Eidoo, pTokens & pNetwork
Overview of the token economy upgrade

DRAFT - May 2020

pNetwork

Background Eidoo & Provable Things

Poseidon Group is a Swiss holding group operating in the blockchain industry and focused on boosting the innovation among a variety of decentralized applications.

Eidoo

Eidoo is a Swiss blockchain startup focused on bringing the "banking without banks" concept at the fingertips of its users. Founded in 2017, Eidoo simplifies the experience for anyone willing to access cryptocurrencies as well as experimenting with advanced decentralized financial services. Following a decentralized approach, Eidoo's goal is to find the optimal balance between financial innovation and ease of use.

Today, the Eidoo app counts tens of integration partners and thousands of users interacting with it on a daily basis. After having successfully achieved all the milestones set out in its initial whitepaper, Eidoo is now committed to position itself as a next gen DeFi wallet.

Provable Things

Provable Things is a London-based security startup operating within the blockchain industry. Founded in 2015, Provable uses cutting-edge decentralized and Trusted Computing technologies to provide services for modern DApps, enabling the shift of traditional services into the decentralized economy.

The first Provable product to launch has become the longest-running blockchain oracle service industry-wide, granting a reliable connection between smart contracts and Web APIs - this has been integrated to date by more than 1 thousand Ethereum Dapps. While leveraging the expertise acquired during the past 5 years, the team is now focused on solving the "walled garden" limitation preventing cross-blockchain communication.

Eidoo DeFi at your fingertips
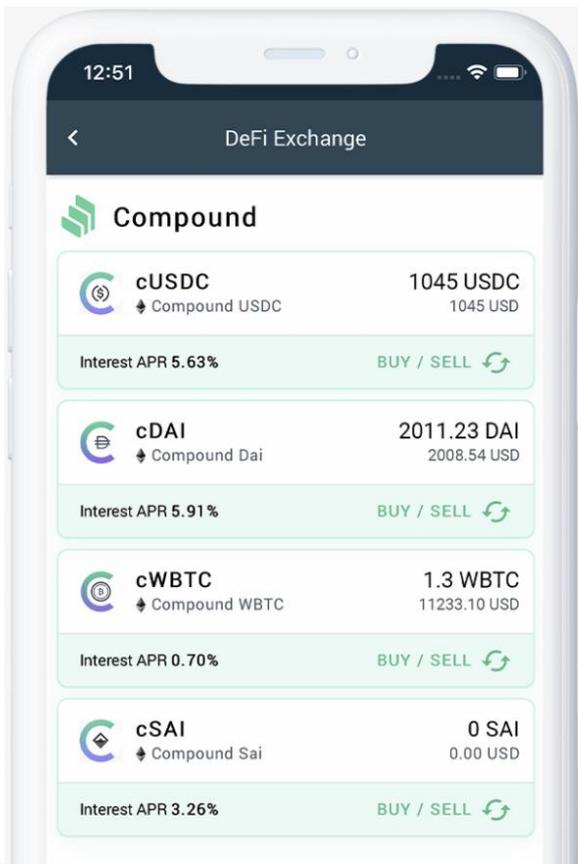
Eidoo is a non-custodial DeFi wallet that is currently being used by tens of thousands of users every month.

While it supports multiple blockchains (Ethereum, Bitcoin and Litecoin), most of its integrations have been built around Ethereum.

The Eidoo ecosystem provides the users with tools that cover most of their daily needs. It features fiat on-ramp and off-ramp options (optimized for European payment options), a DEX, tailor made integrations with lending protocols and DeFi tools (Compound, Chai and Fulcrum among others - all integrated on the Eidoo's DeFi exchange) and much more.

Additionally, Eidoo provides a single swap interface to seamlessly interact with external liquidity protocols such as Kyber Network, Bancor and Uniswap.

The Eidoo ecosystem is built on top of the **EDO token**, a utility token that gets burned while the Eidoo core services get used.

pTokens Basic concept

PROBLEM:

SOLUTION:

Blockchain

Blockchain

Blockchain
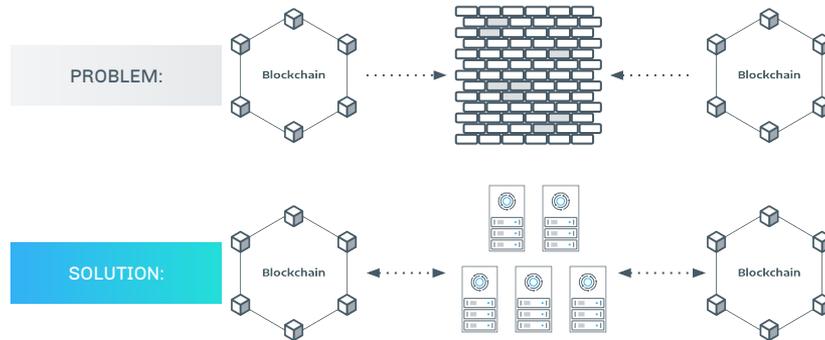
Blockchain

Today, composability is possible and limited to the blockchain environment decentralized applications (dApps) are built on. As an example, most decentralized financial tools are being developed on top of the Ethereum network, making these dApps walled into it and limited to the liquidity of its native assets (ETH and ERC20-tokens). Similarly, crypto assets belonging to non-Ethereum platforms such as Bitcoin or EOS can only be managed using dApps built on top of their native blockchain, being unable to operate with existing Ethereum ones.

