

What is Ethereum?

An Ethusiast's Guide to the New Web

Adrian Manning

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What is Ethereum?

Turing Complete... EVM Something... ?

- Turing Complete
- Ethereum Virtual Machine
- Decentralised Programs
- Programmable money
- Unstoppable, immutable code

“Ethereum is a decentralized platform that runs smart contracts: applications that run exactly as programmed without any possibility of downtime, censorship, fraud or third party interference.” - The Ethereum Foundation

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“The Holy Trinity”



swarm



whisper

The Holy Trinity

Ethereum

Provides programmable, decentralised logic. i.e
Programmable Money

Whisper

Secure anonymous messaging between nodes on the network. i.e Communication between Decentralised Applications.

Swarm

Decentralised, distributed file storage. i.e
decentralized Dropbox.

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The Current Web is Broken!

Web 1.0

Largely static websites where content is served to users. Little to no input from users, often coined the “Read-Only” web.

Web 2.0 ← We live here

Users provide content which is typically hosted on large centralized servers, eg Facebook, Youtube, Google, etc. Advertisers pay content producer's hosting, at the cost of independent creative control.

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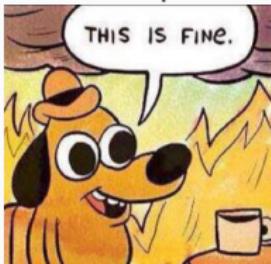
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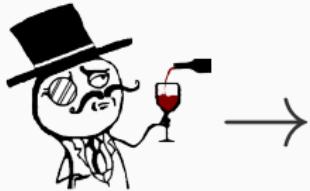
Web 3.0



Adrian



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Gravitational Waves from the Phase Transition of a Non-linearly Realised Electroweak Gauge Symmetry

Archil Kobakhidze, Adrian Manning and Jason Yue

ARC Centre of Excellence for Particle Physics at the Terascale, School of Physics, The University of Sydney, NSW 2006, Australia

*E-mail: Archil.Kobakhidze@sydney.edu.au,
Adrian.Manning@sydney.edu.au, Jason.Yue@sydney.edu.au*

ABSTRACT: Within the Standard Model with non-linearly realised electroweak symmetry, the LHC Higgs boson may reside in a singlet representation of the gauge group. Several new interactions are then allowed, including anomalous Higgs self-couplings, which may drive the electroweak phase transition to be strongly first-order. In this paper we investigate the cosmological electroweak phase transition in a simplified model with an anomalous Higgs cubic self-coupling. We look at the feasibility of detecting gravitational waves produced during such a transition in the early universe by future space-based experiments. We find that for the range of relatively large cubic couplings, $111 \text{ GeV} \lesssim |\kappa| \lesssim 118 \text{ GeV}$, \sim mHz frequency gravitational waves can be observed by eLISA, while BBO will potentially be able to detect waves in a wider frequency range, $0.1 - 10$ mHz.

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Home Web
Server





Paul



Paul



Paul



Home Web
Server



Web 2.0



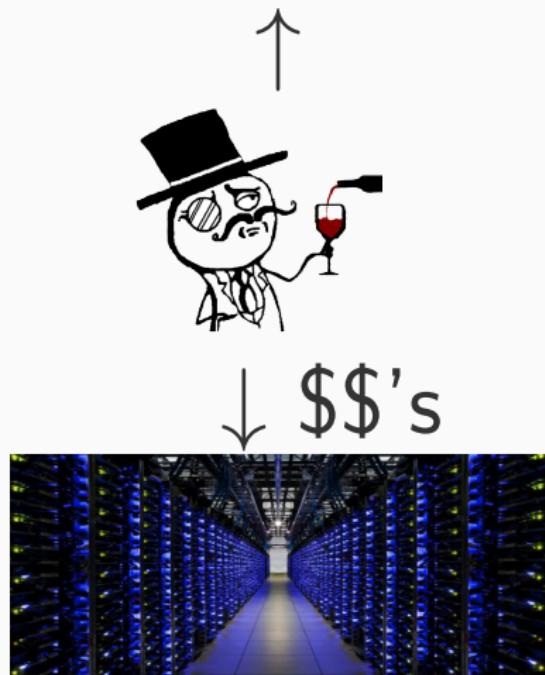
Web 2.0



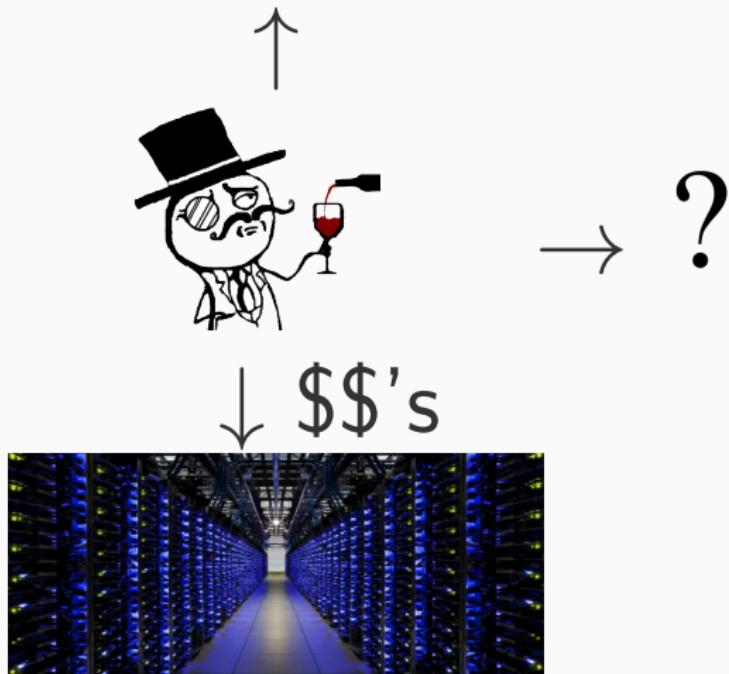
↓ \$\$\$'s



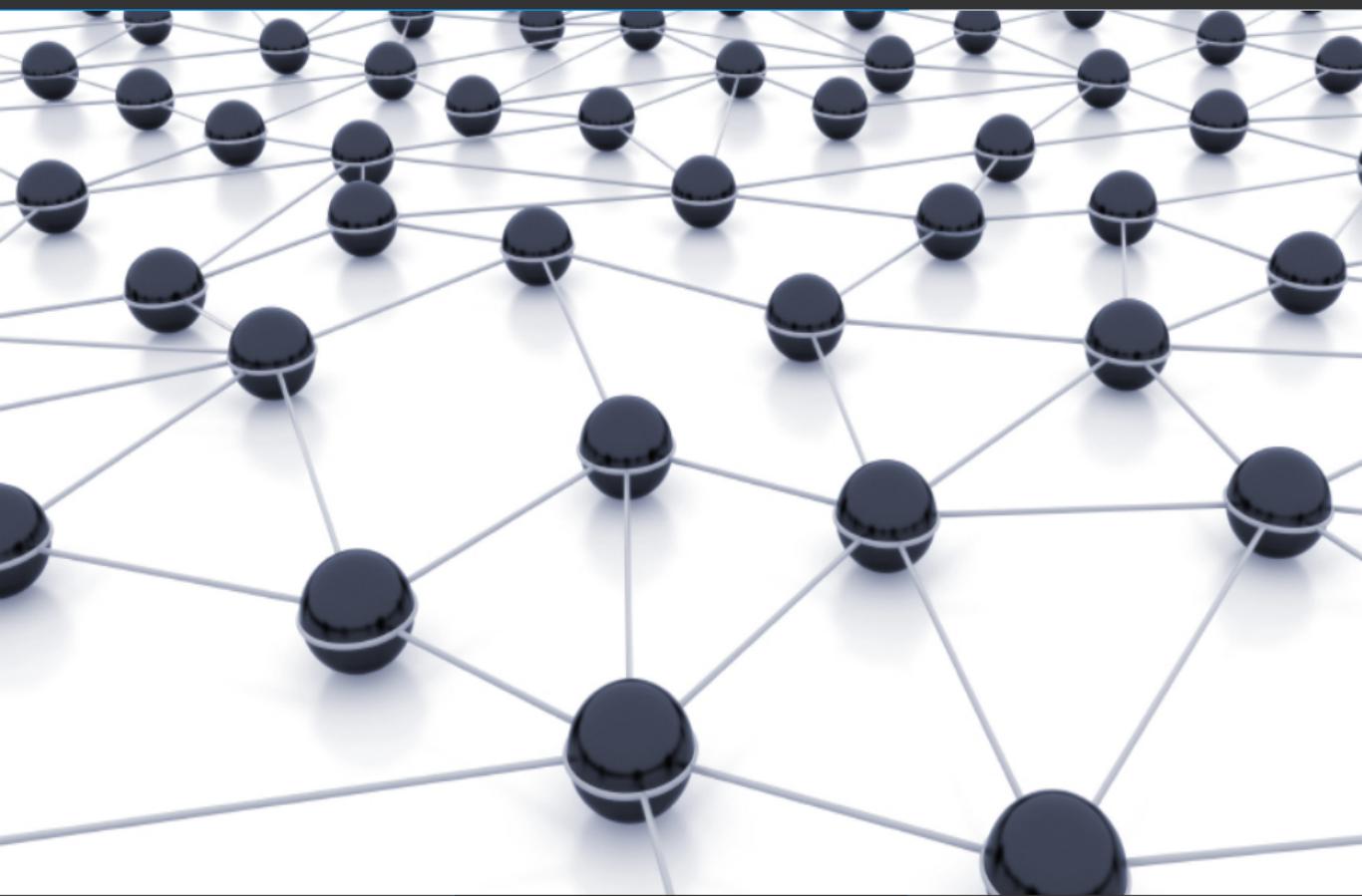
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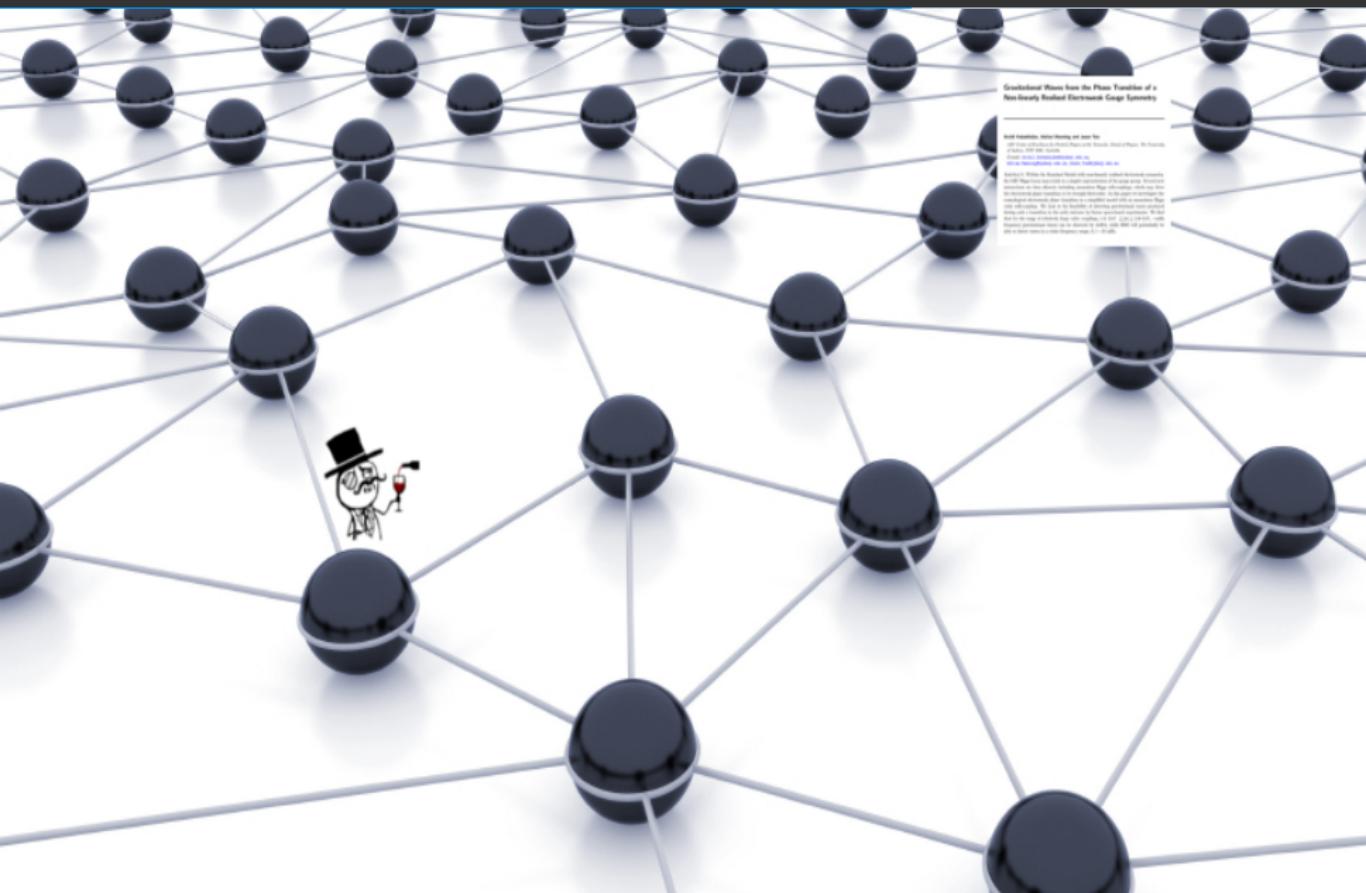
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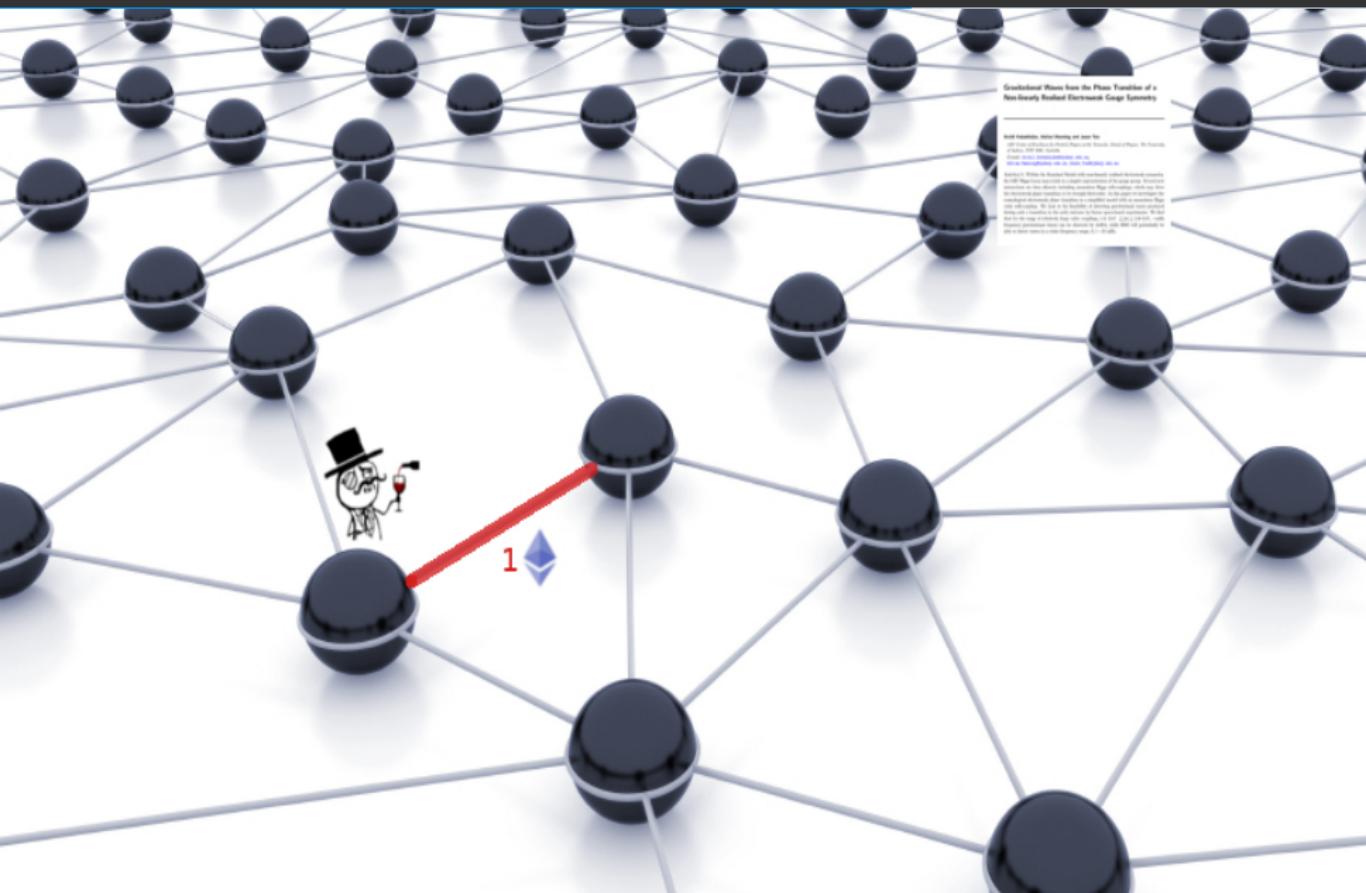
Introducing Swarm



