

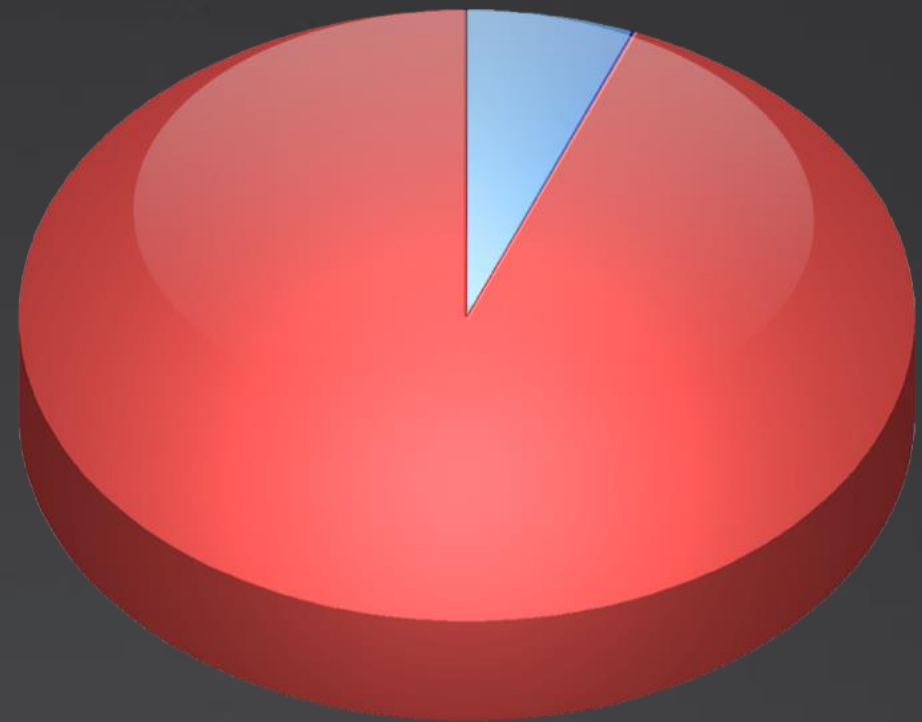
Storing 100 Petabytes of Cloud Data without Going Broke.

What	MSST Conference
When	May 2014
Who	Gleb Budman, CEO



1 of 2 People Lose
Data Each Year

But, 90% Of People
Still Do Not Backup



Source: Backblaze research shows 46% of its customers restore data each year.

Harris Interactive Survey conducted June 28 - 30, 2011; Details available at:
<http://www.backblaze.com/press-June-is-Backup-Awareness-Month-2011.html>



Backup Online

Backup Online

Restore Easily





\$5/Month Unlimited



Unlimited Storage



Just \$5/Month

Amazon S3?



\$5/Month = 30 GB

Buy a storage
system?



Subtotal: **\$1,000,000.99**



Build it?

Where to start?



Toss the
unnecessary

Essential

\$\$



Non-Essential



99.99%
uptime



Prototype fast –
plywood works









Use consumer parts –
stay away from IT tax



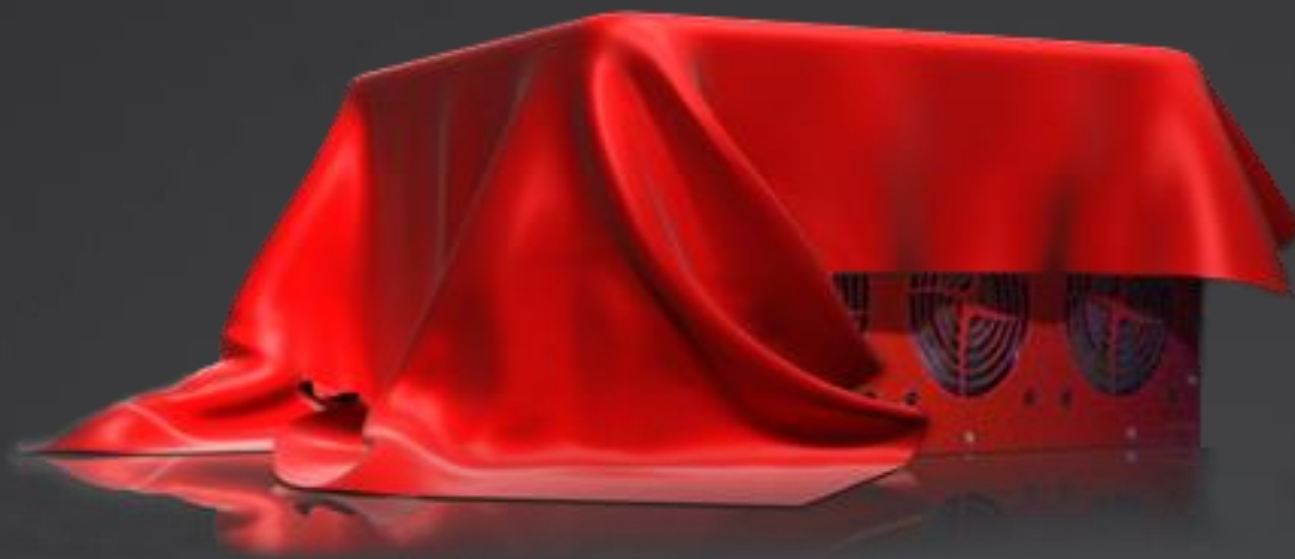
Server Power Supply VS Desktop Power Supply



