

# **btctrackr :** **Finding and Displaying** **Clusters in Bitcoin**

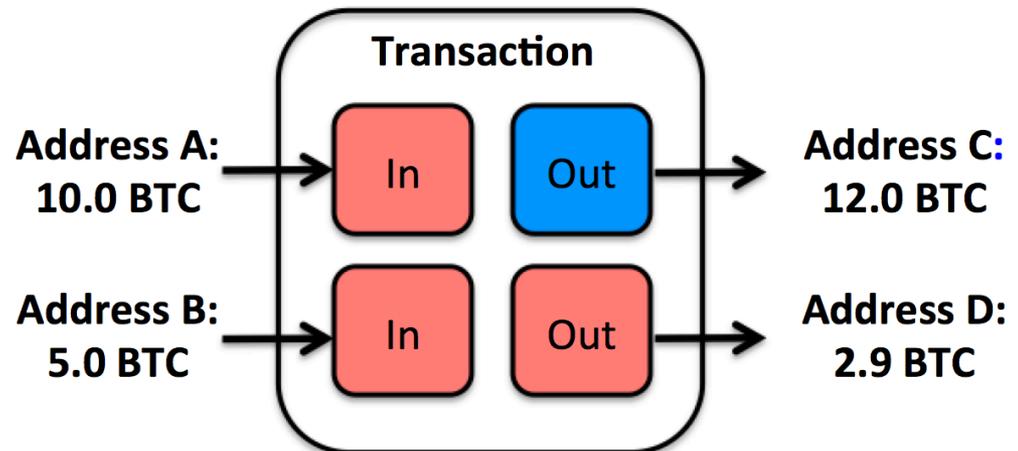
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# Overview

- Motivation (Fistful of Bitcoins)
- Challenges and Goals
- btctrackr System
  - Parser
  - Database
  - Website
- Demonstration
- Evaluation
- Future Work

# Motivation (Fistful of Bitcoins)

- Improve upon Existing Address Clustering
  - Heuristic 1 – All inputs
  - Heuristic 2 – Change Addresses
- Current Implementation
  - Need significant by hand cleaning
  - Not in real-time
- Znort Parser