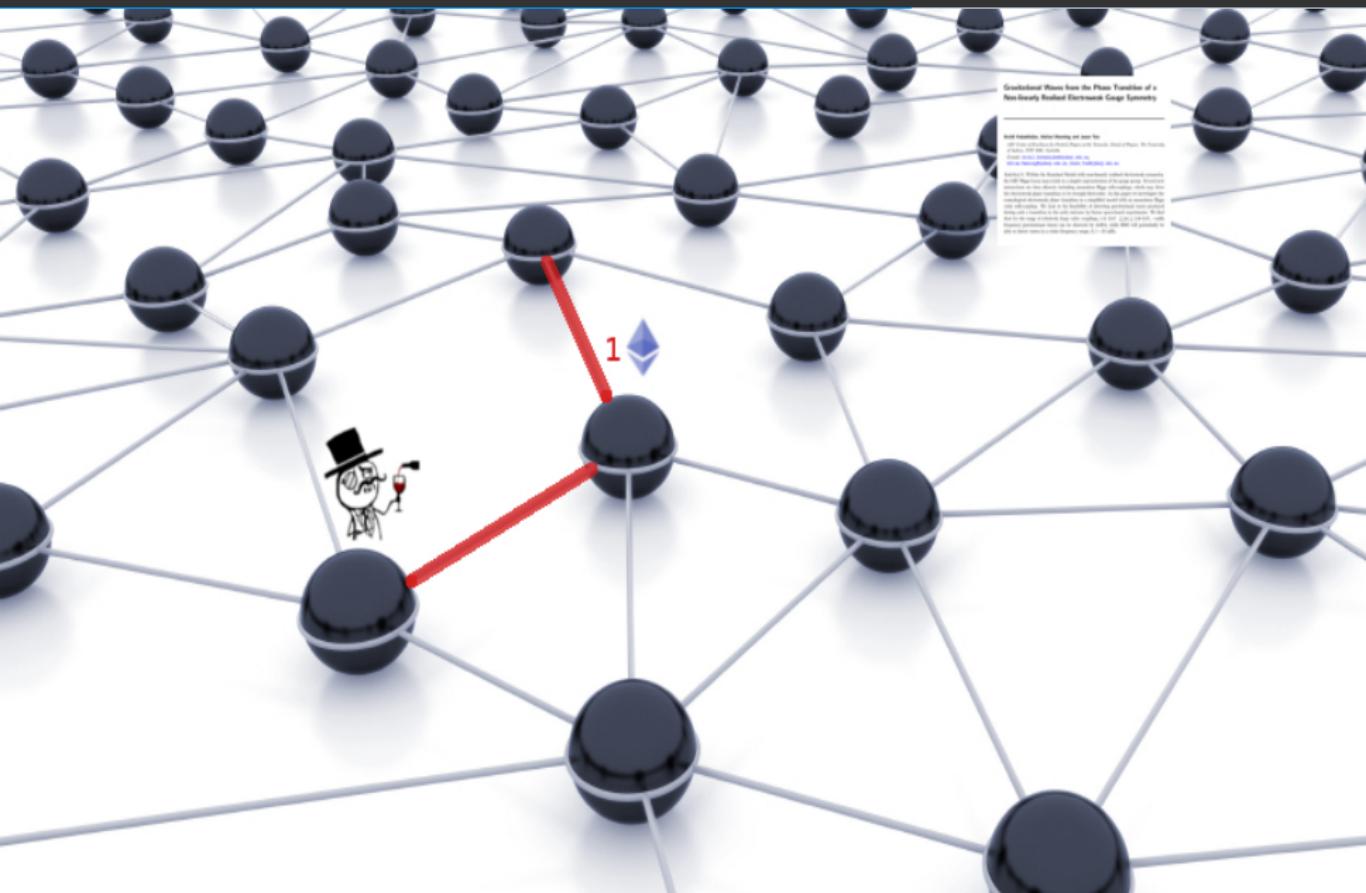
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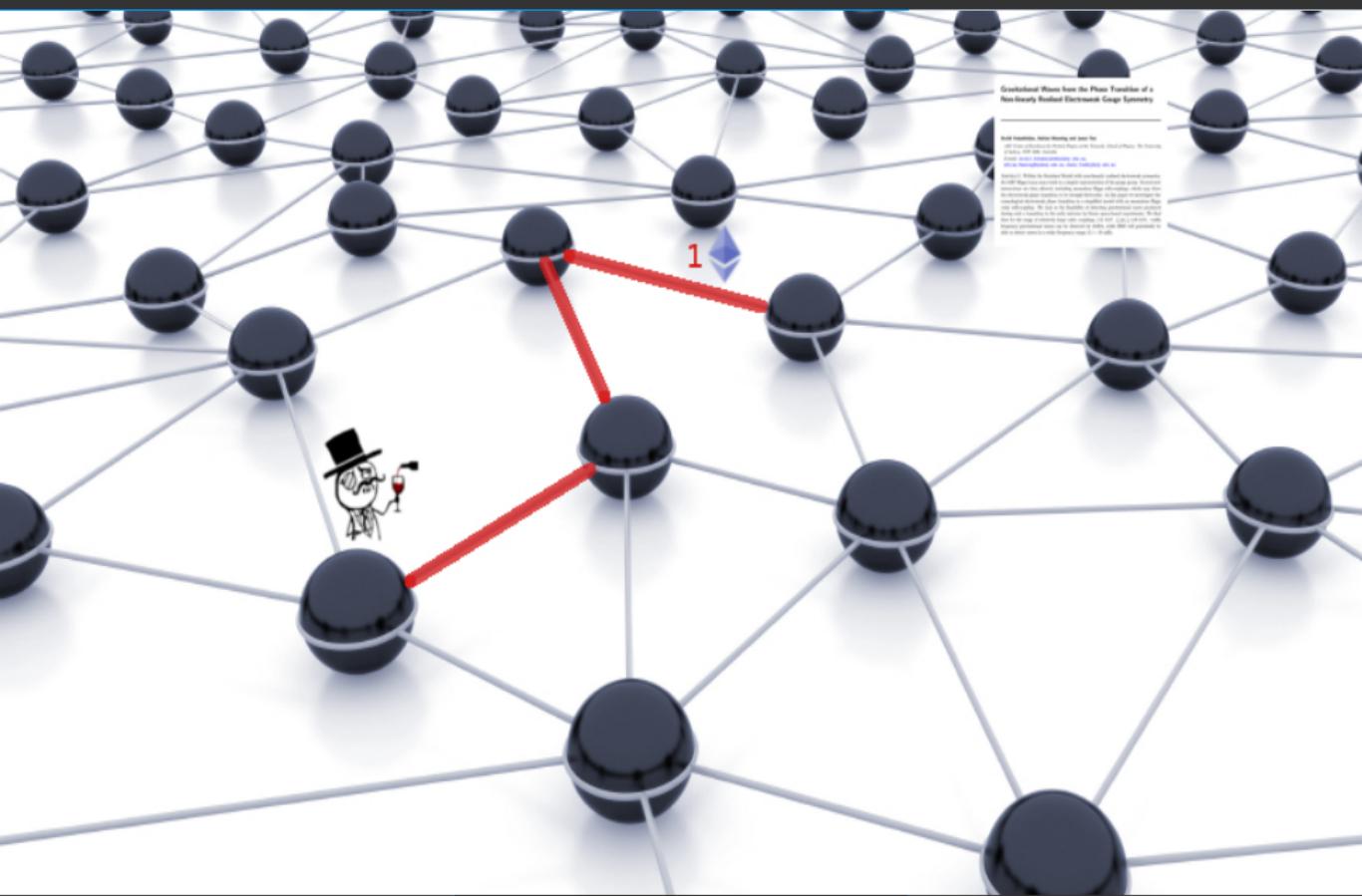
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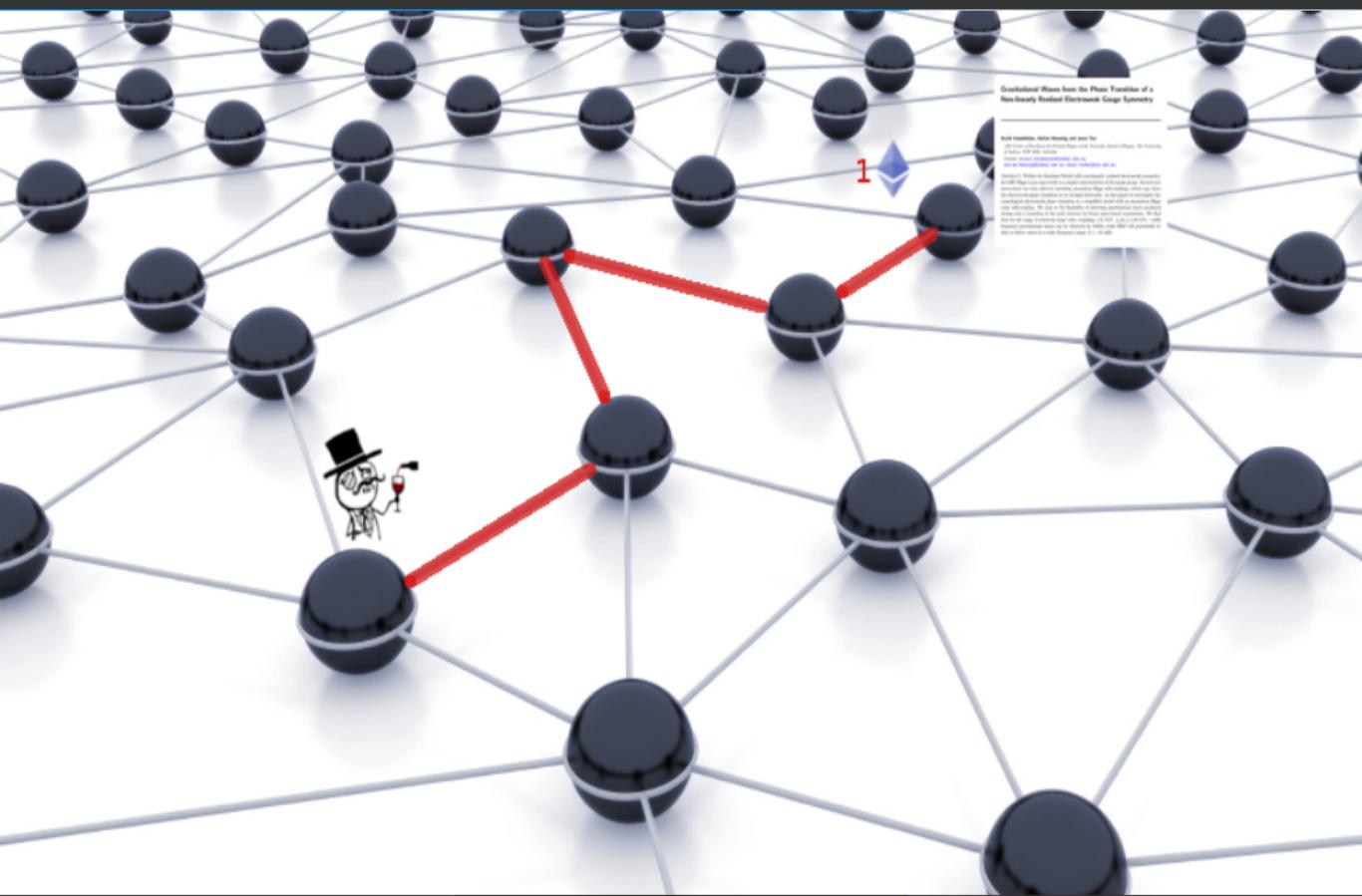
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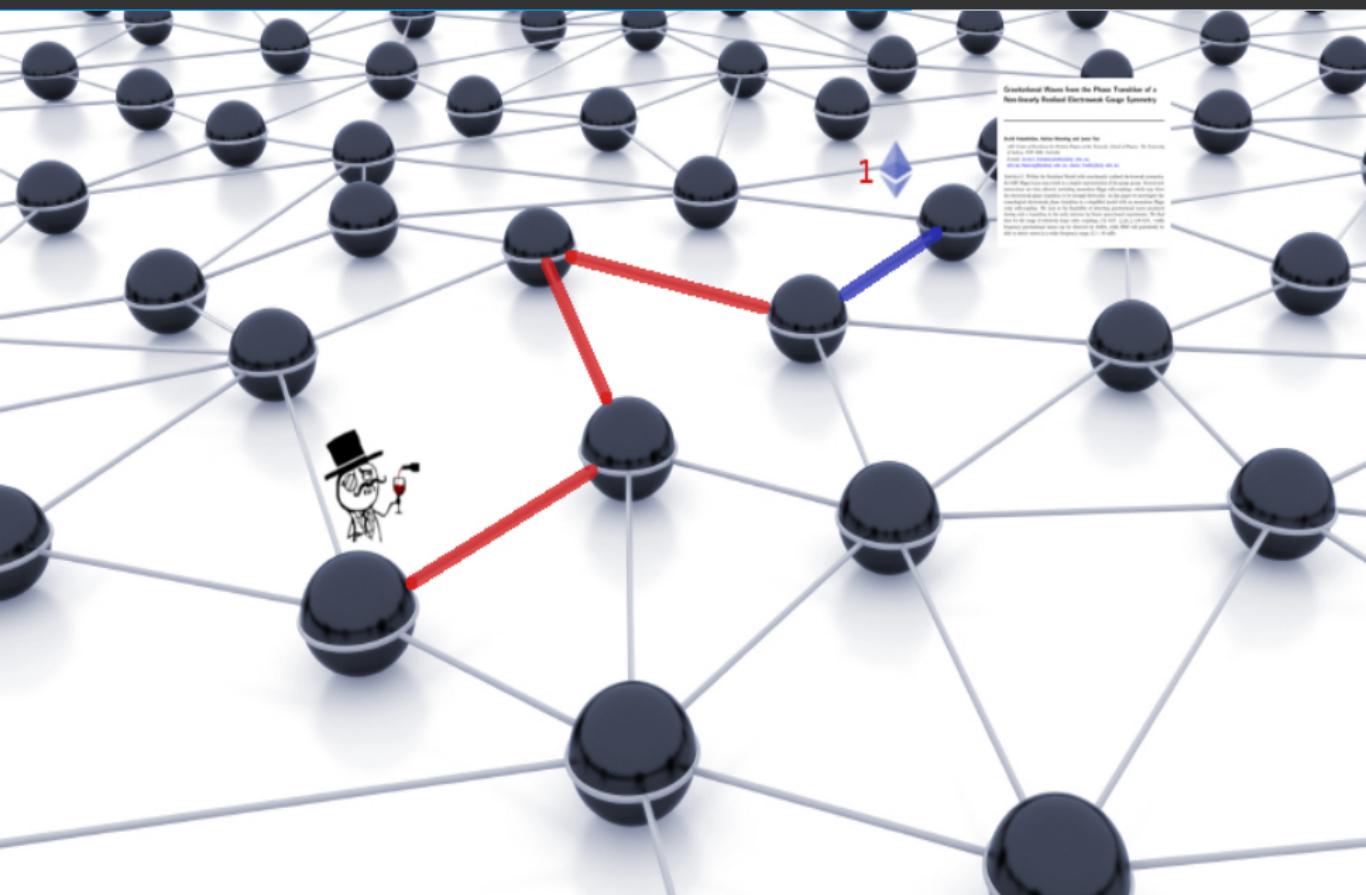
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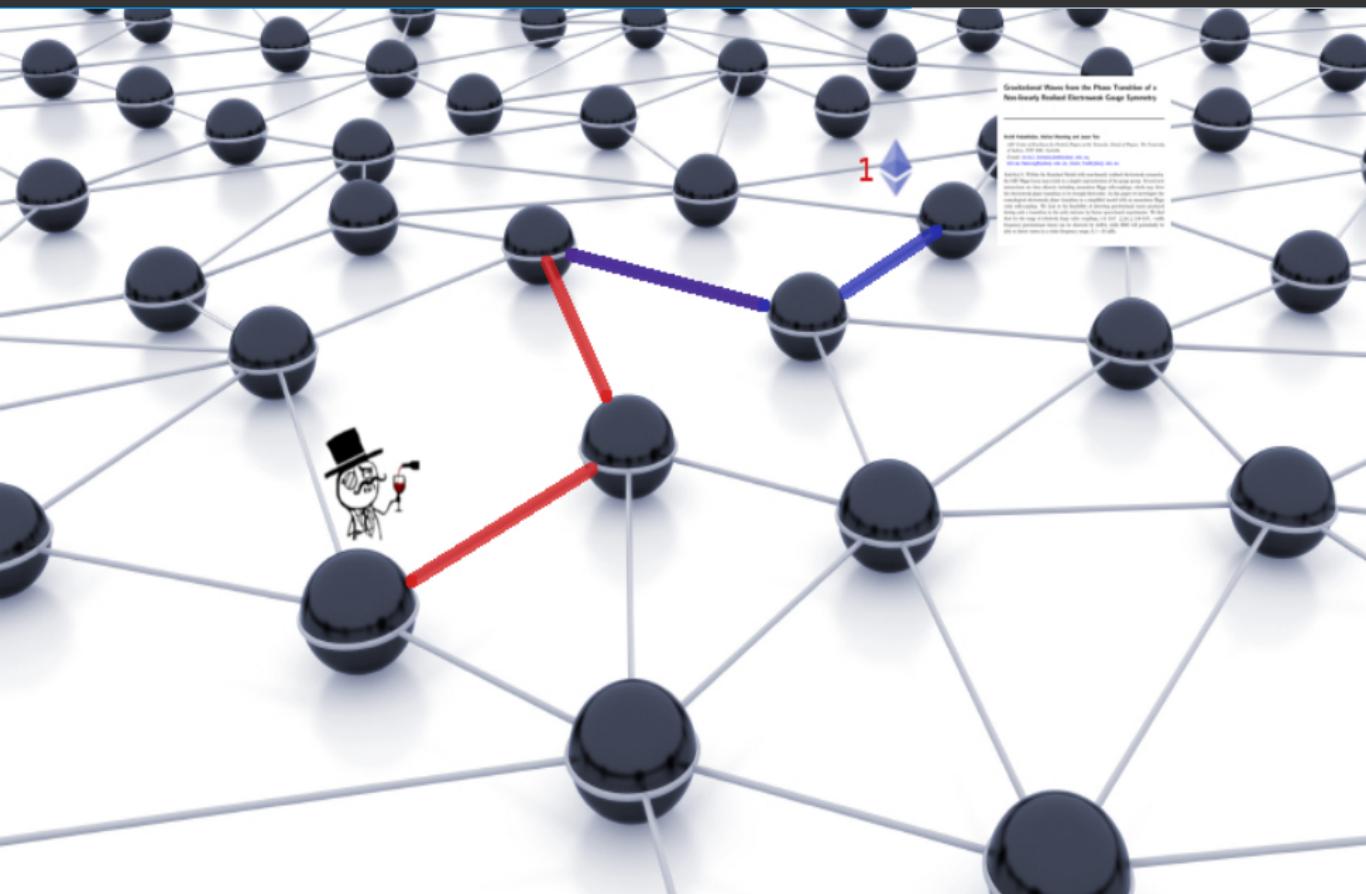