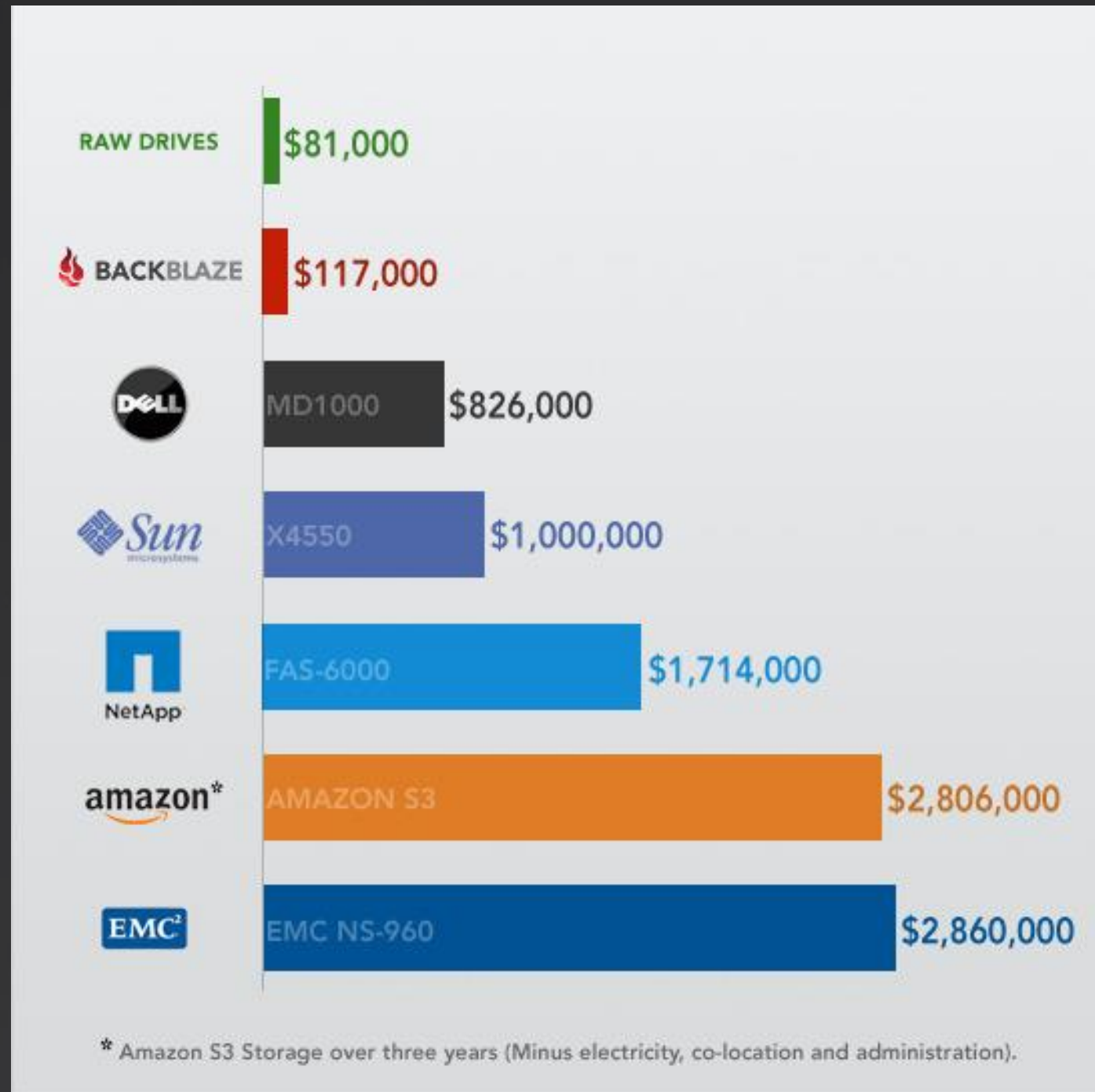
Test, fix, repeat



180 Terabytes for \$9,300

