Konomi: Decentralized Money Market for Cross-Chain Assets

Konomi Foundation

Abstract

Konomi is a full suite asset management solution for cross-chain crypto assets. Using Substrate as the development framework, the network aims to support more assets in the Polkadot ecosystem. Users could manage their crypto holding positions, trade assets and earn interest through decentralised money market products. Konomi also issues its native network token in order to kickstart liquidity and decentralised governance.

Background

Since the Bitcoin whitepaper was published in 2009, researchers, entrepreneurs and investors have been trying to change the current fiat-money system and to create a digital currency that is decentralised, fair and easy to use. After years of development, the industry has evolved from digital cash to a vibrant ecosystem of decentralised applications. Noticeably, the term decentralised finance or open finance was brought to the market after the cryptocurrency bull run in 2017 and start to ramp up in volume in 2020. It broadly includes financial applications built using blockchain technology that are aimed to disrupt intermediaries in the traditional finance industry .

Decentralised finance (DeFi) changing FinTech

Decentralised money market protocols allow users to access high yield financial products without border

Global interest rates varies a lot across different markets. For instance, developed countries offer close to zero interest rates on saving accounts and that more complex financial market products are not accessible for average bank customers. However, it is hard to exploit different returns in the world of traditional finance due to restrictions in foreign currency exchange, account restrictions in equity markets and so on. As demonstrated in Graph 1, there are

significant gaps between the interest rate in emerging markets and advanced economies after the global financial crisis, and that both are exhibiting a downward trend.

Graph 1:

Interest rate cuts in EMs have not kept pace with advanced economies

Real interest rates* (%)

* Real interest rates are GDP-weighted for each country group
Source: Maurice Obstfeld, University of California, Berkeley
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With the growth of crypto market capitalisation and the number of users, offering financial services for crypto assets now makes sense for companies. We have witnessed a significant surge in assets locked in DeFi protocols. It has been an exciting movement for DeFi asset to cross the US$10 billion benchmark from less than US$1 billion in less than six months - it demonstrated that there is real demand from users and that the current blockchain networks could support relatively large scale asset transactions.

Graph 2: Total Value Locked in DeFi quickly ramp up in the second half of 2020

Total Value Locked (USD) in DeFi

TVL (USD) | ETH | BTC   All | 1 Year | 90 Day | 30 Day

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$15.0B
$12.5B
$10.0B
$7.5B
$5.0B
$2.5B                                    DEFI
$0                                       PULSE
      Nov    Jan    Mar    May    Jul    Sep
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Moreover, the interest rates offered for assets deposited in DeFi protocols are much higher than traditional fiat-based products because of vibrant trading opportunities in crypto. It is common to achieve APY above 6% through either centralised or decentralised service providers for holding in stablecoins.

Self custody for assets in a scalable way

Another important advantage that decentralised financial applications have over traditional banks is that they give back the custody of assets back to the users. Instead of using banks or other fund managers as the custodian facilities, users could now access various services without giving out control of the assets.

In countries where bank default risks are high, people would value the self-custody features. According to an article on CoinTelegraph, Bitcoin purchased with Argentine pesos has jumped 1028% since January 2018.

Polkadot is changing blockchain

Better performance for applications

Currently, the majority of the assets in DeFi protocols are locked in Ethereum since it is the most widely adopted layer 1 protocol. However, the problem with Ethereum is the speed and cost for executing transactions. At peak, users need to pay more than US$10 for one single transaction on Ethereum and that each block would take ~7 minutes for a transaction to confirm. The limitations in performance restricted types of applications that could be built on the blockchain. Using Proof-of-Stake based consensus and the parachain design, Polkadot could process from 100 thousand to up to 1

million transactions per second. It certainly makes more sense for applications that aim to target a larger group of users.

Cross-chain feature to bridge different blockchains

Different from the current blockchain designs, Polkadot introduces relay chain and parachains structure so that the blockchains issued on the ecosystem communicate with each other in an efficient and secure way. It allows transactions of assets across different blockchains.