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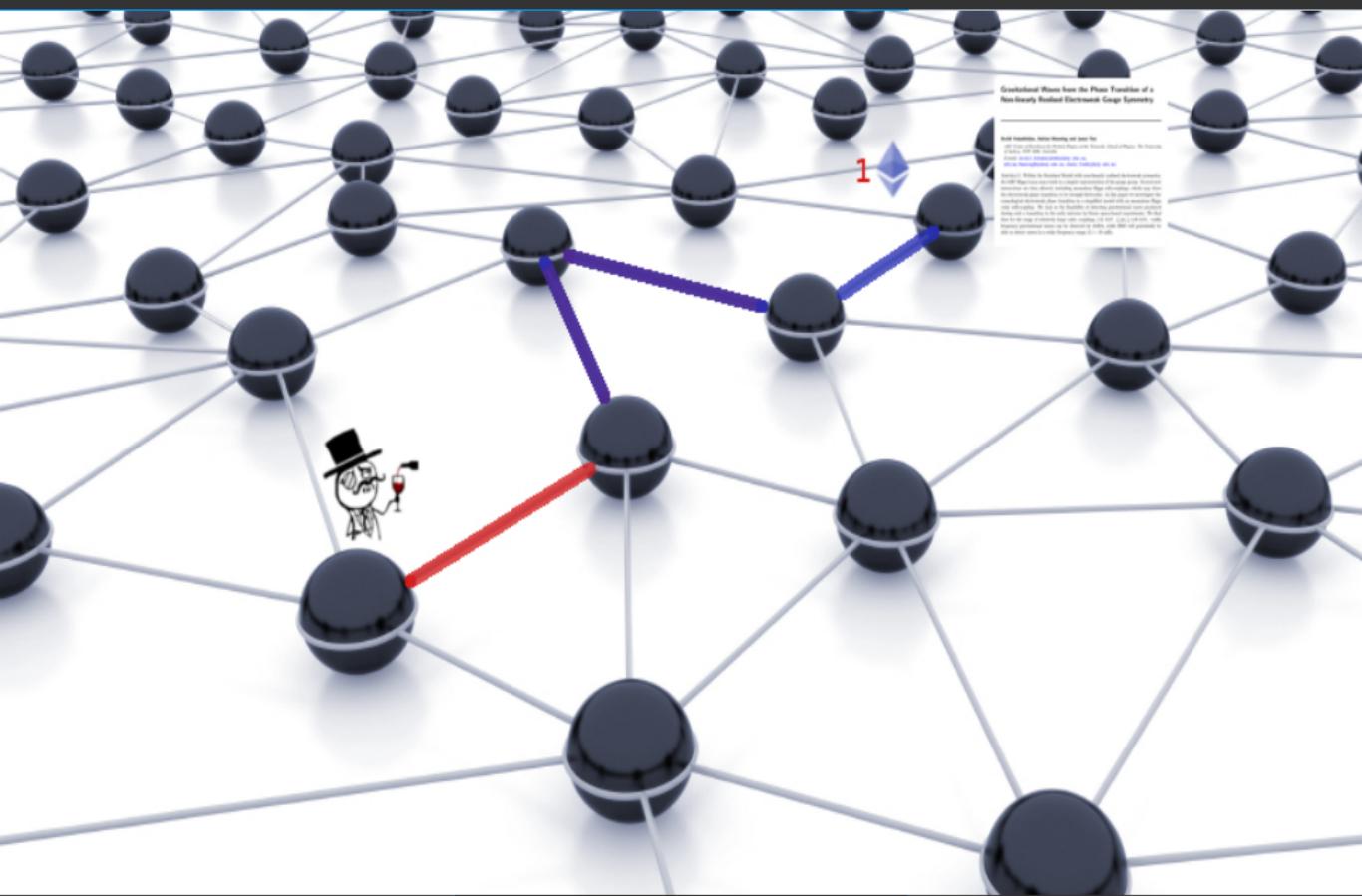
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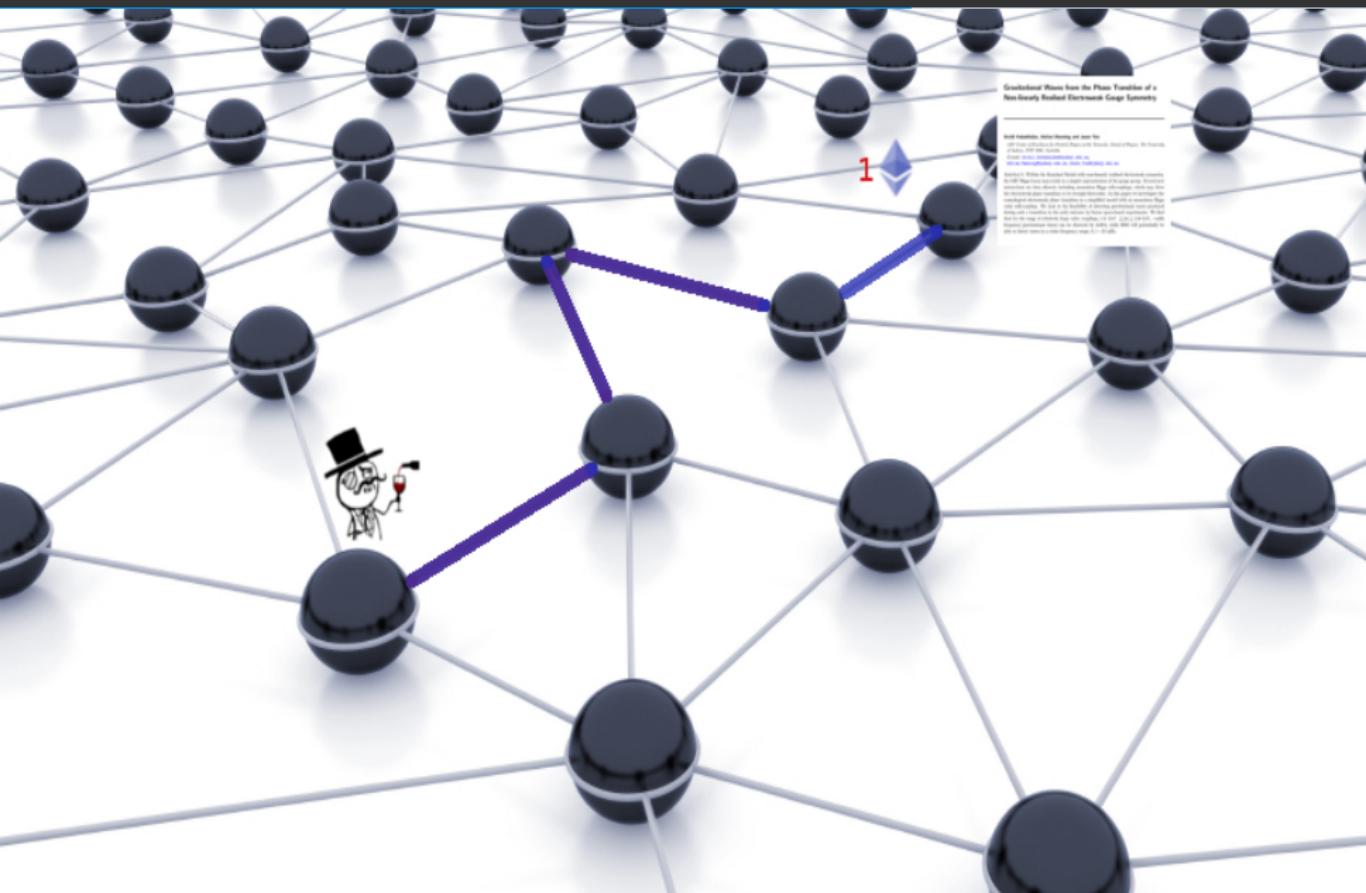
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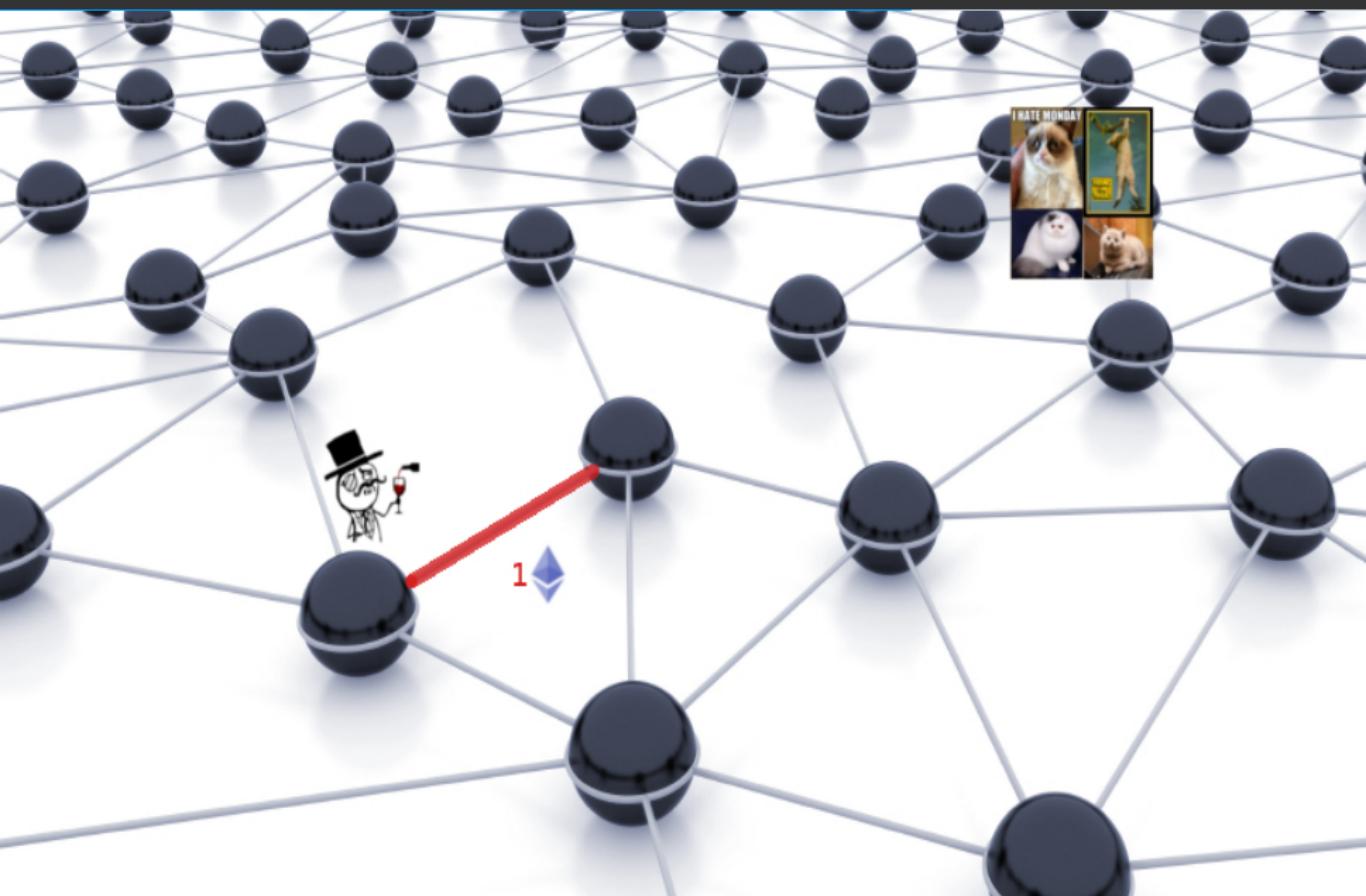
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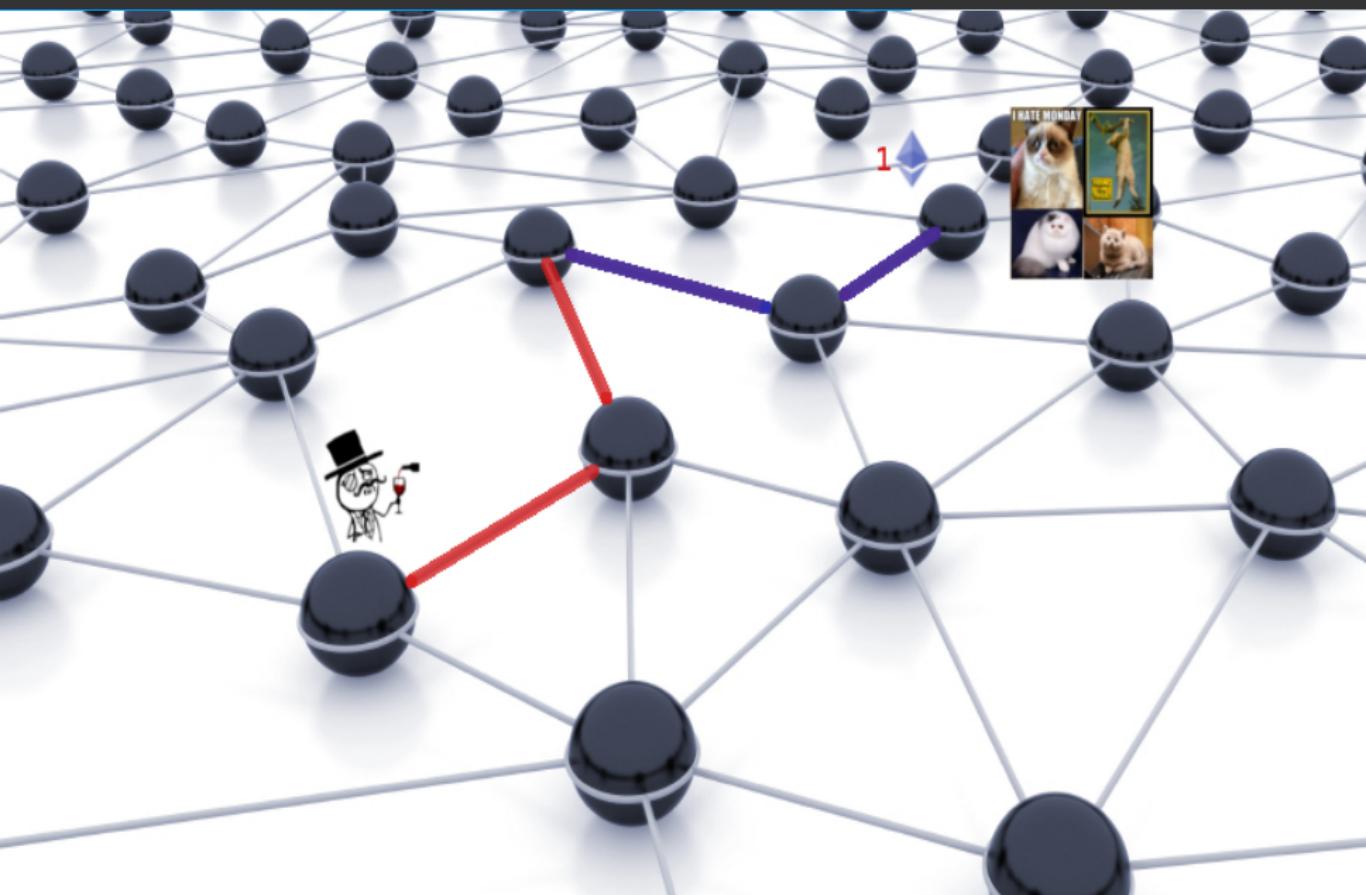
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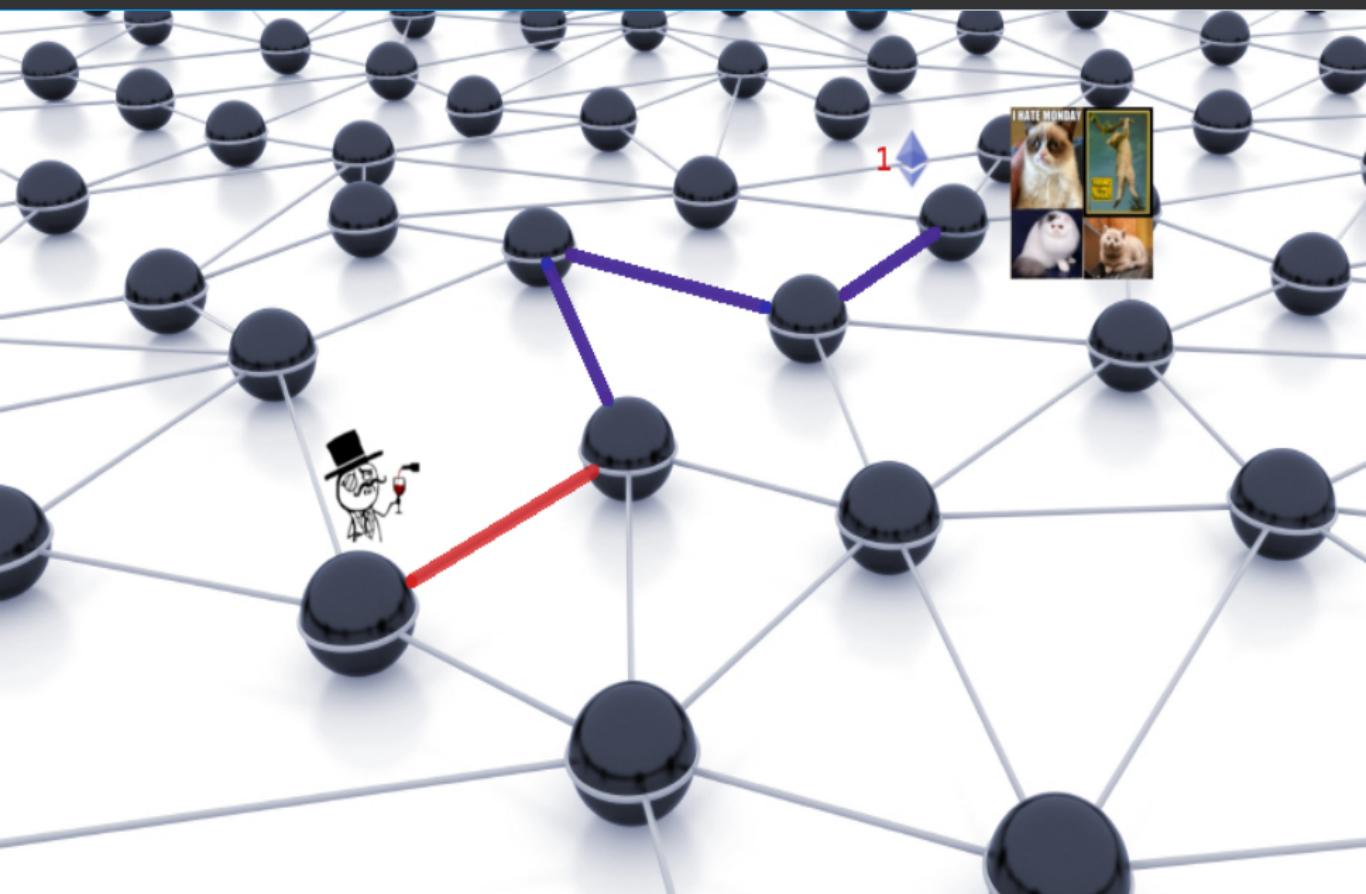
