Does Ethereum Really Need PBS?

Solving MEV at the app vs the infrastructure layer

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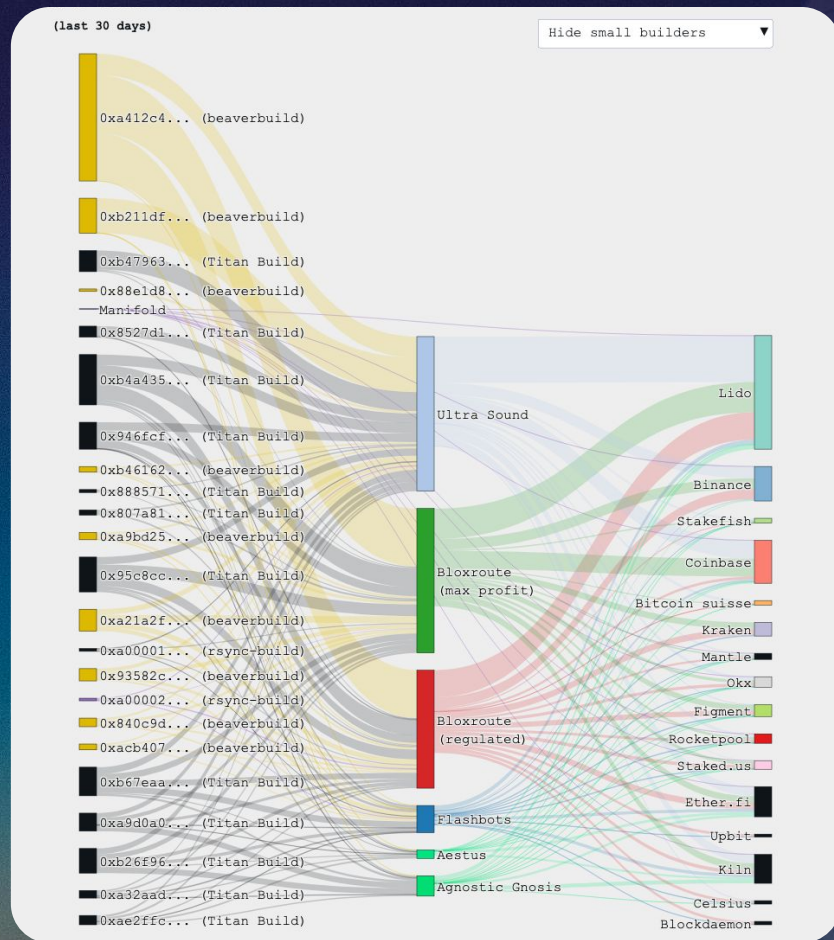https://tinyurl.com/dappcon
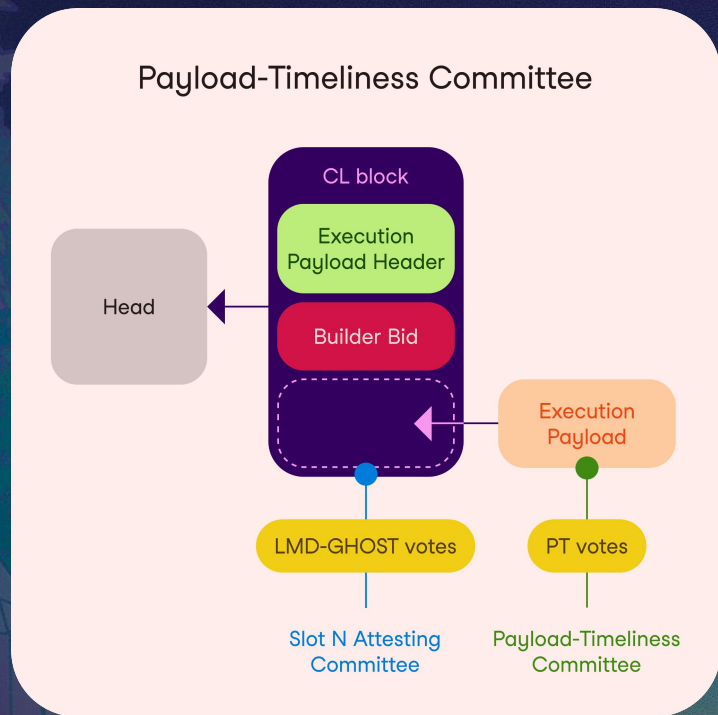
What is the issue with PBS ?

