

# STONE

Rock Solid Yield through Cross-Chain Assets and Liquid Staking

## 1 Executive Summary

**STONE** – is the only yield management protocol focused on creating “Rock Solid Yield” for all the users in the DeFi ecosystem. Stone is positioned as the anchor yield aggregation platform that aims to expand the current DeFi yield market and include the yields from the staking assets. As the beginning of yield market is positioned at ERC20 assets, which still takes small portion of whole crypto market cap, Stone is uncovering the opportunities of moving into the phase 2 at the Proof of Stake (“PoS”) assets, and Stone has the vision to be the global yield marketplace with the inclusion of multi-chain PoS assets.

To leverage the capability of Substrate and Polkadot, Stone is also looking to provide more innovative products based on a wide range of yield-bearing assets to users across multiple blockchains.

**Cross-Chain POS Asset Aggregation and Yield Optimization** – Expanding from the yield management platform based on Ethereum, Stone is to include the POS tokens such as ETH2.0, Dot, Sol, Rose and etc., which will optimize the staking yields to Stone users.

**Yield Marketplace for liquid staked assets** – In addition to the current ERC20 DeFi landscape, Stone is also aiming to build up the lending and trading market for the liquid POS assets, and with the vision to have yield-based products (“Yield Derivatives”) such as yield tranches, options and etc by collaborating with selected partners in the DeFi ecosystem.

**DeFi Anchor for Integration and Composability** – Via offering Rock Solid Yield, Stone will be a widely adopted yield management protocol and composable with the range of DeFi protocols e.g. to receive AUM from insurance protocols and Fund of Funds, connect with liquid staking providers, DEX and lending protocols. Stone is designed in a way to maximise the ease of implementation and jointly structure the DeFi products for all users in the DeFi market.

## 2 Background

The total market capitalisation of cryptocurrency assets has reached over 1 trillion USD as of January 2021, and in particular, the growth of decentralised finance (“DeFi”) market has been exponential in 2020, and the total value locked (“TVL”) in the DeFi market has reached over 25 billion USD as of January 2021.

Stone believes that DeFi will stay and become a large use case in the crypto space. We will see more financial instruments and various yield farming opportunities in the future, way beyond current imagination. As any industry progresses and matures, DeFi will bring about the next wave of investment and talent.

There are protocols chasing after high yield with constantly changing strategies or with aggressive strategies, however only a rock solid yield protocol can provide the sustainability and stability conducive to large capitals. For example, insurance protocols can provide insurance confidently to Stone and also generate yield for their premiums by Stone. Fund of Funds and DAO will also be confident to deploy capital into yield farming.

**Current Problems With DeFi Yield Generation** - There are a number of amazing projects out there, exploring innovations in different directions. However, we believe the whole industry is missing critical elements:

- Centralized operation with limited community involvement
- Code not open-sourced and there is no TRANSPARENT GOVERNANCE. System changes and fund deployment are done anonymously, which poses a big security risk.
- Insecure and risky strategies
- Weak dev team

That’s why Stone has been initiated — to build the yield management protocol we want to see, with the community we want to build.

## 3 Stone Platform

Stone is to be the cross-chain yield maximization and liquidity aggregation platform, and Stone consists of Four development parts - Passive Income Vaults, Liquid POS Yield Streams, Risk Optimized Yield Indices, and Cross-Chain Strategies.

