

More slides about proposer-builder separation



mike neuder

Sunday – November 9th, 2024

L1 R&D Workshop, DEVCON, Bangkok

It takes a village...

- h/t Barnabé for being a great KOL.^{1,2}



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⁵<https://eips.ethereum.org/EIPS/eip-7732>

⁶<https://ethresear.ch/t.builder-bidding-behaviors-in-epbs/20129>

Desiderata



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- “*Block production is centralized, block validation is trustless and highly decentralized, and censorship is still prevented.*” – Vitalik¹

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 - ⇒ **design goal #3: preserve the neutrality of block space.**

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(hope you like acronyms)



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- Fork-choice enforced inclusion lists⁵ – (abbr. FOCIL)

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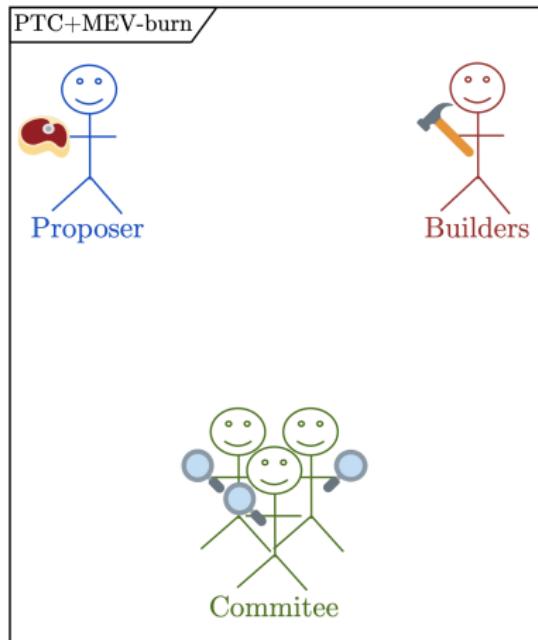
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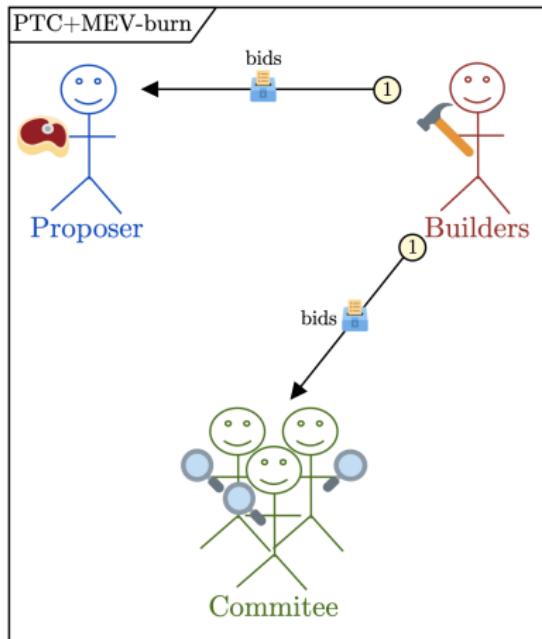
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Payload-Timeliness Committee + MEV-burn (PTC)

(if it ain't broke don't fix it)



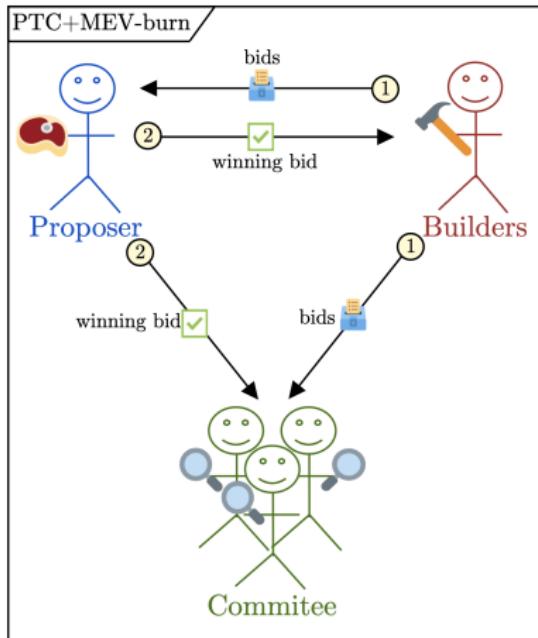
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- ① **The builder bids** in the auction by sending (block header, bid value) pairs to the proposer and the committee members.

