users at their request.

Virtual environment sharing: Sometimes called *tele-immersion*, participants in teleconferences could share the perception that everyone was in the same physical place, possibly with virtual (but somewhat real) models of shared work objects such as architectural models or multimedia storyboards. You would be able to see yourself with others in a far-away conference room, talking and perhaps manipulating objects in the room.

Virtual laboratory: A virtual laboratory would allow scientists in a number of different physical locations, each with unique expertise, computing resources, and/or data to collaborate efficiently not simply at a meeting but in an ongoing way. Effectively, such a project would extend and pool resources while engendering orderly communication and progress toward shared goals. For example, a group of astronomers and computer scientists at the supercomputing centers in the U.S. are attempting to share experiments and knowledge about the origin of the universe. Shared visualizations of alternative possibilities could conceivably suggest additional or refined alternatives. Virtual laboratories are also envisioned for the design and manufacturing of complex systems such as airplanes and for studying and forecasting weather patterns.

Interstitial
An interstitial (something "in between") is a page that is inserted in the normal flow of editorial content structure on a Web site for the purpose of advertising or promotion. It can be more or less intrusive and the reaction of viewers usually depends on how welcome or entertaining the message is. An interstitial is usually designed to move automatically to the page the user requested after allowing enough time for the message to register or the ad(s) to be read. Several variations

have been identified: The splash page, a Web page, usually containing an animated image, that is linked to briefly when you click on or enter a site's home page address. Wired Magazine's Web site has used this kind of interstitial.

Interanet

An intranet is a private network that is contained within an enterprise. It may consist of many interlinked local area networks and also use leased lines in the Wide Area Network. Typically, an intranet includes connections through one or more gateway computers to the outside Internet. The main purpose of an intranet is to share company information and computing resources among employees. An intranet can also be used to facilitate working in groups and for teleconferences. An intranet uses TCP/IP, HTTP, and other Internet protocols and in general looks like a private version of the Internet. With tunneling, companies can send private messages through the public network, using the public network with special encryption/decryption and other security safeguards to connect one part of their intranet to another. Typically, larger enterprises allow users within their intranet to access the public Internet through firewall servers that have the ability to screen messages in both directions so that company security is maintained. When part of an intranet is made accessible to customers, partners, suppliers, or others outside the company, that part becomes part of an extranet.

IP Address

This definition is based on Internet Protocol Version 4 (Note that the system of IP address classes described here, while forming the basis for IP address assignment, is generally bypassed today by use of Classless Inter-Domain Routing (CIDR) addressing. See Internet Protocol Version 6 (IPv6) for a description of the newer 128-bit IP address). In the most widely installed level of the Internet Protocol (IP) today, an IP address is a 32-bit number that identifies each sender or receiver of information that is sent in packets across the Internet. When you request an HTML page or send e-mail, the Internet Protocol part of TCP/IP includes your IP address in the message (actually, in each of the packets if more than one is required) and sends it to the IP address that is obtained by looking up the domain name in the Uniform Resource Locator you requested or in the e-mail address you're sending a note to. At the other end, the recipient can see the IP address of the Web page requestor or the e-mail sender and can respond by sending another message using the IP address it received. An IP address has two parts: the identifier of a particular network on the Internet and an identifier of the particular device (which can be a server or a workstation) within that network. On the Internet itself - that is, between the router that move packets from one point to another along the route - only the network part of the address is looked at.

The Network Part of the IP Address

The Internet is really the interconnection of many individual networks (it's sometimes referred to as an *internetwork*). So the Internet Protocol (IP) is basically the set of rules for one network communicating with any other (or occasionally, for broadcast messages, all other networks). Each network must know its own address on the Internet and that of any other networks with which it communicates. To be part of the Internet, an organization needs an Internet network number, which it can request from the Network Information Center (NIC). This unique network number is included in any packet sent out of the network onto the Internet.

The Local or Host Part of the IP Address

In addition to the network address or number, information is needed about which specific machine or host in a network is sending or receiving a message. So the IP address needs both the unique network number and a host number (which is unique within the network). (The host number is sometimes called a *local* or *machine address*.) Part of the local address can identify a subnetwork or subnet address, which makes it easier for a network that is divided into several physical subnetworks (for examples, several different local area networks or) to handle many devices.

IP Address Classes and Their Formats

Since networks vary in size, there are four different address formats or classes to consider when applying to NIC for a network number:

Class A : For large networks with many devices.

Class B : For medium-sized networks.

Class C : For small networks (fewer than 256 devices).

Class D : For multicast addresses.

The first few bits of each IP address indicate which of the address class formats it is using. The address structures look like this:

Class A	0	Network (7 bits)	Local address (24 bits)
Class B	10	Network (14 bits)	Local address (16 bits)
Class C	110	Network (21 bits)	Local address (8 bits)
Class D	1110		Multicast address (28 bits)

The IP address is usually expressed as four decimal numbers, each representing eight bits, separated by periods. This is sometimes known as the dot address and, more technically, as *dotted quad notation*. For Class A IP addresses, the numbers would represent "network.local.local.local"; for a Class C IP address, they would represent "network.network.network.local". The number version of the IP address can (and usually is) represented by a name or series of names called the domain name. The Internet's explosive growth makes it likely that, without some new architecture, the number of possible network addresses using the scheme above would soon be used up (at least, for Class C network addresses). However, a new IP version, IPv6, expands the size of the IP address to 128 bits, which will accommodate a large growth in the number of network addresses. For hosts still using IPv4, the use of subnets in the host or local part of the IP address will help reduce new applications for network numbers. In addition, most sites on today's mostly IPv4 Internet have gotten around the Class C network address limitation by using the Classless Inter-Domain Routing (CIDR) scheme for address notation. Relationship of the IP Address to the Physical Address The machine or physical address used within an organization's local area networks may be different than the Internet's IP address. The most typical example is the 48-bit Ethernet address. TCP/IP includes a facility called the Address Resolution Protocol (ARP) that lets the administrator create a table that maps IP addresses to physical addresses. The table is known as the *ARP cache*.

Static versus Dynamic IP Addresses

The discussion above assumes that IP addresses are assigned on a static basis. In fact, many IP addresses are assigned dynamically from a pool. Many corporate networks and online services economize on the number of IP addresses they use by sharing a pool of IP addresses among a large number of users. If you're an America Online user, for example, your IP address will vary from one logon session

to the next because AOL is assigning it to you from a pool that is much smaller than AOL's base of subscribers.

IP Telephony
IP telephony (Internet Protocol telephony) is a general term for the technologies that use the Internet Protocol's packet-switched connections to exchange voice, fax, and other forms of information that have traditionally been carried over the dedicated circuit-switched connections of the public switched telephone network (PSTN). Using the Internet, calls travel as packets of data on shared lines, avoiding the tolls of the PSTN. The challenge in IP telephony is to deliver the voice, fax, or video packets in a dependable flow to the user. Much of IP telephony focuses on that challenge. IP telephony service providers include or soon will include local telephone companies, long distance providers such as AT&T, cable TV companies, Internet service providers (ISPs), and fixed service wireless operators. IP telephony services also affect vendors of traditional handheld devices. Currently, unlike traditional phone service, IP telephony service is relatively unregulated by government. In the United States, the Federal Communications Commission (FCC) regulates phone-to-phone connections, but says they do not plan to regulate connections between a phone user and an IP telephony service provider. VoIP is an organized effort to standardize IP telephony. IP telephony is an important part of the convergence of computers, telephones, and television into a single integrated information environment. Also see another general term, computer-telephony integration (CTI), which describes technologies for using computers to manage telephone calls.

IPng
Pl. see Ipv6

IPlanet
iPlanet is Sun Microsystem's solution for a Web server and related programs intended to allow an enterprise to take advantage of the Internet. A joint venture with Netscape Communications, the iPlanet suite competes with similar offerings from Microsoft (and its Internet Information Server - IIS) and Apache, which provides the most widely-installed Web server. iPlanet includes e-commerce services, portal services, communication services, Web and application services,integration services, and user management services. Commerce services provide enterprises with the ability to deploy secure selling, and bill presentment and payment. Portal services allow enterprises to authenticate employees, suppliers, and customers who wish to access applications, content, and data on a customized portal using a browser and a dial-up Internet connection. Communication services enable Internet Service Providers (ISPs), telephone companies, and enterprises to provide messaging, calendar, and e-mail services using a single phone number. Web and application services provide users access to applications, databases, and Web pages. iPlanet is aligned with Sun Microsystems' Sun Open Net Environment (ONE), its vision of services on demand using Web-based applications. iPlanet also allows companies to communicate with each other using Extensible Markup Language (XML), XSL Transformations (XSLT), HTTP, Simple Object Access Protocol (SOAP), and Lightweight Directory Access Protocol (LDAP).

IPP

An Internet presence provider (IPP) is a company that provides the disk space, high-speed Internet connection, and possibly the Web site design and other services for companies, organizations, or individuals to have a visible presence (meaning Web site) on the Internet. Using an IPP means that the owner of the Web site doesn't need to have the files for it served from the owner's computer. Although one can maintain a Web site from a smaller computer if site traffic is very low, most moderate- to high-traffic Web sites require a relatively expensive, higher-speed connection to the Internet. For this reason alone, most individuals and organizations put their sites on a server at an Internet presence provider. Many Internet service providers (ISPs) act as both Internet access provider (IAP) and Internet presence provider, although some provide only one or the other service. An IPP sometimes offers design and production services for a Web site as a package or on a consulting basis. Some Internet presence providers use the term *hosting* or virtual hosting for the "housing and maintenance" aspects of presence providing. Typical service packages at different prices include assistance with domain name registration, a specific amount of hard disk space for Web pages, a number of e-mail addresses, the arrangement of server application or database access from Web pages, e-commerce shopping page setup, a specific amount of allowable Web data traffic, and assistance in setting up and maintaining the site. Some presence providers let you put your own server machine (or lease one to you) at their location and they manage it for you. This is called *co-location*.

IS-IS
One of the most commonly used routing protocols, the Intermediate System-to-Intermediate System protocol (IS-IS) is based on a routing method known as *DECnet Phase V* routing, in which routers known as *intermediate systems* exchange data about routing using a single metric to determine the network topology. IS-IS was developed by the International Organization for Standardization (ISO) as part of their Open Systems Interconnection (OSI) model. The first versions of IS-IS were used to manage routing within ISO Connectionless Network Protocol (CLNP) networks. IS-IS was ratified as a standard in 1990 (OSI IS-IS Intra-domain Routing Protocol, IETFRFC 1142 [2], ISO/IEC 10589 [3]). In the OSI context, an *intermediate system* refers to a router, as opposed to an *end system* (ES), which refers to a node. ES-IS protocols allow routers and nodes to identify each other; IS-IS performs the same service between nodes for routing purposes. In common with other routing protocols such as OSPF (Open Shortest Path First), IS-IS is a *link state* protocol: it stores information about the state of links and uses that data to select paths. IS-IS is used to intermittently send out link state information across the network, so that each router can maintain a current picture of network topology. Optional metrics can be used to identify network delay, expense, and error involved with the use of a particular link.

ISCSI
iSCSI is Internet SCSI (Small Computer System Interface), a new Internet Protocol (IP)-based storage networking standard for linking data storage facilities, developed by the Internet Engineering Task Force (IETF). By carrying SCSI commands over IP networks, iSCSI is used to facilitate data transfers over intranets and to manage storage over long distances. The iSCSI protocol is among the key technologies expected to help bring about rapid development of the storage area network (SAN) market, by increasing the capabilities and performance of storage data

transmission. Because of the ubiquity of IP networks, iSCSI can be used to transmit data over local area networks (LANs), wide area networks (WANs), or the Internet and can enable location-independent data storage and retrieval. How iSCSI Works: When an end user or application sends a request, the operating system generates the appropriate SCSI commands and data request, which then go through encapsulation and, if necessary, encryption procedures. A packet header is added before the resulting IP packets are transmitted over an Ethernet connection. When a packet is received, it is decrypted (if it was encrypted before transmission), and disassembled, separating the SCSI commands and request. The SCSI commands are sent on to the SCSI controller, and from there to the SCSI storage device. Because iSCSI is bi-directional, the protocol can also be used to return data in response to the original request. iSCSI is one of two main approaches to storage data transmission over IP networks; the other method, Fibre Channel over IP (FCIP), translates Fibre Channel control codes and data into IP packets for transmission between geographically distant Fibre Channel SANs. FCIP (also known as *Fibre Channel tunneling* or *storage tunneling*) can only be used in conjunction with Fibre Channel technology; in comparison, iSCSI can run over existing Ethernet networks. A number of vendors, including Cisco, IBM, and Nishan have introduced iSCSI-based products (such as switches and routers).

ISP

An ISP (Internet service provider) is a company that provides individuals and other companies access to the Internet and other related services such as Web site building and virtual hosting. An ISP has the equipment and the telecommunication line access required to have a point-of-presence on the Internet for the geographic area served. The larger ISPs have their own high-speed leased lines so that they are less dependent on the telecommunication providers and can provide better service to their customers. Among the largest national and regional ISPs are AT&T WorldNet, IBM Global Network, MCI, Netcom, UUNet, and PSINet. ISPs also include regional providers such as New England's NEARNet and the San Francisco Bay area BARNet. They also include thousands of local providers. In addition, Internet users can also get access through online service providers (OSP) such as America Online and Compuserve. The larger ISPs interconnect with each other through MAE (ISP switching centers run by MCI WorldCom) or similar centers. The arrangements they make to exchange traffic are known as peering agreements. There are several very comprehensive lists of ISPs world-wide available on the Web. An ISP is also sometimes referred to as an IAP (Internet access provider). ISP is sometimes used as an abbreviation for *independent service provider* to distinguish a service provider that is an independent, separate company from a telephone company.

ITS

The Internet Transaction Server (ITS) which is, an integral component of SAP's mySAP product group, is the interface that enables efficient communication between an R/3 system of applications and the Internet. The ITS links an R/3 application server and a Web server, controlling the flow of data between them and enabling user access to *Internet application components* (IACs), which are Web-enabled business applications for the R/3 system. transactions are executed within the R/3 system. The ITS adds a presentation layer: it presents an HTML page for each

transaction screen, and uses templates to incorporate changes. The ITS is made up of WGate and AGate. When a user, who may be located anywhere with Internet access, enters or clicks on a URL to request an ITS service (an Internet application based on an IAC), their Web browser passes the request to the Web server. The Web server then passes the request to the WGate, which resides as a server extension on the same computer . The WGate establishes a connection and forwards the requests from the Web server to the AGate, which may or may not be on the same computer. The AGate processes the requests and sends relevant data to the R/3 application. The AGate retrieves data from the application, processes it into an HTML page and sends it back to the WGate. The WGate passes the page to the Web server which, in turn, sends it back to the requesting system. Another component of the ITS is a Windows NT service called ITS Manager. ITS manager initiates and stops AGate processes and monitors them during runtime. Currently available only for the Windows NT platform, the ITS may in the future be made available for other platforms.

IVR

Interactive Voice Response (IVR) is a software application that accepts a combination of voice telephone input and touch-tone keypad selection and provides appropriate responses in the form of voice, fax, callback, e-mail and perhaps other media. IVR is usually part of a larger application that includes database access. Common IVR applications include: Bank and stock account balances and transfers, Surveys and polls, Call center forwarding, Simple order entry transactions ,Selective information lookup (movie schedules, etc.). An IVR application provides pre-recorded voice responses for appropriate situations, keypad signal logic, access to relevant data, and potentially the ability to record voice input for later handling. Using computer telephony integration (CTI), IVR applications can hand off a call to a human being who can view data related to the caller at a display.

IPv6

IPv6 (Internet Protocol Version 6) is the latest level of the Internet Protocol (IP) and is now included as part of IP support in many products including the major computer operating systems. IPv6 has also been called "IPng" (IP Next Generation). Formally, IPv6 is a set of specifications from the Internet Engineering Task Force (IETF). IPv6 was designed as an evolutionary set of improvements to the current IP Version 4. Network hosts and intermediate nodes with either IPv4 or IPv6 can handle packets formatted for either level of the Internet Protocol. Users and service providers can update to IPv6 independently without having to coordinate with each other. The most obvious improvement in IPv6 over the IPv4 is that IP addresses are lengthened from 32 bits to 128 bits. This extension anticipates considerable future growth of the Internet and provides relief for what was perceived as an impending shortage of network addresses. IPv6 describes rules for three types of addressing: unicast (one host to one other host), anycast (one host to the nearest of multiple hosts), and multicast (one host to multiple hosts). Additional advantages of IPv6 are: Options are specified in an extension to the header that is examined only at the destination, thus speeding up overall network performance. The introduction of an "anycast" address provides the possibility of sending a message to the nearest of several possible gateway hosts with the idea that any one of them can manage the forwarding of the packet to others. Anycast messages can be used to update routing tables along the line. Packets can be

identified as belonging to a particular "flow" so that packets that are part of a multimedia presentation that needs to arrive in "real time" can be provided a higher quality-of-service relative to other customers. The IPv6 header now includes extensions that allow a packet to specify a mechanism for authenticating its origin, for ensuring data integrity, and for ensuring privacy.

JAR file

A JAR (Java ARchive) file is a file that contains the class, image, and sound files for a Java applet gathered into a single file and compressed for faster downloading to your Web browser. An applet that comes as part of a Web page that you may happen to request may include several files, each of which would have to be downloaded along with the Web page. By putting the applet components in a single file and compressing that file, download time is saved. When a programmer gets a Java program development kit, a small program or utility called "jar" is included. The jar utility lets you create, list, and extract the individual files from a JAR file. Ordinarily, a browser user will not need to "open" or view a JAR file directly. It is opened when the Web page is received and the applet is in some manner initiated. The JAR format is based on the popular zip file format.

Java Server Page

Pl. see JSP

Java Speech API Markup Language

Pl. See JSML

Java Telephony Application Programming Interface

Pl. see JTPI

Jello

Pl. see ICE

JHTML

JHTML (Java within Hypertext Markup Language) is a standard for including a Java program as part of a Web page (a page written using the Hypertext Markup Language, or HTML). A Web site developer can write a small program using the Java programming language and insert the program within a Web page. When a user requests the page, the Web site server, observing a request for a file with the .jhtml suffix, passes the code to a special Java program designed to handle JHML. This program, called the PageCompileServlet, calls the Java compiler , which quickly compiles the code. (If the code has previously been compiled by an earlier page request, this step is unnecessary.) The code is then executed, typically modifying the contents of the Web page in some way before it is sent to the requestor. JHTML is comparable to Microsoft's Active Server Page and to PHP in that all are approaches to modifying a Web page at the server before it is sent rather than at the client (the user's Web browser) with JavaScript. To access a database from the Web page, the Java code might use the Java Database Connectivity (JDBC) interface. JHTML requires installing a Java compiler on the

Web server. JHTML is part of JavaSoft's Java WebServer Application Program Interface.

Joint Academic Network

In the United Kingdom, JANET (Joint Academic Network) is the main backbone network for the UK university system of academic and research computers. The network is also known as SuperJanet. It is operated by UKERNA (United Kingdom Education & Research Networking Association), a non-profit group, under contract from the Joint Information Systems Committee (JISC) of the UK Higher Education Funding Councils.

JRun

JRun is an application server from Macromedia that is based on Sun Microsystems' Java 2 Platform, Enterprise Edition (J2EE). JRun consists of Java Server Page (JSP), Java servlets, Enterprise JavaBeans, the Java Transaction Service (JTS), and the Java Messaging Service (JMS). JRun works with the most popular Web servers including Apache, Microsoft's Internet Information Server (IIS), and any other Web server that supports Internet Server Application Program Interface (ISAPI) or the Web's common gateway interface (CGI). JRun comes in four editions: Developer, Professional, Advanced, and Enterprise. The Developer Edition consists of the full JRun package, but it is licensed for development use only and is limited to three concurrent connections. The Advanced Edition is designed for deploying JSP and servlet applications in a clustered server environment. Companies who host servlet and JSP-based Web applications from a single server use the Professional Edition. Companies who build and deploy e-commerce Java applications use the Enterprise Edition.

JSML

JSML (Java Speech API Markup Language) is a set of markup codes and symbols for speech synthesis -- text-to-speech (TTS) -- in voice Web browsers and voice enabled e-mail. JSML includes text description tags that describe the structure of the document and speaker directive tags that control the emphasis, pitch, rate, and pronunciation of text. JSML and another markup language called Spoken Text Markup Language (STML) have been combined to form Sable, a markup language for directing text to speech synthesis. JSML also stands for JScript Markup Language.

JSP

Java Server Page (JSP) is a technology for controlling the content or appearance of Web pages through the use of servlets, small programs that are specified in the Web page and run on the Web server to modify the Web page before it is sent to the user who requested it. Sun Microsystems, the developer of Java, also refers to the JSP technology as the Servlet application program interface (API). JSP is comparable to Microsoft's Active Server Page (ASP) technology. Whereas a Java Server Page calls a Java program that is executed by the Web server, an Active Server Page contains a script that is interpreted by a script interpreter (such as VBScript or JScript) before the page is sent to the user. An HTML page that contains a link to a Java servlet is sometimes given the file name suffix of .JSP.

JTAPI

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JTAPI (Java Telephony Application Programming Interface) is a <u>Java</u>-based application programming interface (<u>API</u>) for computer telephony applications. JTAPI consists of a set of language packages. The core package provides the basic framework for simple <u>telephony</u> processes such as placing a call, answering a call, and dropping a call. Several extension packages provide additional telephony features. JTAPI is interoperable across various computer platforms. JTAPI is similar to Microsoft and Intel's Telephony Application Programming Interface (<u>TAPI</u>). JTAPI was developed in 1996 by a working group of computer and telecommunications companies including Intel, Lucent, NortelNetworks, Novell, and Sun Microsystems

Juarez
Pl. see Wares

Jughead
Now seldom-used, Jughead was a tool for searching the information on <u>Gopher</u> sites for particular subjects. It could also be used to build a searchable menu of a particular Gopher hierarchy of menus. Jughead was similar to <u>Veronica</u>, another Gopher search facility. However, it was less sophisticated and intended for searching a smaller Gopher area. By 2000, however, because most Gopher servers had ceased operation, Jughead and Veronica no longer seemed very useful. Jughead and Veronica are featured comic characters (along with Archie) in Archie Comics. The originator of the acronym was apparently Rhett "Jonzy" Jones, who developed Jughead in 1993 at the University of Utah.

Jump page
In Web advertising and marketing, a jump page is a Web page that is made to appear temporarily in order to capture the user's attention as a promotion or to gather user information in a survey. A jump page may be a <u>splash page</u> that contains a <u>Flash</u> animation or it may be a pop-up window with text and graphics. According to industry expert Robbin Zeff, a jump page on the Web is temporary, it is directly related to products or services that are currently being promoted, and it is designed to reinforce other ad promotions the user may have been exposed to. The user closes the jump page to get to the content that was originally desired. In Web site maintenance, a jump page can be a page that is posted temporarily to redirect the user when the page's address (its <u>URL</u>) has been changed. In Web site design, jump page is a term that is sometimes used to describe a Web site page that provides a "jumping off" point for users who need to locate information on the Web quickly and efficiently. Thus, a <u>portal</u> site or the <u>home page</u> for a site that specializes in gathering resources for a specific area of interest might be referred to as jump pages.

Junk e-mail
Pl. see Spam

Keiretsu

In corporate culture, keiretsu refers to a uniquely Japanese form of corporate organization. A keiretsu is a grouping or family of affiliated companies that form a tight-knit alliance to work toward each other's mutual success. The keiretsu system is also based on an intimate partnership between government and businesses. It can best be understood as the intricate web of relationships that links banks, manufacturers, suppliers, and distributors with the Japanese government. These ironclad corporate alliances have caused much debate and have been called "government-sponsored cartels." While some think keiretsu are a menace to trade, others see them as a model for change. Features common to most keiretsu include "main bank," stable shareholding, and seconded directors. Some keiretsu concepts have no American parallel such as "general trading company." The keiretsu system is one of the profound differences between Japanese and US business structures. Keiretsu operate globally and are integrated both vertically and horizontally. They are organized around their own trading companies and banks. Each major keiretsu is capable of controlling nearly every step of the economic chain in a variety of industrial, resource and service sectors. There are horizontal and vertical keiretsu. Horizontal keiretsu are headed by major Japanese banks and include the "Big Six" - Mitsui, Mitsubishi, Sumitomo, Fuyo, Sanwa, and Dai-Ichi Kangyo Bank Groups. Vertical keiretsu are industrial groups connecting manufacturers and part suppliers or manufacturers, wholesalers and retailers. These verticle keiretsu include car and electronics producers (Toyota, Nissan, Honda--Matsushita, Hitachi, Toshiba, Sony)) and their "captive" subcontractors. Distribution keiretsu, a subgroup of vertical keiretsu, control much of Japanese retailing, determining what products will appear in stores and showrooms -- and at what price.

Klez

Klez is an Internet worm that launches automatically when a user previews or reads an e-mail message containing Klez on a system that has not been patched for a vulnerability in Microsoft Internet Explorer mail clients. It is not necessary for a user to explicitly open an attachment in order for Klez to execute. There have been more than a half-dozen variations of Klez since it was first reported in October of 2001. Klez, which consists of two components - the main worm and a Windows executable infector, searches Windows machines for e-mail addresses in everything from documents to cached Web pages. The worm uses its own version of Simple Mail Transport Protocol (SMTP) to mail itself to the addresses it finds. Typically, the subject line in a Klez e-mail is one of 120 pre-programmed possibilities, making the worm difficult for many end-users to recognize. It copies itself to the Windows system directory with a random file name and sets the registry key to point to the worm file so that it runs on startup. Klez is generally considered to be a nuisance worm because it doesn't carry a destructive payload,

but it can overwhelm mail servers and require extensive cleanup time. Klez also has a unique "social" payload because it can spoof the "From:" field in an e-mail. You may receive an angry response to an e-mail you never sent if Klez finds your address in an infected computer and uses it. Some versions of the worm carry the Elkern virus, a malicious code that attempts to disable anti-virus software by targeting files with the names of major anti-virus vendors. Users can prevent infection by making sure they have installed the patch for the Internet Explorer vulnerability that allows the worm to execute, and by regularly updating their anti-virus software. Symantec, which has upgraded the Klez worm and its variations to a level four threat (on a scale of five), offers a special software tool to remove the worm. Klez is thought to have originated in Asia, possibly in the Guangdong province of China, where Code Red is thought to have originated.

Knowledge Base

In general, a knowledge base is a centralized repository for information: a public library, a database of related information about a particular subject, and whatis.com could all be considered to be examples of knowledge bases. In relation to tnformation technology (IT), a knowledge base is a machine-readable resource for the dissemination of information, generally online or with the capacity to be put online. An integral component of knowledge management systems, a knowledge base is used to optimize information collection, organization, and retrieval for an organization, or for the general public. A well-organized knowledge base can save an enterprise money by decreasing the amount of employee time spent trying to find information about - among myriad possibilities - tax laws or company policies and procedures. As a customer relationship management (CRM) tool, a knowledge base can give customers easy access to information that would otherwise require contact with an organization's staff; as a rule, this capacity should make the interaction simpler for both the customer and the organization. A number of software applications are available that allow users to create their own knowledge bases, either separately (these are usually called *knowledge management software*) or as part of another application, such as a CRM package. In general, a knowledge base is not a static collection of information, but a dynamic resource that may itself have the capacity to learn, as part of an artificial intelligence (AI) expert system, for example. According to the World Wide Web Consortium (W3C), in the future the Internet may become a vast and complex global knowledge base known as the Semantic Web.

L2TP

Layer Two Tunneling Protocol (L2TP) is an extension of the Point-to-Point Tunneling Protocol (PPTP) used by an Internet service provider (ISP) to enable the operation of a virtual private network (VPN) over the Internet. L2TP merges the best features of two other tunneling protocols: PPTP from Microsoft and L2F from Cisco Systems. The two main components that make up L2TP are the L2TP Access Concentrator (LAC), which is the device that physically terminates a call and the L2TP Network Server (LNS), which is the device that terminates and possibly authenticates the PPP stream. PPP defines a means of encapsulation to transmit multiprotocol packets over layer two (L2) point-to-point links. Generally, a user connects to a network access server (NAS) through ISDN, ADSL, dialup POTS or other service and runs PPP over that connection. In this configuration, the L2 and PPP session endpoints are both on the same NAS. L2TP uses packet-switched network connections to make it possible for the endpoints to be located on different machines. The user has an L2 connection to an access concentrator, which then tunnels individual PPP frames to the NAS, so that the packets can be processed separately from the location of the circuit termination. This means that the connection can terminate at a local circuit concentrator, eliminating possible long-distance charges, among other benefits. From the user's point of view, there is no difference in the operation.

Lamb

Pl. see Goat

LAMP

LAMP is an open source Web development platform based on Linux, Apache, MySQL, and PHP, a programming language for which Perl or Python is sometimes substituted. The term was coined in Europe, where these programs are commonly used together and have become something of a standard development environment. The name derives from the first letters of each of the programs. Each program is an open source standard in its own right: Linux is the operating system; Apache is the most commonly-used Web server; mySQL is a relational database management system (RDBMS) with add-on tools for Web-based administration; and PHP is a popular object-oriented scripting language that encompasses the best features of many other programming languages to make it efficient for Web development. Developers that use these tools with a version of a Windows operating system instead of Linux are said to be using *WAMP*.

Landing page

Pl. See Jump Page

Layer Two Tunneling Protocol

Pl. see L2TP

LCP

In the Point-to-Point Protocol (PPP), the Link Control Protocol (LCP) establishes, configures, and tests data-link Internet connections. Before establishing communications over a point-to-point link, each end of the PPP link must send out LCP packets. The LCP packet either accepts or rejects the identity of its linked peer, agrees upon packet size limits, and looks for common misconfiguration errors. Basically, the LCP packet checks the telephone line connection to see whether the connection is good enough to sustain data transmission at the intended rate. Once the LCP packet accepts the link, traffic can be transported on the network; if the LCP packet determines the link is not functioning properly, it terminates the link. LCP packets are divided into three classes: (1) Link configuration packets used to establish and configure a link, (2) Link termination packets used to terminate a link and (3) Link maintenance packets used to manage and debug a link

LDAP

LDAP (Lightweight Directory Access Protocol) is a software protocol for enabling anyone to locate organizations, individuals, and other resources such as files and devices in a network, whether on the public Internet or on a corporate intranet. LDAP is a "lightweight" (smaller amount of code) version of Directory Access Protocol (DAP), which is part of X.500, a standard for directory services in a network. LDAP is lighter because in its initial version it did not include security features. LDAP originated at the University of Michigan and has been endorsed by at least 40 companies. Netscape includes it in its latest Communicator suite of products. Microsoft includes it as part of what it calls Active Directory in a number of products including Outlook Express. Novell's NetWare Directory Services interoperates with LDAP. Cisco also supports it in its networking products. In a network, a directory tells you where in the network something is located. On TCP/IP networks (including the Internet), the domain name system (DNS) is the directory system used to relate the domain name to a specific network address (a unique location on the network). However, you may not know the domain name. LDAP allows you to search for an individual without knowing where they're located (although additional information will help with the search). An LDAP directory is organized in a simple "tree" hierarchy consisting of the following levels: (A) The root directory (the starting place or the source of the tree), which branches out to Countries, each of which branches out to, Organizations, which branch out to Organizational units (divisions, departments, and so forth), which branches out to (includes an entry for) Individuals (which includes people, files, and shared resources such as printers). An LDAP directory can be distributed among many servers. Each server can have a replicated version of the total directory that is synchronized periodically. An LDAP server is called a Directory System Agent (DSA). An LDAP server that receives a request from a user takes responsibility for the request, passing it to other DSAs as necessary, but ensuring a single coordinated response for the user.

LexiBot

LexiBot is a specialized search tool developed by BrightPlanet, as a means of searching the deep Web (the hidden part of the Web that may contain 500 times

the content accessible to conventional search engines). LexiBot uses what BrightPlanet calls a comprehensive and intelligent search technology that enables users to conduct searches using simple text, natural language, or <u>Boolean</u> queries on hundreds of databases simultaneously, filter and analyze data, and publish the results as Web pages. LexiBot was designed to perform complex searches to identify and retrieve content from all areas of the Web, and to process the information. Deep Web content has been accessible only to those who knew the correct <u>URL</u> for the Web site. Then, even once a user had connected to a database, its data could only be accessed by single direct queries. LexiBot acts as an automated direct <u>query</u> engine to make dozens of queries simultaneously to multiple databases. Searches are supported on close to 600 databases. Once the links are found, LexiBot downloads the links, analyzes them, removes the irrelevant ones, then downloads the text portions of the documents to the user's hard drive. The application can be used with desktop databases as well as the Internet, is customizable to user preferences, and can be set up for either simple or advanced usage.

Lightweight Directory Access Protocol
Pl. see LDAP

Link
Using <u>hypertext</u>, a link is a selectable connection from one word, picture, or information object to another. In a multimedia environment such as the World Wide Web, such objects can include sound and motion video sequences. The most common form of link is the highlighted word or picture that can be selected by the user (with a mouse or in some other fashion), resulting in the immediate delivery and view of another file. The highlighted object is referred to as an <u>anchor</u>. The anchor reference and the object referred to constitute a hypertext link. Although most links do not offer the user a choice of *types* of link, it would be possible for the user to be provided a choice of link types, such as: a definition of the object, an example of it, a picture of it, a smaller or larger picture of it, and so forth. Links are what make the World Wide Web a web. In telecommunications, a *link* is a physical (and, in some usages, a logical) connection between two points. Also see <u>hypermedia</u> and <u>hyperlink</u>.

Link Control Protocol
Pl. see LCP

Link checker
A link checker is a program that tests and reports on the validity of the <u>hypertext links</u> on the pages in a <u>Web site</u>. More advanced link checkers test links to other Web sites as well as links between pages on the same site. A link checker may be a separate program that specializes in this service, part of a larger program that provides a range of Web site publishing services, or provided periodically as a service from a remote application server. An example of a specialized link checker is NetMechanic Toolbox.

Link Type
In <u>Hyper-G</u> and possibly other <u>hypertext</u> systems, a <u>link</u> type is the specification of the nature of the information object being linked to. A single link can have any number of defined link types. For example, for any word from which one might link

to another information object, that object could be an example of that word, or a graphic illustration of it, or a definition of it, or it might be associated with one person's comments on that subject. For example, in a page on transmission technologies, the term "ISDN" might be highlighted as a link. When the link is created, the author might choose to let the reader link to an illustration of how ISDN works, or just a brief definition of it, or a whole book about it. Or a reviewer (rather than the author) might create the link for review purposes and the link would be to a particular reviewer comment. (Later, the author or other reviewers would find the link and the linked-to comments and perhaps create additional comments.) If link types are made generic and all links exist as separate objects apart from the files in which they are used, then different link types and links can be easily added, removed, or changed throughout a set of files. The examples described here are hypothetical and not necessarily exactly how Hyper-G or any other hypertext system works.

Liquid
Pl. see Ice

List Server
A list server (mailing list server) is a program that handles subscription requests for a mailing list and distributes new messages, newsletters, or other postings from the list's members to the entire list of subscribers as they occur or are scheduled. (A list server should not be confused with a *mail server*, which handles incoming and outgoing e-mail for Internet users.) Two commonly-used list servers are listserv and Majordomo. Lyris is a list server that is free for users maintaining very small mailing lists and scales up in price for those managing thousands of mailing list subscribers.

LLC
In the Open Systems Interconnection (OSI) model of communication, the Logical Link Control layer is one of two sublayers of the Data-Link layer and is concerned with managing traffic (flow and error control) over the physical medium. The Logical Link Control layer identifies a line protocol, such as SDLC, NetBIOS, or NetWare, and may also assign sequence numbers to frames and track acknowledgements. The other Data-Link sublayer is the Media Access Control layer.

Load Balancing
Load balancing is dividing the amount of work that a computer has to do between two or more computers so that more work gets done in the same amount of time and, in general, all users get served faster. Load balancing can be implemented with hardware, software, or a combination of both. Typically, load balancing is the main reason for computer server clustering. On the Internet, companies whose Web sites get a great deal of traffic usually use load balancing. For load balancing Web traffic, there are several approaches. For Web serving, one approach is to route each request in turn to a different server host address in a domain name system (DNS) table, round-robin fashion. Usually, if two servers are used to balance a work load, a third server is needed to determine which server to assign the work to. Since load balancing requires multiple servers, it is usually combined with failover and backup services. In some approaches, the servers are distributed over different geographic locations.

Log

An access log is a list of all the requests for individual files that people have requested from a Web site. These files will include the HTML files and their imbedded graphic images and any other associated files that get transmitted. The access log (sometimes referred to as the "raw data") can be analyzed and summarized by another program. In general, an access log can be analyzed to tell (1) The number of visitors (unique first-time requests) to a home page, (2) The origin of the visitors in terms of their associated server's domain name (for example, visitors from .edu, .com, and .gov sites and from the online services), (3) How many requests for each page at the site, which can be presented with the pages with most requests listed first, (4) Usage patterns in terms of time of day, day of week, and seasonally (5) Access log keepers and analyzers can be found as shareware on the Web or may come with a Web server.

Logic Bomb

In a computer program, a logic bomb, also called *slag code*, is programming code, inserted surreptitiously or intentionally, that is designed to execute (or "explode") under circumstances such as the lapse of a certain amount of time or the failure of a a program user to respond to a program command. It is in effect a delayed-action computer virus or Trojan horse. A logic bomb, when "exploded," may be designed to display or print a spurious message, delete or corrupt data, or have other undesirable effects. Some logic bombs can be detected and eliminated before they execute through a periodic scan of all computer files, including compressed files, with an up-to-date anti-virus program. For best results, the auto-protect and e-mail screening functions of the anti-virus program should be activated by the computer user whenever the machine is online. In a network, each computer should be individually protected, in addition to whatever protection is provided by the network adminstrator. Unfortunately, even this precaution does not guarantee 100-percent system immunity.

Logical Link Control layer

Pl. see LLC

Long ICMP

Pl. see Ping of Death

Look to Book Ratio

The look-to-book ratio is a figure used in the travel industry that shows the percentage of people who visit a travel Web site compared to those who actually make a purchase. This ratio is important to Web sites such as Priceline.com, Travelocity.com, and Expedia.com for determining whether the Web sites are securing purchases. To improve their look-to-book ratios, such sites sometimes resort to offering incentives such as naming your own price, providing live travel agent chatting, and using imaging technology to showcase travel locations.

Lotus iNotes Web Access

iNotes (short for iNotes Web Access) allows Lotus Domino users to access their Domino-based mail, calendar, schedule, to-do lists, contact lists, and notebooks from any computer, at any location, as long as they have an Internet connection. iNotes is marketed on its ability to allow users to interact with Web-enabled Domino applications by using a feature called "quicklinks", as well as for its ability to

perform "data islanding", a feature that allows users to <u>download</u> "islands" (segments) of data at one time and minimize server contacts. Lotus iNotes Web Access is integrated with Sametime, Lotus's <u>instant messaging</u>, and offers offline support through Domino Off-Line Services (DOLS). iNotes was known as Shimmer in its <u>beta test</u> version

Lurking

Lurking is the very common practice of reading an online or e-mail discussion without taking part in the discussion. Most visitors to discussions on Web sites, <u>Usenet</u> groups, e-mail discussion groups, <u>Internet Relay Chat</u> channels, or <u>bulletin board system</u>s understandably spend much more time reading or "listening" than writing or "speaking." What this term seems to imply in its usage is that some people benefit a great deal from a discussion without ever offering to enrich it with their own information or ideas. It is well understood and accepted, however, that there will always be lurkers in any discussion. And people new to a discussion are sometimes advised to lurk until they become familiar with the discussion.

Lynx

Lynx is a keyboard-oriented text-only Web <u>browser</u> that was developed at the University of Kansas primarily for students who used <u>UNIX</u> workstations. It has also been rewritten to run on VMS operating systems for users of VT100 terminals. If you use the UNIX <u>shell</u> interface and your access provider offers it, Lynx may be interesting for you since it has a succinct key- (not mouse-) driven user interface. Information about Lynx, including where to download it, is available at the lynx.browser.org Web site.

