Solvent Protocol - Litepaper

What is Solvent?

Liquidity is essential for enabling smoother transactions on any tradable asset. NFTs are highly illiquid today. One of the most common ways of trading NFTs today is via a sale-based or auction-based mechanism where the sellers list their NFT assets on the marketplaces. In the sale-based mechanism, the sellers list their items at a fixed price, and buyers can pay that amount to receive the NFT asset to make a trade possible. In the auction-based mechanism, the sellers list their items for an auction and receive bids from the interested buyers, with the NFT asset going to the highest bidder. In both cases, the amount of capital that has to come into play just for executing one single NFT trade is high, and therefore the capital efficiency in both cases is low.

For being able to trade NFTs as seamlessly as many other asset classes today, like gold, the markets for NFTs need to be made more liquid. Solvent is a platform to create efficient liquidity markets for trading NFTs. Users get instant liquidity for their NFTs by depositing them into a collection-like data structure called "bucket" in exchange for a fixed number of a fungible token derivative called the "droplet" of that NFT project. This droplet represents an index of the floor price of NFT assets in that project. Each NFT project/collection will have its own "bucket" and "droplets" on Solvent. So in a way, users receive instant liquidity equal to the floor price for that NFT project with Solvent. These fungible tokens are tradable on Serum orderbooks, and liquidity can be established for trading these tokens with the help of AMMs like Raydium.

For example: If a user owns a floor-level NFT of Degen Ape Academy (a popular Solana NFT project) and is looking for liquidity, they can choose to deposit their NFT on Solvent and get instant liquidity in form of droplets that represent the Degen Ape Academy project and swap it on DEXs like Serum.

The advantages for the user to choose Solvent instead of marketplaces like Solanart for liquidity are:

1. Instant price discovery - If the users choose to list their NFT on Solanart or other marketplaces, they will have to come up with a price for which they can list the asset, whereas Solvent can provide an instant quote on the price they’ll receive in exchange for depositing their NFT.

2. Instant liquidity - Solvent can provide instant liquidity to the NFT depositors once they deposit their NFTs whereas, in the case of other marketplaces, the seller has to wait for the buyer to pay the amount and buy it from them, for the seller to receive the liquidity.

How does the pricing discovery work?

For understanding how the pricing discovery will take place, consider an example scenario:

Degenerate Ape Academy has its bucket available on Solvent. The owners of the NFTs belonging to the Degen Ape collection will be able to get instant liquidity by depositing their apes into the Degen Ape bucket. For every NFT deposited, 100 $DAPE (droplets for Degen apes) will be minted to the depositor. Each droplet on Solvent will have its respective liquidity pools on an AMM.

The price of 1 $DAPE will be driven by:

- The supply of each token in the $DAPE-$USDC pool.
- The buying and selling of $DAPE on Serum. If the droplet holders feel, the floor is overpriced, selling pressure will decrease the price of $DAPE, in case they feel it is underpriced, buying pressure will increase the price of $DAPE.
- Arbitrageurs can fill the gap in the floor price of an NFT project on Solvent and other marketplaces like Solanart.

  For example, assume that depending on the liquidity in the pool, the floor price of an ape on Solvent is 100 $USDC (1 $DAPE = 1 $USDC), and on Solanart is 98 $USDC, arbitrageurs can buy the NFT from Solanart, deposit on Solvent, mint the 100 $DAPE, and swap it on Serum for 100 $USDC (achieving a gain of 2 $USDC). The swap will cause the supply of $DAPE tokens to go up and $USDC to go down, and will cause the price of $DAPE in terms of $USDC, to decrease.

The real-time prices of the droplets of the NFT projects represent a stabilized AMM-based floor price of NFT projects as compared to the unstabilized source of floor price from the marketplaces where the floor of the entire project is defined by the price of just one single NFT asset.

Why is Solvent more efficient?

NFTs have one huge problem today and that is the problem of illiquidity. One of the reasons for illiquidity is just as mentioned above, the lack of efficient ways to discover fair pricing for NFTs. Most of the NFT collections today get their floor prices from the NFT that is listed for the sale at the lowest value in a particular marketplace. And the valuation of floor price is achieved by the NFT, only after the buyer has paid that amount to the seller. As noticed, the capital efficiency of this approach is low. Capital efficiency is the ratio of spending and growth. The NFT asset won't be truly worth 100 SOL until some buyer pays the equivalent amount to the seller.

Valuation of NFT before the sale	-
Valuation of NFT after the sale	100 SOL
Amount paid by the buyer	100 SOL
Capital efficiency	100/100 = 1

The efficiency further reduces with auction-based marketplaces like SuperRare, since multiple buyers make bids towards an NFT while the ultimate sale happens only to one. The above pricing discovery mechanism for Solvent has higher capital efficiency because the price quote for each NFT of a project simply depends on the status of liquidity in the pool. So, there is near to constant cost that is paid for the price discovery to happen, and the same price discovery applies to all the NFTs in the project.
With Solvent, our vision is to introduce liquid markets to NFTs so that it can help:

- Drive better price discovery
- Increase the number of transactions for the NFT assets
- Provide more use-cases to the users for their NFTs, such as all DeFi applications can be unlocked on NFTs once we bring them liquidity.

How do we establish enough liquidity?

