

hey just gonna write an idea of a service that might be interesting to see on eigenlayer

1- gonna put a bit of context first

as you know, ethereum has a roll-up centric roadmap and so off-load the computation for the execution of the transactions on layer 2s, on this post we will focus on validity roll ups

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after executing txs, these roll ups make a claim

on ethereum in order to get the verification

of the validity proof

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it turns out that today on ethereum, economic finality

is around 12 mins

(such a pain for bridging as well tho) + it may take the roll up 500k

gas to verify a single snark proof and even higher fees for stark proof, not optimal to pay it every block.

the reason of these 2 constraints is simply that ressource/throughput

is so scarce on ethereum...

2-what could be a solution to that ?

we can think of a service built on eigenlayer where you have eigensettle nodes doing only validity proofs checking and sending a certificate

to the roll up nodes saying that the proof have been checked.

this could be done at native latency

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we could even imagine an implementation where you can parallelize and verify many proofs on several cores ...

for sure this service would require a high amount of \$ETH restaked in order to get massive cryptoeconomic security

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eventually this layer could settle back

to ethereum in a slow mode but it doesnt matter because as soon as roll up nodes receive the certificate from the high economic security quorum

, the user is guaranteed that it is correct because if not, eigensettle nodes would get slashed

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one way to think about it is to imagine eigensettle as a layer 1.5

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3- what could be the slashing conditions ?

-double checking

a proof (same idea as double signing a block on ethereum) could be a provable slashing condition imho

-if only one validator is offline you might not even need to slash its stake but rather reduce

its rewards or even remove that node from the service but if it's a large number of validators trying to make an attack together, we can imagine that the slashing could slash half of their stake

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→in fact on this service, chance of being slashed could be considered weak

and provable

4- would it be possible to have different roll ups using eigensettle ? Spoiler yes but how would it look like ? (thx to [@Soubhik](#) for his help)

in fact, each validity roll up has its own process concerning the verification

of the validity proof that's why they would have to implement it on eigensettle and this bring me to that question.

considering different roll ups interested to use eigensettle, it is possible to have different verification software/smart contracts on this eigensettle chain and so each unique to that validity roll up.

it can all happen within the same service since it could just be different contracts with different fields, proving system etc...

this model assumes that restakers/operators would be running the full node

for that service including every software/contracts on eigensettle.

5- comparing alt layer 1s with eigensettle :

one of the core value prop of many alt L1s is time to finality

(aptos, sui ...) but what if now there is a way to get instant finality (for zk tech) but by depending of where decentralized trust

is already existing aka in the ethereum trust network. In reality, only bitcoin and ethereum managed to get decentralized trust (decentralized set of nodes + highest economic security for ethereum / highest hashrate for bitcoin) and this is the core value prop of blockchain/crypto imo.

note that here we are making an assumption for validity proof but i think it could still work when roll ups will be using zk proof.

hope that makes sense,

cheers