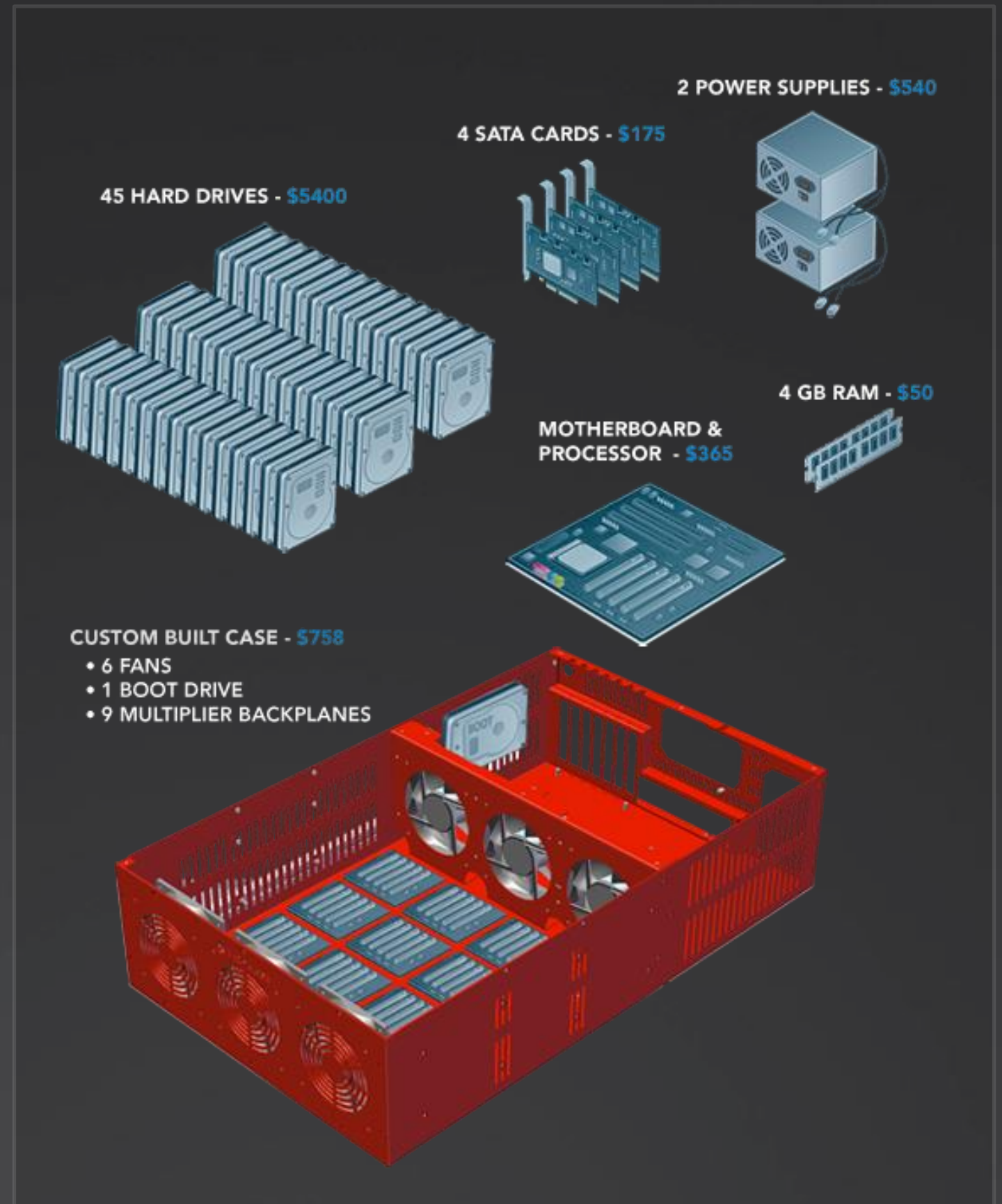


Cost of a Petabyte (pod v1.0)