MAE

A MAE (pronounced MAY), originally an abbreviation for Metropolitan Area Exchange and now a service mark of MCI WorldCom, is a major center in the United States for underline switch traffic between Internet service providers (ISP). There are two major MAEs, MAE-East in the Washington, D.C. area and MAE-West in the San Jose, California area. MAE-East interconnects all of the major ISPs and also those from Europe. MAE-West interconnects ISPs in the Silicon Valley area. These two points along with several interconnection points previously identified by the National Science Foundation as network access points (network access point) form what is sometimes considered the national commercial Internet backbone. In addition to MAE-East and MAE-West, there are five regional "Tier-2" MAEs: in Chicago, Dallas, Houston, Los Angeles, and New York. Additional MAEs appear to be in the planning stages. The MAEs and their services, originally developed by MFS Communications, are now owned and operated by MCI WorldCom. A MAE can be viewed as a giant local area network (LAN) switch. (In fact, the two major MAEs use an Fiber Distributed-Data Interface switch.) The only ISP device that can interconnect to a MAE switch is a router or a computer host acting as a router. The ISPs work out their own peering agreements and manage their own routing tables. Routers at the two major MAEs need very large routing tables. Cisco's 7xxx series routers are examples of such routers. The regional MAEs consist of an Ethernet switch and an FDDI concentrator. Smaller routers (such as Cisco's 4500-M) are required. The MAEs offer colocation space for ISP equipment on their premises.

Majordomo

Like listserv, Majordomo (from Latin: "master of the house") is a small program that automatically redistributes e-mail to names on a mailing list. Users can subscribe to a mailing list by sending an e-mail note to a mailing list they learn about; Majordomo will automatically add the name and distribute future e-mail postings to every subscriber. (Requests to subscribe and unsubscribe are sent to a special address so that other subscribers do not see these requests.) Majordomo is written in the Practical Extraction and Reporting Language language. Although it originated in the UNIX culture, Majordomo can be run on any operating system platform with a Perl interpreter.

Malware

Malware (for "malicious software") is programming or files that are developed for the purpose of doing harm. Thus, malware includes computer viruses, worms, and Trojan horses

Managed Service Provider

A managed service provider (MSP) provides delivery and management of network-based services, applications, and equipment to enterprises, residences, or other service providers. Managed service providers can be hosting companies or access providers that offer services that can include fully outsourced network management arrangements, including advanced features like IP telephony, messaging and call center, virtual private network (VPNs), managed firewalls, and monitoring/reporting of network servers. Most of these services can be performed from outside a company's internal network with a special emphasis placed on integration and certification of Internet security for applications and content. MSPs serve as outsourcing agents for companies, especially other service providers like ISPs, that don't have the resources to constantly upgrade or maintain faster and faster computer networks. In addition to such basic communication service as leased line wide area network (WAN) and frame relay service, an MSP can manage and integrate a range of activities associated with enterprise networks. The range of outsourcing services includes basic transport and access, managed premises, Web hosting, VPN, unified messaging, video networking, or other more sophisticated services. Nortel Networks, Lucent, and Checkpoint are three of the best-known companies that provide MSP services. Managed service providers sometimes are referred to as management service providers, which also manage information technology services for companies. However, some industry experts say managed service providers provide a broader range of services than management service providers, which tend to limit themselves to monitoring services for servers, routers, firewalls, and other applications. Management service providers typically deliver infrastructure management services on a subscription basis, similar to the model used by application service providers (ASPs). They most commonly offer network- and application-monitoring services to e-businesses.

Management Service Provider
On the Internet, a management service provider (MSP) is a company that manages information technology services for other companies. For example, a company could hire an MSP to configure and administer its business computers and related systems on a continuing basis, saving the company the need to hire, train, and pay its own administrators. Since almost all such systems today can be managed remotely using an interactive Web page as the user interface, the idea is that an administrator could just as easily be someone at an MSP as at your own company. The MSP can be viewed as similar to an application service provider (ASP), a company that provides one or more computer applications that can be used by other companies using an online interface such as a page at the ASP's Web site. An ASP tends to become an MSP to the extent that it combines its application offering with additional service offerings. Another related service is the storage service provider (SSP), a company that provides computer storage and related services (such as automatic scheduled backup and archiving) for other companies. Some management service providers include Candle, InteQ, and McAfee. Also see two related terms, application service provider and storage service provider.

M-payment
M-payment (mobile payment) is a point-of-sale payment made through a mobile device, such as a cellular telephone, a smartphone, or a personal digital assistant (PDA). Using m-payment, a person with a wireless device could pay for items in a store or settle a restaurant bill without interacting with any staff member. So, for

example, if a restaurant patron wanted to pay quickly and leave the restaurant on time to get to an appointment, the bill could be paid directly from the table - without waiting for a server to bring the check. The patron would simply connect to the cash register with a wireless device, punch in the table number and bank personal identification number (PIN), and authorize payment. According to Orange Mobile Payment (a Danish company), the entire transaction should take no more than 10 seconds. The earliest m-payment trials were based on the wide area network (WAN) used for cellular phones. That meant, however, that users had to pay cell phone charges to make a payment, and also had to punch in long sequences of digits each time. Other technologies tested enable less cumbersome procedures. Palm and Verifone will use infrared (IR) data transmission for their initial trials. Among the other technologies being used are Bluetooth, WiFi, and RFID, a short-range transmission system. Public key infrastructure (PKI) encryption - considered to be necessary for secure m-commerce in general - is currently being incorporated into digital wireless networks and into an increasing number of wireless devices, a trend that is likely to increase consumer confidence in m-payment's security. M-payment is already being used in some parts of the world, including Europe and Asia. One small complication hindering wide-spread acceptance of m-payment is the distinction that credit card companies make between transactions where the card is physically present at the point of sale and those where it is absent - for example, when you use your credit card for transactions over the telephone or your computer's Internet connection. For payments in what are considered "card not present" situations, credit card companies charge the merchant a higher transaction fee. Whether m-payment would qualify as a "card present" situation or not has not yet been determined; that decision may depend on the degree of confidence credit card companies have in the security of m-payment.

Mapuccino

Mapuccino is a Java applet or small program that can show a visual map of how a Web site is organized. For example, you may want a map view of your own site. Mapuccino will quickly assess your Web files and create map views of it that you can view and, if you wish, save. Mapuccino let you alternate between a horizontal map view, a vertical map view, a regular Table of Contents (that looks like a Windows directory/file hierarchy), and a goldfish view. Since the nodes on the map represent individual HTML pages, they are also hyperlink to the pages, enabling you to use the map as a way to navigate or explore a site. Using Mapuccino, you can also select a site and specify a map of just that part of the site that meets your information criteria. Mapuccino was developed by IBM's Haifa Research Lab and is currently a laboratory demonstration. You can see the demonstration at IBM's Web site.

MathML

MathML is an application of XML (Extensible Markup Language) designed to facilitate the use of mathematical expressions in Web pages. Historically, mathematical content has been difficult to portray because standard typographic character sets do not provide for them and because they sometimes exceed a line width in size. On Web sites, GIF or JPG images must usually be created to portray all but the simplest mathematical expressions. This works, but it does not always look professional, and when the HTML files are saved and then viewed offline, the images do not show up unless they have been individually downloaded and their

tags have been made consistent with the offline file. MathML allows the insertion of mathematical expressions within an HTML file as special data. The browser (which must support MathML) can then display the appropriate symbol or expression. For mathematicians, engineers, and scientists familiar with TeX or LaTeX, MathML can be thought of in this way: It is to HTML as TeX or LaTeX is to plain text. In fact, conversion programs are available that can be used to generate MathML documents from TeX or LaTeX documents. MathML is in the developmental stages. The ultimate goal is to render mathematical documents directly viewable in, and printable from, popular Web browsers such as Netscape or Microsoft Internet Explorer. Until that ideal is realized, the viewing of mathematical content in Web sites generally requires specialized plug-ins.

MBone
The MBone, now sometimes called the Multicast Internet, is an arranged use of a portion of the Internet for Internet Protocol (IP) multicasting (sending files - usually audio and video streams - to multiple users at the same time somewhat as radio and TV programs are broadcast over airwaves). Although most Internet traffic is unicast (one user requesting files from one source at another Internet address), the Internet's IP protocol also supports multicasting, the transmission of data packets intended for multiple addresses. Since most IP servers on the Internet do not currently support the multicasting part of the protocol, the MBone was set up to form a network within the Internet that could transmit multicasts. The MBone was set up in 1994 as an outgrowth of earlier audio multicasts by the Internet Engineering Task Force (IETF) and has multicast a number of programs, including some well-publicized rock concerts. The MBone consists of known servers (mostly on UNIX workstations) that are equipped to handle the multicast protocol. tunneling is used to forward multicast packets through routers on the network that don't handle multicasting. An MBone router that is sending a packet to another MBone router through a non-MBone part of the network encapsulates the multicast packet as a unicast packet. The non-MBone routers simply see an ordinary packet. The destination MBone router unencapsulates the unicast packet and forwards it appropriately. The MBone consists of a backbone with a mesh topology which is used by servers that redistribute the multicast in their region in a star topology. The MBone network is intended to be global and includes nodes in Europe. The channel bandwidth for MBone multicasts is 500 kilobits per second and actual traffic is from 100-300 kilobits depending on content. MBone multicasts usually consist of streaming audio and video.

Media Gateway Control Protocol
Pl. see MGCP

Megaco
Pl. see MGCP

Messaging
In general, messaging (also called *electronic messaging*) is the creation, storage, exchange, and management of text, images, voice, telex, fax, e-mail, paging, and Electronic Data Interchange (EDI) over a communications network. In programming, messaging is the exchange of messages (specially-formatted data describing events, requests, and replies) to a messaging server, which acts as a message exchange program for client programs. There are two major messaging server

models: the point-to-point model and the publish/subscribe model. Messaging allows programs to share common message-handling code, to isolate resources and interdependencies, and to easily handle an increase in message volume. Messaging also makes it easier for programs to communicate across different programming environments (languages, compilers, and operating systems) since the only thing that each environment needs to understand is the common messaging format and protocol. IBM's <u>MQSeries</u> and Sun Microsystems Java Message Service (<u>JMS</u>) are examples of products that provide messaging interfaces and services.

Meta Tag

A meta tag is a <u>tag</u> (that is, a coding statement) in the Hypertext Markup Language (<u>HTML</u>) that describes some aspect of the contents of a Web <u>page</u>. The information that you provide in a <u>meta</u> tag is used by <u>search engine</u>s to index a page so that someone searching for the kind of information the page contains will be able to find it. The meta tag is placed near the top of the HTML in a Web page as part of the heading. There are several kinds of meta tags, but the most important for search engine indexing are the *keywords* meta tag and the *description* meta tag. The keywords meta tag lists the words or phrases that best describe the contents of the page. The description meta tag includes a brief one- or two-sentence description of the page. Both the keywords and the description are used by search engines in adding a page to their index. Some search engines also use the description to show the searcher a summary of the page's contents. Although most search engines also use the contents of a page as a way to determine how to index it, the creator of a Web page should be sure to include meta tags with appropriate keywords and description. Well-written meta tags can help make the page rank higher in search results.

Metcalfe's Law

Metcalfe's Law is often cited as an explanation for the rapid growth of the Internet (or perhaps more especially for the World Wide Web on the Internet). Together, with <u>Moore's Law</u> about the rate at which computer power is accelerating, Metcalfe's Law can be used to explain the rising wave of information technology that we are riding into the 21st century. Metcalfe's Law is expressed in two general ways: (1) The number of possible cross-connections in a network grow as the square of the number of computers in the network increases. (2) The community value of a network grows as the square of the number of its users increase. The original statement from Robert M. Metcalfe, inventor of <u>Ethernet</u>, was apparently (according to one source): "The power of the network increases exponentially by the number of computers connected to it. Therefore, every computer added to the network both uses it as a resource while adding resources in a spiral of increasing value and choice."

MDP

The Multicast Dissemination Protocol (MDP) is a communications <u>protocol</u> for one-to-many transmissions in wired or <u>wireless</u> networks. <u>multicast</u> protocols are used for such applications as group conferencing or online gaming. The first MDP application, in 1993, was based on *Image Multicaster* (IMM), a protocol used for the dissemination of <u>satellite</u> image files (such as weather-related images) over the <u>MBone</u> (the portion of the Internet that can handle <u>IP</u> multicasting). The MDP framework, developed between 1995 - 1997, was used in satellite multicast

networks, DARPA high-speed simulation networks, and the worldwide MBone. MDP version 2, released in 1997, includes the protocol framework and software development kit (SDK), and features more advanced protocol techniques. MDP provides a reliable multicast framework, which is a new approach to multicast protocols. Previously, protocols were developed for specific types of reliable multicast applications; the framework makes it possible to develop protocols to suit a variety of application requirements. MDP enables file distribution within the framework. The server breaks the file into sequential blocks of information called *maximum data units* (MDUs) and sends them at their chosen transmission rate and interval pacing. The receiver reassembles the original file, which can then be either saved or immediately processed by applications such as image viewers or text processors. After a file has been transmitted, the server asks receivers if they require a retransmission. If the receiver detects gaps in the MDU sequence numbers, they schedule a retransmission by sending a *negative acknowledgement* (NACK) message. Clients may also request repairs during transmissions by sending the server a list of missing packets. Senders may request ACK (acknowledgement that the data was received) messages. NACK suppression and event timing are used to minimize network congestion and retransmission requests.

MGCP

Media Gateway Control Protocol (MGCP), also known as H.248 and Megaco, is a standard protocol for handling the signaling and session management needed during a multimedia conference. The protocol defines a means of communication between a media gateway, which converts data from the format required for a circuit-switched network to that required for a packet-switched network and the media gateway controller. MGCP can be used to set up, maintain, and terminate calls between multiple endpoints. Megaco and H.248 refer to an enhanced version of MGCP. The standard is endorsed by the Internet Engineering Task Force (IETF) as Megaco (RFC 3015) and by the Telecommunication Standardization Sector of the International Telecommunications Union (ITU-T) as Recommendation H.248. H.323, an earlier UTI-T protocol, was used for local area networks (LANs), but was not capable of scaling to larger public networks. The MCGP and Megaco/H.248 model removes the signaling control from the gateway and puts it in a media gateway controller, which can then control multiple gateways. MGCP was itself created from two other protocols, Internet Protocol Device Control (IPDC) and Simple Gateway Control Protocol (SGCP). Defined in RFC 2705, the MGCP specifies a protocol at the Application layer level that uses a master-slave model, in which the media gateway controller is the master. MGCP makes it possible for the controller to determine the location of each communication endpoint and its media capabilities so that a level of service can be chosen that will be possible for all participants. The later Megaco/H.248 version of MGCP supports more ports per gateway, as well as multiple gateways, and support for time-division multiplexing (TDM) and asynchronous transfer mode (ATM) communication

MHP

Multimedia Home Platform (MHP) is a digital video broadcasting (DVB) standard intended to combine digital television (DTV) with the Internet and the World Wide Web. The result will make high-definition television in an interactive, multi-purpose communication network available to consumers and businesses. The MHP, when fully implemented, will function through cable, fiber optic, and (including satellite)

media. Users will be able to browse the Web, watch (and in some cases participate in) television programs, shop online, and enjoy broadband Internet access. The service will be available in three levels: enhanced broadcast, interactive broadcast, and Internet. The typical MHP installation will employ a so-called set-top box and a television receiver. The standard will also allow the use of a personal computer in place of the television receiver. The MHP standard will be downward-compatible. This will ensure that existing hardware will continue to function as new services are added.

Micropayment
On the Web, micropayment is a business concept whose goal is to generate revenue by offering pay-per-view Web pages, Web links, or Web services for small amounts of money called "microcents". Since it is not practical for individual users to charge small amounts of money (such as a penny or a fraction of a penny) to a major charge card, a different method of payment is needed for sites that wish to go "micro". Several methods of micropayment collection are being examined, many of which involve encoding per-fee-links inside HTML pages and some kind of Internet wallet account where individuals would establish a cash balance with a third-party application that would monitor, collect, and distribute micropayments. Once a common micropayment standard has been established, some visionaries predict that streaming media sites, sports access sites, and other specialized resources will pave the way for pay-per view Web use, just as they did for cable TV.

Microsite
a microsite is a separately promoted part of a larger Web site. A microsite is designed to meet separate objectives and has a separate Web address (or Uniform Resource Locator) as its home page. Typically, a microsite resides on the same Web server and reflects the branding and overall visual design of the larger site with which it is associated. Occasionally, two Web sites will collaborate to produce a third, smaller site that both link to (and is probably located on one of the two main site's servers). *Minisite* is also sometimes used with about the same meaning.

Middleware
In the computer industry, middleware is a general term for any programming that serves to "glue together" or mediate between two separate and often already existing programs. A common application of middleware is to allow programs written for access to a particular database to access other databases. Typically, middleware programs provide messaging services so that different applications can communicate. The systematic tying together of disparate applications, often through the use of middleware, is known as enterprise application integration (EAI).

Mil
"mil" is one of the top-level domain names that can be used when choosing a domain name. It generally describes the entity owning the domain name as a military organization of the U.S government. Along with the second-level domain name (for example: "navy" in navy.mil), the top-level domain name is required in Web and e-mail addresses. For more information, see gTLD (generic top-level domain name).

MIME

MIME (Multi-Purpose Internet Mail Extensions) is an extension of the original Internet e-mail protocol that lets people use the protocol to exchange different kinds of data files on the Internet: audio, video, images, application programs, and other kinds, as well as the ASCII text handled in the original protocol, the Simple Mail Transport Protocol (SMTP). In 1991, Nathan Borenstein of Bellcore proposed to the IETF that SMTP be extended so that Internet (but mainly Web) clients and servers could recognize and handle other kinds of data than ASCII text. As a result, new file types were added to "mail" as a supported Internet Protocol file type. Servers insert the MIME header at the beginning of any Web transmission. Clients use this header to select an appropriate "player" application for the type of data the header indicates. Some of these players are built into the Web client or browser (for example, all browsers come with GIF and JPEG image players as well as the ability to handle HTML files); other players may need to be downloaded. New MIME data types are registered with the Internet Assigned Numbers Authority (IANA). MIME is specified in detail in Internet Request for Comments 1521 and 1522, which amend the original mail protocol specification, RFC 821 (the Simple Mail Transport Protocol) and the ASCII messaging header, RFC 822.

Minisite
A minisite is a small Web site with a narrow subject focus or few pages that is sometimes a section in a larger Web site. Similar terms are microsite and sitelet. Typically, a minisite has a separate identity and users are encouraged to link to it directly

MITOCW
Pl. see OCW

Mobile Payment
Pl. see M-payment

Modem Bonding
Pl. see Modem doubling

Modem Doubling
Modem doubling is an inexpensive way for a user who wants a fast Internet connection, but can only connect with an analog telephone line, to use two 56kbps modems to double their bandwidth. modem doubling makes it possible for the user to use one of two methods, modem bonding or modem teaming, to achieve a connection speed close to 112kbps. Modem bonding, which is supported by over ninety percent of Internet Service Providers (ISPs), takes advantage of Multilink Protocol Plus (MP+). Data packets are "inverse-multiplexed" through the two modems, meaning that each of the modems receive half of the data packets as they are sent over the Internet and then they are recombined. An advantage of modem bonding is that if either of the modems gets disconnected for some reason, the other modem will take over so that the connection isn't lost. Modem teaming, a good alternative for users whose IPS does not support MP+, allows the modems to work as separate connections by taking advantage of the "smart download" capability that most HTTP and FTP servers use in case a download is interrupted. Modem teaming requires a software application to instruct one modem to download the first part of the file while the other modem downloads the second part. A disadvantage of modem teaming is that it is not flexible if one modem should

disconnect, nor is it useful when downloading <u>streaming</u> multimedia or conducting continuous sessions such as <u>Telnet</u> or PCAnywhere.

Modem teaming
Pl. see Modem Doubling

Morphis
Morphis is a <u>Java</u>-based <u>open source</u> wireless <u>transcoding</u> <u>platform</u> from Kargo, Inc., a wireless technology company based in New York City. The new application development platform will enable delivery of customized text and graphics to users of wireless devices, such as mobile phones, personal digital assistants (<u>PDA</u>s), and <u>handheld</u> computers. Morphis provides a framework for the transformation of binary, plain text, and text markup content to suitable formats for wireless applications. It can also process images, as well as Hypertext Markup Language (<u>HTML</u>), Wireless Markup Language (<u>WML</u>), and Wireless Abstract for <u>XML</u>, (<u>WAX</u>), an integral part of Morphis. According to Kargo's Morphis product description, the platform supplies a framework that allows users to retrieve, translate, and convert any electronic document. Morphis' Extensible Markup Language (<u>XML</u>) processing framework uses Simple API for XML (<u>SAX</u>) event processing and XSL Transformations (<u>XSLT</u>). A single document may undergo multiple translations and <u>filter</u>s; complex logic can be provided by writing XSLT extensions. Multiple complex transformations are performed through a pipeline SAX processing engine. Kargo claims that Morphis will allow content providers to develop both current and future wireless applications without requiring they use specific standards or technologies.

Mouse Potato
A mouse potato is the computer equivalent of television's *couch potato*: someone who tends to spend a great deal of leisure time in front of the computer in much the same way the couch potato does in front of the television. Both activities tend to be accompanied by snacking. A recent survey by the American Snack Food Association found that 85% of Web surfers snack at the computer. It has been observed that this habitual nibbling and relative inactivity can lead to development of a characteristic potato-like body form. Television networks are concerned about the new phenomenon; they want to keep their potatoes planted on the couch. The Web's main lure - and what television has been lacking - is the capacity for interaction, something that will be increasingly built into television broadcasting with the move to <u>digital television</u> and the <u>cable modem</u>. The convergence of television and the computer could perhaps be viewed as the convergence of the couch potato and the mouse potato.

Mozilla
Mozilla was Netscape Communication's nickname for Navigator, its Web <u>browser</u>, and, more recently, the name of an <u>open source</u> public collaboration aimed at making improvements to Navigator. This public collaboration was essentially launched and is still substantially supported by Netscape (now owned by AOL); however, the Mozilla project is independent. Netscape can use its code but so can anyone else. Mozilla originated as a name used by Navigator's developers before the product had a commercial name and in varying degrees has continued to be nurtured by the company's founders (of which the chief was Marc Andreessen, who designed <u>Mosaic</u>, the first Web browser with a graphical user interface). From time

to time, Netscape has used Mozilla as the name of a kind of mascot or cartoon alterego created by illustrator Dave Titus

MUD
A MUD or Multi-User Dungeon is an inventively structured social experience on the Internet, managed by a computer program and often involving a loosely organized context or theme, such as a rambling old castle with many rooms or a period in national history. Some MUDs are ongoing adventure games; others are educational in purpose; and others are simply social. MUDs existed prior to the World Wide Web, accessible through Telnet to a computer that hosted the MUD. Today, many MUDs can be accessed through a Web site and some are perhaps better known as "3-D worlds." MUD participants adopt a character or avatar when they join or log in to a MUD. Typically, you can describe your avatar to the other participants. Each MUD has its own name, special character and ambience, and set of rules. MUDs are run by advanced participants or programmers called wizards. Although many MUDs continue to be entirely text-based, some new MUDs use virtual reality settings and you can see the characters. However, the focus is on the exchange of text between participants who are logged in at a particular time. There are a number of variations on the MUD, including MOOs, MUCKs, and MUSHes, each associated with a server program of that name and varied mainly by the programming language used and the capabilities offered.

Multicast Internet
Pl see Mbone

Multi-User Dungeon
Pl. see MUD

Multichannel marketing
Multichannel marketing is offering customers more than one way to buy something - for example, from a Web site as well as in retail stores. For manufacturers, multichannel marketing also includes the use of partners, sometimes known as channels, who market directly to the customer as consultants, repackagers, or retailers. For retailers, advocates claim that, in addition to offering the customer more options, multichannel marketing allows a business more opportunities to interact with customers - each channel can help promote the other channels. Since Web site and phone-in mail orders collect information about the customer that a retail sale may not, these channels make it possible to develop mailing lists for future promotions and branding campaigns. Eddie Bauer is sometimes used as an example of a multichannel marketer that offers "brick, click, and flip" - retail stores, Web site, and catalogs. At least one study says that customers of multichannel companies spend 30% more than customers of one-channel companies. For manufacturers with partner channels, marketing directly from a Web site sometimes raises the problem of how to preserve the partnerships which Web site sales may tend to undercut. Approaches to solving his problem include using the Web site to refer customers to partners and limiting the quantities involved in any one direct sale.

Mrouter
An mrouter, or multicast router, is a router program that distinguishes between multicast and unicast packets and determines how they should be distributed

along the Multicast Internet (sometimes known as the Multicast Backbone or MBone). Using an appropriate algorithm, an mrouter tells a switching device what to do with the multicast packet. Mrouters currently make up "islands" on the MBone separated by unicast routers. Thus, an mrouter can disguise multicast packets so that they can cross unicast routers. This is done by making each multicast packet look like a unicast packet; the destination address is the next mrouter. This process is called IP tunneling. There are two multicast routing protocols that mrouters use to distribute multicast packets. They are dense-mode routing and sparse-mode routing. The protocol used is determined by available bandwidth and the distribution of end users over the network. If the network has many end users and there is enough bandwidth, dense-mode routing is used. However, if bandwidth is limited and users are thinly distributed, sparse-mode routing is used.

Multi-Purpose Internet Mail Extensions
Pl. see MDP

Multicast
Multicast is communication between a single sender and multiple receivers on a network. Typical uses include the updating of mobile personnel from a home office and the periodic issuance of online newsletters. Together with anycast and unicast, multicast is one of the packet types in the Internet Protocol Version 6 (IPv6). Multicast is supported through wireless data networks as part of the Cellular Digital Packet Data (CDPD) technology. Multicast is also used for programming on the MBone, a system that allows users at high-bandwidth points on the Internet to receive live video and sound programming. In addition to using a specific high-bandwidth subset of the Internet, Mbone multicast also uses a protocol that allows signals to be encapsulated as TCP/IP packet when passing through parts of the Internet that can not handle the multicast protocol directly.

Multicast Backbone
Pl. see Mbone

Multicast Dissemination Protocol
Pl. see MDP

Multicast Internet
Pl. see M-bone

Multicast router
Pl. see Mrouter

Multihomed
Multihomed describes a computer host that has multiple IP addresses to connected networks. A multihomed host is physically connected to multiple data links that can be on the same or different networks. For example, a computer with a Windows NT 4.0 Server and multiple IP addresses can be referred to as "multihomed" and may serve as an IP router

Multimedia Home Platform
Pl. see MHP

Namespace

In general, a namespace uniquely identifies a set of names so that there is no ambiguity when objects having different origins but the same names are mixed together. Using the Extensible Markup Language (<u>XML</u>), an XML namespace is a collection of element type and attribute names. These element types and attribute names are uniquely identified by the name of the unique XML namespace of which they are a part. In an XML document, any element type or attribute name can thus have a two-part name consisting of the name of its namespace and then its local (functional) name. For example, suppose the same XML document included the element type of OWNER for owners of motorcycles as well as for owners of automobiles. It might be necessary or desirable to know that an owner name was one of those who owned a motorcyle rather than an automobile. Having different motorcycle and automobile namespaces would make this possible. Effectively, it would make it possible to label motorcycle owners differently than automobile owners without having to create a different element type for each. In XML, a namespace is commonly given the name of a Uniform Resource Identifier (<u>URI</u>) - such as a Web site's address - both because the namespace may be associated with the site or page of that URI (for example, a company name) and because a URI is conveniently likely to be a unique name. Note that the URI is not necessarily intended to be used other than as a name nor is there any namespace document or XML <u>schema</u> that must be accessed; the URI is simply used as a name (and part of the two-part name of any element type or attribute name so that the names are unique within the document).

Napster

Napster is a controversial application that allows people to share music over the Internet without having to purchase their own copy on CD. After downloading Napster, a user can get access to music recorded in the <u>MP3</u> format from other users who are online at the same time. You can simply type in the name of an artist or song, receive a list of what's available, and then download the music from another user's hard drive. Users need to continually check the Napster directory since the music that is available depends on who is online at the time. Napster users can not only play the music back after downloading it but also put it on their own CD (if they have a CD writer). Napster also allows music to be played from their server and maintains <u>chatting</u> forums. 19-year-old Shawn Fanning created Napster in 1999, and it has quickly become popular on college campuses. Some schools have banned the application because of its high bandwidth demands. Napster faces another challenge from the Recording Industry Association of America (RIAA), which has filed a lawsuit claiming copyright infringement. If the courts rule that applications like Napster amount to piracy, tough, new sentencing laws may discourage its use. Napster has given rise to other Web-based

applications for downloading MP3 files, such as Gnutella, Napigator, and Wrapster. In addition to Napster, Macintosh gurus can download Macster and open source adherents can use GNapster.

NAS

A network access server (NAS) is a computer server that enables an independent service provider (ISP) to provide connected customers with Internet access. A network access server has interfaces to both the local telecommunication service provider such as the phone company and to the Internet backbone. The server authenticates users requesting login. It receives a dial-up call from each user host (such as your computer) that wants to access the Internet, performs the necessary steps to authenticate and authorize each user, usually by verifying a user name and password, and then allows requests to begin to flow between the user host and hosts (computers) elsewhere on the Internet. The term *network access server* may refer to a server devoted entirely to managing network access or to a server that also performs other functions as well. A network access server can be configured to provide a host of services such as VoIP, fax-over-IP, and voicemail-over-IP as well. One of the most well-known network access servers, the AS5800, is made by Cisco Systems. It is a workhorse product that is referred to as a carrier-class universal access server. NAS is also the abbreviation for network-attached storage. Pl. see Network-attached storage (NAS)

NBMA

NBMA (non-broadcast multiple access) is one of four network types in the OSPF (Open Shortest Path First) communications protocol. NBMA is used to accurately model X.25 and frame relay environments in multiple-access networks where there are no intrinsic broadcast and multicast capabilities. The other OSPF network types are: *broadcast*, *point-to-point*, and *point-to-multipoint.* In an NBMA configuration, OSPF sends HELLO packets (packets sent periodically to establish and confirm neighbor relationships between routers) to each router one at a time rather than multicasting them. The *HELLO timer* (which tells the router how often to send HELLO packets) is extended from 10 to 30 seconds and the *dead router* timer (which tells the router how long to wait before it decides that a neighboring router is not functioning) is extended from 40 to 120 seconds.

NDIS

NDIS (Network Driver Interface Specification) is a Windows specification for how communication protocol programs (such as TCP/IP) and network device driver should communicate with each other. NDIS specifies interfaces for: The program that sends and receives data by constructing or extracting it from the formatted units called frame (and sometimes packet or datagram). This program, usually called a protocol stack, is layering and generally corresponds to layers 3 and 4 (the Network Addressing and Transport layers) of the Open Systems Interconnection (OSI) reference model. Examples are TCP/IP and Internetwork Packet Exchange. The program, usually called a device driver, that interacts directly with the network interface card (NIC) or other adapter hardware, which sends or receives the data on the communications line in the form of electronic signals. The driver program and the NIC interact at the Media Access Control (MAC address) sublayer of layer-2 level of OSI, which is called Data-Link Control. (Putting the signal on the line is the layer-1 or the Physical layer of OSI.) Examples of MAC drivers are those for

Ethernet, Fiber Distributed-Data Interface, and token ring. A program called the Protocol Manager that assists the protocol stack program and the MAC driver program by telling each of them the computer location of the other when the operating system is started or, in some cases, when a new device is added to the computer. This is called bind. A system file called PROTOCOL.INI identifies which protocol stacks use which MAC drivers and where each is located. A protocol stack can be bound to more than one MAC driver where a computer is connected to multiple networks. And a single MAC driver can be bound to more than one protocol stack in a computer. NDIS was developed by Microsoft and 3Com. Using NDIS, Windows software developers can develop protocol stacks that work with the MAC driver for any hardware manufacturer's communications adapter. By the same token, any adapter maker can write a MAC driver software that can communicate with any protocol stack program. A similar interface, called Open Data-Link Interface (ODI), is provided by Novell for its NetWare local area network operating system. The latest version of NDIS, NDIS 5.0, specifies the interface for Windows 98 and Windows NT 5.0. A new kind of device model called the *miniport* driver model is specified that facilitates plug-and-play device features.

Nerd

A nerd is a technically bright but socially inept person. The classic image of the nerd has been the wild-haired genius kid with thick-lensed glasses surrounded by test tubes and computers. Microsoft's Bill Gates is sometimes considered the walking embodiment of the older, successful nerd. As computer technology becomes less frightening and "nerdish" to larger numbers of people, society seems to be developing a more tolerant, even benevolent view of the nerd. Nerd is a more general term than geek (which always means *computer geek*) and weenie and is somewhat comparable to propellor head. Although the term's origin is obscure, one theory is that it derives from a children's book by Dr. Seuss, *If I Ran the Zoo*, in which this passage is found: And then, just to show them, I'll sail to Ka-Troo And bring back an it-kutch, A preep, and a proo, A nerkle, a nerd, And a seersucker, too!" Dr. Seuss's picture of the nerd looks much like the way computer nerds are portrayed today.

Netfinity

IBM's Netfinity is an Intel-based enterprise server line that is based on IBM's X-architecture. IBM describes the X-architecture as a design blueprint that addresses the increasing need for communicating and managing huge amounts of information and the demands of business-to-consumer, business-to-business, and intra-business applications on technology platforms. Netfinity and another server line called xSeries are closely related. xSeries models are identified with an x preceding the model number (for example, the x430). Netfinity servers are identified without an x (for example, the Netfinity 7000). The Netfinity server line uses copper chip wiring and Silicon On Insulator (SOI) microprocessor technologies. Netfinity also uses 64-bit computing, which IBM began using before the introduction of Netfinity with both the AS/400 and RS/6000 servers. IBM also enhanced existing memory systems to support large amounts of memory in Netfinity servers. Currently, the Netfinity 7000 M10 supports up to 8 gigabytes (GBs) of memory. IBM plans to offer Netfinity servers with up to 64 GB of memory. Netfinity servers may be clustered for increased reliability and decreased downtime. Netfinity servers also interoperate with existing servers such as the AS/400 and the RS/6000. Netfinity includes the

Communication Server for Windows NT that allows Netfinity applications to communicate with other applications, whether interoperable or not, using IBM's own Systems Network Architecture (SNA) protocols as well as Transmission Control Protocol/Internet Protocol (TCP/IP). For diagnostic purposes, Netfinity includes an onboard systems management processor that allows for remote management and diagnostics of Netfinity servers even if turned off. If a server fails, it can connect to IBM's Help Center using Mobile Service Terminal (MoST) connect for diagnostic tests. RemoteConnect is another application that allows a Netfinity server to self-diagnose, issue an alert, call a service organization, and request a replacement part or a technician.

Netcaster

Netcaster, a component of Netscape's Communicator (which includes the Netscape Navigator browser), allows a Web user to make preselected Web sites an integral part of the personal computer desktop and to have them automatically updated. Called channel and similar to the channels on Microsoft's Windows desktops, the Netcaster channels include: CNET, CNN, Gartner, and Airius News. A user can request customized news and content updates on a preset schedule. Using push technology (sometimes referred to as *Webcasting or netcasting*), the updating occurs in the background while other computer work is going on and is then available when you want to read the updates. (You can read the updates offline.)

Netiquette

Netiquette is etiquette on the Internet. Since the Internet changes rapidly, its netiquette does too, but it's still usually based on the Golden Rule. The need for a sense of netiquette arises mostly when sending or distributing e-mail, posting on Usenet groups, or chatting. To some extent, the practice of netiquette depends on understanding how e-mail, the Usenet, chatting, or other aspects of the Internet actually work or are practiced. So a little preliminary observation can help. Poor netiquette because you're new is one thing, but such practices as spam and flaming are another matter.

Netizen

A citizen who uses the Internet as a way of participating in political society (for example, exchanging views, providing information, and voting). An Internet user who is trying to contribute to the Internet's use and growth. As a powerful communications medium, the Internet seems to offer great possibilities for social change. It also creates a new culture and its own special issues, such as who shall have access to it. The implication is that the Internet's users, who use and know most about it, have a responsibility to ensure that is used constructively while also fostering free speech and open access. *Cybercitizen* is a synonym. The word *netizen* seems to have two similar meanings.

Netscape

Netscape, now part of America Online (AOL), is one of the two most popular Web browsers. Currently, almost all Internet users use either Microsoft's Internet Explorer (MSIE) browser or Netscape, and many users use both. Although Netscape was initially the predominant product in terms of usability and number of users, Microsoft's browser is generally considered superior by many users (although many other users see them as roughly equivalent) and has taken a significant lead in

usage. Netscape's browser originally was called "Navigator," and is still called that in the suite of software, Communicator, of which it is now a part. Navigator was developed in 1995 by a team led by Marc Andreessen, who created Mosaic, the first Web browser that had a graphical user interface, at the University of Illinois' National Center for Supercomputing Applications (NCSA) in 1993. The latest version of the Netscape browser or the complete Communicator suite can be downloaded from Netscape's Web site at no charge. CD-ROM versions can also be purchased in computer stores and are sometimes distributed freely as promotions. AOL envisions the Netscape Web site, now transformed into a leading Web portal, as a leading source of revenue through advertising and e-commerce.

Network Access Server
Pl. see NAS

Netsplit
In using an Internet Relay Chat (IRC) network, a netsplit is the loss of contact between two IRC servers. As a result, chat users at either end will see the users at the affected servers suddenly disappear. An IRC network usually has a linear topology. That is, each server is connected in line to the next server which is connected to the next one, and so forth. When two servers lose contact, the network essentially is split into two networks. Users remain in contact with other users on their side of the network split and lose contact with the other users, who appear to have quickly departed. If a network has a mesh topology, each server can route messages to a second server when it loses a server connection. Most netsplits are restored within a short period of time.

NetTalk Live!
NetTalk Live! (TM) is an Internet program that is broadcast live and simultaneously on television, radio, and an Internet IRC channel in what the show's producer's call "the world's first triplecast." The show is devoted to the Internet and features questions called in by phone, e-mail, and chat during the broadcast; answers are provided by the show's hosts and other participants.

Newsgroup
A newsgroup is a discussion about a particular subject consisting of notes written to a central Internet site and redistributed through Usenet, a worldwide network of news discussion groups. Usenet uses the Network News Transfer Protocol (NNTP). Newsgroups are organized into subject hierarchies, with the first few letters of the newsgroup name indicating the major subject category and sub-categories represented by a subtopic name. Many subjects have multiple levels of subtopics. Some major subject categories are: news, rec (recreation), soc (society), sci (science), comp (computers), and so forth (there are many more). Users can post to existing newsgroups, respond to previous posts, and create new newsgroups. Newcomers to newsgroups are requested to learn basic Usenet netiquette and to get familiar with a newsgroup before posting to it. A frequently-asked questions is provided. The rules can be found when you start to enter the Usenet through your browser or an online service. You can subscribe to the postings on a particular newsgroup. Some newsgroups are moderated by a designated person who decides which postings to allow or to remove. Most newsgroups are unmoderated.

Network service provider

Pl. see NSP

Network-Attached Storage
Network-attached storage is <u>hard disk</u> storage that is set up with its own network address rather than being attached to the department computer that is serving applications to a network's workstation users. By removing storage access and its management from the department server, both application programming and files can be served faster because they are not competing for the same processor resources. The network-attached storage device is attached to a local area network (typically, an <u>Ethernet</u> network) and assigned an <u>IP address</u>. File requests are mapped by the main server to the NAS file server. Network-attached storage consists of hard disk storage, including multi-disk <u>RAID</u> systems, and software for configuring and mapping file locations to the network-attached device. Network-attached storage can be a step toward and included as part of a more sophisticated storage system known as a storage area network (<u>SAN</u>). NAS software can usually handle a number of network protocols, including Microsoft's <u>Internetwork Packet Exchange</u> and <u>NetBEUI</u>, Novell's Netware <u>Internetwork Packet Exchange</u>, and Sun Microsystems' <u>Network File System</u>. Configuration, including the setting of user access priorities, is usually possible using a Web browser.