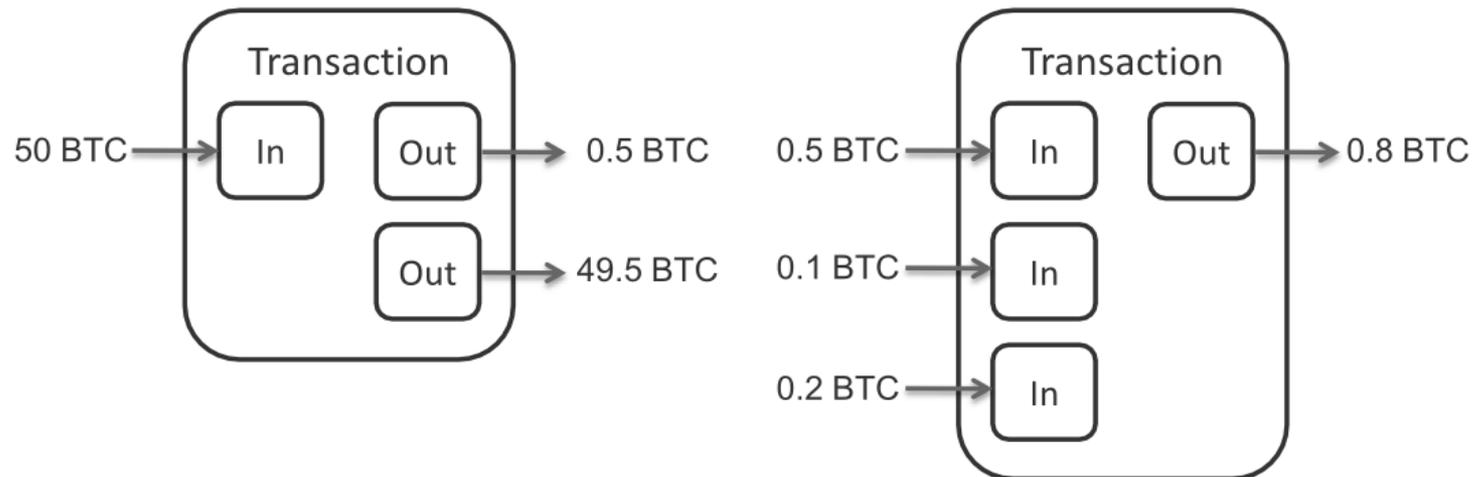


# Goals / Challenges

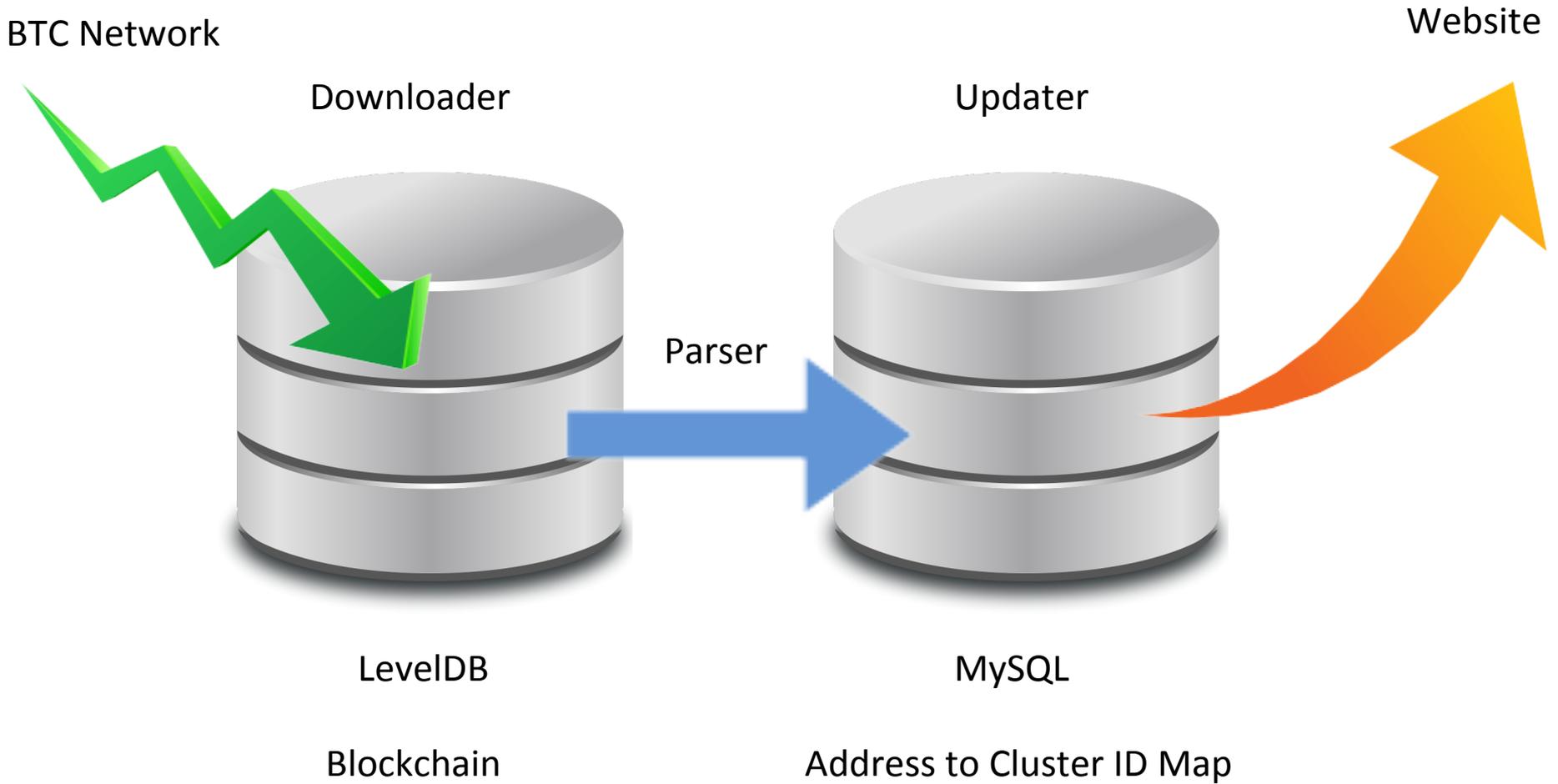
- Challenges
  - Resource management
  - Continually updating information
  - Legacy block chain information
  - Integration of systems
- System Goals
  - Real-time responses
  - Accurate
  - Expandable

# btctrackr: Parser

- Libbitcoin
- Three Steps
  - Find clustering transactions
  - Find input addresses of transaction
  - Keep track of connected components



# btctrackr: Database



# btctracker - Website

## Track



Enter an address to find out which other addresses likely belong to the same person.