As the cryptocurrencies industry continues to evolve and the development of alternative financial platforms is on the rise, overcoming such limitations is an essential challenge.

At the basis of decentralized finance are two key elements - a common shared platform serving as a fertile ground where DeFi applications can flourish and assets that can be invested, collateralized and traded. **As a direct consequence of the current blockchain silos, liquidity for decentralized financial applications is limited to the one locked within the ecosystem these are built on.** Liquidity is largely spread across a large number of blockchain platforms and difficult to merge into a single pool. For this reason, it becomes essential to create solutions that allow effective cross-chain composability for decentralized applications to access any assets.

pTokens are designed to solve this very problem: they provide a general purpose, simple and secure foundation to make any token movement possible on any blockchain.

4

pTokens Basic concept

pTokens aims to be a decentralized open-source system facilitating cross-chain movement of assets.

As the cryptocurrencies industry continues to evolve, the development of alternative financial platforms is on the rise. A critical component for these to succeed is assets' liquidity, which in the decentralized scene is currently spread across multiple independent blockchain protocols.

The pTokens system bridges a variety of blockchains, powering the free movement of crypto liquidity. **These bridges are operated by a network of validators, whose role is to verify the cross-chain asset switch and to guarantee the 1:1 peg with the underlying asset.**

pTokens removes the need for a trusted intermediary by creating a crypto-economic incentive through a governance token. The incentives mechanism is at the foundation of the pTokens system - the pNetwork Token (PNT) is leveraged to motivate validators and encourage community participation and adoption. **While fueling validators' activities, the PNT token is a key element of the staking method at the basis of the network.**

pTokens pTokens bridges

The pTokens bridge is a secure and transparent way for crypto assets to be moved cross-chain. A pTokens bridge can be built for each direction of a connection between two independent networks, for any asset to be moved into any blockchain.

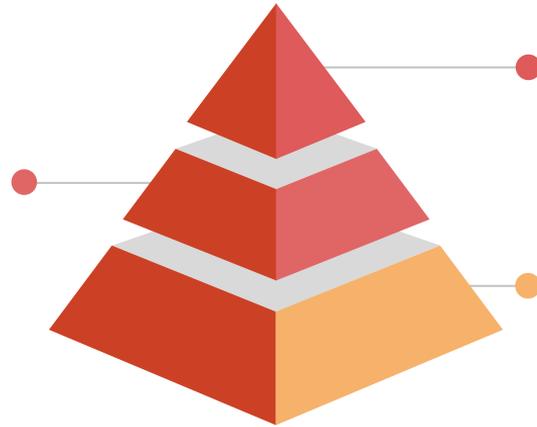As an example, a pTokens bridge can be created to connect the Bitcoin and Ethereum networks.

The pTokens bridges power the peg-in and peg-out processes at the basis of the crypto assets switch from the native blockchain to the host blockchain. The former procedure happens whenever a crypto asset is locked within the native blockchain and transferred via a minting process of its tokenised form into the host blockchain. Opposite to it is the peg-out procedure, that happens whenever a pToken is burned within the host blockchain and released into the native blockchain.

pNetwork A governance network

As the underlying architecture for pTokens, the pNetwork provides the foundation for a truly decentralized system, and is in fact, a realisation of its progressive decentralization aims.

pNetwork DAO
Community-lead governance via a token-based mechanism

pTokens bridges
Enable the cross-chain movement of crypto assets

pNetwork
A network of validators operating the pTokens bridges

The pTokens system will undergo a series of upgrades to achieve a fully decentralized network of validators, the pNetwork, where multiple operators (namely, validators) will ensure there is no central point of failure.

Ultimately, the pTokens peg-in and peg-out processes will be granted by a network of validators through the use of Multi Party Computation and where each validator is required to operate on a Trusted Execution Environment setup.