Ni2
Ni2 (Net indexer 2) is the indexer for the AltaVista public search engine. According to AltaVista's parent company, Digital Equipment Corporation (DEC), Ni2 can index "an astounding one gigabyte of text per hour." Ni2 generates a link for each word that AltaVista's Web crawler, <u>Scooter</u>, brings back. It eliminates duplicates and ranks entries so that queries will produce more effective results. In addition to AltaVista's free public search service, DEC sells AltaVista for individual use (downloaded to your computer, it can search everything on your hard disk) and for enterprise <u>intranet</u>. Ni2, Scooter, and the AltaVista product offerings are described at **DEC's AltaVista Web site**.

NNTP
NNTP (Network News Transfer Protocol) is the predominant <u>protocol</u> used by computer clients and servers for managing the notes posted on <u>Usenet newsgroup</u>s. NNTP replaced the original Usenet protocol, UNIX-to-UNIX Copy Protocol (<u>UUCP</u>) some time ago. NNTP servers manage the global network of collected Usenet newsgroups and include the server at your Internet access provider. An NNTP client is included as part of a Netscape, Internet Explorer, Opera, or other Web browser or you may use a separate client program called a newsreader

Non-broadcast multiple access
NBMA (non-broadcast multiple access) is one of four network types in the <u>OSPF</u> (Open Shortest Path First) communications protocol. NBMA is used to accurately model <u>X.25</u> and <u>frame relay</u> environments in multiple-access networks where there are no intrinsic <u>broadcast</u> and <u>multicast</u> capabilities. The other OSPF network types are: *broadcast*, *point-to-point*, and *point-to-multipoint*. In an NBMA configuration, OSPF sends <u>HELLO packet</u>s (<u>packet</u>s sent periodically to establish and confirm neighbor relationships between routers) to each router one at a time rather than multicasting them. The *HELLO timer* (which tells the router how often to send HELLO packets) is extended from 10 to 30 seconds and the *dead router* timer

(which tells the router how long to wait before it decides that a neighboring router is not functioning) is extended from 40 to 120 seconds.

Non-virtual hosting
Non-virtual hosting is offering to host a <u>Web site</u> for an Internet user or company within the same <u>domain name</u> as that of the service provider. Frequently, this kind of hosting provides the customer with a free Web site with the provision that the user's Web pages will contain a certain amount of advertising. Depending on how the hosting company implements their service, the user's Web site address may be a subdomain of the hosting site or, more typically, within a file directory name sequence that is part of the hosting site's domain name. For example, Joe Smith's Web site might be at www.thehost.com/JoeSmith/. In addition to carrying on your pages ad banners over which you have no control, a non-virtual hosted Web site may be required to conform to an overall design pattern and to carry the logo of the hosting company. Geocities and Tripod are two of the largest companies that provide non-virtual hosting.

NSP
A network service provider (NSP) is a company that provides <u>backbone</u> services to an Internet service provider (<u>ISP</u>), the company that most Web users use for access to the Internet. Typically, an ISP connects at a point called an Internet Exchange (IX) to a regional ISP that in turn connects to an NSP backbone. In the U.S., major NSPs include MCI, Sprint, UUNET, AGIS, and BBN.
An ISP can purchase a wholesale dial access service from an NSP, which provides dialup connectivity for their customers. Customers then dial into their ISP's network using a local access number, which in turn connects to the backbone of that Internet provider's NSP. The NSP routes all traffic and basically provides the infrastructure needed for Internet connectivity. The NSP builds, maintains, and expands their infrastructure as Internet traffic demands. The ISP is responsible for its own network, sales and marketing, and customer service. An ISP can also purchase other services from an NSP that they in turn provide their customers such as e-mail service, Web-based e-mail service, personal <u>Web hosting</u>, chat, discussion groups, and other end-user applications. All these services are provided under the ISP's brand name rather than that of the NSP.

Numbers
Pl. see port number

Nym
A nym (pronounced NIHM and a shortened form of "pseudonym,") is a name invented by or provided for an Internet user in order to conceal the user's real identity and, in some cases, to expressly create a new and separate Internet identity. Among reasons to have and use a "nym" are these: You want to comment or take part in controversial political or other discussions on the Internet without revealing your opinions to colleagues, friends, or employers You want to send <u>spam</u> (unrequested bulk e-mail) without anyone being able to trace it to you You are a self-declared <u>cracker</u> that wants to talk about it without being identified You simply feel strongly about protecting your privacy on the Internet There are a number of legitimate reasons for communicating anonymously. The example of a battered spouse seeking help in a <u>Usenet</u> news group or a Web site discussion is sometimes cited. To use a nym instead of your real e-mail name when sending and

receiving e-mail, you can use the services of a remailer, a company with a Web server that accepts e-mail from you and forwards it to its destination with a different return address than yours. Incoming mail to your nym is forwarded to your real Internet address. Some remailing services forward mail through several remailers to make it even harder to trace the source of an e-mail note. There are free or public remailer services. Andre Bacard, author of Remailers are divided into: (1) PSEUDO- anonymous remailers, who know the names of the people for whom they are providing anonymity service, and (2) more serious anonymous remailers, who never know your name. Bacard believes that, for most people, the PSEUDO-anonymous is sufficient. It's also much easier to use. Most remailer services disallow the use of spam. Remailing is often combined with encryption using Pretty Good Privacy (PGP). Some companies also allow you to surf the Web anonymously by first linking to an intermediary site that in turn connects you to any Web site you select without that site being able to learn anything about you from your request message.

Object Request Broker
Pl. see ORB

OCW
OpenCourseWare (OCW) is an educational initiative developed by the Massachusetts Institute of Technology (MIT) to make the core teaching materials for all MIT graduate and undergraduate classes available at no cost to Internet users around the world. OCW has been compared to the open source software movement because course materials on the OCW site will be "open and freely available worldwide for non-commerical purposes such as research and education, providing an extraordinary resource, free of charge, which others can adapt to their own needs". MIT President, Charles M. Vest, anticipates that within ten years, lecture notes, course outlines, reading lists and assignments for over 2000 MIT classes will be freely available on the OCW Web site. OCW is not seen as a substitute for revenue-generating distance education (which requires interaction between teacher and student) but rather as a Web-based resource for teachers and learners around the globe. MIT is known for its innovation in collaborative and distance learning projects, including long-distance education and collaborative research programs with the National University University of Singapore and Cambridge University in England. MIT faculty members will retain intellectual property ownership of most materials posted on the OCW site, following MIT's current policy on textbook authorship. MIT faculty members have expressed the hope that OCW will encourage other universities to follow their initiative and join them in this "unprecedented step in challenging the privitization of knowledge".

Online Service Provider
Pl. see OSP

OPAC
An OPAC (Online Public Access Catalog) is an online bibliography of a library collection that is available to the public. OPACs developed as stand-alone online catalogs, often from VT100 terminals to a mainframe library catalog. With the arrival of the Internet, most libraries have made their OPAC accessible from a server to users all over the world. User searches of an OPAC make use of the Z39.50 protocol. This protocol can also be used to link disparate OPCS into a single "union" OPAC.

Open Courseware
Pl. see OCW.

Open eBook Forum

The Open Electronic Book Forum (OEBF) is an organization whose purpose is to develop a specification for electronic content, based on existing HTML and XML standards, that allows electronic book content to be viewed on various devices (PC display, PDA, or eBook reader) and all platforms. The OEB Forum brings publishers, authors, agents, distributors, hardware and software vendors, and programmers together to work towards creating this common standard in "dual-stream publishing", the simultaneous production of both electronic and print media. Goals for the OEB Forum include: (1) Providing a forum for the discussion of issues and technologies related to electronic books, (2) Developing, publishing, and maintaining common specifications relating to electronic books and promoting the successful adoption of these specifications, (3) Promoting industry-wide participation of electronic publishing through training sessions, guidelines, and demonstrations of proven technology, (4) Identifying, evaluating and recommending standards created by other bodies related to electronic books, (5)Encouraging interoperable implementations of electronic book related systems and providing a forum for resolution of interoperability issues and (6) Accommodating differences in language, culture, reading and learning styles, and individual abilities.

Open Relay
An open relay (sometimes called an *insecure relay* or a *third-party relay*) is an SMTP e-mail server that allows third-party relay of e-mail messages. By processing mail that is neither for nor from a local user, an open relay makes it possible for an unscrupulous sender to route large volumes of spam. In effect, the owner of the server -- who is typically unaware of the problem -- donates network and computer resources to the sender's purpose. In addition to the financial costs incurred when a spammer hijacks a server, an organization may also suffer system crashes, equipment damage, and loss of business. In the past, open relays were used intentionally to facilitate mail relay between the separate closed e-mail systems (such as UUCP or FidoNet) served by the Internet. However, the Internet has expanded enormously since then, and the potential for abuse has expanded accordingly. Open relays are sometimes used legitimately: they are frequently used to support mobile users connecting to a corporate network through an ISP or to support multiple domains within an organization, and are sometimes used for debugging connectivity or to circumvent a known routing problem. However, other mechanisms can be used to route an authorized user around a closed relay. The Mail Abuse Prevention System (MAPS) is one of several organizations that seeks to control the problem of open relays, though educating the public about the danger, and through publishing a blacklist of organizations whose mail hosts allow third-party relays (a similar organization, ORBS, is now defunct). The relay feature is a part of all SMTP-based servers, which means that most modern e-mail servers, if unprotected, are vulnerable. According to MAPS, because spammers use automated tools to search the Internet for vulnerable servers, an open relay will eventually be found and used. To avoid allowing spammers free access to their resources -- and to help stem the Internet's flow of spam -- MAPS urges administrators to turn off the relay option on their servers.

Opera
Opera is a Web browser that provides some advantages over the two most popular browsers from Netscape and Microsoft. Much smaller in size, Opera is known for

being fast and stable. Opera, which is available for BeOS, EPOC, Linux, Mac, OS/2 and Windows, offers the same capabilities of the more popular browsers including integrated searches and Instant Messaging, support for JavaScript, cascading style sheets, and mail. Because Opera is so compact, it is being promoted as the browser of choice for hand-held Internet devices. Opera for Windows is now free; there is still a purchase fee for other platforms. The free version of Opera contains ads, which are cached weekly to insure Opera's fast speed is maintained. The other versions of Opera do not have ads, which is why Opera charges a modest one-time license fee. The feature you notice first after installing Opera is a menu or "hotlist" that serves as both a directory to the Web and a bookmark file. The hotlist can be easily removed and you can use the full viewing space to look at multiple Web sites at the same time, either tiling or cascading the windows. You can choose to have the sites you were last looking at restored the next time you open the Opera browser. Opera offers keyboard as well as mouse control of its features. Plug-ins such as RealAudio, RealVideo, and Shockwave can be added. Opera does not support Active-X or Visual Basic. Opera began in 1994 as a research project for the national phone company in Norway and is now considered to be the third most popular Web browser in use today.

Opt-in e-mail
Opt-in e-mail is a Web marketing term for promotional e-mail that recipients have previously requested by signing up at a Web site or special ad banner. Typically, Web users are invited to sign up for promotional information about one or more categories of products or services. Those who sign up have thus "opted in." Anyone sending them e-mail as a result hopes that the message will not be perceived as unwanted spam. Several companies gather sign-ups at their own site or through specially-designed banner ads and then sell marketers mailing lists of those who have signed up in various interest categories. The marketer sending opt-in e-mail may remind the recipient that they have previously indicated they were interested in receiving such e-mail and that this is not spam. The recipient is given an opportunity to be removed from the mailing list if they so choose. The distribution model of sending unsolicited e-mail (spam) and allowing the recipient to request removal is sometimes referred to as "opt-out." Opt-in e-mail has been endorsed as the best practice for marketers by the Internet Direct Marketing Bureau (IDMB).

ORB
In Common Object Request Broker Architecture (CORBA), an Object Request Broker (ORB) is the programming that acts as a "broker" between a client request for a service from a distributed object or component and the completion of that request. Having ORB support in a network means that a client program can request a service without having to understand where the server is in a distributed network or exactly what the interface to the server program looks like. Components can find out about each other and exchange interface information as they are running. CORBA's ORB may be thought of as strategic middleware that is more sophisticated conceptually and in its capabilities than earlier middleware, including Remote Procedure Calls (RPCs), message-oriented middleware, database stored procedures, and peer-to-peer services. An ORB uses the CORBA Interface Repository to find out how to locate and communicate with a requested component. When creating a component, a programmer uses either CORBA's Interface Definition Language (IDL) to declare its public interfaces or the compiler of the

programming language translates the language statements into appropriate IDL statements. These statements are stored in the Interface Repository as <u>metadata</u> or definitions of how a component's interface works. In brokering a client request, an ORB may provide all of these services: (1) Life cycle services, which define how to create, copy, move, and delete a component, (2) Persistence service, which provide the ability to store data on object <u>database</u>, (3) and Plain files Naming service, which allows a component to find another component by name and also supports existing naming systems or directories, including <u>DCE</u>, and Sun's NIS (Network Information System) (4) Event service, which lets components specify events that they want to be notified, (5) Concurrency control service, which allows an ORB to manage locks to data that transactions or threads may compete for <u>transaction</u> service, which ensures that when a transaction is completed, changes are committed, or that, if not, database changes are restored to their pre-transaction state (6) Relationship service, which creates dynamic associations between components that haven't "met" before and for keeping track of these associations, (7) Externalization service, which provides a way to get data to and from a component in a "stream", (8) Query service, which allows a component to query a database. This service is based on the SQL3 specification and the Object Database Management Group's (ODMG) Object Query Language (OQL), (9) Licensing service, which allows the use of a component to be measured for purposes of compensation for use. Charging can be done by session, by node, by instance creation, and by site, (10) Properties service, which lets a component contain a self-description that other components can use. In addition, an ORB also can provide security and time services. Additional services for trading, collections, and change management are also planned. The requests and replies that originate in ORBs are expressed through the Internet Inter-ORB Protocol (<u>IIOP</u>) or other transport layer protocols. Also see <u>ORBS</u>, a term easily confused with ORB.

ORBS

ORBS (Open Relay Behavior-modification System) is (or possibly was - as of June 7, 2001, it was not operating) a volunteer-run New Zealand-based organization that operates an anti-<u>spam</u> screening service. The ORBS database tracks e-mail (specifically <u>SMTP</u>) servers that allow third-party relay (TPR), a practice that makes it possible for any sender to connect to the server from anywhere and forward volumes of unsolicited bulk e-mail messages. As a further precaution, ORBS also tracks networks that have set up processes to prevent verification of third-party relay permission, since administrators sometimes find it easier to block ORBS testers than to address security problems. In the first years of the Internet's operation, third-party relaying was a necessary and accepted means of routing messages. Although technological advances have made third-party relaying no longer required, many servers continue to maintain open relays, according to ORBS, in the "Internet's spirit of cooperation." According to ORBS, however, an open relay now falls into the category of "attractive nuisance." The organization claims that since 1995, the culture of the Web has changed dramatically, with the result that open relays became vulnerable to spammers looking to make a quick profit through bulk junk mail. ORBS maintains a blacklist of Internet service providers (<u>ISP</u>s) and other organizations found in violation of their criteria, a practice that is somewhat controversial because the targeted enterprises often believe they have been listed unfairly. In one recent instance, a New Zealand high court ruled that ORBS must remove Xtra mail servers (owned by Actrix, an New Zealand-

based ISP) from their list of suspect servers. ORBS is in occasionally acrimonious competition with a similar system based in California, the Mail Abuse Prevention System (MAPS). The two organizations clashed when ORBS blacklisted Above.net (an ISP owned by Paul Vixie, who also runs MAPS) as an open relay. A similar but unrelated term is ORB (Object Request Broker).

Org

"org" is one of the generic top-level domain names that can be used when choosing a domain name. It generally describes the entity owning the domain name as one that does not fit into other categories. In general, non-profit organizations and industry standard groups tend to use this generic name. Along with the second-level domain name (for example: "moma" in moma.org), the top-level domain name is required in Web and e-mail addresses. For more information, see gTLD (generic top-level domain name).

OSI Reference Model illustrated

Open Systems Interconnection (OSI) is a standard reference model for communication between two end users in a network. It is used in developing products and understanding networks. The OSI Reference Model describes seven layers of related functions that are needed at each end when a message is sent from one party to another party in a network. An existing network product or program can be described in part by where it fits into this layered structure. For example, TCP/IP is usually packaged with other Internet programs as a suite of products that support communication over the Internet. This suite includes the File Transfer Protocol (FTP), Telnet, the Hypertext Transfer Protocol (HTTP), e-mail protocols, and sometimes others. Although TCP fits well into the Transport layer of OSI and IP into the Network layer, the other programs fit rather loosely (but not neatly within a layer) into the Session, Presentation, and Application layers.

OSP

On the Internet, OSP (online service provider) has several different meanings. The term has had some currency in distinguishing Internet access providers that have their own online independent content, such as America Online (AOL), from Internet service providers (ISPs) that simply connect the user directly with the Internet. In general, the companies sometimes identified as OSPs (in this usage) offer an extensive online array of services of their own apart from the rest of the Internet and sometimes their own version of a Web browser. Connecting to the Internet through an OSP is an alternative to connecting through one of the national Internet service providers, such as AT&T or MCI, or a regional or local ISP. Some Internet service providers (ISPs) describe themselves as online service providers. In this usage, ISP and OSP are synonyms. America Online has used the term to refer to online content providers (usually Web sites) with which AOL has a business agreement. Some companies use OSP in describing themselves as *office service providers.*

P2P

Path to profitability (sometimes abbreviated as P2P, which also stands for <u>peer-to-peer</u>) is a term that refers to a business plan that is designed to take an enterprise from startup to turning a profit. In Internet business, the prevalent emphasis on profitability, especially in the <u>e-business</u> world, is in contrast to the attitude prevalent in recent years, when <u>dotcom</u> ventures were often encouraged to open for business, "burn" enough <u>venture capital</u> to dominate a particular business niche, and worry about profits later. Industry and stock market analysts suggest that the popularity of this term indicates a return to traditional business practices and a new, more mature stage in the evolution of the Internet. Before the market slump of the spring of 2000, almost any entrepreneur with a concept and a PowerPoint presentation could obtain venture capital funding for a dotcom enterprise. Optimism about the future of e-business led to a suspension of traditional business principles and practices: an entrepreneur was not necessarily required to demonstrate a clear business plan - with profits in the foreseeable future - because the ultimate payoff was expected to be so large. With the slowdown in technology stocks, there has been a return to standard business practices. Investors are much more cautious than they were in the early days of the dotcom boom. In order to obtain funding, entrepreneurs are expected to have a well-organized business plan with a clearly articulated - and hopefully short - path to profitability. Some analysts believe that the market change was, in a literal sense, a correction, since the practices employed did not lead to sustainable growth. Many are still optimistic about the future of e-business, although that must be in a world in which the old business rules - such an enterprise's need for a path to profitability - still apply.

Packet Monkey

On the Internet, a packet monkey is someone (see <u>cracker</u>, <u>hacker</u>, and <u>script kiddy</u>) who intentionally inundates a <u>Web site</u> or network with data <u>packet</u>s, resulting in a <u>denial-of-service</u> situation for users of the attacked site or network. Packet monkeys typically use tools created and made available on the Internet by hackers. According to one writer's distinction, a packet monkey, unlike a script kiddy, leaves no clues as to who is making the exploit, making the identity of a packet monkey more difficult to trace. In addition, a denial-of-service attack can be launched on a wider scale than attacks performed by script kiddies, making them more difficult to investigate. Hackers look down on packet monkeys and often describe them as "bottom feeders." Because a packet monkey uses tools created by others, the packet monkey has little understanding of the harm that may be caused. Typically, packet monkey exploits are random and without any purpose other than the thrill of making an effect.

Packet-Switching

Packet-switched describes the type of network in which relatively small units of data called packets are routed through a network based on the destination address contained within each packet. Breaking communication down into packets allows the same data path to be shared among many users in the network. This type of communication between sender and receiver is known as *connectionless* (rather than *dedicated*). Most traffic over the Internet uses packet switching and the Internet is basically a connectionless network. Contrasted with packet-switched is circuit-switched, a type of network such as the regular voice telephone network in which the communication circuit (path) for the call is set up and dedicated to the participants in that call. For the duration of the connection, all resources on that circuit are unavailable for other users. Voice calls using the Internet's packet-switched system are possible. Each end of the conversation is broken down into packets that are reassembled at the other end. Another type of digital network that uses packet-switching is the X.25 network, a widely-installed commercial wide area network protocol. Internet protocol packets can be carried on an X.25 network. The X.25 network can also support a virtual circuit in which a logical connection is established for two parties on a dedicated basis for some duration. A permanent virtual circuit (PVC) reserves the path on an ongoing basis and is an alternative for corporations to a system of leased lines. A permanent virtual circuit is a dedicated logical connection but the actual physical resources can be shared among multiple logical connections or users.

Pagejacking

Pagejacking is stealing the contents of a Web site by copying some of its pages, putting them on a site that appears to be the legitimate site, and then inviting people to the illegal site by deceptive means - for example, by having the contents indexed by major search engines whose results in turn link users to the illegal site. By moving enough of a Web site's content as well as the page descriptor information (known as information) within each page, pagejackers can then submit the illegal site to major search engines for indexing. Users of the search engine sites may then receive results from both the illegitimate as well as the legitimate site and can easily be misled to link to the wrong one. Users linking to the illegitimate site may find themselves redirected to a pornographic or other unwanted site. As an additional annoyance, users subjected to pagejacking may also encounter *mousetrapping*, in which clicking the Back button with the mouse does not lead out of the illegal site but only to the viewing of additional unwanted pages. To escape, the user may need to close the browser or even restart the operating system. Web users who enter Web page addresses (known as URLs) directly on their Web browser address line, by selecting it from a bookmark, or by clicking on a properly coded link on another site will not be subject to pagejacking. The problem most typically occurs when clicking site descriptions that result from searches at major search engine sites.

PAIR

The Policy Analysis of Internet Routing (PAIR) project is a Merit Network initiative dedicated to developing tools that Internet service providers (ISPs), network operators, and end users can use to troubleshoot Internet routing and policy problems. Merit is a Michigan-based company that was among the organizations responsible for developing and managing NSFnet, the successor to ARPANET and precursor of the modern Internet. The company announced the PAIR initiative in

1997 as a collaborative effort of two of their Internet Engineering workgroups, the Routing Arbiter Database and Route Server Next Generation (RSng) projects. The PAIR project was developed to help organizations in a network that do peering (agree to forward each other's packets along through the network) rather than interconnecting with a backbone network such as Sprint's) with RSng route servers to track internal routing processes within the route server system. PAIR tools help peers discover information such as what routes they are exporting to another or why another peer is not seeing their routes. Users can compare policies being configured on the Internet with the policies prescribed by the Internet Routing Registry (IRR), which will help diagnose routing problems and enhance overall routing accuracy. PAIR categorizes route states as belonging to one of three color categories: a green route is registered with the IRR, complies with policy, and is being proxied by the route servers; a red route is registered with the IRR, is configured to be proxied by the route servers, but is not currently announced in a configuration view; and a grey route is one that has been received by a route server, but is not configured to be proxied in any configuration view. The number of defined route states and corresponding colors may be expanded in the future to distinguish states in greater specificity. The PAIR tools include: the *route server configuration viewer* (RSCV), which shows a matrix of the routes distributed by the route servers; the *route server peering statistics summary*, which summarizes the level of participation of peers at each exchange point; the PAIR language, which establishes the framework for designating route color; and the PAIR route color table, which is a truth table that shows how routes are colored. PAIR tools are most useful for ISPs that peer with RSng route servers, but can also be used by other ISPs to discover peers' routing information being exchanged through the route servers.

Passive FTP

Passive FTP (sometimes referred to as *PASV FTP* because it involves the FTP PASV command) is a more secure form of data transfer in which the flow of data is set up and initiated by the File Transfer Program (FTP) client rather than by the FTP server program. Separate FTP client programs, such as WS_FTP Pro, usually allow the user to select passive FTP. Most Web browsers (which act as FTP clients) use passive FTP by default because corporations prefer it as a safety measure. As a general rule, any coprorate firewall server, which exists in order to protect an internal network from the outside world, recognizes input from the outside only in response to user requests that were sent out requesting the input. The use of passive FTP ensures all data flow initiation comes from inside the network rather than from the outside.

How It Works

Using normal or passive FTP, a client begins a session by sending a request to communicate through TCP port 21, the port that is conventionally assigned for this use at the FTP server. This communication is known as the Control Channel connection. Using "normal" FTP communication, the client requestor also includes in the same PORT command packet on the Control Channel a second port number that is to be used when data is to be exchanged; the port-to-port exchange for data is known as the Data Channel. The FTP server then initiates the exchange from its own port 20 to whatever port was designated by the client. However, because the server-initiated communication is no longer controlled by the client and can't be correlated by a firewall to the initial request, the potential exists for uninvited data to

arrive from anywhere posing as a normal FTP transfer. Using passive FTP, a PASV command is sent instead of a PORT command. Instead of specifying a port that the server can send to, the PASV command asks the server to specify a port it wishes to use for the Data Channel connection. The server replies on the Control Channel with the port number which the client then uses to initiate an exchange on the Data Channel. The server will thus always be responding to client-initiated requests on the Data Channel and the firewall can coorelate these.

Pay-per-view
Pl. see Micropayment

PC Philanthropy
PC philanthropy is sharing some of the unused resources (mainly processor cycles) of your personal computer to benefit a social cause. For example, during the time that your computer is not working on applications that you're using, it can be working on some small part of a large-scale problem in medical research or the search for signals from outer space. Effectively, you and thousands of other PC users engaged in PC philanthropy become part of a kind of distributed supercomputer that is doing parallel processing. Taking part in PC philanthropy requires that you download a small program from a Web site that is administering a project. In one example, this program comes with a screensaver included, so that when your computer is booted up and the screensaver automatically activated, the work program starts, too. It then uses your computer's processor cycles only when no other program in your computer is busy. PC philanthropy is sometimes described as a form of peer-to-peer computing, in the sense that many Internet users are joined as peers in a common effort. One of the first PC philanthropy projects was the collective analysis of signals from outer space as part of the Search for Extraterrestrial Intelligence (SETI).

PEBCAK
PEBCAK, one of many terms used in Internet chatting, stands for "problem exists between chair and keyboard," meaning it's a problem in user understanding or behavior rather than something wrong with hardware or software. The term is sometimes used by help desk people since it's a common class of problems. There are several variations, such as PIBKAC (problem is between keyboard and chair). See chat acronyms

Peering
Peering is the arrangement of traffic exchange between Internet service providers (ISPs). Larger ISPs with their own backbone networks agree to allow traffic from other large ISPs in exchange for traffic on their backbones. They also exchange traffic with smaller ISPs so that they can reach regional end points. Essentially, this is how a number of individual network owners put the Internet together. To do this, network owners and access providers, the ISPs, work out agreements that describe the terms and conditions to which both are subject. Bilateral peering is an agreement between two parties. Multilateral peering is an agreement between more than two parties. Peering requires the exchange and updating of router information between the peered ISPs, typically using the Border Gateway Protocol (BGP). Peering parties interconnect at network focal points such as the network access points (NAP) in the United States and at regional switching points. Initially, peering arrangements did not include an exchange of money. More recently,

however, some larger ISPs have charged smaller ISPs for peering. Each major ISP generally develops a peering policy that states the terms and conditions under which it will peer with other networks for various types of traffic. *Private peering* is peering between parties that are bypassing part of the public <u>backbone</u> network through which most Internet traffic passes. In a regional area, some ISPs exchange *local peering* arrangements instead of or in addition to peering with a backbone ISP. In some cases, peering charges include <u>transit</u> charges, or the actual line access charge to the larger network. Properly speaking, peering is simply the agreement to interconnect and exchange routing information.

Personal portal
Pl. see bookmark portal

Personal Web Server
Pl. see PWS

PERL
PERL (Practical Extraction and Reporting Language) is a <u>script</u> programming language that is similar in <u>syntax</u> to the <u>C</u> language and that includes a number of popular <u>UNIX</u> facilities such as <u>SED</u>, <u>awk</u>, and tr. Perl is an <u>interpreted</u> language that can optionally be compiled just before execution into either C code or cross-platform <u>bytecode</u>. When compiled, a Perl program is almost (but not quite) as fast as a fully precompiled C language program. Perl is regarded as a good choice for developing common gateway interface (<u>CGI</u>) programs because it has good text manipulation facilities (although it also handles binary files). It was invented by Larry Wall. In general, Perl is easier to learn and faster to code in than the more structured <u>C</u> and <u>C++</u> languages. Perl programs can, however, be quite sophisticated. Perl tends to have devoted adherents. <u>plug-in</u>s can be installed for some <u>servers</u> (<u>Apache</u>, for example) so that Perl is loaded permanently in memory, thus reducing compile time and resulting in faster execution of CGI Perl scripts.

Permission Marketing
Permission marketing is an approach to selling goods and services in which a prospect explicitly agrees in advance to receive marketing information. <u>opt-in e-mail</u>, where Internet users sign up in advance for information about certain product categories, is a good example of permission marketing. Advocates of permission marketing argue that it is effective because the prospect is more receptive to a message that has been requested in advance and more cost-efficient because the prospect is already identified and targetted. In a world of information overload, automated telemarketing, and <u>spam</u>, most people welcome the idea of permission marketing.

Personal TV receiver
Pl. see PVR

Personal Video Recorder
Pl. see Personal PVR

Personal Video Station
Pl. see PVR

Personalization

On a Web site, personalization is the process of tailoring pages to individual users' characteristics or preferences. Commonly used to enhance customer service or e-commerce sales, personalization is sometimes referred to as *one-to-one marketing*, because the enterprise's Web page is tailored to specifically target each individual consumer. Personalization is a means of meeting the customer's needs more effectively and efficiently, making interactions faster and easier and, consequently, increasing customer satisfaction and the likelihood of repeat visits. There are a number of personalization software products available, including those from Broadvision, Response Logic, and Autonomy. Personalization in some ways harkens back to an earlier day, by making consumer relationships more closely tailored to the individual. If you've ever bought a book from Amazon, for example, the next time you visit they will - like a friendly and helpful sales clerk - greet you by name and tell you about products in stock that they think you might like (such as more books by the same author, or books purchased by other people who also bought the book that you purchased). Many portal sites, such as Yahoo allow site visitors to customize the page with selected news categories, local weather reports, and other features. In addition to use of the cookie, the technologies behind personalization include: *Ccollaborative filtering*, in which a filter is applied to information from different sites to select relevant data that may apply to the specific e-commerce experience of a customer or specific group of customers *User profiling*, using data collected from a number of different sites, which can result in the creation of a personalized Web page. Because personalization depends on the gathering and use of personal user information, privacy issues are a major concern. The Personalization Consortium is an international advocacy group organized to promote and guide the development of responsible one-to-one marketing practices. Founding members include Pricewaterhouse Coopers, American Airlines, and DoubleClick. The consortium has established *ethical information and privacy management objectives*; these include, for example, the suggestion that enterprises should inform users about the information being gathered, and the purposes for which it is sought. According to a March 2000 Consortium survey of over 4,500 Web users, 73% of respondents find it helpful to have Web sites retain their personal information, while only 15% refuse to supply personal information online. 63% of respondents disliked having to reenter information that they had already supplied.

Ph

Ph is an Internet facility that lets you search for someone's e-mail address if their e-mail provider has a Ph server program. A Ph client program comes with Eudora, a popular e-mail program (click on "Tools," then "Directory Services"), as well as with other programs. To use Ph, you need to know at what university or other organization the person you're looking for is located. A large number of universities and research institutions maintain a directory of e-mail users. In addition, several large Web portal sites, including AltaVista and Bigfoot, have Ph directories. To search using Ph, you need to enter the server name for the location you're searching at and then the person's name. A number of places provide lists of servers. Several Web sites provide a forms interface that includes the server list in order to make searching easy and quick. Some places use the Lightweight Directory Access Protocol (LDAP) and convert a Ph query to LDAP and return the result in Ph. Ph is somewhat similar to another Internet facility, finger, which lets you search for a name if you know the e-mail address. Ph is

sometimes referred to as Qi or Ph/Qi. A Ph response may include other information besides an e-mail address.

PHTML
A PHTML (or it's sometimes called a PHP) page is a Web page that includes a script written in PHP, a language comparable to JavaScript or Microsoft's VBScript. Like Microsoft's Active Server Page (ASP) page, a PHTML page contains programming that is executed at the Web server rather than at the Web client (which is usually your Web browser). You may sometimes see a Web site whose address or URL ends with a file with a suffix of ".phtml"" or ".php3". Either of these suffixes indicate an HTML page that includes a PHP script.

Ping
Ping is a basic Internet program that lets you verify that a particular IP address exists and can accept requests. The verb *ping* means the act of using the ping utility or command. Ping is used diagnostically to ensure that a host computer you are trying to reach is actually operating. If, for example, a user can't ping a host, then the user will be unable to use the File Transfer Protocol (FTP) to send files to that host. Ping can also be used with a host that is operating to see how long it takes to get a response back. Using ping, you can learn the number form of the IP address from the symbolic domain name (see "Tip"). Loosely, ping means "to get the attention of" or "to check for the presence of" another party online. Ping operates by sending a packet to a designated address and waiting for a response. The computer acronym (for Packet Internet or Inter-Network Groper) was contrived to match the submariners' term for the sound of a returned sonar pulse. Ping can also refer to the process of sending a message to all the members of a mailing list requesting an ACK (acknowledgement code). This is done before sending e-mail in order to confirm that all of the addresses are reachable. Also see ping storm and ping strangeness. Tip:To find out the dot address (such as 205.245.172.72) for a given domain name, Windows users can go to their MS DOS prompt screen and enter: ping xxx.yyy where xxx is the second-level domain name like "Yahoo" and yyy is the top-level domain name like "com").

Ping of death
On the Internet, ping of death is a denial of service (DoS) attack caused by an attacker deliberately sending an IP packet larger than the 65,536 bytes allowed by the IP protocol. One of the features of TCP/IP is fragmentation; it allows a single IP packet to be broken down into smaller segments. In 1996, attackers began to take advantage of that feature when they found that a packet broken down into fragments could add up to more than the allowed 65,536 bytes. Many operating systems didn't know what to do when they received an oversized packet, so they froze, crashed, or rebooted. Ping of death attacks were particularly nasty because the identity of the attacker sending the oversized packet could be easily spoofed and because the attacker didn't need to know anything about the machine they were attacking except for its IP address. By the end of 1997, operating system vendors had made patches available to avoid the ping of death. Still, many Web sites continue to block Internet Control Message Protocol (ICMP) ping messages at their firewalls to prevent any future variations of this kind of denial of service

attack. Ping of death is also known as "long ICMP". Variations of the attack include jolt, sPING, ICMP bug, and IceNewk.

Ping Strangeness
Ping strangeness is a term used in a popular book on network design and troubleshooting to describe the incidence of an unusual pattern or frequency of Packet Internet or Inter-Network Groper messages in a network. Pings are used to determine the presence of particular Internet Protocol (IP) addresses on host computers in a network and the time it takes for the ping packet to return. Besides being a useful diagnostic tool, pings are sometimes used by router program ICMP requests so that network router tables can be kept up-to-date. The issuance of a ping request by a user or a program results in an Internet Control Message Protocol (ICMP) echo request. If the remote IP address is active, it responds with an ICMP echo reply. Ping can be used as an alternative to the traceroute utility to trace the hop or path that the ping echo takes through the network. Ping is faster, however, and generates less network traffic than traceroute. Using a network monitor like LANalyzer for Windows, a network administrator can follow a packet exchange. If, for example, the monitor shows a consistent pattern of unexplained pings occurring in the same time period as the packet exchange, this "strange" pattern may be worth investigating. A consistent and continual pattern would suggest that the pings were not the result of someone trying to attack the network (since the attack would be made too obvious) but rather that the hosts originating the pings had been programmed to issue them for some reason. For example, Synoptic hub sometimes seek a network management station, an optional facility that Synoptic offers. The hubs will look for the management station using ICMP pings at frequent time intervals. If the management station doesn't exist, the pings will continue, causing unnecessary traffic. In this example, one solution would be to disable the Internet Protocol on each hub.

Ping Storm
A ping storm is a condition in which the Internet Packet Internet or Inter-Network Groper program is used to send a flood of packets to a server to test its ability to handle a high amount of traffic or, maliciously, to make the server inoperable. Although the ping support in Windows operating systems does not allow someone to mount a ping storm, the ping command in at least some UNIX-based systems offers two options: "ping -f" which specifies to output ping packets back as fast as they are returned, and "ping -s]packetsize[", which causes the size of the outgoing packet to be padded by some specified size in order to increase the load on the receiving server.
A ping storm is one form of *packet storm*.

Pixie dust
Pl. see AFC

PML
Portal Markup Language (PML), an application of the Extensible Markup Language (XML), describes the characteristics of a product that is used to create a portal Web site (sometimes referred to as an enterprise information portal). PML allows manufacturers to exchange information in a standard way about "information objects, users, groups, access control subscriptions and notifications managed by the system." PML is spelled out in a formal document tag definition (DTD). PML

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does not describe syndication (how content from one site could be published on other sites).

PMML
PMML (Predictive Model Markup Language) is an XML-based language that enables the definition and sharing of predictive models between applications. A predictive model is a statistical model that is designed to predict the likelihood of target occurences given established variables or factors. Increasingly, predictive models are being used in e-business applications, such as customer relationship management (CRM) systems, to forecast business-related phenomena, such as customer behavior. The PMML specifications establish a vendor-independent means of defining these models, so that problems with proprietary applications and compatibility issues can be circumvented. The Data Mining Group (DMG), an independent vendor group whose membership includes IBM and Oracle, developed PMML as a means of simplifying processes involved in data mining. Because predictive models are created with statistical software, and then generally deployed by people using COBOL, C, or C++, working with and updating the models can be problematic. A PMML document contains definitions of analytic models and all the necessary information for deployment, so that a model can be worked with across various platforms, applications, and operating systems, independently of the software used to create them.

POP
A point-of-presence (POP) is an access point to the Internet. A POP necessarily has a unique Internet Protocol (IP) address. Your Internet service provider (ISP) or online service provider (such as AOL) has a point-of-presence on the Internet and probably more than one. The number of POPs that an ISP or OSP has is sometimes used as a measure of its size or growth rate. A POP may actually reside in rented space owned by the telecommunications carrier (such as Sprint) to which the ISP is connected. A POP usually includes routers, digital/analog call aggregators, servers, and frequently frame relays or ATM switches. For Post Office Protocol, see POP3.

POP3
POP3 (Post Office Protocol 3) is the most recent version of a standard protocol for receiving e-mail. POP3 is a client/server protocol in which e-mail is received and held for you by your Internet server. Periodically, you (or your client e-mail receiver) check your mail-box on the server and download any mail. POP3 is built into the Netmanage suite of Internet products and one of the most popular e-mail products, Eudora. It's also built into the Netscape and Microsoft Internet Explorer browsers. An alternative protocol is Internet Message Access Protocol (IMAP). With IMAP, you view your e-mail at the server as though it was on your client computer. An e-mail message deleted locally is still on the server. E-mail can be kept on and searched at the server.
POP can be thought of as a "store-and-forward" service. IMAP can be thought of as a remote file server. POP and IMAP deal with the receiving of e-mail and are not to be confused with the Simple Mail Transfer Protocol (SMTP), a protocol for transferring e-mail across the Internet. You send e-mail with SMTP and a mail handler receives it on your recipient's behalf. Then the mail is read using POP or IMAP. The conventional port number for POP3 is 110.

Point-of-Presence
Pl. see POP

Point-to-Point Tunneling Protocol
Pl. see PPTP

Policy Analysis of Internet Routing
Pl. see PAIR

Pop-Under
On the Web, a pop-under is a window that is created but temporarily "hidden" behind the window of a Web site that the user has chosen to visit. When the visitor leaves the site that was being visited, the pop-under window becomes visible. Pop-unders are generally used for advertising. Although some users find pop-unders to be intrusive, advertisers generally

Pop-Up
A pop-up is a graphical user interface (GUI) display area, usually a small window, that suddenly appears ("pops up") in the foreground of the visual interface. Pop-ups can be initiated by a single or double mouse click or rollover (sometimes called a mouseover), and also possibly by voice command or can simply be timed to occur. A pop-up window must be smaller than the background window or interface; otherwise, it's a replacement interface. On the World Wide Web, JavaScript (and less commonly Java applets) are used to create interactive effects including pop-up and full overlay windows. A menu or taskbar pulldown can be considered a form of pop-up. So can the little message box you get when you move your mouse over taskbars in many PC applications.