Graph 3: the architecture design of Polkadot
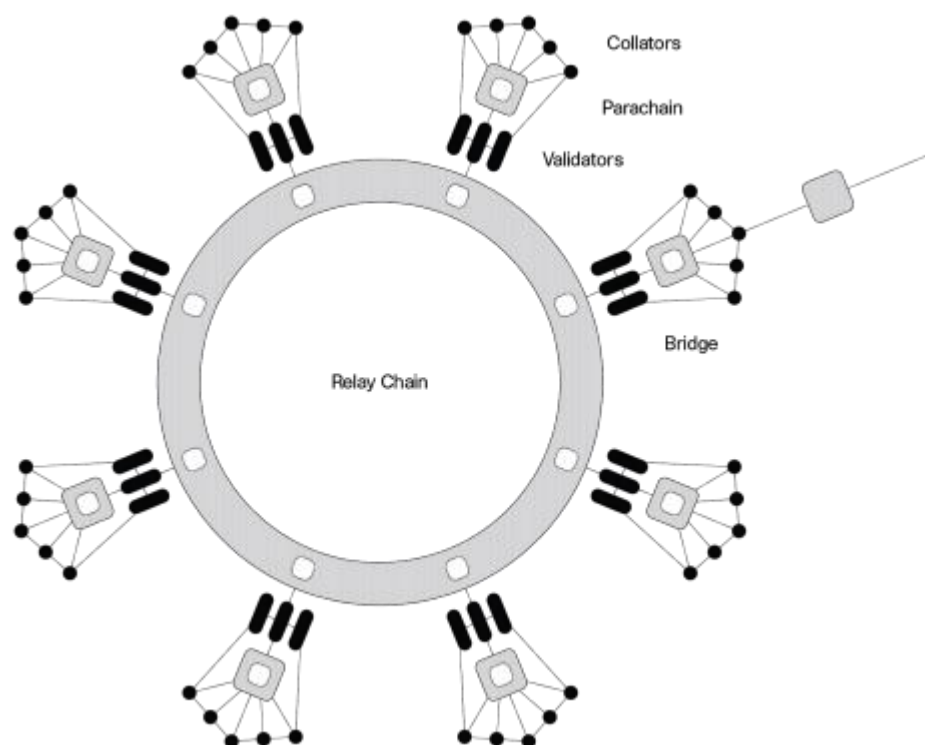
Introducing Konomi

Value Proposition

Konomi aims to provide a one-stop solution for users to manage their assets in crypto. Built on Substrate, Konomi believes that the DeFi 2.0 is going to be not only limited to Ethereum but to migrate to a more vibrant and diverse cross-chain ecosystem. To start with offering financial applications for assets in the Polkadot ecosystem, Konomi fulfils user demand in liquidity, money markets, more advanced trading products and also investing in new projects via DOT staking.

Opportunity in scaling up DeFi market with Polkadot

Inclusion for more current crypto holders

Even though DeFi has captured over US$10 billion worth of assets now, it is still less than 3% of the total crypto market capitalisation. This implies that most of the assets are not deployed now into financial products to earn interest. Main reasons include lack of cross-chain capabilities, centralised exchanges dominance and barriers in user experiences. Out of the top 10 cryptocurrencies by market capitalisation, seven projects have their own blockchain other than Ethereum and Bitcoin itself accounts for over 50% of the total market. Furthermore, centralised exchanges are still in dominance in terms of trading volume and asset in control. As Uniswap is becoming one of the largest exchanges by trading volume, its user experience for ERC20 assets are more similar or even better compared to its competitors. In terms of user experience, current DeFi applications have higher barriers for users since they need to manage their own private keys and sometimes the trading strategy could be confusing for users.

With the Polkadot ecosystem being more mature , native crypto assets could accrue more value to the ecosystem for the interoperability feature and to include more of the current crypto holders.

Support for more advanced financial products

Currently on Ethereum DeFi, most of the products are not very time sensitive. For instance, the reason why Uniswap could become adopted so widely is thanks to its simple automated market maker design. There is no need to get real time price for a certain asset , with the constant product rule, the protocol could calculate the price for trading directly. However, it is harder to support product derivatives that are time sensitive and rely on off-chain data input due to the speed of the Ethereum blockchain. However, the actual financial market size for derivatives products are much larger than spot trading.

With a better performance blockchain in place, there are more possibilities for smart contract developers to deploy more complex financial derivatives on-chain. It could help enlarge the total market size for DeFi as product varieties expand and more institutional players join the market .

Product Overview

Konomi is targeting crypto users that are looking into investing, trading and managing assets in an efficient way. It is currently deployed as an independent blockchain using the Substrate framework. At launch, it will support functions in trading, deposits and lending. As the Polkadot parachains are launched and that interchain communication protocols are live, Konomi could support more financial products specific to the Polkadot ecosystem.

