

Standard Protocol—— A Collateralized, Rebasable Stablecoin for Synthetic Assets

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Abstract

Standard Protocol is the first collateralized rebasable stablecoin protocol (CRS) for synthetic assets in the Polkadot ecosystem. It introduces a new paradigm for liquidity aggregation. In contrast to the previous generation of algorithmic stablecoins, Standard rebases its stablecoin supply in each era. It will act as the catalyst for the other parachains' financial activities to enable leveraged trading and arbitrage via a built-in AMM. It will also include a protocol for synthetic asset markets through a decentralized oracle.

In this paper, we introduce Standard Protocol, a Collateralized Rebasable Stablecoin (CRS) protocol for synthetic assets. The paper covers cross chain integration, mechanisms and modules.

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1. Introduction

Unlike first generation algorithmic stablecoins with no collateralized assets, Standard Protocol provides an algorithmic stablecoin and an index of digital assets within its vault. When the price of these assets within the Standard Protocol ecosystem increases, the token price will also appreciate. New tokens are then issued and distributed to the seigniorage pool, in order to maintain the peg of 1 USD. When the price of assets within the Standard Protocol ecosystem decreases, the token price will go down and the bank (vault) will issue bonds to remove tokens from the circulating supply and stabilize the price at 1 USD.

1.1 Problems

Current algorithmic stablecoins face three problems:

- **Too much focus on price stability, with no sustainable use cases for interoperability**

Current algorithmic stablecoins focus only on automated price stability. Although they provide some interoperability between tokens with initial distribution via yield farming, there is still no sustainable way for them to interoperate in financial activities without the unsustainable level of token issuance distributed to staking pools.

- **Current oracles are centralized, and there is no decentralized ecosystem to reward them**

There is no reward system for oracle providers currently, and the current solutions are either controlled by validators or by the companies themselves. One can be dependent on DEXes, but they are prone to flash swaps and generating unwanted arbitrage data when compared to centralized exchanges. In order to provide aggregated and balanced data, oracle providers must be rewarded in a decentralized manner. Standard Protocol proposes a reward mechanism in each era and slashes equivocation with the IQR rule.

- **Auctions are hard to track and centralized**

Liquidation auctions are hard to track and participate in, and thus only experienced traders can benefit from them. A more decentralized method to liquidate positions must be considered. Auction orders come in high volumes of collateral, which can lead to plutocracy.

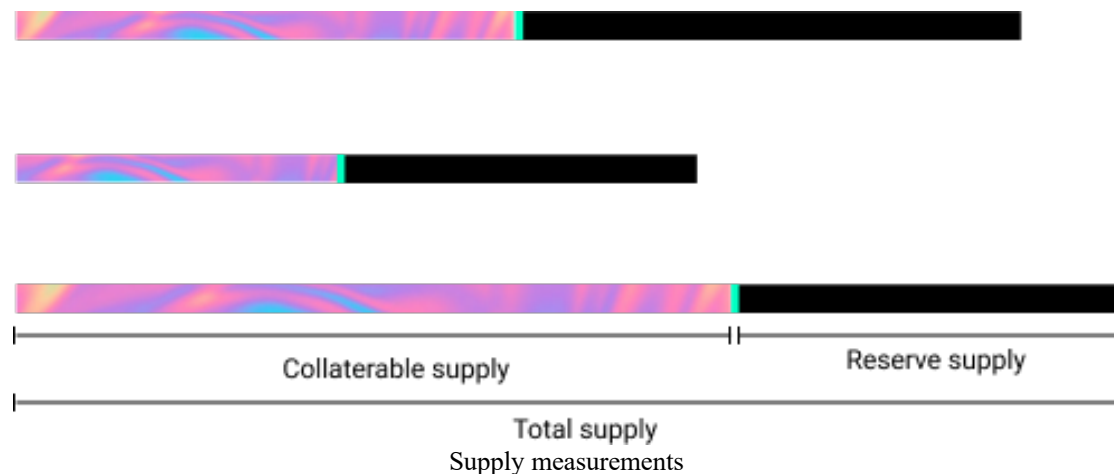
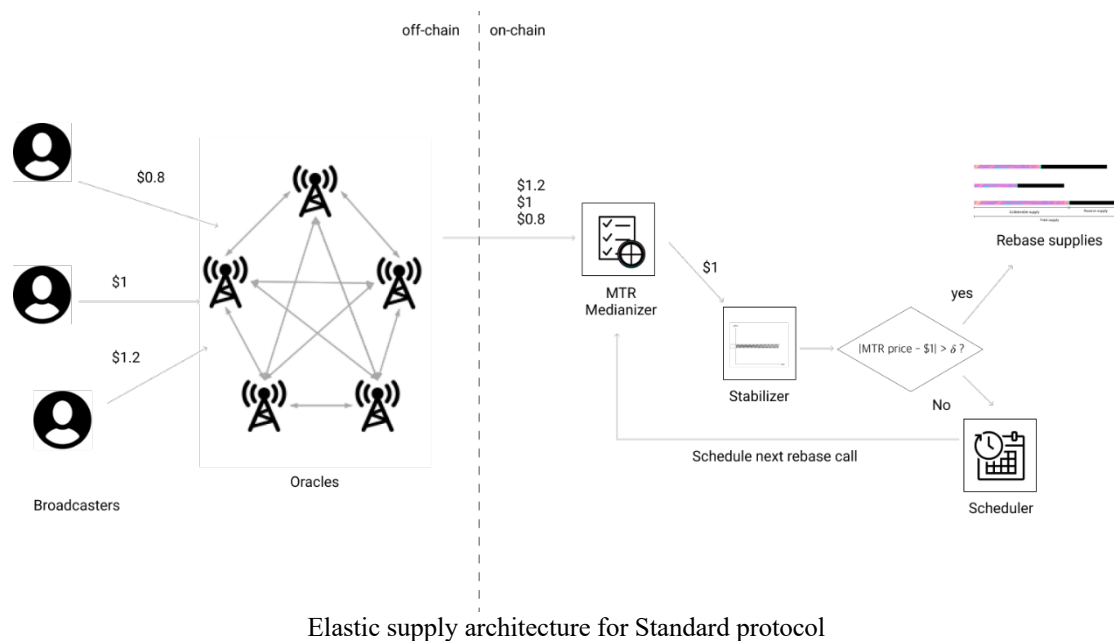
1.2 Solutions

