Breakout - Future of statelessness

R&D Session at Forschungsingenieurtagung - June 2025.

Duration: 2 hr

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Note taker: TBA

Agenda

[25 mins] Stateless today
[20 mins] High-level zkVM discussion
[25 mins] Assessing stateless urgency
[10 mins] Coffee break
[40 mins] Interaction with other protocol changes (CR & AA)

Summary

This session explores multiple angles of going stateless, the next big phase of Ethereum evolution. We will explore the current state of things and how upcoming protocol changes affect the solution space and tradeoffs. Additionally, we will touch on assessing how fast the protocol needs to go stateless, which can help in planning protocol changes. Finally, we dive into the latest zkVM development, which will be the backbone of L1 snarkification.

Goals

Session presentations aim to help the audience build a broad mental model of today and the future stateless Ethereum. These presentations will surface many questions and tradeoffs we're interested in getting feedback on to help us build the right decision process to move forward.

Pre-reads

Here are some resources to warm up on relevant topics:

- A Protocol Design View on Statelessness (https://ethresear.ch/t/a-protocol-design-view-on-statelessness/22060)
- A pragmatic path towards Validity-Only Partial Statelessness (VOPS) (https://ethresear.ch/t/a-pragmatic-path-towards-validity-only-partial-statelessness-vops/22236/1)
- ERC-4337: Account Abstraction Using Alt Mempool (https://eips.ethereum.org/EIPS/eip-4337#motivation)
- BloatNet homepage (https://cperezz.github.io/bloatnet-website/index.html)
- Learn page (https://ethproofs.org/learn) from Ethproofs (https://ethproofs.org/)