Payload-Timeliness Committee + MEV-burn (PTC)

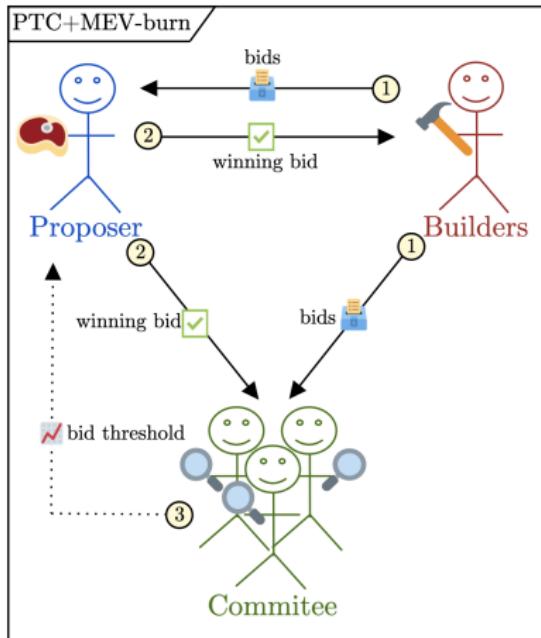
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- ② **The proposer commits to the highest bid value by signing and publishing the winning bid.**

Payload-Timeliness Committee + MEV-burn (PTC)

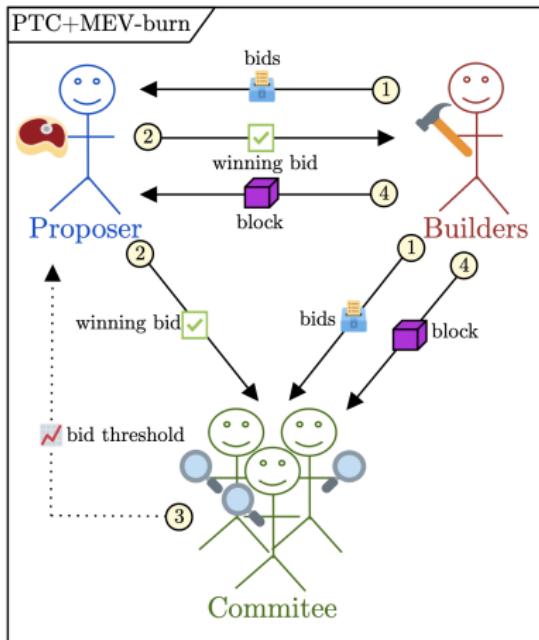
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- ③ **The committee enforces** that the proposer selected a sufficiently high bid according to their view.

Payload-Timeliness Committee + MEV-burn (PTC)

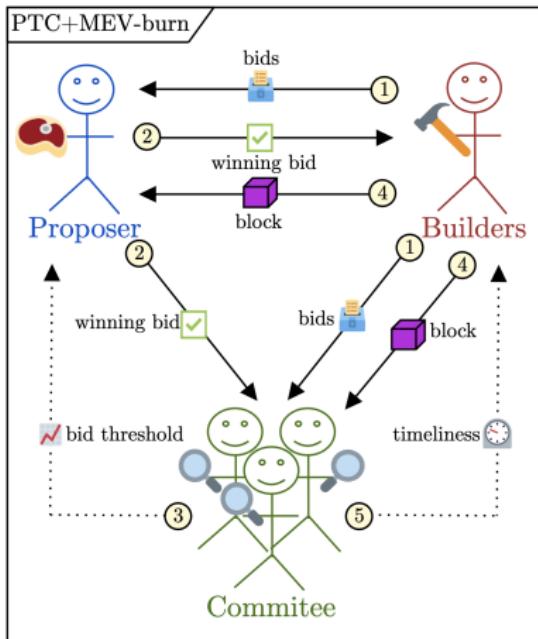
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- ④ The builder publishes the block.

