Title:

MEV in eth2 early exploration

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Completed

Github:

[mev-research/FRP-11.md at ae6a7b999972e9fbf5964d2d5a54203e12c9afed · flashbots/mev-research · GitHub]()

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Background and Problem Statement

The Merge is the long-awaited change in consensus mechanism of Ethereum from proof of work to proof of stake. PoS Ethereum, or eth2, is a major upgrade that will significantly change the flow of transaction inclusion and validation on the Ethereum chain. We propose to do an exhaustive survey of eth2, and to reason about MEV within it, including in what form it may exist, how it could be extracted, whether any negative externalities are incurred from it and who are its stakeholders.

This proposal's core limitation is the fact eth2 in production may differ from the current picture of eth2 we have available, both with respect to what The Merge will entail and with respect to future updates to Ethereum after The Merge such as the addition of sharding or stateless clients.

Plan and Deliverables

- general survey of eth2

- assess how, and if, MEV exists in eth2

- assess how Flashbots might work in eth2

- surface deeper research questions that will be further studied following this work

We aim at delivering a blogpost that covers these key points.

References

Reference current relevant literature or past work pertaining to the research question(s) at stake.

- [Beacon Chain Validator Rewards - Pintail's Notes]()

- [Quick merge via fork choice change - HackMD]()

- [What Happens After Finality in ETH2? - HackMD]()

- [https://ethresear.ch/t/eth1-eth2-client-relationship/7248]()

- [Rayonism -- The Merge spec, v0.1.2 ☀ - HackMD]()

- [GitHub - flashbots/raytracing: Eth2-MEV project with liquid staking (Flashbots-Lido-Nethermind)]()

- [https://ethresear.ch/t/high-confidence-single-block-confirmations-in-casper-ffg/8909?u=benjaminion]()

- [staking APR with EVM fee rewards - Google Sheets]()

Output

- MEV in eth2 by [Alex Obadia]() & [Taarush Vemulapalli]() [MEV in eth2 - an early exploration - HackMD]()

- eth2 research repo by Alex Obadia & Taarush Vemulapalli GitHub - flashbots/eth2-research: Assessing the nature and impact of MEV in eth2.

- MEV after The Merge with Nethermind and Flashbots by Tomasz Stankacz & Alex Obadia (ETHGlobal Scaling Ethereum eth2 conference)

- MEV on eth2 by Alex Obadia (ETHGlobal Scaling Ethereum Roast)

- MEV after EIP-1559 and the Merge by Alejo Salles & Alex Obadia (EthCC 4)

- The MEV in Nethermind in eth2 by Tomasz Stankacz & Marcello Bardus (EthCC 4)