Port 80
On a Web server or Hypertext Transfer Protocol daemon, port 80 is the port that the server "listens to" or expects to receive from a Web client, assuming that the default was taken when the server was configured or set up. A port can be specified in the range from 0-65536 on the NCSA server. However, the server administrator configures the server so that only one port number can be recognized. By default, the port number for a Web server is 80. Experimental services may sometimes be run at port 8080.

Port Number
A port number is a way to identify a specific process to which an Internet or other network message is to be forwarded when it arrives at a server. For the Transmission Control Protocol and the User Datagram Protocol, a port number is a 16-bit integer that is put in the header appended to a message unit. This port number is passed logically between client and server transport layers and physically between the transport layer and the Internet Protocol layer and forwarded on. For example, a request from a client (perhaps on behalf of you at your PC) to a server on the Internet may request a file be served from that host's File Transfer Protocol (FTP) server or process. In order to pass your request to the FTP process in the remote server, the Transmission Control Protocol (TCP) software layer in your computer identifies the port number of 21 (which by convention is associated with an FTP request) in the 16-bit port number integer that is appended to your request. At the server, the TCP layer will read the port number

of 21 and forward your request to the FTP program at the server. Some services or processes have conventionally assigned permanent port numbers. These are known as well-known port numbers. In other cases, a port number is assigned temporarily (for the duration of the request and its completion) from a range of assigned port numbers. This is called an ephemeral port number.

Portal
Portal is a term, generally synonymous with *gateway*, for a World Wide Web site that is or proposes to be a major starting site for users when they get connected to the Web or that users tend to visit as an anchor site. There are general portals and specialized or niche portals. Some major general portals include Yahoo, Excite, Netscape, Lycos, CNET, Microsoft Network, and America Online's AOL.com. Examples of niche portals include Garden.com (for gardeners), Fool.com (for investors), and SearchNetworking.com (for network administrators). A number of large access providers offer portals to the Web for their own users. Most portals have adopted the Yahoo style of content categories with a text-intensive, faster loading page that visitors will find easy to use and to return to. Companies with portal sites have attracted much stock market investor interest because portals are viewed as able to command large audiences and numbers of advertising viewers. Typical services offered by portal sites include a directory of Web sites, a facility to search for other sites, news, weather information, e-mail, stock quotes, phone and map information, and sometimes a community forum. Excite is among the first portals to offer users the ability to create a site that is personalized for individual interests. The term *portal space* is used to mean the total number of major sites competing to be one of the portals. In fantasy games, science-fiction, and some "New Age" philosophies, a portal is a gateway to another world of the past, present, or future, or to an expanded awareness. In 3-D graphics development, *portal rendering* is a technique that increases the effect of realism and speeds up presentation.

Portal Markup Language
Pl. see PML

Portal Software
Portal software is a type of development tool used to create a portal (starting point) on a company's intranet so that employees can find a centralized starting place for access to consolidated enterprise-related functions, such as e-mail, customer relationship management (CRM) tools, company information, workgroup systems, and other applications. The package may be customized to varying degrees of enterprise or individual specificity. Portal software is similar to intranet software, but the end product typically features more complexity, automation, organization, and interactivity. Although the end product is sometimes referred to as an *intranet portal*, it is usually called an enterprise information portal. Portal software packages generally fall into one of the four following categories: digital dashboard, pure-play, application, or infrastructure portals. A *digital dashboard* portal package creates a centralized starting point for various applications and provide a summary of information pertaining to those applications, just as a car's dashboard provides centralized access to summarized information about various aspects of the car's critical details. A *pure-play* portal package concentrates on creating a portable

interface for a specific portal offering across multiple platforms. Pure-play provides more functionality than the digital dashboard in a centralized access point for various business productivity applications, such as e-mail, collaboration tools, and resource planning tools. An *application* portal package includes a wide variety of tools - such as workgroup software - that have been adapted to go with a portal interface. Most common applications now fall into this category, since most are built to work in a portal environment. An *infrastructure* portal package is similar to a pure-play package, but is specifically geared towards technologies developed within the company rather than towards portability; for example, Oracle's portal product is geared toward Oracle technologies. Corechange, Epicentric, Hummingbird, and Plumtree are among the leading portal software vendors. Most major software companies have released some type of portal software. Although the current generation of portal software is oriented towards the enterprise itself, it is likely that applications will increasingly encompass enterprise-customer interactions as well.

Postcardware
Postcardware is <u>freeware</u> (no-charge software that is freely shared) that requires only that the user send the software provider a postcard as a form of payment. The idea is to humanize the transaction, remind the user that someone else shared something freely, and remind the provider that someone is actually using the creation.

Power-down
Pl. see Power-up

Power-off
Pl. see Power-up

Power-on
Pl. see Power-up

Power-up
Power-up (or the synonym "power-on") is a verb meaning to apply electrical power to a device - that is, to "turn it on" as most of us would say about turning on a light switch when entering a dark room. A term long favored by engineers, it permeates computer and other device documentation and most of today's computer users have gradually come to terms with it.

PPTP
Point-to-Point Tunneling Protocol (PPTP) is a <u>protocol</u> (set of communication rules) that allows corporations to extend their own corporate network through private "tunnels" over the public Internet. Effectively, a corporation uses a wide-area network as a single large local area network. A company no longer needs to lease its own lines for wide-area communication but can securely use the public networks. This kind of interconnection is known as a virtual private network (<u>VPN</u>). PPTP, a proposed standard sponsored by Microsoft and other companies, and Layer 2 Tunneling Protocol, proposed by Cisco Systems, are among the most likely proposals as the basis for a new Internet Engineering Task Force (<u>IETF</u>) standard. With PPTP, which is an extension of the Internet's Point-to-Point Protocol (<u>PPP</u>), any user of a PC with PPP client support is able to use an independent service provider (<u>ISP</u>) to connect securely to a server elsewhere in the user's company.

Practical Extraction and Reporting Language
Pl. See Perl

Predictive Model Markup Language
Pl. see PMML

Presence
Pl. see Web Site

Presence Technology
Presence technology is a type of application that makes it possible to locate and identify a computing device (including, for example, handheld computers as well as desktop models) wherever it might be, as soon as the user connects to the network. One application of presence technology, instant messaging (IM), is already very popular. Presence technology is expected to be an integral part of third generation (3G) wireless networks, and is likely to be employed across a wide variety of communication devices, including cellphones, PDAs (personal digital assistants), television sets, and pagers. A number of wireless application service providers (WASPs) are developing platforms for mobile presence applications, called *m-presence*. Future applications of presence technology could take any number of forms. For example, a driver with a wireless phone enabled with GPS (global positioning system) could be tracked, sent messages warning about traffic delays and suggesting alternate routes. Among other possibilities, users of the technology could in the future automatically set up an impromptu teleconference by connecting all the parties as soon as they were detected to be available. Privacy issues will be addressed by allowing a high degree of user-defined control, allowing people to select conditions in which they would be detectable, for example. The Internet Engineering Task Force's (IETF) Instant Messaging and Presence Protocol (IMPP) Working Group was formed to establish core standards that could be used to make presence technologies interoperable, a challenge that is currently slowing their development. Many of the current IM systems, for example, don't make it possible for users to exchange messages with the customers of other systems, a situation which has been compared to a long distance telephone service provider making it impossible for users to communicate with another long distance provider's customers. Lucent and Novell have joined forces to form the Presence and Availability Management Forum (PAM), a venue for collaboration within the industry.

PRI
In the Integrated Services Digital Network (ISDN), there are two levels of service: the Basic Rate Interface (BRI), intended for the home and small enterprise, and the Primary Rate Interface (PRI), for larger users. Both rates include a number of B-channels and a D-channel. Each B-channel carries data, voice, and other services. The D-channel carries control and signaling information. The Basic Rate Interface consists of two 64 Kbps B-channels and one 16 Kbps D-channel. Thus, a Basic Rate Interface user can have up to 128 Kbps service. The Primary Rate Interface consists of 23 B-channels and one 64 Kpbs D-channel using a T-1 line or 30 B-channels and 1 D-channel using an E1 line. Thus, a Primary Rate Interface user on a T-1 line can have up to 1.544 Mbps service or up to 2.048 Mbps service on an E1 line. PRI uses the Q.931 protocol over the D-channel. The Primary Rate Interface

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channels are carried on a T-carrier system line (in the U.S., Canada, and Japan) or an E-carrier line (in other countries) and are typically used by medium to large enterprises. The 23 (or 30) B-channels can be used flexibly and reassigned when necessary to meet special needs such as videoconferences. The Primary Rate user is hooked up directly to the telephone company central office. For more information, see ISDN. To compare ISDN data rates with other technologies, see The speed of...

Primary Rate Interface
Pl. See PRI

Private Port Numbers
Pl. see Dynamic port numbers

PTR
Pl. See PVR

Push
Push (or "server-push") is the delivery of information on the Web that is initiated by the information server rather than by the information user or client, as it usually is. An early Web service that specialized in "pushing" information rather than having it "pulled" as the result of requests for Web pages was Pointcast, a site that provided up-to-date news and other information tailored to a previously defined user profile. Marimba was a somewhat similar site (and product) that pushed information to the user on a predefined schedule. In fact, the information pushed from a server to a user actually comes as the result of a programmed request from the client in your computer. That is, any information pusher on the Web requires that you download a client program. This program captures your profile and then periodically initiates requests for information on your behalf from the server. A truer form of push is *broadcast* information. In this case, the information is pushed to everyone that has access to a particular channel or frequency. Broadcast usually (but not always) involves a continuous flow of information. Another form of "pushed" information is e-mail. Although the e-mail client in your computer has to occasionally go to your local e-mail server to "pick up" the e-mail, the e-mail arrived because someone sent it (pushed) it to you without a one-for-one request having been made.

Push Technology
Push technology (Webcasting) is the prearranged updating of news, weather, or other selected information on a computer user's desktop interface through periodic and generally unobtrusive transmission over the World Wide Web (including the use of the Web protocol on intranet). Webcasting is a feature of the Microsoft Internet Explorer browser and Netscape's Netcaster, part of its Communicator suite. Webcasting is also available through separate applications such as Pointcast and Backweb that run on current browsers. Webcasting uses so-called *push technology* in which the Web server ostensibly "pushes" information to the user rather than waiting until the user specifically requests it. (In actuality, most of the push is triggered by user or administrator preselection and arrives only as the result of client requests.) In addition to changing the Web for the home user, new Webcasting products offer corporations an organized way to manage information for their intranet users. Because some products and services seem aimed primarily at the corporate market and others for the home user, we describe how Webcasting

works first for the home user and then for a company's intranet. Webcasting (Home User). Briefly, here's how it works:

- You download one of the new Netscape or MSIE browsers or one of the Webcasting applications such as Pointcast or Backweb. Now you have software in your computer that can unobtrusively request and get information updates in the periods when you're not using your live Internet connection (you won't be aware of it).
- The new browser or Webcasting software will ask you what "channels" or information categories and specific Web sites you want to be able to have brought to you. Typically, you fill out a brief profile and select from menus.

The user interface varies considerably, depending on the browser or application you have downloaded and installed. A typical interface is a scrolling tickertape on some part of your display screen that you can turn on or off. The tickertape displays news headlines, stock quotes, or other information. Pointcast provides a screensaver that brings you an array of news, weather, and other information as soon as you turn your computer on. Backweb's Headliner lets you select either a tickertape or a screensaver and change at any time. Both Internet Explorer and Netscape's Netcaster take an even more radical approach and provide a new interface in which information objects or sources are viewed along with word processing and other applications as though everything was part of your virtual desktop. As you use your computer, the Webcasting software uses a portion of your Internet connection to request updates from the "channels" (Web sites) you have selected. As the updates arrive, they are either stored for you to view the first time you click on a "channel" or, if a channel is already active, the information is presented to you right away and continually as long as you are using your computer.

Webcasting (Intranet) Briefly, here's how it works:

- An enterprise's intranet manager installs one of several Webcasting products available (see Table below) on a central Web server. Depending on the product, a range of provided program "channels" may be available to provide the intranet users with international, national, and perhaps local news or news headlines and possibly other services. The intranet manager decides which "channels" to preselect for intranet users and which channels (or whether there will be any) available for the user to choose.
- The channels that "come with" the product or represent existing sites on the Web may either be icons or graphical links to a Web site or may be summary services such as news tickers and stock quotes that furnish information whether or not the user elects to click to the source Web site.

The intranet manager can develop new channels to put on the server that will "push" corporate news, industry or trade news, and news about competitors to selected users in the company.

Some of the products will allow the intranet manager to gather statistics on how often each channel is being used.

The user of the intranet will view the default set of channels planned and provided by the intranet manager. The intranet will thus become a much more visible part of the user's computer desktop. In some cases, the user may be able to modify the user interface and turn the Webcast channels off (for example, turn off a screensaver background or a scrolling headline ticker) just as a home user can.

Webcasting assumes that individually and as corporations, we want our Web to be less chaotic with information sources pre-selected and organized. Users can still get to the entire Web on their own as usual (at least we think in most companies). However, Webcasters believe you often won't need to if the information is brought to you first. The use of the term "channel" by the Webcasting providers underscores their belief that users will prefer fewer choices and more order. Some of the Webcast software allows users to add their own Web site selections as channels.

Pointcast includes advertising as part of its content. The browsers and other Webcasters do not include advertising unless you click to the source site from a headline. Pointcast's screensaver approach requires about 10 megabytes of your hard disk. With one or two exceptions, the Webcasting software is free for downloading.

Pure-play

Pure-play, a term used in stock trading (especially on the Internet), refers to ownership in companies that focus on and specialize in a particular product or service area to the exclusion of other market opportunities in order to obtain a large market share and brand identity in one area. Examples of such companies are said to include SAP for corporate back-office applications; Siebel Systems in customer relationship management (CRM) applications; i2 Technologies in supply chain management (SCM); and Ariba in e-procurement. A *conglomerate* is usually considered to be the opposite of a pure-play company.

PVR

A personal video recorder (PVR) is an interactive TV recording device, in essence a sophisticated set-top box with recording capability (although it is not necessarily kept on top of the television set). Vendors and media also refer to the units by these names: *digital video recorder* (DVR); *personal TV receiver* (PTR); *personal video station* (PVS); and *hard disk recorder* (HDR). Like the familiar VCR, a PVR records and plays back television programs, but, unlike the VCR, it stores the programs in digital (rather than analog) form. Like a VCR, a PVR has the ability to pause, rewind, stop, or fast-forward a recorded program. Because the PVR can record a program and replay it almost immediately with a slight time lag, what seem to be live programs can be manipulated as though they were recorded programs (which they actually are). A PVR's capabilities include time marking, indexing, and non-linear editing. The PVR encodes an incoming video data stream as MPEG-1 or MPEG-2 and stores it on a hard disk within a device that looks much like a VCR. Most PVRs come as part of a subscriber service that may or may not charge a monthly fee. The service enables such activities as searching for shows according to type (movies or baseball games, for example), choosing among video-on-demand (VOD) options, or doing shopping or banking. Service providers, such as TiVo and ReplayTV, may also sell PVRs. There are a number of PVRs on the market, including TiVo's DVR, SONICblue's ReplayTV, Sony's SVR-2000, and Philips' PTR. There are also products that offer similar functionality but are software-based (such as SnapStream Personal Video Station) or network-based. The Digital Video Broadcasting (DVB) Project is an industry consortium dedicated to the development of standards for PVRs and other digital video technologies. There are a number of controversial issues surrounding the capabilities that PVRs and similar technologies enable. For example, ReplayTV makes it possible to skip through commercials by using a 30-second "auto-skip" function. This capacity is

popular with consumers, but not with advertisers. Another feature, the ability to download programming from the Internet and to send files to friends, is similarly unpopular with service providers, since it can enable a user who hasn't paid for a service (such as HBO) free access.

PVS

Pl. see PVR

PWS

PWS an abbreviation for Personal Web Server, is Microsoft's version of a <u>Web server</u> program for individual PC users who want to share Web pages and other files from their hard drive. PWS is a scaled-down version of Microsoft's more robust Web server, Internet Information Server <u>IIS</u>. PWS can be used with a full-time Internet connection to serve Web pages for a Web site with limited traffic. It can also be used for testing a Web site offline or from a "staging" site before putting it on a main Web site that is exposed to larger traffic. PWS can be used together with Microsoft's FrontPage, a Web site design product, to upload Web pages from a remote location or to the local hard drive; to check for dead links; to create directories; and to set permissions. PWS is frequently used as part of the trend toward <u>peer-to-peer</u> exchange and publishing. The equivalent program for the Macintosh is called Personal Web Sharing.

Quad

A quad (pronounced KWAHD) is a unit in a set of something that comes in four units. The term is sometimes used to describe each of the four numbers that constitute an Internet Protocol (IP) address. Thus, an Internet address in its numeric form (which is also sometimes called a dot address) consists of four quads separated by "dots" (periods). For example: 192.68.00.21,192, 68, 00, and 21 are each quads of the entire address. A quad also means "a quarter" in some usages.

Quick Place

QuickPlace is Lotus's Web-based shared workspace software for real time collaboration among geographically dispersed participants. Using QuickPlace, coworkers, suppliers, partners, and customers can communicate online immediately within a structured workspace created for that purpose. An online workspace can make it possible for people to work together more easily and less expensively, and in some cases, makes collaboration possible when it would not have been otherwise. Here's how a session with QuickPlace works: As a team leader, you open a Web browser and enter the URL (Web address) of a QuickPlace server. At the server's Web page, you click the "Create a QuickPlace" link. In the next window, you select a name for the QuickPlace and authenticate yourself. At this point (usually less than a minute), the QuickPlace has been created. You go to the Members page and add the names of your team members and assign their permission levels for the space, giving each member reader, author, or manager status. Again, usually in less than a minute, members can enter the workspace and begin to participate: join discussions, review or coauthor documents with other team members, manage tasks, and so on. QuickPlace is available on five platforms and in fourteen languages. QuickPlace is often used in conjunction with Sametime, another popular Lotus collaboration product.

Quick Web

Quick Web was a product from Intel Corporation that was designed to speed up the delivery of Web pages to users. Quick Web was installed at several major Internet service providers (ISPs). ISPs who installed Quick Web offered their users the option of subscribing to a faster delivery service for a somewhat larger fee. Quick Web offered to deliver pages faster in two ways: (1) By compressing the graphic images it sent to the user. (The browser would not uncompress them; they would simply be somewhat lower quality images than you would get without Quick Web.), (2) By caching the Web pages that users requested most frequently. Instead of a request going all the way to the Web site for a page, if the page has recently been requested through your ISP's server, it will find it and send it to you without your request having to travel all the way to the Web site and back. For

example, many of Yahoo's most popular directory pages would probably be requested by many ISP users and would thus be available in the cache at the ISP. The ISP would periodically refresh the pages. Intel believed that only users with large, high-resolution display monitors would notice the image quality difference. Users in Intel's field trials were apparently satisfied with the system. The Quick Web technology made the ISP server act like a proxy server, screening requests on behalf of the user and acting as a proxy or stand-in in forwarding (or not needing to forward) requests on to the Internet. Users of Quick Web were able to turn the graphics compression on or off with a small window called a Speed Selector at the start of each browser session. (The window arrived from the server as a Java applet; it did not have to be installed by the user.) Another applet called a Web-o-Meter popped up occasionally to tell how much performance was being increased. An issue with Quick Web and page caching in general among sites that count page views for advertising purposes is how views from ISP caches can be counted. Intel said that Quick Web would keep track of page views at the ISP and publishers could be provided with these statistics. Intel said the product itself performed well but, because it wasn't selling well, it was being discontinued. More recently, a number of companies have emerged that provide content delivery services, including page caching, for high-traffic Web sites, and the number of Web users who are able to get Internet access at higher speeds has increased. Intel's Quick Web product has now been discontinued. The Intel product was two words - Quick Web. There are a number of Internet and software companies with the name QuickWeb.

Radio Paper
Pl. See E-paper

RDF Site Summary
Pl. see RSS

Real Life
Real life is a term used to describe what happens outside the Internet and implies that somehow the Internet furnishes us with a *virtual life*. Depending on the context, usage of the term may imply one or more of the following: The Internet is an artificial reflection or weak imitation of life that, in spite of its ability to let us quickly be in contact with knowledge and people at great distance, lacks the ability to engage the full range of our emotions and powers. In this sense, real life is seen as superior to virtual life. Increasing numbers of us spend time working on or using the Internet and somehow our work life on or frequent preoccupation with the Internet is seen as an intrusion into our lives. In this sense, real life is seen as a welcome respite from the keyboard and display. For those who become happily and fully engaged with the Internet -- for example, gamers and those who get involved with 3-D environments or chatting -- real life can be seen as a letdown, meaning back to the mundane. For anyone who communicates with others on the Internet, there is an air of the virtual or "made-up" in one's e-mail or chat voice or persona (often exemplified by the e-mail address or the chat name that one adopts). In chat environments, there is even the possibility of using a mask or avatar to represent you. In the aspect of personal identity, real life means returning to your "real" name and place in the world. Paradoxically, perhaps especially for those who work on it every day, Internet activity can come to seem more like one's real life and feeding the cat can come to seem surreal or virtual.

Real-Time Transport Protocol
Pl. see RTP

Recency Frequency Monetary analysis
Pl. see RFM

Registered port numbers
The registered port numbers are the port numbers that companies and other users register with the Internet Corporation for Assigned Names and Numbers (ICANN) for use by the applications that communicate using the Internet's Transmission Control Protocol (TCP) or the User Datagram Protocol (UDP). In most cases, these applications run as ordinary programs that can be started by nonprivileged users. The registered port numbers are in the range from 1024 through 49151. They follow in sequence the well-known port numbers, which are, in most cases, applications that can only be started by privileged users, such as the Hypertext

Transfer Protocol (HTTP) and Post Office Protocol Version 3 (POP3) applications. When one application communicates with another application at another host computer on the Internet, it specifies that application in each data transmission by using its port number. Examples of applications with registered port numbers include Sun's NEO Object Request Broker (port numbers 1047 and 1048) and Shockwave (port number 1626). Besides the well-known port numbers and the registered port numbers, the remaining ports in the port number spectrum are referred to as dynamic ports or private ports and are numbered from 49152 through 65535. Before the arrival of ICANN, the port numbers were administered by the Internet Internet Assigned Numbers Authority (IANA).

Registry

In the Microsoft Windows operating systems beginning with Windows 95, the registry is a single place for keeping such information as what hardware is attached, what system options have been selected, how computer memory is set up, and what application programs are to be present when the operating system is started. The registry is somewhat similar to and a replacement for the simpler INI (initialization) and configuration files used in earlier Windows (DOS-based) systems. INI files are still supported, however, for compatibility with the 16-bit applications written for earlier systems. In general, the user updates the registry indirectly using Control Panel tools, such as TweakUI. When you install or uninstall application programs, they also update the registry. In a network environment, registry information can be kept on a server so that system policies for individuals and workgroups can be managed centrally.

Remailer

A remailer is an Internet site to which you can send e-mail for forwarding to an intended destination while concealing your own e-mail address. E-mail sent through a remailer is sometimes known as anonymous e-mail. There may be valid reasons for wanting to conceal your e-mail address (and personal identity) from an e-mail recipient. There are, of course, unworthy reasons, too. However, advocates of anonymous e-mail and remailer services remind us that having the right to conceal your identity in a note can, on occasion, be socially useful and the practice should be possible. A small number of Web sites provide remailer services. Until it was recently closed, the best-known remailer was the Finland-based anon.penet.fi

Remote Function Call

A Remote Function Call is an application program interface to R/3 applications from SAP, the German company that sells a coordinated set of applications and databases to Fortune 1000 companies. SAP customers who wish to write other applications that communicate with R/3 applications and databases can use the RFC interface to do so. RFC is also an abbreviation for Request for Comments.

Remote Procedure Call
Pl. see RPC

Remote wake-up
Pl. see RWU

Representational State Transfer

Pl. see REST

Request for Comments
Pl. see RFC

Reseller Hosting
Reseller hosting is the provision of Web hosting services to companies that in turn act as Web hosts for other companies, typically providing Web site design and management services as well as acting as host for the site and serving its pages to users. For example, a hypothetical Sports Site Server Inc. could provide a package for professional or amateur sports teams that included an easy-to-use approach to creating a Web site as well as the space for the Web site's pages and an easy-to-use interface for keeping the site up-to-date. Sports Site Server would actually use the computer and storage facilities of Giant Host, Inc., a hosting company that offered similar reselling capabilities to many companies like Sports Site Server. A large hosting company that allowed reselling (like Giant Host) might actually host hundreds of Web sites. In general, a reseller is a company that buys a product or service from another company and repackages it, usually adding something to it, to other companies under its own company or brand name.

Resilient Packet Ring
Pl. see RPR

Resource Reservation Protocol
Pl. see RSVP

REST
REST (representational state transfer) is an approach for getting information content from a Web site by reading a designated Web page that contains an XML (Extensible Markup Language) file that describes and includes the desired content. For example, REST could be used by an online publisher to make syndicated content available. Periodically, the publisher would prepare and activate a Web page that included content and XML statements that described the content. Subscribers would need only to know the URL (Uniform Resource Locator) for the page where the XML file was located, read it with a Web browser, interpret the content data using the XML information, and reformat and use it appropriately (perhaps in some form of online publication). As described in a dissertation by Roy Fielding, REST is an "architectural style" that basically exploits the existing technology and protocols of the Web, including HTTP (Hypertext Transfer Protocol) and XML. REST is simpler to use than the well-known SOAP (Simple Object Access Protocol) approach, which requires writing or using a provided server program (to serve data) and a client program (to request data). SOAP, however, offers potentially more capability. For example, a syndicator that wanted to include up-to-date stock prices to subscribing Web sites might need to use SOAP, which allows a greater amount of program interaction between client and server. REST is consistent with an information publishing approach that a number of Web log sites use to describe some aspects of their site content, called RDF Site Summary (RSS). RSS uses the Resource Description Framework (RDF), a standard way to describe a Web site or other Internet resource.

Rnext

Rnext was the unofficial name given to a then forthcoming release of IBM's <u>Notes</u> and <u>Domino</u> product set. In January 2002, Rnext officially became Lotus Notes and Domino 6.

Reverse Telnet
Reverse Telnet (sometimes called *direct Telnet*) is the initiation of a <u>Telnet</u> session from a computer system to one of its remote users. Usually, a Telnet session is initiated by a user who wishes to access and share resources on a remote computer system. The user must have permission and is prompted to provide a user name and password. Reverse Telnet is when the host computer initiates a Telnet session instead of accepting one. Reverse Telnet is typically used by a system administrator to configure or to troubleshoot a remote computer.

RFC
A Request for Comments (RFC) is a formal document from the Internet Engineering Task Force (<u>IETF</u>) that is the result of committee drafting and subsequent review by interested parties. Some RFCs are informational in nature. Of those that are intended to become Internet standards, the final version of the RFC becomes the standard and no further comments or changes are permitted. Change can occur, however, through subsequent RFCs that supersede or elaborate on all or parts of previous RFCs. RFC is also an abbreviation for <u>Remote Function Call</u>.

RFM
RFM (recency, frequency, monetary) analysis is a marketing technique used to determine quantitatively which customers are the best ones by examining how recently a customer has purchased (recency), how often they purchase (frequency), and how much the customer spends (monetary). RFM analysis is based on the marketing axiom that "80% of your business comes from 20% of your customers". For more than 30 years, direct mailing marketers for non-profit organizations have used an informal RFM analysis to target their mailings to customers most likely to make donations. The reasoning behind RFM was simple: people who donated once were more likely to donate again. With the advent of e-mail marketing campaigns and customer relationship management software, RFM ratings have become an important tool. Using RFM analysis, customers are assigned a ranking number of 1,2,3,4, or 5 (with 5 being highest) for each RFM parameter. The three scores together are referred to as an RFM "cell" . The database is sorted to determine which customers were "the best customers" in the past, with a cell ranking of "555" being ideal. Although RFM analysis is a useful tool, it does have its limitations. A company must be careful not to oversolicit customers with the highest rankings. Experts also caution marketers to remember that customers with low cell rankings should not be neglected, but instead should be cultivated to become better customers.

Rich Site Summary
Pl.see RSS

RIP
RIP (Routing Information Protocol) is a widely-used protocol for managing <u>router</u> information within a self-contained network such as a corporate local area network () or an interconnected group of such LANs. RIP is classified by the Internet

Engineering Task Force (IETF) as one of several internal gateway protocols (Interior Gateway Protocol). Using RIP, a gateway host (with a router) sends its entire routing table (which lists all the other hosts it knows about) to its closest neighbor host every 30 seconds. The neighbor host in turn will pass the information on to its next neighbor and so on until all hosts within the network have the same knowledge of routing paths, a state known as *network convergence*. RIP uses a hop count as a way to determine network distance. (Other protocols use more sophisticated algorithms that include timing as well.) Each host with a router in the network uses the routing table information to determine the next host to route a packet to for a specified destination. RIP is considered an effective solution for small homogeneous networks. For larger, more complicated networks, RIP's transmission of the entire routing table every 30 seconds may put a heavy amount of extra traffic in the network. The major alternative to RIP is the Open Shortest Path First Protocol (OSPF).

Root Server System
On the Internet, the root server system is the way that an authoritative master list of all top-level domain name (such as com, net, org, and individual country codes) is maintained and made available. The system consists of 13 file servers. The central or "A" server is operated by Network Solutions, Inc., the company that currently manages domain name registration, and the master list of top-level domain (TLD) names is kept on the A server. On a daily basis, this list is replicated to 12 other geographically dispersed file servers that are maintained by an assortment of agencies. The Internet routing system uses the nearest root server list to update routing tables.

Routing Information Protocol
Pl. see RIP

Roundtripping
In information processing, roundtripping is the conversion (or, in some usages, the repeated conversion back and forth) of a document in one format such as Microsoft Word to a document in another format such as WordPerfect or HTML and then back again. Since conversion from one format to another sometimes introduces compromises in the appearance or content of the original, conversion back and forth tends to compound the problem. The problem can become a concern for enterprises such as law offices that often exchange documents back and forth a number of times.

RPC
Remote Procedure Call (RPC) is a protocol that one program can use to request a service from a program located in another computer in a network without having to understand network details. (A *procedure call* is also sometimes known as a *function call* or a *subroutine call*.) RPC uses the client/server model. The requesting program is a client and the service-providing program is the server. Like a regular or local procedure call, an RPC is a synchronous operation requiring the requesting program to be suspended until the results of the remote procedure are returned. However, the use of *lightweight processes* or threads that share the same address space allows multiple RPCs to be performed concurrently. When program statements that use RPC are compiled into an executable program, a stub is included in the compiled code that acts as the representative of the remote

procedure code. When the program is run and the procedure call is issued, the stub receives the request and forwards it to a client <u>runtime</u> program in the local computer. The client runtime program has the knowledge of how to address the remote computer and server application and sends the message across the network that requests the remote procedure. Similarly, the server includes a runtime program and stub that interface with the remote procedure itself. Results are returned the same way. There are several RPC models and implementations. A popular model and implementation is the Open Software Foundation's Distributed Computing Environment (<u>DCE</u>). The <u>Institute of Electrical and Electronics Engineers</u> defines RPC in its *ISO Remote Procedure Call Specification*, ISO/IEC CD 11578 N6561, ISO/IEC, November 1991. RPC spans the <u>Transport layer</u> and the <u>Application layer</u> in the Open Systems Interconnection (<u>OSI</u>) model of network communication. RPC makes it easier to develop an application that includes multiple programs distributed in a network. Alternative methods for client/server communication include <u>message queueing</u> and IBM's Advanced Program-to-Program Communication (<u>APPC</u>).

RPR

Resilient Packet Ring (RPR) is a network <u>topology</u> being developed as a new standard for <u>fiber optic</u> <u>ring</u>s. The Institute of Electrical and Electronic Engineers (<u>IEEE</u>) began the RPR standards (IEEE 802.17) development project in December 2000 with the intention of creating a new <u>Media Access Control layer</u> for fiber optic rings. The IEEE working group is part of the IEEE's local area network (<u>LAN</u>) and metropolitan area network (<u>MAN</u>) Committee. Fiber optic rings are widely deployed as part of both MANs and wide area networks (<u>WAN</u>s); however, these topologies are dependent on <u>protocol</u>s that aren't optimized or scalable to meet the demands of <u>packet-switched</u> networks. The working group intends to actively promote RPR as a technology for the networking market as a whole, and as a technology to enable connectivity among various computing and telecommunications devices. The working group will specify an RPR access protocol and <u>physical layer</u> interfaces to enable high-speed data transmission in a fiber optic ring topology. Among the issues the RPR working group is addressing are <u>bandwidth</u> allocation and <u>throughput</u>, speed of <u>deploy</u>ment, and equipment and operational costs.

RSS

RDF Site Summary (RSS) - also referred to as Rich Site Summary - is a method of describing news or other Web content that is available for "feeding" (distribution or <u>syndication</u>) from an online publisher to Web users. RSS is an application of the Extensible Markup Language (<u>XML</u>) that adheres to the World Wide Web Consortium's Resource Description Framework (<u>RDF</u>). Originally developed by <u>Netscape</u> for its browser's Netcenter channels, the RSS specification is now available for anyone to use. A Web site that wants to "publish" some of its content, such as news headlines or stories, creates a description of the content and specifically where the content is on its site in the form of an RSS document. The publishing site then registers its RSS document with one of several existing directories of RSS publishers. A user with a Web <u>browser</u> or a special program that can read RSS-distributed content can read periodically-provided distributions. Some current directories of RSS files include Meerkat, GropSoup, NewsIsFree, UserLand, and XML Tree; these sites are sometimes known as <u>content</u>

aggregators. RSS browsers include Headline Viewer and Novobot. News is only one form of content that can be distributed with an RSS feed. Other possibilities include discussion forum excerpts, software announcements, and any form of content retrievable with a URL.

Rijndael

Rijndael (pronounced rain-dahl) is the algorithm that has been selected by the U.S. National Institute of Standards and Technology (NIST) as the candidate for the Advanced Encryption Standard (AES). It was selected from a list of five finalists, that were themselves selected from an original list of more than 15 submissions. Rijndael will begin to supplant the Data Encryption Standard (DES) - and later Triple DES - over the next few years in many cryptography applications. The algorithm was designed by two Belgian cryptologists, Vincent Rijmen and Joan Daemen, whose surnames are reflected in the cipher's name. Rijndael has its origins in Square, an earlier collaboration between the two cryptologists. The Rijndael algorithm is a new generation symmetric block cipher that supports key sizes of 128, 192 and 256 bits, with data handled in 128-bit blocks - however, in excess of AES design criteria, the block sizes can mirror those of the keys. Rijndael uses a variable number of rounds, depending on key/block sizes, as follows: (1) 9 rounds if the key/block size is 128 bits, (2) 11 rounds if the key/block size is 192 bits and (3) 13 rounds if the key/block size is 256 bits. Rijndael is a substitution linear transformation cipher, not requiring a Feistel network. It use triple discreet invertible uniform transformations (layers). Specifically, these are: Linear Mix Transform; Non-linear Transform and Key Addition Transform. Even before the first round, a simple key addition layer is performed, which adds to security. Thereafter, there are Nr-1 rounds and then the final round. The transformations form a State when started but before completion of the entire process. The State can be thought of as an array, structured with 4 rows and the column number being the block length divided by bit length (for example, divided by 32). The cipher key similarly is an array with 4 rows, but the key length divided by 32 to give the number of columns. The blocks can be interpreted as unidimensional arrays of 4-byte vectors. The exact transformations occur as follows: the byte subtransformation is nonlinear and operates on each of the State bytes independently - the invertible S-box (substitution table) is made up of 2 transformations. The shiftrow transformation sees the State shifted over variable offsets. The shift offset values are dependent on the block length of the State. The mixcolumn transformation sees the State columns take on polynomial characteristics over a Galois Field values (28), multiplied x4 + 1 (modulo) with a fixed polynomial. Finally, the roundkey transform is XORed to the State. The key schedule helps the cipher key determine the round keys through key expansion and round selection. Overall, the structure of Rijndael displays a high degree of modular design, which should make modification to counter any attack developed in the future much simpler than with past algorithm designs. "The AES selection was always going to be a compromise, balancing various factors such as overall security, performance, and efficiency. As such, it was unlikely that the selection of any one algorithm would receive unanimous praise from all quarters. Rijndael's selection has been criticized by some because the algorithm does not appear to be as secure as some of the other choices. This criticism is valid theoretically, but does not mean that data secured using this algorithm is going to be unacceptably vulnerable to attack. Although Rijndael may not have been the most secure algorithm from an academic viewpoint, defenders

claim that it is more than likely secure enough for all applications in the real world and can be enhanced by simply adding more rounds. Attacks on the algorithm have succeeded only in an extremely limited environment and, while interesting from a mathematical viewpoint, appear to have little consequence in the real world."

RSVP

RSVP (Resource Reservation Protocol) is a set of communication rules that allows channels or paths on the Internet to be reserved for the multicast (one source to many receivers) transmission of video and other high-bandwidth messages. RSVP is part of the Internet Integrated Service (IIS) model, which ensures best-effort service, real-time service, and controlled link-sharing. The basic routing philosophy on the Internet is "best effort," which serves most users well enough but isn't adequate for the continuous stream transmission required for video and audio programs over the Internet. With RSVP, people who want to receive a particular Internet "program" (think of a television program broadcast over the Internet) can reserve bandwidth through the Internet in advance of the program and be able to receive it at a higher data rate and in a more dependable data flow than usual. When the program starts, it will be multicast to those specific users who have reserved routing priority in advance. RSVP also supports unicast (one source to one destination) and multi-source to one destination transmissions. How It Works Let's assume that a particular video program is to be multicast at a certain time on Monday evening. Expecting to receive it, you send an RSVP request before the broadcast (you'll need a special client program or perhaps your browser includes one) to allocate sufficient bandwidth and priority of packet scheduling for the program. This request will go to your nearest Internet gateway with an RSVP server. It will determine whether you are eligible to have such a reservation set up and, if so, whether sufficient bandwidth remains to be reserved to you without affecting earlier reservations. Assuming you can make the reservation and it is entered, the gateway then forwards your reservation to the next gateway toward the destination (or source of multicast). In this manner, your reservation is ensured all the way to the destination. (If the reservation can't be made all the way to the destination, all reservations are removed.) When the multicast begins, packets from the source speed through the Internet on a high-priority basis. As packets arrive at a gateway host, they are classified and scheduled out using a set of queues and, in some cases, timers. An RSVP packet is very flexible; it can vary in size and in the number of data types and objects. Where packets need to travel through gateways that don't support RSVP, they can be "tunneled" through as ordinary packets. RSVP works with both Internet Protocol version 4 and IPv6.

RTP

The Real-Time Transport Protocol (RTP) is an Internet protocol standard that specifies a way for programs to manage the real-time transmission of multimedia data over either unicast or multicast network services. Originally specified in Internet Engineering Task Force (IETF) Request for Comments (RFC) 1889, RTP was designed by the IETF's Audio-Video Transport Working Group to support video conferences with multiple, geographically dispersed participants. RTP is commonly used in Internet telephony applications. RTP does not in itself guarantee real-time delivery of multimedia data (since this is dependent on network characteristics); it does, however, provide the wherewithal to manage the data as it arrives to best

effect. RTP combines its data transport with a control protocol (RTCP), which makes it possible to monitor data delivery for large multicast networks. Monitoring allows the receiver to detect if there is any <u>packet</u> loss and to compensate for any delay jitter. Both protocols work independently of the underlying <u>Transport layer</u> and <u>Network layer</u> protocols. Information in the RTP header tells the receiver how to reconstruct the data and describes how the <u>codec</u> <u>bit stream</u>s are packetized. As a rule, RTP runs on top of the User Datagram Protocol (<u>UDP</u>), although it can use other transport protocols. Both the Session Initiation Protocol (<u>SIP</u>) and <u>H.323</u> use RTP. RTP components include: a *sequence number*, which is used to detect lost packets; *payload identification*, which describes the specific media encoding so that it can be changed if it has to adapt to a variation in <u>bandwidth</u>; *frame indication*, which marks the beginning and end of each frame; *source identification*, which identifies the originator of the frame; and *intramedia synchronization*, which uses <u>timestamp</u>s to detect different delay jitter within a single stream and compensate for it. RTPC components include: *quality of service (QoS) feedback*, which includes the numbers of lost packets, round-trip time, and jitter, so that the sources can adjust their data rates accordingly; *session control*, which uses the RTCP <u>BYE packet</u> to allow participants to indicate that they are leaving a session; *identification*, which includes a participant's name, e-mail address, and telephone number for the information of other participants; and *intermedia synchronization*, which enables the synchronization of separately transmitted audio and video streams. Compressed RTP (CRTP), specified in RFC 2509, was developed to decrease the size of the IP, UDP, and RTP headers. However, it was designed to work with reliable and fast point-to-point links. In less than optimal circumstances, where there may be long delays, packet loss, and out-of-sequence packets, CRTP doesn't function well for Voice over IP (<u>VoIP</u>) applications. Another adaptation, Enhanced CRPT (ECRPT), was defined in a subsequent Internet Draft document to overcome that problem.