### 3.1 Passive Income Vaults

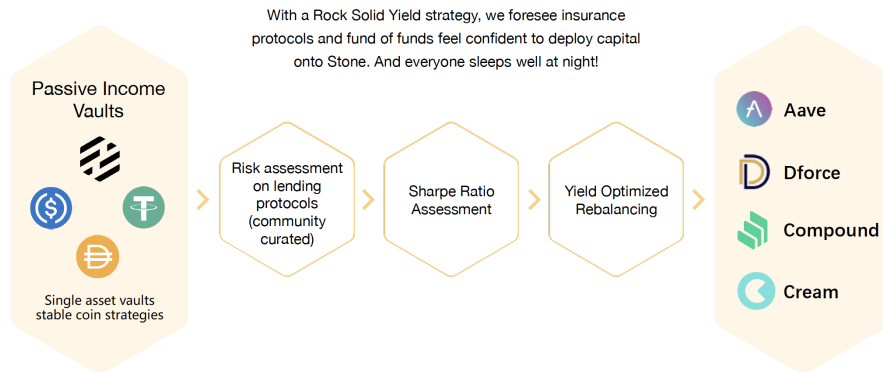
This consists of Stable Coin Strategy Executor and Asset Allocation Optimizer.

**Stable coins** consist of a large portion of funds in yield farming, hence setting up a secure strategy for it is the first crucial step for Stone. The current Defi Market looks at three venues to create yield, and each platform poses different levels of risks depending on their track record and technical capabilities:

- Interest generated from lending protocols
- Transaction Fees Sharing from being a Liquidity Provider (“LP”)
- Yields generated from the gains of governance tokens or platform tokens

Stone proposes to start with a set of stable coin yield farming strategies based on lending protocols. This is due to the fact that there is an active lending market around stable coins for traders to take leverages, and the loan to value ratio is high enough to withstand most market volatilities (liquidation mechanism has been improved economically and technically since the March crash). In addition, the interest rate has been decent and stable for stable coins with a number of platforms, such as Compound, Aave, dForce, Cream, etc.

Stone will launch vaults for single assets with multiple strategies. The technical platform restrains funds can only be deployed to the whitelisted lending protocols, hence users’ funds won’t be moved out of the designated venues. Users will be rewarded with the interest from lending protocol (Stone will switch between different strategies to harness the highest yield) plus STN tokens. Supported tokens at the launch: USDT, USDC, Dai, and etc.



“Anchor Rock Solid Yield Aggregator”

**Asset Allocation Optimizer** - this is a user-guided asset allocation tool which is designed to help users to allocate capital for their portfolio construction. Stone also provides the allocation recommendation algorithm for user’s reference such as maximal capital APY, best sharpe-indexed APY, and etc. Stone will

also collaborate with the community to develop more guided tools for users to make reference to.

**Sharpe ratio** - is a tool that enables investors to examine the overall risk-adjusted return of a portfolio or an asset, it has been widely used in the traditional financial markets. Now more crypto traders have adopted this mechanism and have a better understanding of how much risk to take.

For the single asset a, the sharpe ratio is calculated as follows:

In general, we aim to achieve the portfolio sharpe ratio higher than 1.0, which indicates the relatively good and acceptable risk-adjusted returns.

$$S_a = \frac{E(R_a - R_f)}{\sigma_a}$$

where

- $S_a$  = Sharpe Ratio
- $E$  = Expectation
- $R_a$  = Asset Return
- $R_f$  = Risk - Free Rate as Benchmark
- $\sigma_a$  = Standard Deviation of the Asset Excess Return

To expand the equation to access the portfolio-wise sharpe ratio, we will implement the following equations for calculating the  $R_p$  and  $\sigma_p$ , respectively we note the  $R_p$  and  $\sigma_p$  for portfolio return and portfolio standard deviation:

$$Rp \text{ (portfolio return)} = \omega_1 r_1 + \omega_2 r_2 + \omega_3 r_3 + \dots + \omega_n r_n$$

$$\sigma p \text{ (portfolio standard deviation)} = \sqrt{(w_1^2 \sigma_1^2) + (w_2^2 \sigma_2^2) + \dots + (w_n^2 \sigma_n^2) + \sum_{i \neq j} (2w_i w_j \rho_{ij} \sigma_i \sigma_j)}$$