Standard Protocol tries to solve the above problems with these solutions.

- **Elastic supply**

Ampleforth (AMPL) uses elastic supply to rebase its total supply of tokens. Standard rebases its stablecoin supply in each era, and utilizes overcollateralization to mint its stablecoin, Meter (MTR).

Standard (STND) automatically rebases the collateralized stablecoin, in the manner of an algorithmic reserve bank with decentralized governance for STND holders. By rebasing the price in each era, the total supply of the stablecoin Meter (MTR) and the amount that can be issued are adjusted to peg Meter (MTR) to the value of USD.



Meter (MTR) supplies are measured in each rebase and adjusted with the medianized price from oracles.

- Decentralized Oracle Ecosystem**

Oracle clients from various sources (e.g. Binance, Coinbase, HydraDX, etc) can provide aggregated price information so that the price cannot be manipulated by a single entity.

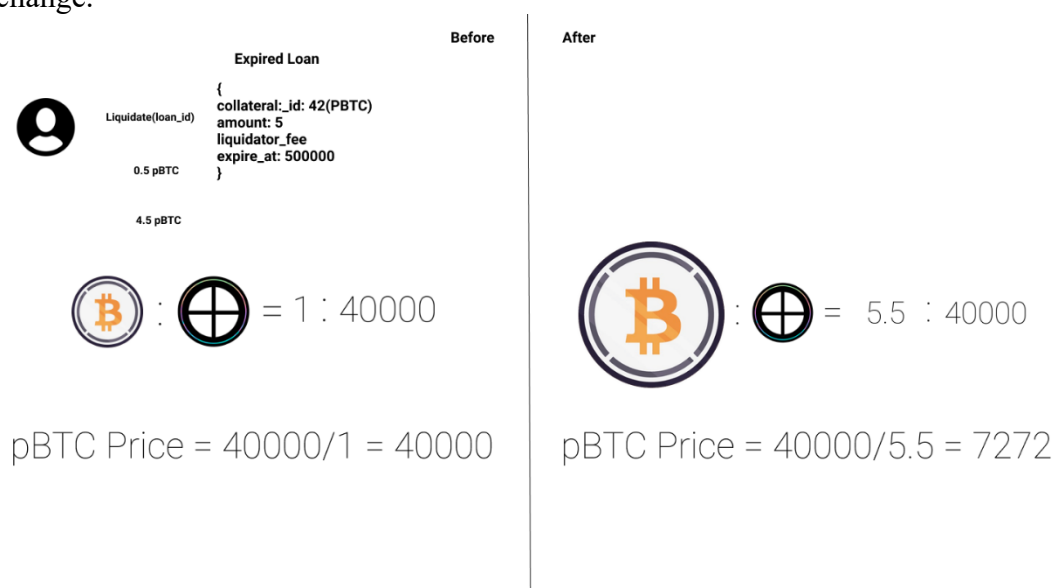
Standard Protocol builds an oracle module to share block rewards with oracle providers. Substrate enables developers to split block rewards to other network participants in every era. Block rewards to oracle providers maintain an 8:2 ratio between validators and the providers in an era. Oracles are used for generating

synthetic assets from the stablecoin Meter (MTR). Standard Protocol treats oracles like validators for operating across the wide scope of the DeFi ecosystem.

- **Market Efficient Liquidity**

Instead of hosting an auction for liquidating collateral, Standard Protocol deposits liquidated collateral to its AMM pair so that Meter(MTR) holders can purchase other digital assets in liquidation. Standard protocol uses a built-in AMM module to provide liquidation in a more market efficient way where liquidated assets are utilized to conduct arbitrage trades.

