

BlockMaps

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Agenda

What is BlockMaps ?

Who is BlockMaps For?

BlockMaps System Overview

Intermission From Slides: Demo

Examples of Visualization Output

Analysis & Learning Outcomes

Future Works & BlockMaps

Conclusions

A decorative bar chart at the bottom of the slide, consisting of numerous vertical bars of varying heights and shades of gray, creating a rhythmic pattern.



What is **BlockMaps** ?

- Implemented with **Typescript** and **Neo4j** tools.
- Built for blockchain **analysis** and **visualization**.
- Data source is the **ethereum blockchain** node.
- Displays an **augmented** network visualization.



Who is **BlockMaps** Built For ?

- **Developers** with interest in building blockchain analysis tools - can leverage as base model.
- **Service providers** on the ethereum blockchain platform - analyze network traffic & nodes (users).
- **Network users** trading or trusting - can visually assess activity of addresses and exchanges.



BlockMaps: An Overview

Capture Data

Parity Node
Ethereum Blockchain
Neo4j Graph DB
Stream Data
Typescript

Analyze

Community Detection

Identify exchanges, users, pools
Strongly Connected Components

Pagerank

Infer node properties
Traffic analysis
Score node links

Augment Visualization

Color Categorization
Node Relationships
Hover Information
Address Search
Arrow Size

Display

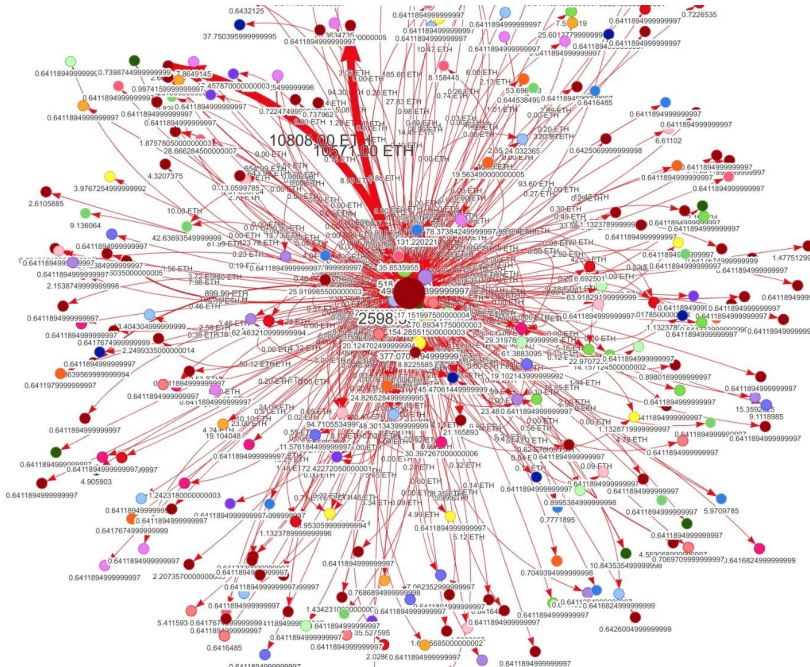
Augmentation
Neo4j Graph
Typescript

Demo

To be shown:

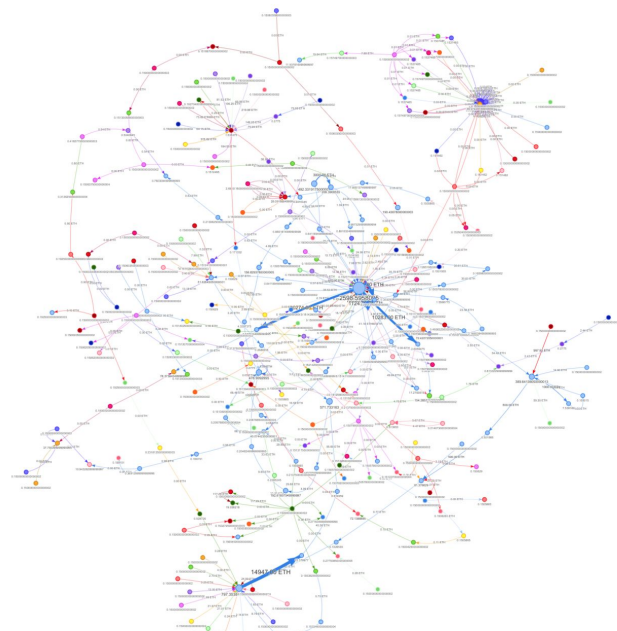
- *Capture ethereum blockchain information**
- *Analyze node (address) data & network traffic*
- *Produce augmented visualization of network*

**Only a slice, it's a lot of data.*



Visualization of Pagerank on Network

Result of running pagerank on nodes in the given ethereum blockchain graph.



Network Visualization From Seed Node

Result of visualization from a given seed node address on the ethereum blockchain. All nested shown.

What Did We End Up With?

- A great graph visualization (**augmented**)
- Blockchain network **traffic analysis** tools
- Node (address) **category detection** tools
- Opportunity for **future works** with our model



What Did We **Learn** From Analysis ?

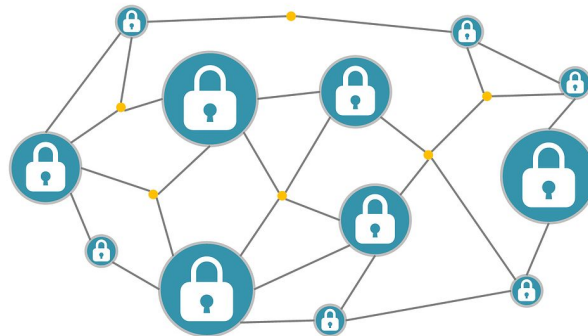
- Scoring nodes by popularity with **pagerank** will reveal **high profile addresses**; often **exchanges** or **mining pools**.
- Running **community detection** algorithms on scored nodes produce categories; and infer node **“types”**.
- System gained the **knowledge to augment** the networks graph visualization - dynamic based on user activity.

Future Works & BlockMaps ?

- Our project possibilities and for others.
- A more suitable user interface - **dashboard?**
- Serves as a **data model** for future work with ethereum blockchain data.
- Learning **transactional habits** can lead to contextual user experiences.

Related Works & Honorable Reference

- BlockGeeks
<https://blockgeeks.com/>
- Neo4j
<https://neo4j.com/>
- Parity Node
<https://www.parity.io/>
- Chainalysis
<https://www.chainalysis.com/>



Conclusions