Payload-Timeliness Committee + MEV-burn (PTC)

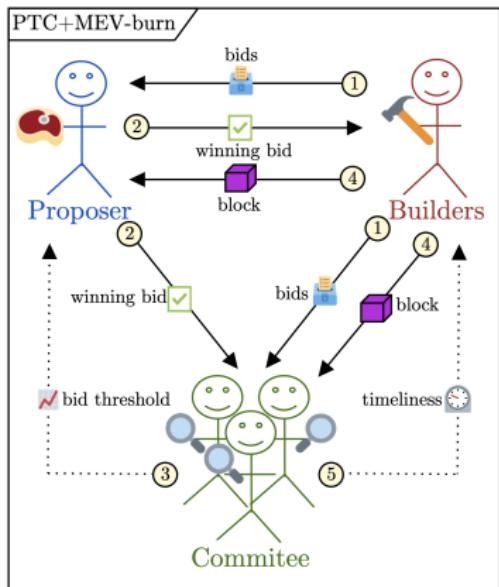
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- 5 The committee enforces the timeliness of the builder's publication.

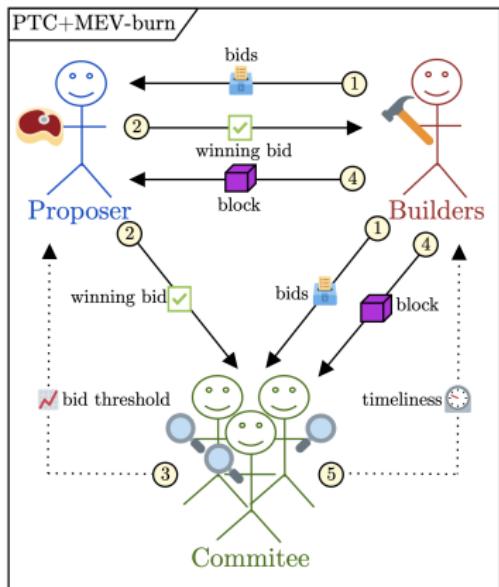
PTC analysis

- PTC solves in-protocol fair exchange between builder and proposer.

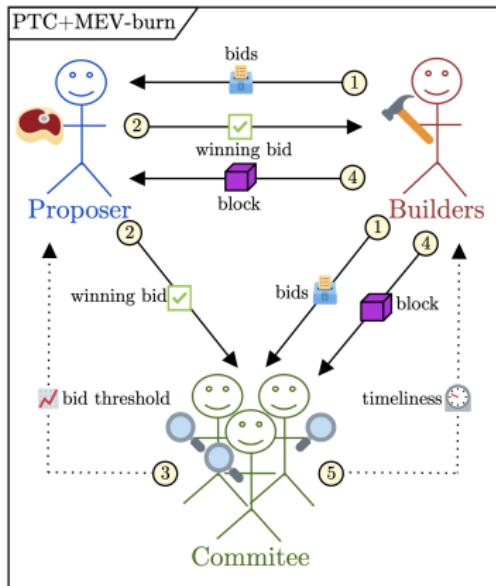


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- PTC solves in-protocol fair exchange between builder and proposer.
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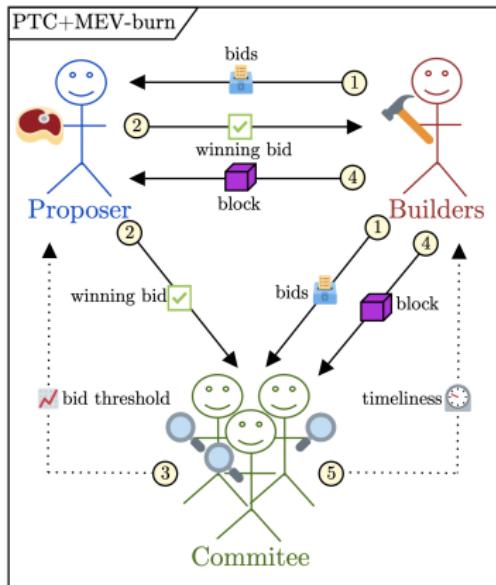