Standard Protocol rewards stakeholders who find expired loans by giving them a certain percentage (10% or more) of the collateral. The rest of it goes to Standard Protocol's built-in DEX to provide arbitrage opportunities to stakeholders who use the exchange.



- **Other Reasons**

Stable Base Price

By being algorithmically stabilized through rebasing, Standard Protocol provides cash which can act as a base price. For speculating on a digital asset, Meter can be used to estimate how much the asset is worth with the price pegged to USD.

Interoperable Ecosystem

Standard Protocol is a collateralized, rebasable stablecoin (CRS) protocol, working across different blockchains as a form of smart contract in each network. Together, the Standard Protocol ecosystem for interoperability represents a blockchain hub. Standard Protocol will be able to share price information to other chains or fiat assets without charging fees due to its self-sustaining oracle reward ecosystem.



2. Token System

Standard Protocol has three tokens, each serving a specific purpose. Here, we look at them in detail.

2.1 Meter (MTR)

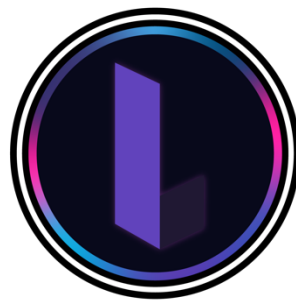
Meter (MTR) is the stablecoin which is synthetically generated by the protocol's vault. By rebasing the stablecoin's total supply with the oracle price provided by oracle clients, the stablecoin's supply is adjusted to have a value pegged to 1 USD. Holders can use MTR as a medium of exchange, to buy other assets, and farm tokens within the Standard Protocol ecosystem by providing liquidity. MTR's supply is expanded and contracted in order to maintain the peg.



Meter (MTR)

2.2 Liter (LTR)

Liter (LTR) is a liquidity provider token that represents a share of the AMM module. Similar to LP tokens in Uniswap, LTR can be burned in an AMM to receive deposited assets. LTR can be used also for liquidity mining.



Liter (LTR)

2.3 Standard (STND)

Standard (STND) is the network and governance token for using Standard Protocol. STND can be used for the following cases:



Standard (STND)

- **Network Staking**

STND token holders have an option to stake STND on the Standard Protocol network. (Standard Protocol validators or collateral providers). By doing so, the staker receives the nomination reward and the network becomes more secured and decentralized.

- **Transaction**

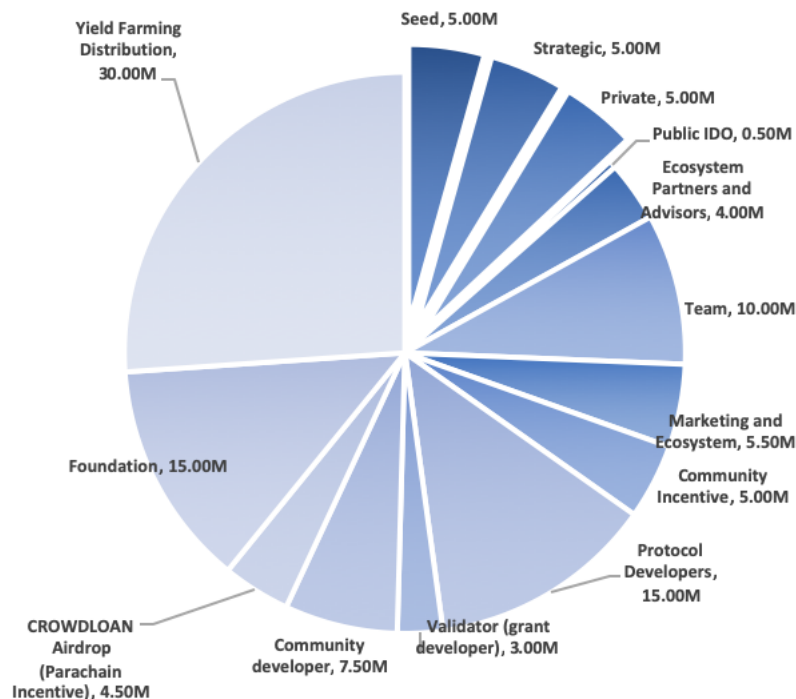
To use Standard protocol's system, you need to pay fee with STND. STND can be burned or given to validators depending on the module's transaction.

- **On Chain Governance**

STND holders can participate in the governance of the Standard Protocol ecosystem.

2.4 Token Distribution

The total token supply of STND is 100,000,000.



2.4.1 Token Release Method

✓ **Funding: 15.5%**

■ **Seed round: 5%**

These tokens are assigned to top venture capital firms and proactive investors. 15% of these tokens sold in the seed round will be released on TGE with the remaining subject to a linear release schedule every quarter over one year.

■ **Strategic partners: 5%**

The strategic partner tokens are to be allocated to strategically value added funds. 20% of the tokens will be released on TGE, with the remaining subject to a linear release schedule every quarter over one year.

■ **Private round: 5%**

The private sale tokens are to be allocated to good partnership funds and community funds. 25% of the private sale tokens will be released on TGE, with the remaining subject to a linear release schedule every quarter over one year.