Konomi platform is offered as a web application in the beta phase and will support mobile version for better user experience.
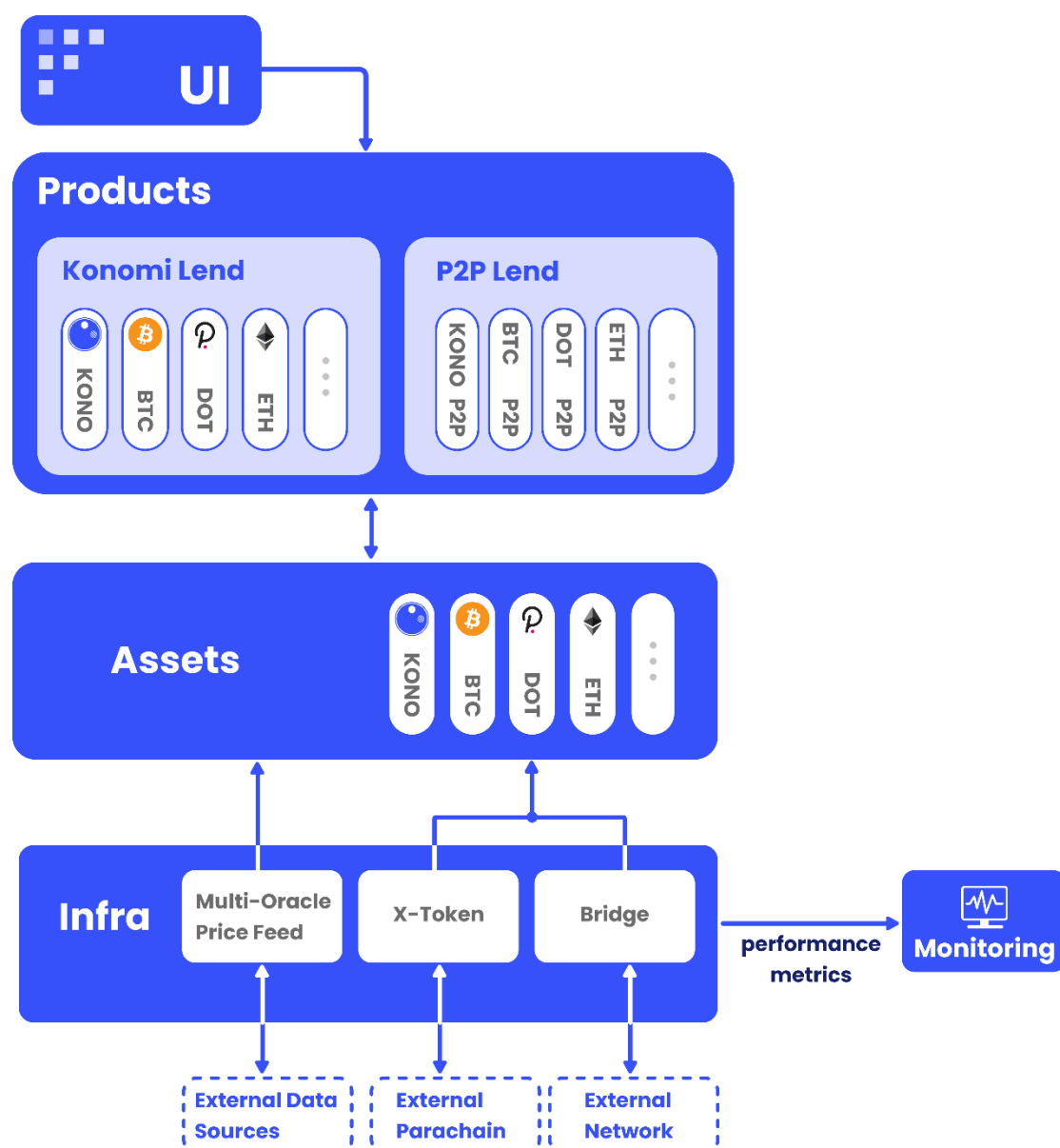
Konomi Lend

The first product that Konomi will launch is a decentralized over-collateralized lending product. Comparing to other mainstream DeFi products on Ethereum, the significant advantages of Konomi Lend are lower transaction fees, liquidation penalties, collateral ratios and liquidation thresholds. We believe such a product would definitely be more user-friendly for borrowers and lenders bilaterally and will enable us to take a leading position in the Polkadot ecosystem.