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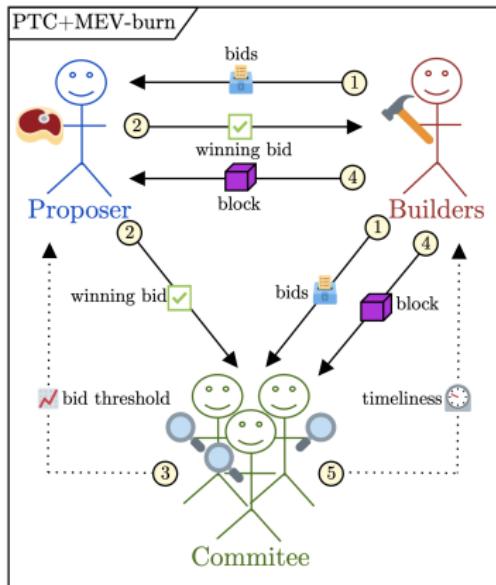
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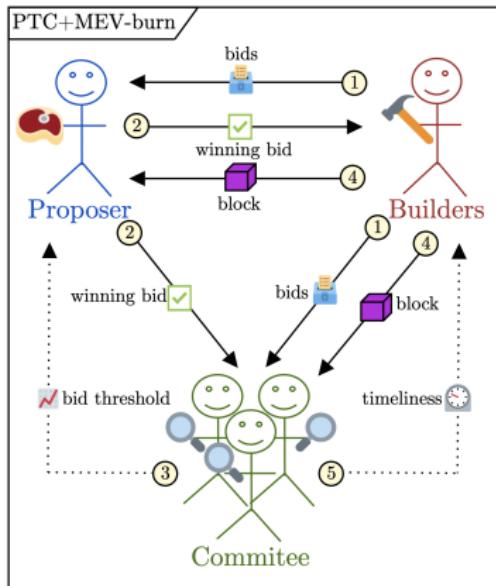
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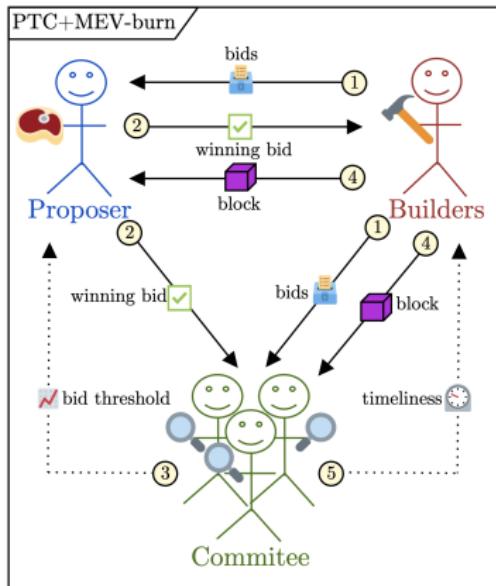
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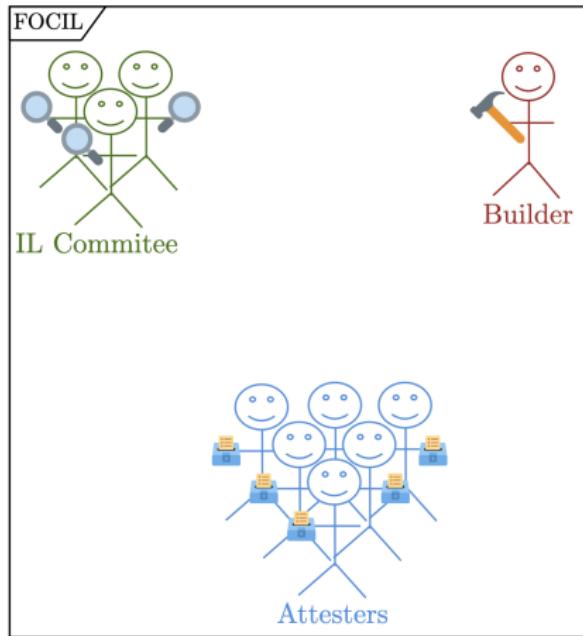
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 - Small set of builders responsible for transactions (have exclusion discretion).