■ **Public IDO: 0.5%**

0.5% of the total supply will be released on IDO platforms such as Polkastarter. It will be fully unlocked on TGE.

✓ **Ecosystem Partners and Advisors: 4%**

These tokens are assigned to global advisors. 5% of these tokens will be released on TGE, with the remaining subject to a linear release schedule every quarter over one year.

✓ **Team: 10%**

These tokens are assigned to the core team and full-time employees. 4% of the team tokens will be released on TGE, with the remaining subject to a linear release schedule every month over two years.

✓ **Marketing and Ecosystem: 5.5%**

These tokens are assigned to early-stage community builders for growing traffic in different social platforms, crypto communities, Reddit communities and developer forum communities.

✓ **Community Incentive: 5%**

These tokens are to be distributed to various communities so that more people can join the Standard Protocol community.

✓ **Foundation: 15%**

These tokens are to be assigned to a Foundation reserved for business partnerships and collaboration.

✓ **Yield Farming Distribution: 30%**

These tokens are to be assigned for liquidity mining rewards.

- ✓ **Protocol Developers _ The external contributors: 15%**
 - **Validator (grant developer): 3%**

These tokens are to be distributed to initial grant programmers before market discovery and test net structures are rolled out.
 - **Community developer: 7.5%**

These tokens are to be distributed to programmers in post market discovery.
 - **CROWDLOAN Airdrop (Parachain Incentive): 4.5%**

These tokens are to be distributed in establishing the Polkadot ecosystem partnership consortium.

3. Standard 101

3.1 Using Standard Vaults to Create Collateral Leverage

To better help understand Standard Protocol, Alice, a cryptocurrency holder, is introduced. Just like MakerDAO's vaults, Standard generates MTR by leveraging all accepted collateral assets called Standard Vaults. One of the keyways a Vault owner can use Meter (MTR) is to purchase more collateral, typically DOT. If the price of DOT increases, the Vault owner stands to profit. She can also borrow from the Vault as a form of decentralized leverage. Because Standard Vaults require a minimum of 150% collateralization, the maximum leverage available is 3x, not taking into account transaction fees or slippage.

Consider the following, paraphrased from MakerDAO's example:

Assume one DOT is \$100. Alice deposits 15 DOT, worth \$1,500, to her Vault. She generates 1,000 Meter (MTR) against it (the maximum possible given the 150% collateralization requirement), and then uses the Meter (MTR) generated to purchase 10 DOT, which she deposits back into her Vault.

Alice can now generate a further 667 Meter (MTR) against the extra \$1,000 in DOT collateral. Purchasing \$667 of DOT allows her to generate a further 444 Meter (MTR). Repeating this process provides a further 296 Meter (MTR), then 198 Meter (MTR), 131 Meter (MTR), 88 Meter (MTR), and 59 Meter (MTR). Ultimately a total of 3,000 Meter (MTR) can be generated against the original 15 DOT, enabling Alice to leverage her initial stake by 200%.

The risks of falling DOT prices are also amplified. If Alice does not keep her Vault adequately collateralized, it may be liquidated. Hopefully, the contents are auctioned, but Standard has a different approach to handling the collateral.

3.2 Spending Your Meter (MTR)

In addition to recapitalizing a Standard Vault with generated Meter (MTR), the token can also be used to make purchases. One option is to use Meter (MTR) to purchase other cryptocurrencies in the Meter (MTR) market for a cheaper price than those available from HydraDX. Alternatively, you can hold, earn, spend, donate, lend, and trade Meter (MTR). The community will grow as teams build projects that

utilize Meter (MTR).

3.3 Support the Meter Economy

Meter (MTR) will become a gateway for a wide range of initiatives, from financial services to charities, and aspires to become the most used cryptocurrency in the Polkadot ecosystem. By engaging with the many different products and services that have integrated Meter (MTR), users are able to manage and trade their crypto assets, as well as develop and expand the Standard ecosystem and the industry as a whole. Simply by spending Meter (MTR) you are adding liquidity to the token, growing the global Meter (MTR) economy, and raising the profile of Meter (MTR) and its many advantages over conventional alternatives:

- **Decentralization.** Meter (MTR) is transferred peer-to-peer to anyone, anywhere in the world, with no third-party interference.
- **Accessibility.** Anyone with an internet connection can access Meter (MTR) via various wallet solutions within Polkadot ecosystem, including Mathwallet, Speckle, etc.
- **Speed.** Transactions generally take just a few seconds with PoS network.
- **Low cost.** Transfer fees are typically just a few cents.

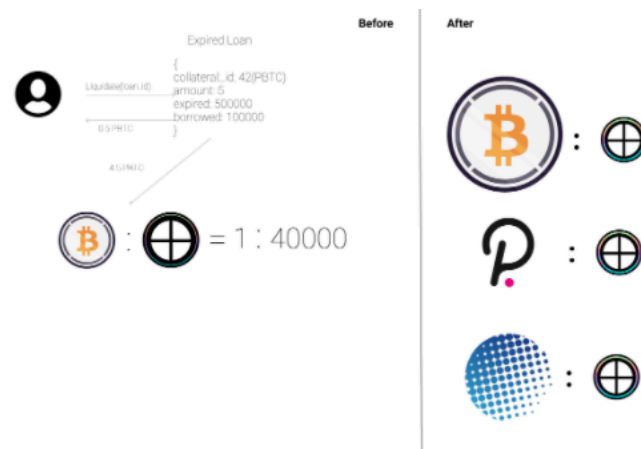
3.4 How do I use this protocol?