RUNT
In networks, a runt is a <u>packet</u> that is too small. For example, the <u>Ethernet</u> protocol requires that each packet be at least 64 bytes long. In Ethernet, which operates on the idea that two parties can attempt to get use of the line at the same time and sometimes do, runts are usually the fragments of packet collisions. Runts can also be the result of bad wiring or electrical interference. Runts are recorded by programs that use the Remote Network Monitoring (RNM) standard information base for network adminstration. RMON calls them "undersize packets".

RWU
Remote wakeup (RWU) is a general term for the powering-up of (turning on) a computer over a network. Intel's Wired for Management (<u>WfM</u>) network specification includes this feature. Remote wakeup can be done over a dial-up connection as well as within a local area network (<u>LAN</u>) (where <u>Wake on LAN</u> is one approach to remote wakeup). One implementation of remote wakeup makes use of AMD's Magic Packet technology, in which the MAC (media access control), or node, address of the intended computer is repeated 16 times. The remote computer is equipped with a program that recognizes this signal, causing it to power-up. Remote wakeup is useful for downloading software updates or reconfiguring computers during off-hours when they are usually turned off.

Sable

Sable is a set of <u>markup</u> codes and symbols that describes spoken text in text-to-speech (<u>TTS</u>) applications for voice-enabled Web browsers and voice enabled e-mail. Sable is based on Extensible Markup Language (<u>XML</u>) and Standard Generalized Markup Language (<u>SGML</u>). Sable combines and replaces two earlier speech synthesis languages: Spoken Text Markup Language (STML) and Java Synthesis Markup Language (JSML). Sable provides text description tags that describe the structure of the document and speaker directive tags that control the emphasis, pitch, rate, and pronunciation of text. Sable was developed by a group of representatives from Edinburgh University, Bell Laboratories, British Telecom, AT&T, and Sun Microsystems. The group's goal was to provide a single standard of tags for <u>speech synthesis</u> markup unlike the varying proprietary tag sets used by different speech synthesizers. Sable is designed to improve the quality and appropriateness of speech output, to ensure interoperability with different languages, applications, and platforms, and to support new features in future releases. Implementations of Sable are available in Bell Labs and Festival speech synthesizers.

Safe Harbor

Safe Harbor is the name of a policy agreement established between the United States Department of Commerce and the European Union (E.U.) in November 2000 to regulate the way that U.S. companies export and handle the personal data (such as names and addresses) of European citizens. The agreement is a policy compromise set up in response to a European directive that differed from traditional business procedures for U.S. companies dealing with the E.U. In 1998, the E.U. established the *European Commission Directive on Data Protection*, which prohibited data transfer to non-European countries that did not adhere to stringent criteria. In effect, because the guidelines were very strict, they made it illegal to transfer most citizens' personal data outside of Europe. Safe Harbor stipulations require that: companies collecting personal data must inform people that the data is being gathered, and tell them what will be done with it; they must obtain permission to pass on the information to a third party; they must allow people access to the data gathered; <u>data integrity</u> and security must be assured; and a means of enforcing compliance must be guaranteed. The agreement establishes a framework for a compromise solution between U.S. and E.U. privacy procedures. All 15 member countries are subject to the agreement, which means that data transfers can proceed without requiring individual authorization. U.S. companies that don't join Safe Harbor must obtain authorization separately from each European country. E.U. organizations can check a list of U.S. companies that have joined the collective to ensure that the *Safe Harbor Privacy Principles* will be adhered to.

Samba

Samba is a popular freeware program that allows end users to access and use files, printers, and other commonly shared resources on a company's intranet or on the Internet. Samba is often referred to as a Network File System and can be installed on a variety of operating system platforms, including: Linux, most common UNIX platforms, OpenVMS, and OS/2. Samba is based on the common client/server protocol of Server Message Block (SMB) and Common Internet File System (CIFS). Using client software that also supports SMB/CIFS (for example, most Microsoft Windows products), an end user sends a series of client requests to the Samba server on another computer in order to open that computer's files, access a shared printer, or access other resources. The Samba server on the other computer responds to each client request, either granting or denying access to its shared files and resources. The Samba SMB/CIFS client is called smbclient.

Same Time

Sametime is software from Lotus for group collaboration over the Internet. Essentially a synchronous groupware application, Sametime was designed to facilitate communication among geographically dispersed coworkers and others. The Sametime group of products includes the Sametime Server, the Sametime Connect client, and application development tools. Sametime is often used in conjunction with QuickPlace, another popular Lotus collaboration product. The purpose of real time collaboration products is to approximate, as closely as possible, the experience of face-to-face meetings. According to Lotus, Sametime was developed around three essential components of any successful real time collaboration application: awareness, ease of conversation, and the ability to share objects. Awareness can be established using a Web page, a mobile device, or Sametime Connect. Conversation is possible using instant messaging (IM), a chat room, or video conference over IP. Among the objects that can be shared by users are documents, applications, presentations, and drawings. To share a whiteboard, Sametime allows participants to pass control of the board among themselves so that each can use the board to display information to others. Among the products competing with Sametime is Microsoft's NetMeeting, which includes some of the same features as the Lotus product. Although NetMeeting can be downloaded free of charge, Sametime is considered to have several advantages over it and most lower-cost alternatives, such as scalability, awareness (defined as *the ability of users to know when others are online*), and enhanced security features. According to Lotus, 50 of the global Fortune 100 companies have purchased Sametime.

Satellite Internet connection

A satellite Internet connection is an arrangement in which the upstream (outgoing) and the downstream (incoming) data are sent from, and arrive at, a computer through a satellite. Each subscriber's hardware includes a satellite dish antenna and a transceiver (transmitter/receiver) that operates in the microwave portion of the radio spectrum. In a two-way satellite Internet connection, the upstream data is usually sent at a slower speed than the downstream data arrives. Thus, the connection is asymmetric. A dish antenna, measuring about two feet high by three feet wide by three feet deep, transmits and receives signals. Uplink speeds are nominally 50 to 150 Kbps for a subscriber using a single computer. The downlink occurs at speeds ranging from about 150 Kbps to more than 1200 Kbps, depending on factors such as Internet traffic, the capacity of the server, and the sizes of

downloaded files. Satellite Internet systems are an excellent, although rather pricey, option for people in rural areas where Digital Subscriber Line (DSL) and cable modem connections are not available. A satellite installation can be used even where the most basic utilities are lacking, if there is a generator or battery power supply that can produce enough electricity to run a desktop computer system. The two-way satellite Internet option offers an always-on connection that bypasses the dial-up process. In this respect, the satellite system resembles a cable modem Internet connection. But this asset can also be a liability, unless a firewall is used to protect the computer against hack attempts. The nature of the satellite connection is good for Web browsing and for downloading of files. Because of long latency compared with purely land-based systems, interactive applications such as online gaming are not compatible with satellite networks. In a two-way geostationary-satellite Internet connection, a transaction requires two round trips between the earth's surface and transponders orbiting 22,300 miles above the equator. This occurs in addition to land-based data transfer between the earthbound satellite system hub and the accessed Internet sites. The speed in such a connection is theoretically at least 0.48 second (the time it takes an electromagnetic signal to make two round trips at 186,000 miles per second to and from a geostationary satellite), and in practice is somewhat longer. Satellite systems are also prone to rain fade (degradation during heavy precipitation) and occasional brief periods of solar interference in mid-March and late September, when the sun lines up with the satellite for a few minutes each day. Rain fade and solar interference affect all satellite links from time to time, not just Internet systems. This author recently had StarBand, a two-way satellite Internet service, installed at his rural home office. Bandwidth tests were conducted with the new system compared with a conventional telephone modem. The telephone connection provided actual bandwidth ranging from 10 to 15 Kbps. StarBand worked at 200 to 1350 Kbps; throughput seemed to depend mainly on the download file size. The fastest speeds were obtained with files of 50 KB (kilobytes) or less, typical of images and text contained in Web sites. Surprisingly, fast downloads were obtained even during times of maximum Internet traffic.

SAX

SAX (Simple API for XML) is an application program interface (API) that allows a programmer to interpret a Web file that uses the Extensible Markup Language (XML) - that is, a Web file that describes a collection of data. SAX is an alternative to using the Document Object Model (DOM) to interpret the XML file. As its name suggests, it's a simpler interface than DOM and is appropriate where many or very large files are to be processed, but it contains fewer capabilities for manipulating the data content. SAX is an *event-driven* interface. The programmer specifies an event that may happen and, if it does, SAX gets control and handles the situation. SAX works directly with an XML parser. SAX was developed collaboratively by members of the XML-DEV mailing list (currently hosted by OASIS). The original version of SAX, which was specific to Java, was the first API for XML in Java to gain broad industry support.

Scooter

Scooter is the Web "crawler" for the AltaVista public search engine. AltaVista once claimed that it was "the fastest known Web crawler in existence". Scooter adheres to the rules of politeness for Web spiders that are specified in the Standard for

Robot Exclusion (SRE). It asks each server which files should be excluded from being indexed. It does not (or can not) go through firewall. And it uses a special algorithm for waiting between successive server requests so that it doesn't affect response time for other users. In addition to AltaVista's free public search service, its parent company, Digital Equipment Corporation (DEC) sells AltaVista for individual use (downloaded to your computer, it can search everything on your hard disk) and for enterprise intranet.

Screen Name
In a computer network, a screen name is the name a user chooses to use when communicating with others online. A screen name can be a person's real name, a variation of the person's real name, or it can be be a totally made-up pseudonym (handle). Screen names are required for instant messaging (IM) applications.

Searching
On the Internet, searching is just trying to find the information you need. There are three basic approaches: The subject directory. These can be general and cover all subjects (as **Yahoo** does) or specialized (like the information technology sites at searchWindowsManageability and other **TechTarget** sites). The search engine. These can be general and attempt to index all or most of the Web's pages (like **Google** or **FAST**), or specialized and search within a narrow range of subjects. The so-called deep Web - that is, the Web sites that have information that can't be indexed by the search engines but can in many cases by searched directly at the individual Web site.

Secure Shell
Pl. see SSH

Secure Socket Shell
Pl. see SSH

Server Accelerator Card
Pl. see SSL Card

Server Space Provider
A server space provider is an individual, company, or organization that provides storage space on a server for Web pages, usually for a charge. Some independent access providers and online services provide a limited amount of free space for Web pages (for example, one megabytes of hard disk storage). Note that not all access provider offer server space. And many server space providers do not provide access. Server space and access are two different services. Relative to other costs of developing a Web site, the cost of server space is usually small. A new trend on some sites, however, is to charge for the amount of traffic your pages get rather than the space they use. This is because server space is relatively cheap compared to the administrative costs of managing a busy site for someone.

Server-Side Include
Pl. see SSI

Service Location Protocol
Pl. see SLP

Session

In telecommunication, a session is a series of interactions between two communication end points that occur during the span of a single connection. Typically, one end point requests a connection with another specified end point and if that end point replies agreeing to the connection, the end points take turns exchanging commands and data ("talking to each other"). The session begins when the connection is established at both ends and terminates when the connection is ended. In the standard industry communications reference model, Open Systems Interconnection (OSI), the Session layer (sometimes called the "port layer") manages the setting up and taking down of the association between two communicating end points that is called a connection. A connection is maintained while the two end points are communicating back and forth in a conversation or session of some duration. Some connections and sessions last only long enough to send a message in one direction. However, other sessions may last longer, usually with one or both of the communicating parties able to terminate it. For Internet applications, each session is related to a particular port, a number that is associated with a particular upper layer application. For example, the HTTP program or daemon always has port number 80. The port numbers associated with the main Internet applications are referred to as well-known port numbers. Most port numbers, however, are available for dynamic assignment to other applications. Also see user session.

Session Cookie

Pl. see transient cookie

Session Initiation Protocol

Pl. see SIP

SGF

Structured Graph Format (SGF), an application of the Extensible Markup Language (XML), is used to describe a Web site so that its pages and content can be displayed and accessed in a structured, usually tabular form. Using SGF, a Web site is rendered as a structured graph, which is a set of nodes and links that enable a browser to conveniently interact with the site. A typical use of an SGF file is to describe a site to a browser in the form of a site map, which is created dynamically when requested by the user. If the structure of the site changes, the site map seen by a browser will change accordingly, without a human programmer having to intervene and write new HTML code. Typically, the user can also search by keywords, phrases, or topics. For SGF to be effectively used, the browser must use another client application, such as SFViewer and SGMapper. The client application creates the graphical interface that allows the user to navigate the site according to selected criteria.

SGFXML

PL. See SGF

Shared Hosting

Shared hosting is Web hosting in which the service provider serves pages for multiple Web sites, each having its own Internet domain name, from a single Web server. Most Web hosting companies provide shared hosting. Although shared

hosting is a less expensive way for businesses to create a Web presence, it is usually not sufficient for Web sites with high traffic. These sites need a dedicated Web server, either provided by a Web hosting service or maintained in-house.

Sheep
Pl. see goat

Shopping Cart
On a Web site that sells products or services online, the shopping cart is a common metaphor (from the original grocery store shopping cart) for the catalog or other pages where a user reads and makes selections. Typically, the user checks off any products or services that are being ordered and then, when finished ordering, indicates that and proceeds to a page where the total order is placed and confirmed. The programming that provides a Web site with the ability to build a catalog and its associated database and to integrate pages into its site that provide users the ability to shop is known as *shopping cart software*. A primary consideration when choosing shopping cart software is whether it will continue to serve a Web site's needs as its catalog and volume of orders grow.

Short Message
A short message is a brief text message sent to or from a mobile phone subscriber through the Short Message Service (SMS). The standard short message consists of up to 160 alphanumeric characters, although messages at least 50% longer can be sent using data compression. Developed as part of the Global System for Mobile communications (GSM) Phase 1 standard, a short message is exchanged between two mobile devices or between a nonmobile device and a mobile device (for example, a short message can be sent from a PC attached to the Internet to a mobile subscriber). Short messages are stored in and forwarded from a Short Message Service Center (SMSC) so that - unlike the user of a pager - the recipient can get messages that arrive when their mobile device is not turned on. SMS compression increases the amount of text that can be sent, and SMS concatenation enables short messages to be strung together into a longer one. Users of devices that are not SMS-enabled can send short messages using an alternate version known as *Internet SMS*. 2) Instant messaging (IM) messages are also sometimes referred to as short messages. To make the most of a short message, people frequently use a shorthand typing mixture of letters and numerals known as Alphanumerish.

SHTML
A Web file with the suffix of ".shtml" (rather than the usual ".htm") indicates a file that includes some information that will be added "on the fly" by the server before it is sent to you. A typical use is to include a "Last modified" date at the bottom of the page. This Hypertext Transfer Protocol facility is referred to as a server-side include. (Although rarely done, the server administrator can identify some other file name suffix than ".shtml" as a server-side include file.) You can think of a server-side include as a limited form of common gateway interface application. In fact, the CGI is not used. The server simply searches the server-side include file for CGI environment variables, and inserts the variable information in the places in the file where the "include" statements have been inserted. When creating a Web site, a good idea is to ask your server administrator which environment variables can be used and whether the administrator can arrange to set the server up so that these

can be handled. Your server administrator should usually be able to help you insert the necessary include statements in an HTML file.

Signature File

A signature file is a short text file you create for use as a standard appendage at the end of your e-mail notes or Usenet messages. For example, you might include your full name, occupation or position, phone number, fax number, e-mail address, and the address of your Web site if you have one. Many people also include a favorite quote, company motto, or short personal statement. Most e-mail and Usenet news facilities make it possible for you to either create the signature file as part of the application or to specify another file you've created with a word processor. Then, you tell the facility (usually in an "Options" menu) the name of your signature file and it automatically adds it to the note or message template it provides you.

Silicon cockroach

Silicon cockroach is a term invented by networking expert John Sidgmore to describe the tiny portable electronic devices that are expected to become popular in the next few years, creating new behavior patterns while putting new demands on network bandwidth capacity. Sidgmore's pervasive cockroaches are expected to multiply and become a significant driver of Internet growth with the average person carrying as many as five separate devices at a time within a few years. Examples include not only smart phones, personal digital assistants (PDAs), and other handheld devices but also "smart" home appliances, computerized clothing, and other less visible sensors. Such devices may communicate locally with Bluetooth RF or with infrared wireless, or at some point be plugged into longer-range wireless or wired networks.

Simple API for XML
Pl. see SAX

Simple Object Access Protocol
Pl. see SOAP

SIP

The Session Initiation Protocol (SIP) is an Internet Engineering Task Force (IETF) standard protocol for initiating an interactive user session that involves multimedia elements such as video, voice, chat, gaming, and virtual reality. Like HTTP or SMTP, SIP works in the Application layer of the Open Systems Interconnection (OSI) communications model. The Application layer is the level responsible for ensuring that communication is possible. SIP can establish multimedia sessions or Internet telephony calls, and modify, or terminate them. The protocol can also invite participants to unicast or multicast sessions that do not necessarily involve the initiator. Because the SIP supports name mapping and redirection services, it makes it possible for users to initiate and receive communications and services from any location, and for networks to identify the users whereever they are. SIP is a request-response protocol, dealing with requests from clients and responses from servers. Participants are identified by *SIP URLs*. Requests can be sent through any transport protocol, such as UDP, SCTP, or TCP. SIP determines the end system to be used for the session, the communication media and media parameters, and the called party's desire to engage in the communication. Once these are assured, SIP

establishes call parameters at either end of the communication, and handles call transfer and termination. The Session Initiation Protocol is specified in IETF Request for Comments [RFC] 2543.

Site
Pl. see Website.

Site map
A site map is a visual model of a Web site's content that allows the users to navigate through the site to find the information they are looking for, just as a traditional geographical map helps people find places they are looking for in the real world. An example of *information modeling technology*, a site map can be considered like an interactive table of contents, in which the listed items link directly to their counterpart sections of the Web site. Site maps perform the same service that the layout maps in large shopping malls perform: without them, it is possible to explore a complex site by trial and error, but if you want to be sure to find what you're looking for, the most efficient way to do that is to consult a model of the resources available. If a Web site is small and uncomplicated, a site map may be unnecessary, just as a layout map may not be required for shoppers to find their way through small shopping malls. Typically, site maps are organized hierarchically, breaking down the Web site's information into increasingly specific subject areas. There are a number of different types of site maps: *organizational chart* site maps are quite similar in appearance to a traditional table of contents; others, based on a perspective view of the site, are like a three dimensional model with individual pages upright, like index cards, arranged in sections and linked by lines. Structured Graph Format (SGF) site maps use an XML format language to describe Web site content, and a Java SGF viewer to interact with the data. There are a number of companies making site mapping products; generally, these don't require Web design skills - such as HTML or XML ability - on the part of the user. Popular site mapping products include TheBrain's SiteBrain, Inxight Software's Tree Studio, IBM's Java-based Mappuccino, and Dynamic Diagram's eponymous product. Site maps can also be created using more general Web site management tools, such as Visual Web, or Microsoft's Site Analyst.

SiteSweeper
Apparently no longer distributed, SiteSweeper was a program that tested and reported on the validity of the hypertext link on the pages in a Web site. SiteSweeper tested links to external Web sites as well as links between pages on the same site. This kind of program is generically called a link checker. NetMechanic is a company that provides a service similar to Sitesweeper from its own remote application server. Users pay a monthly fee for link checking reports and related services.

Sitelet
A sitelet is a small section of a Web site that has a special purpose and identity. In some cases, users are encouraged to link to a sitelet directly (rather than to come through the main Web site). A related term is minisite. In Web advertising campaigns, a sitelet can be created for the duration of a campaign as the page that is linked to from a banner ad. The sitelet page can develop the campaign message more fully and immediately than if the user were linked to the main corporate or

product site. The term is also sometimes used for the temporary Web sites that are created for conventions, award presentations, or other events.

Script Kiddie

Script kiddy (sometimes spelled kiddie) is a derogative term, originated by the more sophisticated crackers of computer security systems, for the more immature, but unfortunately often just as dangerous exploiter of security lapses on the Internet. The typical script kiddy uses existing and frequently well-known and easy-to-find techniques and programs or scripts to search for and exploit weaknesses in other computers on the Internet - often randomly and with little regard or perhaps even understanding of the potentially harmful consequences. Hackers view script kiddies with alarm and contempt since they do nothing to advance the "art" of hacking but sometimes unleashing the wrath of authority on the entire hacker community. While a hacker will take pride in the quality of an attack - leaving no trace of an intrusion, for example - a script kiddy may aim at quantity, seeing the number of attacks that can be mounted as a way to obtain attention and notoriety. Script kiddies are sometimes portrayed in media as bored, lonely teenagers seeking recognition from their peers.

Server Farm

A server farm is a group of computers acting as servers and housed together in a single location. A server farm is sometimes called a server *cluster*. A Web server farm can be either (1) a Web site that has more than one server, or (2) an Internet service provider (ISP) that provides Web hosting services using multiple servers. In a business network, a server farm or cluster might perform such services as providing centralized access control, file access, printer sharing, and backup for workstation users. The servers may have individual operating systems or a shared operating system and may also be set up to provide load balancing when there are many server requests. In a server farm, if one server fails, another can act as backup. On the Internet, a Web server farm, or simply *Web farm*, may refer to a Web site that uses two or more servers to handle user requests. Typically, serving user requests for the files (pages) of a Web site can be handled by a single server. However, larger Web sites may require multiple servers. Web farm is a term that is also simply used to mean a business that performs Web site hosting on multiple servers. Some Web farms allow you to put your own server on their site, a service known as colocation.

Server-Push

Pl. see Push

Sheep Dip

In computers, a sheepdip (or, variously, sheep dipping or a footbath) is the checking of media, usually diskettes or CD-ROMs, for viruses before they are used in a computer or network. A sheepdip computer is used only for virus-checking. The computer makes use of one or two antivirus programs that are kept current on a daily basis. Sheep dipping is generally used only for data on external media, not for data directly downloaded from the Internet. However, when files or programs are downloaded from the Internet, an ideal approach for safety's sake is to put them on removable media initially. The removable media can then be run through the sheepdip before transferring the data to the hard disk of a proprietary computer. In

sheep farming, sheepdip is a chemical bath given to sheep to rid them of vermin or sheep scab or to clean their wool before shearing.

Sheepdip Computer
Pl. see Sheep Dip

Shoulder Surfing
Shoulder surfing is using direct observation techniques, such as looking over someone's shoulder, to get information. Shoulder surfing is an effective way to get information in crowded places because it's relatively easy to stand next to someone and watch as they fill out a form, enter a PIN number at an ATM machine, or use a calling card at a public pay phone. Shoulder surfing can also be done long distance with the aid of binoculars or other vision-enhancing devices. To prevent shoulder surfing, experts recommend that you shield paperwork or your keypad from view by using your body or cupping your hand.

Slag Code
Pl. see Logic Bomb

SLD
A second-level domain (SLD) is the portion of a Uniform Resource Locator (URL) that identifies the specific and unique administative owner associated with an Internet Protocol address (IP address). The second-level domain name includes the top-level domain (top-level domain) name. For example, in: whatis.com "whatis" is a second-level domain. "whatis.com" is a second-level domain name (and includes the top-level domain name of "com"). Second-level domains can be divided into further domain levels. These subdomains sometimes represent different computer servers within different departments. More than one second-level domain name can be used for the same IP address.

Sliding Windows
Sliding windows, a technique also known as *windowing*, is used by the Internet's Transmission Control Protocol (TCP) as a method of controlling the flow of packets between two computers or network hosts. TCP requires that all transmitted data be acknowledged by the receiving host. Sliding windows is a method by which multiple packets of data can be affirmed with a single acknowledgment. TCP includes a memory buffer that sits between the upper application layer (for example, Hypertext Transfer Protocol or File Transfer Protocol) and the lower layer that receives data (the data link layer in the OSI reference model). The buffer allows TCP to receive and process data independently of the upper application. In other words, TCP can use this buffer space to "read ahead" while the upper application processes the data at its own pace. Window "announcements" are sent by the receiving system to the transmitting system in order to acknowledge data receipt as well as to inform the transmitting system of the current buffer size. For example, if a window size of zero is reported, the transmitting system must wait for an acknowledgment before sending the next chunk of data. If the receiving system reports that the buffer size is larger than the size of a single data packet, the transmitting system knows that it can send multiple chunks of data before waiting for an acknowledgment. Transmitting multiple data packets between acknowledgments allows the data to be transferred faster and more efficiently than

if an acknowledgment must be received prior to each transmission. You can find out more about TCP by reading Request for Comment (RFC) 793 and 1180.

SLP

The Service Location Protocol (SLP) is a protocol or method of organizing and locating the resources (such as printers, disk drives, databases, e-mail directories, and schedulers) in a network. SLP is intended to give users an easy-to-use interface to a network's resource information. The protocol defines and oversees communications and operations that take place among entities called user agents (subscribers or workstations), service agents (peripherals and resources), and directory agents (peripherals and resources within service agents). Rearrangement or maintenance of services, or installing new devices, is possible without the need for reconfiguring individual workstations. SLP is an alternative to the Lightweight Directory Access Protocol (LDAP) in new networks, but is not expected to displace LDAP in existing networks.

Smart Board

Pl. see whiteboard

Smart Card

A smart card is a plastic card about the size of a credit card, with an embedded microchip that can be loaded with data, used for telephone calling, electronic cash payments, and other applications, and then periodically refreshed for additional use. Currently or soon, you may be able to use a smart card to: (1) Dial a connection on a mobile telephone and be charged on a per-call basis, (2) Establish your identity when logging on to an Internet access provider or to an online bank, (3) Pay for parking at parking meters or to get on subways, trains, or buses,(4) Give hospitals or doctors personal data without filling out a form, (5) Make small purchases at electronic stores on the Web (a kind of cybercash), (6) Buy gasoline at a gasoline station. Compaq and Hewlett-Packard are reportedly working on keyboards that include smart card slots that can be read like bank credit cards. The hardware for making the cards and the devices that can read them is currently made principally by Bull, Gemplus, and Schlumberger.

How Smart Cards Work

A smart card contains more information than a magnetic stripe card and it can be programmed for different applications. Some cards can contain programming and data to support multiple applications and some can be updated to add new applications after they are issued. Smart cards can be designed to be inserted into a slot and read by a special reader or to be read at a distance, such as at a toll booth. Cards can be disposable (as at a trade-show) or reloadable (for most applications). An industry standard interface between programming and PC hardware in a smart card has been defined by the PC/SC Working Group, representing Microsoft, IBM, Bull, Schlumberger, and other interested companies. Another standard is called OpenCard. There are two leading smart card operating systems: JavaCard and MULTOS.

Smart Download

Netscape's SmartDownload is a free software program that allows a user to pause, stop, and resume a file download without losing any data. If the user choses to stop

the download or if a dial-up connection terminates unexpectedly, the SmartDownload client takes advantage of the Multichannel Protocol Plus (MP+) capability of most Web servers to determine that the "resume call" should be added to the existing session. AOL, the owner of Netscape, whose SmartDownload application is compatible with other browsers including Internet Explorer, has been criticized for using the application to gather data and create a user profile without the user's knowledge. It is speculated that disputes over the legality of these user profiles could have ramifications for other disputes, including those involving the music industry, whose copyright lawyers would like to be able to locate individual users who are violating the law.

Smart Tag

Microsoft's Smart Tags were a proposed feature of Windows XP that would allow Microsoft and its partners to insert their own links into any Web page viewed through its Internet Explorer browser. These links (which appear as purple dashed underlining, to differentiate them from original content links) are similar to traditional hyperlinks, but more complex and interactive: when the cursor hovers over a Smart Tagged word, a drop-down list appears with a selection of links related to the word. A number of companies are developing industry or application-specific Smart Tag libraries - for example, for the insurance industry or for medical applications. A Microsoft partner, Keylogix, has an application called *ActiveDocs* Smart Tags that allows end users to create their own Smart Tags from within Microsoft Word. Although Microsoft will not include Smart Tags as part of XP, they have a version of them available for free download, *Smart Tags for the Everyday Web*. This Smart Tags application is compatible with Internet Explorer 6 and requires 200 KB of free disk space. How Smart Tags work: Someone reading a sports article moves their cursor over a Smart Tag on the name of a particular baseball team. A drop-down list appears with a selection of links - such as current standings, official web site, and related news, for example; when the user clicks a link in the list they are taken to that Web page. A button on the toolbar turns the Smart Tag option on and off. Although Smart Tag technology has a lot of potential for helping the Web develop its interactive potential, the corporate background has made many Web site developers leery of less benign possibilities. Because the tagged words and associated links are selected by Microsoft, many Web content creators and site owners are very concerned about Smart Tag implementation, which they fear would allow Microsoft to have editorial control of their work. As an example, an anti-Microsoft rant on a Web page might have a lot less impact if links took the reader to pro-Microsoft pages. In response to the outcry against Smart Tags, Microsoft has made them available to Internet Explorer users who want them - but not an integral part of their new operating systems - and created a meta tag that allows developers to disable Internet Explorer-added Smart Tags for their Web pages.

Smbclient

Pl. see Samba

Smiley

On the Internet in e-mail, chatting, and posted messages, an emoticon (sometimes referred to as a "smiley") is a short sequence of keyboard letters and symbols, usually emulating a facial expression, expressing a feeling that supplements the message.

Snail mail

Snail mail is a slang term for the regular postal service (for example, the U.S. Postal Service) with the implication that it is a lot slower than e-mail. It's worth noting, perhaps, that in the early days of the Internet, it was proposed that the U. S. Post Office manage e-mail. Electronic messages would come to your local post office and then be delivered to you along with the regular mail. The proposal was not considered for very long. Snail mail or not, one must acknowledge that regular postal services offer a number of valuable services not likely to be available soon on the World Wide Web.

Snake Oil

In security, snake oil is a name for the exaggerated claims made by vendors. cryptography experts have compared the exaggerated claims made by some vendors to the claims made by medicine show pitchmen in mid-19th century America, who bragged of secret ingredients much as today's marketers brag of secret proprietary algorithms. Commentators note that both the snake oil pitchman and the snake oil cryptographer may actually have a legitimate product worthy of purchase if the product's capabilities were not overstated. In mid-19th century America, snake oil was an alternative medicine used by Chinese immigrants working on the trans-continental railroad. The oil seemed to be effective in treating the aches and pains encurred from hard manual labor. European railroad workers learned of snake oil's healing properties first-hand and began to tell others. Entrepreneurs saw there was a market for snake oil and began to promise consumers that the magic Chinese elixir could cure just about anything that was wrong with them. "Snake oil" rapidly became a synonym for "fraudulent" or "bogus" and people forgot that it had once had a valuable, though limited, use. Matt Curtin, who is credited with applying the term to computer security products, advises buyers to beware of top-secret products that promise unbreakable algorithms and to avoid any vendor who has a "trust us, we know what we're doing" approach to questions. According to Curtin, public scrutiny of an algorithm by mathematicians and other cryptographers is the best way to ensure an algorithm cannot be broken within a reasonable time frame.

Snoop Server

A snoop server is a server that uses a packet sniffer program to capture network traffic for analysis. Used to identify security risks and/or to monitor employees' activities (such as Web sites visited), a snoop program puts network interfaces into promiscuous mode. Promiscuous mode allows the system to access all the data in each network packet - instead of only routing-related information - including those packets intended for other computers. Packet data is typically captured to a file for later analysis and reporting. Any computer on a network can use a snoop program, although - at least for administrative purposes - they are most often installed on servers. Snooping is also a popular means of illicitly collecting network data; sometimes an administrative snoop server finds a previously undetected node operating for this purpose. The Sun Solaris operating system furnishes an administrative *snoop command* that captures packets and displays either a single line packet summary or a very detailed description.

SOAP

Simple Object Access Protocol (SOAP) is a way for a program running in one kind of operating system (such as Windows 2000) to communicate with a progam in the same or another kind of an operating system (such as Linux) by using the World Wide Web's Hypertext Transfer Protocol (HTTP)and its Extensible Markup Language (XML) as the mechanisms for information exchange. Since Web protocols are installed and available for use by all major operating system platforms, HTTP and XML provide an already at-hand solution to the problem of how programs running under different operating systems in a network can communicate with each other. SOAP specifies exactly how to encode an HTTP header and an XML file so that a program in one computer can call a program in another computer and pass it information. It also specifies how the called program can return a response. SOAP was developed by Microsoft, DevelopMentor, and Userland Software and has been proposed as a standard interface to the Internet Engineering Task Force (IETF). It is somewhat similar to the Internet Inter-ORB Protocol (IIOP), a protocol that is part of the Common Object Request Broker Architecture (CORBA). Sun Microsystems' Remote Method Invocation (RMI) is a similar client/server interprogram protocol between programs written in Java. An advantage of SOAP is that program calls are much more likely to get through firewall servers that screen out requests other than those for known applications (through the designated port mechanism). Since HTTP requests are usually allowed through firewalls, programs using SOAP to communicate can be sure that they can communicate with programs anywhere.

Socks
Socks (or "SOCKS") is a protocol that a proxy server server can use to accept requests from client users in a company's network so that it can forward them across the Internet. Socks uses sockets to represent and keep track of individual connections. The client side of Socks is built into certain Web browsers and the server side can be added to a proxy server. A socks server handles requests from clients inside a company's firewall and either allows or rejects connection requests, based on the requested Internet destination or user identification. Once a connection and a subsequent "bind" request have been set up, the flow of information exchange follows the usual protocol (for example, the Web's Hypertext Transfer Protocol protocol).

Soft Bounce
A soft bounce is an e-mail message that gets as far as the recipient's mail server but is bounced back undelivered before it gets to the intended recipient. A soft bounce might occur because the recipient's inbox is full. A soft bounce message may be deliverable at another time or may be forwarded manually by the network administrator in charge of redirecting mail on the recipient's domain. On the other hand, a hard bounce is an e-mail message that has been returned to the sender because the recipient's address is invalid. See bounce e-mail.

Source Quench
Using the Internet Control Message Protocol (ICMP), a source quench is a message from one host computer to another telling it to reduce the pace at which it is sending packet to that host. The source quench is one of several ways to manage the flow of packets on the Internet. Ideally, a receiving host would detect when packets were stacking up too fast and send a source quench in time to slow the

pace down so that no packets were lost. Note that the Internet Protocol (IP) of which ICMP is a part does not itself guarantee the delivery of packets. Higher-level protocol, such as the Transport Control Protocol (TCP), have responsibility for ensuring successful end-to-end communication. IP and ICMP simply report errors or situations as they are detected so that packets can be resent or sent at a different pace. Source quench is not the only way to control flow in a network and not necessarily the most efficient way. In IP Version 4, the most commonly-used IP version, routers are not allowed to originate a source quench and are not obligated to act on a received source quench. Because the source quench message may itself increase network traffic, other approaches to network flow control are preferred.

SQUID

Source Quench Introduced Delay (SQuID) is the use of some algorithms by a computer that is sending messages too fast to a destination computer that will allow the source computer to slow the timing of its transmissions down to a level acceptable to the destination. On the Internet, when packets arrive at a destination host (computer) faster than the host can handle them, they are discarded and a reply may be sent back indicating that they should be resent. Although a destination host may have a message buffer, the buffer may become full before new packets can be read by a higher-layer application. Having a way to slow down the pace at which packets are sent would not only make work more efficient for both sender and receiver but would reduce unnecessary network traffic. SQuID describes a kind of packet that is returned as a source quench message. The source host would use an algorithm to react to one or a sequence of source quench messages. SQuID is described in a Request for Comments paper of the Internet Engineering Task Force (IETF).

Spam Trap

A spam trap is the inclusion of an option in an online form that is preselected by default with the expectation that the user will fail to notice the option. If the form is submitted with the option selected, the user has given the company permission to send what will be junk e-mail or spam from the user's point-of-view. Spam trappers assume that some users do not read all of the form and will miss the spam trap. A spam trap is sometimes located toward the bottom of a form in smaller print. To avoid spam traps, make a habit of reading the entire form with special awareness of boxes that may need to be unchecked. Some advisors suggest having a separate e-mail account for online forms. A quite different meaning for this term is the use of a software filter to block e-mail addresses that are known to send spam. Some Internet service providers (ISPs) use filters to prevent spam from reaching their customers. E-mail programs such as Outlook Express and Eudora allow the recipient to specify filters based on all or a portion of an e-mail address. These filters are not to be confused with content filters.

Speeds

We use the U.S. English "Kbps" as the abbreviation for "thousands of bits per second." In international English outside the U.S., the equivalent usage is "kbits s^{-1}" or "kbits/s". Engineers use *data rate* rather than *speed*, but speed seems more meaningful for the less technically inclined. Many of us tend to think that the number of bits getting somewhere over a period of time is their speed of travel. Relative to data transmission, a related term, bandwidth or "capacity," means how

wide the pipe is and how quickly the bits can be sent down the channels in the pipe. (The analogy of multiple lanes on a superhighway with cars containing speed governors may help. One reason why digital traffic flows faster than voice traffic on the same copper line is because digital has managed to convert a one-lane or narrowband highway into a many-lane or broadband highway.) These "speeds" are aggregate speeds. That is, the data on the multiple signal channels within the carrier is usually allocated by channel for different uses or among different users. Key: "T" = T-carrier system in U.S., Canada, and Japan...."DS"= digital signal (that travels on the T-carrier or E-carrier)..."E" = Equivalent of "T" that uses all 8 bits per channel; used in countries other than U.S. Canada, and Japan...."OC" = optical carrier (Synchronous Optical Network)...."STM" = Synchronous Transport Modules (see Synchronous Digital Hierarchy) Only the most common technologies are shown. "Physical medium" is stated generally and doesn't specify the classes or numbers of pairs of twisted pair or whether optical fiber is single-mode or multimode. The effective distance of a technology is not shown. There are published standards for many of these technologies. Some of these are indicated on pages linked to from the table. Cable modem note:The upper limit of 52 Mbps on a cable is to an ISP, not currently to an individual PC. Most of today's PCs are limited to an internal design that can accomodate no more than 10 Mbps (although the PCI bus itself carries data at a faster speed). The 52 Mbps cable channel is subdivided among individual users. Obviously, the faster the channel, the fewer channels an ISP will require and the lower the cost to support an individual user.

Spam
Spam is unsolicited e-mail on the Internet. From the sender's point-of-view, it's a form of bulk mail, often to a list culled from subscribers to a Usenet discussion group or obtained by companies that specialize in creating e-mail distribution lists. To the receiver, it usually seems like junk e-mail. In general, it's not considered good netiquette to send spam. It's generally equivalent to unsolicited phone marketing calls except that the user pays for part of the message since everyone shares the cost of maintaining the Internet. Some apparently unsolicited e-mail is, in fact, e-mail people agreed to receive when they registered with a site and checked a box agreeing to receive postings about particular products or interests. This is known as both opt-in e-mail and permission-based e-mail. A first-hand report indicates that the term is derived from a famous Monty Python sketch ("Well, we have Spam, tomato & Spam, egg & Spam, Egg, bacon & Spam...") that was current when spam first began arriving on the Internet.

