Bifrost Finance Whitepaper

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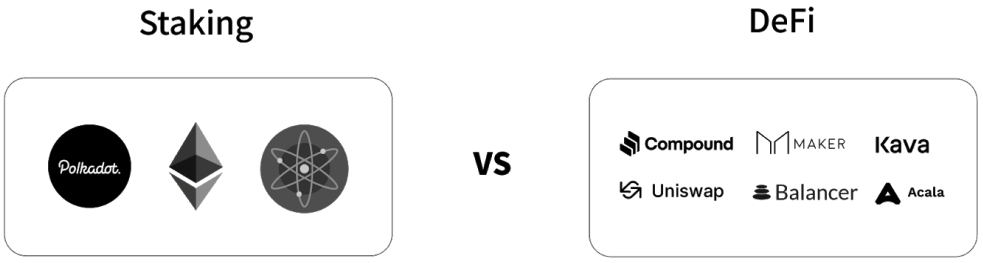
I. Market Overview

With the development of more public chains adopting PoS consensus to improve project availability and decentralization, 80 more PoS public chains with more than $145.3 billion total market value have been born. Through Staking, over $2.5 billion rewards will be generated each year. Meanwhile, with the DeFi market boom and the anticipation of the Ethereum 2.0 Staking launch will stimulate the crypto market in 2020. The rapid growth of decentralized finance (DeFi) and the Staking market is pushing the two mechanisms of DeFi and Staking to interact frequently in the blockchain landscape and overlap to create more composability, but problems ensue.

1.1 Competition between Staking and DeFi rewards



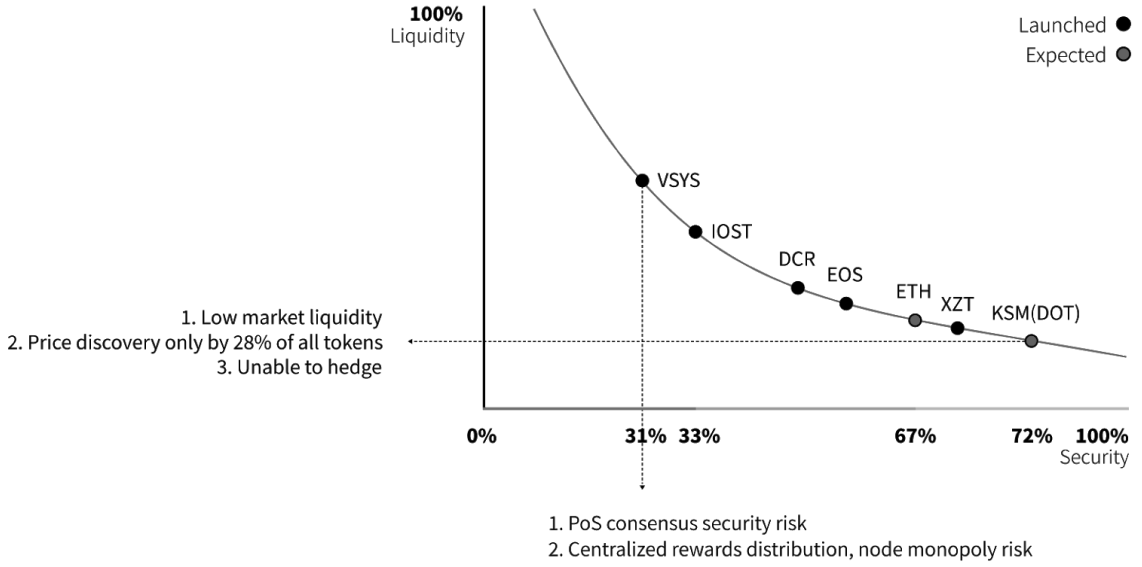
Staking and DeFi rewards competition

With the current emergence of new DeFi products, such as Yield Farming, DeFi products may offer users an incredible annual rate of return, but whether this prosperity is built on the ETH PoW consensus that can be maintained under the ETH 2.0 or Polkadot PoS consensus? Users can only choose one between DeFi or Staking as the problem of reward. If DeFi rewards cannot cover the cost of Staking bonding, users will move their assets from DeFi to Staking by higher reward selection. Vise versa, users will transfer their assets from Staking to DeFi products, but insufficient Staking rate may cause security problems of PoS network consensus. Thus either way will face a lose-lose situation.

Meanwhile, Staking still exists many problems such as a high threshold for participation, lack of liquidity, conflict between governance, and interest. PoS and PoW

also have Byzantine fault tolerance problems. More users need to participate in Staking to ensure that the whole network is more decentralized and safe. Some projects adopt centralized managed schemes to solve the above problems of Staking. We believe that this operation may increase participation in Staking in the short term, but it will gradually erode the decentralized system of PoS under risk in the long term.

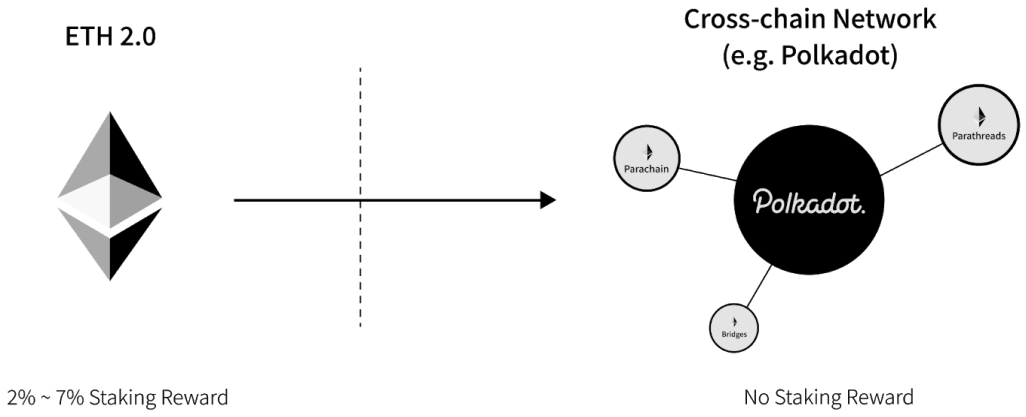
1.2 Conflicts between Liquidity and Security in PoS



PoS consensus security and liquidity trade-offs

The mechanism of PoS determines that the security of the network is maintained by the mechanism of Staking, which means that the liquidity and security are mutually exclusive. Normally, increasing the liquidity of Staking requires to consider the network security, while the liquidity solution of PoS Staking token seeks to break this barrier, which reduces the opportunity cost for users to participate in Staking while improving the overall Staking rate of PoS public chains. If the Staking rate is too low (e.g., VSYS) will generate PoS consensus security trouble and nodes may have higher risk of centralization which will cause users loss by their safety concerns arise. Whereas high Staking rate (e.g., KSM) leads liquidity deficiency in the market. The price discovery can only be done through a few Token, which means that there are a lot of bubbles leading to higher price volatility. For those users who are Staking their assets, they cannot do risk hedging because there is no liquidity in locked position and opportunity cost of Staking be enlarged.