The validators will cooperate to jointly trigger the issuance of pTokens or the release of the underlying asset (in the reverse process).

pNetwork A governance "sidechain"
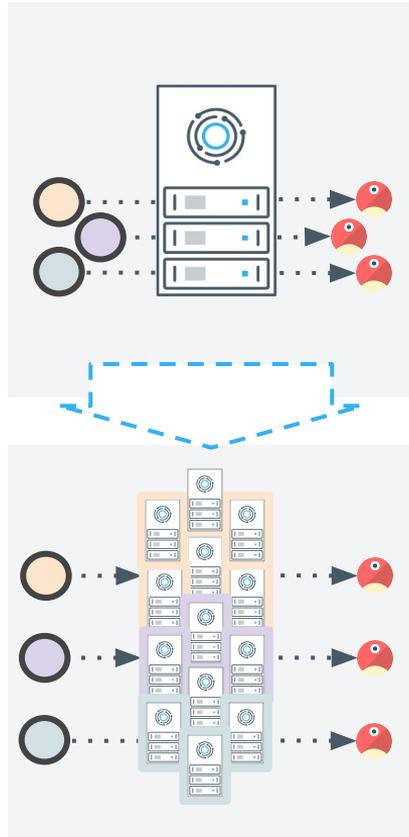
Ultimately, **the pTokens peg-in and peg-out processes will be granted by a network of TEE operators (validators) through the use of Multi Party Computation** - a generic cryptographic primitive that enables distributed parties to jointly compute an arbitrary functionality without revealing their own private inputs and outputs. A fundamental feature of MPC is the ability for the computation to preserve certain security properties, even if some of the parties collude and maliciously attack the protocol.

The validators cooperate to jointly trigger the issuance of pTokens or the release of the underlying asset (in the reverse process).

In the context of pTokens, MPC is used to enable the distributed signing (via a threshold signature scheme) of peg-in and peg-out operations among the network of validators. The use of Multi-Party Computation enables the validators to cooperate and perform the cross-chain movement of assets after they have all verified independently the external blockchains' conditions.

In its initial iteration, the pTokens system is operated by a single validator. Going further, the system will undergo a series of upgrades to achieve a fully decentralized network of validators.
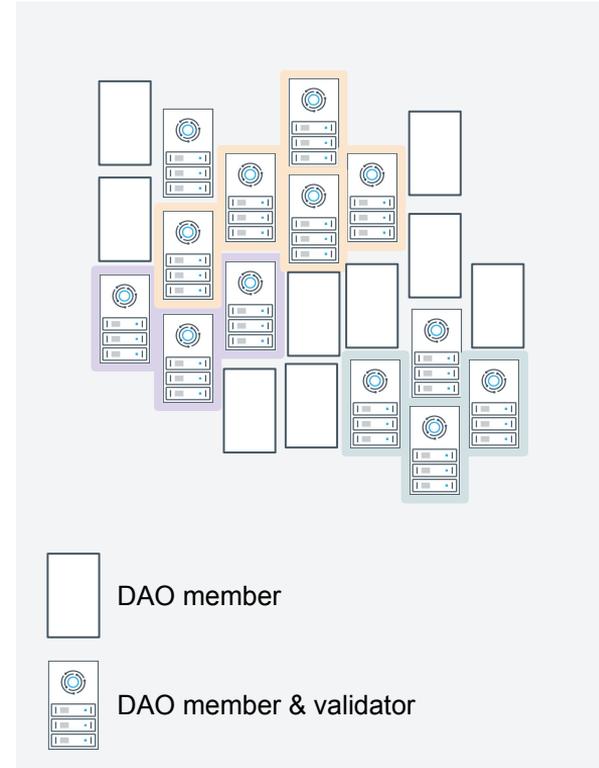
pNetwork pNetwork DAO

The pNetwork is home to a Decentralized Autonomous Organisation (DAO) that governs the network itself, along with the pTokens bridges and their dynamics.

For the system to become truly decentralized, community participation is key. People can contribute to the success of the project by assuming an active role in it. Specifically, they can decide to operate a validating node or help shape its future by voting on pTokens improvement proposals via the pNetwork DAO.

The pNetwork DAO will be open for anyone to join and contribute to the developments of the pTokens system via a token-based voting mechanism.

Members of the DAO will initiate voting processes to influence the development and future of the pTokens system. A series of Improvement Proposals (IPs) will be advanced by the development team on multiple pTokens related matters. DAO members will be called to vote and decide whether or not to approve the IPs. For example, members will be responsible for electing which pTokens bridges to develop and support next, deciding on the fee mechanism of the network and resolving any upgrade proposals.

DAO member

DAO member & validator

pNetwork pNetwork Token (PNT)

The pNetwork token (PNT) will be introduced to the system as a way to implement community-lead governance and as an incentive for actors within the network to perform their roles.

The PNT token represents a key element of the system as it aligns incentives for all participants. In fact, PNT is leveraged internally by the pTokens system to enable operations for both validators and DAO members.

Prospective validators need to stake a minimum amount of PNT tokens, which is then used to show their commitment and serves as a bond. Such a role creates a potential economic benefit for validators, who are rewarded for their work with the peg-in and peg-out fees collected by the system.

A network of validators contributes to a more stable and higher quality service, making the pTokens bridges more attractive for users. The pNetwork Token (PNT) is leveraged within the system as an incentive for validators to participate in the decentralization of the system and in the verification of the cross-chain movement of assets.

The utility of PNT is determined by its role within the ecosystem. It is an incentive for validators and a means for the community to actively participate in the pNetwork DAO's voting mechanism.