Spam Trap
A spam trap is the inclusion of an option in an online form that is preselected by default with the expectation that the user will fail to notice the option. If the form is submitted with the option selected, the user has given the company permission to send what will be junk e-mail or spam from the user's point-of-view. Spam trappers assume that some users do not read all of the form and will miss the spam trap. A spam trap is sometimes located toward the bottom of a form in smaller print. To avoid spam traps, make a habit of reading the entire form with special awareness of boxes that may need to be unchecked. Some advisors suggest having a separate e-mail account for online forms. A quite different meaning for this term is the use of a software filter to block e-mail addresses that are known to send spam. Some Internet service providers (ISPs) use filters to prevent spam from reaching

their customers. E-mail programs such as Outlook Express and Eudora allow the recipient to specify filters based on all or a portion of an e-mail address. These filters are not to be confused with content filters.

Spend management

In an enterprise, spend management is managing how to spend money to best effect in order to build products and services. The term is intended to encompass such processes as outsourcing, procurement, e-procurement, and supply chain management. Since the "spend manager" could have a significant impact on a company's results, it has been advocated that this manager have a senior voice in running the company. Ariba is considered the leader in selling software for spend management. It says that its Enterprise Spend Management (TM) Suite encompasses analysis, sourcing, buying, contracting, invoicing, and managing the workforce.

Spider

A spider is a program that visits Web sites and reads their pages and other information in order to create entries for a search engine index. The major search engines on the Web all have such a program, which is also known as a "crawler" or a "bot." Spiders are typically programmed to visit sites that have been submitted by their owners as new or updated. Entire sites or specific pages can be selectively visited and indexed. Spiders are called spiders because they usually visit many sites in parallel at the same time, their "legs" spanning a large area of the "web." Spiders can crawl through a site's pages in several ways. One way is to follow all the hypertext links in each page until all the pages have been read. The spider for the AltaVista search engine and its Web site is called Scooter. Scooter adheres to the rules of politeness for Web spiders that are specified in the Standard for Robot Exclusion (SRE). It asks each server which files should be excluded from being indexed. It does not (or can not) go through firewall. And it uses a special algorithm for waiting between successive server requests so that it doesn't affect response time for other users.

SPING

Pl. see Ping of Death

Split

Among Internet Relay Chat (IRC) users, a split is a condition where two or more IRC servers are temporarily unable to communicate. When a split occurs between two computers on IRC, each seems to have gone offline to the other. The condition is usually temporary. It can be caused by a packet route timing out, a server rebooting, or a similar circumstance.

SSH

Secure Shell (SSH), sometimes known as Secure Socket Shell, is a UNIX-based command interface and protocol for securely getting access to a remote computer. It is widely used by network administrators to control Web and other kinds of servers remotely. SSH is actually a suite of three utilities - slogin, ssh, and scp - that are secure versions of the earlier UNIX utilities, rlogin, rsh, and rcp. SSH commands are encrypted and secure in several ways. Both ends of the client/server connection are authenticated using a digital certificate, and passwords are protected by being encrypted. SSH uses RSA public key

cryptography for both connection and authentication. Encryption algorithms include <u>Blowfish</u>, <u>DES</u>, and <u>IDEA</u>. IDEA is the default. SSH2, the latest version, is a proposed set of standards from the Internet Engineering Task Force (<u>IETF</u>).

SSI

A server-side include is a variable value (for example, a file "Last modified" date) that a <u>server</u> can include in an HTML file before it sends it to the requestor. If you're creating a Web page, you can insert an include statement in the HTML file that looks like this:<!--#echo var="LAST_MODIFIED"--> and the server will obtain the last-modified date for the file and insert it before the HTML file is sent to requestors. LAST_MODIFIED is one of several *environment variables* that an operating system can keep track of and that can be accessible to a server program. The server administrator can make these environment variables usable when the system is set up. A Web file that contains server-side include statements (such as the "echo" statement above) is usually defined by the administrator to be a file with an "." suffix. You can think of a server-side include as a limited form of <u>common gateway interface</u> application. In fact, the CGI is not used. The server simply searches the server-side include file for CGI environment variables, and inserts the variable information in the places in the file where the "include" statements have been inserted. When creating a Web site, a good idea is to ask your server administrator which environment variables can be used and whether the administrator can arrange to set the server up so that these can be handled. The administrator may be able to help you add the appropriate "include" statements to your HTML file.

SSL card

A server accelerator card (also known as an *SSL card*) is a Peripheral Component Interconnect (<u>PCI</u>) <u>card</u> used to generate <u>encryption</u> keys for secure transactions on e-commerce Web sites. When a secure transaction is initiated, the Web site's <u>server</u> sends its certificate, which has been provided by a certifying authority, to the <u>client</u> machine to verify the Web site's authenticity. After this exchange, a <u>secret key</u> is used to encrypt all data transferred between sender and receiver so that all personal and credit card information is protected. This process can severely overload a server resulting in fewer transactions processed per second, which means fewer sales. The server accelerator card takes over this process, thus reducing the load on the server. Server accelerator cards support a number of security <u>protocol</u>s including Secure Sockets Layer (<u>SSL</u>) and Secure Electronic Transaction (<u>set</u>). The server accelerator card is installed into the PCI <u>slot</u> of the server. A software <u>driver</u> is loaded, and the server is ready to receive orders. This is much easier and more cost-effective than buying additional servers. Additional cards can be installed as the server's secure transactions increase. There are also SSL acceleration appliances. These are external units that have server accelerator cards installed inside them. The unit is then plugged into the server. When a secure transaction is detected, the transaction is routed to the SSL acceleration unit for processing. SSL accelerator appliances can be added as needed by clustering them together.

SSP

On the Internet, a storage service provider (SSP) is a company that provides computer <u>storage</u> space and related management to other companies. In addition to the storage itself, SSPs typically offer periodic backup and archiving and some offer the ability to consolidate data from multiple company locations so that all

locations can share the data effectively. Customers may be billed a monthly rate and for each managed <u>terabyte</u> of storage. Two leading SSP companies are StorageNetworks and Managed Storage International. Some companies specialize in providing limited storage service, such as periodic remote backup, to individual computer users and small businesses. Also see two related terms, <u>application service provider</u> and <u>management service provider</u>.

Stack
<u>TCP/IP</u> is frequently referred to as a "stack." This refers to the layers (TCP, IP, and sometimes others) through which all data passes at both client and server ends of a data exchange. A clear picture of layers similar to those of TCP/IP is provided in our description of <u>OSI</u>, the reference model of the layers involved in any network communication. The term "stack" is sometimes used to include utilities that support the layers of TCP/IP. The Netscape Handbook says (and we quote): "To make a successful connection to the Internet, your PC needs application software such as Netscape plus a TCP/IP stack consisting of TCP/IP software, <u>sockets</u> software (<u>Winsock</u>.<u>dynamic link library</u>), and hardware driver software (<u>packet</u> drivers). Several popular TCP/IP stacks are available for Windows, including <u>shareware</u> stacks." (2) In programming, a stack is a data area or buffer used for storing requests that need to be handled. The *IBM Dictionary of Computing* says that a stack is always a push-down list, meaning that as new requests come in, they push down the old ones. Another way of looking at a push-down list - or stack - is that the program always takes its next item to handle from the top of the stack. (This is unlike other arrangements such as "FIFO" or "first-in first-out.")

Static IP
Static IP is a number (in the form of a <u>dotted quad</u>) that is assigned to a computer by an Internet Service Provider (<u>ISP</u>) to be its permanent address on the Internet. Computers use IP addresses to locate and talk to each other on the Internet, much the same way people use phone numbers to locate and talk to one another on the telephone. When you want to visit Advertising.com, your computer asks a domain name system (<u>DNS</u>) server (think telephone information operator) for the correct dotted quad number (think phone number) for Ilor.com and your computer uses the answer it receives to connect to the Ilor.com <u>server</u>. It would be simple if every computer that connects to the Internet could have its own static IP number, but when the Internet was first conceived, the architects didn't foresee the need for an unlimited number of IP addresses. Consequently, there are not enough IP numbers to go around. To get around that problem, many Internet service providers limit the number of static IP addresses they allocate, and economize on the remaining number of IP addresses they possess by temporarily assigning an IP address to a requesting Dynamic Host Configuration Protocol (<u>DHCP</u>) computer from a pool of IP addresses. The temporary IP address is called a <u>dynamic</u> IP address. Requesting DHCP computers receive a dynamic IP address (think temporary phone number) for the duration of that Internet session or for some other specified amount of time. Once the user disconnects from the Internet, their dynamic IP address goes back into the IP address pool so it can be assigned to another user. Even if the user reconnects immediately, odds are they will not be assigned the same IP address from the pool. To keep our telephone telephone analogy going, using a dynamic IP address is similar to using a pay phone. Unless there is a reason to receive a call, the user does not care what number he or she is calling from. There are times,

however, when users who connect to the Internet using dynamic IP wish to allow other computers to locate them. Perhaps they want to use CU-SeeMe or use a <u>VoIP</u> application to make long distance phone calls using their IP connection. In that case, they would need a static IP address. The user has two choices; they can contact their ISP and request a static IP address, or they can use a dynamic DNS service. Either choice will probably involve an additional monthly fee. Using a dynamic DNS service works as if there was an old-fashioned telephone message service at your computer's disposal. When a user registers with a DNS service and connects to the Internet with a dynamic IP address, the user's computer contacts the DNS service and lets them know what IP address it has been assigned from the pool; the service works with the DNS server to forward the correct address to the requesting DHCP computer. (Think of calling the message service and saying "Hi. I can be reached at 435.44.32.111 right now. Please tell anyone who tries to reach me to call that number.) Using a dynamic DNS service to arrange for computers to find you even though you are using a dynamic IP address is the next-best thing to having a static IP. <u>IPv6</u>, which has also been called "IPng" (IP Next Generation) will lengthen IP addresses from 32 bits to 128 bits and increase the number of available IP addressess significantly, making static IP addresses easier and less expensive to obtain and maintain. Also see <u>IP address</u>.

Stop list
In computer <u>search engine</u>s, a stop word is a commonly used word (such as "the") that a search engine has been programmed to ignore, both when indexing entries for searching and when retrieving them as the result of a search query. When building the index, most engines are programmed to remove certain words from any index entry. The list of words that are not to be added is called a stop list. Stop words are deemed irrelevant for searching purposes because they occur frequently in the language for which the indexing engine has been tuned. In order to save both space and time, these words are dropped at indexing time and then ignored at search time. Some search engines allow you to include a stop word in your search by putting an inclusion (plus sign) before each stop word in your query.

Stop word
Pl. See Stop list

Storage Service Provider
Pl. see SSP

Storage Tunneling
Pl. see FCIP

Structured Graph Format
Pl. see SGF

Style sheet
A term extended from print publishing to online media, a style sheet is a definition of a document's appearance in terms of such elements as: The default typeface, size, and color for headings and body text. How front matter (preface, figure list, title page, and so forth) should look How all or individual sections should be laid out in terms of space (for example, two newspaper columns, one column with headings having hanging heads, and so forth). Line spacing, margin widths on all sides, spacing between headings, and so forth How many heading levels should be

included in any automatically generated Table of Contents Any <u>boilerplate</u> content that is to be included on certain pages (for example, copyright statements) Typically, a style sheet is specified at the beginning of an electronic document, either by embedding it or linking to it. This style sheet applies to the entire document. As necessary, specific elements of the overall style sheet can be overridden by special coding that applies to a given section of the document. For Web pages, a style sheet performs a similar function, allowing the designer to ensure an underlying consistency across a site's pages. The style elements can be specified once for the entire document by either imbedding the style rules in the document heading or cross-referring (linking to or importing) a separate style sheet. A browser may allow the user to override some or all of the style sheet attributes. A <u>cascading style sheet</u> is a style sheet that anticipates that other style sheets will either fill in or override the overall style sheet. This provides the designer the advantage of being able to rely on the basic style sheet when desired and overriding it when desired. The filling in or overriding can occur on a succession of "cascading" levels of style sheets. For example, one style sheet could be created and linked to from every Web page of a Web site as the overall style sheet. For any portion of a page that included a certain kind of content such as a catalog of products, another style sheet that amends the basic style sheet could be linked to. And within the span of that style sheet, yet another style sheet could be specified as applying to a particular type of product display. When creating Web pages, the use of style sheets is now recommended by the World Wide Web Consortium. The latest version of the Hypertext Markup Language, <u>HTML 4.0</u>, while continuing to support older tags, indicates which ones should be replaced by the use of style sheet specifications. The Web's Cascading Style Sheets, level 1 (<u>CSSL1</u>) is a recommendation for cascading style sheets that has been developed by a working group of the World Wide Web Consortium (<u>W3C</u>).

Supplier exchange
Pl. see e-Procurement

Synchronous Groupware
Synchronous <u>groupware</u> (sometimes referred to as *computer-supported cooperative work systems* - or CSCW for short) is programming that enables <u>real-time</u> collaboration among geographically-distributed work group members. In comparison, asynchronous groupware enables people to collaborate remotely, but each must work separately and communicate with the others through means such as file-sharing and e-mail messages. Synchronous groupware typically includes file transfer, chat, shared <u>whiteboard</u>, application sharing, voice, and video. A study group from the University of Canberra in Australia evaluated the differences between synchronous and asynchronous groupware. They used Lotus <u>Notes</u> (an asynchronous product) for several months, after which they used Microsoft NetMeeting and AussieMOO (both synchronous products). They found that synchronous groupware meetings required a degree of organization that wasn't necessary for asynchronous work. Because work group members had to "attend" the meeting all at the same time, synchronous work demanded punctuality, whereas an asynchronous group could catch up with the project and respond to messages on their own time. The study group also found that managing the meeting was crucial, for example insisting that a single topic be adhered to at any given time in order to make the discussion easier to follow. Although the group found that the synchronous system made more demands on participants, it also led

to more dynamic interaction, more quickly resolved issues, and shorter work periods.

Syndication

In general, syndication is the supply of material for reuse and integration with other material, often through a paid service subscription. The most common example of syndication is in newspapers, where such content as wire-service news, comics, columns, horoscopes, and crossword puzzles are usually syndicated content. Newspapers receive the content from the content providers, reformat it as required, integrate it with other copy, print it, and publish it. For many years mainly a feature of print media, today content syndication is the way a great deal of information is disseminated across the Web. Reuters, for example, provides online news content to over 900 Web sites and portals, such as Yahoo and America Online. Online content syndication is a growing industry sector, in terms of both content syndication and hardware and software development. In the early days, online content syndication was a cumbersome manual process: after an agreement had been reached between the supplier and their customers, the customers would simply copy the desired content from the supplier's Web site and paste it into their own. All related activities - such as content updates, for example - were also manual, and dependent upon the user to track and perform necessary tasks. Electronic content syndication can potentially automate every aspect of online content syndication. Two crucial components for the further development of the industry built on online syndication have been cited as: the need for a standardized data exchange mechanism, and the need for a standardized metadata vocabulary (since suppliers and subscribers are often using different and incompatible technologies). The Information & Content Exchange (ice) protocol was developed as an open standard for data exchange that enables the automation of all processes involved. An organization made up of content providers and vendors, the *Publishing Requirements for Industry Standard Metadata* (PRISM) working group is collaborating to develop a standard vocabulary.

Talker

On the Internet, especially in the United Kingdom, a talker is a Web site that hosts online chatting or conversations entered at the keyboard. In the U.S., the term *chat site* is more common. Talkers and chat sites tend to be "middle-of-the-road" in terms of interests and participants. Technically, MUDs have conversations but these tend to be much more focused in purpose and in the intensity and dedication of participants. A special kind of talker is one that is part of an Internet Relay Chat (IRC).

TCPMAN

TCPMAN is a utility for manual or script modem dialing that is used when accessing the Internet. TCPMAN comes with the shareware program, Trumpet Winsock. Winsock is an interface between an application program in a Windows operating system and the Internet's Transmission Control Protocol program. (There are other Winsock programs than Trumpet's, which was one of the first and is among the most widely installed today.) TCPMAN is the "tcpman.exe" file in Trumpet Winsock. Although the "MAN" stands for "manual," most users set up or are provided with a script of modem AT commands that is processed automatically each time you start TCPMAN. This is viewed as "scripted manual dialing." Using the information about your modem that you provide during setup, TCPMAN negotiates the actual line speed and other characteristics of the connection between your modem and the modem that is being dialed. Typically, you will know about TCPMAN if you are with a service provider that furnishes or requires you to have the Trumpet Winsock. If not, your dialing capability is furnished by some other program.

TCP Wrapper

TCP Wrapper is a public domain computer program that provides firewall services for UNIX servers. The program was developed by Wietse Venema. When an unprotected UNIX computer is connected to a network, the computer's system is exposed to other computer users connected to the network. For example, by using the finger utility, a hacker may be able to determine which users are logged on to a given server. It is also possible to find out the identities of individual computers, and various details about their users' recent Internet behavior. A hacker can determine when a workstation is likely to be idle, and then access and use that workstation when it is unattended. TCP Wrapper can act as a firewall to prevent this. TCP Wrapper monitors incoming packets. If an external computer or host attempts to connect, TCP Wrapper checks to see if that external entity is authorized to connect. If it is authorized, then access is permitted; if not, access is denied. The program can be tailored to suit individual user or network needs.

TCP/IP

TCP/IP (Transmission Control Protocol/Internet Protocol) is the basic communication language or protocol of the Internet. It can also be used as a communications protocol in a private network (either an intranet or an extranet). When you are set up with direct access to the Internet, your computer is provided with a copy of the TCP/IP program just as every other computer that you may send messages to or get information from also has a copy of TCP/IP. TCP/IP is a two-layer program. The higher layer, Transmission Control Protocol, manages the assembling of a message or file into smaller packets that are transmitted over the Internet and received by a TCP layer that reassembles the packets into the original message. The lower layer, Internet Protocol, handles the address part of each packet so that it gets to the right destination. Each gateway computer on the network checks this address to see where to forward the message. Even though some packets from the same message are routed differently than others, they'll be reassembled at the destination. TCP/IP uses the client/server model of communication in which a computer user (a client) requests and is provided a service (such as sending a Web page) by another computer (a server) in the network. TCP/IP communication is primarily point-to-point, meaning each communication is from one point (or host computer) in the network to another point or host computer. TCP/IP and the higher-level applications that use it are collectively said to be "stateless" because each client request is considered a new request unrelated to any previous one (unlike ordinary phone conversations that require a dedicated connection for the call duration). Being stateless frees network paths so that everyone can use them continuously. (Note that the TCP layer itself is not stateless as far as any one message is concerned. Its connection remains in place until all packets in a message have been received.). Many Internet users are familiar with the even higher layer application protocols that use TCP/IP to get to the Internet. These include the World Wide Web's Hypertext Transfer Protocol (HTTP), the File Transfer Protocol (FTP), Telnet (Telnet) which lets you logon to remote computers, and the Simple Mail Transfer Protocol (SMTP). These and other protocols are often packaged together with TCP/IP as a "suite." Personal computer users usually get to the Internet through the Serial Line Internet Protocol (SLIP) or the Point-to-Point Protocol (PPP). These protocols encapsulate the IP packets so that they can be sent over a dial-up phone connection to an access provider's modem. Protocols related to TCP/IP include the User Datagram Protocol (UDP), which is used instead of TCP for special purposes. Other protocols are used by network host computers for exchanging router information. These include the Internet Control Message Protocol (ICMP), the Interior Gateway Protocol (IGP), the Exterior Gateway Protocol (EGP), and the Border Gateway Protocol (BGP).

Telematics

Telematics is the blending of computers and wireless telecommunications technologies, ostensibly with the goal of efficiently conveying information over vast networks to improve a host of business functions or government-related public services. The most notable example of telematics may be the Internet itself, since it depends on a number of computer networks connected globally through telecommunication backbones. The term has evolved to refer to automobile systems that combine global positioning satellite (GPS) tracking and other wireless

communications for automatic roadside assistance and remote diagnostics. General Motors Corp. first popularized automotive telematics with its OnStar system.Major automakers are equipping new prototype vehicles with wireless-based services controlled by voice commands. This kind of telematics could enable motorists to perform a variety of wireless functions such as accessing the Internet, receiving or sending e-mail, downloading digital audio and video files, or obtaining "smart" transportation information. The telematics industry is not limited to automotive applications. Other applications are being studied or developed for monitoring water and air pollution, for medical informatics and health care, and for distance learning. Many European countries are developing uniform policies to integrate telematics applications into government, business and education.

Telnet

Telnet is the way you can access someone else's computer, assuming they have given you permission. (Such a computer is frequently called a host computer.) More technically, Telnet is a user command and an underlying TCP/IP protocol for accessing remote computers. On the Web, HTTP and FTP protocols allow you to request specific files from remote computers, but not to actually be logged on as a user of that computer. With Telnet, you log on as a regular user with whatever privileges you may have been granted to the specific application and data on that computer. A Telnet command request looks like this (the computer name is made-up): telnet the.libraryat.whatis.edu. The result of this request would be an invitation to log on with a userid and a prompt for a password. If accepted, you would be logged on like any user who used this computer every day. Telnet is most likely to be used by program developers and anyone who has a need to use specific applications or data located at a particular host computer.

Testing Bandwidth

A bandwidth test is a program that sends one or more files of known size over a network to a distant computer (for example, your own computer), measures the time required for the file(s) to successfully download at the destination, and thereby obtains a theoretical figure for the data speed between two or more points, usually in kilobits per second (Kbps) or megabits per second (Mbps). Bandwidth test results vary greatly, even from moment to moment, and occasionally produce absurd or improbable figures. Factors that affect test results include: (1)Internet traffic (speed generally decreases as volume increases), (2) Variable propagation delays (can artificially inflate or degrade the result), (3) Noise on data lines (has a real detrimental effect), (4) The size(s) of file(s) used for the test, (5) The number of files used for the test, (6) The demand load on the test server at time of test and (7) Geomagnetic and/or thunderstorm activity. In order to get a reasonable estimate of bandwidth (sometimes referred to as throughput), experts suggest that three or more different test sites be used, and that each test be conducted six times at each site. Then the top and bottom 1/3 of the figures should be disregarded. Finally, the middle 1/3 of the results should be averaged.

TFTP

Trivial File Transfer Protocol (TFTP) is an Internet software utility for transferring files that is simpler to use than the File Transfer Protocol (FTP) but less capable. It is used where user authentication and directory visibility are not required. TFTP uses the User Datagram Protocol (UDP) rather than the Transmission Control Protocol (TCP). TFTP is described formally in Request for Comments (RFC) 1350.

Thing
A Thing is an interactive object for a Web page that is developed with an authoring tool called ThingMaker that is sold by the Parable Corporation. A Thing can be a simple game ("Bill Gates' European Vacation"...hit him with a pie), an image that emerges from the page as you pass the mouse over a certain spot, a beetle that you can dress up as SuperBeetle, or anything you want to invent. Typically, a Thing arrives on your page and changes as your mouse rollover it, and again when you click on it. Things are intended to be easy to create, using ThingMaker, but you can also add ready-made Things to your Web pages that you can copy from the Parable Web site or elsewhere. To actually see a Thing or two, you must first download the ThingViewer from Parable. ThingViewer is an approximately 500 kilobyte ActiveX control (downloadable in about five minutes). The HTML code for the Thing identifies images and other files through an OBJECT tag embedded on the HTML page. After you've created a Thing, Parable's tools make it easy to copyright your Thing and share it with others.

Third-party relay
Pl. see open relay

Timeline
The timeline describes history of Internet. The first extensive version of an Internet history and timeline was: **Hobbes's Timeline** (http://info.isoc.org/guest/zakon/Internet/History/HIT.html) Recently, Discovery Online has provided an illustrated timeline: **History of the Internet** (http://www.discovery.com/area/history/internet/inet1.html)

TLD
On the Internet, a top-level domain (TLD) identifies the most general part of the domain name in an Internet address. A TLD is either a generic top-level domain (gTLD), such as "com" for "commercial," "edu" for "educational," and so forth, or a country code top-level domain (ccTLD), such as "fr" for France or "is" for Iceland.

TModel
A tModel is a data structure representing a *service type* (a generic representation of a registered service) in the UDDI (Universal Description, Discovery, and Integration) registry. Each business registered with UDDI categorizes all of its Web services according to a defined list of service types. Businesses can search the registry's listed service types to find service providers. The tModel is an abstraction for a technical specification of a service type; it organizes the service type's information and makes it accessible in the registry database. Another UDDI data structure, the *bindingTemplate* organizes information for specific instances of service types. When businesses want to make their specification-compliant services available to the registry, they include a reference to the tModelKey for that service type in their bindingTemplate data. Each tModel consists of a name, an explanatory description, and a Universal Unique Identifier (UUID). The tModel *name* identifies the service, such as, for example, *online order placement*. The *description* supplies more information, which in this case might be *place an order online*. The unique identifier, called a *tModelKey*, is a series of alphanumeric characters, such as, for example, *uuid:4CD7E4BC-648B-426D-9936-443EAAC8AI*. Another example: the tModel *uddi-org:http* has the description *An http or web browser*

based web service, and the tModelKey *uuid:68DE9E80-AD09-469D-8A37-088422BFBC36*. TMODEL is a also software product used to develop and analyze transportation planning models.

TMQL

Topic Map Query Language (TMQL) is an <u>XML</u>-based extension of Structured Query Language (<u>SQL</u>), a <u>query</u> language developed for use in meeting the specialized data access requirements of Topic Maps (<u>TM</u>s). Two types of data access for Topic Maps are: information retrieval (IR), which is focused on separate search instances of a single user looking for specific information; and information filtering, which is a query process that builds up a sort of *user profile*, filtering information to construct a selection of data relevant to a particular user. TMQL is intended to be easier to learn by developers, most of whom are likely to already be familiar with SQL. However, SQL was created to be used on the data in a <u>relational database</u>, which has a well-defined pre-existing structure; TMQL must be able to retrieve information from a vast and constantly changing body of information. A relational database may be expressed in terms of a simplified Topic Map, but TMQL will need to work with a much more complex data repository. A typical SQL *select query (used to retrieve data from a table in a database) could be rewritten to retrieve data from a Topic Map*

Top-level Domain
Pl. see TLD

Topic Map

A Topic Map (<u>ISO</u>/<u>IEC</u> Standard 13250:2000) is an <u>SGML</u> or <u>XML</u> document used for navigation - by people or by machine - within an information set. A single information set can include any number of types of source data: for example, <u>HTML</u> files, <u>PDF</u> files, and databases could all be part of one information set. A Topic Map (TM) can be either embedded within a document, or may be, itself, a separate document. A Topic Map provides a particular view of topics within the information set. There could be, potentially, an infinite number of different TMs for any information set: for example, an information set dealing with the plays of Shakespeare could have a TM for navigation within the perspective of Elizabethan culture, or the perspective of themes throughout the plays. Each TM explicitly declares topics and provides links to relevant information. The TAO of Topic Maps. Literally, *Tao* means *the way*; the term is expanded to mean *the underlying unifying principle of the universe*. In the case of TM, the unifying principle underlies the informational universe of the Web. The *TAO* of TMs stands for *topics, associations, and occurrences*. A topic is a subject: in terms of Shakespeare, for example, Avon, Romeo and Juliet, and Anne Hathaway would all be topics. Topics are broken down into types: "Avon" would be defined as a town, and "Romeo and Juliet" as a play, for example. The word *topic* refers to both the topic link and the topic itself. Generally, topics have three types of characteristics: names, which explicitly identify topics; occurrences, which are topic-relevant information resources; and roles in associations, which are details of how topics are related. TMs are being heralded as an important information management tool for the development of the <u>Semantic Web</u>, because they can enable very precise data access - they are sometimes called "the Global Positioning System (<u>GPS</u>) of the Web" - within a vast, complex, and intricately interconnected global information repository. One way of looking at the way a TM works is to think of it as similar to a book's index, and to

compare seeking specific information within an indexed and an unindexed book. Although the information available on the Web now is linked, it is not linked in a systematic, standardized, and autonomously intelligent way (which explains why Web searches can often turn up so many irrelevant documents). Eventually, Topic Maps may be part of a comprehensive, user-friendly index to the body of human knowledge.

Topic Map Query Language
Pl. see TMQL

Total Quality Management
Pl. see TQM

TQM
Total Quality Management (TQM) is a comprehensive and structured approach to organizational management that seeks to improve the quality of products and services through ongoing refinements in response to continuous feedback. TQM requirements may be defined separately for a particular organization or may be in adherence to established standards, such as the International Organization for Standardization's ISO 9000 series. TQM can be applied to any type of organization; it originated in the manufacturing sector and has since been adapted for use in almost every type of organization imaginable, including schools, highway maintenance, hotel management, and churches. As a current focus of e-business, TQM is based on quality management from the customer's point of view. TQM processes are divided into four sequential categories: plan, do, check, and act (the *PDCA cycle*). In the *planning* phase, people define the problem to be addressed, collect relevant data, and ascertain the problem's root cause; in the *doing* phase, people develop and implement a solution, and decide upon a measurement to gauge its effectiveness; in the *checking* phase, people confirm the results through before-and-after data comparison; in the *acting* phase, people document their results, inform others about process changes, and make recommendations for the problem to be addressed in the next PDCA cycle.

Trace Route
Traceroute is a utility that records the route (the specific gateway computers at each hop) through the Internet between your computer and a specified destination computer. It also calculates and displays the amount of time each hop took. Traceroute is a handy tool both for understanding where problems are in the Internet network and for getting a detailed sense of the Internet itself. Another utility, ping, is often used prior to using traceroute to see whether a host is present on the network. The traceroute utility comes included with a number of operating systems, including Windows and UNIX-based operating systems (such as IBM's AIX/6000) or as part of a TCP/IP package. If your system doesn't include the utility, you can install it. There are freeware versions that you can download. How It Works: When you enter the traceroute command, the utility initiates the sending of a packet (using the Internet Control Message Protocol or ICMP), including in the packet a time limit value (known as the "time to live" (TTL) that is designed to be exceeded by the first router that receives it, which will return a Time Exceeded message. This enables traceroute to determine the time required for the hop to the first router. Increasing the time limit value, it resends the packet so that it will reach the second router in the path to the destination, which returns another Time

Exceeded message, and so forth. Traceroute determines when the packet has reached the destination by including a port number that is outside the normal range. When it's received, a Port Unreachable message is returned, enabling traceroute to measure the time length of the final hop. As the tracerouting progresses, the records are displayed for you hop by hop. Actually, each hop is measured three times. (If you see an asterisk (*), this indicates a hop that exceeded some limit.) If you have a Windows operating system, try traceroute out by clicking on Start-->Programs-->MS-DOS Prompt, and then at the C:WINDOWS prompt, enter:

Transactional e-mail

Transactional e-mail is a type of Web-based marketing in which e-mail recipients can buy goods and services directly from an e-mail message, without being redirected to the retailer's Web site. According to proponents, transactional e-mail leads to significantly higher conversion rates - the ratio of shoppers to buyers, which goes up when the former is converted to the latter - than regular e-mail marketing approaches. A number of different transactional e-mail products are available, from Cybuy, Radical Communication, and EActive, among others. The transactional e-mail retail experience is easier, and minimizes the tasks involved in online shopping. Within the body of the message, an e-mail recipient can view merchandise, select items, and submit an order. Typically, the e-mail messages contain windows that change to display different products when the recipient clicks listed items. A message assuring the customer of the security of the transaction, and an order form are displayed when the customer clicks the appropriate buttons. When the order form is completed, the customer clicks the "submit" button, and resumes reading their other e-mail messages. Besides making shopping simpler for the consumer, transactional e-mail also takes into account the fact that someone who is reading e-mail is doing just that: reading their e-mail. Marketing messages, even for interesting products, may be set aside because they interfere with the task at hand. Even if the consumer wants to buy a product, they may not respond to traditional e-mail marketing messages, because the process involved (going to the retailer's Web site, going to separate pages to order, and so on) is too cumbersome. Transactional e-mail also makes impulse purchases more likely, because a transaction can be completed before the customer grows weary of the procedures involved.

Transient Cookie

On the Web, a transient cookie, sometimes called a *session cookie*, is a small file that contains information about a user that disappears when the user's browser is closed. Unlike a persistent cookie, a transient cookie is not stored on your hard drive but is only stored in temporary memory that is erased when the browser is closed. A transient cookie is created by simply not setting a date in the Set-Cookie option when an application creates the cookie. (For a persistent cookie, an expiration date is set and the cookie is stored on the user's hard drive until the expiration date or until the user deletes it.) Transient cookies are often used to enable a site to be able to track the pages that a user has visited during a visit so that information can be customized for the user in some way. Some sites use Secure Sockets Layer (SSL) to encrypt the information contained in a cookie.

Transmission Control Protocol/Internet Protocol
Pl. see TCP/IP

Trap
In a <u>Web site</u>, a trap is a page that does not allow the reader to back up a previous page (the Back button on the toolbar is inoperable). A few Web site creators apparently use this technique to hold the reader and force them to read the page or to encourage them to visit other pages on their site. To exit a trap, the reader must either close the browser and open it again or enter a <u>URL</u> on the address line. Traps are highly unpopular among Web users. In <u>assembler</u> language programming, a trap is a place in a program for handling unexpected or unallowable conditions - for example, by sending an error message to a log or to a program user. If a return code from another program were being checked by a calling program, a return code value that was unexpected and unplanned for could cause a branch to a trap that recorded the situation and took other appropriate action.

Trivial File Transfer Protocol
Pl. see TFTP

Tuxedo
Tuxedo (which stands for *Transactions for <u>UNIX</u>, Enhanced for <u>distributed</u> Operation*) is a <u>middleware</u> product that uses a <u>message</u>-based communications system to distribute applications across various <u>operating system</u> <u>platform</u>s and <u>database</u>s. Tuxedo operates as an extension of the operating system: as a platform for execution as well as development, it is designed for the creation and administration of <u>e-commerce</u> online transaction processing (<u>OLTP</u>) systems. Originally developed at AT&T in the 1970s, Tuxedo was subsequently owned by Unix System Laboratories (USL), and then Novell before it was taken over by BEA Systems, the current owners. Tuxedo's three main functions are: as <u>middleware</u>, to relay request and response communications between servers and clients; as a transaction processing (TP) monitor, to initiate, monitor, and terminate transactions; and, as a distributed TP monitor, to enable interaction between transaction participants on different machines and associated with different databases. The Gap, E*TRADE, and Hong Kong International Terminals are some organizations that use Tuxedo for large scale transaction processing.

Tweak Freak
A tweak freak is a person who tinkers with hardware and/or programming to a point approaching obsession. Sometimes the intent is to enhance system performance beyond the norm. But many tweak freaks engage in the activity largely because it is interesting, fun, and can be a learning experience. It can also be frustrating and at its worst, dangerous. The term "tweak" may have originated in the early days of electronics, when tweezers were used to adjust the position of a wire on a crystal of galena in order to detect amplitude-modulated (<u>AM</u>) radio broadcast signals. Nowadays, hardware and programs of all kinds can (and often should) be aligned or debugged for optimum performance; technicians and programmers call the process tweaking. The tweaking of computers, especially software and operating systems, is not for the faint-of-heart. Excessive or improper tweaking can cause computers and Web browsers to become unstable. Vulnerability to <u>virus</u> or <u>Trojan horse</u> infection may be increased. Excessive downloading and installation of tweaks

and patches can increase the probability of program conflicts and crashes. Some tweaks facilitate illegal or questionable use of the Internet, and should be avoided by people who respect the law and the rights of others (and who wish to stay out of court). Let the tweaker beware.

Typosquatting

Typosquatting is a form of Internet cybersquatting, based on the probability that a certain number of Internet users will mistype the name of a Web site (or actually its URL) when surfing the Web. Typically, a typosquatter will register several possible input errors for a "brand name" Web site known for its high traffic, and then monitor to see how many clicks a day each of their "typo" domain names receives, and use the information to sell advertising for the sites that receive a high volume of accidental traffic. Advertising revenue might come from selling ads to the original site's competitors or by providing redirect pages to related products or services

UDDI

UDDI (<u>Universal Description, Discovery, and Integration</u>) is an <u>XML</u>-based registry for businesses worldwide to list themselves on the Internet. Its ultimate goal is to streamline online transactions by enabling companies to find one another on the Web and make their systems interoperable for e-commerce. UDDI is often compared to a telephone book's white, yellow, and green pages. The project allows businesses to list themselves by name, product, location, or the Web services they offer. Microsoft, IBM, and Ariba spearheaded UDDI. The project now includes 130 companies, including some of the biggest names in the corporate world. Compaq, American Express, <u>SAP</u> AG, and Ford Motor Company are all committed to UDDI, as is <u>Hewlett-Packard</u>, whose own XML-based directory approach, called <u>e-speak</u>, is now being integrated with UDDI. While the group does not refer to itself as a standards body, it does offer a framework for Web services integration. The UDDI specification utilizes World Wide Web Consortium (<u>W3C</u>) and Internet Engineering Task Force (<u>IETF</u>) standards such as XML, <u>HTTP</u>, and Domain Name System (<u>DNS</u>) protocols. It has also adopted early versions of the proposed Simple Object Access Protocol (<u>SOAP</u>) messaging guidelines for cross platform programming. UDDI registration is open to companies worldwide, regardless of their size.

UDP

UDP (User Datagram Protocol) is a communications protocol that offers a limited amount of service when messages are exchanged between computers in a network that uses the Internet Protocol (<u>IP</u>). UDP is an alternative to the Transmission Control Protocol (<u>TCP</u>) and, together with IP, is sometimes referred to as UDP/IP. Like the Transmission Control Protocol, UDP uses the Internet Protocol to actually get a data unit (called a <u>datagram</u>) from one computer to another. Unlike TCP, however, UDP does not provide the service of dividing a message into packets (datagrams) and reassembling it at the other end. Specifically, UDP doesn't provide sequencing of the packets that the data arrives in. This means that the application program that uses UDP must be able to make sure that the entire message has arrived and is in the right order. Network applications that want to save processing time because they have very small data units to exchange (and therefore very little message reassembling to do) may prefer UDP to TCP. The Trivial File Transfer Protocol (<u>TFTP</u>) uses UDP instead of TCP. UDP provides two services not provided by the IP layer. It provides <u>port number</u>s to help distinguish different user requests and, optionally, a <u>checksum</u> capability to verify that the data arrived intact. In the Open Systems Interconnection (<u>OSI</u>) communication model, UDP, like TCP, is in layer 4, the Transport Layer.

UNC

In a network, the Universal Naming Convention (UNC) is a way to identify a shared file in a computer without having to specify (or know) the storage device it is on. In Windows operating systems, Novell NetWare, and possibly other operating systems, the UNC can be used instead of the local naming system (such as the DOS naming system in Windows). In Windows operating systems, the UNC name format is: **\\servername\sharename\path\filename**. The share name is sometimes said to logically identify the *volume* or storage device that the file is on, but the idea is to free the user from having to know this. The path is zero or more folder or subfolder names (in other words, the file name may exist directly under the sharename). For example: **\\corp1\lawdept\forms\patentap.html** might specify on a server in the corporate main office a shared file (patentap.html) kept with other legal forms that members of a corporation's legal department might download and read or print and use. Printers and other devices can also be addressed using UNC.

Uniform Resource Identifier
Pl. see URI

Uniform Resource Locator
Pl. see URL

Uniform Resource Name
Pl. see URN

Universal Access Server
Pl. see NAS

Universal Description Discovery and Integration
Pl. see UDDI

Universal Naming Convention
Pl. see UNC

Universal Unique Identifier
Pl. see UUID

Uploading
Uploading is the transmission of a file from one computer system to another, usually larger computer system. From a network user's point-of-view, to upload a file is to send it to another computer that is set up to receive it. People who share images with others on bulletin board services (BBS) upload files to the BBS. downloading is transmission in the other direction: from one, usually larger computer to another, usually smaller computer. From an Internet user's point-of-view, downloading is receiving a file from another computer. The File Transfer Protocol (FTP) is the Internet facility for downloading and uploading files. (If you are uploading a file to another site, you must usually have permission in advance to access the site and the directory where the file is to be placed.) When you send or receive an attached file with an e-mail note, this is just an attachment, not a download or an upload. However, in practice, many people use "upload" to mean "send" and "download" to mean receive. The term is used loosely in practice and if someone says to you "Download (or upload) such--and-such a file to me" via e-

mail, they simply mean "Send it to me." In short, from the ordinary workstation or small computer user's point-of-view, to upload is to send a file and to download is to receive a file.