1.3 Staking and Cross-chain Conflict

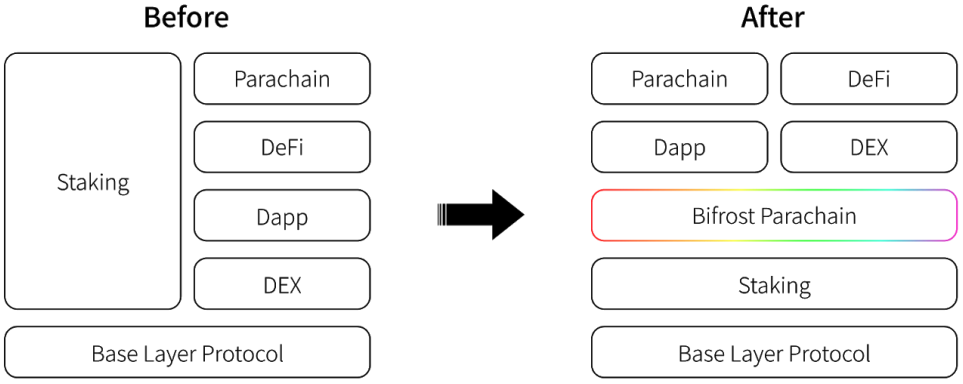


Staking rewards cost in the cross-chain state of the PoS

With Polkadot, Cosmos even more cross-chain projects go online, users have more enthusiasm to participate in cross-chain scenarios. However, users may lose their original Staking rewards by converting cross-chain tokens. Currently, they not only need to pay commissions and other fees, but also the cost of time is incurred during Staking. As blockchain gradually breaks down the barriers, assets or data can flow effortlessly on chain, Staking rewards can be released in cross-chain scenarios, which will significantly reduce the entry cost of users to participate in cross-chain.

II. Project

Bifrost is a cross-chain network which provides liquidity to bonding assets. It takes advantage from Staking as the early stage to provide liquidity in the form of Staking derivatives. Bifrost is established on Polkadot network and developed by Substrate, the underlying layer is based on the WebAssembly, LIBP2P, and GRANDPA consensus. As a DeFi project in Polkadot ecosystem, Bifrost launches vToken (Staking Derivatives Voucher Token) which allows users to exchange PoS token to vToken and obtain liquidity and Staking rewards through Bifrost protocol at any time. Bifrost has acquired Web3 Foundation Grant, it is also a member of Substrate Builders Program under Parity, one of fifteen core members of Web3 Bootcamp incubator that organized by Web3 Foundation and WanXiang Blockchain Lab, supported by Web3 Foundation and WanXiang Blockchain Lab on technology, products, capital, legal affairs, ecological cooperation and other comprehensive aspects.



A Layer Between Staking and Applications

Bifrost provides an intermediate layer between Staking and application layer, The reward competition between Staking and DeFi is resolved by making the relationship between Staking and the application layer, which is built on the underlying protocol, become top-down compatible instead of parallel to each other. The mechanism allows that users can convert PoS tokens to vToken at any time through Bifrost parachain via Bifrost protocol, and each PoS token will correspond to a different vToken, such as vDOT bridging Polkadot token, vETH bridging Ethereum token, etc. In simple terms, users only need to hold vToken and they can obtain Staking rewards. By providing vToken liquidity, PoS network liquidity and security can be both fulfilled, so that to solve the conflicts between PoS network liquidity and security. Then, according to the cross-chain characteristic of vToken be built on parachain, which enables that Staking rewards can be obtained, in order to solve the problem of obtaining Staking rewards in cross-chain scenarios.

The key to solving problems like these is to provide Staking derivatives with a trading scenario that meets their liquidity needs with Bifrost's built-in vTokenSwap (AMM trading pool), which allows trading between 64 pairs in a single pool of 8 currencies. The optimal path exchange will be opened up later between vTokenSwap trading pools, where vTokenSwap's liquidity providers will receive a share of transaction fees and liquidity incentives. vTokenSwap provides the initial liquidity scenario for vToken, while vToken's settlement-free design allows for centralized and decentralized scenarios, which are ideal for performing In the third-party centralized trading or storage scenario of Listing vToken, partners can distribute Staking proceeds to users without additional development, making vToken liquidity easier to scale.

2.1 Implementation Plan

Bifrost will complete its business as a Polkadot parachain, sharing Polkadot consensus security with other parachains and avoid the high cost of operating and maintaining a separate network of public chains. The cost of operating a PoS public chain network is enormous; in Cosmos' case, it costs approximately 15,344,540 ATOMs (about $83,474,302) per year to maintain network security through inflation rate around 5.8% per year (according to 72% Staking rate and 8.09% yield rate currently) , and high

inflation can even push the network into a death spiral if the network usage is low and value capture is inadequate.

On the other hand, Bifrost's current entry from the Staking derivative to provide liquidity to most PoS networks will inevitably result in the native assets and their corresponding votes in most PoS networks being reflected in the Bifrost protocol, with the consensus security corresponding to such native assets being transferred to the Bifrost network. If the cost of a Bifrost Consensus Security attack is lower than the cost of the original PoS Consensus Security, this will cause hackers to intentionally attack the Bifrost network to complete the attack on the original PoS network, which will result in the Bifrost network no longer being trusted, or even technically counteracted by other PoS networks. Therefore, the Bifrost protocol can provide Staking mobility for other PoS networks under objective conditions only if the Bifrost consensus security is higher or equal to the original PoS network.

Therefore, Bifrost will bid for the PoS parachain slot and share the PoS consensus security by becoming a parachain, which on the one hand gives more consensus security to other PoS networks and parachains supported by Bifrost, and on the other hand, reduces the high cost that Bifrost incurs for maintaining the consensus security of independent PoS networks.

2.2 Trading Tools

Among the many blockchain DeFi applications, the algorithm implementation of the more popular trading tools currently includes automated market maker (AMM) programs such as Uniswap, Bancor, and Balancer. The Bifrost platform embeds the Balancer sub-module in Runtime to facilitate users to create and configure multi-asset trading pools. The various vTokens generated on the Bifrost platform, as well as various tokens and assets that flow from Polkadot/Kusama to the Bifrost platform, can be easily exchanged in multiple Balancer trading pools. Bifrost comes with EVM sub-modules, Uniswap, Bancor and other popular DeFi smart contract codes, which can also be easily ported to the Bifrost platform to run.