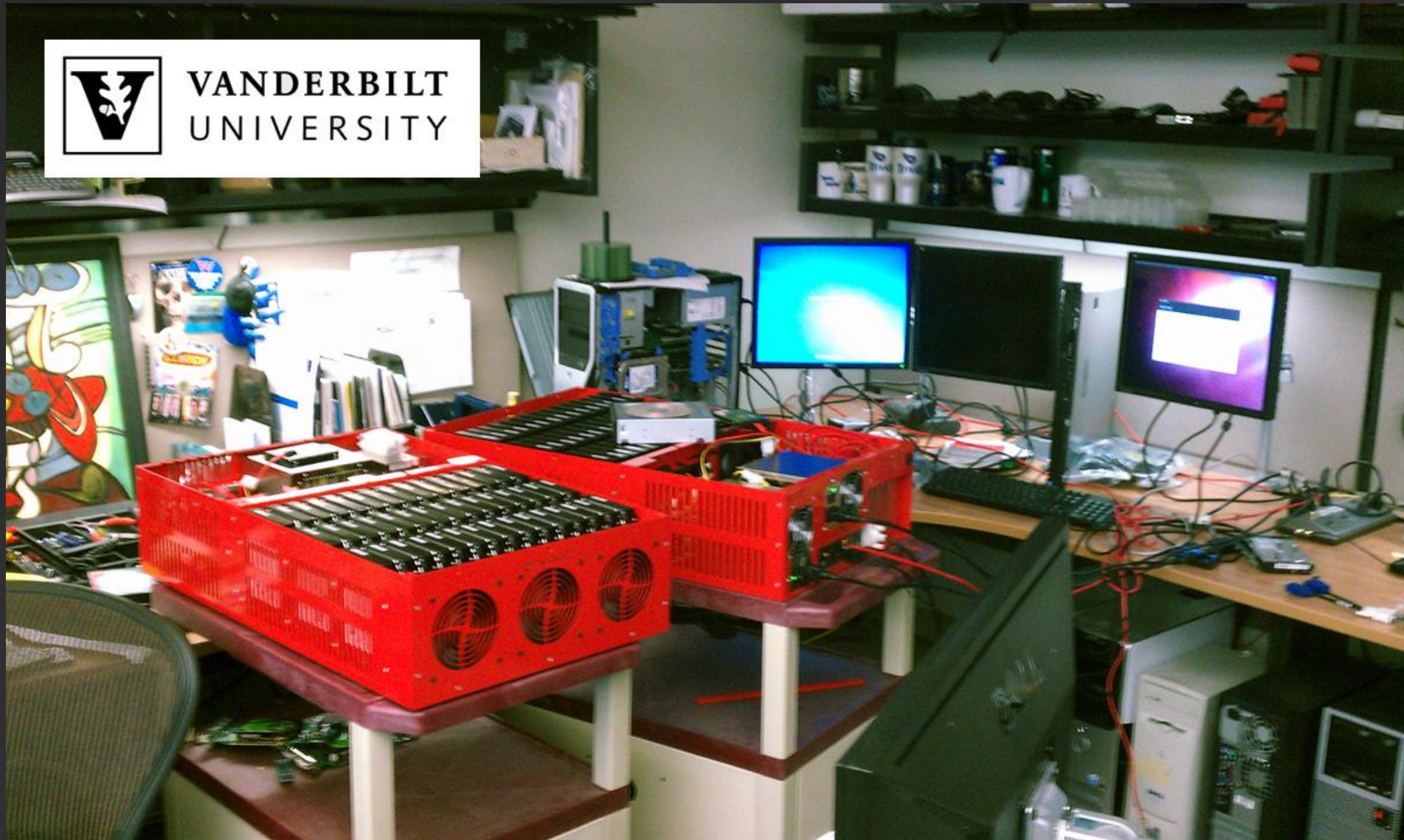


Open Sourced

Search “petabytes on a budget”



