Port of DeFi Network

Decentralized asset value exchange,interactive financial service network, based on Ethereum

Decentralized finance

Technology Enables Finance

Service Creates Value

2020.7 V2.0

The birth of Bitcoin
set off a historical
Currency War.
It's built for humanity,
an ***independent, free, decentralized, borderless***
and orderly currency trading world.
Blockchain as the underlying technology of bitcoin
set off a tide of development of the ***Token Economy***
bringing disruptive changes to the financial sector.
"De-trust center" *and "Disintermediation" have gradually penetrated into*
various fields of traditional finance.
All human assets will eventually be digitized.
A ***free and inclusive new financial world*** *is being constructed.*
We use Price Oracle as a trusted data model
integrating ***"Blockchain+DeFi+Oracle predictor"***
and created ***the Port of DeFi Network,***
attempting to make ***PDF digital tokens*** *into*
*a v****alue exchange port*** *for global digital assets.*
Enabling finance through technology, making services create value.

——Port of DeFi Network

Contents

Preface

The great changes led by blockchain in the world are in full swing, and Bitcoin has broken the "dark" box of traditional Fiat currencies. Compared with the "unknown whereabouts" and opaqueness of fiat currencies in the circulation process, Bitcoin has a "chain" that can be tracked, and fundamentally addresses the issue of fraud in currency exchange and transactions. More and more people believe that with the popularization of blockchain technology, the digital economy will be more authentic, and the economic scenarios will become more equitable for everyone.

Based on the current development trends, all human assets will eventually be digitized. The digitization of assets will become the biggest opportunity in the next 30 years and is destined to be a disruptive innovation for the traditional financial industry. As an ancient and traditional industry, the financial industry plays an important role in the stable development of both countries and society and it is certain that the development of human society cannot be separated from a flourishing financial industry.

A developed financial industry drives overall economic development and progress and the prosperity and development of the financial industry has injected blood and soul into countries and society. The upgrading of the industrial structure and technological empowerment have caused a frenzied pursuit of capital and users. In the long run, blockchain technology will perfectly align with the current reforms of the financial system and address today's irreconcilable contradictions within social classes.

In 2020, the world is facing a most serious economic crisis. There have been sharp rises and falls in the stock market, and crude oil prices once even turned negative. This economic turbulence has made the global economy fall extremely panicky. So how can we ensure the balanced and healthy development of the world's economy? How can we make financial investment more transparent and credible? How can the personal interests of financial investors be safeguarded? These were the questions intended to be solved by the birth of the port of DeFi network!

Text Body

1. The Birth of Port of DeFi Network

Bitcoin has grown into a trillion-dollar market value, exceeding the market value of sovereign currencies in many countries. In the inevitable process of the development history of blockchain, public chains and alliance chains have sprung up one after another. However, whether it is a public chain or an alliance chain, each chain is an independent closed-loop, meaning that the chain application can only be used with the assets of this chain. Each asset on the chain has become an island of value, and some breakthrough use scenarios of DeFi cannot maximize their value due to the limitations of only using local currencies on the chain, and hence the emerging blockchain industry cannot continue to make strong breakthroughs.

However, the process of the people's pursuit of freedom has never stopped and now the DeFi application allows mankind, for the first time, to be completely free to enjoy the financial services that everyone should have, DeFi has undoubtedly become a hot concept. As a decentralized asset value exchange, interactive financial service network, based on Ethereum, the Port of DeFi Network uses Price Oracle as the data support function for the underlying DeFi lending agreements to achieve the safe, free and transparent conversion between assets.

1.1 What is DeFi?

DeFi is an acronym for Decentralized Finance, also known as Open Finance, which refers to the decentralized protocol used to build an open financial system designed to allow anyone in the world to conduct financial activities anywhere, anytime.

In the existing financial system, financial services are mainly controlled and regulated by a central system, whether it is the most basic access to deposit and transfer, loans or derivatives transactions. DeFi aims to establish a transparent, accessible and inclusive point-to-point financial system through a distributed open-source protocol to minimize trust risks and make it easier for participants to obtain financing.

Compared with traditional centralized financial system, DeFi offers three advantages:
1） Individuals with asset management needs do not need to trust any intermediaries, and now a

new trust mechanism is built on the machines and codes.
2） Anyone can have access, no one has central control.
3）All agreements are open source, so anyone can collaborate to build new financial products and accelerate financial innovation using the network.

The concept of DeFi is wide reaching, including: currency issuance, currency trading, loans, asset trading, investments and financing, etc.

We consider the birth of BTC and other cryptocurrencies as the first stage of DeFi. However, this decentralization of currency issuance and storage only provides a peer-to-peer settlement solution and is not enough to support strong financial businesses. The rapid development of decentralized lending agreements in the past two years has brought the opportunity to further open up the financial system of the blockchain world and bring DeFi to the second stage.

