Solo staking in the dark forest

An attacker's gym

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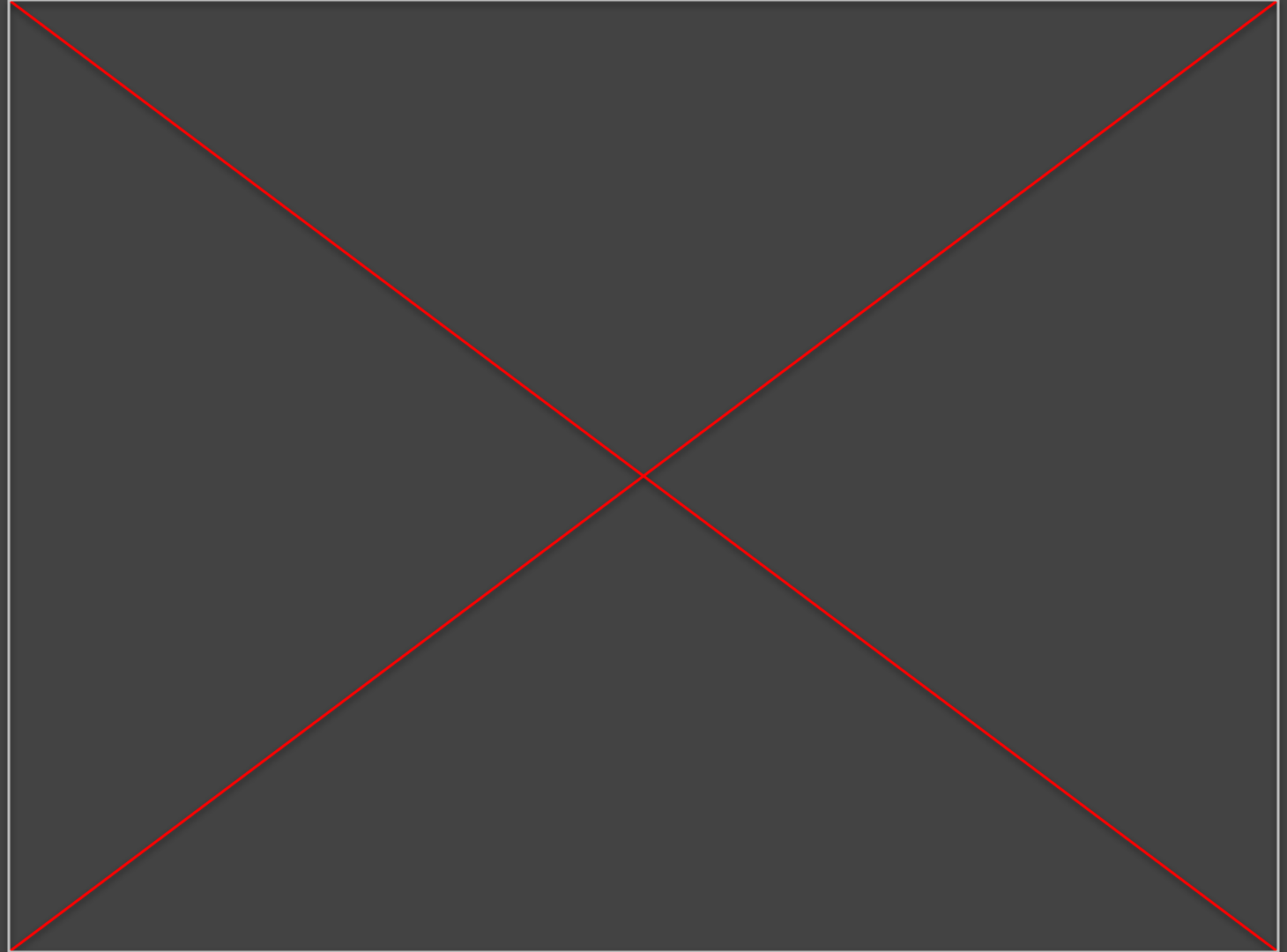

Thank you.

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“Transport privacy exploration of the Validator-Relayer Builder API”

Research report: Release soon on ethresear.ch

Discussion: Nov 15th, 13:30 | Blue Discussion Corner, L1

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Appendix

What did we learn?

- Everyone is vulnerable, everyone is a suspect
- MEV isn’t just mempool re-ordering, e.g. skipped-slot MEV…
- Attacks are feasible and cheap
- Decentralizing MEV infrastructure actually leads to worse trust assumptions

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Appendix

What we want

- **Privacy protection**, plz
  - At least for Builder **HTTP API calls** on the validators side:

    ```
    POST /eth/v1/builder/blinded_blocks
    GET  /eth/v1/builder/header/{slot}/{parent_hash}/{pubkey}
    POST /eth/v1/builder/validators
    ```

  - Integrating network-level metadata privacy protection protocols directly into the **networking layer** of Ethereum clients when designing PBS
- Despacito
  Less latency-sensitive p2p layer for privacy protection, fairer MEV (re-)distribution of MEV, and enhanced network resilience.
  => protecting solo stakers

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Appendix

Skipped-slot MEV

[ˈskɪpt - ˈslät]

Adversaries can target and interfere with block production processes to prevent certain transactions or even entire blocks from being processed.

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Appendix

Ethereum network negative consequences - Skipped-slot MEV

- **Solo stakers are more vulnerable to DDOS attack**
  - K-tailed RANDAO takeover: victim of RANDAO manipulation
  - Fail in attesting to data availability sampling (DAS)
- **Selectively attack multi-block MEV**

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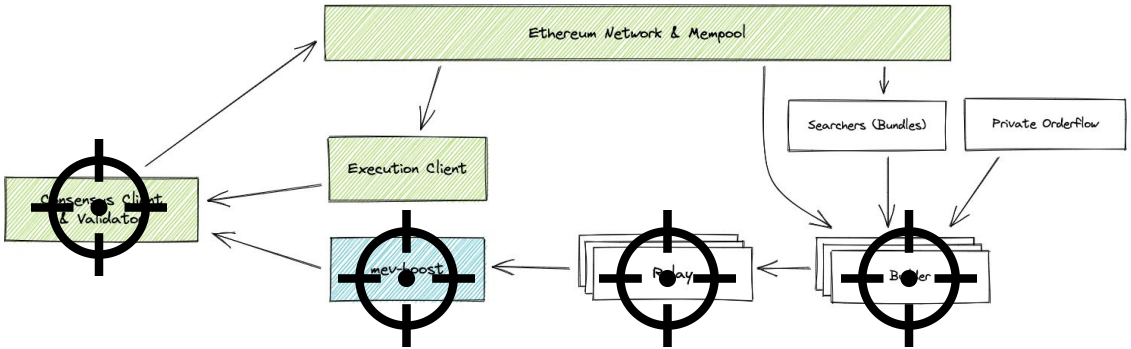
Appendix

Ethereum network negative consequences - P2P

- **Recently bootstrapped sparsely-connected beacon nodes, esp. home stakers, are more vulnerable to “covert flash attack”:**

  *Sybils of an attacker connect to the victim and behave properly long enough to build up score in GossipSub protocol before executing a coordinated eclipse attack when the victim needs to propose a block.

- **All parties can become a victim**



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