Konomi Lend Interest Rate Model

For each assets pool,

utilization_ratio=total borrow/total deposit

utilization_ratio:the ratio of amount loaned out to total deposit in the pool

total_borrow:amount already loaned out

total_deposit: the sum of amount already loaned out and amount remaining

when utilization ratio<=kink,
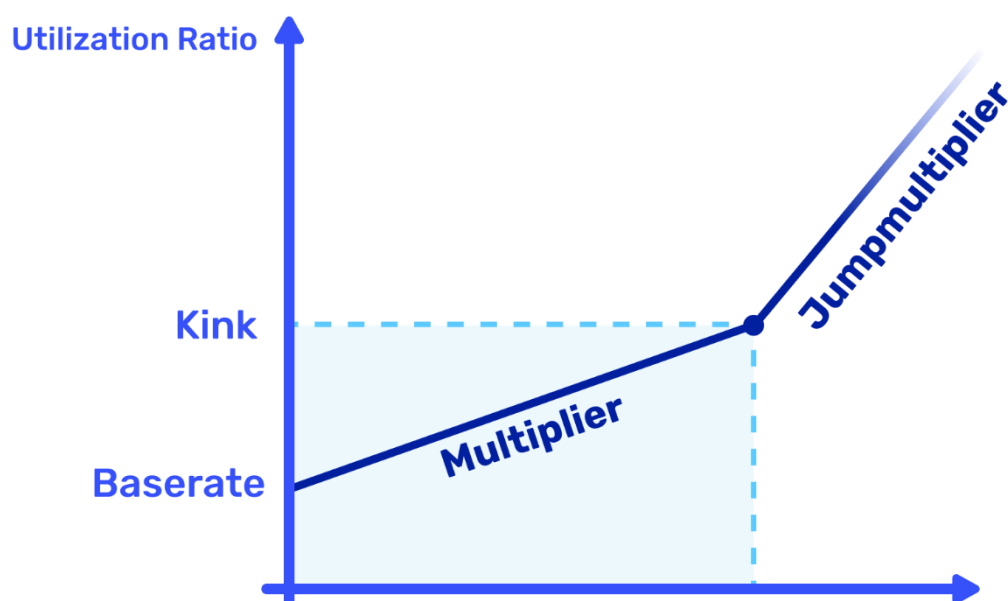
borrow_rate=baserate+utilization_ratio*multiplier

when utilization ratio>kink,

borrow_rate=baserate+utilizationrate*multiplier+(utilization_rate-kink)*jumpmultiplier

baserate: the rate when utilization_ratio=0

And the deposit_rate would be:

deposit_rate=borrow_rate*utilization_ratio

Konomi Lend Liquidation Model

In the event of severe market volatility, liquidation will be triggered when the value of a user's collateral assets fails to meet the minimum margin ratio requirement. Once liquidation is triggered, third party arbitrageurs will have the power to purchase borrower collateral at a discounted price. Benefiting from the functionality advantages of Polkadot, Konomi Lend will have an advantage over existing DeFi platforms in terms of liquidation.

	Compound	AAVE	KONOMI
Min. Collateralization Ratio	133%	133%	120%
Liquidation Threshold	133%	122% to 133%	110%
Liquidation Penalty	8%	5%-15%	2%

Konomi Oracle

With businesses such as lottery, IoT and insurance land in the blockchain industry, we believe that Oracles will become ever more important. Hence, Konomi will develop its own Oracle system based on Konomi Lend. The current mainstream Oracle projects need to consider three aspects in order to ensure the comprehensiveness of the entire project, namely Integrity, Confidentiality and Availability. The Konomi Oracle will seek to solve these problems with its own system capability.