DAO members will be able to express their preferences in regards to a variety of Improvement Proposals by staking their PNT tokens within the Decentralized Autonomous Organisation and vote accordingly.
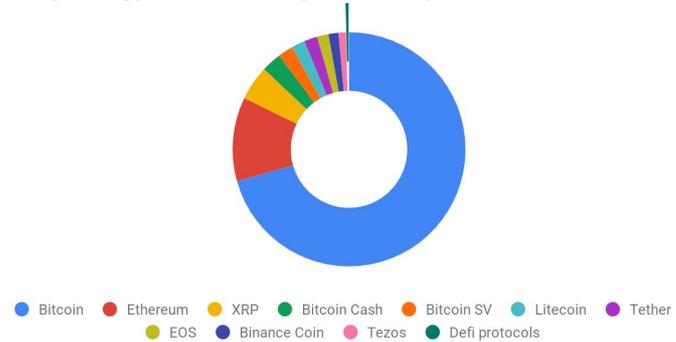
validators

pNetwork
Token (PNT)

DAO members
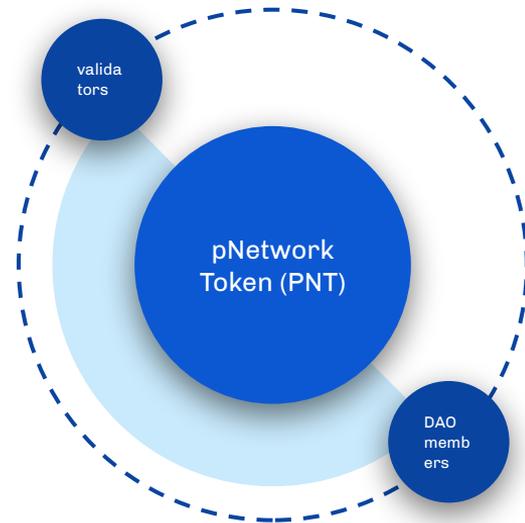
Market opportunity Liquidity unchained

Potential of the decentralized financial market as a comparison with the larger cryptocurrencies market

■ Total value locked in DeFi

■ Total market capitalization of cryptocurrencies

0   100000000000   200000000000   300000000000
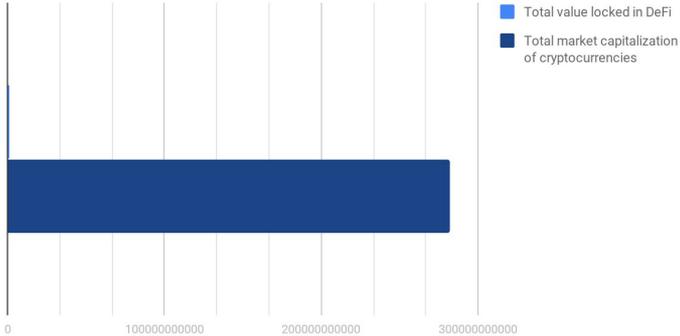
Sources: defipulse.com - coinmarketcap.com
Reference: February 2020

Value locked in DeFi protocols compared to the value locked in the top 10 cryptocurrencies by market capitalization

● Bitcoin   ● Ethereum   ● XRP   ● Bitcoin Cash   ● Bitcoin SV   ● Litecoin   ● Tether
● EOS   ● Binance Coin   ● Tezos   ● Defi protocols

Sources: defipulse.com - coinmarketcap.com
Reference: February 2020

Liquidity is largely spread across a number of blockchain platforms and difficult to merge into a single pool. The pTokens system enables cross-chain composability effectively as it is an essential component for decentralized financial applications to be compatible with any crypto asset.

Alternative solutions have led the way to bridging the Bitcoin blockchain with the Ethereum one. The pTokens system positions itself as an automated, more decentralized and non blockchain-specific solution compared to the current market leader.

Market opportunity Competitors analysis

When compared to liquid solutions available on the market, the pTokens system is more appealing for market makers operating in the decentralized financial ecosystem as it grants cost-effective automated processes.

	Wrapped Bitcoin (wBTC)	**imToken (imBTC)**	**pTokens (pBTC)**
Governance	Federation	Centralized	Decentralized
Peg-in/out speed	Involves manual process (up to 48 hours)	Instant (after transaction finality)	Instant (after transaction finality)
Peg-in/out cost	Low	Medium	Low

Market opportunity Competitors analysis

	Keep Network (tBTC)	Ren Project (renBTC)	pTokens (pBTC)
Governance	Bonded multi-federated peg	Decentralized system based on a custom MPC primitive (yet undisclosed) among its RenVMs	Decentralized system based on standard MPC primitive and multi-TEE setup
Reach	UTXO specific	Aimed for a multi-blockchain implementation	Multi-blockchain implementation
Peg-in/out cost	High	Medium	Low
Underlying technology of the bridges	Complex approach based on a multi-federated pegging mechanism	Complex approach based on multiple layers (including RenVM)	Purposely simple in its design (including a light client for each blockchain being bridged)
Macro economics	Close relation between the ETH price and the total value of assets that can be locked in the system	Close relation between Ren's system security and the value of the REN token staked into the network	Not limited in the amount of tokenised assets it can issue

Growth Progressive decentralization

Phase Zero

0

In its initial stages, the pTokens system is operated by a single validator.

