

Thesis
B.Sc.Thesis
M.Sc.IDP,
Guided
Research

Assessment of Transactions Ordering of First- Come-First-Serve Blockchains in the Wild

Motivation

The First-Come-First-Serve (FCFS) transaction order mechanism orders the blocks based on arrival time. Unlike fee-based mechanisms e.g., Ethereum L1 orders transactions based on the profit to the validator. The transaction order plays a crucial role in possible fee extraction or Maximum Extractable Value (MEV). In previous works, we have investigated the implementation details of Layer FCFS Blockchain in emulation, environment, and the heuristics of possible MEV [1, 2]. As a part of the thesis, we want to assess how such dynamics behave in the "Wild" on a mainnet network of a selected L1 blockchain. Nevertheless, FCFS is also especially relevant for various Layer 2 solutions, e.g., optimistic or so-called zk-rollups, where transactions are ordered on the sequencers. Use the provided framework METHODODA for the deployments supporting local and cloud setups [3].

Your Task

- Familiarize yourself with the topics (public blockchain, MEV, arbitrages, network deployments.)
- Research on the MEV heuristics solutions
- Design a data pipeline for the collection L1 data for network latencies
- Build a Proof-of-Concept deployment to assess the extracted values
- Evaluate the MEV values

Requirements

- Knowledge in a common programming language
- Ability to write easy maintainable code
- Possible experience with MEV and Blockchain

Sources

- [1] <https://arxiv.org/pdf/2401.07992.pdf>
- [2] <https://arxiv.org/pdf/2308.06513.pdf>
- [3] <https://www.net.in.tum.de/fileadmin/bibtex/publications/papers/METHODA.Preprint.pdf>

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