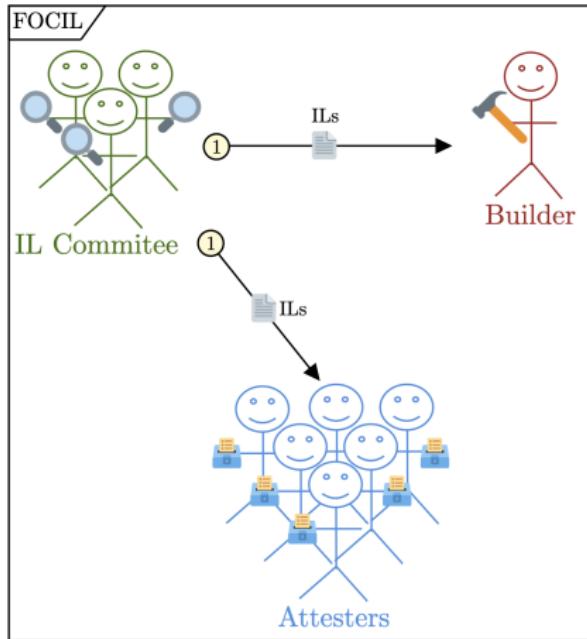
FOCIL

(teamwork makes the dream work)



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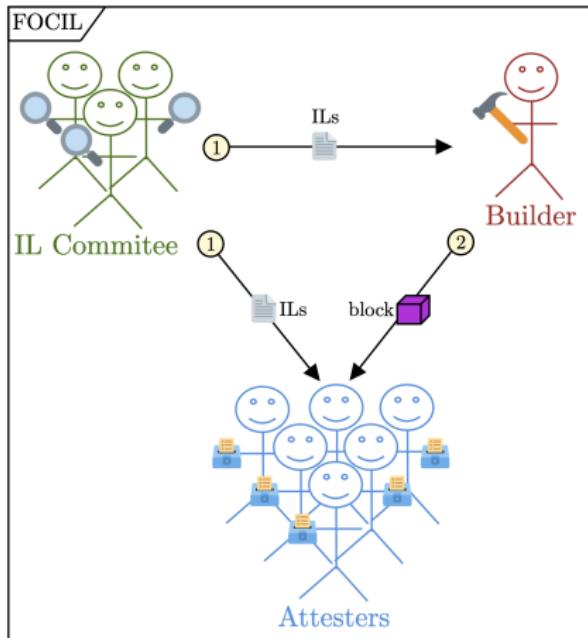
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- ① **The IL committee publishes** their inclusion lists to the builder and the attesters.

FOCIL

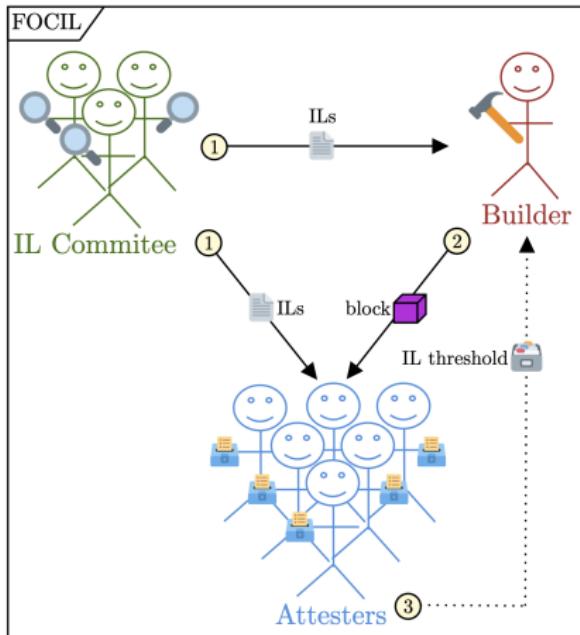
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- ② **The builder publishes** a block that includes an aggregate view of the ILs they received and conforms to the constraints therein.