Phase One

1

A permissioned network of validators (the pNetwork) is introduced. The pNetwork is home to a DAO.

Phase Two

2

The pNetwork becomes open for anyone to join (permissionless) and operate as a validator.
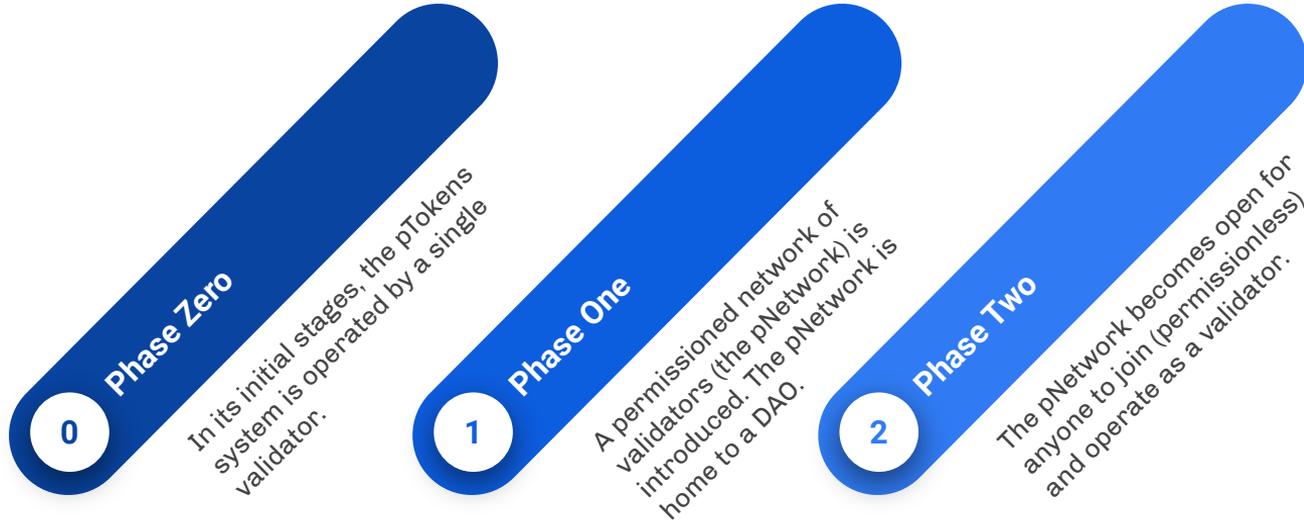
Growth Progressive decentralization

PNT is issued on Ethereum

The pNetwork Token (PNT) is issued as an Ethereum token, following the ERC-777 token standard.

Governance model (DAO) is introduced

The pNetwork Token (PNT) is upgraded to governance token and gains voting rights within the pNetwork DAO.

PNT staking for validators is enabled

PNT can be staked within the DAO for validators to start operating.

Growth Phase Zero (current status)

The pTokens system is aimed to connect a variety of blockchain protocols, for any crypto asset to be moved cross-chain.

The first pTokens bridge (pBTC on ETH) had a successful mainnet launch on March 5th, 2020, with a number of integration partners onboard, including industry-leading liquidity providers Kyber and Bancor Networks. Other platforms are performing seamless integrations so that peg-ins and peg-outs can be made straight from their interface. Examples include (but are not limited to) DMex and Eidoo.

Multiple pTokens bridges are already in the works and released on testnet. Examples include a pTokens bridge between Litecoin and Ethereum (pLTC on ETH) as well as the connection of the current two major DeFi networks, Ethereum and EOS (pEOS on ETH and pETH on EOS).

A pTokens bridge between Bitcoin and EOS (pBTC on EOS) had a successful mainnet launch in April 2020. This was released with an additional feature enabling the seamless passporting of pBTC among the Ethereum and EOS networks.

The pTokens system is currently in Phase Zero. In its initial stages, the pTokens system is operated by a single validator.

The pTokens system will undergo a series of upgrades to achieve a fully decentralized network of validators, the pNetwork, where multiple operators (validators) will ensure there is no central point of failure.

Growth Phase One

A first upgrade of the pTokens system (Phase One) is aimed to introduce a network of validators that will cooperate in the automated verification of each peg-in and peg-out procedure.

The pTokens system will continue to be underpinned by Trusted Execution Environments (TEE) that act as validators (nodes) in the network. These enclaves are encrypted hardware ensuring the integrity of the node, and guarantee a secure and fully auditable execution of all minting and redeeming processes.

The pNetwork will be launched as a permissioned network, that will then quickly evolve into a permissionless one. The first pTokens upgrade will open the system to a set of known parties, who will operate on the network as validators. It is an open, public and independent network built upon Ethereum with an in-built governance system.