2.3 Case - Staking Liquidity

Providing standard processes of Staking with more flexible financial tools for PoS-based public chains or other systems to bring additional benefits to Bifrost community users is one of the core design goals of the Bifrost project. Bifrost ensures the security of Staking assets through secure, decentralized asset cross-chain technology. The difference between Staking activities through Bifrost and direct Staking activities can be seen in the following process:

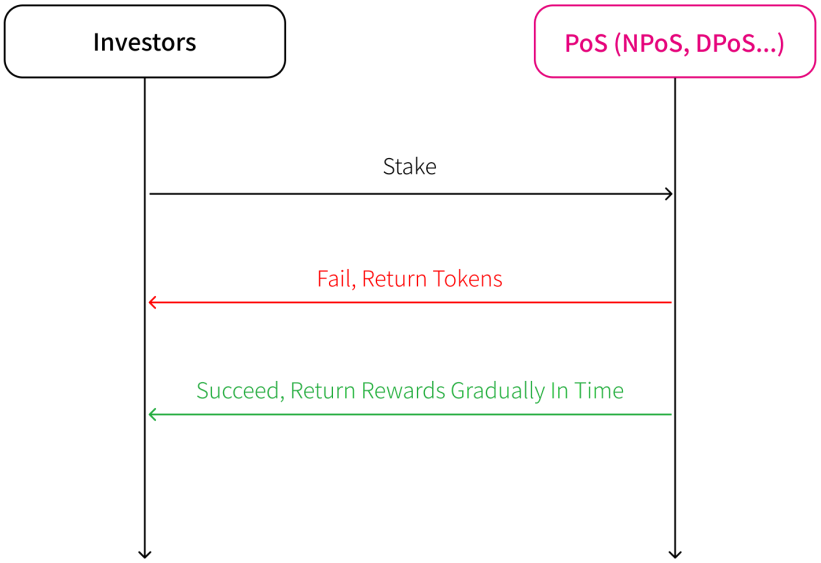


Figure 1: Original staking interactive procedures

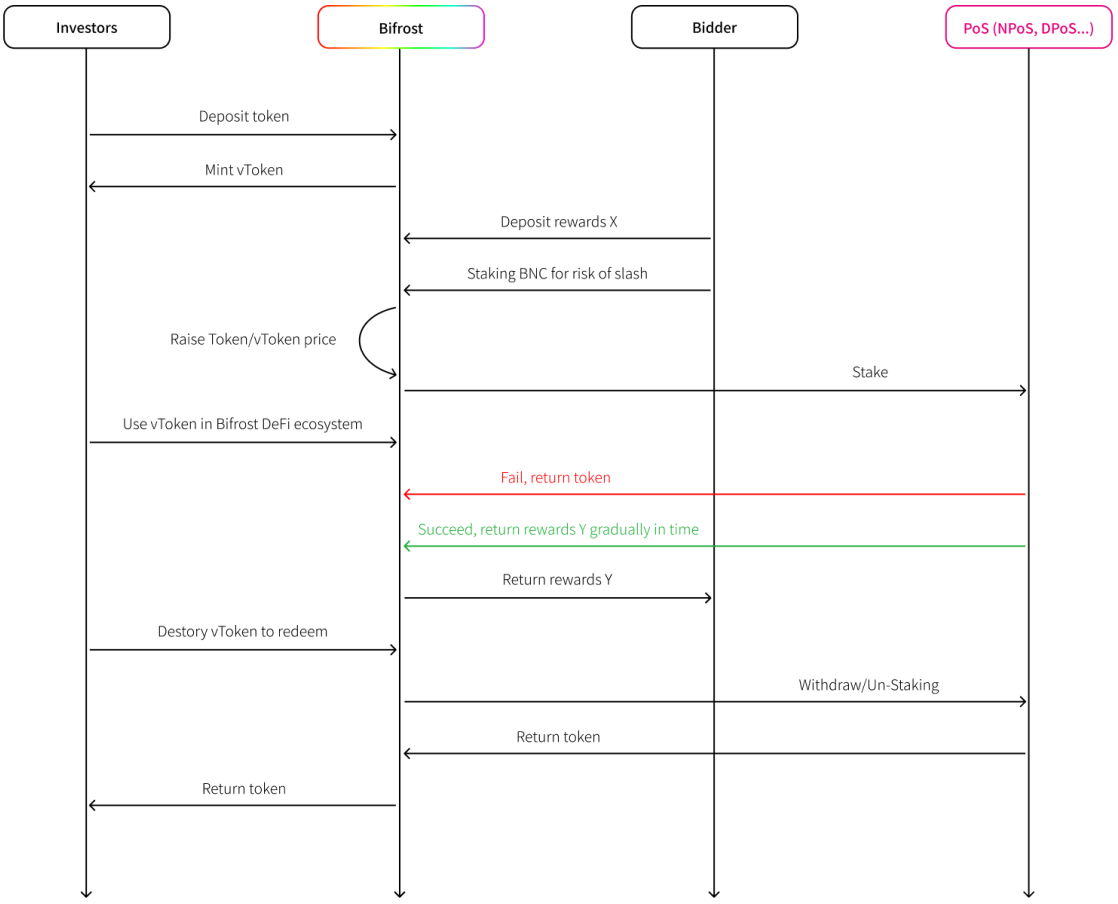


Figure 2: Bifrost staking interactive procedures

2.4 Case - PLO Liquidity

Bifrost, as a parachain in the Polkadot ecosystem, does a great job in the Staking business in the whole ecosystem, and at the same time provides basic support tools for DeFi economic models with a high degree of similarity with Staking, contributing to the healthy development of the whole ecosystem. PLO (Parachain Lease Offering) An PLO is one of the key economic models of the Polkadot ecosystem, which is very comparable and similar to the Staking of PoS, and the interaction process between an PLO directly and an PLO through Bifrost is compared as follows:

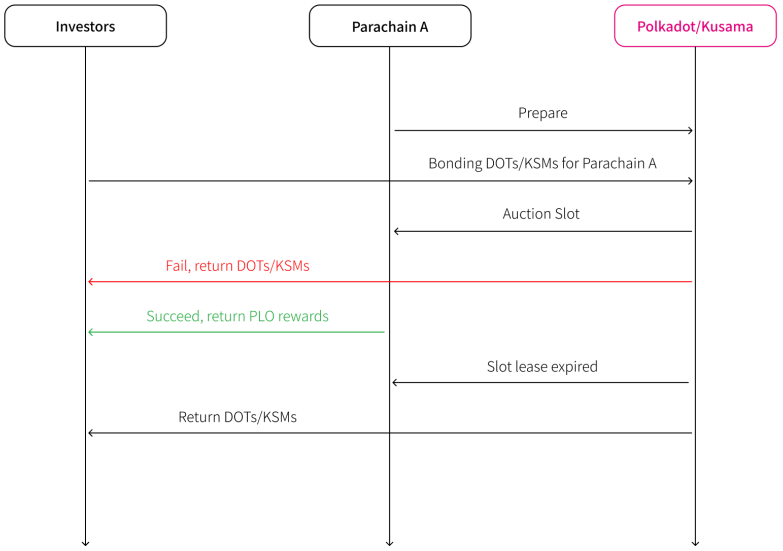


Figure 1: Original PLO interactive procedures

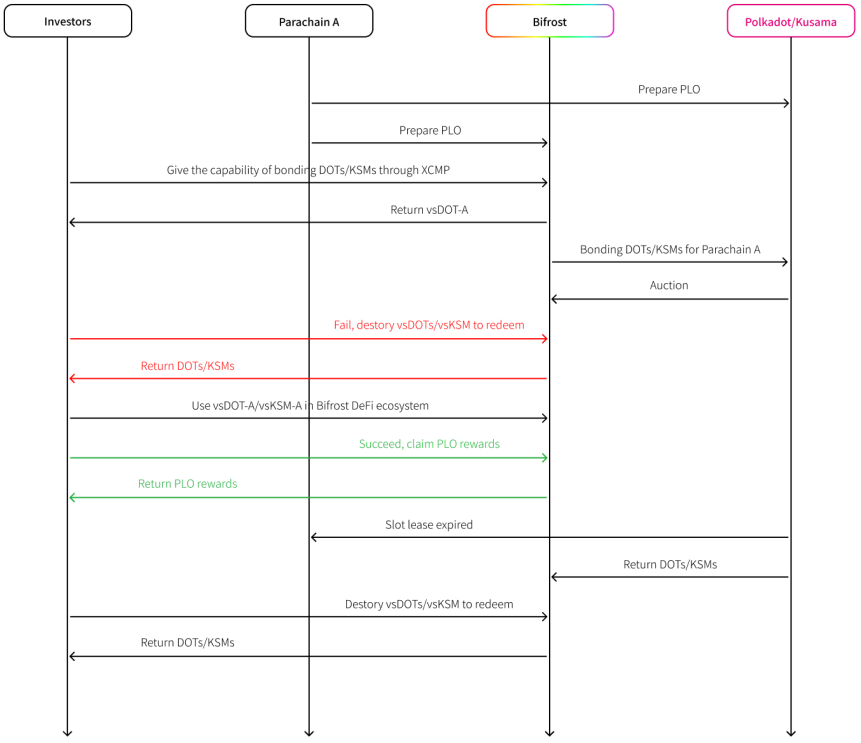


Figure 2: Bifrost PLO interactive procedures

III. Economic

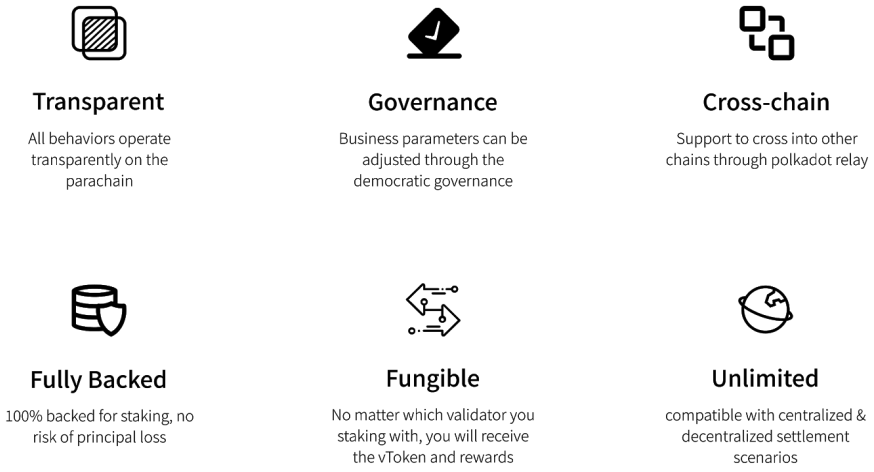
3.1 Economic modelling objectives

Providing liquidity for 80% of pledged assets is Birost's mission and vision. We believe that the road to realizing the vision begins with the design of the rules, and that Bifrost will provide services to users in the form of shared Polkadot security, and we believe that while providing staking liquidity to other PoS chains, other chains are indirectly transferring their consensus security to Bifrost. Independent PoS consensus is expensive to maintain, and when an independent main-net is running, if the total amount of assets locked in that network exceeds its market value, hackers will have enough incentive to attack the independent main-net and move the assets, which not only kills the project outright, but also causes a chain reaction of attacks on the security of the other networks it supports. So when running an independent main-net, the maximum amount of assets that can be locked in that network is its market value, so Bifrost will share the consensus security of Polkadot or Kusama instead of maintaining a separate set of PoS networks, making the assets locked in the Bifrost network more secure.

In summary, Bifrost will reserve a certain percentage of BNC as a cost to pay for parachain slots or threads, and as the number of slots increases, this cost will drop significantly compared to the cost of maintain a separate main-net, making it easier for Bifrost to capture the value generated by the network for its users. Also economic models such as vTokenmint and holding incentives, Collator incentives, Slash insurance funds, etc. all contribute to the sustainability of the Bifrost network.

3.2 Voucher Token (vToken)

Voucher Token, or vToken, is a kind of Polkadot or Substrate Based general-purpose asset minted by users through the Bifrost network using Staking assets. vToken represents the ownership and reward right of the original Staking assets. The Staking rewards generated by Staking is an alternative frangible asset with trading liquidity, which can unlock the liquidity of the original Staking or even become a new Staking asset to help users doing leveraged transactions. vToken also has six features, including traceability, governance, cross-chain, full reserve, alternative and full scenario.



6 characteristics of vToken

3.2.1 Staking Derivatives

Bifrost is a completely decentralized network, standardizing the interest generation, settlement and equity retention of Staking assets, which can provide liquidity for all kinds of Staking assets. However, due to the decentralized characteristics, the collateral also needs to have the following characteristics:

- Assets released on chain
- Reward settled on chain
- Equity proved on chain

At present, PoS consensus assets naturally have the above three characteristics. Bifrost will provide liquidity for Staking assets as the entry point of the market, and provide liquidity of Staking derivative vToken for various PoS networks.

3.2.3 Reward Settlement Forms

How to ensure the decentralized generation of the derivative rewards while making it more simple to provide liquidity, adding derivatives compatibility scenarios is the core question. Therefore, the reward settlement form of vToken is designed to be compatible with both centralized and decentralized scenarios. In centralized scenarios, vToken is available to be used or converted without extra development by a third party. For those users who host vToken in centralized hot wallet or cold wallet can still get the rewards generated by vToken without loss. This is due to the fact that vToken eliminates the traditional transaction settlement form on chain and adopts the vTokenmint Price Up method to complete the settlement of vToken rewards. Therefore, in order to avoid the later users' sharing of previous users' rewards, users entering from different periods will follow the current vTokenmint price.