1. Trust & centralisation

Trust assumptions and centralizing forces on the base layer threaten credible neutrality of the chain.

Ethereum is proud to have >1M validators, but the content of over 90% of blocks is chosen by two well known entities.

Trust assumptions break non repetitive high value interactions (e.g. front-running hacks).

(last 30 days)
Hide small builders ▼

0xa412c4... (beaverbuild)
0xb211df... (beaverbuild)
0x47963... (Titan Build)
0x88e1d8... (beaverbuild)
Manifold
0x8527d1... (Titan Build)
0xb4a435... (Titan Build)
0x946fcf... (Titan Build)
0xb46162... (beaverbuild)
0x888571... (Titan Build)
0x807a81... (Titan Build)
0xa9bd25... (beaverbuild)
0x95c8cc... (Titan Build)
0xa21a2f... (beaverbuild)
0xa00001... (rsync-build)
0x93582c... (beaverbuild)
0xa00002... (rsync-build)
0x840c9d... (beaverbuild)
0xacb407... (beaverbuild)
0xb67eaa... (Titan Build)
0xa9d0a0... (Titan Build)
0xb26f96... (Titan Build)
0xa32aad... (Titan Build)
0xae2ffc... (Titan Build)

Ultra Sound
Bloxroute (max profit)
Bloxroute (regulated)
Flashbots
Aestus
Agnostic Gnosis

Lido
Binance
Stakefish
Coinbase
Bitcoin suisse
Kraken
Mantle
Okx
Figment
Rocketpool
Staked.us
Ether.fi
Upbit
Kiln
Celsius
Blockdaemon

2. Enshrining PBS will be ~~impossible~~ very hard

Payload-Timeliness Committee

CL block

- Execution Payload Header
- Builder Bid

Head

Execution Payload

LMD-GHOST votes

PT votes

Slot N Attesting Committee

Payload-Timeliness Committee

| **Adds complexity** to the base layer

| Adoption remains unclear as some features are simply **not possible in a p2p network**
  | Bid cancellation
  | Latency optimisations from co-location

3. PBS maximizes harm inflicted on users

PBS is trying to solve MEV by maximizing its extraction in an out-of protocol auction.

It gives searchers advanced tools to accurately and specifically target the ordering of individual transactions in a block.

The optimal outcome in the PBS auction is the worst outcome for users (traders, borrowers, LPs) – extracting the most possible value.

Slot Auction View

Builder Bids   Group by builder

76	0xa412c4b805440c136826ddc569f	0.14257 ETH
454	beaverbuild	0.14146 ETH
72	0xb4616226ba767495bb7cb51ef55(	0.14143 ETH
50	0xa9bd259c09a526915575d096fd6	0.14126 ETH
183	Titan	0.14004 ETH
28	0xa00004426b99f107744b01886d	0.13399 ETH
27	0xa00005bedf6288f76e07d7d92a£	0.13395 ETH

Value Over Time

Post-Cutoff Bids: 95

Slot Time

2362ms

The root cause of MEV

3. One asset, one block, many prices

1. CEX/DEX arbitrage
2. Sandwich/swap MEV
3. Liquidations

Buying low and selling high allows
the block producer to make a risk free profit.

DeFi mechanisms are built on the **(false) premise** of continuous time

Section 3

The solution

Multi dimensional batch auctions with single price clearing

One price, per token, per block.

Trading the same asset in the same block should lead to same execution regardless of trade ordering

Asset	Price	Trades
ETH	$3100	0x2473... 0xb61b...
WBTC	$85000	0x9caa... 0xf437... 0x8a84...
WSOL	$220	0xb61b...

as pioneered by CoW Protocol

Offering MEV protection for

Swaps

Traders buying or selling the same asset receive the same price regardless of ordering and can even be matched directly in what is known as a "Coincidence of Wants" (CoW)

AMMs

By making LPs part of the batch and treating them like swappers, LPs no longer trade at outdated prices and rebalance at the new equilibrium price instead

Liquidations

Stop loss orders can be treated like regular orders and ensure collateral recovery at the best possible price if the value of an asset falls below a threshold

›97%

of all MEV is DEX related

— Dune (Query 3740004)

Thank moo!

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