FOCIL

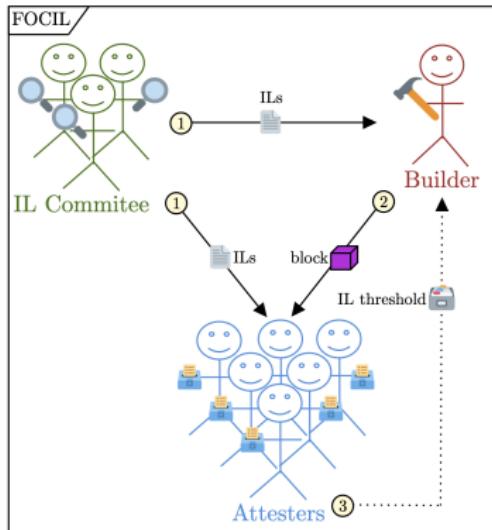
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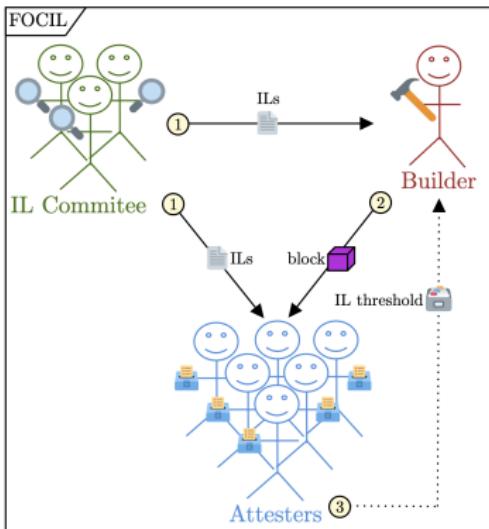
- ③ **The attesters enforce** the block validity conditions, which now check that the builder included a sufficient threshold of observed inclusion lists.

FOCIL analysis

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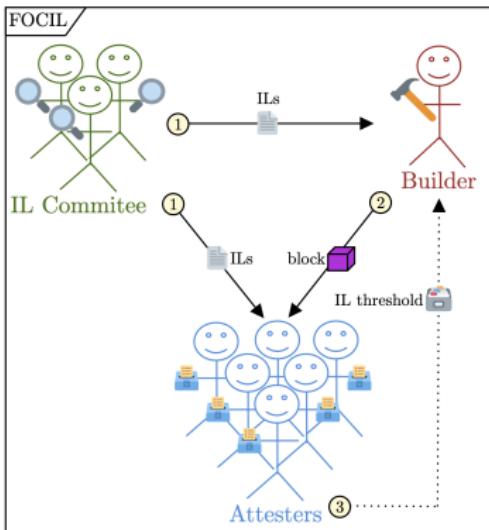


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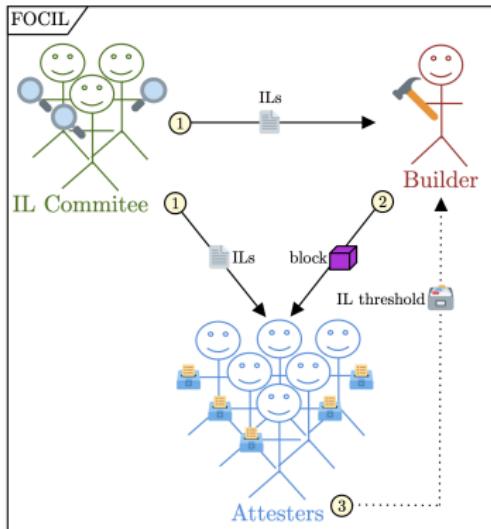
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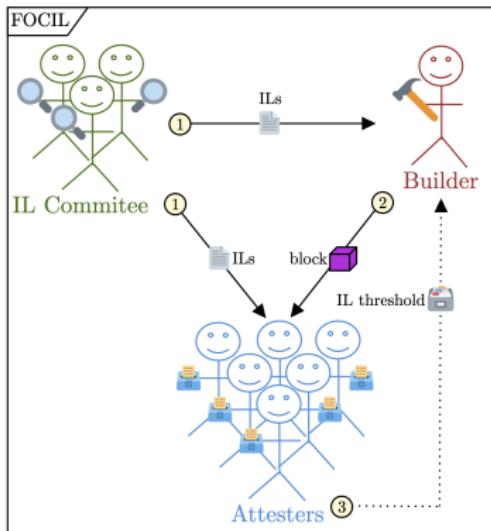
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 - FOCIL is agnostic to the exact block production process beyond enforcing a block template.

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- Builders and relays are effectively the same entity now, so we should treat them as such.
- There are only 2 builders and there is no clear indication that the market structure will change on its own.

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 2. Think more about actual market structure changes, ToB/RoB, Braid, APS, Execution Auctions, Mechan-stein.

thanks :-)



<https://ethresear.ch/t/mechan-stein-alt-franken-ism/20321>