Parameters

- $vToken_{mint\ price}$
- $vToken_{mint}$
- $Token_{staking}$

- $Token_{staking\ rewards}$
- $vToken_{yield}$
- $vToken_{redeem\ price}$
- $vToken_{holding\ days}$

Formula

- Mint Price: $vToken_{mint\ price} = Token_{staking} \div vToken_{mint}$
- Mint Initial Price: $vToken_{mint\ price} = 0.01\ Token$
- vToken Mint: $vToken_{mint} = Token_{staking} \div vToken_{mint\ price}$
- Mint Price Up: $vToken_{mint\ price} = \left(Token_{staking} + Token_{staking\ rewards}\right) \div vToken_{mint}$
- APY: $vToken_{yield} = \left(vToken_{redeem\ price} - vToken_{mint\ price}\right) \div vToken_{holding\ days} \times 365$

Case A: User A mints 1000vDOT with 0.01 Token Mintprice that converted by 10 DOT in Bifrost. Original DOT through the Voucher Notary and Voucher Bidder game to complete Staking, which will generate 0.5 original DOT reward after one week. Note, the reward DOT generated by Staking does not correspond to the minting of new vDOT, the Mintprice is raised from 0.01 Token to 0.0105 Token (10.51000). At the moment, 1000 vDOT can redeem 10.5 DOT, the extra 0.5 DOT is the Staking reward from holding vDOT for one week.

Case B: According to Case A, the Mintprice has risen to 0.0105 Token. Now, user B can mint 952.380952381 vDOT (vToken accuracy is 1012) by 10 DOT with a current mintprice of 0.0105 Token and he will receive 0.5 DOT reward after one week of Staking. Therefore, the original mintprice will raise from 0.0105 Token to 0.011025 Token (10.5952.380952381), which means that 952.380952381 vDOT can redeem 10.5 DOT now, the extra reward of 0.5 DOT is the Staking reward by user B holding vDOT for one week.

Settling rewards by Tokenprive Up has noticed advantages:

Advantages:

- Compatible with centralized scenarios, no additional development is required.
- Intuitive user reward
- Price-performance continues to rise against the original Token.

Disadvantages:

- Mintprice is unanchored, users may worry about price fluctuations.

3.2.3 Reward Generation

When assets from Bifrost protocol's Staking Pool enter the Voting Pool, there will be two methods entering to the Voting Pool, by Bidding Vote (default) or Self Governance. The voting right that corresponds to the original token can be received by the bidder from the bidding vote. In this way, user's voting rights are represented through Bifrost that assigns the vote to the highest bidder at a specific time. In essence, this method changes the original model of Staking reward from reward

ledger into "pay first, let later", which standardizes Staking income from different PoS public chains and bypassing the restrictions brought by different reward rules.

Voting Right Market

The election mechanism has abandoned the reward-sharing model, if Validators wants to enter the Validator set of Bifrost, they have to make a yield bid at first, which means that they transfer information to the protocol what proportion of the reward is willing to give to Stakers for who uses the agreement. If the bid is 10% and is finally accepted by the protocol, the Validator will share the reward as 10% to the protocol no matter what the actual return rate is. "Shareholder Votes For Sale" provides more extension and demonstration for the function.

- Bidder offers < Staking income,analogous to bidder allocation commission > 0%
    - There is profit, users can get normal rewards.
- Bidder offers = Staking income,analogous to bidder allocation commission = 0%
    - There is no profit, users get the highest reward of the original chain.
- Bidder offers > Staking income,analogous to bidder allocation commission < 0%
    - There is an allowance, users get higher reward then the original chain.

According to the requirement of voting right in the market, the binding vote might have different results. Normally, the Staking rewards that are generated by users nomination will be released after Validators deducting the commission, Validators become a bidder under the form of binding vote. Offer high and low fluctuation will be according to the market demand and rational judgment to the market, bidders may get profits from users' Staking rewards while setting the offer below the range of Staking rewards. When the market demand for voting rights is strong, bidders will pay extra to get votes, and users will get the extra rewards from the bidder as the Staking reward. In this case, the Staking rewards obtained by users will be higher than the maximum reward on the original chain.

Self Governance

Users will skip bidders' offer process and choose specific bidders to trade based on their own decisions. However, the reward still needs to follow the Bifrost reward distribution rules, repurchase fund, insurance fund and channel fund shall be deducted.

Reward Structure：

- **10%** - Repurchase Fund, regular repurchase BNC
- **1% ~ 5%** - Slash Insurance, Risk allocation when collateralized funds by Validators are Slashed, floating based on Slash history.
- **3%** - Channel Fund, released according to channel contributions.
- **82% ~ 86% -** Releasing to users, flows to the original Tokemint pool and releases reward to users through Token mint Price UP.

3.2.4 Retain Governance Right

Token holders can choose a particular bidder to execute corresponding Token governance right without any condition while they mint vToken. If they do not choose a particular bidder, the governance right will enter the bidding market by default.

3.2.5 Impossible Triangle of Derivatives

Governance Vote Right of Original Chain

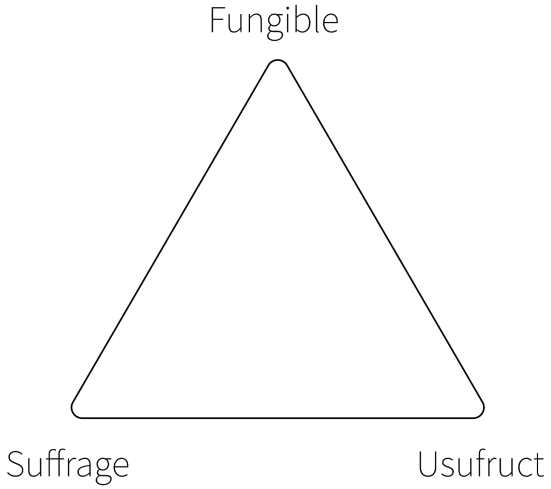
Token holders choose the Validator, just like in a representative democracy, the election of an MP. Each Token represents a vote, the vote right belongs to the Token holder. Staking derivatives as the interlayer should inherit the right for users to choose Validators on their own. However, this might be a serious problem that derivatives are non-fungible, which means that users who choose different Validators will get different derivatives.

Fungible

Token holder selects any Validators to generate the same proceeds, implementing different Tokenmint derivatives by different holders have the same governance right. Fungible Staking derivatives have better liquidity, but Token holders might face Tragedy of Commons by eliminating the Slash risk for choosing Validators thus overall Staking reward will decrease.

Right Expression

Staking derivatives can inherit the proceeds from Staking collateral while liberating the liquidity of Staking. When Staking derivatives are transferred, their proceeds and redeemed right will be transferred accordingly.



Staking derivatives impossible triangle

In Bifrost Impossible Triangle of Derivatives, In order to provide better liquidity of Staking derivatives, the protocol design focuses more on the two aspects of fungible and expression of rights. By default, users' original chain voting rights are delegated to Bifrost protocol by means of vote price bidding. Meanwhile, users can still choose the particular bidder to delegate when they have special needs.