Vanderbilt University



JPL Nasa



Crispin Porter + Bogusky



Red Bull



Shutterfly



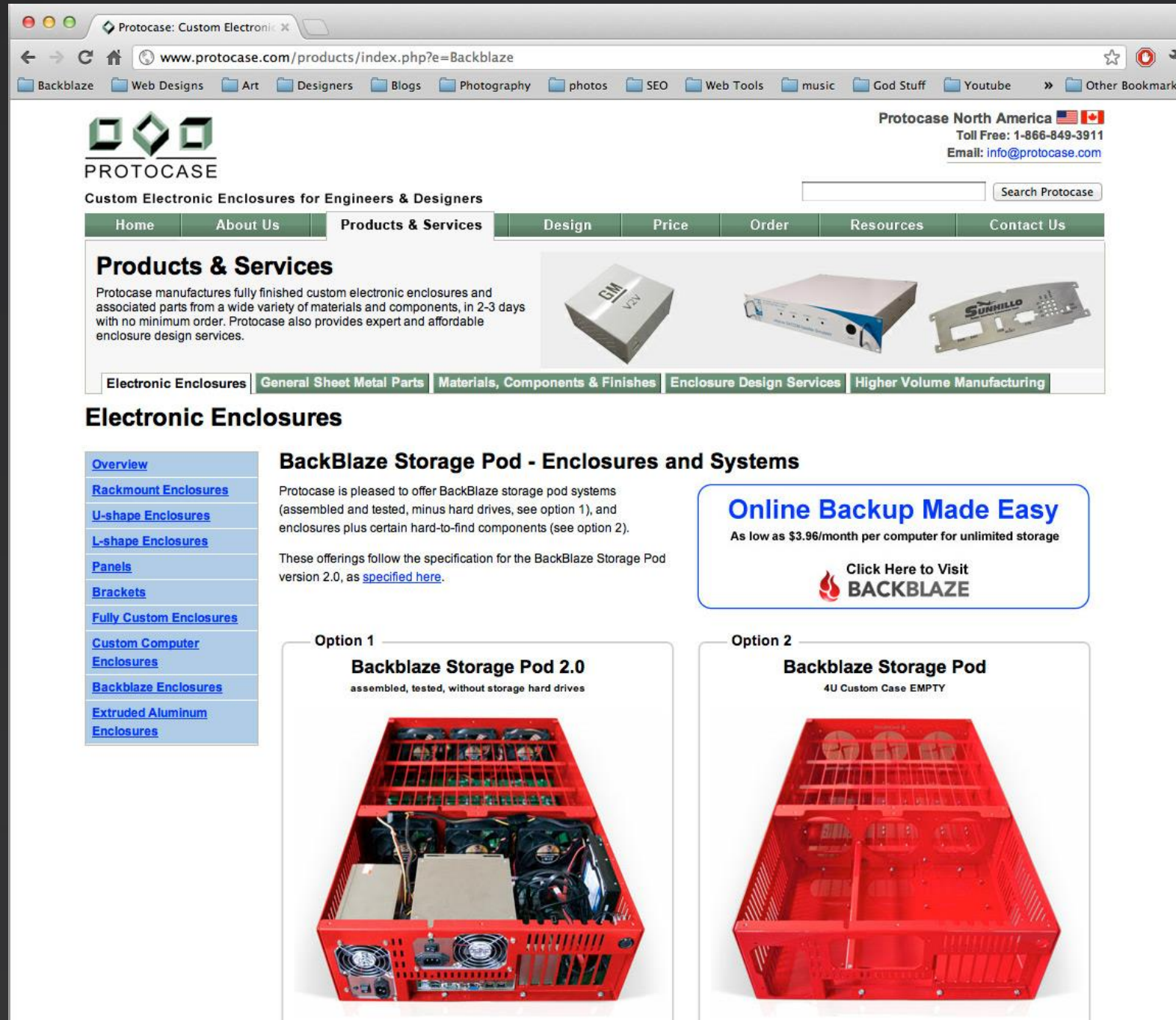
Netflix Open Connect



Facebook Open Compute



Multiple Vendors




Protocase: Custom Electronic X

www.protocase.com/products/index.php?e=Backblaze

Backblaze Web Designs Art Designers Blogs Photography photos SEO Web Tools music God Stuff Youtube Other Bookmarks

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Electronic Enclosures

- [Overview](#)
- [Rackmount Enclosures](#)
- [U-shape Enclosures](#)
- [L-shape Enclosures](#)
- [Panels](#)
- [Brackets](#)
- [Fully Custom Enclosures](#)
- [Custom Computer Enclosures](#)
- [Backblaze Enclosures](#)
- [Extruded Aluminum Enclosures](#)


BackBlaze Storage Pod - Enclosures and Systems

Protocase is pleased to offer BackBlaze storage pod systems (assembled and tested, minus hard drives, see option 1), and enclosures plus certain hard-to-find components (see option 2).

These offerings follow the specification for the BackBlaze Storage Pod version 2.0, as [specified here](#).


Online Backup Made Easy

As low as \$3.96/month per computer for unlimited storage

 [Click Here to Visit BACKBLAZE](#)


Option 1

Backblaze Storage Pod 2.0
assembled, tested, without storage hard drives



Option 2

Backblaze Storage Pod
4U Custom Case EMPTY





700 Pods / 100 Petabytes





ca000.backblaze.com/bzadmin/pods_mgmt2.htm

Account Lookup Backblaze F...ms BBPress Forum Admin Backblaze Forum Local WordPress > Login Apple > Vereor Nos Backblaze Intranet Google ski-epic Pod Ordering SpriteMe

ca000 - Pods Mgmt

Available Clusters: ca000 ca001

Pods Mgmt

Customer Account Mgmt

BzAdmin User Mgmt

Stats Portal

Finance

Sign Out

Summary Data

Last Update:

12/18/13 01:49 PM

Free TB:

3774.54

Available TB

1200.76 (Reserved: 470.0)