For executing smoother transactions on the droplets, sufficient liquidity needs to be added to the Serum markets for those droplets. Users holding droplet tokens of NFT projects can add their liquidity to the pools to earn trading fees as well as yield farming rewards.
Currently, as of December 23, 2021, the way users can add liquidity is by minting the droplets by liquidating their NFTs and using those droplets to add to the liquidity pools. This way has been working well for projects that have relatively lower floor prices (less than 10 SOL), such as Pesky Penguins. Whereas for the projects which have relatively higher floor prices (greater than 35 SOL), we have noticed that users do not want to lose the ownership of their relatively expensive NFT assets for adding liquidity to the pools. For this, we are evaluating and working on newer features.

Liquidity Rewards

For providing liquidity, the users will be rewarded with liquidity rewards. The liquidity rewards are in form of $SVT tokens, the governance token for Solvent, that will be discussed ahead in detail. The liquidity rewards will be higher for the early-stage liquidity providers and will reduce with time. The Solvent team has a significant allocation of the $SVT tokens in the tokenomics for the liquidity rewards and will be available to the public when the tokenomics are released.

Opportunities with Solvent

Once the liquidity is set in place for the popular NFT projects, the applications that are unlocked due to the liquidity are far more than just instant cash out to $USDC or $SOL. Thanks to the awesome composability for apps developed on Solana, Solvent can directly integrate with other applications that exist on Solana.

Possible applications that Solvent can enable for NFTs:

- **Fractionalized exposure to NFT projects**: Owning a Degen ape with a floor price of 60 SOL is not affordable to many but the ability to own fractions of droplets of Degen ape project from Serum can help onboard many newcomers to the NFT world and allow fractional ownership. There are a bunch of other ways where

fractionalized ownership of the NFTs makes more sense if done via mechanisms like fractional.art, but liquidity can be a major problem with such mechanisms for run-of-the-mill NFT projects that do not have high demand. With a floor price discovered for an NFT project with Solvent, Martingale share fractionalization can also be made possible for these NFTs.

- **NFTs for lending**: The floor price indicated by the droplet of the NFT project can be used as a stabilized AMM-based source of a floor price for calculating the value of the NFT asset that can be lent.
- **NFTs for passive income**: NFT assets can also be used for earning passive income early on when the droplets that are minted from depositing the NFTs are staked into the liquidity pools of those droplets.
- **NFTs for collateral loans**: Similar to lending, an AMM-based floor price can also be used to calculate the collateralized value for an NFT for giving out loans on those NFTs.
- **Floor perpetuals on NFTs:** Floor perpetuals are perpetuals with a modification that they track the floor price of the NFT project as its index price. Solvent will enable a stable floor price for the NFT project that is AMM-based and not based on capitally inefficient marketplaces.

Why Solana as infrastructure?

There are several reasons why we chose Solana for potentially creating a multi-chain NFT liquidity platform with Solana as its infrastructure layer.

Technical advantages:

- Low transaction fees and low finality times.
- Programs are written in Rust programming language making them highly optimized in terms of memory, speed, and security.
- The instruction handlers being stateless and the state living separately from accounts makes it more secure.
- Sealevel runtime allows faster and parallel execution of transactions.

Ecosystem advantages:

- Limit orderbooks - The trading of the droplets for NFT projects can be done on Serum, the only on-chain order book, that can allow high trade execution speeds, as well as allows traders to place limit orders.
- Optimized concentrated liquidity - Many projects are coming up with concentrated liquidity solutions. These solutions are extremely important for our project as they can help optimize the liquidity that the users will provide for the droplets at their best and avoid impermanent loss.
- Cross-chain bridges - Cross-chain bridge's technology can be used to bridge NFTs from other chains such as Ethereum to the Solana infrastructure for leveraging the technical advantages of the Solana blockchain.

$SVT - The Solvent governance token

Solvent has a native token SVT on Solana blockchain with the following uses:

1. Governance: Voting on proposals.
2. SVT Token Staking: LPs can stake SVT tokens to obtain benefits such as:
    a. A portion of the minting fee charged by the platform is used to open market buyback of SVT tokens, which are distributed amongst the stakers.
    b. Minting fee discounts – On the basis of the amount that is staked, users get reduced minting fees to use the platform.

Key milestones in roadmap 2022

Integrating with oracle for NFT floor price index feeds

Since each droplet represents a hundredth of an NFT asset in any NFT project, we can compute the floor price of an NFT project on Solvent in terms of USDC at any given time by multiplying the real-time price of the droplet for that project. Real-time feeds and quotes for the changes in the price of these droplets can be created by integrating with oracles on-chain.

Developers and other web3 protocols can leverage the real-time feeds from the oracle for building protocols and applications that utilize a stable AMM-based floor price feed on top of Solvent.

Releasing the Solvent SDK

We will be releasing the Solvent Javascript SDK publicly for the developers and protocols to query the Solvent buckets data and integrate Solvent's functionality of tokenizing NFTs into droplets directly on their apps.

Integration with Ethereum NFT projects

Our plan includes onboarding Ethereum NFTs to Solana programmatically via Wormhole bridge and creating instant liquidity and lending features for those NFTs as well.

Integration with perpetual swaps protocol on Solana

The pricing feed of the droplets via the oracles can be leveraged to trade floor perpetual swaps of the floor price of the NFT projects. Ref: Floor perpetuals as proposed by Dave White from Paradigm Research.

Project kickstart plan

The Solvent team will initially be curating the creation of buckets and onboarding of the NFT projects manually by themselves instead of allowing users to create the buckets. This allows us to open up the platform and grow it, gradually and progressively with time. The initial inventory in the Solvent buckets, as well as the liquidity in the liquidity pools, will be bootstrapped by the Solvent team.

App live at: https://app.solvent.xyz/