With Eidoo being integrated from Day One, it is very convenient for its own users to access and use pTokens, such as pBTC. We expect this user base to drive its initial growth.

The pNetwork is home to a Decentralized Autonomous Organisation (DAO) that governs the network itself, along with the pTokens bridges and their dynamics.

The pNetwork DAO will be open for anyone to join and contribute to the developments of the pTokens system via a token-based voting mechanism.

Members of the DAO will initiate voting processes to influence the development and future of the pTokens system. A series of Improvement Proposals (IPs) will be advanced by the development team on multiple pTokens related matters. DAO members will be called to vote and decide whether or not to approve the IPs.
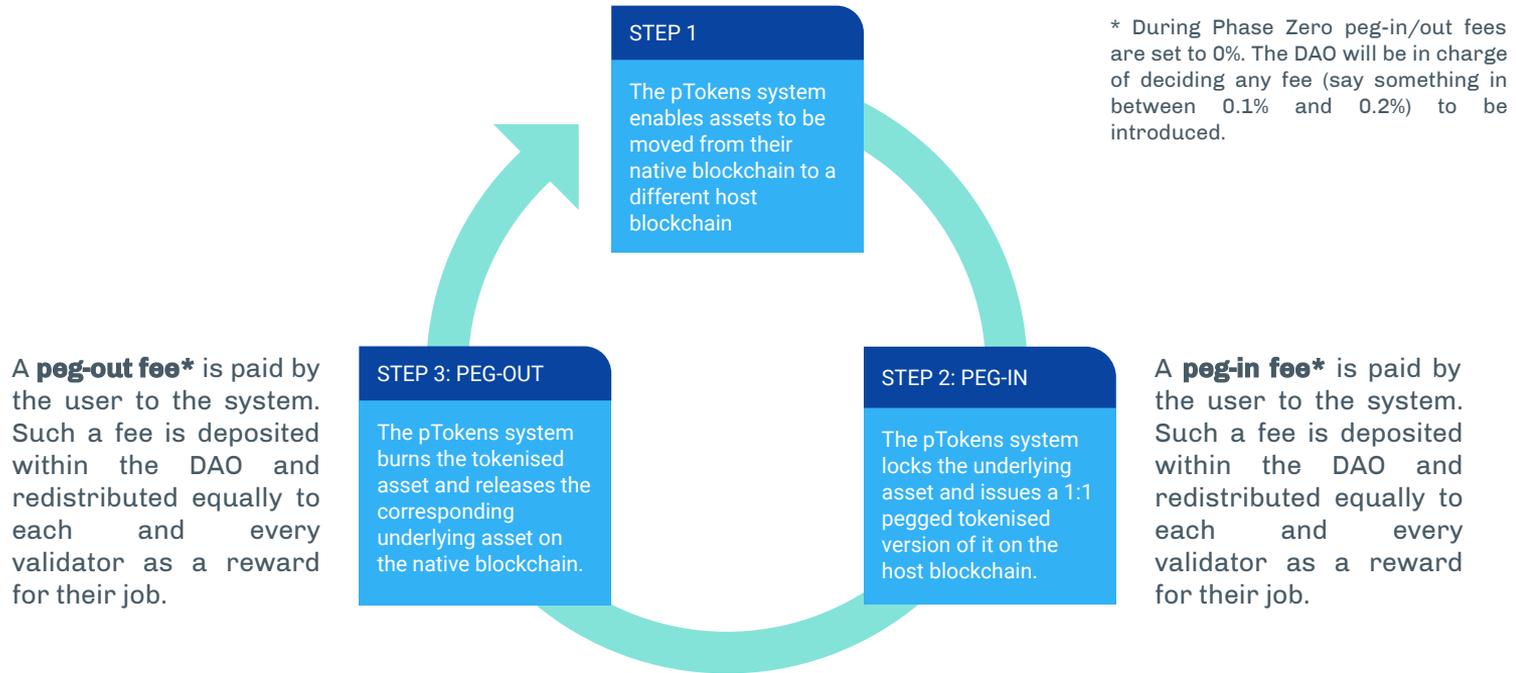
Growth Phase Two

Further upgrades (Phase Two) aim to achieve full decentralization, making the pTokens system an open network which anyone can be part of. It's a permissionless network where a Multi-Party Computation (MPC) algorithm is jointly used by validators to reach consensus, power its computations and perform all peg-in and peg-out procedures.

Multiple TEE techniques are employed to safeguard the generation and management of the key-pairs used by the pTokens bridges. This benefits the entire system by making it more secure - for example, sybil attacks are prevented thanks to the use of multiple TEEs (where different isolation techniques enforce the execution of the exact code the network has agreed on).

Ultimately, the pTokens peg-in and peg-out processes will be granted by a network of validators through the use of Multi Party Computation and where each validator is an operator of a multi Trusted Execution Environment setup.

The validators will cooperate to jointly trigger the issuance of pTokens or the release of the underlying asset (in the reverse process).