Total TB:

53264.05

Current Connections:

8900

Burn Rate / Connections:

38.28 / 7635 (0.0050)

Doomsday Clock:

13.7 - 27.6 days

Full Volumes (< 50 MB)

Refresh Page

Auto Refresh

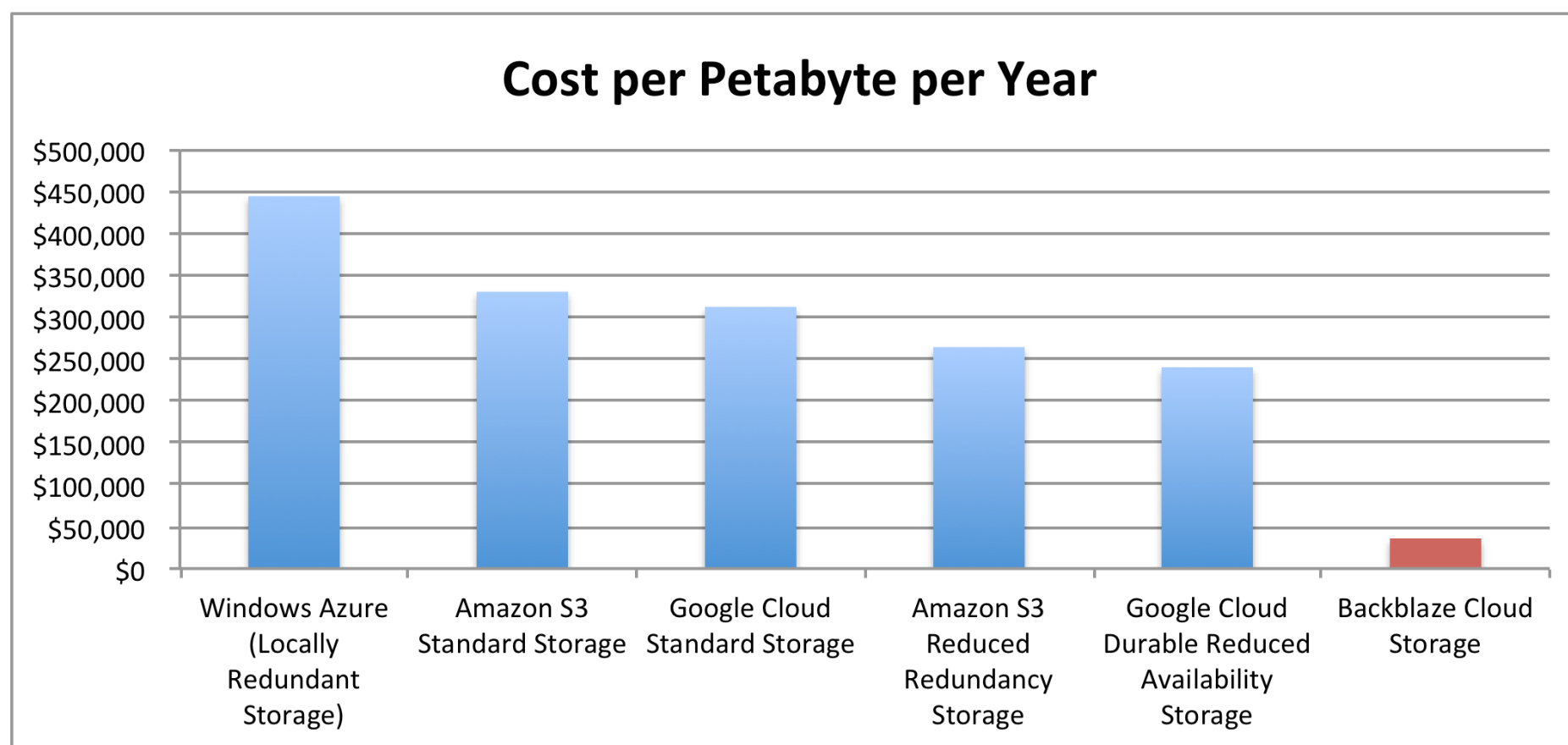
Debug | Throttle | Load Balancer | Global Pod Config | Add Pod | Sync Vols