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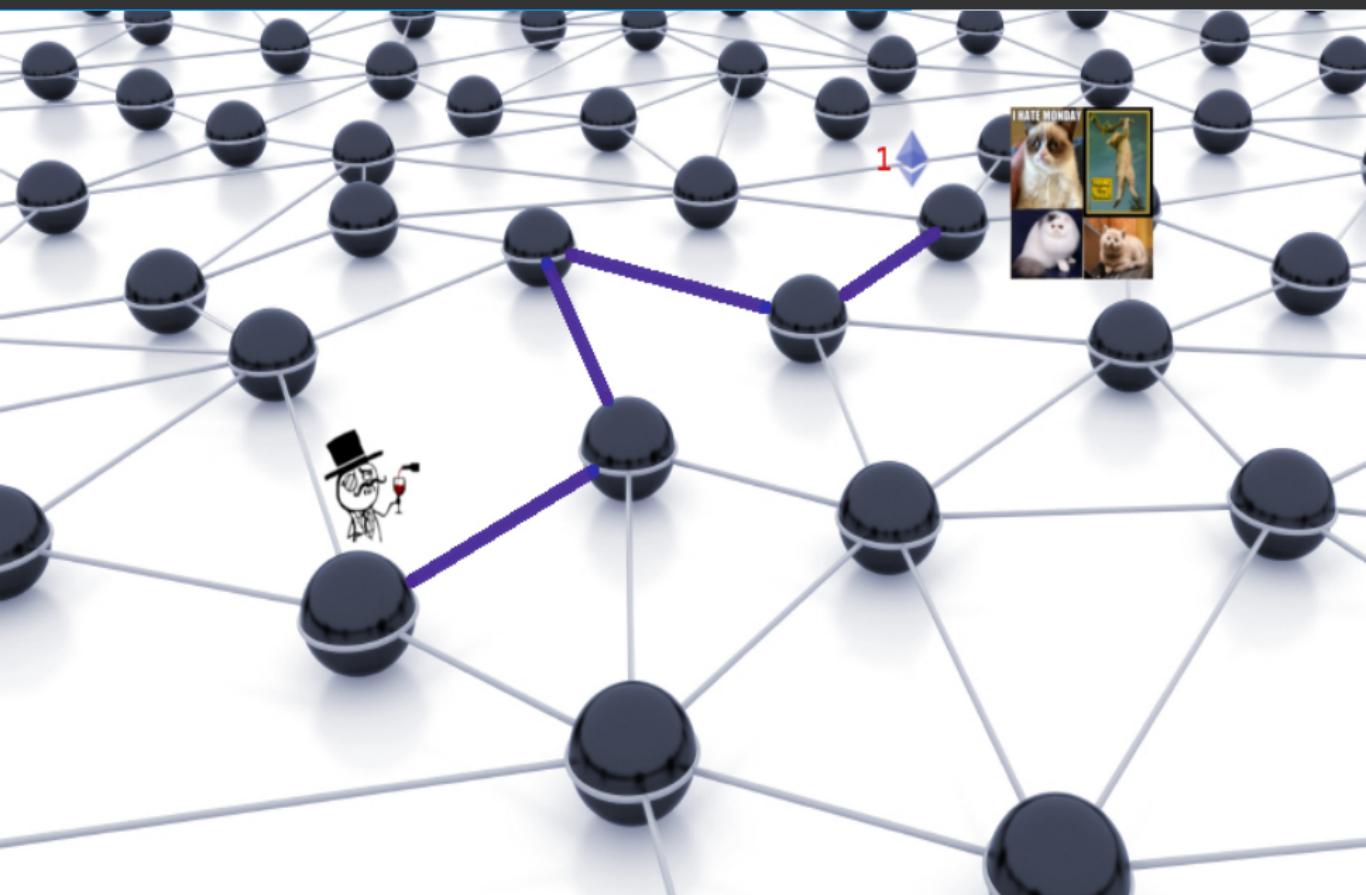
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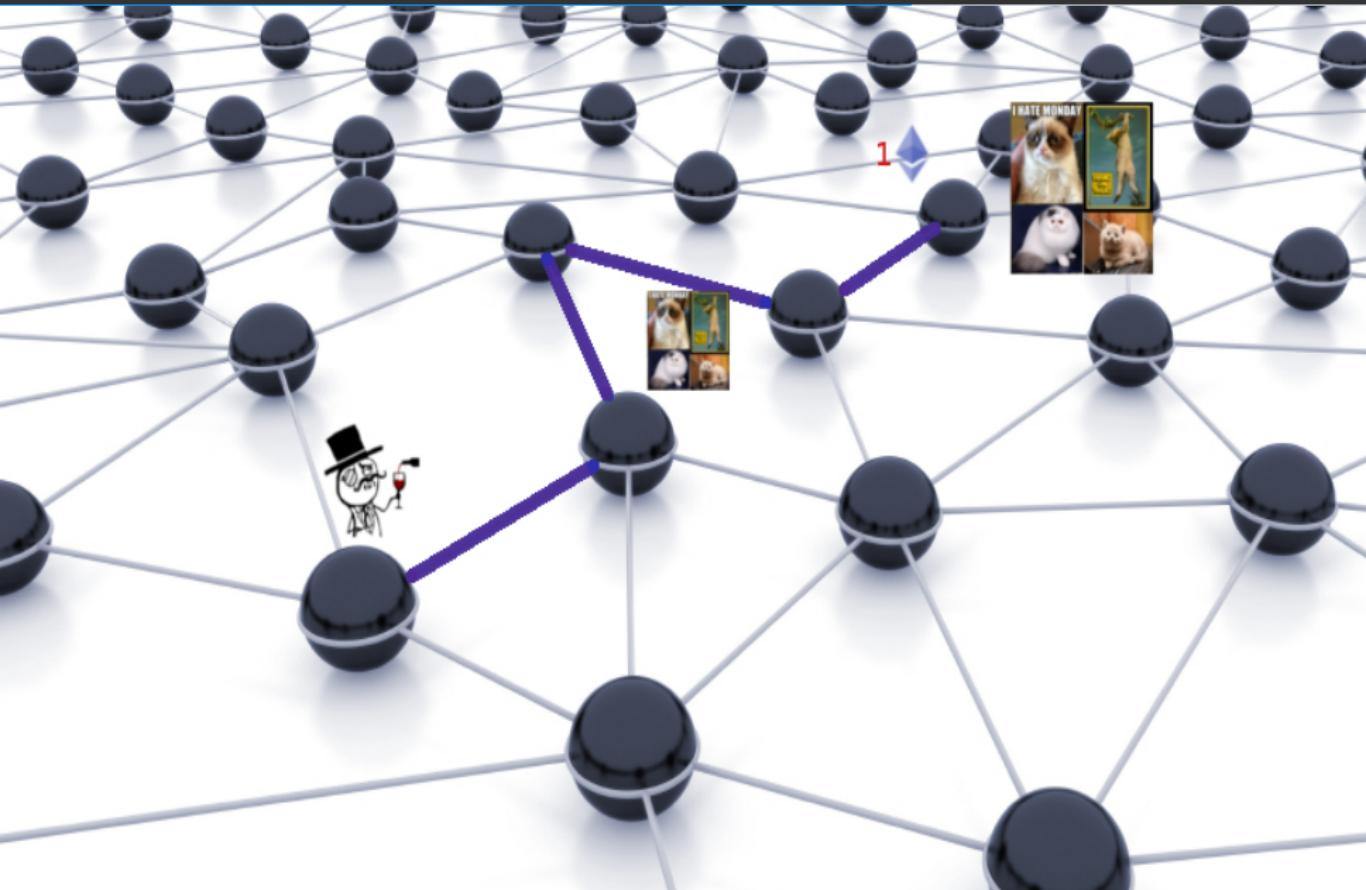
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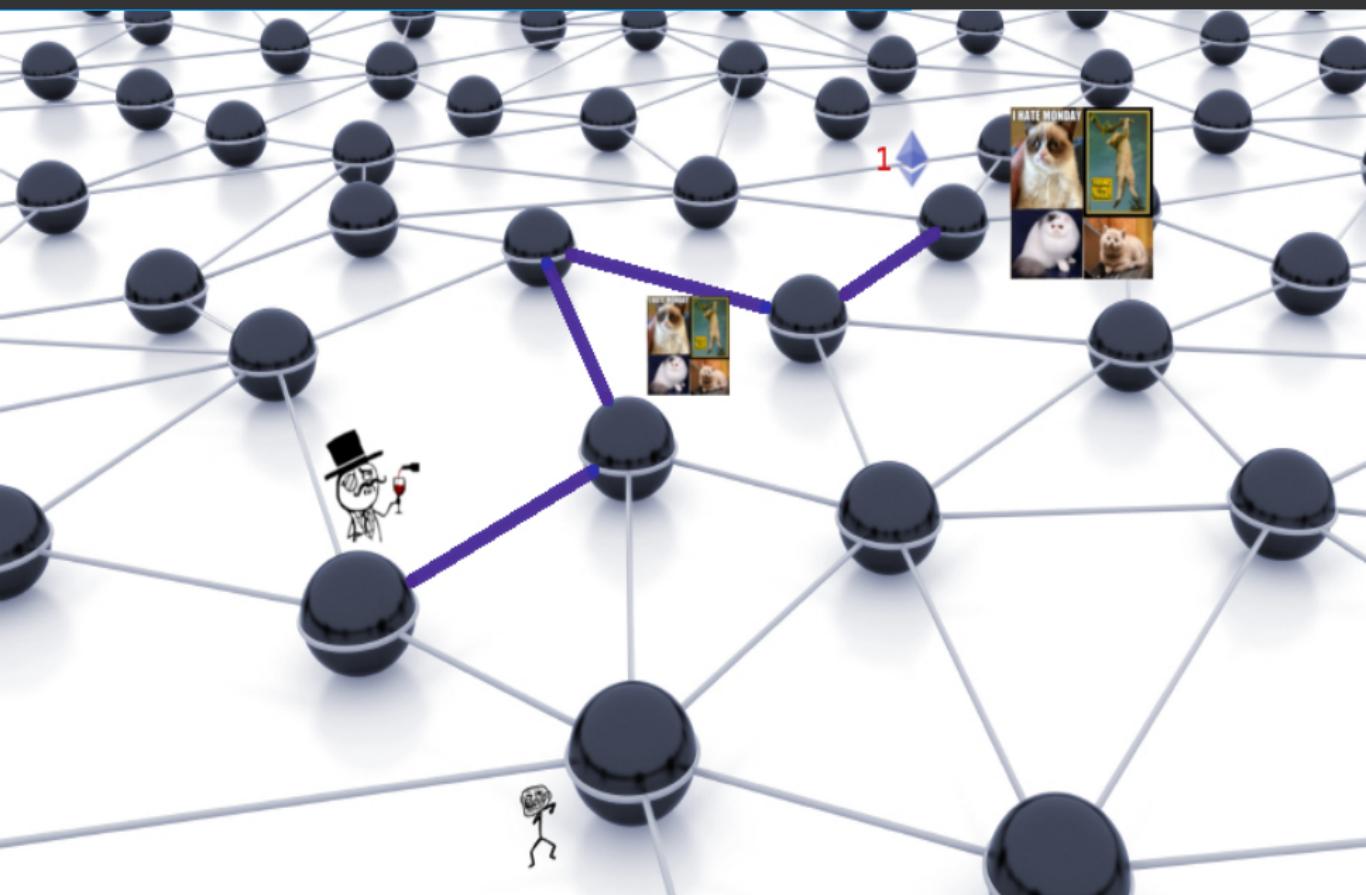
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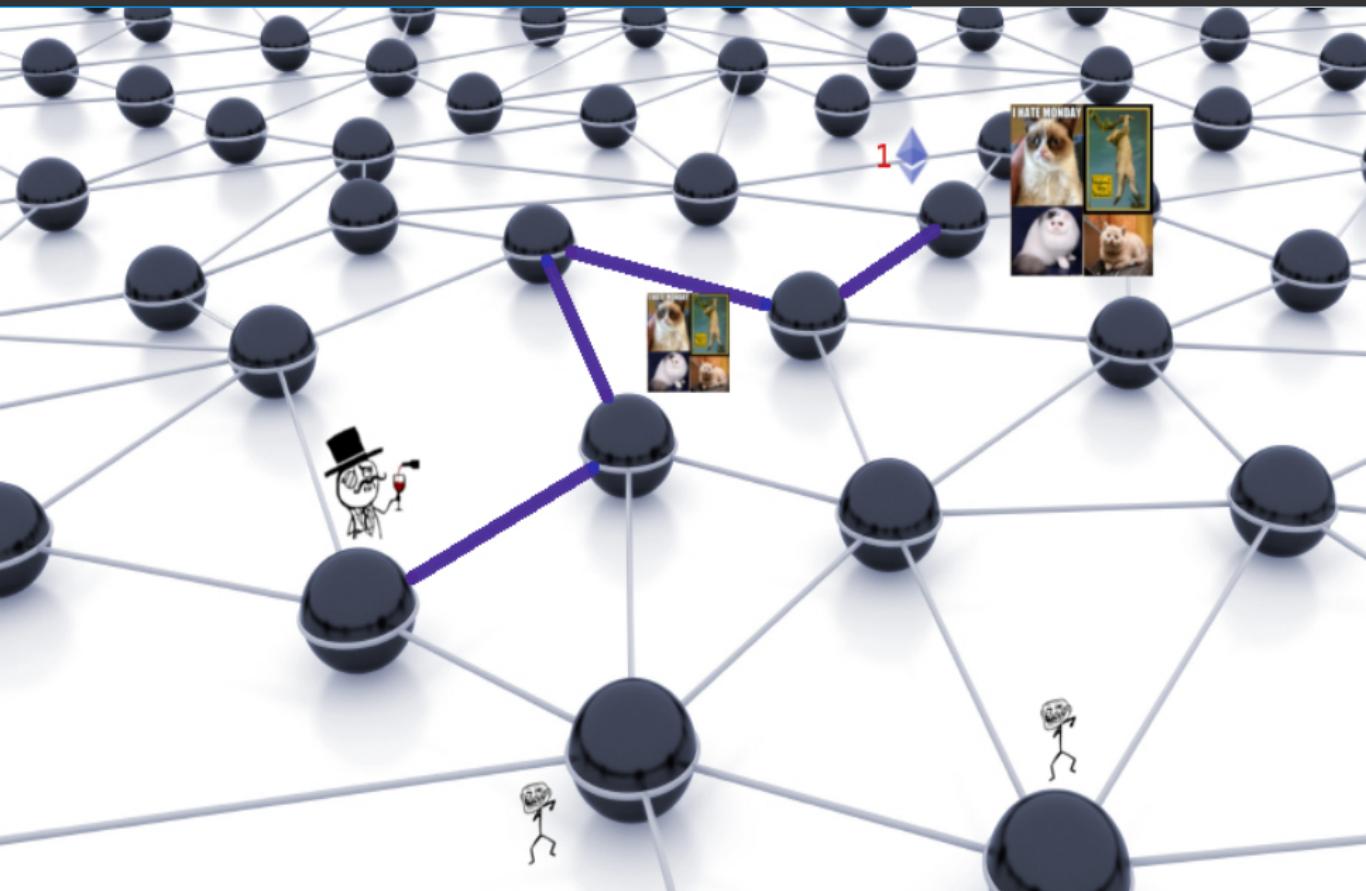
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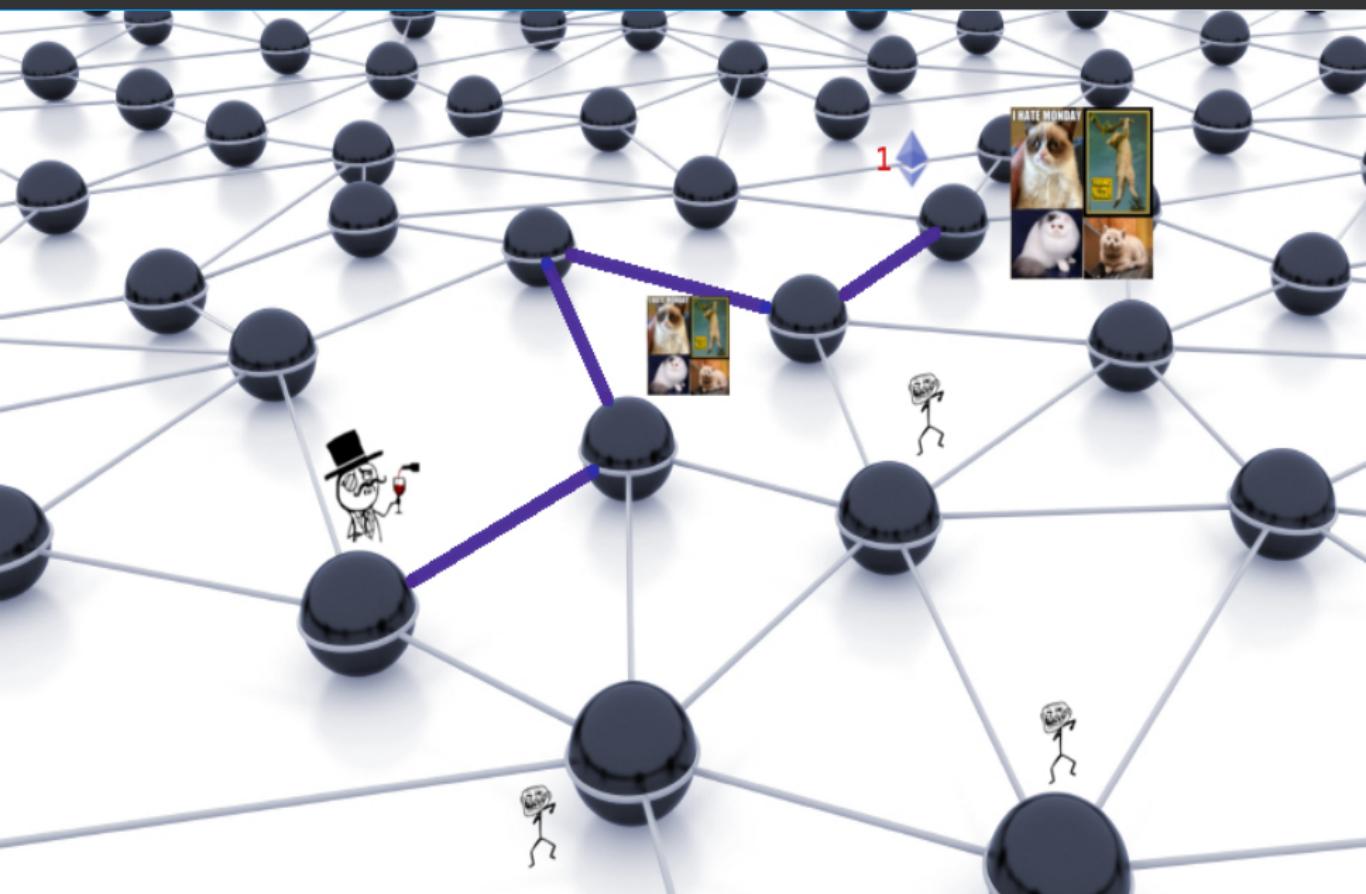
