Meme Economy Blockchain

Introduction to Blockchain Technology - SoSe 2020

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Agenda

- Meme Economy Concept & Motivation
- Steps of the blockchain
 - o P2P connection
 - Transactions
 - Mining
 - Wallet & Rewards
 - Visualization of Memes
- Demonstration video
- Summary & outlook

Meme Economy Concept

- Inspired from reddit.com/r/MemeEconomy
 - Marketplace for internet memes
- Users invest in *meme formats* (e.g. templates)
 - Buy, sell, give thoughts on value
- Users invest in memes by upvotes





Meme Economy Concept

- Meme value is based on its scope of circulation and estimated lifetime
- Basic concepts of economy applied
 - "Buy low, sell high"
 - \circ If value is considered low or has high potential of increasing \rightarrow Buy
 - If value is high (highly circulating, etc) \rightarrow Sell

Motivation

- Enhances the concept of Meme Economy
- Encourages the creation of memes
- Origin of memes can be traced
- Decentralised platform for sharing memes

Infrastructure & Software Stack

- RESTful application
 - JSON strings as input
- Python + Flask
 - One local HTTP web server per node
- Postman for visualizing the inputs/outputs

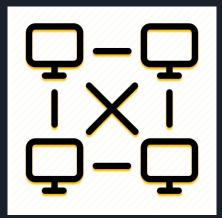






Blockchain - P2P Connection

- 1. Any node connects to any other node in the network in P2P
 - Peer to Peer scheme: Full Mesh Network
 - All nodes in the network are notified of newly connected nodes
 - The new node receives from its peer:
 - Copy of the blockchain
 - Pending transactions



Blockchain - Transactions

- 2. A node can add transactions:
 - a. Post a new Meme Format
 - b. Post a new Meme
 - c. Upvote a Meme
 - d. Buy / Sell a Meme Format

- Transactions of Memes / Meme Formats contain an image
 - Encoded in base64
- All nodes in the network are notified of the new transaction.

Blockchain - Mining

- 3. Nodes try to mine blocks as soon as there are pending transactions
 - Node computes hash until difficulty pattern is matched
 - Consensus is checked
 - o Is the chain of the current node up-to-date with the network?
 - If consensus:
 - Mined block is appended to the chain
 - All nodes are notified of the new mined block
 - All nodes verify the block and append it to their chain if block is verified

Blockchain - Wallet & Rewards

4.1. When upvoting a Meme:

- A credit is taken from the upvoter node
- The credit is distributed in portions between:
 - Meme Format owner
 - Meme poster
 - Meme miner
- Proportional credits are created & awarded to
 - Meme Format miner
 - Upvote miner
 - Every previous upvoter from previous blocks

Blockchain - Wallet & Rewards

- 4.2. When buying / selling a Meme Format:
 - A percentage is taken from the buyer
 - Shared evenly between:
 - Sell transaction miner
 - Buy transaction miner

Blockchain - Visualization of Memes

- 5. Nodes can visualize Memes and Meme Formats
 - ... and further decide to upvote or create their own Meme
 - HTML allows visualization of base64 encoded images
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Demonstration Video

https://youtu.be/kS7bYrLqaDg

Outlook

- Future work:
 - Add gif support
 - Use binary protocol for network transmissions
 - Unchanged size for transactions
 - Enables transaction size limit (in case of heavy images)
 - Improve User Experience
 - Prevention of errors
 - Implement GUI for users
 - Security
 - Digital signing

References

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