Pod ID	Max Conn	Free TB	Total TB	Cur Conn	Target Conn	State	Maint	Raid Status	Build Date	Notes
566						all		all	all	
u1000 (stats)	450	2.94	104.74	38	36	active			10/01/13	2013.11.15 sata_sil24 freeze - replaced all sata cards; EXT4; 2013.10.15 - random
u1001 (stats)	0	34.2	53.16	0	0	maintenance			10/01/13	REPLACE sdk (missing); BIOS upgraded to 107;
u1002 (stats)	375	1.38	69.77	6	7	active			10/01/13	ext4; MOVED TO SAC; Intel DG43NB BIOS 107; Tomcat reduced to 1G w/ 64k thresh
u1003 (stats)	0	10.67	35.12	0	0	cleanup_only			10/01/13	BIOS updated to 107
u1004 (stats)	0	20.43	31.52	0	0	cleanup_only			10/01/13	BIOS 107;
u1005 (stats)	700	1.45	69.77	9	8	active			10/01/13	(700); MOVED TO SAC; ext4
u1006 (stats)	700	1.59	69.77	10	11	active			10/01/13	(700); MOVED TO SAC; ext4; all sata cards replaced 8-21-2012; system restarted 04
u1007 (stats)	0	15.82	31.52	0	0	cleanup_only			10/01/13	Add Note
u1008 (stats)	0	20.03	31.52	0	0	cleanup_only			10/01/13	Add Note
u1009 (stats)	0	21.81	35.12	0	0	cleanup_only			10/01/13	Intel BIOS 107;
u1010 (stats)	0	15.08	31.52	0	0	cleanup_only			10/01/13	Intel BIOS 107;
u1011 (stats)	0	13.92	31.52	0	0	cleanup_only			10/01/13	Intel DG43NB BIOS 107
u1012 (stats)	375	1.67	69.77	11	13	active			10/01/13	(375); MOVED TO SAC; ext4
u1013 (stats)	0	13.86	31.52	1	0	cleanup_only			10/01/13	BIOS 107
u1014 (stats)	0	14.4	31.52	1	0	cleanup_only			10/01/13	BIOS 107; fans/r;
u1015 (stats)	0	18.16	35.12	0	0	cleanup_only			10/01/13	JFS Repairs on 11-1-2012; Intel DG43NB; BIOS 107
u1016 (stats)	0	15.53	35.12	0	0	cleanup_only			10/01/13	BIOS 107
u1017 (stats)	0	14.35	35.12	0	0	cleanup_only			10/01/13	Intel DG43NB BIOS 107
u1018 (stats)	700	1.4	69.77	11	8	active			10/01/13	(700); MOVED TO SAC; ext4
u1019 (stats)	0	24.9	41.35	0	0	cleanup_only			10/01/13	BIOS 107; 3 new SATA cards 10-8-13; Cocktail Pod
u1020 (stats)	0	34.39	53.16	0	0	cleanup_only			10/01/13	Intel DG43NB BIOS 107;
u1021 (stats)	0	33.79	53.16	0	0	cleanup_only			10/01/13	Intel BIOS 107;
u1022 (stats)	0	33.74	53.16	0	0	cleanup_only			10/01/13	BIOS 107
u1023 (stats)	0	121.36	139.65	0	0	cleanup_only			10/01/13	Accelerated Healing started 2013.11.19 -Ric; MIGRATION complete to u1980; NEW P
u1024 (stats)	0	34.13	53.16	0	0	cleanup_only			10/01/13	BIOS updated to 107
u1025 (stats)	300	81.01	139.65	0	0	maintenance			10/01/13	TODO Motherboard and Power Supplies referb; unreachable 12-6-2013 - most likel
u1026 (stats)	0	32.16	53.16	0	0	cleanup_only			10/01/13	BIOS updated to 107
u1027 (stats)	0	33.43	53.16	0	0	maintenance			10/01/13	REPLACE sdp (media errors); BIOS updated to 107
u1028 (stats)	700	1.58	69.77	12	11	active			10/01/13	(700); MOVED TO SAC; New SuperMicro; ext4
u1029 (stats)	450	2.47	139.65	27	27	active			10/01/13	#believed healthy chassis# Boot drive replaced and reimaged; s/n 054189-003; RMA
u1030 (stats)	0	33.38	53.16	0	0	cleanup_only			10/01/13	Intel BIOS 107



Cloud Storage Cost Comparison

\$/GB/mo	\$/GB/yr	\$/Petabyte/yr	Cloud Storage Service	Times x Backblaze
\$0.037	\$0.44	\$444,000	Windows Azure (Locally Redundant Storage)	12
\$0.028	\$0.33	\$330,000	Amazon S3 Standard Storage	9
\$0.026	\$0.31	\$312,000	Google Cloud Standard Storage	9
\$0.022	\$0.26	\$264,000	Amazon S3 Reduced Redundancy Storage	7
\$0.020	\$0.24	\$240,000	Google Cloud Durable Reduced Availability Storage	7
\$0.003	\$0.04	\$36,000	Backblaze Cloud Storage	1



Note: updated on April 13, 2014 with all reduced prices announced.

Do-it-Yourself?

