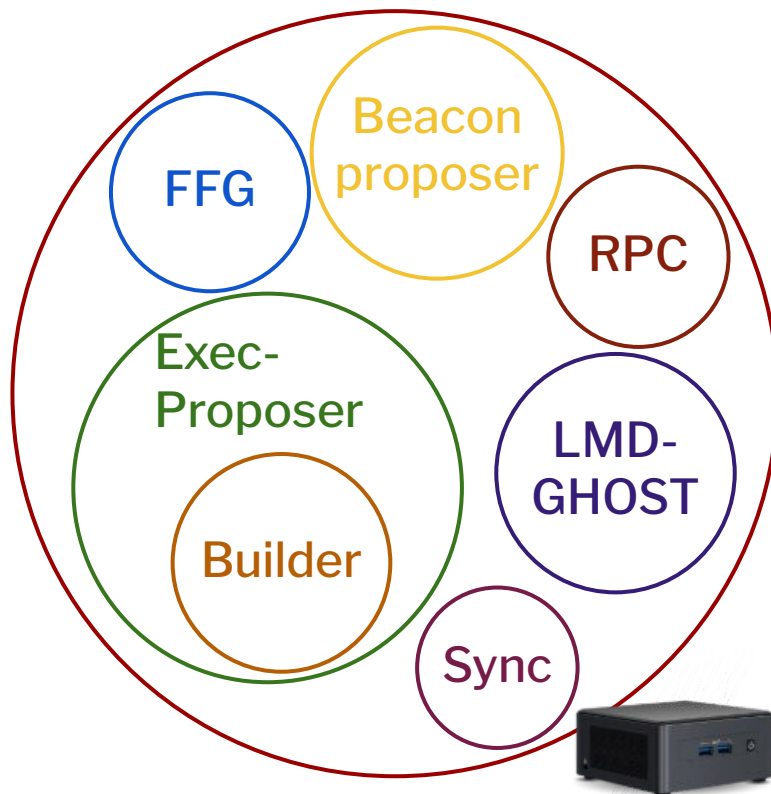


FOCIL and future of nodes

Barnabé Monnot, Protocol::[Architecture
protocol.ethereum.foundation](https://protocol.ethereum.foundation)

Berlin FIT, 11.06.2025

A map of validator services



Protocol roles



Attesting



Including \leq new! with FOCIL



Building

Operator types



Home



Commercial



Node types



Minimal



High-resource

Node types



Minimal

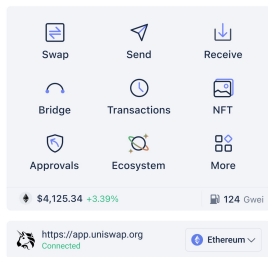


High-resource

The tech is changing...







Who wants to be an includer?

Heavy FOCIL vs Light FOCIL:

- Heavy FOCIL: Let attestors be includers
- Light FOCIL: Permissionless includers, any wallet with > 0 balance?
 - Maybe even delegated system

How to be an includer?

Includers need some data on state.

- **VOPS:** Keep EOA-relevant state data (address, nonce, balance)
- More general **partial statelessness**, keep as much in your includer node as you can/want => be a worse includer, CR degrades accordingly
- **Includer-as-relayer**, advertise oneself

Thank you!

- Includer role is key to unbundle the full node
- Most questions are about how to get the right transactions to the includer
- imo progressing on our three goals is best way to draw the future of nodes
- scale L1, scale blobs, improve ux ;)