Growth Revenue model

STEP 1

The pTokens system enables assets to be moved from their native blockchain to a different host blockchain

* During Phase Zero peg-in/out fees are set to 0%. The DAO will be in charge of deciding any fee (say something in between 0.1% and 0.2%) to be introduced.

A **peg-out fee*** is paid by the user to the system. Such a fee is deposited within the DAO and redistributed equally to each and every validator as a reward for their job.

STEP 3: PEG-OUT

The pTokens system burns the tokenised asset and releases the corresponding underlying asset on the native blockchain.

STEP 2: PEG-IN

The pTokens system locks the underlying asset and issues a 1:1 pegged tokenised version of it on the host blockchain.

A **peg-in fee*** is paid by the user to the system. Such a fee is deposited within the DAO and redistributed equally to each and every validator as a reward for their job.

pTokens users are not required to hold PNT tokens as the fee is directly collected from the underlying amount deposited or redeemed. **Such a fee is then equally distributed to the validators** (node operators) operating on the pNetwork and guaranteeing the peg-in and peg-out mechanism. This approach does not create an unnecessary burden for users, while providing a benefit for the actors involved in the system.

Growth Token economy

The flywheel effect is triggered by the need for validators and DAO members to hold and stake PNT tokens in order for them to perform their respective roles.

Prospective validators need to stake a minimum amount of PNT tokens (200K PNT), which is then used to show their commitment and serves as a bond. Such a role creates a potential economic benefit for validators, who are rewarded for their work with the peg-in and peg-out fees collected by the system. Should a validator operate maliciously, it is punished by the system by losing tokens at stake. On the contrary, when operating remarkably, validators get back tokens at stake at the end of the validator's life cycle.

A network of validators contributes to a more stable and higher quality service, making the pTokens bridges more attractive for users. **The pNetwork Token (PNT) is leveraged within the system as an incentive for validators to participate in the decentralization of the system and in the verification of the cross-chain movement of assets.**

Fees are redistributed to validators via the asset users transfer cross-chain. As an example, while validating the tokenisation of Bitcoin on the Ethereum network, a peg-in fee will be collected by the system in Bitcoin and redistributed to validators via the DAO. Such a model prevents the PNT token from being a burden for users adoption of pTokens.

The utility of PNT is determined by its role within the ecosystem. It is an incentive for validators and a means for the community to actively participate in the pNetwork DAO's voting mechanism.

DAO members will be able to express their preferences in regards to a variety of Improvement Proposals by staking their PNT tokens within the Decentralized Autonomous Organisation and vote accordingly.

Growth Token economy

During the initial stages of the system, the Decentralized Autonomous Organisation creates an artificial incentive for the target audience to assume an active role within the system (additional to peg-in/our revenue model). Such an artificial incentive consists in a **63% interest paid out over 2 years on the PNT tokens at stake, that is paid out to any PNT staker during the first two years of operations of the system**.

Out of the 28.35M PNT tokens dedicated to this initiative, the unassigned ones will be burned.

1st year				**2nd year**				**following years**			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

INTEREST 42% (PNT stakers)

INTEREST 21% (PNT stakers)

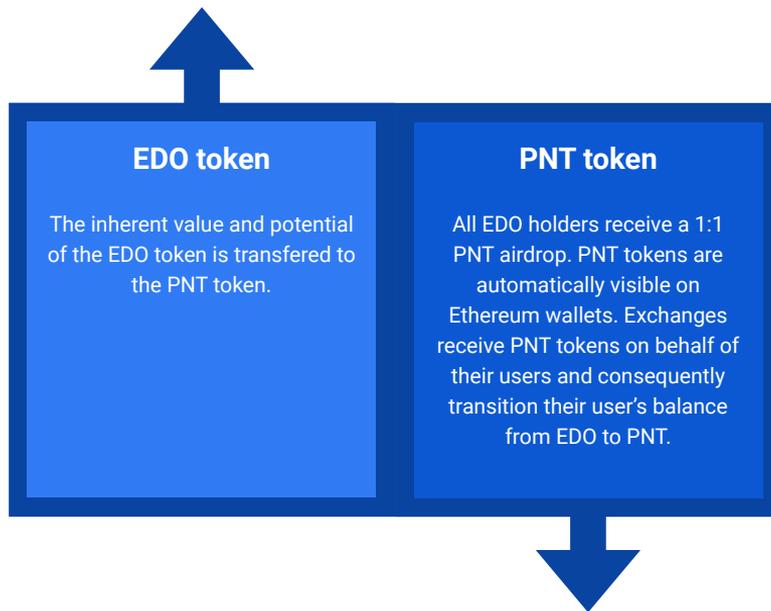PEG-IN & PEG-OUT FEE (validators)