Where

- $\sigma_i$  = Standard Deviation of Asset i
- $w_i$  = Weightage of Asset i in the Portfolio
- $\rho_{ij}$  = Correlation Coefficient of Asset i and Asset j in the Portfolio
- Where  $\rho_{ij} = \frac{Cov(r_i, r_j)}{\sigma_i \sigma_j}$ ,  $Cov(r_i, r_j)$  = covariance of asset i and asset j in the portfolio
- $Cov(r_i, r_j) = \frac{\sum(r_i - \bar{r}_i)(r_j - \bar{r}_j)}{n-1}$ ,  $n$  = number of data points used in the sample selection

On Stone, users can adjust their allocations of assets between the vaults of multiple DeFi tokens and exposures via Stone's portfolio management section. However, Stone's core philosophy is not to encourage the active balancing of the portfolio in the current DeFi market due to the high transaction costs and potential non-robust yield farming protocols. We aim to create Rock Solid Yield

for our users, which provides sustainable and safe returns.

Asset allocation Optimiser serves as a guided asset management tool that will benefit the user's management of assets. By deploying assets on the portfolio basis, users can allocate the DeFi assets in a diverse way, which have different levels of correlation with each other.

### 3.2 Liquid POS Yield Streams

DeFi has successfully incentivised users to create large liquidity pools for DEXs and lending protocols for ERC20 tokens, hence making user experience as smooth as a centralized platform.

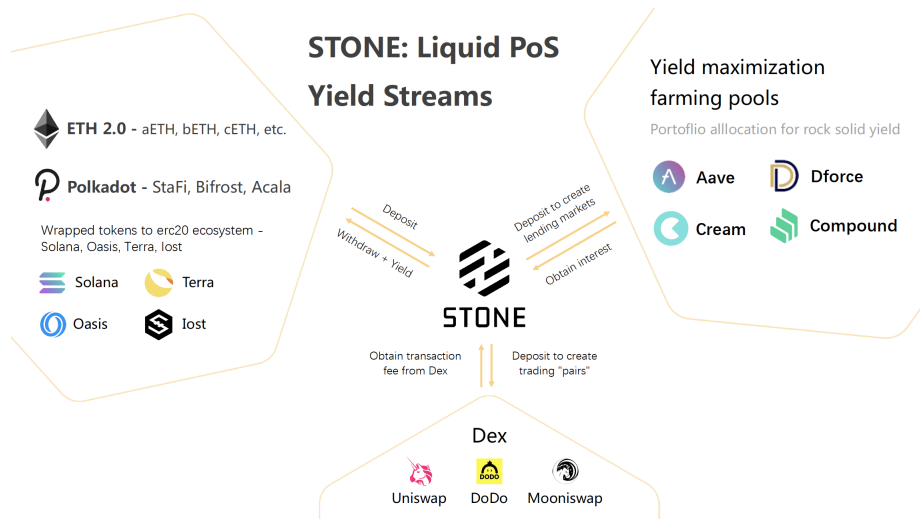
We could extend the same line of thinking into another type of yield generating assets, blockchain rewards provided by Proof of Staking (PoS) blockchains. The staking reward is usually a fixed percentage in terms of the number of tokens staked. This creates a stable yield for token holders, and an appreciation opportunity when token price rises. Currently a number of projects are working on Liquid PoS to bring staked assets onto Ethereum, it helps users to:

- By enabling the illiquid staked tokens to be transferable, ensures sufficient token in circulation and efficient price discovery on DEX
- Users can trade the staked tokens to secure their profit on the spot, avoiding the 7–28 days unbounding process (this however is due to on-chain security consideration against long-range attack)

As we see a number of PoS blockchains are being more accepted in the market, Ethereum, the second largest PoW blockchain has launched its PoS beacon chain, marking its shift to PoS. Other blockchains such as Polkadot, Oasis, Solana also create constant double digit returns.

PoS is a larger market (total market cap of POS at 238 billion USD, with 44 billion USD staked) than the current DeFi industry (TVL at 25 billion USD) as of January 2021. We see PoS staking as a great opportunity to provide Rock Solid Yield to users.