In Bullish market conditions

Standard issues its stablecoin MTR from collateral, typically DOT. This enables leverage trading to generate profits with one's existing assets. Alternatively, MTR holders can generate synthetic assets from oracles like virtual stocks, commodities, etc.

In Bearish market conditions

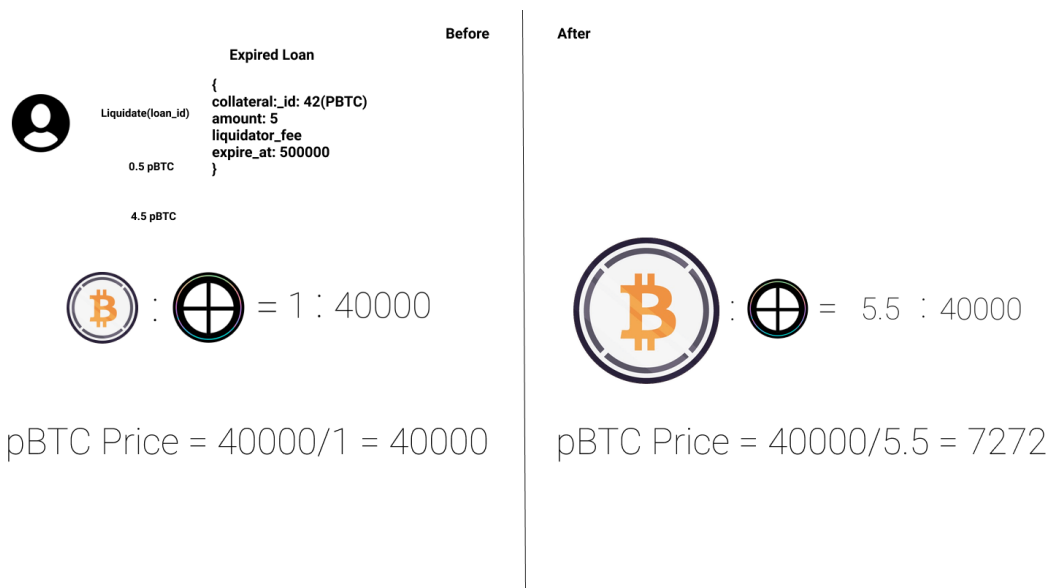
MTR holders can still generate profits by purchasing other digital assets from liquidation. These assets can be purchased with MTR and sold on exchanges.



Why are digital assets cheaper from the Meter market than other exchanges?

Because liquidations from expired vault goes to markets, Meter (MTR) holders can

purchase other digital assets for cheaper prices.

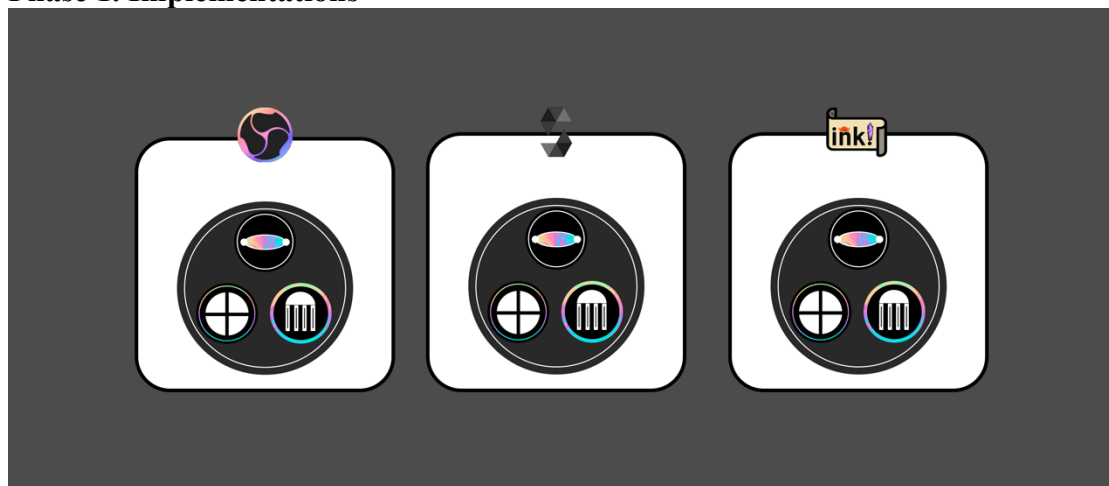


4. Crosschain Integration

Standard protocol is a crosschain application protocol which aims to become the preminent currency for each blockchain ecosystem. Standard protocol will be applied to a blockchains which have:

- built-in Exchanges
- Oracle support for price
- Smart contract support

Phase 1. Implementations



Standard protocol smart contract ecosystem

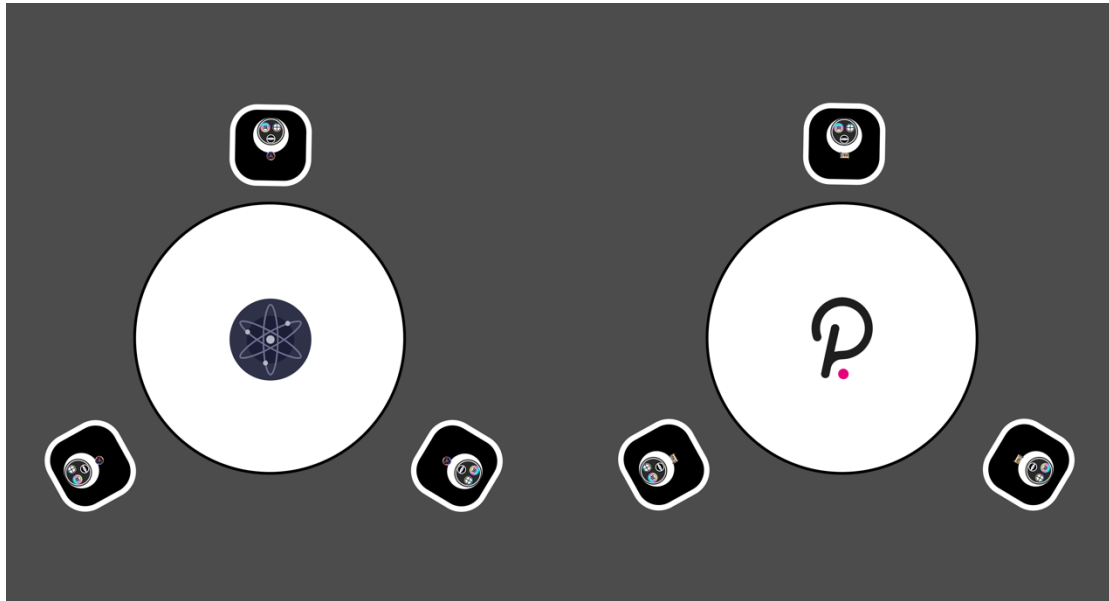
Standard protocol will be initially implemented in smart contracts in

- Parity ink!
- Cosmwasm
- EVM(Solidity, Vyper)

-

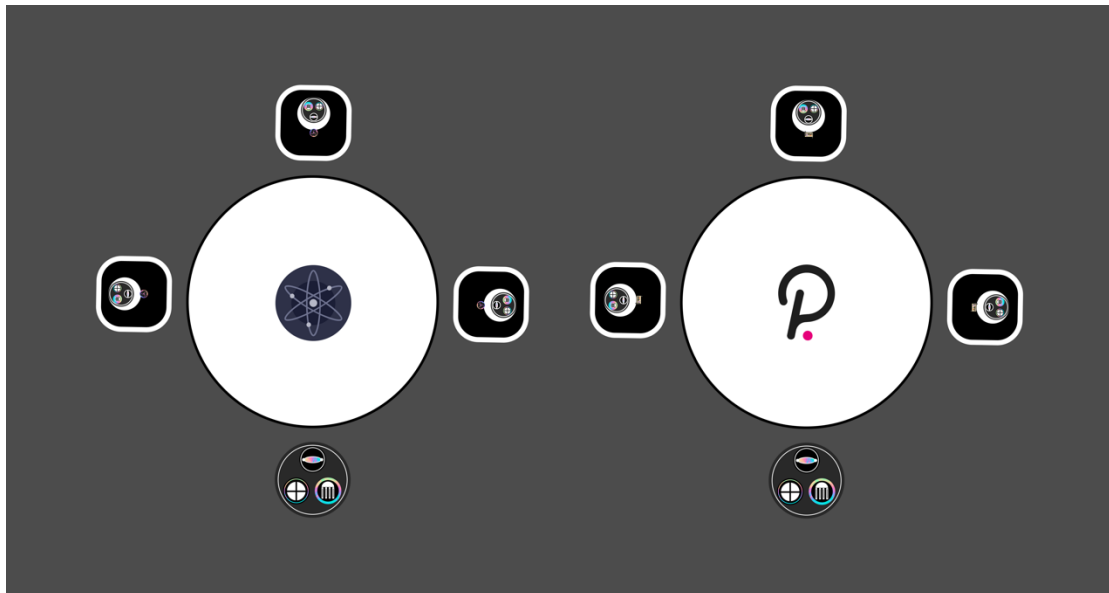
An aggregated interface will be provided starting with EVM implementations.

Phase 2. Connection



Standard protocol will be implemented to parachains or Cosmos SDK based chains which all supports IBC. Each standard protocol implementations will be able to transfer assets or get price oracles from other blockchains in decentralized manner.