The whole idea of Konomi Oracle is to take the price off-chain and quote it on-chain, and Konomi Oracle will use a cluster to be entirely responsible of the price mechanism. This cluster will comprise multiple workers to ensure the availability of the service. The technical structure is as follows.
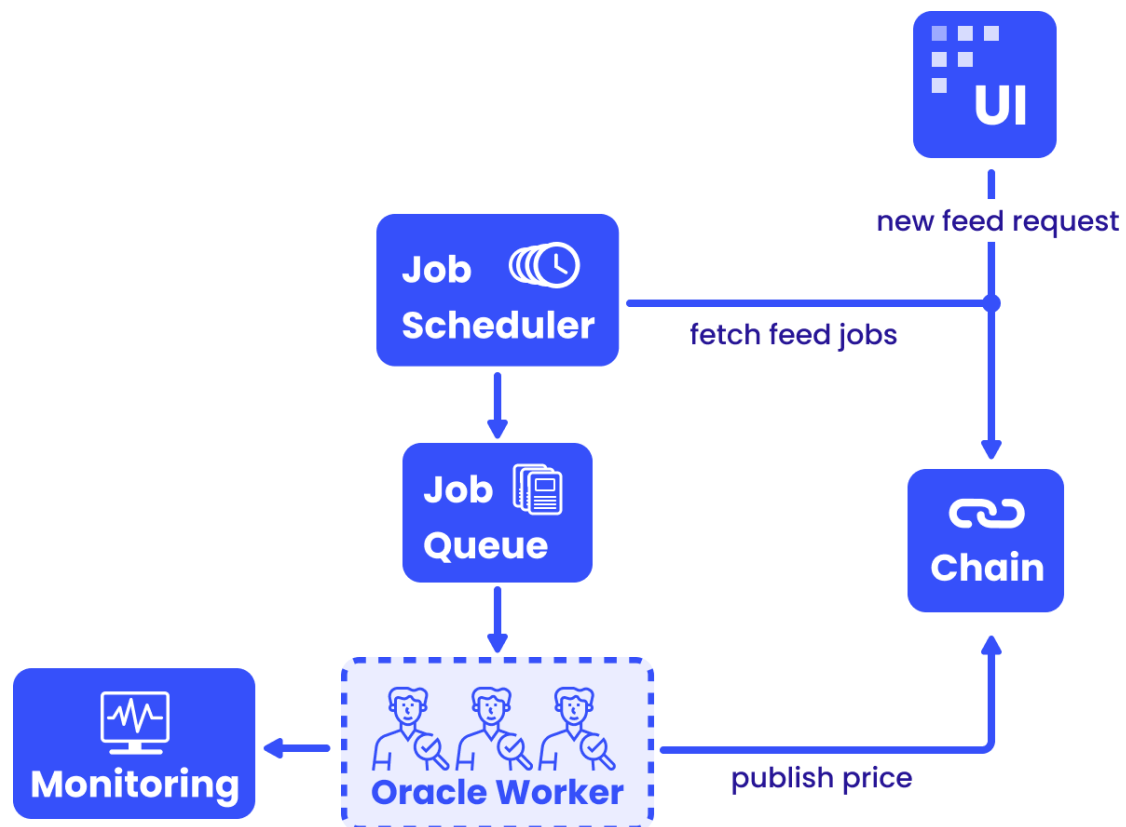
Konomi will also register new price-feeding tasks onto the chain through its UI, and then the Scheduler will read them from the chain and send them to Workers for execution periodically. At the same time, Konomi monitors the task completion process in real time, thus ensuring the timeliness completion of tasks.
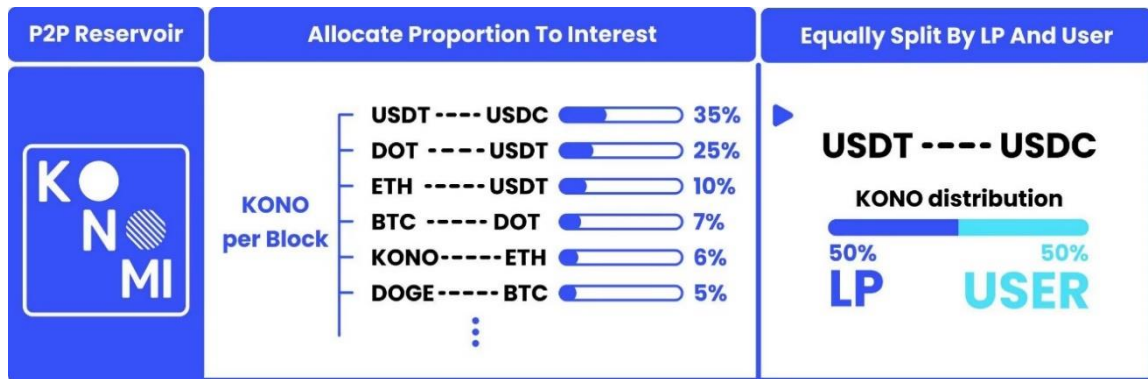
Konomi P2P Module