Therefore, Stone sees liquid PoS Yield Farming as an attractive strategy to bring onto the platform, including Ethereum 2.0, Polkadot, Solana, Oasis, Terra, etc. The first strategy that will be put into execution will be Ethereum 2.0.

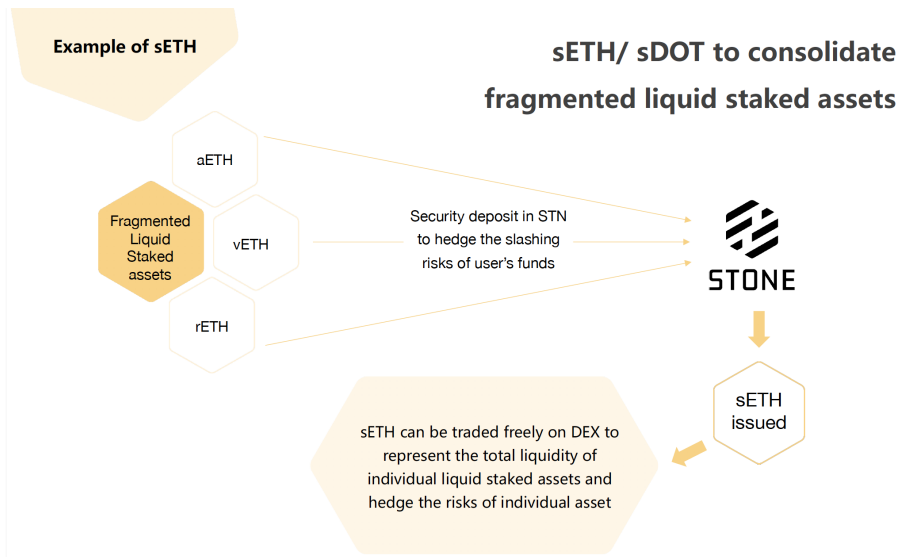


”STONE Liquid POS Yield Streams”

### 3.3 Risk Optimized Yield Indices

A number of indices have been established in the market, tracking token prices. These correspond to stock indices in the traditional financial market. We are proposing a much bigger market with more benefits to our users - yield bearing indices. These are equivalent to bond indices such as bloomberg Barclay Global Aggregate Bond Index. In the traditional financial market, the bond market is much bigger than the stock market with more stable yield. Global bond market size is approximately USD 123 trillion as of December 2020, while the global stock market is estimated at USD 85 trillion as of December 2020. In our design, we may aggregate lending LP tokens or liquid staked tokens as one index, to bring in the best of both worlds:

- Yield Streams - Constant yield from lending interest or staking rewards as anchor yield provider for Stone users
- Capital Appreciation Potential - Upside in token price appreciation for the tokens within the index
- Liquidity Aggregation - Globally aggregated liquidity for fragmented liquid staked assets, for example, an sETH to represent all the liquidity of aETH, bETH, cETH, etc or an sDOT on substrate for liquid DOT aggregation.
- We have developed the potential design of sETH, where aETH is issued by Ankr, vETH is issued by Bifrost, and rETH is issued by Stafi:



”Indicative Design of Stone Liquid Ethereum Index”

**Risk-based Indices** - the principal goals of different categories of risk-based index, such as increased constituent weight diversification, increased risk diversification, maximum expected risk-adjusted outcomes (Sharpe Ratio) or minimum levels of index volatility. At the same time, individual risk-based indexes may also exhibit undesirable features, such as a complex construction methodology.