Phase 3. Unification



Governing each implementation with different tokens can be confusing for STND holders. To prevent this, Standard protocol will build separate working blockchains for each interchain ecosystem to provide unified governance. Smart contracts are limited in a way that one has to execute a transaction for governance. A dedicated governance blockchain will process proposals and voting automatically and fairly.

5. Mechanisms

Stability Maintenance

Standard protocol defends its price in both contractionary and expansionary periods, with overcollateralization through stability fees and rebasing the total stable coin supply every 8 hours.

Stability Fee

Standard protocol takes stability fees as interest by generating the MTR stable coin. Stability fees are determined by governance as a percentage, and the amount of MTR required to close the vault is calculated by the number of elapsed eras after opening a position in the form of simple interest formula. Suppose the stability fee rate is R , number of elapsed era is N , and G is the amount of MTR that was generated.

Era

An era means 24 hours in a substrate node with a period of 6 seconds for the block finalization time. Standard uses the same amount of time to define an era.

Elastic supply

Similar to Ampleforth's elastic supply, total supply of the stable coin is adjusted when the price changes out of epsilon range, approximately 1% of the 1USD.

$$\frac{\text{circulating supply}}{\text{oracle price}} = \frac{\text{total supply}}{1.0\text{USD}}$$

The total supply is adjusted to follow the ratio above.

Expansionary

In cases where appreciation of MTR goes above 1 USD, the vault mints new MTR to the vault account. Then, the vault will have more collateralized MTR to distribute to the community.

Contractionary

In cases where the price of MTR goes below 1 USD (or DAI), the community is motivated to pay back the loan from the vault due to the relatively cheaper MTR price. Vault adjusts this situation by reducing the reserve supply in the Vault account to keep the peg to 1USD. If Vault cannot reduce reserved supply, the Vault module declares an emergency shutdown for generating MTR.

Emergency Shutdown strategy

In case of emergency shutdown over 30 eras, the council and holders decide whether to issue blocks to recover the stable coin price back to 1USD. Once the referendum is passed, Vault issues STND to incentivize holders to lock up MTR from the market to the reserve bank. Decreasing the amount of MTR on the market by exchanging it into bonds will increase the value of MTR due to its scarcity.

$$(\text{\#of Issued blocks}) = (\text{MTR total supply}) \times \frac{(\text{one in 18 decimals}) - (\text{MTR} \rightarrow \text{DAI TWAP})}{(\text{Block price})}$$

Equation of issuing bonds in contractionary case

Block price is determined by the governance and it is issued in the market based on MTR. Holding a block will earn a share of seigniorage for an 90 eras(3 months) in Expansionary cases.

$$(\# of MTR) = \frac{(\# of STND)}{(Block price)}$$

Equation of Amount of MTR from the amount of given STND

6. Runtime modules

Standard Protocol is implemented using Parity Substrate and has 8 runtime modules built using pallets available in the Open Runtime Module Library (ORML). Here are the details for each of these modules.

6.1 Token

The Token module is a registry where it stores asset information about Standard Protocol and other chains. Derived from the ORML's XCM token, Standard Protocol's token module manages assets that flow in and out via Cross-Chain Message Passing (XCML) across parachains. Assets are managed with a unique identifier.

6.3 Market

The Market module in Standard Protocol manages pairs for the automated market maker (AMM) between each collateral and its stablecoin Meter (MTR). Derived from Uniswap V2 contracts, AMM module facilitates trading in the Standard Protocol ecosystem. The module enables MTR holders to purchase other digital assets or provide liquidity to earn fees on every exchange in the market.

6.4 Vault

The Vault module collateralizes other digital assets and generates MTR. MTR holders can generate other synthetic assets with price information provided by oracle providers.

6.5 Oracle

The Oracle module is an election and price feed information module where it stores prices from external data with asset IDs from the Token module as keys. Oracle providers are elected in every era with the amount staked from the users. Oracle providers produce price information and are rewarded in each era on each block reward. Prices are stored in the state, and oracle providers are reviewed in each era. If they produce outliers, they get slashed. The total reward for each oracle provider in each era is recorded by the Reward module and stakers can get their rewards by claiming.

6.6 Farm

The Farm module models after the existing Solidity contracts that are used for yield farming projects in Ethereum. It distributes rewards proportionally based on staked amount and elapsed time. The Farm module will be used to reward liquidity providers who supply liquidity for each pair of asset consisting of MTR and some other asset.

6.7 Reward

The Reward module manages the annual inflation rate through governance and stores the total reward for network participants in each era. With 5% initial annual inflation rate of STND, the reward is distributed to oracle and validator with 2:8 ratio. Other network participants (e.g. liquidity providers) can be added through on-chain upgrade of runtime.