PROS

Control

Optimization

Cost

CONS

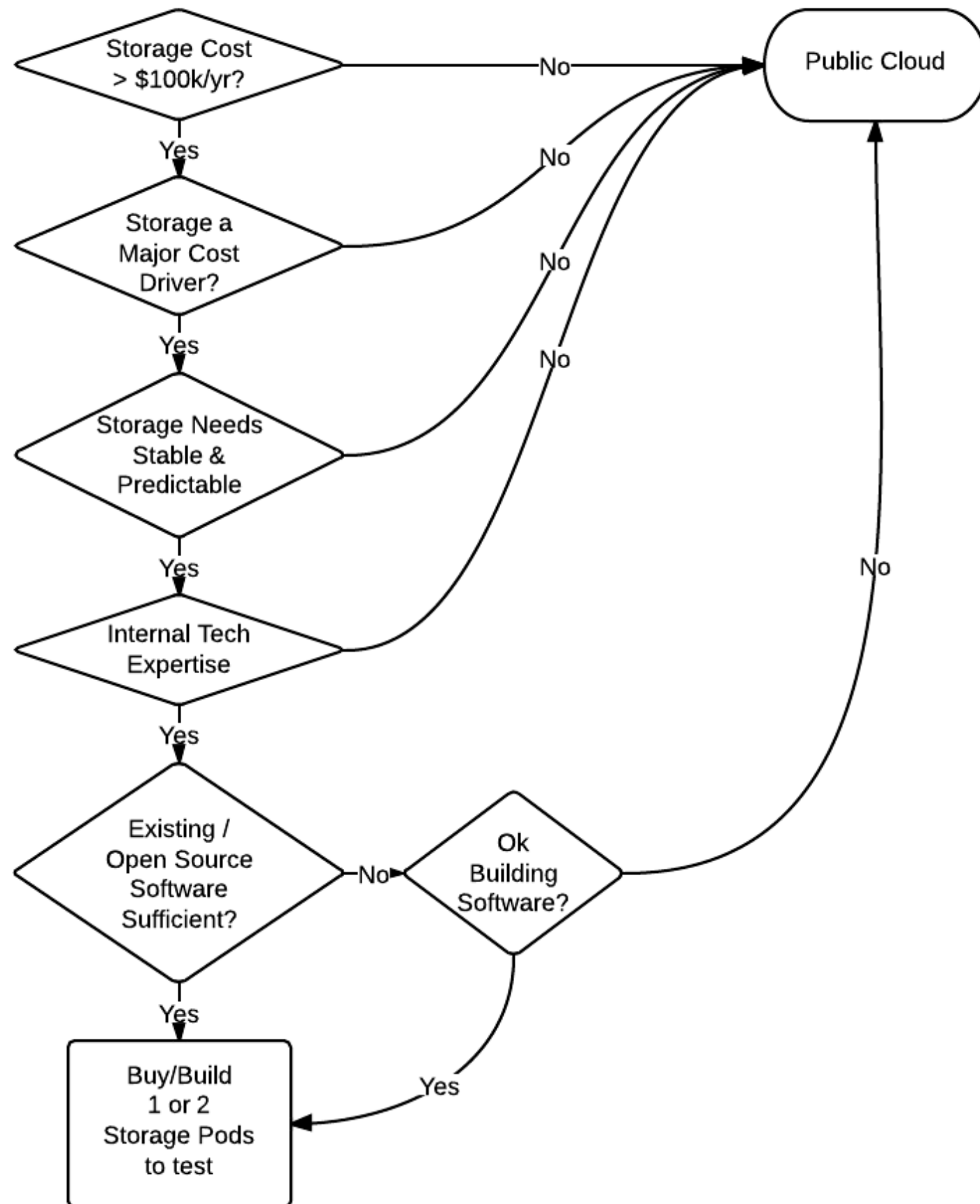
Distraction

Risk

Cost?

Do-it-Yourself Considerations

- Staffing
- Inventory
- Management
- Purchasing
- Assembly
- Operating
- Upgrading
- Scalability



Resources

Hard Drives

[Testing a Backblaze Hard Drive](#)

[How Long Do Disk Drives Last?](#)

[Enterprise Drives: Fact or Fiction?](#)

[What Hard Drive Should I Buy?](#)

[Hard Drive Temperature – Does It Matter?](#)

Storage Pod

[v1.0: Petabytes on a Budget: How To Build Cheap Cloud Storage](#)

[v2.0: Revealing More Secrets](#)

[v3.0: 180TB of Good Vibrations](#)

[v4.0: Direct Wire Drives – Faster, Simpler and Less Expensive](#)

Additional Resources At: blog.backblaze.com

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