Slot restructuring

R&D Session at Forschungsingenieurtagung - June 2025 (https://notes.ethereum.org/@timbeiko/berlin-agenda).

Duration: 1 hr

Moderator: Alex Stokes (@ralexstokes)
Note taker: TBA

Agenda

- [10 mins] Overview to motivate shorter slot times, subslot timings, and explore open R&D questions
- [30 mins] Breakout sessions to explore open questions in depth
- [20 mins] Summarize breakouts and agree on next steps

Summary

The slot time in the Ethereum protocol is currently 12 seconds. This timing serves as a “heartbeat” that determines when there is an update to the state of the Ethereum protocol. Many in the community ask for shorter slot times as this would facilitate smoother UX, potentially reduce MEV, and lead to faster finality.

While these are admirable goals, sufficiently short slot times would increase node requirements potentially eroding network decentralization. There may also be implementation challenges to adjusting this timing given its centrality to the rest of the consensus and execution layers (including applications!).

We also have related adjacent work around revisiting the sub-slot timings (https://github.com/ethereum/consensus-specs/pull/3433) which should be evaluated alongside any proposal to shorten the slot times.

Goal(s)

This session will explore the above topics to determine the feasibility of reducing slot times on the Ethereum protocol. A concrete output will be an EIP to implement a specific reduction, or the refinement of an existing EIP.

Pre-reads

- https://github.com/ethereum/consensus-specs/pull/3433 (https://github.com/ethereum/consensus-specs/pull/3433)
- https://eips.ethereum.org/EIPS/eip-7732 (https://eips.ethereum.org/EIPS/eip-7732)
- https://eips.ethereum.org/EIPS/eip-7886 (https://eips.ethereum.org/EIPS/eip-7886)
- https://eips.ethereum.org/EIPS/eip-7782 (https://eips.ethereum.org/EIPS/eip-7782)

Notes

To be added after session.