Konomi will leverage on the Konomi Oracle's ability to support a wide range of tokens in order to launch the Konomi P2P lending module. The Konomi P2P lending module is underpinned by the concept of funding pools to fill in the gap existing in the market for decentralized lending in niche cryptocurrencies. Specifically, anyone can launch a funding pool after paying a fixed amount of Kono, and the pool owner will have the option to become either a lender or a borrower of a particular currency. If the pool owner chooses to become a lender, then he/she will have the liberty to set the interest rate, maturity, collateral liquidation rate and types of collaterals to be accepted. On the other hand, if the pool owner chooses to become a borrower, then he/she will need to choose which asset to use as collateral, the collateral liquidation rate, the subject matter

of the loan, the interest rate and the repayment schedule. For the total amount of transaction fees collected from any trading pool, 20% will be returned to the pool owner, 30% to be held in reserve, and 50% to be credited to the black hole address for destruction. Overall, Konomi P2P is a highly flexible, user-friendly and straightforward tool for personal DeFi financing.
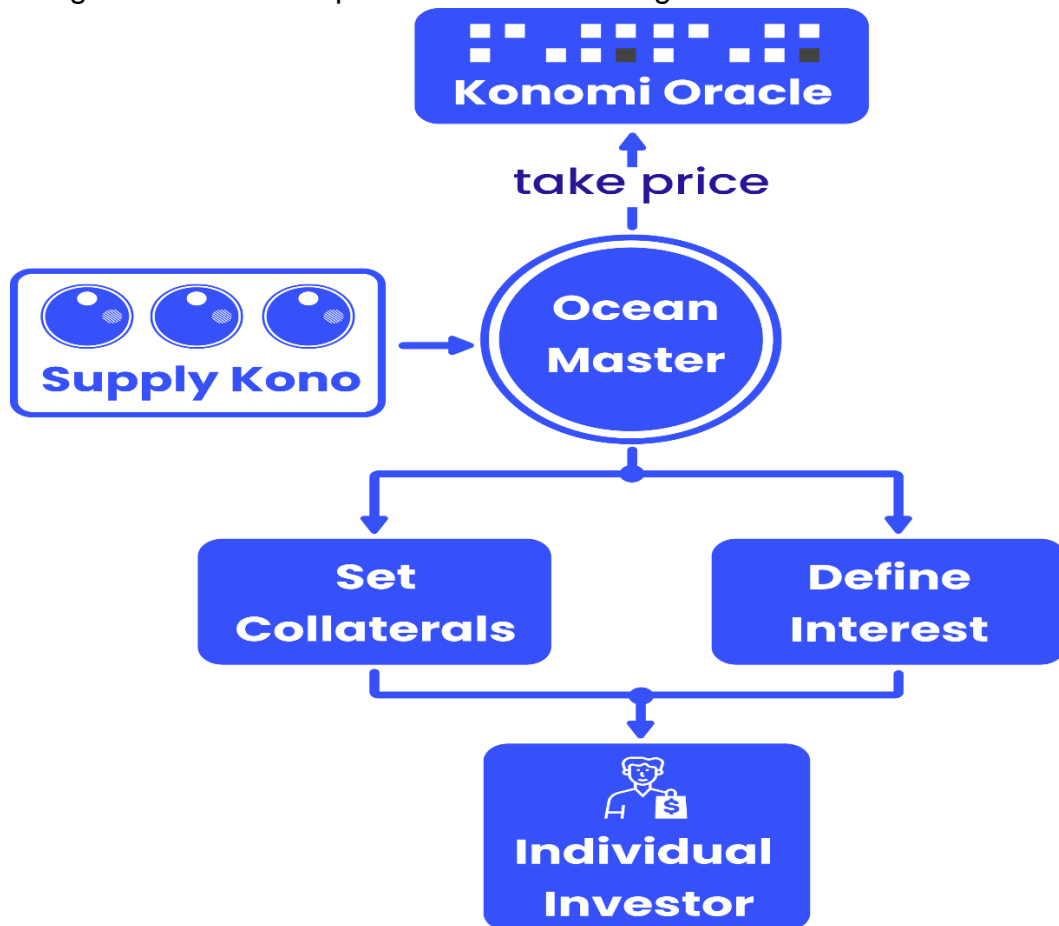
P2P Liquidity Mining Incentive

Konomi will introduce a liquidity mining incentive for P2P Module, where both asset pool creators and users will be rewarded with a certain amount of Kono. The total number of Konos awarded to all pools will remain constant each day. The amount of reward earned by each pool will be positively correlated to the interest generated by the pool, and the reward will be shared equally between pool creators and users.

P2P Reservoir	Allocate Proportion To Interest		Equally Split By LP And User
KONOMI	**KONO per Block**	USDT ---- USDC 35% DOT ---- USDT 25% ETH ----- USDT 10% BTC ----- DOT 7% KONO----- ETH 6% DOGE ----- BTC 5% ⋮	**USDT ---- USDC** **KONO distribution** 50% LP 50% USER

Technical Design

System Architecture

Cross-chain transactions

Konomi will use the Cross-Chain Messaging Passing (XCMP) feature to support cross-chain transactions of assets. XCMP requires a channel open between two parachains for message communication. In the sender parachain, messages will be dispatched and sent to the relay chains. Destination and timestamps will be included in the message so that it could be identified. The collator node on the receiving parachain will pick up this message since it would be constantly asking the network for new messages. If the validation is successfully done by the validators on the network, it would compress the block proposal as a hash and replace it onto   the relay chain , such that the message between parachains are completed.