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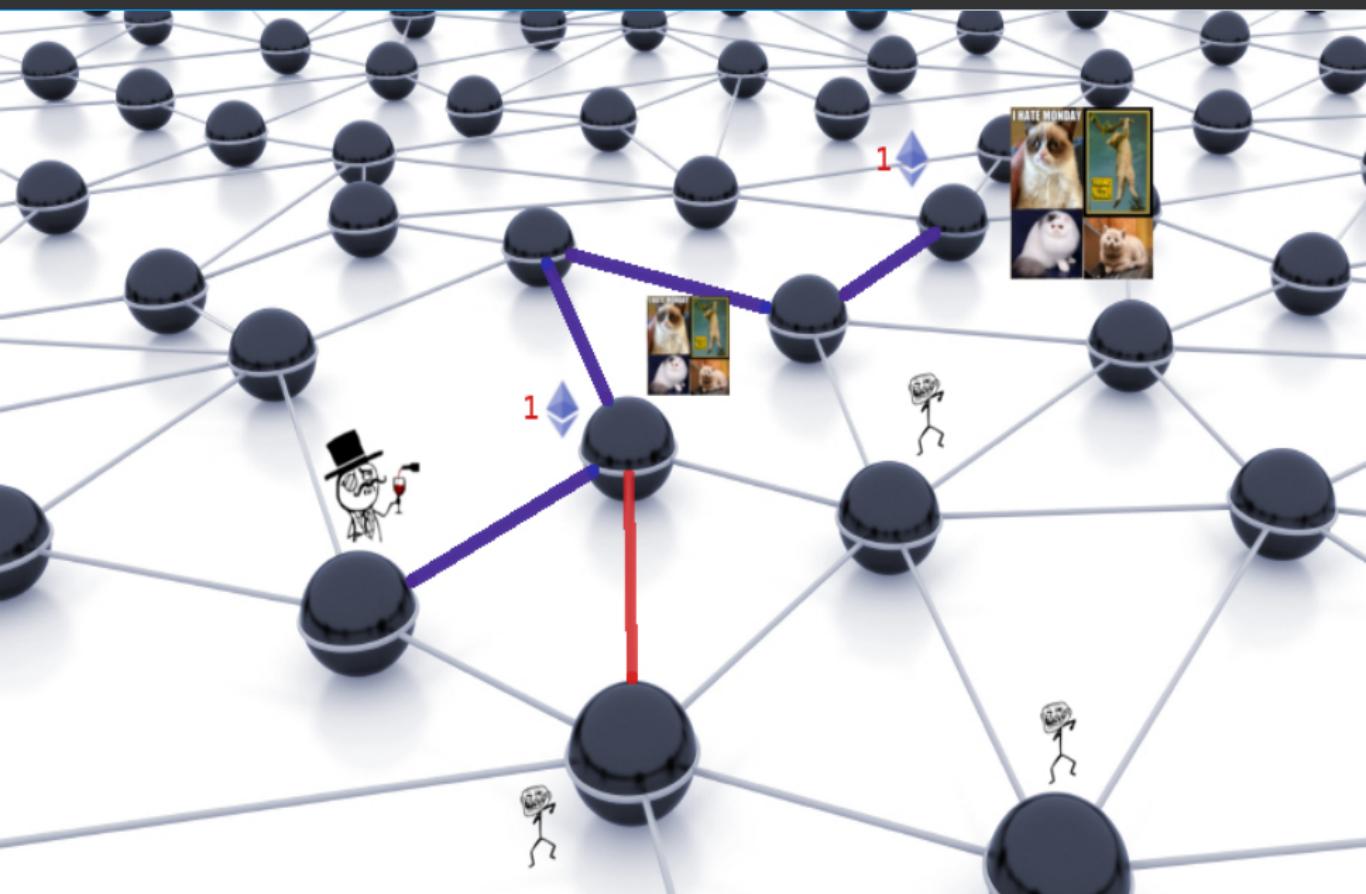
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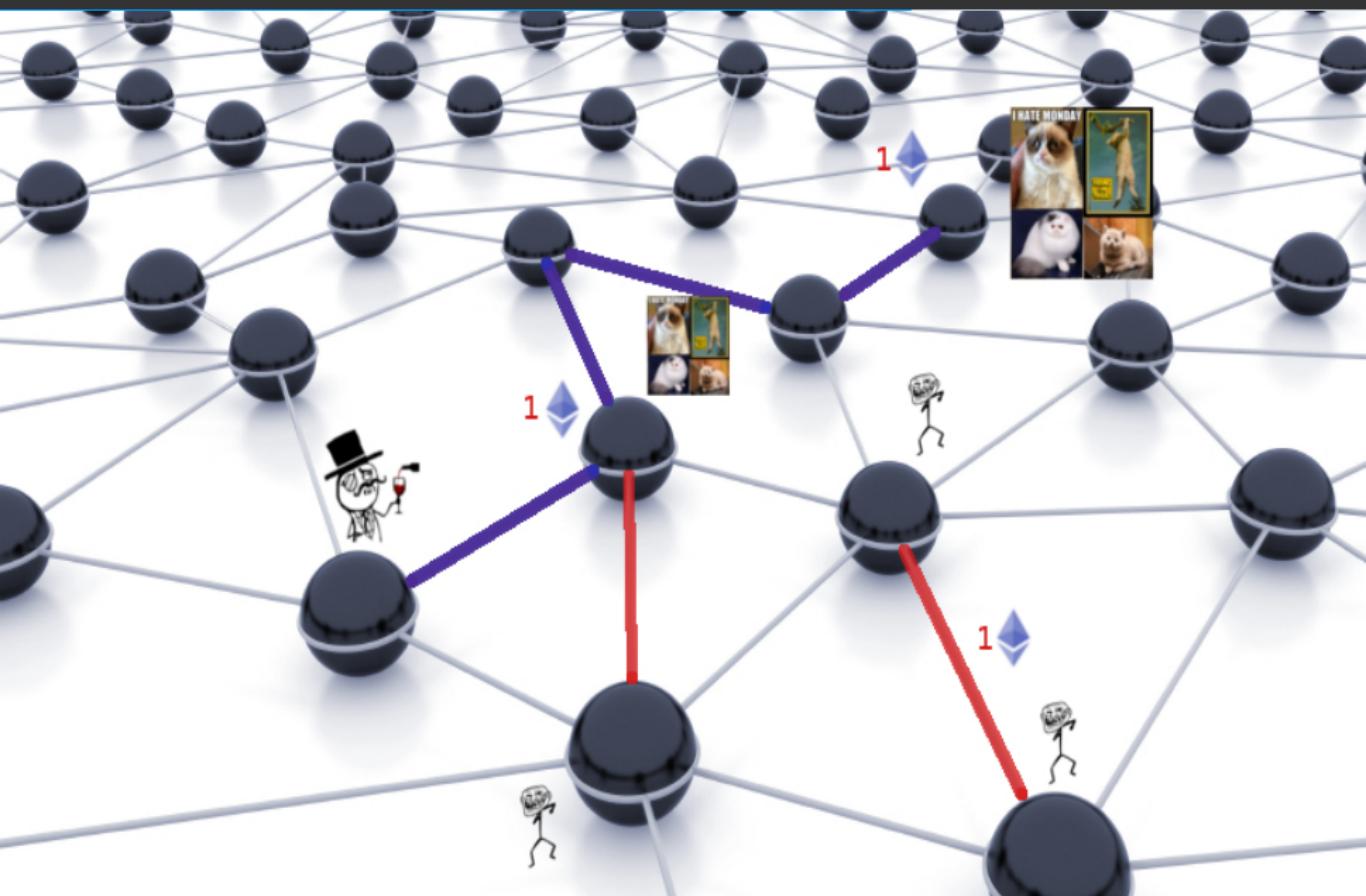
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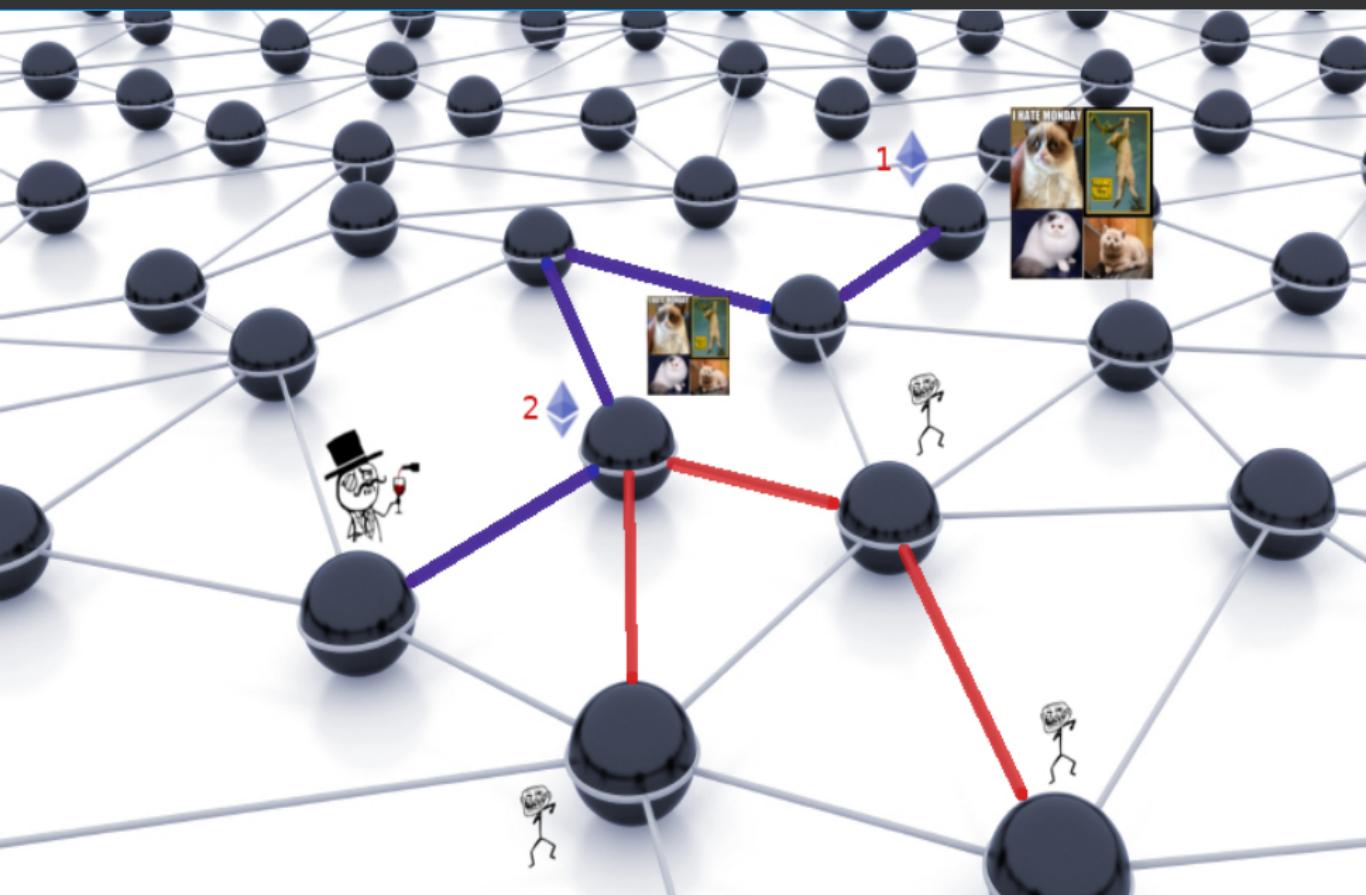
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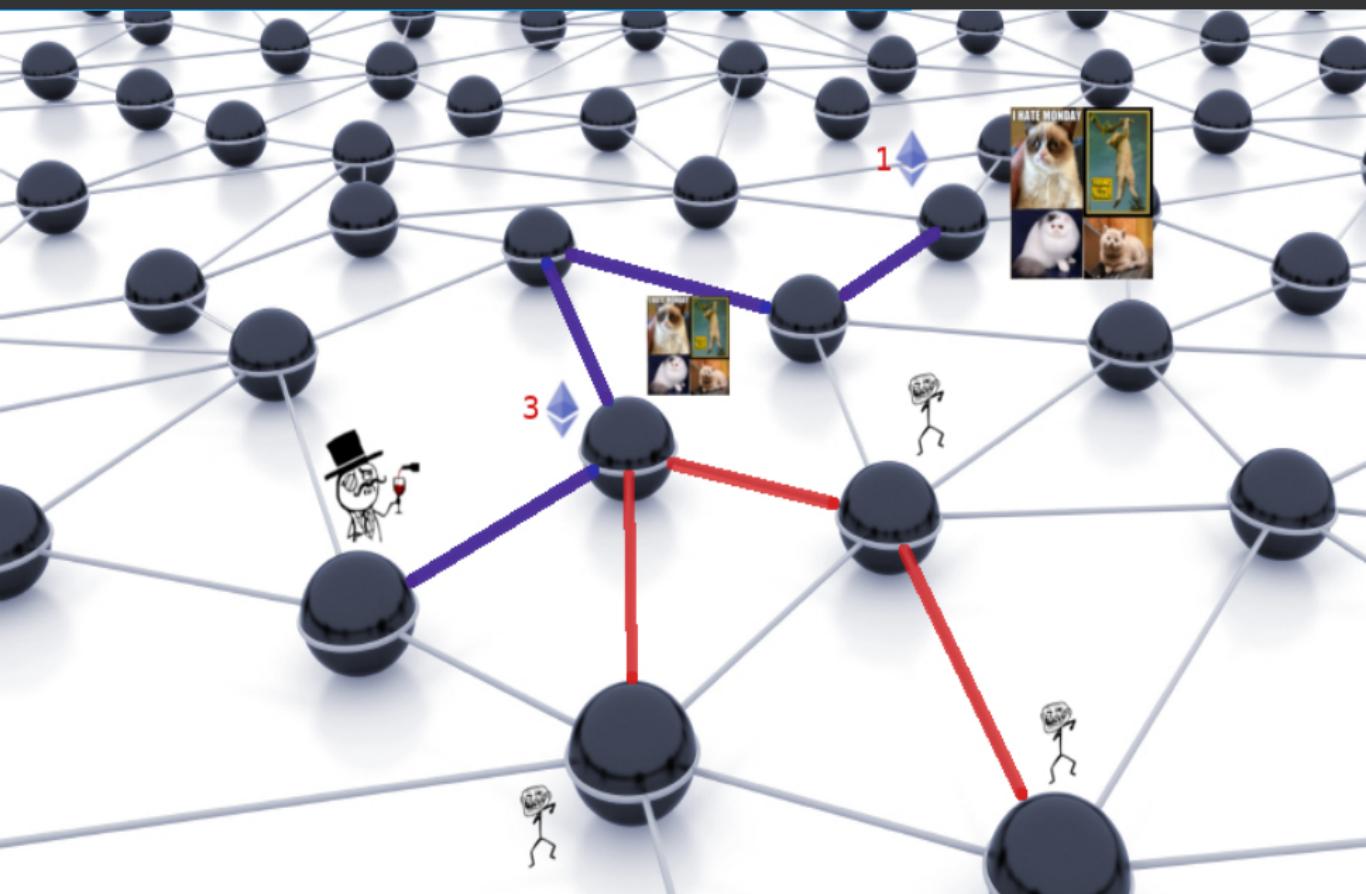
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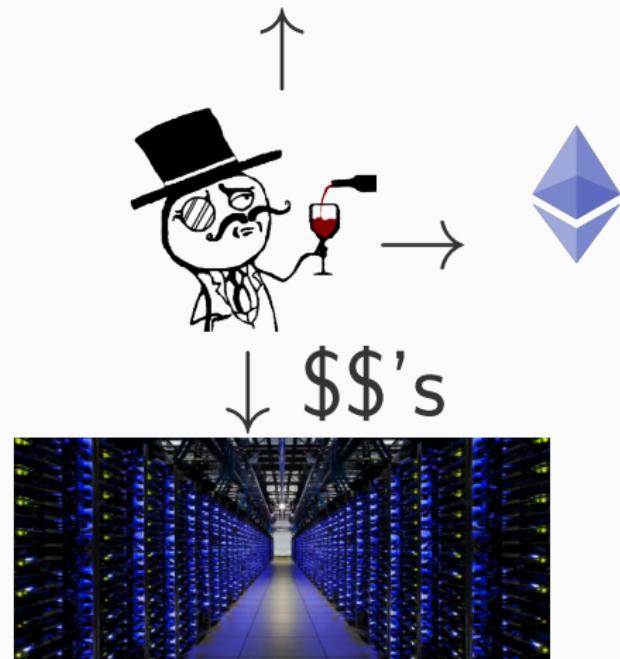
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Web 3.0



There's More...

ENS - <http://docs.ens.domains/en/latest/introduction.html>

- Ethereum Name Service (replaces legacy DNS)
- See available domains at <https://registrar.ens.domains>

SWATCH -

gist.github.com/zelig/74b3486bcd5523a0b61e12d804d3c00d

- Live multimedia streaming through SWARM
- Adaptive bitrate
- Multiple nodes relaying the channel increasing bandwidth
- Users subscribe to channels
- Potentially through Whisper/pss

BAT - <https://www.basicattentiontoken.org/>

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But there's even more...

Ethereum Roadmap

Frontier

Essentially a beta release, allowing developers experiment with dapps and use the EVM. There were no GUI clients and minimal libraries.

Homestead - **We are here**

Marks the first stable release of Ethereum. Mist GUI interface (and parity). A more robust EVM with extended libraries.

Metropolis - **Currently in testing**

Abstract signing and cryptographic methods into the EVM and away from the protocol. Includes fixes which would allow zk-snarks to be introduced.

Serenity

Fabled to solve some of the most difficult blockchain problems in existence. Sharding, Proof of Stake (Casper) and beyond...

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FIN

bzz://web3.sydeth.sigmaprime.eth

