Scaling Decentralized Finance

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Abstract - DeFi is a financial system built around Cryptocurrencies, especially existing on the Ethereum blockchain, people lend in their stable tokens (cryptocurrencies) and earn interest on them, there are swaps and financial services as well. All this happens with the least human intervention, and everything is controlled by protocols, it currently suffers from two major problems, very high transaction costs and traffic too high on Ethereum. Other cross-chain solutions have way too little footfall to make the whole thing sustainable/profitable. This problem can only be solved when we go cross-chain while ensuring high APR to attract more footfall and not trigger a chicken and egg situation. The proposed solution is to use cross-chain solutions like Polkadot to transfer assets to substrate-based Polkadot chain and then perform all the DeFi operations there. to ensure good APR stake the locked tokens in the mining process to overcome the chicken and egg situation. Higher APR can be sought by connecting to more Proof of Stake based chains where stake can be delegated and a smart contract can decide which chain is giving higher APR and then stake the tokens, a decentralized swap will be required to exchange one token for another and then staking them.

Index Terms - Decentralized finance, scalability, blockchain interoperability, cryptocurrency swaps, cryptocurrency staking.

I. INTRODUCTION

Satoshi Nakamoto brought forth the best use case of blockchain with the introduction of bitcoin. But it was limited to only transacting bitcoins from one address to another, little to no services could be built around it, especially the decentralized ones. Vitalik Buterin, inspired by bitcoin, came forward with Ethereum that supported smart contracts which laid the foundation for services to be built around cryptocurrencies, especially ETH. This wasn’t enough to trigger the DeFi race. DeFi started when MakerDAO introduced DAI, the first cryptocurrency-backed stable coin. It helped people with the biggest thing in the cryptocurrency world, Fear of missing out. People could now lock in their Eth and get DAI, if prices were to fall they could buy more ETH from stable coin DAI. If prices were to rise they could take their ETH back and sell it thus it created a win-win situation. After this DeFi never looked back, it has $16 Billion locked in protocols. Countless services are being built on top of DeFi. Most of the banks and investment banking groups are looking towards Ethereum and DeFi as a good investment.

II. SCALABILITY ISSUES IN DE-FI

Decentralized finance is revolutionizing finance sector but it is at the same time grappling with a lot of issues, mainly because of limited throughput of the underlying platform, Ethereum, as innovative as Ethereum is it still suffers from slow speed and there are a lot of users in Ethereum.

- DeFi has increased transactions so much on Ethereum that it leads to price wars for getting the transaction in, thus it causes exponentially hiked gas prices. For a simple approval call sometimes it takes about $25 which is not an appropriate fee. Hiked gas prices lead to spending more money in transactions than that being earned from DeFi protocols.
- DeFi has increased transactions so much that now 15 transactions per second of Ethereum is way too slow to handle the huge traffic, thus it leads to transactions being pending for hours and days, it has an extremely adverse effect on the transactions that involve using current prices because by the time that transaction gets through prices would have changed for better or worse.
- Going cross-chain or to layer 2 to solve all the problems has a different problem, that is the chicken and egg situation; protocols will not give better APR until there are a good amount of users and good amount of users will
not come until there is good APR. This is the reason no prominent DeFi protocol moved away from Ethereum and all the work is still done on Ethereum.

III. PROPOSED WORK

A. Going cross-chain with Polkadot. Polkadot is a substrate-based blockchain network that has extensive support for cross-chain interoperability [1]. Polkadot supports EVM, thus it supports solidity-based smart contracts[2]. Thus it can be used to move all the assets to the faster substrate-based Polkadot chain. It will bring down the extreme transaction costs which are prevalent on Ethereum. It will also solve the problem of a very slow and congested Ethereum network, and since assets can move between Ethereum and Polkadot[3], users will have better choices for what kind of network they will prefer. Although there might be user experience issues, services can be built to make moving to Polkadot seamless. Transaction cost will be 100 times less and transactions will be 100 times faster than Ethereum.

Compared to Ethereum’s POW and Polkadot’s POS-based consensus algorithm GRANDPA and BABE are quite efficient and requires lesser computing, unlike Layer 2, there is no added overhead of sending transactions back to Ethereum Mainnet, thus it will be much faster than our available options using Layer 2 and scaling Ethereum.

B. Securing better APR on DeFi protocols. APR for the protocols is decided dynamically, based on how much lender and borrowers are there. At least that’s how it used to work on Ethereum, but here we have a unique chicken and egg problem, users will only come when there is a significant gain, and borrowers are there. At least that’s how it used to work. protocols is decided dynamically, based on how much lender and borrowers are there. At least that’s how it used to work. Polkaswap aims for liquidity, security, convenience, and a user-friendly interface, where an immediate exchange of assets can take place.

The chain that will be giving the best APR can be decided by contract and stake can be delegated among different validators[5] and extra reward can be generated, leading to better rewards from protocols and getting more users. Flowmint from Marlin protocol can be used to simplify this thing, holders of platform tokens such as ATOM, DOT, IRIS, MATIC and NEAR who wish to receive Marlin tokens by delegating to participating validators can bind their addresses (via which they delegate) to an Ethereum address (on which they wish to receive Marlin tokens) by visiting https://app.marlin.pro/flowmint on or after December 15, 2020. They may prove ownership of their addresses by either providing a signature on their ETH addresses or making a 0 value transaction from the corresponding account to a randomly generated address.

Detailed instructions for various chains are available below:

- Cosmos
- Fantom
- IRISnet
- Matic
- NEAR
- Polkadot

- MPOND tokens will be distributed on the Matic sidechain due to the gas-intensiveness of the smart contracts. You’ll have to transfer the tokens to Ethereum Mainnet for being able to interact with Marlin contracts. Instructions to use the Matic-Ethereum bridge are available here: https://blog.matic.network/deposits-and-withdrawals-on-pos-bridge.

- The unclaimed MPOND balance shown on the homepage is the MPOND accumulated across all bonded addresses for any chain. However, the pending harvest shown on a particular chain’s page represents the MPOND accumulated due to only that chain. MPOND needs to be claimed separately for each chain.

- If you delegate for the same chain using two different addresses (for example, you bought NEAR on CoinList via 2 different accounts and transferred the tokens to 2 independent addresses), you can register for the stakedrop twice but will have to use two different ETH addresses.

- The same ETH address can be used for bonding in different chains.

C. Added advantage on Ethereum side. It will also be advantageous to the service available on Ethereum.

- If footfall on the Ethereum protocols will decrease it will bring down the network prices.
- Users will also see their transactions getting merged faster.
- Decreased weight on protocols will reduce the centralization even further and help build truly decentralized service.
IV. CONCLUSION AND FUTURE WORKS

In this paper, we have proposed a mechanism to reduce the strain on Ethereum and move the big user base to a more scalable Polkadot chain to scale all the DeFi protocols and staking the locked assets on to different chains to increase the APR and get more user base and not have the chicken and egg problem. The end product will still lack certain elements like incentive to add liquidity to various protocols, because without them it will have affected usability. Thus protocols deployed on different chains will need yield farming to add another layer of incentivisation to all the protocols. It will also need extensive support for swaps, this will not only make DeFi more scalable but also instigate another cycle of more innovation.

We will need services that will see assets distributed across multiple chains as one entity, indexing services will need to be optimized and will need to be compatible with multiple architectures. Multiple exchanges too will need to consider assets present on different chains as one entity. Similarly there will be a need for one identity across multiple chains, thus services like torus, portis, formatic too will need to support multiple chains. Any Dapp that will be coming in future will have to be optimized to be able to use cross chain data and work with multiple chains.

REFERENCES

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