Growth Token allocation

** (going down thanks to existing Eidoo burning activities)

Token allocation
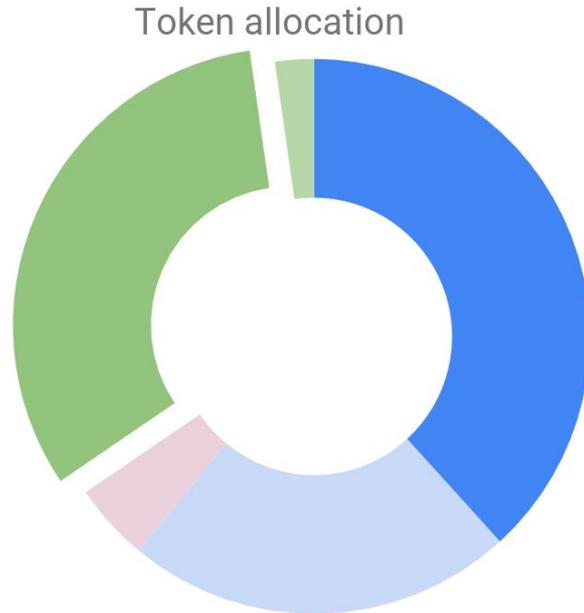
- ● Hold by existing EDO token holders
- ● Hold by Eidoo, Poseidon and its founders
- ● Reserved to reward EDO staking initiatives
- ● max inflation for incentivizing the DAO stakers (*)
- ● Given to the pNetwork Association

PNT ~33.6 Millions**	Currently being hold by 7k+ EDO token holders
PNT 20 Millions	Hold by Eidoo, Poseidon Group and its founders
PNT 4 Millions	Being distributed to existing EDO token holders via existing staking initiatives (including the EidooPAY card programme)
PNT 28.35 Millions (*)	Initially all burnt from the EDO supply, on PNT this is the max that gets issued in the first 2y to serve as incentive for DAO stakers
PNT 2 Millions	Allocated to the pNetwork Swiss no-profit association to advertise and promote the activities of the network.

Token upgrade EDO to PNT

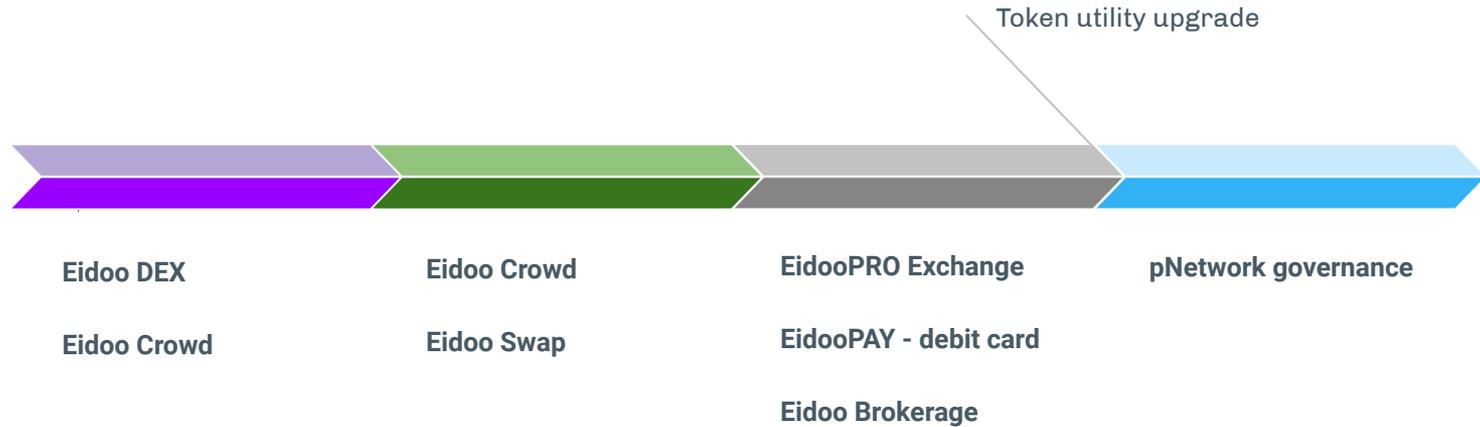| EDO token	PNT token
The inherent value and potential of the EDO token is transfered to the PNT token.	All EDO holders receive a 1:1 PNT airdrop. PNT tokens are automatically visible on Ethereum wallets. Exchanges receive PNT tokens on behalf of their users and consequently transition their user's balance from EDO to PNT.

As part of the path forward, **the EDO token will be upgraded for it to be leveraged within the pTokens and pNetwork ecosystems.** The transition includes a token renaming from EDO to PNT (pNetwork token). Such PNT token will be issued by the same legal entity that issued the EDO token (namely, Swiss-based Eidoo SAGL).

The newly converted PNT token is used as a fuel for both the pTokens system and other Eidoo services.

Token upgrade EDO to PNT

The utility of the token will be improved as it will be leveraged as fuel for a larger range of services.

Token utility upgrade

Eidoo DEX

Eidoo Crowd

Eidoo Crowd

Eidoo Swap

EidooPRO Exchange

EidooPAY - debit card

Eidoo Brokerage

pNetwork governance

Questions?

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