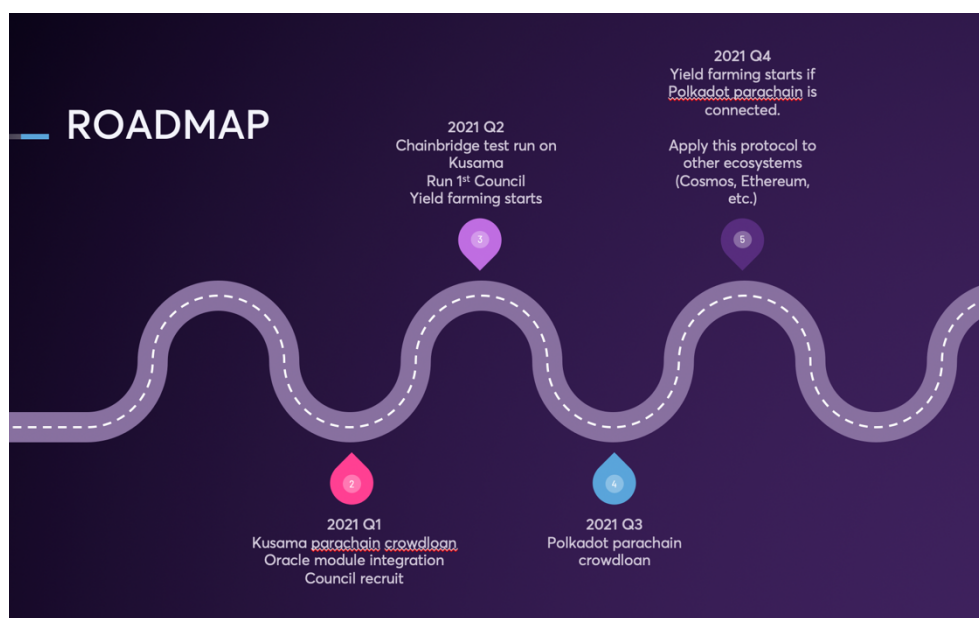
6.8 Democracy

The Democracy module manages the governance for operating Standard Protocol. The module has access to all root methods for each of the runtime modules and holders can propose changes in the network. The voting rules follow the same rules laid out in the Polkadot wiki.

6.9 Treasury

The Treasury module manages the fund collected from fees or slashes in Standard Protocol. The module is used for funding protocol developers, monthly payouts for operators and team, stability fee management, or tipping community members.

7. Roadmap



Future Plans

- Become a common good parachain which acts as an oracle to provide external data to the ecosystem.

- Full function test on Kusama/Rococo.
- Full function test on Polkadot.

8. Team

Jaewon (Jay) Shin: Co-founder

Experience:

Korean partner of BitBlock Capital;

Co-founder of PolkaKR;

Founder of Zhejiang University International Student Blockchain Association;

Description:

Jay attended Zhejiang University for his undergraduate studies, and went to Columbia University and National Taiwan University as an exchange student. Since 2018, he has been investing in the field of cryptocurrencies, and has participated in more than 20 blockchain investment projects. He is a co-founder of PolkaKR and the Korean partner of BitBlock Capital. On the media side, he is a political columnist in the two renowned Chinese newspapers “The Paper”, and the “Crossing”, specialized in analyzing business from a political perspective.

Hyungsuk Kang: Founder & CTO

Experiences:

Software Engineer at Plasm;

Head ambassador for East Asia of Polkadot;

Co-founder of PolkaKR;

Description:

Hyungsuk is a software engineer with a strong background in cryptocurrency markets. He is currently a software engineer at Plasm, Head Ambassador for East Asia of Polkadot and the Co-founder at PolkaKR. With his versatility from over 5 years of research and development in software industries, he enjoys challenges in technical problems, and thrives to solve them in the most effective and efficient way.

Billy: Lead Developer

Experiences:

Software Engineer with over 4 years of working experience in full stack web development

Description:

Billy is a software engineer with a strong background in full stack web development. He enjoys utilizing technologies to create fast and powerful modules along with web design. He is currently in charge of managing all of Standard’s products and their respective development. His biggest priority is to provide users with a streamlined experience for product usage.

Tony: Head of China

Experiences:

Founding partner of Bitblock Capital;

Guest lecturer at Zhejiang University;

Author of “Unlock the new cipher, from blockchain to crypto”;

Description:

Tony is an expert in the Cryptocurrency industry with a versatile spectrum. He is currently a lecturer at Zhejiang University teaching subjects related to Blockchain and is the author of “Unlock the new cipher, from blockchain to crypto”. He also actively invests in the cryptocurrency industry as the Founding Partner of BitBlock Capital.

Charlie: Head Advisor

Experiences:

Cofounder of Polkabase;

Managing Partner at Candaq;

Expert of Polkadot Ecosystem and Web 3.0;

Description:

Charlie is a specialist in Blockchain and related applications. He is the co-founder of PolkaBase with active engagement in the Chinese Polkadot community. Charlie has more than 8 years of experience in the blockchain industry with emphasis on community building, ecosystem development and growth marketing. He has successfully incubated and supported multiple polkadot projects into global prominence.

March: Global Communications Director

Experience:

Bizantine Capital GP

Born and raised in Kansas City

Description:

March began investing in the blockchain industry while still in college, where he discovered Ethereum and Bitcoin. The markets’ outsized gains early on led to him co-founding Crusoe Capital, LLC, which eventually transitioned into Bizantine Capital, LP (<https://bizantine.capital>). He attended both Emory University and Washington Lee for his undergraduate studies.