Parachain A   Parachain B
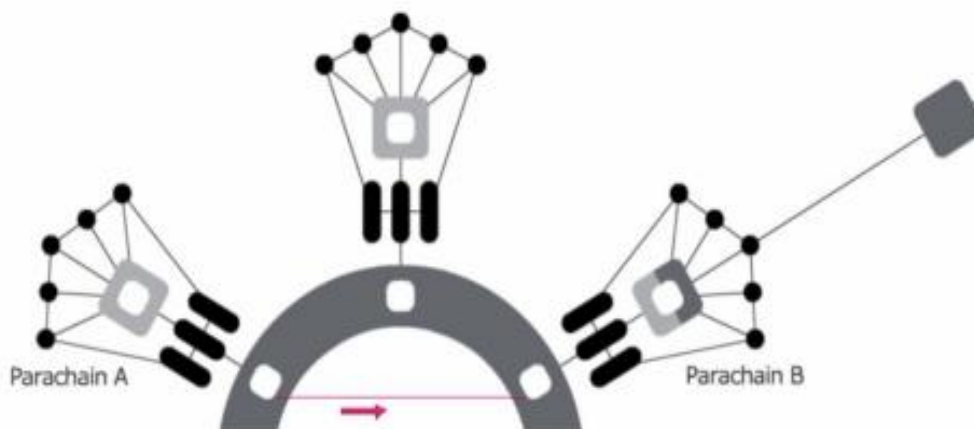
Konomi Token

Konomi will issue a native token in the network to facilitate decentralised governance and to bootstrap early users. The token economics are designed so that users could actively participate in trading, providing liquidity and also sharing the upside in network value growth.

Token Utility

- Decentralised governance

The design and implementation of the protocol would be determined by token holders. For parameters like pool staking fees, transaction fee burn, liquidity mining ratio are initially set by the protocol itself; token holders could update the numbers and the smartcontract itself based on the voting process. In order to encourage users to participate in the process, there could be some profit set to reward the voting participants.

- User incentives

As a decentralised product, getting liquidity is crucial for the user experience and platform adoption. Therefore, a large proportion of the Konomi tokens are reserved to encourage users to add liquidity to the platform and to
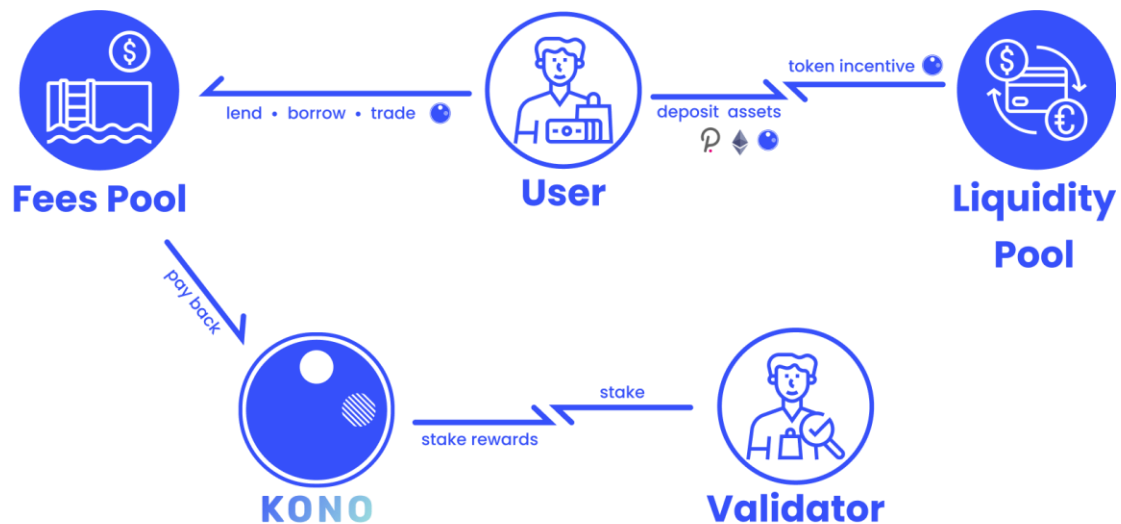
use the products. By depositing assets to the protocol, users could automatically market make for the protocol.