- **Maximum Sharpe Ratio (risk-efficient)** - Maximum Sharpe Ratio (or risk-efficient) indexes are designed with the aim of improving the return-to-risk ratio outcome using an optimization approach. The Sharpe Ratio is defined as the average return in excess of the risk-free interest rate per unit of risk. In this case, the optimization inputs assets’ volatilities, correlations and their estimated excess returns. In common with other risk-based index construction methodologies that rely on an optimization, constraints are used to avoid overly concentrated outcomes.
- **Equal Risk Contribution (ERC)** - An equal risk contribution (ERC) index follows the logic of equal weighting, but rather than equalizing stock weights, an ERC index equalizes constituents’ contribution to risk. Every index has an aggregate level of risk (as measured by standard deviation), which is determined by the individual constituents’ volatility and correlations. In order to address this imbalance, ERC indexes weight constituents such that their contribution to the overall index risk is the same.
- **Minimum Variance** - Minimum variance indexes seek to minimize the volatility of the index as a whole. Minimum variance indexes achieve this objective by utilizing the correlations and volatilities of each stock. A

combination of the assets and asset weightings that together produce the lowest possible index volatility (i.e., the minimum variance) is created. The minimum variance index is also calculated using an optimization algorithm and in practice requires a number of constraints to limit index concentration.

In addition, to further expand beyond yield-bearing indices, we will enable other partners to work on innovative products on top of it, such as interest swap, etc.

Technically we will build it on Polkadot, to allow cross-chain assets to be included in the indexes and also to anticipate the large trading volume and lower gas fees on the network.

### **3.4 Cross-Chain Strategies**

With the leverage of the Polkadot's cross-chain capabilities, we are looking to bridge other chain assets to join Stone as well. In addition to Ethereum and Polkadot, we would like to continue the adoption of Bitcoin in the DeFi ecosystem and cross-chain marketplace of Stone, as Bitcoin is in demand in the ecosystem and with rapid growth rate. As of January 2021, there are in total of 148,147 Bitcoins on Ethereum, approximately 148 times from the 1,000 Bitcoins on Ethereum as of January 2020.

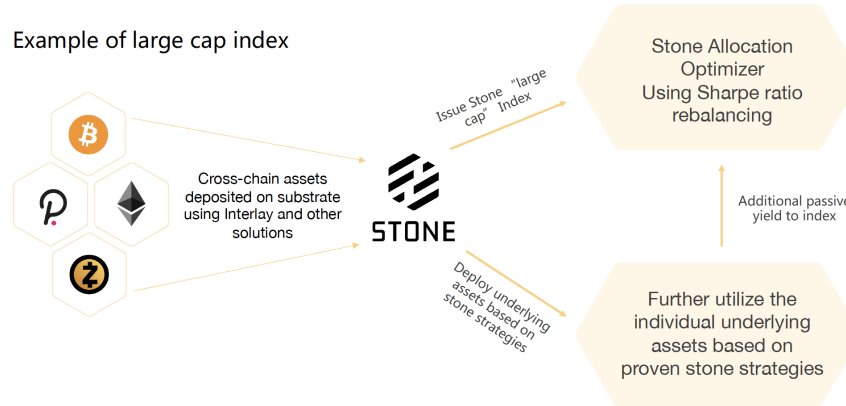
With the bridge built by Interlay and other protocols, we could easily bring valuable assets such as Bitcoin, ZCash etc onto Stone platform to generate yield.

These large cap assets will be able to form an attractive index for average users to get exposure to the crypto market with hedged risk and high liquidity. This will be the first decentralized cross-chain index that so far is only offered by a centralized entity with a custodian. A decentralized non-custodian index will provide additional security to users' funds. And each individual underlying index constituent will be able to participate in different yield farming strategy to generate additional yield for users.