Urban Legend

An urban legend is a tale of contemporary folklore that purports to be true and is often designed to elicit an emotional response from the audience. On the Internet, urban legends are spread and survive over time through repeated e-mail forwardings and Web site postings. Like traditional legends, urban legends can seldom be traced to a single author. An urban legend often revolves around a strong central character or social issue of contemporary interest. Sociologists suggest that the Internet has proven to be a rich environment for urban legends because the Web allows people to share stories with each other faster than any other medium in history. Occasionally urban legends turn out to be true, but the majority are simply Internet misinformation, sometimes entertaining, but more often annoying, as in the case of the rather common virus hoax.

URI

To paraphrase the World Wide Web Consortium, Internet space is inhabited by many points of content. A URI (Uniform Resource Identifier; pronounced YEW-AHR-EYE) is the way you identify any of those points of content, whether it be a page of text, a video or sound clip, a still or animated image, or a program. The most common form of URI is the Web page address, which is a particular form or subset of URI called a Uniform Resource Locator (URL). A URI typically describes: (1) The mechanism used to access the resource, (2) The specific computer that the resource is housed in (3) The specific name of the resource (a file name) on the computer For example, this URI: **http://www.w3.org/Icons/WWW/w3c_main.gif** identifies a file that can be accessed using the Web protocol application, Hypertext Transfer Protocol, ("http://") that is housed on a computer named "www.w3.org" (which can be mapped to a unique Internet address). In the computer's directory structure, the file is located at "/Icons/WWW/w3c_main.gif." Character strings that identify File Transfer Protocol FTP addresses and e-mail addresses are also URIs (and, like the HTTP address, are also the specific subset of URI called a URL). Another kind of URI is the Uniform Resource Name (URN). A URN is a form of URI that has "institutional persistence," which means that its exact location may change from time to time, but some agency will be able to find it. The URI rules of syntax, set forth in the Internet Engineering Task Force (IETF) Request for Comments 1630, apply for all Internet addresses. In Tim Berner-Lee's original working document, URI stood for Universal Resource Identifier.

URL

A URL (Uniform Resource Locator) (pronounced YU-AHR-EHL or, in some quarters, UHRL) is the address of a file (resource) accessible on the Internet. The type of resource depends on the Internet application protocol. Using the World Wide Web's protocol, the Hypertext Transfer Protocol (HTTP) , the resource can be an HTML page (like the one you're reading), an image file, a program such as a common gateway interface application or Java applet, or any other file supported by HTTP. The URL contains the name of the protocol required to access the resource, a domain name that identifies a specific computer on the Internet, and a hierarchical description of a file location on the computer. On the Web (which uses the Hypertext Transfer Protocol), an example of a URL is:

http://www.mhrcc.org/kingston which describes a Web page to be accessed with an HTTP (Web browser) application that is located on a computer named www.mhrcc.org. The specific file is in the directory named /kingston and is the default page in that directory (which, on this computer, happens to be named index.html). An HTTP URL can be for any Web page, not just a home page, or any individual file. A URL for a program such as a forms-handling common gateway interface script written in Perl might look like this: **http://whatis.com/cgi-bin/comments.pl** A URL for a file meant to be downloaded would require that the "ftp" protocol be specified like this one: **ftp://www.somecompany.com/whitepapers/widgets.ps** A URL is a type of URI (Uniform Resource Identifier).

URL-minder

URL-minder is an agent or robot program (bot) that notifies you when a particular Web page has changed. At a URL-minder site, you specify the Uniform Resource Locator (Uniform Resource Locator) for the Web page and the URL-minder periodically checks the page, notices whether it has been updated, and then sends you an e-mail message when it has.

URN

A URN (Uniform Resource Name) is an Internet resource with a name that has persistent significance - that is, the user of the URN can expect that someone else (or a program) will be able to find the resource. A URN looks something like a Web page address or Uniform Resource Locator (URL). For example, here's a hypothetical URN: urn:def://blue_laser where "def://" might indicate an agency or an accessible directory of all dictionaries, glossaries, and encyclopedias on the Internet and "blue laser" was the name of a term. The result of using the agency could be the "best definition," the "longest definition," or even all definitions that the agency could find of "blue laser." A comparable URL would need to specify one specific location for a definition such as: **http://www.whatis.com/bluelase.htm** In this case, the user has to know where the resource is located as well as how to spell the file name and suffix. With a URN, the user only needs to know the name of a resource. One or more agencies will presumably be able to locate the nearest copy of the resource and the user is freed from understanding where resources are located or relocated to. Both URN and URL are types of a concept called the Uniform Resource Identifier (URI). A URN is associated with another concept called Uniform Resource Characteristics (URC), which allows descriptive information to be associated with a URN, such as author, date, length, and so forth. It is possible to have a name that includes an address so, in some cases, a URN may also be a URL...but it doesn't have to be. The URN is still being developed by members of the Internet Engineering Task Force (IETF).

Usability

Usability is the measure of a product's potential to accomplish the goals of the user. In information technology, the term is often used in relation to software applications and Web sites, but it can be used in relation to any product that is employed to accomplish a task (for example, a toaster, a car dashboard, or an alarm clock). Some factors used in determining product usability are ease-of-use, visual consistency, and a clear, defined process for evolution. Usability testing is a method by which users of a product are asked to perform certain tasks in an effort to measure the product's ease-of-use, task time, and the user's perception of the

experience. Usability testing can be done formally, in a usability lab with video cameras, or informally, with paper mock-ups of an application or Web site. Changes are made to the application or site based on the findings of the usability tests. Whether the test is formal or informal, usability test participants are encouraged to think aloud and voice their every opinion. Usability testing is best used in conjunction with user-centered design, a method by which a product is designed according to the needs and specifications of users. Within the last several years, the usability of Web sites has become a hot topic for Web developers. Many major Web sites employ usability engineers to ensure that they have an easy-to-use, friendly site that provides a positive customer experience. Major sites such as Drugstore.com and Altavista.com have recently been re-designed based on recommendations made during usability tests and evaluations.

Usenet
Usenet is a collection of user-submitted notes or messages on various subjects that are posted to servers on a worldwide network. Each subject collection of posted notes is known as a newsgroup. There are thousands of newsgroups and it is possible for you to form a new one. Most newsgroups are hosted on Internet-connected servers, but they can also be hosted from servers that are not part of the Internet. Usenet's original protocol was UNIX-to-UNIX Copy (UUCP), but today the Network News Transfer Protocol (NNTP) is used. Most browsers, such as those from Netscape and Microsoft, provide Usenet support and access to any newsgroups that you select. On the Web, Google and other sites provide a subject-oriented directory as well as a search approach to newsgroups and help you register to participate in them. In addition, there are other newsgroup readers, such as Knews, that run as separate programs.

User Datagram Protocol
Pl. see UDP

User Session
In tabulating statistics for Web site usage, a user session (sometime referred to as a *visit*) is the presence of a user with a specific IP address who has not visited the site recently (typically, anytime within the past 30 minutes). The number of user sessions per day is one measure of how much traffic a Web site has. A user who visits a site at noon and then again at 3:30 pm would count as two user visits. Other measures of Web site traffic in a given time period are the number of hits (the number of individual files served), the number of pages served, the number of ad views, and the number of unique visitors. Also see session, a different meaning.

UUID
A UUID (Universal Unique Identifier) is a 128-bit number used to uniquely identify some object or entity on the Internet. Depending on the specific mechanisms used, a UUID is either guaranteed to be different or is, at least, extremely likely to be different from any other UUID generated until 3400 A.D. The UUID relies upon a combination of components to ensure uniqueness. A guaranteed UUID contains a reference to the network address of the host that generated the UUID, a timestamp (a record of the precise time of a transaction), and a randomly generated component. Because the network address identifies a unique computer, and the timestamp is unique for each UUID generated from a particular host, those two components should sufficiently ensure uniqueness. However, the randomly

generated element of the UUID is added as a protection against any unforseeable problem. A UUID is specified as part of the tModel data structure, which represents a service type (a generic representation of a registered service) in the UDDI (Universal Description, Discovery, and Integration) registry. This mechanism is used to discover Web services. UUIDs could be generated to refer to almost anything imaginable. Microsoft and some other software companies refer to GUIDs (global unique identifiers), a type of UUID used to refer to Component Object Module objects and other software components. The first UUIDs were created in the Network Computing System (NCS), and subsequently became a component of the Distributed Computing Environment (DCE) of the Open Software Foundation (OSF).

Value Chain

A value chain is "a string of companies working together to satisfy market demands." The value chain typically consists of one or a few primary value (product or service) suppliers and many other suppliers that add on to the value that is ultimately presented to the buying public. Microsoft and its Windows operating systems, the nucleus of the personal computer desktop for which much business software is developed, is often cited as a prime example of a company and product that drives a value chain. The businesses who buy personal computer software may spend far more on the add-on software than on the essential operating system that is the de facto standard for running the software. A company that develops a product or service that engenders a value chain by providing a platform for other companies is considered more likely to increase its market share than a company that tries to provide the entire value chain on its own.

Value-Added network

A value-added network (VAN) is a private network provider (sometimes called a turnkey communications line) that is hired by a company to facilitate electronic data interchange (EDI) or provide other network services. Before the arrival of the World Wide Web, some companies hired value-added networks to move data from their company to other companies. With the arrival of the World Wide Web, many companies found it more cost-efficient to move their data over the Internet instead of paying the minimum monthly fees and per-character charges found in typical VAN contracts. In response, contemporary value-added network providers now focus on offering EDI translation, encryption, secure e-mail, management reporting, and other extra services for their customers. VAN is also an acronym for virtual area network.

VC

Venture capital (VC) is funding invested, or available for investment, in an enterprise that offers the probability of profit along with the possibility of loss. Indeed, venture capital was once known also as *risk capital*, but that term has fallen out of usage, probably because investors don't like to see the words "risk" and "capital" in close conjunction. Venture capitalists often don't tend to think that their investments involve an element of risk, but are assured a successful return by virtue of the investor's knowledge and business sense. DataMerge, a financial information provider, says that VC investments in an enterprise are usually between $500,000 and $5 million, and that the investor is likely to expect an annual return of 20% to 50%. Venture capitalists were instrumental in the enormous increase in the number of dot-com startups of recent years. Because the Internet was a new and untried business venue with enormous potential, many analysts feel that standard business rules were too frequently suspended in what was a very

optimistic market. Internet-based enterprises were expected to enjoy unprecedented success; many venture capitalists were said to have encouraged dot-coms to focus on scaling upward rather than on realizing early profits. According to VentureWire, U.S. venture capital funding for 2000 was $105 billion, more than the total funding available in all the 15 years before that. However, in April of that same year, severe market corrections brought about a radical change in the financial climate, and since then online businesses have been failing at rates similar to the rates of startups in the early days of the dot-com boom. *Vulture capitalist*, a term coined in the volatile financial environment of the 1980s, has been revived to refer to the venture capitalists that have recently begun to buy up failing dot-com enterprises at rock-bottom prices. Venture capital is the second or third stage of a traditional startup financing sequence, which starts with the entrepreneurs putting their own available funding into a shoestring operation. Next, an angel investor may be convinced to contribute funding. Generally an angel investor is someone with spare funds and some personal or industry-related interest - angels are sometimes said to invest "emotional money," while venture capitalists are said to invest "logical money" - that is willing to help give the new enterprise a more solid footing. First-round venture capital funding involves a significant cash outlay and managerial assistance. Second-round venture capital involves a larger cash outlay and instructions to a stock or initial public offering (IPO) underwriter, who will sell stock in exchange for a percentage of what is sold. Finally, in the IPO stage, an investment bank is commissioned to sell shares to the public. In the currently sober economic climate, a return to traditional business wisdom has meant that enterprises are generally expected to show a clear path to profitability if they want to attract investment funds.

V-Calendar

vCalendar is an industry standard format for exchanging scheduling and activity-recording information electronically. If someone sends you their week's schedule in a vCalendar attachment to an e-mail note, you can drag-and drop it (or otherwise move it) to a personal information manager (PIM) type of application program and integrate with or relate it to your own schedule. vCalendar was developed along with the vCard electronic business card specification. Like vCard, vCalendar was developed by a consortium founded by Apple, AT&T, IBM, and Siemens. The specification was turned over to an industry group, the Internet Mail Consortium (IMC), in 1996. Like vCard, vCalendar requires that you have an application program that supports its use. In time, it's expected that most personal information manager programs on all computer software platforms will support vCard and vCalendar as a standard exchange format.

V-Card

A vCard is an electronic business (or personal) card and also the name of an industry specification for the kind of communication exchange that is done on business or personal cards. You may have seen a vCard attached to an e-mail note someone has sent you. Because vCard is a published industry specification, software application developers can create programs that process vCards by letting you view them, or drag-and-drop them to an address book or some other application. vCards can include images and sound as well as text. vCard was developed by a consortium founded by Apple, AT&T, IBM, and Siemens, which turned the specification over to an industry group, the Internet Mail Consortium

(IMC) in 1996. The vCard specification makes use of the "person" object defined by the CCITT X.500 Series Recommendation for Directory Services and can be considered an extension of it. A vCard contains a name, address information, date and time, and optionally photographs, company logos, sound clips, and geo-positioning information. To open (look at) a vCard that someone has attached to an e-mail note, your e-mail program needs to support vCards and not all such programs do yet. However, if you have an online address book or personal information manager that supports vCards, you can move it to that program for viewing or for addition to that program's database. (If you can't open a vCard you've received, remember that its information may be repeated elsewhere in the note. It's basically just a business card.) A promising future use of a vCard will be as a way to quickly fill in application forms on the Web. Just drag-and-drop your own vCard to the form and you won't have so many blanks to fill in. For software developers, there is a Personal Data Interchange (PDI) Software Development Kit (SDK). The specification is located at the Internet Mail Consortium's Web site where you can also find out about vCalendar, a similar exchange standard for personal time scheduling.

Veronica
Veronica is a program that allowed you to search the files of the Internet's Gopher servers for a particular search string. Like Archie, Veronica's equivalent program for FTP servers, Veronica is an indexing spider that visits the Gopher sites, reads all the directory and file names, and then indexes them in one large index. However, with the almost complete demise of Gopher servers (most content has probably been put on the Web), Veronica has become a relic of the early 1990s.

Venture Capital
Pl. see VC

Virtual community
A virtual community is a community of people sharing common interests, ideas, and feelings over the Internet or other collaborative networks. A possible inventor of this term and one of its first proponents was Howard Rheingold, who created one of the first major Internet communities, called "The Well." In his book, *The Virtual Community*, Rheingold defines virtual communities as social aggregations that emerge from the Internet when enough people carry on public discussions long enough and with sufficient human feeling to form webs of personal relationships in cyberspace. Virtual communities might be thought of as subgroups within Marshall McLuhan's notion of cyberspace as a "global village." Before the Web, virtual communities existed on bulletin board services (BBS) and many still do. Some virtual communities or facilitators of them use the metaphor of a coffee house or something similar to help users visualize the community. In general, there are two kinds of communication among virtual community members: message postings and real-time chat. Usenet newsgroups are an example of the former. Many Web sites, such as Geocities, foster subject information exchanges. For real-time chat, Internet Relay Chat (IRC) is a system used by many Web sites that foster virtual communities.

Viral Marketing

On the Internet, viral marketing is any marketing technique that induces Web sites or users to pass on a marketing message to other sites or users, creating a potentially exponential growth in the message's visibility and effect. One example of successful viral marketing is Hotmail, a company, now owned by Microsoft, that promotes its service and its own advertisers' messages in every user's e-mail notes. Sites that serve an immediate need when they are first launched seem to get the kind of viral marketing known as *buzz marketing*. Everyone simply tells everyone else. ICQ, a service that tells you when selected friends or colleagues are also online, is an example of a service that is viral by its nature. Its users want to tell their friends about it so that it will be more useful for them. Some marketing people prefer terms other than *viral marketing*. In his popular e-mail newsletter about selling on the Web, John Audette asked readers to suggest alternatives, including other terms in current use. Among those suggested have been: avalanche marketing buzz marketing, cascading style marketing, centrifugal marketing, exponential marketing, fission marketing, grass roots marketing, organic marketing, propagation marketing, referral marketing, (borrowing a term long used in marketing prior to the Web) ripple marketing, self-perpetuation marketing, self-propagation marketing and wildfire marketing

Virtual Hosting
On the Internet, virtual hosting is the provision of Web server hosting services so that a company (or individual) doesn't have to purchase and maintain its own Web server and connections to the Internet. A virtual hosting provider is sometimes called a Web or Internet "space provider." Some companies providing this service simply call it "hosting." Typically, virtual hosting provides a customer who wants a Web site with: domain name registration assistance, multiple domain names that map to the registered domain name, an allocation of file storage and directory setup for the Web site files (HTML and graphic image files), e-mail addresses, and, optionally, Web site creation services. The virtual hosting user (the Web site owner) needs only to have a File Transfer Protocol (FTP) program for exchanging files with the virtual host. Some virtual hosting providers make it possible for customers to have more control of their Web site file system, e-mail names, passwords, and other resources and say that they are providing each customer a virtual server - that is, a server that appears to be entirely their own server. When a customer does indeed want to have its very own server, some hosting providers allow the customer to rent a dedicated server at the hosting provider's location. If a customer is allowed to place their own purchased equipment at the provider's location, this is known as colocation.

Virtual ISP
Pl. see VISP

Virtual Microscopy
Virtual microscopy is a method of posting microscope images on, and transmitting them over, computer networks. This allows independent viewing of images by large numbers of people in diverse locations. Classroom viewing of microscope slides has traditionally been a cumbersome business. It is possible to set up an optical microscope with projection apparatus, but this is an inflexible scheme at best. It requires operation by a professor or instructor, and students do not have individual control over what they see. It also requires that all the students be

physically present in the same classroom at the same time. These limitations also apply to the sharing of images among teams of doctors. Although closed-circuit television networks have been used for this purpose, image resolution in these systems is notoriously poor. With the advent of computers and broadband Internet connections, microscope slide images can be digitized and posted online. Each student can use a computer to independently look at any image in a database that can contain thousands of slides. Zooming provides the equivalent of variable magnification. Using UP/DOWN/RIGHT/LEFT arrow buttons, the viewer can move the center of the field of view at will. Students can view images when and where they choose. For example, if there are 50 students in a virtual class all looking at the same image at the same time, the students can independently choose 50 different placements and magnifications of the image. Reports by users indicate that this can actually be easier than using an optical microscope in a laboratory setting. One program used for virtual microscopy is "Virtual Slice" developed by MicroBrightField, Inc. of Colchester, Vermont. If recent tests are any indication, virtual microscopy will largely replace older instructional methods. In addition, the technology has applications in videoconferencing, and in the exchange of medical information among doctors and hospitals worldwide. This will improve the quality of patient care by increasing the quality and quantity of medical information that can be shared.

Virtual Router Redundancy
Pl. see VRRP

VISP
A virtual ISP or Internet service provider (sometimes abbreviated VISP or vISP) is a company that provides Internet services using the equipment and facilities of a real Internet Service provider (ISP). A virtual ISP typically offers the services of the real ISP - such as Web hosting, e-mail, newsgroup access, domain name provision, and support - but under its own company or brand name. A number of real ISPs specialize in providing a virtual ISP setup on a local or wider geographic basis. In some cases, the ISP offering the virtual ISP setup can also handle billing and answer support calls for the virtual ISP company under the virtual ISP name

Virtual Storage Portal
Pl. see VSP

Voice over Internet Protocol
Pl. see VOIP

Voice over IP
Pl. see VOIP

VoIP
VoIP (voice over IP - that is, voice delivered using the Internet Protocol) is a term used in IP telephony for a set of facilities for managing the delivery of voice information using the Internet Protocol (IP). In general, this means sending voice information in digital form in discrete packets rather than in the traditional circuit-committed protocols of the public switched telephone network (PSTN). A major advantage of VoIP and Internet telephony is that it avoids the tolls charged by ordinary telephone service. VoIP, now used somewhat generally, derives from the

VoIP Forum, an effort by major equipment providers, including Cisco, VocalTec, 3Com, and Netspeak to promote the use of ITU-T H.323, the standard for sending voice (audio) and video using IP on the public Internet and within an intranet. The Forum also promotes the user of directory service standards so that users can locate other users and the use of touch-tone signals for automatic call distribution and voice mail. In addition to IP, VoIP uses the real-time protocol (RTP) to help ensure that packets get delivered in a timely way. Using public networks, it is currently difficult to guarantee Quality of Service (QoS). Better service is possible with private networks managed by an enterprise or by an Internet telephony service provider (ITSP). A technique used by at least one equipment manufacturer, Netspeak, to help ensure faster packet delivery is to Packet Internet or Inter-Network Groper (ping) all possible network gateway computers that have access to the public network and choose the fastest path before establishing a Transmission Control Protocol (TCP) sockets connection with the other end. Using VoIP, an enterprise positions a "VoIP device" (such as Cisco's AS5300 access server with the VoIP feature) at a gateway. The gateway receives packetized voice transmissions from users within the company and then routes them to other parts of its intranet (local area or wide area network) or, using a T-carrier system or E-carrier interface, sends them over the public switched telephone network.

Voice Portal
A voice portal (sometimes referred to as a *vortal*) is a Web site or other service that a user can reach by telephone for information such as weather, sport scores, or stock quotes. For example, a mobile user with a cellular telephone might dial in to a voice portal Web site and request information using voice or Touchtone keys and receive the requested information from a special voice-producing program at the Web site. Whereas a user with a smartphone can connect to the Internet and get information on a small visual display (perhaps with a WAP interface), the user of a voice portal needs only a regular cellular phone. After requesting information by speaking or pressing keys, the voice portal responds with voice information or, in some cases, with an e-mail message. vortal is also short for *vertical portal*. Two companies that act as voice portals are BeVocal and Tellme.
Voice-Activated e-mail
Pl. see voice-enabled e-mail

Voice-enabled e-mail
Voice-enabled e-mail (sometimes referred to as voice-*activated* e-mail) uses voice recognition and speech synthesis technologies to enable users to access their e-mail from any telephone. In general, the various products available work similarly: The subscriber dials a phone number to access a voice portal, then, to collect their e-mail messages, they press a couple of keys and, perhaps, say a phrase like "Get my e-mail." Speech synthesis software converts e-mail text to a voice message, which is played back over the phone. The user may navigate through options (such as skipping messages, or hearing a list of senders, for example) through voice commands or key selections. Users dictate their replies, which are delivered to the recipients as voice messages. Voice-enabled e-mail is especially useful for mobile workers, because it makes it possible for them to access their messages easily from virtually anywhere (as long as they can get to a phone), without having to invest in expensive equipment such as laptop computers or personal digital

assistants (PDAs). Proponents hope that new services like voice-enabled e-mail and unified messaging will turn out to be the killer apps that will dissolve the perceived barriers between data networks and traditional voice networks

Vortal

On the Web, a vortal (vertical industry portal) is a Web site that provides a gateway or portal to information related to a particular industry such as health care, insurance, automobiles, or food manufacturing. (A vertical industry is one that is focused on a relatively narrow range of goods and services, whereas a horizontal industry is one that aims to produce a wide range of goods and services. Because most industry tends to specialize, most industry tends to be vertical.) A term that might also be used is *interest community Web site* since any vertical industry brings together people sharing an interest in buying, selling, or exchanging information about that particular industry. Vortals are also seen as likely business-to-business communities - for example, small business people with home offices might be attracted to a comprehensive vortal that provided ideas and product information related to setting up and maintaining the home office.

By whatever name, Web sites that promise to give the user a single place to communicate with and about a single industry are predicted to becomes big businesses themselves. An early leader is publicly traded VerticalNet, a company that uses the same content format and design for a number of vortal sites. Related terms are infomediary and vertical market.

Vortal is also short for voice portal. A voice portal (sometimes referred to as a *vortal*) is a Web site or other service that a user can reach by telephone for information such as weather, sport scores, or stock quotes. For example, a mobile user with a cellular telephone might dial in to a voice portal Web site and request information using voice or Touchtone keys and receive the requested information from a special voice-producing program at the Web site. Whereas a user with a smartphone can connect to the Internet and get information on a small visual display (perhaps with a WAP interface), the user of a voice portal needs only a regular cellular phone. After requesting information by speaking or pressing keys, the voice portal responds with voice information or, in some cases, with an e-mail message. Two companies that act as voice portals are BeVocal and Tellme.

VRRP

VRRP (Virtual Router Redundancy Protocol) is an Internet protocol that provides a way to have one or more backup routers when using a statically configured router on a local area network (LAN). Although there are other alternatives, the most common arrangement is to specify one router to serve as the router for forwarding packets from a group of hosts on a LAN. If that router fails, however, there is no way to use another router as a backup. Using VRRP, a *virtual IP address* can be specified manually or with Dynamic Host Configuration Protocol (DHCP) as a default. A virtual IP address is shared among the routers, with one designated as the master router and the others as backups. In case, the master fails, the virtual IP address is mapped to a backup router's IP address. (This backup becomes the master router.) VRRP can also be used for load balancing. VRRP is part of both IPv4 (the version of IP that most networks currently use) and IPv6.

VSP

Virtual Storage Portal (VSP), a service mark of StorageNetworks, is a software application with a Web browser interface that lets a customer see how much storage is being used, predict future needs, grant access to storage administrators, view performance, and otherwise manage the storage that they have rented from StorageNetworks. As a leading storage service provider, StorageNetworks operates a network of what it calls "storage point-of-presence" data centers. An enterprise or a "dotcom" company with significant storage needs but a lack of expertise in buying and managing storage might choose to outsource its storage from a company like StorageNetworks. VSP allows this particular company's customers to look at its storage infrastructure and otherwise manage and forecast its rented storage resources. VSP is offered free to its customers. StorageNetworks has no immediate plans to market it independently. Like similar companies, StorageNetworks offers "plain old storage space" as well as more expensive backup service and a "zero loss" service. Another meaning for VSP is vertical solutions provider.

WAIS

Wide Area Information Servers (WAIS) is an Internet system in which specialized subject databases are created at multiple server locations, kept track of by a *directory of servers* at one location, and made accessible for searching by users with WAIS client programs. The user of WAIS is provided with or obtains a list of distributed databases. The user enters a search argument for a selected database and the client then accesses all the servers on which the database is distributed. The results provide a description of each text that meets the search requirements. The user can then retrieve the full text. WAIS (pronounced "ways") uses its own Internet protocol, an extension of the Z39.50 standard (Information Retrieval Service Definition and Protocol Specification for Library Applications) of the National Information Standards Organization. Web users can use WAIS by either downloading a WAIS client and a "gateway" to the Web browser or by using Telnet to connect to a public WAIS client. Most Web users will find that the abundance of server files and search engines already available on the Web will make WAIS superfluous. However, librarians, medical researchers, and others may find some specialized information available through WAIS that is not currently available on the Web.

Walled Garden

On the Internet, a walled garden is an environment that controls the user's access to Web content and services. In effect, the walled garden directs the user's navigation within particular areas, to allow access to a selection of material, or prevent access to other material. An Internet service provider (ISP) may or may not allow users to select some of the Web sites contained or barred from the garden. Although the walled garden does not actually prevent users from navigating outside the walls, it makes it more difficult than staying within the environment. ISPs want to fence in users for a number of reasons. In 1999, for example, America Online (AOL) UK's Kid Channel established a walled garden to prevent access to inappropriate Web sites. However, a common reason for the construction of walled gardens is for the profits they generate: vendors collaborate to direct consumer's Internet navigation to each others' Web sites and to try to keep them from accessing the Web sites of competitors. Because wireless devices such as smartphones are often limited to the content provided by their carriers, the portion of the Web that is available to wireless users is frequently referred to as a walled garden. The walled garden concept is unpopular with many consumers. Although it offers an easy-to-navigate selection of services and content, that selection includes only a very small part of what the Web has to offer. Alternate names, such as "walled prison" and "walled desert" have been proposed by some as more reflective of the confinement and lack of diversity of the walled garden.

Wallet

A wallet is a small software program used for online purchase transactions. Many payment solution companies, such as CyberCase, offer free Wallet software that allows several methods of payment to be defined within the wallet (for example, several different credit cards). Here's how it works: When you order something, the order is sent to the merchant. The merchant (actually, the merchant's server) sends back an invoice and asks the consumer to launch the Wallet in his computer (or to download it quickly if the consumer doesn't have it yet). When the consumer selects "Pay," the CyberCash software on the merchant server sends a message back to the consumer's PC that activates the "Wallet" software. The consumer selects one of the cards defined in the Wallet and clicks. The transaction includes real-time credit card authorization. CyberCash says" Soon we will incorporate an electronic "Cash" and "Coin" system to use for transactions that are considered small for credit cards.

WAP

WAP (Wireless Application Protocol) is a specification for a set of communication protocols to standardize the way that wireless devices, such as cellular telephones and radio transceivers, can be used for Internet access, including e-mail, the World Wide Web, newsgroups, and Internet Relay Chat (IRC). While Internet access has been possible in the past, different manufacturers have used different technologies. In the future, devices and service systems that use WAP will be able to interoperate. The WAP layers are: (1) Wireless Application Environment (WAE), (2) Wireless Session Layer (WSL), (3) Wireless Transport Layer Security (WTLS), (4) Wireless Transport Layer (WTP). The WAP was conceived by four companies: Ericsson, Motorola, Nokia, and Unwired Planet (now Phone.com). The Wireless Markup Language (WML) is used to create pages that can be delivered using WAP. There are other approaches to an industry standard besides WAP, including i-Mode.

Wares

Warez (pronounced as though spelled "wares" or possibly by some pronounced like the city of "Juarez") is a term used by software "pirates" to describe software that has been stripped of its copy-protection and made available on the Internet for downloading. People who create warez sites sometimes call them "warez sitez" and use "z" in other pluralizations. The most popular downloads at warez sites include applications from major vendors such as Microsoft, Symantec, Macromedia, and Adobe Systems. The vendors have joined forces with the Business Software Alliance (BSA) to successfully close a loophole in Internet law that allowed warez distributors to avoid legal prosecution as long as they didn't profit monetarily from their distributions. (Use of warez software is also illegal and may result in a jail sentence.) Warez should not be confused with shareware or freeware software applications, which are legal and may be freely copied and distributed.

War Dialer

A war dialer is a computer program used to identify the phone numbers that can successfully make a connection with a computer modem. The program automatically dials a defined range of phone numbers and logs and enters in a database those numbers that successfully connect to the modem. Some programs can also identify the particular operating system running in the computer and may

also conduct automated penetration testing. In such cases, the war dialer runs through a predetermined list of common user names and passwords in an attempt to gain access to the system. A war dialer, usually obtained as freeware, is typically used by a hacker to identify potential targets. If the program does not provide automated penetration testing, the intruder attempts to hack a modem with unprotected log-ins or easily cracked passwords. Commercial war dialers, also known as modem scanners, are also used by system administrators, to identify unauthorized modems on an enterprise network. Such modems can provide easy access to a company's intranet.

War Dialing
Pl. see War Dialer

War Driving
War driving is the act of locating and possibly exploiting connections to wireless local area networks while driving around a city or elsewhere. To do war driving, you need a vehicle, a computer (which can be a laptop), a wireless Ethernet card set to work in promiscuous mode, and some kind of an antenna which can be mounted on top of or positioned inside the car. Because a wireless LAN may have a range that extends beyond an office building, an outside user may be able to intrude into the network, obtain a free Internet connection, and possibly gain access to company records and other resources. Some people have made a sport out of war driving, in part to demonstrate the ease with which wireless LANs can be compromised. With an omnidirectional antenna and a geophysical positioning system (GPS), the war driver can systematically map the locations of 802.11b wireless access points. Companies that have a wireless LAN are urged to add security safeguards that will ensure only intended users have access. Safeguards include the use of the Wired Equivalent Privacy (WEP) encryption standard, the setup and use of a virtual private network (VPN) or IPsec, and a firewall or DMZ. The term derives from a somewhat similar approach to breaching the telephone system called war dialing.

Wayback Machine
The Wayback Machine is a Web site that enables anyone to see what a particular Web site looked like at some time in the past - from 1996 to the present. This enormous archive of the Web's past requires over 100 terabytes of storage and contains 10 billion Web pages! The archive of pages was originally gathered by the owners of the Alexa program, a toolbar you can install on your PC that provides Web site information and ratings. At the Wayback Machine site, you can search for and link to any of your favorite Web sites of the past and find them preserved very much as they were at various "snapshots" in time. Occasionally, an ad that was served from another site will be missing and we noticed a few graphic images missing from our original site.) In general, however, the range and completeness of the archive is remarkable. The Wayback Machine is at http://web.archive.org.

WBI
Web Intermediaries (WBI - pronounced "webby") is a framework and set of programming tools from IBM for the uniform creation and control of intermediary programs such as proxy servers, transcoding processors, and any kind of program that sits somewhere between two end points in a network. Some other kinds of intermediary programs that can be built using WBI include personalization of Web

content; transcoding HTML for formatting to a handheld device; interactivity with other Web users and data; the filtering of content; and, more controversially, the monitoring of individual usage. A WBI application consists of a request editor, a (response) generator, a response editor, and a monitor. A collection of such a monitor, editors, and generator is known as a MEG, and a MEG constitutes an installable plugin. Plugins are registered in a computer and made usable whenever they are needed or wanted. The (Java-based) WBI Development Kit comes with some ready-made plugins, including the same plugin APIs as IBM's WebSphere Transcoding Publisher.

WBT
Web-based training (sometimes called e-learning) is anywhere, any-time instruction delivered over the Internet or a corporate intranet to browser-equipped learners. There are two primary models of Web-based instruction: synchronous (instructor-facilitated) and asynchronous (self-directed, self-paced). Instruction can be delivered by a combination of static methods (learning portals, hyperlinked pages, screen cam tutorials, streaming audio/video, and live Web broadcasts) and interactive methods (threaded discussions, chats, and desk-top video conferencing). Critics point out that Web-based training is a good alternative for independent, self-motivated students but that technical issues and the need for human contact limit its usefulness for students with other learning styles.

Web Anonymizer
Pl. see anonymizer

Web Archives
Pl. see the Wayback Machine

Web-Braille
A Braille-ready file is a data file in a special format that can be read on a Braille display or transmitted to a Braille embosser. Braille-ready files typically have the extension .brf. The Braille codes in Braille-ready files allow blind people to read electronic documents from computer disks or from the Internet. When read or downloaded from the Internet, Braille-ready files are called Web-Braille. Braille-ready files generally contain 25 lines per page, with each line holding up to 39 characters. A single printed page translates into several Braille pages; the exact ratio depends on the nature of the document. Mathematical expressions and symbols, as well as graphics, can be converted into words before being translated into Braille-ready files. Complex mathematical documents have the highest Braille-to-text page conversion ratios. Several thousand Web-Braille books are available for downloading from the National Library Service (NLS) in the U.S. About 40 new books are published online in this format every month. The NLS Web-Braille material is available only to citizens or residents of the United States, or to qualified institutions.

Web Bug
A Web bug is a file object, usually a graphic image such as a transparent one pixel-by-one pixel GIF, that is placed on a Web page or in an e-mail message to monitor user behavior, functioning as a kind of spyware. Unlike a cookie, which can be accepted or declined by a browser user, a Web bug arrives as just another GIF on the Web page. A Web bug is typically invisible to the user because it is transparent

(matches the color of the page background) and takes up only a tiny amount of space. It can usually only be detected if the user looks at the source version of the page to find a an IMG tag that loads from a different Web server than the rest of the page. Although proponents of Internet privacy object to the use of Web bugs in general, they also concede that Web bugs can be put to positive use, for example to track copyright violations on the Web. According to Richard M. Smith, a Web bug can gather the following statistics: (1) The IP address of the computer that fetched the Web bug, (2) The URL of the page that the Web bug is located on, (3)The URL of the Web bug image, (4) The time the Web bug was viewed (5)The type of browser that fetched the Web bug image and (6) A previously set cookie value

Webby
Pl. see WBI

Web Farm
Pl. see Server Farm

Web Intermediaries
Pl. see WBI

Webification
Webification (sometimes seen with a lower case *w*) is the act of converting content from its original format into a format capable of being displayed on the World Wide Web. Some conversion examples are: A Postscript source file or ASCII text to a Hypertext Markup Language (HTML) file, A Microsoft Word document to HTML (sometimes referred to as "DOC to HTML"). More recent versions of Microsoft Word include this capability. Hard-copy print publication pages into files in the Portable Document Format (PDF) for viewing on the Web with Adobe's downloadable Acrobat viewer, A Lotus Notes database to HTML files, An image in a scanned-in or other format to a Web-ready image, either a GIF or a JPEG file, A speech or interview into a file in the RealAudio format for playing as streaming sound on the Web, A video tape recording into a streaming video file, Using the File Transfer Protocol (FTP) from the Web browser, text pages (with files in the ASCII TXT format) can also be "Webified" for display by Web users. Many Internet Request for Comment (RFC) documents are available on the Web in the text format. The only Webification these files need is to simply make them available in a directory accessible to the FTP server. Webification is the name of a Web site firm in Hollywood, Florida, that specializes in internetworking and in Web site design. Also see Webify.

Webify
To Webify is to convert some information content from its original format into a format capable of being displayed on the World Wide Web. Some conversion examples are: (1) A Postscript source file or ASCII text to a Hypertext Markup Language (HTML) file, (2) A Microsoft Word document to HTML (sometimes referred to as "DOC to HTML"). More recent versions of Microsoft Word include this capability.

Webisode
A Webisode is a single push technology episode. A Webisode can be a preview or promotion of a particular TV show, music video, or other show presented from a

Web site using streaming video or other techniques. Some sites are dedicated to presenting Webisodes.

WebLogic
BEA Systems' WebLogic is a <u>server</u> software application that runs on a middle <u>tier</u>, between <u>back-end</u> <u>database</u>s and related applications and <u>browser</u>-based <u>thin</u> <u>client</u>s. WebLogic is a leading <u>e-commerce</u> online transaction processing (<u>OLTP</u>) platform, developed to connect users in a <u>distributed</u> computing environment and to facilitate the integration of <u>mainframe</u> applications with distributed corporate data and applications. WebLogic server is based on Java 2 Platform, Enterprise Edition (<u>J2EE</u>), the standard platform used to create <u>Java</u>-based multi-<u>tier</u> enterprise applications. J2EE platform technologies were developed through the efforts of BEA Systems and other vendors in collaboration with the main developer, Sun Microsystems. Because J2EE applications are standardized modules, WebLogic can automate many system-level tasks that would otherwise have demanded programming time. The main features of WebLogic server include connectors that make it possible for any <u>legacy application</u> on any client to interoperate with server applications, Enterprise JavaBean (<u>EJB</u>) components, resource pooling, and connection sharing that make applications very scalable. An administration console with a user interface makes management tasks more efficient and features such as Secure Sockets Layer (<u>SSL</u>) support for the encryption of data transmissions, as well as <u>authentication</u> and authorization mechanisms, make applications and transactions secure.

Web Proxy Autodiscovery
Pl. see WPDA

Weblog
A Weblog (which is sometimes written as "web log" or "weblog") is a <u>Web site</u> of personal or non-commercial origin that uses a dated log format that is updated on a daily or very frequent basis with new information about a particular subject or range of subjects. The information can be written by the site owner, gleaned from other Web sites or other sources, or contributed by users. A Web log often has the quality of being a kind of "log of our times" from a particular point-of-view. Generally, Weblogs are devoted to one or several subjects or themes, usually of topical interest, and, in general, can be thought of as developing commentaries, individual or collective on their particular themes. A Weblog may consist of the recorded ideas of an individual (a sort of diary) or be a complex collaboration open to anyone. Most of the latter are *moderated discussions*. Since there are a number of variations on this idea and new variations can easily be invented, the meaning of this term is apt to gather additional connotations with time. Currently, the most popular Weblog is Slashdot.org, the product of programmer and graphic artist Rob Malden and several colleagues. Slashdot.org carries discussion <u>thread</u> on many subjects including: Money, Quake (the game), Netscape, Sun Microsystems, Hardware, and <u>Linux</u>. Slashdot.org solicits and posts interesting stories reported by contributors, includes a link to the story, and manages the threads of the ensuing discussion by other users. Another well-known Weblog is Jorn Barger's Robot Wisdom Log, which is more of collection of daily highlights from other Web sites. Jessamyn West's librarian.net is a daily log of items interesting to librarians and possibly others, too. As a format and content approach for a Web site, the Weblog seems popular because the viewer knows that something changes every day, there

is a personal (rather than bland commercial) point-of-view, and, on some sites, there is an opportunity to collaborate or respond with the Web site and its participants. Weblog is the name of a software product from South Korea that analyzes a Web site's access access log and reports the number of visitors, views, hits, most frequently visited pages, and so forth.