3.2.6 vTokenmint Incentives

In the Bifrost economic model 16,200,000 BNC (Bifrost Native Coin) account for 20.25% of the total amount, reserved as the vTokenmint incentives. The incentive period is set to be ten years of linear release, with the annual output halved every two years. It is allocated according to the value of users' vTokenmint, so as to encourage users to mint and hold vToken with governance rights, fungible and liquidity.

Parameters

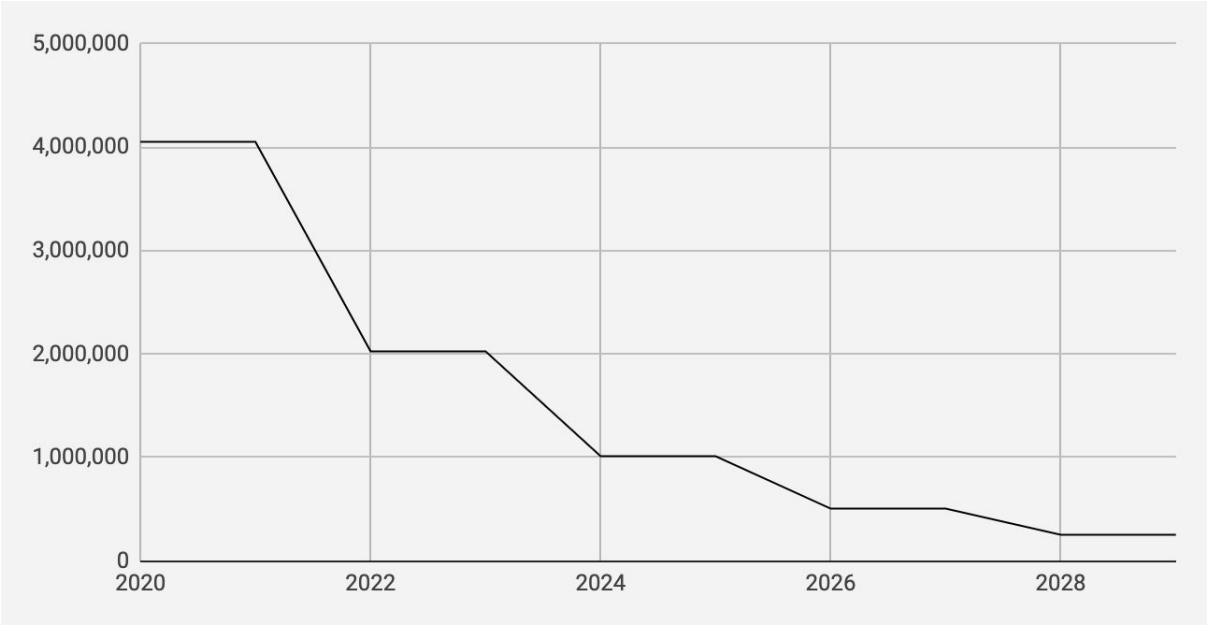
- $BNC^{total\ incentive} = 16200000$
- $Block^{time} = 6s$
- $Proportion^{inital} = 0.25$
- $Year^{launched} = 2020$

Formula

- $Block^{year\ number} = 365 \times 86400 \div Block^{time}$
- $Proportion^{year} = Proportion^{inital} \div 2^{INT((Year - Year^{launched} \div 2)}$
- $Reward^{per\ block} = BNC^{total\ incentive} \times Proportion^{year} \div Block^{year\ number}$

Bifrost vToken Incentive (16,200,000)				
Year	Rewards (BNC)	Proportion	Reward/Block (BNC)	Daily (BNC)
2020	4,050,000	25.00%	0.7705479452	11,096
2021	4,050,000	25.00%	0.7705479452	11,096
2022	2,025,000	12.50%	0.3852739726	5,548
2023	2,025,000	12.50%	0.3852739726	5,548
2024	1,012,500	6.25%	0.1926369863	2,774
2025	1,012,500	6.25%	0.1926369863	2,774
2026	506,250	3.13%	0.09631849315	1,387
2027	506,250	3.13%	0.09631849315	1,387
2028	254,340	1.57%	0.04839041096	697
2029	253,530	1.57%	0.04823630137	695
10 years total	15,695,370	96.89%		

vToken 10 years incentive



vToken 10 years incentive line chart

Yield Broken Line

- X ：$Mint\ Time$
- Y ：$BNC\ Yield$

3.2.7 vTokenmint Channel Funds

By using Bifrost vTokenmint protocol, users can transfer coinage channel parameters, which will record contributions to the corresponding channel according to the value of the Tokenmint. In Bifrost Staking Reward Structure, 3% will be allocated as channel funds by all channels according to the proportion of their total contributions. When channel contribution is high, it will receive more share of the channel funds generated by users, which will encourage more developers to integrate the Bifrost vTokenmint protocol into Wallet, Dapp and Exchange. The channel contribution will continue to increase until the referendum proposal is passed every six months.

3.2.8 Risk Control

Slash is generally designed as a progressive penalty and is only applied in cases where illegal operations are triggered multiple times, such as missing blocks. So Bifrost will list its supported Slash rules in PoS network, which warn or punish bidders based on their severity. To become a bidder, there will be a deposit of a certain amount of BNC as Slash insurance and the bidder shall bear the risk of capital loss due to bidders taking the initiative to get vote rights. Thus when Slash occurs, it will be deducted from the BNC that was pledged by the bidder first. In cases when the Slash penalty is too large to be secured by all bidders, the Slash penalty will be deducted from the public insurance fund and the Slash risk will be borne by all vToken holders. If overall Slash reaches 10% of the total Token, the Token protocol enters the period of emergency stop, all the stages of Staking the original Token will be redeemed. At the same time, the system will stop functions of vote right bidding and Staking, then vTokenmint price will not change. Users can always redeem vToken into the original Token, the

system will be trying to find the reason for Slash and prevent further loss. After the problem is fixed, the protocol can be restarted by referendum.

Improve Slash's anti-risk ability through the following:

- The Risk Control Committee.
- Rank Risk Controls.
- Vote Bidder Slash Collateral.
- Slash Public Insurance Fund.
- Slash System Insurance.

3.3 Bifrost Native Token (BNC)

Bifrost Native Token (BNC) is the main net Token of Bifrost, the initial total supply is 80000000. Currently, in the Bifrost testnet, BNC vouchers that can be exchanged 1:1 in the main network can be received for earlier stages of community distribution. At present, BNC is not available for transfer function, until the time that will be divided into four steps: completion of PoA startup, launching of the main network, deletion of Sudo and transfer proposal approved.