## STONE: Cross-Chain Asset Aggregation & Risk Optimized Yield index

Example of large cap index



”STONE Cross-Chain Strategies”

## 4 Stone Team

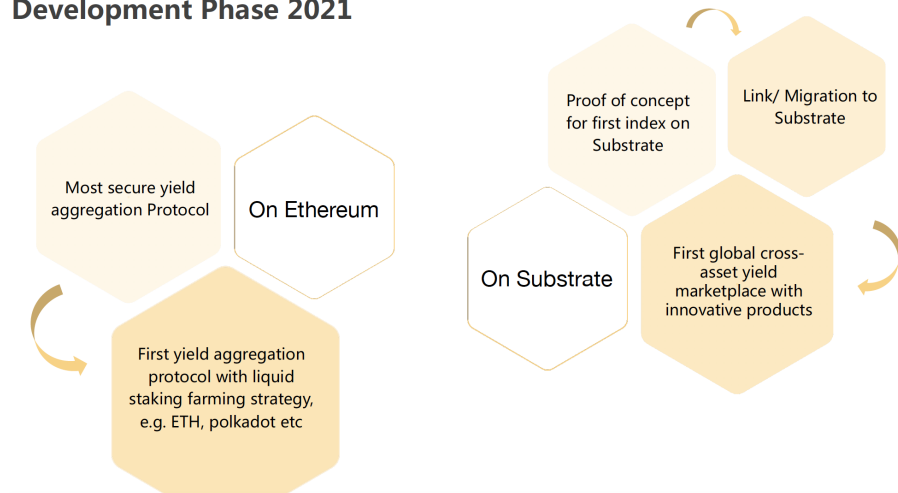
To bootstrap the technical development, RockX team and a few individuals from the DeFi community working to launch the alpha and public version of Stone protocol for the community and committed to lead the technical development for the next two years before the community decides the next steps.

RockX is a development house with deep experience in blockchain development and runs various blockchain validators, such as Polkadot, Terra, Solana, Oasis. RockX has also committed to support the Polkadot Ecosystem in the next five years through technical and financial support.

## 5 Stone Product Roadmap

### STONE: Technology

#### Development Phase 2021



### 5.1 Q1 2021

- Alpha launch of Stone yield aggregation platform with stable coin vaults
- Alpha launch of Stone ETH2.0 staking assets aggregation platform with liquidity aggregation
- Development of Stone yield aggregation platform with composability of other DeFi tokens
- Beta launch of the Stone yield aggregation platform with multi assets in the DeFi market
- TGE Exchange Listing
- Alpha phase of liquidity mining program

### 5.2 Q2 2021

- Launch of sDOT to unlock the liquidity of staked DOTs
- Launch of other liquid staked assets on Oasis, Solana and others
- Alpha launch of Stone ETH2.0 staking assets aggregation platform with lending marketplace

- Development of Stone staking assets aggregation platform with other POS chains

### 5.3 Q3 2021

- Launch of index product on Substrate
- Launch of interest swap/ tranche product with partners

## 6 Token Economy and Distribution Metrics

### 6.1 Token Utility

The Stone token (“STN”) is the native utility token of Stone Protocol, which acts as the central part of the incentive structure of Stone DeFi ecosystem and interests of all ecosystem participants.

STN As Cornerstone: STN token is the governance token that will play a crucial role in the Stone ecosystem. STN’s primary function is for protocol governance and it is further empowered to reward liquidity provision during the bootstrapping (each pool would have its dedicated STN rewarding scheme to build up sufficient size) and more interestingly, STN will be used to incentivize portfolio rebalancing (for example, STN reward may be higher for certain pool to attract more funds there in order to maximize yield farm), pay transfer fees for the cross-chain execution and act as the security deposit to safeguard funds in the liquid staked assets.

Stone Protocol will be governed through a DAO structure, with STN tokens representing voting rights including - (1) transactions fees (2) inflation reward (3) inflation distribution ratio (4) asset pool allocation (5) new asset addition (6) white list / approval of new asset pools and strategies.

This highlights some possible governance aspects, and we will adopt the community approach to conduct the protocol governance in an open and transparent framework.

### 6.2 Token Value Accrual

#### 6.2.1 STN Token Staking

Staking of the STN token is the anchor for the Stone ecosystem. It confers substantial benefits to users who stake their STN tokens, including: (i) governance rights; (ii) farming multiplier.

Stake for Voting - For community proposals of governance changes, the users will need to stake STN tokens for voting, and all voted tokens will be returned