In designing the user incentives, the protocol also takes into consideration the long term sustainability of the token. As there are more liquidity mining programs launched by DeFi protocols, users tend to participate in those programs in order to earn tokens rather than to fulfil their true needs. In the
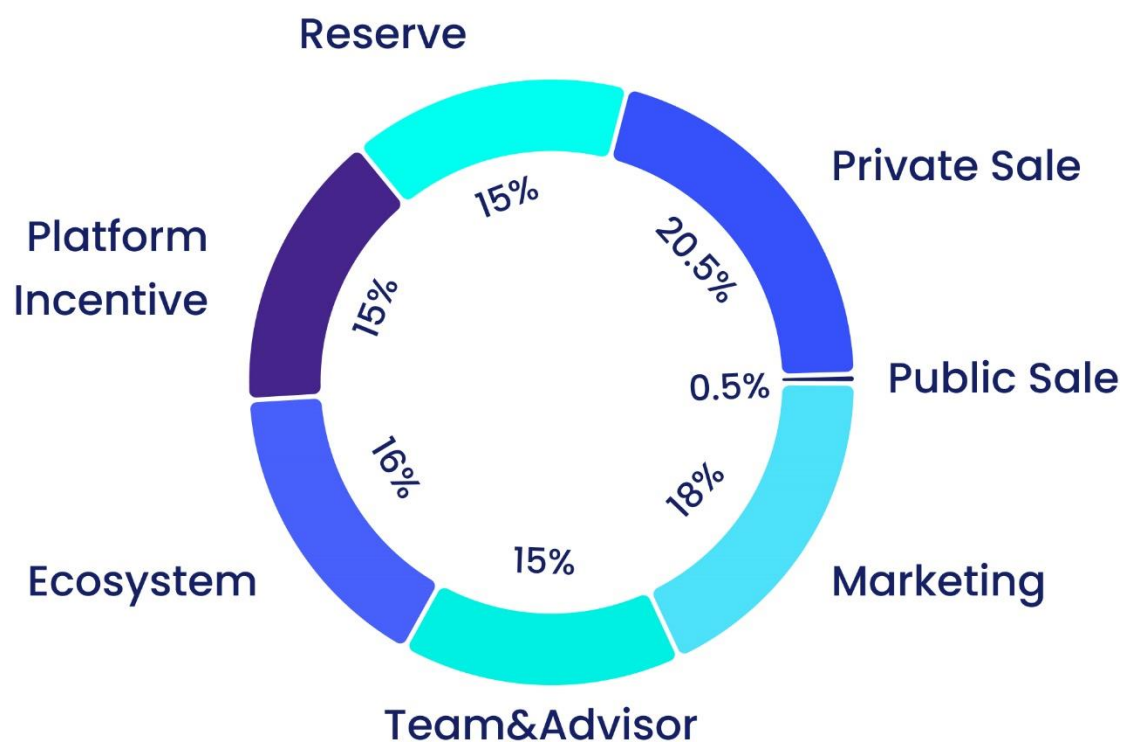
meantime, as more tokens are generated, there is continuous selling pressure to the network if no strong use case is designed to create demand for the token. Therefore, in designing the liquidity mining program, priorities would be given to long term supporters and market makers for the protocol.

- Asset staking

Konomi token could be staked to participate in the base layer consensus and earn system rewards. It is also the staking currency to share platform revenue and ensure that the debt positions are safe.

Token Distribution

There will be 100M KONO tokens at the launch of Konomi Network and it is a fixed token supply. 25% of the tokens will be distributed through token sales; 15% of the tokens will be used for marketing and linear vesting for 24 months; 15% of the tokens will be reserved for ecosystem development and partnerships; 15% of the token s will be reserved to the foundation and locked for 1 year; 15% of the token will be distributed through incentive plan to users who participate in the network; 15% will be reserved to team and advisors who support the project.

Development Roadmap

Q1 2021
- liquidity and risk management modules
- Decentralized network governance protocol design
- Oracle with Off-Chain worker

Q2 2021
- Time-weighted price feed for Oracle
- Setup testnet
- Upgrade to substrate 3.0
- Integrate with Rococo
- Parachain auction preparation
- Enter web 3.0 bootcamp
- Complete grant delivery

Q3 2021
- Cross-chain transaction functionality
- KONOMI Oracle Testnet Launched

Q4 2021
- Governance module implementation
- Mainnet up
- KONOMI pool launched