15iGN5CAkTarcoY85XxwTYWajJyz5hxbYv

Track

## Shortest Path



Enter two addresses to find their shortest connecting path.

3J98t1WpEZ73CNmQviecrnyiWrnqRhWNLy



15iGN5CAkTarcoY85XxwTYWajJyz5hxbYv

Shortest Path

## Cluster Balances



The address **1KCszN2rch9SMPagTS1r2QeGt7h9P7ehne** (0 ₿) likely belongs to an entity controlling 59 other addresses and 0 ₿.

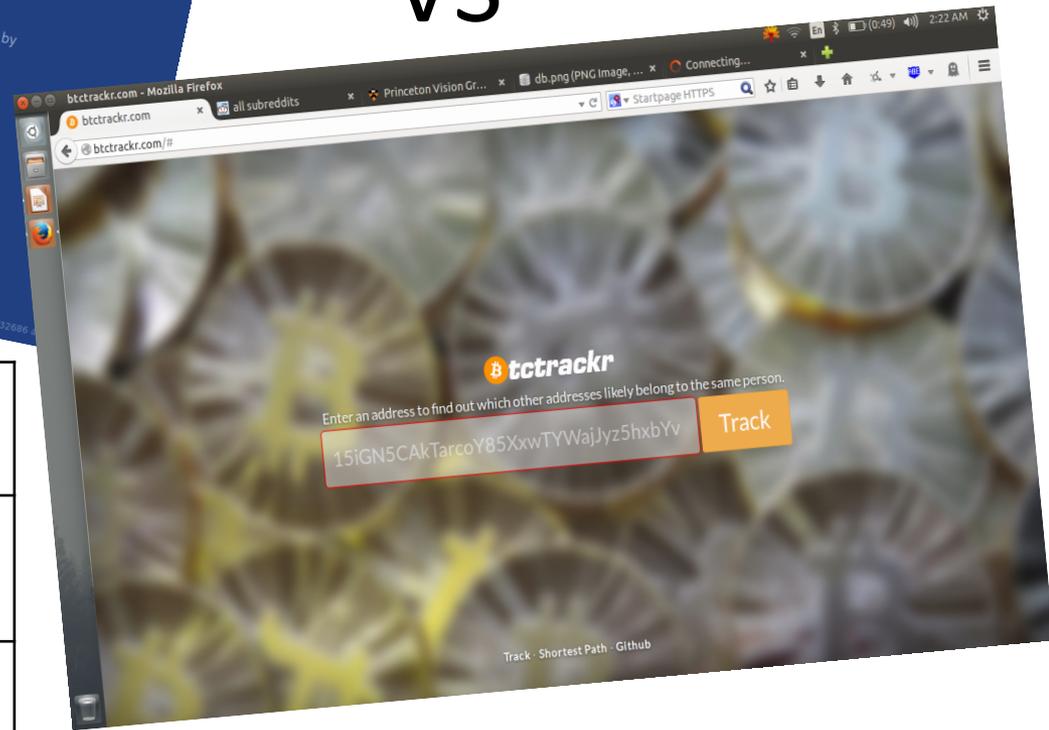
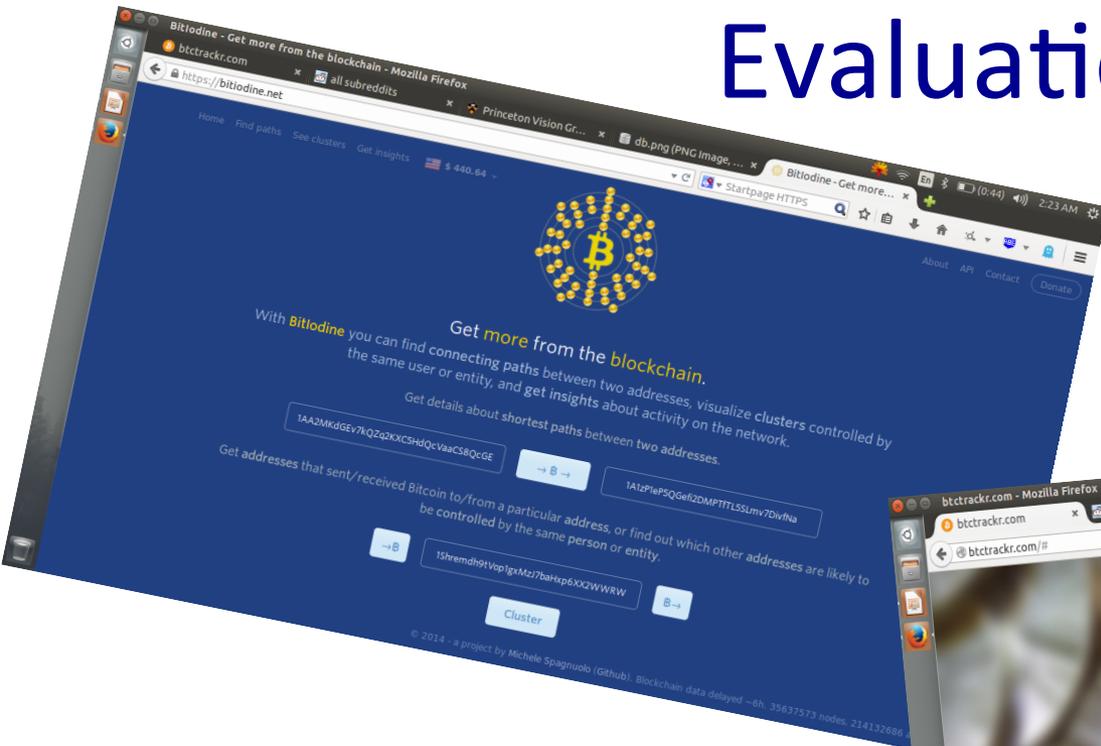
- 1112cfXeJap7ph4eJyGMxdKV63dMqAGJA (0 ₿)
- 115kBURFyLpoHYaHkHaR53Dah2Au4oMPcD (0 ₿)
- 12jn5UKnA393WnPcEQzT2VQavDz2RaDFis (0 ₿)
- 12S5HaA2KqHqxjsgCxQZafuefWSsNcVKs3 (0 ₿)
- 139XRbcUerNFDud6nmW7354GGjc9K4d41p (0 ₿)
- 14pbaDjFKxjcCJCBDyqMK3jMgjwH5Pzw9A (0 ₿)
- 14T6tX5w2dvvq54FRX9gKdgUpXX43Huhow (0 ₿)
- 154eBsTnVRLLkRYPdz88cMvAKPXPJcx5ME (0 ₿)
- 156SgGubQC44UvkuA6fPzWxJWVncEjno7 (0 ₿)