3.3.1 Value Capture

- **Liquidity commission for derivatives**: Transfer, transaction, mortgage and other behaviors in Bifrost network all need to pay a certain commission to maintain the network. BNC that used to pay commission will be sent to the Treasury for further administration and distribution. (All kinds of tokens can pay commission)
- **Slash collateral**: Participating nodes will be required to pledge part of BNC to obtain votes from the asset of Staking pool, while increasing the cost of Slash. Slash collateral will be increased or decreased based on the node's performance score.
- **Governance Voucher**: BNC can be used on on-chain parliament, technical committee, Treasury allocation, referendum governance, node election and other chain governance functions, hold BNC can get a right in Bifrost network governance.
- **Capture of Staking Reward**: Part of the Staking reward generated from Bifrost will be used for BNC repurchase and put into the State Treasury.

3.3.2 Incentive Model

Reserved part and funds may be adjustable with the development of Bifrost, but Bifrost will not make a zero-cost airdrop and any incentive will satisfy the principle of fundamental value capture.

- **vToken Holding Incentive**: vToken liquidity is the most significant value that Bifrost can offer, 20.25% of the TOTAL BNC being used to reward users who mint vToken.
- **PLO (Parachain Lease Offering)**: Successful PLO symbolizes measureless value to Bifrost network. Bifrost will release 15.75% Token in total to reward the group that helps Bifrost to participate in the Kusama and Polkadot PLO.

3.3.3 Participants

- **Validator**：A Validator randomly assigned through a parachain or parallel slot, which role is a Validator in Polkadot or Kusama network, will execute Bifrost business code and perform block final state validation.
- **Collator**：Responsible for collecting user call data and passing query information, Collator will generate blocks and submit to Validator for final validation.
- **Vote Bidder**：Elected by proposition referendum as a bidder who can bind the address of the node that needs to be voted on, has the right to bid for votes in the Bifrost voting pool. They will be disenfranchised if Slash level or limits are triggered.
- **Vote Asker**：Vote rights provider
- **Council**：Council performs three main governance tasks: proposing referendums, canceling uncontroversially dangerous or malicious referendums, and electing technical committees.
- **Technical Committee**：Technical Committee can work with the Bifrost Council to develop emergency referendums that can be voted on and implemented quickly. These emergency referendums are only used in emergency situations.
- **Sudo**：Super Admin, with the ability to manipulate any parameter on the network, to adjust the direction of the network during the testing phase, and to remove Sudo privileges through a referendum once the Bifrost main net is stable.

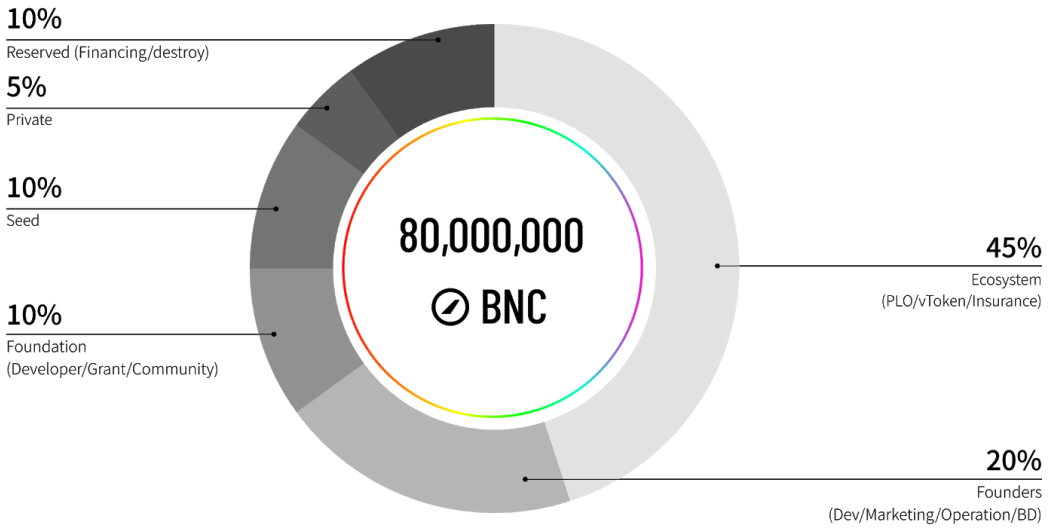
IV. Token Distribution

The goal of BNC distribution is to make Bifrost network being more decentralized, build market scale for Staking derivative of vToken, and incentivize a liquid market. Thus every step of BNC distribution will be thinking critically for the health of the Bifrost protocol. To achieve the goal, BNC will reserve 45% tokens as incentives for the entire ecosystem, including vTokenmint, PLO slot auctions, Collator node incentives, Oracle usage and cross-chain costs.

4.1 BNC Structure

Usage	**Proportion**	**BNC**
Ecosystem	45.00%	36,000,000
Founder	20.00%	16,000,000
Private Sale	5.00%	4,000,000
Foundation	10.00%	8,000,000
Seed	10.00%	8,000,000
Reserved	10.00%	8,000,000

Total allocation structure

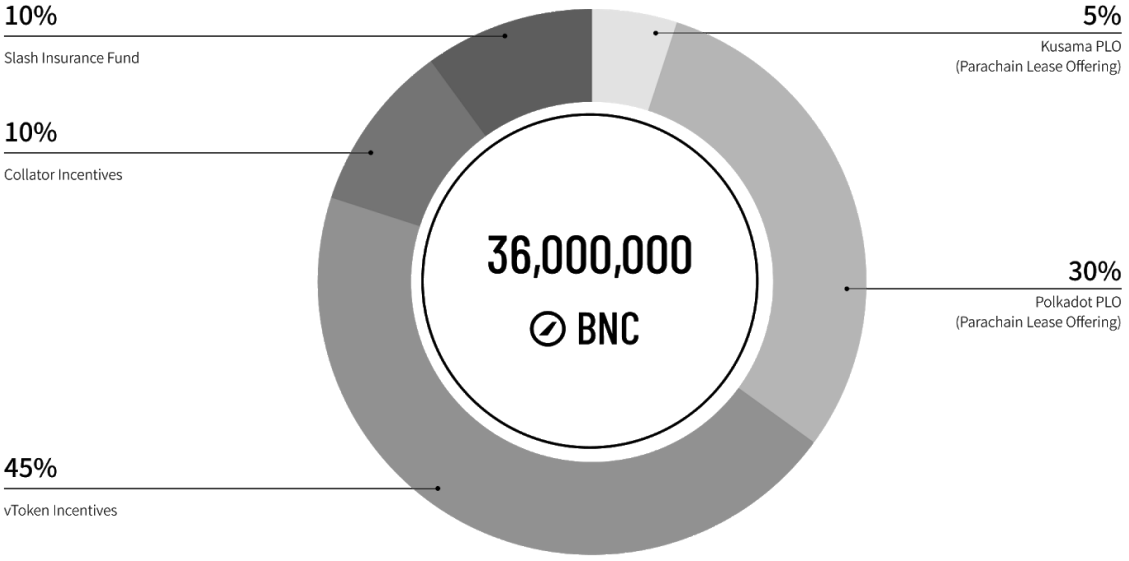


Total allocation structure chart

4.2 Ecosystem

Ecosystem	Proportion	BNC
Kusama PLO	5.00%	1,800,000
Polkadot PLO	30.00%	10,800,000
vToken Incentives	45.00%	16,200,000
Collator incentives	10.00%	3,600,000
Slash Insurance Fund	10.00%	3,600,000

Ecosystem allocation structure



Ecosystem allocation structure chart

4.2.1 vToken Holding Incentives

The number of vTokenmint is crucial to the liquidity, vToken coin mining will be a key distribution process for BNC. Please refer to Section 3.2.6 for specific distribution rules and formulas.

