

Panorama Litepaper

Panorama
March 7, 2022

Abstract

We outline and propose Panorama, an automated market maker built on the Aleph Zero Blockchain which facilitates lightning fast trades and the permissionless swapping of digital assets.[3] We provide simple and efficient liquidity provision and a myriad of ways in which users can earn DeFi yield.

Background

Cryptocurrency is now home to an array of diverse financial instruments and products. Decentralized Finance has well and truly reshaped the way in which we think about financial products and the importance of censorship resistance in some of these products. The total value locked in DeFi, as of march 7 2022 reached just short of 200 billion USD, up from circa 50 billion USD the year before. [1] Some of the most notable DeFi applications are Uniswap, Trader Joe and Serum on Ethereum, Avalanche and Solana respectively. The panorama Swap protocol is largely influenced by the innovations pioneered by Uniswap in its use of the constant product formula [2]:

$$R_{\alpha}R_{\beta} = k$$

where R_{α} and R_{β} represent the number of tokens in the reserve, and k is the constant product.

During a transaction trading $\Delta\beta$ amount of β for $\Delta\alpha$ amount of α , with a percentage fee of $(1 - \gamma)$ it must satisfy:

$(R_{\alpha} - \Delta\alpha) (R_{\beta} + \gamma\Delta\beta) = k$ therefore the reserves would be updated as such: $R_{\alpha} \rightarrow R_{\alpha} - \Delta\alpha$ $R_{\beta} \rightarrow R_{\beta} + \Delta\beta$, and $k \rightarrow (R_{\alpha} - \Delta\alpha) (R_{\beta} + \Delta\beta)$ Thus, using the constant product invariant unlocks a gas-efficient way of automated exchange.

Current State of DeFi

A large proportion of the total value locked in cryptocurrency still resides on smart contract layer 1 protocols which leave something to be desired. There are still multiple inherent issues since the iterations and improvements upon more primitive layer 1 solutions such as Ethereum.

We have seen throughout the last year that many innovations have taken place yet there is still much more room for improvement.

1. Slow confirmation times: Ethereum and EVM compatible chains are inferior and handle computation much less efficiently when compared with WASM and LLVM implementations.
2. Occasionally faulty blockchains: Despite improvements in throughput the reliability of some high throughput chains sometimes makes certain protocols less usable than desired
3. Composability: In an attempt to scale through horizontal scaling solutions such as sharding the problem of a lack of composability becomes an issue. These solutions scale well for value transactions, but when composing multiple instructions that may be fragmented across multiple shards a bottleneck is introduced where the shards must reconvene to become aware of the various concurrent states that were not previously aware of each other.

Features of Panorama

Panorama is an automated market maker built on Aleph Zero. It leverages the simplicity of the constant swap pricing model and facilitates lightning fast swaps due to Aleph Zero's incredibly fast throughput and sub-second block confirmation times.

Aleph Zero was chosen as the protocol layer for Panorama to allow for near-zero gas fees on transactions, and incredibly high throughput. Aleph Zero has introduced many innovations to the blockchain space, a state-of-the-art post blockchain state transition ledger which utilizes a DAG-Blockchain hybrid and facilitates private smart contract computation is the perfect setting for building censorship resistant applications. [4] This means that once fully integrated, Panorama will be able to leverage private smart contracts, protecting the user against front running and maximal extractable value. Panorama is a protocol that cares about every user, and ensures that they are not subject to the manipulation techniques of block producers and preying searchers.

Token Swaps

Permissionless swaps with slippage and low liquidity/unbalanced liquidity warnings. Users can earn fees on the liquidity they provide.

Granular Privacy

When the full scale privacy features of Aleph Zero are rolled out, users will be able to obfuscate any transactions that may take place on top of Panorama, most notably swaps can be made completely private such that no front-running or maximal extractable value at the expense of users may take place.

Yield Farms

Liquidity providers will be able to generate additional rewards for contributing. Key pools will be incentivized with \$PANX tokens.

Permissionless Pools

The introduction of censorship resistant liquidity provision.

PANX Token

Utility

The PANX token will have the following utility:

1. Staking: Holders of PANX will be able to stake their tokens and generate additional yield earned from protocol inflation
2. The Potential to provide liquidity with PANX
3. Panorama is likely to include a governance model which allows stakers of PANX to vote on protocol changes and make governance proposals

Distribution

The PANX distribution is still in consideration and is subject to change

References

- [1] DeFi Llama. March 2022. DeFi Llama TVL <https://defillama.com/>
- [2] Guillermo A, Hsien-Tang K, Rei C, Charlie N, Tarun C. Nov 2019. An analysis of Uniswap markets <https://arxiv.org/abs/1911.03380>
- [3] Aleph Zero Foundation, https://alephzero.org/wp-content/uploads/A0_BWP.pdf
- [4] Adam Gągol, Damian Leśniak, Damian Straszak, Michał Świętek. Efficient Atomic Broadcast in Asynchronous Networks with Byzantine Nodes. <https://arxiv.org/pdf/1908.05156.pdf>