- 158t3VZjRFyXQvcsydmzAv5KBbVtagm8Pe (0 ₿)
- 15BTysPZA57Qyj5gzFyroXYNGRRbNu8n96 (0 ₿)
- 15GznXHkRkwlz3D9BcVUcFLqYzdJqyoqq6 (0 ₿)
- 15HDdWRJ9zYZxGdCes1gicNURLBuJiuVES (0 ₿)
- 16LSQHmwrSW1M54QLpTXEPk49CMorSGCza (0 ₿)
- 171Y4B13xLvoEHIsr34FeFSwoC2aBciekC (0 ₿)
- 17FhZZJ7ZziaQC5kJYUTHikBnnZdRb182k (0 ₿)
- 17gd6BJpBStt36fKj14fRjts6oYYiKyMK4 (0 ₿)
- 17JLFY9KjPS8dkMy33RJ5yiGN1P6K68JZZ (0 ₿)
- 181j7x6SraKRrK2KEWP5W3Szrd417BERxf (0 ₿)
- 18Fzbd1bdn5Qe3b5wP8F4Tb2zYxvAtMwRC (0 ₿)



**DEMO**

# Evaluation

VS



	False Negative %
btctrackr*	35.8
Bitlodine	54.2

- at the time of this evaluation btctrackr only had 200,000 blocks parsed

# Future Work

- Increased speed for balances
- Increased accuracy for 1-hop paths
- Cluster labeling
- Advanced Features:
  - Implementation of the change heuristic
  - Labeling and Identifying well-known cluster
  - Tracking IP addresses