Web Ring

A Web ring (or Webring) is a way of interlinking related Web sites so that you can visit each site one after the other, eventually (if you keep going) returning to the first Web site. Typically, users can also elect to go backwards through the ring of sites, skip a certain number at a time, visit sites randomly, or see a list of all the sites on the ring. A ring is managed from one site which includes a common gateway interface (CGI) application that can select random sites and bypass sites that have dropped out or aren't reachable. There are Web rings on acrobatics, quilting, mermaids, the macabre, Spanish hotels, the Chevrolet, Dixieland, medieval studies, native American sites, and Winnie the Pooh. The largest number are on computer- and game-related subjects.

Web Server

A Web server is a program that, using the client/server model and the World Wide Web's Hypertext Transfer Protocol (HTTP), serves the files that form Web pages to Web users (whose computers contain HTTP clients that forward their requests). Every computer on the Internet that contains a Web site must have a Web server program. Two leading Web servers are Apache, the most widely-installed Web server, and Microsoft's Internet Information Server (IIS). Other Web servers include Novell's Web Server for users of its NetWare operating system and IBM's family of Lotus Domino servers, primarily for IBM's OS/390 and AS/400 customers. Web servers often come as part of a larger package of Internet- and intranet-related programs for serving e-mail, downloading requests for File Transfer Protocol (FTP) files, and building and publishing Web pages. Considerations in choosing a Web server include how well it works with the operating system and other servers, its ability to handle server-side programming, security characteristics, and publishing, search engine, and site building tools that may come with it.

Web Service

Web services (sometimes called *application services*) are services (usually including some combination of programming and data, but possibly including human resources as well) that are made available from a business's Web server for Web users or other Web-connected programs. Providers of Web services are generally known as application service providers. Web services range from such major services as storage management and customer relationship management (CRM) down to much more limited services such as the furnishing of a stock quote and the checking of bids for an auction item. The accelerating creation and availability of these services is a major Web trend. Users can access some Web services through a peer-to-peer arrangement rather than by going to a central server. Some services can communicate with other services and this exchange of procedures and data is generally enabled by a class of software known as middleware. Services previously possible only with the older standardized service known as Electronic Data Interchange (EDI) increasingly are likely to become Web services. Besides the standardization and wide availability to users and businesses

of the Internet itself, Web services are also increasingly enabled by the use of the Extensible Markup Language (XML) as a means of standardizing data formats and exchanging data. XML is the foundation for the Web Services Description Language (WSDL). As Web services proliferate, concerns include the overall demands on network bandwidth and, for any particular service, the effect on performance as demands for that service rise. A number of new products have emerged that enable software developers to create or modify existing applications that can be "published" (made known and potentially accessible) as Web services.

Web Services Description Language
Pl. see WSDL

Web Site
A Web site is a related collection of World Wide Web (WWW) files that includes a beginning file called a home page. A company or an individual tells you how to get to their Web site by giving you the address of their home page. From the home page, you can get to all the other pages on their site. For example, the Web site for IBM has the home page address of http://www.ibm.com. (The home page address actually includes a specific file name like *index.html* but, as in IBM's case, when a standard default name is set up, users don't have to enter the file name.) IBM's home page address leads to thousands of pages. (But a Web site can also be just a few pages.)
Since *site* implies a geographic place, a Web site can be confused with a Web server. A server is a computer that holds the files for one or more sites. A very large Web site may be spread over a number of servers in different geographic locations. IBM is a good example; its Web site consists of thousands of files spread out over many servers in world-wide locations. A synonym and less frequently used term for Web site is "Web presence." That term seems to better express the idea that a site is not tied to specific geographic location, but is "somewhere in cyberspace." However, "Web site" seems to be used much more frequently. One can have multiple Web sites that cross-link to files on each others' sites or even share the same files.

Webinar
A Webinar is a live or replayed interactive multimedia presentation conducted from a Web site. The term combines *Web* with *seminar*. A Webinar typically uses some combination of: (1) The presenter speaking (usually with streaming audio), (2) The presenter also presented visually (streaming video) (3) A panel of presenters, (4) A chat session that shows typed-in questions and answers as a live Webinar progresses or the entire session when it is played from an archive, Nd (5) A slide presentation that can be viewed simultaneously. For a small group, a whiteboard that allows the presenter and auditors to draw pictures, PC cameras and microphone that allow some of the auditors to talk to the presenter, Conference telephone connections to the presenter. One type of Webinar is a chat session with an expert who delivers answers visually and aurally rather than by replying with typed-in responses. A Webinar often specifies that the auditor use or download RealPlayer or Microsoft Media Player and requires site registration. The presentation aspect of a Webinar is sometimes referred to as a Webcast.

WebNFS

WebNFS is a product and proposed standard protocol from Sun Microsystems that extends its Network File System (NFS) to the Internet. Sun believes WebNFS offers considerable performance advantages over the current Internet protocols, the Hypertext Transport Protocol (HTTP) and the File Transfer Protocol (FTP). Netscape, Oracle, IBM, Apple, and Novell have announced support for WebNFS. To use WebNFS, the Web browser needs a client and the Web or FTP server needs to have a WebNFS server. When requesting a file with WebNFS, your Internet address or Uniform Resource Locator (URL) would look something like this: nfs://computer.site.com/filedirectory/file. WebNFS has several advantages over HTTP and FTP. The WebNFS protocol does not require the opening and closing of a connection for each requested file. Very large file downloads are supported and, because they are downloaded in sections, they can be resent more quickly in case the download is interrupted. A WebSoft client is included with Sun's thin-client Network Computer (NC). Sun Microsystems suggests that WebNFS may be a technology proposal to replace or be part of the next generation of HTTP, currently being worked on by members of the World Wide Web Consortium (W3C).

WebTV
WebTV, now owned by Microsoft, was one of the first entries in the much publicized convergence of the World Wide Web with television. You buy a set-top box similar to a cable TV box, then sign up with the WebTV access service and browse Web pages using a WebTV's browser and a hand-held control. A keyboard is provided optionally. WebTV uses your television set as an output device; the signals arrive, however, through a modem and a telephone line at 33.6 Kbps (Classic model) or 56 Kbps (Plus model). The most recent WebTV service includes support for frames (with certain limitations), JavaScript, RealAudio, Internet Relay Chat (IRC), and other Web technology.

WEP
Wired Equivalent Privacy (WEP) is a security protocol, specified in the IEEE Wireless Fidelity (Wi-Fi) standard, 802.11b, that is designed to provide a wireless local area network (WLAN) with a level of security and privacy comparable to what is usually expected of a wired LAN. A wired local area network (LAN) is generally protected by physical security mechanisms (controlled access to a building, for example) that are effective for a controlled physical environment, but may be ineffective for WLANs because radio waves are not necessarily bound by the walls containing the network. WEP seeks to establish similar protection to that offered by the wired network's physical security measures by encrypting data transmitted over the WLAN. Data encryption protects the vulnerable wireless link between clients and access points; once this measure has been taken, other typical LAN security mechanisms such as password protection, end-to-end encryption, virtual private networks (VPNs), and authentication can be put in place to ensure privacy. A research group from the University of California at Berkeley recently published a report citing "major security flaws" in WEP that left WLANs using the protocol vulnerable to attacks (called *wireless equivalent privacy attacks*). In the course of the group's examination of the technology, they were able to intercept and modify transmissions and gain access to restricted networks. The Wireless Ethernet Compatibility Alliance (WECA) claims that WEP - which is included in many networking products - was never intended to be the sole security mechanism for a WLAN, and that, in conjunction with traditional security practices, it is very effective.

WGate

WGate (for *Web gateway*) is one of two major components of the Internet Transaction Server (ITS) from SAP, the software company that provides a popular set of programs for managing a large enterprise. The WGate and the AGate (for *application* gateway) perform the tasks that enable an end user to access an SAP R/3 application over the Internet. The WGate establishes the connection between ITS and the Web server and forwards user requests to the AGate, which establishes the link to the R/3 system and performs the processing tasks required to move data between R/3 applications and the Internet. The WGate and the AGate communicate over TCP/IP using the SAP Network Interface (NI).

Whiteboard

A whiteboard is a non-electronic variation of the traditional "rewriteable" schoolroom blackboard, but is white instead of black and of a material that can be written on with colored markers (known as *dry erase* markers). Dry erase markers are easier to erase than the chalk used on a blackboard (which sometimes requires a wet rag for thorough erasing). In electronic education technology and computer networks, an electronic whiteboard (also called a smartboard) is one of several kinds of writeable presentation display systems that can be used in a classroom or videoconference. These whiteboards generally fall into one of three categories: standalone *copy boards*, where the content of the whiteboard can be scanned and printed out; *peripheral boards*, which transfer information in the form of digital files to an attached computer; and *interactive boards*, the most expensive and sophisticated option, which are like large touchscreen monitors that can be synchronized to an attached computer -- users can interact with the display, visit Web sites, and access databases directly from the board. Some peripheral boards can accommodate a projector that can be calibrated to the display, making them interactive. There are a number of add-on *whiteboard digitizer* products available, such as mimio and eBeam, that can be used to make traditional dry-erase whiteboards interactive. In some groupware programs in which remote users teleconference from their PCs, a whiteboard is a space on the display in which one or more participants write or draw, using a mouse, keyboard, or other input device.

White hat

White hat describes a hacker (or, if you prefer, cracker) who identifies a security weakness in a computer system or network but, instead of taking malicious advantage of it, exposes the weakness in a way that will allow the system's owners to fix the breach before it is can be taken advantage by others (such as black hat hackers.) Methods of telling the owners about it range from a simple phone call through sending an e-mail note to a Webmaster or administrator all the way to leaving an electronic "calling card" in the system that makes it obvious that security has been breached. While white hat hacking is a hobby for some, others provide their services for a fee. Thus, a white hat hacker may work as a consultant or be a permanent employee on a company's payroll. A good many white hat hackers are former black hat hackers. The term comes from old Western movies, where heros often wore white hats and the "bad guys" wore black hats.

Windows Internet Naming Service

Pl. see WINS

WINS

Windows Internet Naming Service (WINS), part of the Microsoft Windows NT and 2000 Servers, manages the association of workstation names and locations with Internet Protocol addresses (IP addresses) without the user or an administrator having to be involved in each configuration change. WINS automatically creates a computer name-IP address mapping entry in a table, ensuring that the name is unique and not a duplicate of someone else's computer name. When a computer is moved to another geographic location, the subnet part of the IP address is likely to change. Using WINS, the new subnet information will be updated automatically in the WINS table. WINS complements the NT Server's Dynamic Host Configuration Protocol (DHCP), which negotiates an IP address for any computer (such as your workstation) when it is first defined to the network. If you're a computer user on a network connected to a Windows NT/2000 Server, you may find WINS mentioned in some of your network-related programs or system messages. Based on Microsoft's paper, DHCP and WINS have been submitted to the Internet Engineering Task Force (IETF) as proposed open standards in Request for Comments 1533, 1534, 1541, and 1542. New features are included in Windows 2000.

Wireless Application Protocol
Pl. see WAP

Wireless Web
The wireless Web refers to use of the World Wide Web through a wireless device, such as a cellular telephone or personal digital assistant (PDA). Wireless Web connection provides anytime/anywhere connection to e-mail, mobile banking, instant messaging, weather and travel information, and other services. In general, sites aiming to accommodate wireless users must provide services in a format displayable on typically small wireless devices. It is estimated that 95% of wireless Internet devices being manufactured today use the Wireless Application Protocol (WAP) developed by Ericsson, Motorola, Nokia, and Unwired Planet (now Phone.com) for presenting content. The wireless Web is not gaining in popularity as quickly as some have predicted. The low bandwidth of today's wireless service, relatively high usage charges, and small and difficult-to-use input and output devices contribute to impeding growth, a condition that has been referred to as "wapathy" (WAP apathy).

Winsock
Winsock is a programming interface and the supporting program that handles input/output requests for Internet applications in a Windows operating system. It's called Winsock because it's an adaptation for Windows of the Berkeley UNIX sockets interface. sockets is a particular convention for connecting with and exchanging data between two program processes within the same computer or across a network. Winsock runs between an application program such as a Netscape browser and the Internet program in your computer that uses TCP/IP. A request flows in the following order: Web browser or other application winsock.dll TCP/IP layers Modem or network card. The Internet and destination Winsock provides this interface for different versions of the Windows operating system. A comparable interface exists for Mac computers. Beginning with Windows 95, Winsock came as part of the operating system, but in earlier systems, a Winsock program had to be installed. UNIX systems do not require a Winsock equivalent

because TCP/IP and its use of sockets was designed to run directly with UNIX application programs. A number of companies offer a Winsock program, sometimes along with a suite of Internet protocol programs and applications. For example, Chameleon offers a suite that includes a Web browser, an FTP utility, a mail utility, and others. The Winsock program is included. The Trumpet Winsock is another popular stand-alone version. Winsock runs as a Windows dynamic link library (DLL) file. That is, it is loaded into the computer when an application needs it but doesn't need to be included as part of the application. If you have an older computer, when you initially get set up with Internet access, you may need to make sure you have the right version of Winsock for your operating system and the applications provided by the access provider. If your operating system provides one version and the application suite provided by the access provider provides another, one version of Winsock may need to be removed.

Winsock 2
Like Winsock, Winsock 2 is a programming interface and the supporting program that handles input/output requests for Internet applications in a Windows operating system. It's called Winsock because it's an adaptation for Windows of the Berkeley UNIX sockets interface. sockets is a particular convention for connecting with and exchanging data between two program processes. Winsock 2 is a 32-bit version of Winsock. Winsock 2 runs between an application program such as a Web browser and the program in your computer that handles TCP/IP. A request flows in the following order: Web browser or other applicationws2-32.dll (Winsock 2) Layers for TCP/IP (or certain other protocols) Modem or network cardThe Internet and destination Winsock 2 offers these advantages over Winsock: In addition to TCP/IP, it provides an interface to a variety of protocols, including IPX/SPX, ISDN and wireless protocols. An application can request multicast and other protocol services not supported by Winsock 1.1. It offers access to multiple name spaces. It offers an application the possibility of choosing services based on cost. Winsock 2 is included in the latest versions of the Windows operating systems.

Wired Equivalent Privacy
Pl. see WEP

Wireless Transport Layer Security
Pl. see WTLS

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Wolf
Pl. goat

World Wide Web
Pl. see WWW

WPAD
Web Proxy Autodiscovery (WPAD) is a proposed Internet protocol that allows a client, such as a Web browser or a streaming media application, to automatically locate and interface with cache services in a network so that information can be delivered more quickly to the user. A cache service stores copies of popular Web pages at a location closer to the users, usually on the outer edges of a network, for faster access. When a particular page is requested, the browser is directed to the cache service for that page instead of having to travel through the network to the originating site. Cache services are maintained and offered by Internet service providers (ISPs) and special cache-providing services such as Akamai. The first WPAD-enabled browser was Internet Explorer 5.0. WPAD is a joint effort of Inktomi, Microsoft, Real Networks, and Sun Microsystems. When an Internet session is started, the WPAD-enabled client automatically uses Dynamic Host Configuration Protocol (DHCP) to locate a cache service. If unsuccessful, WPAD then uses the Service Location Protocol (SLP). SLP is a protocol that allows network applications to discover the location and configuration of network services in an enterprise. If still unsuccessful, WPAD then searches through domain name system (DNS) records. Once a nearby cache service is located, WPAD automatically connects to that location for related page requests.

WSDL
The Web Services Description Language (WSDL) is an XML-based language used to describe the services a business offers and to provide a way for individuals and other businesses to access those services electronically. WSDL is the cornerstone of the Universal Description, Discovery, and Integration (UDDI) initiative spearheaded by Microsoft, IBM, and Ariba. UDDI is an XML-based registry for businesses worldwide, which enables businesses to list themselves and their services on the Internet. WSDL is the language used to do this. WSDL is derived from Microsoft's Simple Object Access Protocol (SOAP) and IBM's Network Accessible Service Specification Language (NASSL). WSDL replaces both NASSL and SOAP as the means of expressing business services in the UDDI registry.

WTLS
Wireless Transport Layer Security (WTLS) is the security level for Wireless Application Protocol (WAP) applications. Based on *Transport Layer Security* (TLS) v1.0 (a security layer used in the Internet, equivalent to Secure Socket Layer 3.1), WTLS was developed to address the problematic issues surrounding mobile network devices - such as limited processing power and memory capacity, and low bandwidth - and to provide adequate authentication, data integrity, and privacy protection mechanisms. Wireless transactions, such as those between a user and their bank, require stringent authentication and encryption to ensure security to protect the communication from attack during data transmission. Because mobile networks do not provide end-to-end security, TLS had to be modified to address the special needs of wireless users. Designed to support datagrams in a high latency,

low bandwidth environment, WTLS provides an optimized <u>handshake</u> through dynamic key refreshing, which allows <u>encryption</u> <u>key</u>s to be regularly updated during a secure session.

WWW

A technical definition of the World Wide Web is: all the resources and users on the Internet that are using the Hypertext Transfer Protocol (<u>HTTP</u>). A broader definition comes from the organization that Web inventor Tim Berners-Lee helped found, the World Wide Web Consortium (<u>W3C</u>): "The World Wide Web is the universe of network-accessible information, an embodiment of human knowledge."

Xalan

Xalan is a specification for transforming Extensible Markup Language (XML) documents into Hypertext Markup Language (HTML) or other XML document types. Xalan-Java version 1.2 is based on World Wide Web Consortium (W3C) recommendations for Extensible Stylesheet Language Transformations (XSLT) and XML Path Language (XPL). Xalan normally uses the Xerces XML parser, but it can use any parser that conforms to either Document Object Model (DOM) level 2 or Simple API for XML (SAX) level 1. Xalan-Java version 2 recasts Xalan as an implementation of Transformations for XML (TraX) interfaces. TRaX provides a modular framework and a standard application programming interface for performing an open-ended range of XML transformations. In conjunction with TRaX, Xalan-Java 2 relies on system properties to configure its operational settings. The default settings point to the Xalan stylesheet processor, the serializers shipped with Xalan, and the Xerces SAX parser. Xalan-Java version 2 builds on SAX level 2, DOM level 2, and the Java API for XML Parsing. Xalan-C++ version 1.0 is an implementation of W3C recommendations for XSLT and XPath. It uses the Xerces-C++ version 1.3.0 XML parser. LotusXSL, which used to be a specification in its own right, has been recast as a sub-specification of Xalan.

XDMA

XDMA (Xing Distributed Media Architecture) is a network architecture for multicast streaming media transmissions. Streaming media enables live viewing of a transmission as compared to processes that require that files be completely transferred to the user's computer before their data can be viewed. Unlike prior network architectures, XDMA enables low-cost multiple access. In general, multimedia network architectures have required point-to-point connections and complex server programming, which made the multicasting of streaming media impractical, if not impossible. XDMA was developed by Xing Technology, producers of the first MPEG software encoders and decoders. Xing was purchased by RealNetworks in 1999; the Seattle-based company's RealPlayer Plus and Microsoft's Windows Media Player are the two leading players of streaming media. The XDMA architecture supports live, on-demand multimedia transmission to multiple users over local area networks (LANs) or wide area networks (WANs) - such as the Internet - without requiring the use of file system applications such as Novell's NetWare or Sun Microsystem's Network File System (NFS). Because it is built on international standards such as TCP/IP and MPEG, XDMA is easily integrated into existing infrastructures.

Xerces

Xerces (the name comes from the Xerces blue butterfly) is a set of parsers compatible with Extensible Markup Language (XML). (A parser is a program that

analyzes and organizes formal language statements into a usable form for a given purpose.) Xerces parsers are available for <u>Java</u> and <u>C++</u>, implementing World Wide Web Consortium (<u>W3C</u>) XML, Document Object Model (<u>DOM</u>), and Simple API for XML (<u>SAX</u>) standards. All of the Xerces parsers are modular and configurable. A <u>Perl</u> <u>wrapper</u> is provided for the C++ version; this allows access to a fully-validating XML parser from Perl. It also provides access to <u>Unicode</u> strings. The Xerces Java Parser 1.2.0 supports XML 1.0, and can be used for building XML-compatible Web servers; building the next generation of XML-based vertical applications; creating XML editors; ensuring the integrity of XML data; and building global XML applications. Xerces-C is an XML parser written in a portable subset of C++. Xerces-C allows applications to read and write XML data. A shared library facilitates parsing, generating, manipulating, and validating XML documents. Other features include conformity to XML 1.0; tracking of latest DOM and SAX specifications; programmatic generation and validation of XML; pluggable catalogs, validators and encodings; and customizable error handling. XML4P includes a collection of Perl wrapper objects that internally use their XML4C counterparts for high-performance, scalable and localizable DOM parsing. Features include programmatic generation and validation of XML; conformity to DOM specifications; and customizable error handling.

XHTML

As the World Wide Web Consortium (<u>W3C</u>) describes it, XHTML (Extensible Hypertext Markup Language) is "a reformulation of <u>HTML 4.0</u> as an application of the Extensible Markup Language (<u>XML</u>)." For readers unacquainted with either term, HTML is the set of codes (that's the "markup language") that a writer puts into a document to make it displayable on the World Wide Web. HTML 4 is the current version of it. XML is a structured set of rules for how one might define any kind of <u>data</u> to be shared on the Web. It's called an "extensible" markup language because anyone can invent a particular set of markup for a particular purpose and as long as everyone uses it (the writer and an application program at the receiver's end), it can be adapted and used for many purposes - including, as it happens, describing the appearance of a Web page. That being the case, it seemed desirable to reframe HTML in terms of XML. The result is XHTML, a particular application of XML for "expressing" Web pages. XHTML is, in fact, the follow-on version of HTML 4. You could think of it as HTML 5, except that it is called XHTML 1.0. In XHTML, all HTML 4 <u>markup</u> elements and attributes (the language of HTML) will continue to be supported. Unlike HTML, however, XHTML can be extended by anyone that uses it. New elements and attributes can be defined and added to those that already exist, making possible new ways to embed content and programming in a Web page. In appearance, an XHTML file looks like a somewhat more elaborate HTML file. The advantages are "extensibility and portability." Extensibility means that as new ideas for Web communication and presentation emerge, they can be implemented without having to wait for the next major version of HTML and browser support. New tags or attributes can be defined to express the new possibilities and, assuming some program at the receiving end can understand and act on them, new things may happen on your Web page that never happened before. Specific sets of extensions for XHTML are planned for mathematical expressions, vector graphics, and multimedia applications. If extensibility is likely to lead to more complicated pages and larger programs, the portability advantage

means that Web pages can now be made simpler than they were before so that small devices can handle them. This is important for mobile devices and possibly household devices that contain microprocessors with embedded programming and smaller memories. XHTML defines several levels of possible markup complexity and each document states its level of complexity at the beginning. Programs in microdevices might expect XHTML-coded files that state the simplest level of complexity so that they could be handled by a small program and memory.

Differences and Distinctive Features. Some distinctive features of XHTML and differences between HTML 4: XHTML requires strict adherence to coding rules. Notably, it requires that you use closing as well as opening elements (this is known as *well-formed* syntax) and that all elements be in lower case. HTML was much less rigorous about notation and browsers tended to be even more forgiving. This means that XHTML files will tend to be "busier" than HTML. However, they won't necessarily be harder to read because rigor may force more order in coding. In addition, the major editing and file creation tools will probably lay out pages for easier readability. XHTML would seem to encourage a more structured and conceptual way of thinking about content and, combined with the style sheet, a more creative way of displaying it. XHTML will make it easier for people to dream up and add new elements (and develop browsers or other applications that support them).

XML

XML (Extensible Markup Language) is a flexible way to create common information formats and share both the format and the data on the World Wide Web, intranets, and elsewhere. For example, computer makers might agree on a standard or common way to describe the information about a computer product (processor speed, memory size, and so forth) and then describe the product information format with XML. Such a standard way of describing data would enable a user to send an intelligent agent (a program) to each computer maker's Web site, gather data, and then make a valid comparison. XML can be used by any individual or group of individuals or companies that wants to share information in a consistent way. XML, a formal recommendation from the World Wide Web Consortium (W3C), is similar to the language of today's Web pages, the Hypertext Markup Language (HTML). Both XML and HTML contain markup symbols to describe the contents of a page or file. HTML, however, describes the content of a Web page (mainly text and graphic images) only in terms of how it is to be displayed and interacted with. For example, the letter "p" placed within markup tags starts a new paragraph. XML describes the content in terms of what data is being described. For example, the word "phonenum" placed within markup tags could indicate that the data that followed was a phone number. This means that an XML file can be processed purely as data by a program or it can be stored with similar data on another computer or, like an HTML file, that it can be displayed. For example, depending on how the application in the receiving computer wanted to handle the phone number, it could be stored, displayed, or dialed. XML is "extensible" because, unlike HTML, the markup symbols are unlimited and self-defining. XML is actually a simpler and easier-to-use subset of the Standard Generalized Markup Language (SGML), the standard for how to create a document structure. It is expected that HTML and XML will be used together in many Web applications. XML markup, for example, may appear within an HTML page. Early applications of XML include Microsoft's Channel Definition Format (CDF), which describes a channel, a portion of a Web

site that has been downloaded to your hard disk and is then is updated periodically as information changes. A specific CDF file contains data that specifies an initial Web page and how frequently it is updated. Another early application is ChartWare, which uses XML as a way to describe medical charts so that they can be shared by doctors. Applications related to banking, e-commerce ordering, personal preference profiles, purchase orders, litigation documents, part lists, and many others are anticipated

XML Namespace

In general, a namespace uniquely identifies a set of names so that there is no ambiguity when objects having different origins but the same names are mixed together. Using the Extensible Markup Language (XML), an XML namespace is a collection of element type and attribute names. These element types and attribute names are uniquely identified by the name of the unique XML namespace of which they are a part. In an XML document, any element type or attribute name can thus have a two-part name consisting of the name of its namespace and then its local (functional) name. For example, suppose the same XML document included the element type of OWNER for owners of motorcycles as well as for owners of automobiles. It might be necessary or desirable to know that an owner name was one of those who owned a motorcyle rather than an automobile. Having different motorcycle and automobile namespaces would make this possible. Effectively, it would make it possible to label motorcycle owners differently than automobile owners without having to create a different element type for each. In XML, a namespace is commonly given the name of a Uniform Resource Identifier (URI) - such as a Web site's address - both because the namespace may be associated with the site or page of that URI (for example, a company name) and because a URI is conveniently likely to be a unique name. Note that the URI is not necessarily intended to be used other than as a name nor is there any namespace document or XML schema that must be accessed; the URI is simply used as a name (and part of the two-part name of any element type or attribute name so that the names are unique within the document).

XML Schema Definition

XSD (XML Schema Definition), a Recommendation of the World Wide Web Consortium (W3C), specifies how to formally describe the elements in an Extensible Markup Language (XML) document. This description can be used to verify that each item of content in a document adheres to the description of the element in which the content is to be placed. In general, a schema is an abstract representation of an object's characteristics and relationship to other objects. An XML schema represents the interrelationship between the attributes and elements of an XML object (for example, a document or a portion of a document). To create a schema for a document, you analyze its structure, defining each structural element as you encounter it. For example, within a schema for a document describing a Web site, you would define a Web site element, a Web page element, and other elements that describe possible content divisions within any page on that site. Just as in XML and HTML, elements are defined within a set of tags.

XSD has several advantages over earlier XML schema languages, such as document type definition (DTD) or Simple Object XML (SOX). For example, it's more direct: XSD, in contrast to the earlier languages, is written in XML, which means that it doesn't require intermediary processing by a parser. Other benefits

include self-documentation, automatic schema creation, and the ability to be queried through XML Transformations (XSLT). Despite the advantages of XSD, it has some detractors who claim, for example, that the language is unnecessarily complex.

XMT
The XMT (Extensible MPEG-4 Textual) format is the use of a textual syntax to represent MPEG-4 3-D scene descriptions. XMT was designed to provide content authors the ability to exchange their content with other authors while preserving their intentions in the text format. XMT provides interoperability between MPEG-4, Extensible 3D (X3D), and Synchronized Multimedia Integration Language (SMIL). X3D is a standard developed by the Web3D Consortium to replace Virtual Reality Modeling Language (VRML). The XMT format can be interchanged between SMIL, VRML, and MPEG-4 players. XMT consists of two levels: XMT-A format and XMT-? format. XMT-A is based on an Extensible Markup Language (XML) version of MPEG-4 content and contains a subset of X3D. XMT-?is based on SMIL. XMT-?provides authors with an escape mechanism from ?to A.

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XSL
XSL (Extensible Stylesheet Language), formerly called Extensible Style Language, is a language for creating a style sheet that describes how data sent over the Web using the Extensible Markup Language (XML) is to be presented to the user. For example, in an XML page that describes the characteristics of one or more automobiles for an insurance company, a set of open and close tags might contain the name of an auto manufacturer. Using XSL, you could tell the Web browser that the auto manufacturer name should be displayed, where to display it on a page, and that it should be displayed in a bold font. XSL is based on and extends the Document Style Semantics and Specification Language (DSSSL) and the Cascading

Style Sheet, level 1 (CSS1) standards. Think of an XML page as similar to an HTML page (like the one you are reading now), but containing data in identified fields rather than text and graphics. XSL gives a developer the tools to describe exactly which data fields in an XML file to display and exactly where and how to display them. Like any style sheet language, XSL can be used to create a style definition for one XML document or reused for many other XML documents. XSL is being developed under the auspices of the World Wide Web Consortium (W3C) and is currently in the working draft stage.

XSL Transformations

XSL Transformations (XSLT) is a standard way to describe how to transform (change) the structure of an XML (Extensible Markup Language) document into an XML document with a different structure. XSLT is a Recommendation of the World Wide Web Consortium (W3C). XSLT can be thought of as an extension of the Extensible Stylesheet Language (XSL). XSL is a language for formatting an XML document (for example, showing how the data described in the XML document should be presented in a Web page). XSLT shows how the XML document should be reorganized into another data structure (which could then be presented by following an XSL style sheet). XSLT is used to describe how to transform the *source tree* or data structure of an XML document into the *result tree* for a new XML document, which can be completely different in structure. The coding for the XSLT is also referred to as a style sheet and can be combined with an XSL style sheet or be used independently.

XSLT

Pl. see XSL

XSP

xSP is a generic term for any kind of service provider on the Internet. The two main kinds of service provider are the Internet service provider (ISP), which provides users with connection to the Internet and sometimes offers hosting and other services, and the application service provider (ASP), which provides remote access to one or more computer applications. An application service provider may be one of these kinds of xSP: (1) A storage service provider (SSP), (2) management service provider (MSP), (3) A business service provider (BSP), (4) A security application service provider (SASP), (5) A wireless application service provider (WASP) and so forth

Yahoo

Yahoo! is a directory of World Wide Web sites organized in a hierarchy of topic categories. As a directory, it provides both new and seasoned Web users the reassurance of a structured view of hundreds of thousands of Web sites and millions of Web pages. It also provides one of the best ways to search the Web for a given topic. Since Yahoo is associated with the most popular Web search sites, if a search argument doesn't lead to a Yahoo topic page, it will still lead to results from the six or seven popular search engine sites Yahoo links to. Yahoo! began as the bookmark lists of two Stanford University graduate students, David Filo and Jerry Yang. After putting their combined bookmark lists organized by categories on a college site, the list began to grow into an Internet phenomenon. It became the first such directory with a large following. Filo and Yang postponed their graduate work and became part of a public offering for a multimillion dollar corporation.

Zine
Pl. see eZine

Zombie
In the West Indies, a zombie is a will-less, automaton-like person who is said to have been revived from the dead and must now do the will of the living. There are at least three usages of the term related to computers and the Internet. (1) In the UNIX operating system world, developers sometimes use the term to refer to a program process that has died but hasn't yet given its process table entry back to the system. (2) On the World Wide Web, a zombie is an abandoned and sadly out-of-date Web site that for some reason has been moved to another Web address. It's a ghost site that appears to have moved. Zombies contribute to linkrot. (3) In at least one form of denial of service, one or more insecure Web servers are compromised by hackers who place code in each Web server that, when triggered, will launch an overwhelming number of requests toward an attacked Web site, which will soon be unable to service legitimate requests from its users. A compromised Web site that is used as an attack launch point is known as a zombie. Also see pulsing zombie.

Z Object Publishing Environment
Pl. see ZOPE

Zone file
A zone file is a small set of instructions for resolving specified Internet domain names to the appropriate number form of an Internet Protocol address (an IP address). These instructions are ordinarily quite simple and reside in a file on the server that administers a site. Zone files can be used with HTTP (Hypertext Transfer Protocol), FTP (File Transfer Protocol), or SMTP (Simple Mail Transfer Protocol) addresses. Ideally, a Web zone file should allow resolution of domains either with or without the three letters www. For example, both of these Internet addresses yield the same result:

Zope
Zope (Z Object Publishing Environment)is a Web site builder and server that uses the idea that it is serving (or "publishing") objects rather than merely providing content that will be added to a Web page. Zope's proponents believe that it is competitive with site builders and application servers such as ColdFusion and the Netscape Application Server. Zope software is free and uses open source code. Zope programmers describe Zope as "object publishing software." They propose that users are interacting directly with "real objects" rather than with dynamically updated files that are being served. Zope consists of a "publisher" that publishes the objects using Zope's Persistent CGI protocol; a framework for the folders, files,

and images that Zope views as "built-in objects"; an object database; a template for dynamic Web page generation; and <u>SQL</u> <u>method</u> and database adapters so that Zope can interact with data in popular database servers, such as Microsoft's SQL Server. By default, Zope's object database uses the operating system's <u>file system</u> to manage data. However, it can also work with relational database management systems. Specifically, Oracle, Sybase, MySQL, and <u>Open Database Connectivity</u> are supported. Zope is written in <u>Python</u>, an <u>interpreted</u>, interactive, <u>object-oriented programming</u> language similar to <u>Java</u>, with small pieces written in <u>C</u> for better performance. Web site developers using Zope do not need to use Python, however. Zope runs on all major operating system platforms.

Numbers & Signs

3-D browser

A 3-D browser is a Web browser that allows the viewer to view and interact with six Web pages at a time by creating a virtual room on the viewer's screen. Instead of opening six Web pages, minimizing your screen and toggling back and forth between pages, imagine you are standing inside a six-sided cube and each side of the cube is displaying a Web page. There is a Web page in front of you, a Web page on each side of you, a page above you, a page below you and a page behind you. You can use your cursor to rotate the cube and put any side of the cube directly in front of you. Links on all the pages are active, so you can click from page to page and change the "walls" of your virtual Web room. If you see something that catches your interest, you can use the zoom feature to enlarge the "wall" so that it becomes a traditional page viewed on your flat screen.

121

In Internet e-commerce, 121 is short for *one-to-one*, the philosophy that treating each customer as a special individual is a more successful approach than treating customers as a group of similar individuals

404

404 is a frequently-seen status code that tells a Web user that a requested page is "Not found." 404 and other status codes are part of the Web's Hypertext Transfer Protocol (HTTP), written in 1992 by the Web's inventor, Tim Berners-Lee. He took many of the status codes from the earlier Internet protocol for transferring files, the File Transfer Protocol (FTP.)

What to Do If You Get a 404

If the site no longer exists, there's nothing you can do. However, it only takes one mistyped character to result in a 404. See whether the ".htm" should be an ".html" or vice versa. If you're linking from a Web site, you can do a "View source" to make sure it wasn't miscoded. Whether or not it is, you may want to send a note to the Webmaster so that the link can be fixed for the next users.

How to Handle 404s If You Have a Web Site

Here are some things one can do:

Use a Web site analysis tool such as Web Trends or Weblog to identify links that result in 404s, then fix the links. (1) Change the Uniform Resource Locator (URL) for a page on your site, retain the old URL as a redirect file, putting a message on it and inserting a META element with a REFRESH to change to the new URL in a specified number of seconds. (2) You can create the page contents for a 404 status code page and substitute it for the 404 page that the browser usually provides. This will allow you to personalize the message and encourage the user to send a note to the Webmaster so that the situation can be fixed.

80

If you occasionally see a mysterious "80" on the name of a Web server that is handling your request for Web pages, this is a bit of technical stuff showing through when perhaps it shouldn't. A Web server sits and waits for requests from clients (such as your Web browser). Most Web servers are set up to "awaken" and

respond to requests from clients whose Uniform Resource Locator (URL) requests include "port 80" as part of their information. When you see the "80" showing up in the server address at the bottom of your screen, all it means is that the server uses the usual default port number. (You don't usually see this because some servers can be set up so that this number is not visible to the browser user.)

Also see well-known port numbers.

@

On the Internet, @ (pronounced "at" or "at sign" or "address sign") is the symbol in an e-mail address that separates the name of the user from the user's Internet address, as in this hypothetical e-mail address example: msmuffet@tuffet.org. In business, @ is a symbol meaning "at" or "each." For example, it means "each" in "4 apples @ $.35 = $1.40." Perhaps because it was one of the standard characters designed into typewriters (usually with the upper shift key pressed), the @ was chosen for inclusion as one of the special characters in the ASCII set of characters that became standard for computer keyboards, programs, and online message transmission. In July, 1972, as the specifications for the File Transfer Protocol (FTP) were being written, someone suggested including some e-mail programs written by Ray Tomlinson, an engineer at Bolt Beranek and Newman, chief contractor on ARPANET (Advanced Research Projects Agency Network), the precursor of the Internet. In their book, *Where Wizards Stay Up Late*, Katie Hafner and Matthew Lyon describe how the @ sign got there: Tomlinson....became better known for a brilliant (he called it obvious) decision he made while writing [the e-mail] programs. He needed a way to separate, in the e-mail address, the name of the user from the machine the user was on. How should that be denoted? He wanted a character that would not, under any circumstances, be found in the user's name. He looked down at the keyboard he was using, a Model 33 Teletype, which almost everyone else on the Net used, too. In addition to the letters and numerals there were about a dozen punctuation marks. "I got there first, so I got to choose any punctuation I wanted," Tomlinson said. "I chose the @ sign." The character also had the advantage of meaning "at" the designated institution. He had no idea he was creating an icon for the wired world.

PTA

Government of Pakistan
Pakistan Telecommunication Authority
Islamabad

Shahzada Alam Malik
Chairman

TO WHOM IT MAY CONCERN

Mr. Ahmad Nadeem Syed has done a commendable job by compiling the two books on Internet and Telecommunication, containing all commonly used acronyms and terms. These books are certainly useful for telecom, Internet professional and students.

I appreciate his efforts in this regard.

11. 11. 2002

Mr. Ahmad Nadeem Syed is a telecom professional having vast and progressive experience in the areas of strategic business planning and development, financial management, research & analyses and project management with in depth knowledge of technology, obtained by working in cellular phone, Internet and data communication sectors.

He was part of the team for preparation of Information Technology policy of Pakistan. He has played vital role for the development of telecom industry in Pakistan contributing on various regulatory and financial matters. He shares his knowledge and experience by writing articles about telecommunication, published in the leading daily English newspapers.

The book in hand in fact is a small encyclopedia, giving sufficient explanation on various avenues of telecom technology, which are chained together and could be generally found in the same book. It is organized in alphabetical order on the pattern of any dictionary. Each term has been presented in the form of a continuous paragraph for continuity purpose. Wherever necessary, bullet points have been used to describe features, types and characteristics. The terms and acronyms are not merely defined but are explained in detail. Any term/acronym used within each of the explanation is underlined so that the reader not only becomes aware but also registers the same in mind subconsciously. The reader will be able to study the related terms so underlined generally within the same book elsewhere. The book also describes, certain products, services and protocols, which are offered by various international organizations of the industry and have become world industry standards. All the terms have been presented without any changes or amendments as they were downloaded from highly authentic web sites.

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