Final Project Presentation

Ethereum Protocol Fellowship 4: Holly Atkinson

Native ephemery genesis in Ethereum clients

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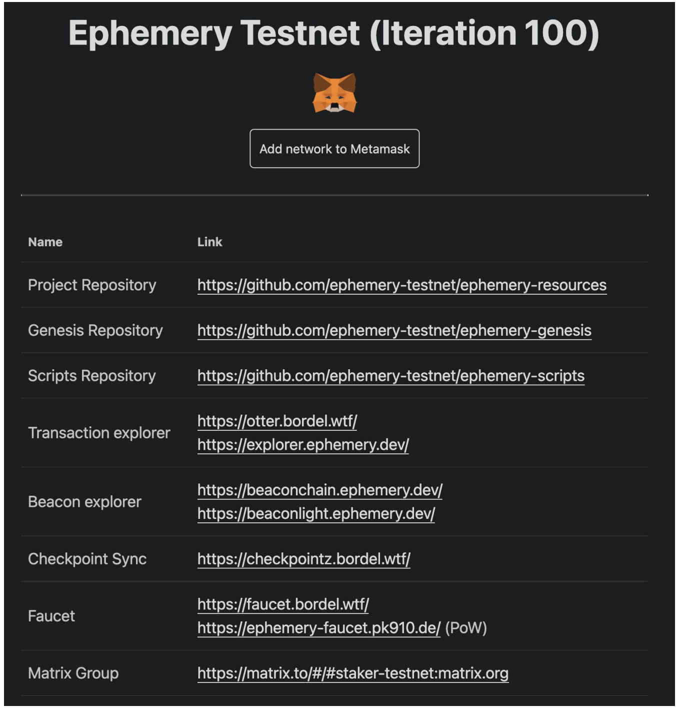
About ephemery



Ephemery Testnet (Iteration 100)

Name	Link
Project Repository	https://github.com/ephemery-testnet/ephemery-resources
Genesis Repository	https://github.com/ephemery-testnet/ephemery-genesis
Scripts Repository	https://github.com/ephemery-testnet/ephemery-scripts
Transaction explorer	https://otter.bordel.wtf/ https://explorer.ephemery.dev/
Beacon explorer	https://beaconchain.ephemery.dev/ https://beaconlight.ephemery.dev/
Checkpoint Sync	https://checkpointz.bordel.wtf/
Faucet	https://faucet.bordel.wtf/ https://ephemery-faucet.pk910.de/ (PoW)
Matrix Group	https://matrix.to/#/#staker-testnet:matrix.org

There are multiple benefits for having a **short-lived testnet** made available directly through **existing clients and infrastructure.**

The **periodic resetting** of the test network effectively **erases** the onchain activity that occurred during that iteration.

This reduces the impact of accumulated network bloat, seen with other testnets, and results in **lower resource requirements** for testnet users (also conveniently **lowering the barrier** to entry for running the testnet in the first place).

In particular, the reset feature optimises for **short-term validator testing**, reducing the burden on longer-running testnets.

Driving forward ephemery integration

Project Proposal

Writing **client-side integrations** for the **ephemeral testnet** and **validating** the draft EIP, as part of the ephemery team, starting with **Lodestar**.

Scope of contributions

Ephemery documentation

- additions to ephemery documentation / resources for client-pair setup
- other general documentation relating to running ephemery / troubleshooting issues

Ephemery specs & EIP

- validate existing Ephemery specs and propose updates to EIP as necessary
- support wider discussion about Ephemery
- increase online and IRL awareness of ephemeral testnet

Lodestar repository

- updates to Lodestar network configs
- **ephemery genesis state** - as part of a new ephemery package

State of contributions

Ephemery documentation

- ✅additions to ephemery documentation / resources for client-pair setup
- ✅other general documentation relating to running ephemery / troubleshooting issues

Ephemery specs & EIP

- ✅validate existing Ephemery specs and propose updates to EIP as necessary
- ✅support wider discussion about Ephemery
- ✅increase online and IRL awareness of ephemeral testnet

Lodestar repository

- ✅updates to Lodestar network configs
- 💭**ephemery genesis state** - as part of a new ephemery package

Stretch goals

Reset

- I’m collaborating with **Adedamola** so we can also build the **ephemery reset** natively into Lodestar

Dappnode

- **DAppNode package** for ephemery

Other client pairs

State of stretch goals

Reset

- Feedback from client team: best to address reset first via **external infrastructure:**
    - **lodestar-quickstart** script
    - **DAppNode** package
- 🤝Ongoing research into inherent ephemery reset & constraints for Lodestar

Dappnode

- 🤝Adedamola looking into **DAppNode package** for ephemery

Other client pairs

- 🤝Looking into draft **geth** updates started by pk910
- 🤝Teri will be providing an update at Devconnect in person

Possible challenges

- Different **OS** may impact **configuration options** for EL / CL client pairs (especially on mac!)
- Time needed to become familiar with CL client and how to **design useful outputs**
- Understand **CL client prerequisites** for implementing genesis and reset natively: there may be other work that is necessary before ephemery can be integrated into a specific client which will impact timings

Actual challenges

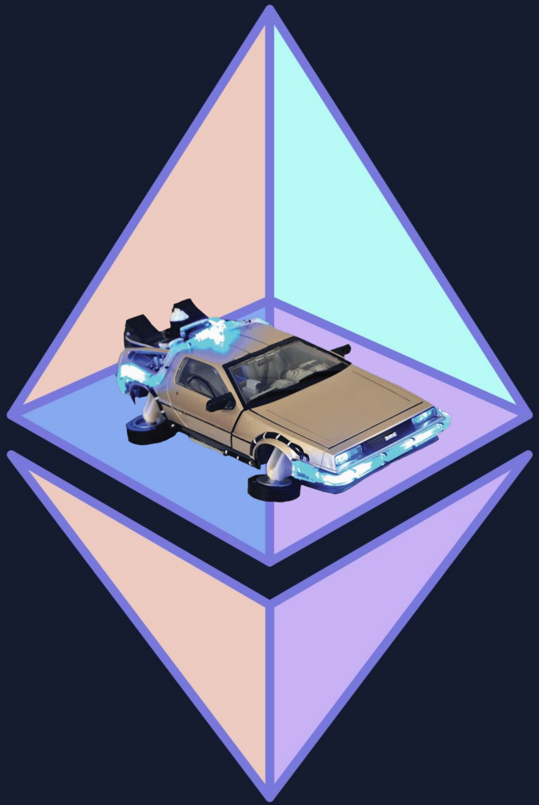
- 💻**Mac OS** had some impact on manual **configuration options** for Geth-Lodestar
- 🕰️**Time** taken to understand Ethereum specs
- 🥷Wider learning about ssz **serialization**
- 🤔Understanding client codebase **from scratch**
- 👽**Evolving** client codebase
- 🖋️Updates to **specs**

Client status: ephemery integration

Native pairs	Geth	Nethermind	Besu	Erigon	Reth
Prysm					
Lighthouse					⚙
Lodestar	⚙				
Teku					
Nimbus					

Final reflections

1. **Steep** learning curve
2. **Scope** of collaboration
3. **Supportive** client teams & ephemery mentors



Thanks!

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