4.2.2 Parachain Lease Offering (PLO)

Only projects that have obtained a parachain slot can become a Polkadot and Kusama parachain, achieving shared security, relay cross-chain and other characteristics. According to Parity's strategy, the Kusama will have priority over Polkadot to open the parachain slot auction function, and at the same time, the parachain slots will be divided The phase is open and will be auctioned with the number of DOT locked warehouses. parachain slots have a lease time of 6 months to 24 months. Bifrost plans to bid for at least 4 years of parachain slots. Bifrost will reserve a total of 13.5% (45% * 30%) of BNC. In the auction of Polkadot parachain slots, 2.25% (45% * 5%) of the BNC is used for the Kusama parachain slot auction. DOT and KSM who lock the Bifrost parachain slots will have the right to reward from BNC, and Bifrost will also give full play to its own business characteristics. Provide users with the liquidity of parachain lock DOT/KSM vsDOT and vsKSM (Voucher Slot DOT/KSM). At present, there are still uncertainties in the specific bidding rules of Polkadot parachain. Specific PLO participation rules will be auctioned on Polkadot parachain The rules will be announced after the introduction.

4.2.3 Collator

When Bifrost insertion in the parachain and goes online on the main net, it will support collator to provide services. In order to incentivize collator with higher quality and a wider range of services, the agreement will motivate BNC based on the workload provided by collator, and the system will reserve an ecosystem 10% of BNCs are used as collator incentives.

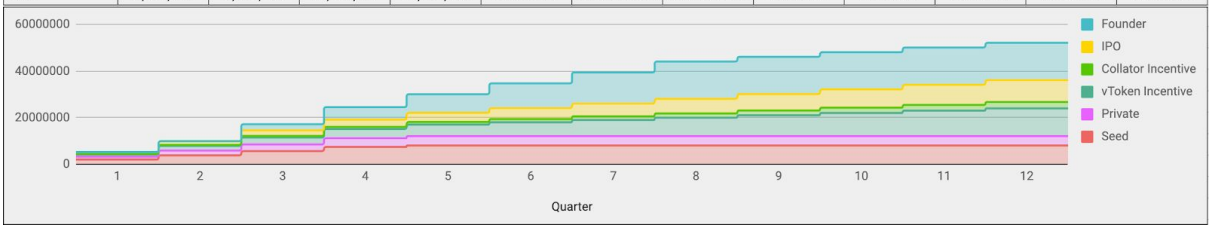
4.2.4 Slash Insurance Fund

Bifrost will reserve 10% of BNC as Slash system insurance funds to pay out in the event of the failure of Vote Bidder mortgages, public insurance and other risk controls.

4.3 The Unlocking Period

To ensure the development of Bifrost features, online and ecosystem development, different parts of BNC allocation will correspond different percentage of lock-in time, and the team portion of the BNC will also begin linear unlocking six months after Day0 (the day of circulation) and will continue to unlock for two years.

Unlock (Quarter)	1	2	3	4	5	6	7	8	9	10	11	12
Seed	2,000,000	3,800,000	5,600,000	7,400,000	8000000	8000000	8000000	8000000	8000000	8000000	8000000	8000000
Private	1,200,000	2,040,000	2,880,000	3,720,000	4000000	4000000	4000000	4000000	4000000	4000000	4000000	4000000
vToken Incentive	998,640	1,997,280	2,995,920	3,994,560	4,993,200	5,991,840	6,990,480	7,989,120	8,987,760	9,986,400	10,985,040	11,983,680
Collator Incentive	225,000	450,000	675,000	900,000	1,125,000	1,350,000	1,575,000	1,800,000	2,025,000	2,250,000	2,475,000	2,700,000
IPO	787,500	1,575,000	2,362,500	3,150,000	3,937,500	4,725,000	5,512,500	6,300,000	7,087,500	7,875,000	8,662,500	9,450,000
Founder	0	0	2,666,667	5,333,333	8,000,000	10,666,667	13,333,333	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000
Total	5,211,140	9,862,280	17,180,087	24,497,893	30055700	34733506.68	39411313.35	44089120	46100260	48111400	50122540	52133680



Unlocking expectations in 12 quarters

V. Roadmap & Milestone

- 2019 Q3
  - First Line Of Code
  - Launch Official Website
  - Smart Contract MVP

- 2019 Q4
  - Substrate Hackathon
  - Whitepaper
  - Apply Web3 Foundation Grant

- 2020 Q1
  - Launch Bifrost POC-2 Testnet
  - Delivery Web3 Grant
  - Dashboard online

- 2020 Q2
  - Support EOS Jungle Testnet
  - Parachain on Kusama
  - Launch Bifrost Asgard CC1

- 2020 Q3
  - Open Staking bidding beta
  - Support EOS Cross Chain
  - Launch Bifrost Asgard CC2
  - Release Bifrost Dapp Beta

- 2020 Q4
  - Staking drop
  - Security Audit begins
  - Internal AMM Swap pool
  - Launch Bifrost Asgard CC3
  - Launched main net

- 2021 Q1
    - Announce PLO detail & Auction page
    - PLO & Auction Polkadot SLOT
    - Support sDOT (Parachain slot auctions DOT)
    - Support vDOT/vKSM/vETH(2.0)/vEOS

- 2021 Q2
    - Derivatives Dapp Grant Program
    - vToken Listing on DEX/CEX/Parachain
    - Launch vToken statistics page
    - Support vATOM/vALGO/vONE

- 2021 Q3
    - Release vToken screening/support standards
    - Mortgage derivatives (More than Staking)

VI. Conclusion

Bifrost's current design goal is to provide investors with a unified business and service inter-layer across multiple well-known PoS public chains, numerous Polkadot parachains, and Polkadot relay chain, and to provide decentralized, secure, standardized, configurable financial instruments to form a rich and flexible market for asset collateralized income notes. Strengthen the PoS ecosystem construction of the entire blockchain industry and help promote the popularity and deep evolution of DeFi technology and applications.

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