DeFi vs. Traditional Finance		
	Traditional Finance	**DeFi**
Currency issuance	**Central banks**	**POW/POS+**
Payment & trading	**Fiat currency**	**Digital Currency + Decentralized Networks**
Lending	**Banks**	**Digital currency P2P lending platforms**
Asset trading	**Exchanges (i.e. Nasdaq)**	**Decentralized on-chain exchange**
Investment/Financing	**Banks, investment institutions, etc.**	**Financial product tokenization**

1.2 Port of DeFi Network System Overview

1.2.1 Project Introduction

The Port of DeFi Network is an Ethereum-based decentralized asset value exchange, interactive financial services network designed to act as a port of call between Ethereum assets and real-world assets, using Price Oracle as data support for DeFi's underlying lending protocols, enabling real-world assets to be collateralized in the cryptocurrency asset markets, along with cryptocurrencies, and other assets. Investors are able to easily lend digital currencies for interest income, while borrowers are able to make short-term loans by using their real-world assets as digital currency investments. The result is a truly secure, free and transparent multi-asset value exchange between real-world assets and digital currencies, providing economic freedom and investment freedom to any individual worldwide.

All users can use the Port of DeFi network system network to mortgage / borrow assets to generate PDFs. PDFs are soft-anchored Ethereum secured cryptocurrency units and their issuance is decentralized.

1.2.2 Project Mission

Port of DeFi Network is committed to building a permanent, fair and equitable DeFi ecosystem, rebuilding a network for social and financial order, creating a real value interchange between personal real assets and digital assets, steadily increasing investor assets, making the social order more transparent and equitable, making credit more reliable, and making the global economic balance stronger.

2. Port of DeFi Network System Solution

2.1 DeFi Lending Agreement

Port of DeFi Network introduces the DeFi loan agreement, which is used for investors to borrow Ethereum tokens without friction by using real-world assets, enabling the digital currency market to function and creating a secure method of storing assets with positive returns.

Before understanding decentralized financial lending, we should first understand the definition of borrower and lender. Borrower and lender mainly refer to those parties who borrow and those

that lend, hence the term borrower and lender. Decentralized lending refers to the behavior of matching the borrower and the lender through a centralized lending agreement, and then transferring the assets and completing the borrowing and lending immediately after the mortgage and pledge are confirmed.

The decentralized lending agreement provides the technical basis for standardization and interoperability of the platform and plays a role of security management in the lending process. Compared with the traditional lending mode, decentralized lending mode has the following advantages:

1） The combination of fiat currency loans and digital asset loans (a stable currency mode can be regarded as the combination of fiat currency and digital assets).

2） Collateral based on digital assets.

3 ） Real time transaction settlement is realized through automation, and the actual cost is reduced.

4 ） Replacing credit checks with an overcollateralization model, which also means that more people can be served who do not have access to traditional services.

Decentralized lending platforms commonly use a form of "collateralized lending": the borrower is required to pledge assets worth more than the loan as collateral to ensure that the lender has access to the collateral in the event that the debt cannot be repaid. The business process for a mortgage loan is as follows:

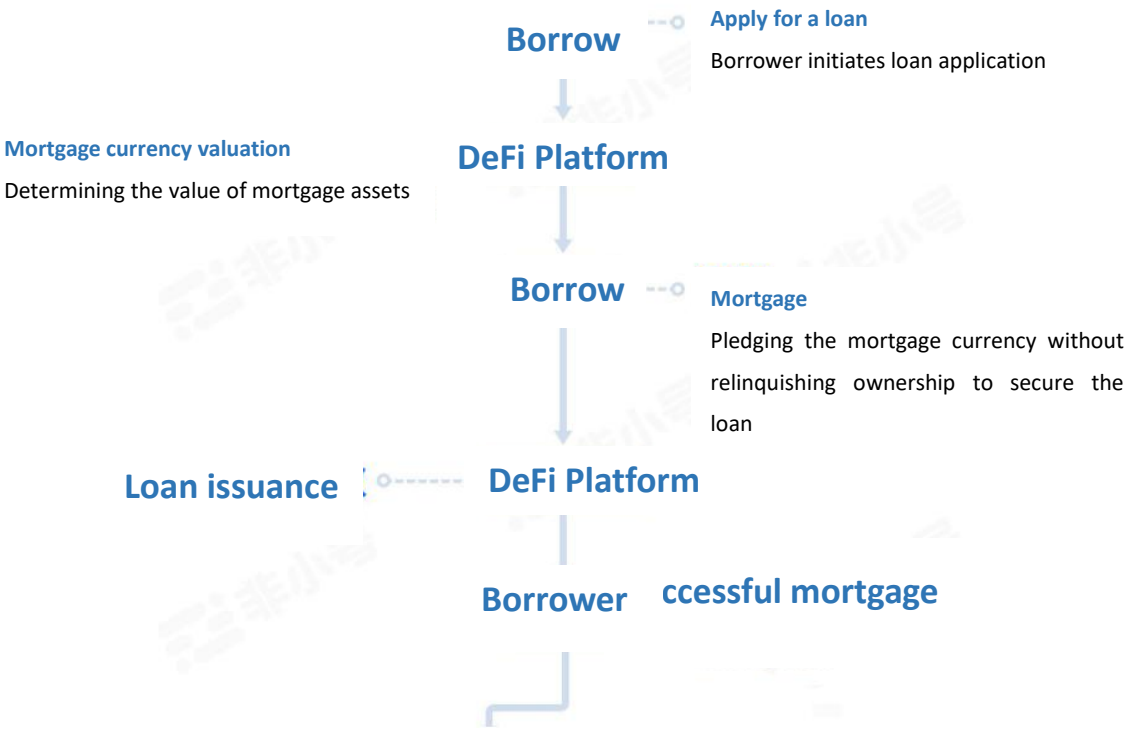


Fig. 1-2 DeFi Lending Process

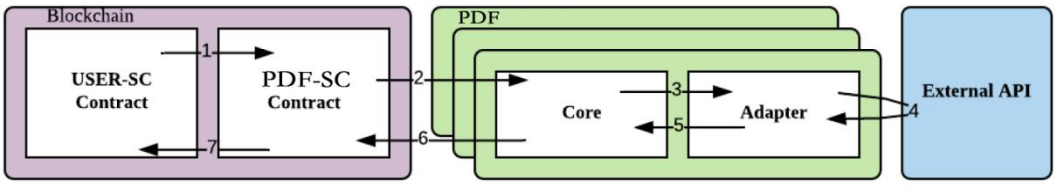
2.2 Port of DeFi Network Protocol Process

The Port of DeFi Network returns responses through nodes to data requests or queries made to, or on behalf of, user contracts, which we call request contracts and denote with a USER-SC, and the chain interface that links the Port of DeFi Network's request contracts is itself a chain contract as denoted by the PDF Network -SC.

Behind the PDF Network -SC, the Port of DeFi Network has an online component consisting of three main contracts: reputation contracts, order-matching contracts, and aggregation contracts. Reputation contracts track Oracle-service-provider performance metrics. The order-matching smart contract uses a suggested service level agreement, records SLA parameters, and collects bids from the Oracle provider. It then uses the reputation contract to select bids and complete the Oracle SLA. The aggregation contract collects responses from the Oracle provider and calculates the final set of results for Port of DeFi Network queries. It also feeds the Oracle provider metrics to input into the reputation contract

The Port of DeFi Network contract is designed in a modular fashion, allowing the user to configure or replace as needed. Working in the chain
The process consists of three steps: 1) Oracle selection, 2) data reporting, 3) result aggregation. The Oracle Selection consists of the Oracle service buyer specifying the requirements that constitute the service level agreement (SLA) proposal. The SLA proposal includes details such as query parameters and the number of buyers required. In addition, the reputation and aggregate contracts are designated by the purchaser for the remainder of the agreement. With a reputation maintained on the chain, and a more powerful dataset collected from logs of past contracts, buyers can manually classify, filter and select oracles through the offline list service.

The specific protocol flow is as follows:



1） USER-SC sends an on-chain request.
2） PDF Network - SC records an event for oracles.
3） The PDF Network core receives events and routes the distribution to the adapter.
4） The PDF Network adapter executes requests to external APIs.
5） The PDF Network adapter processes the response and passes it back to the core.
6） PDF Network core reports data to PDF Network-SC.
7） PDF Network-SC aggregates responses and returns them as a single response to USER-SC.

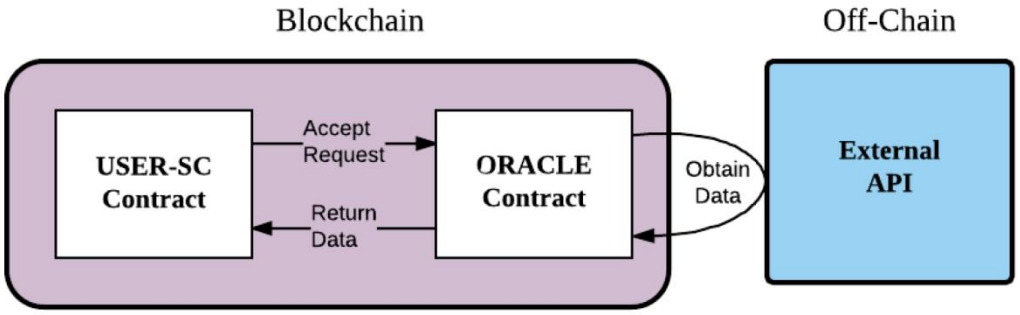
Users rely on the blockchain as a function to properly validate transactions and prevent data from being altered. They see it as a trusted third party (we'll discuss this concept in detail below). Supporting Oracle services must provide the same level of security as the blockchain it supports. Therefore, Oracle must also provide users with effective trusted third-party services to provide correct and timely response with a high probability. The security of any system is as strong as its weakest link, so a highly trustworthy command is needed to maintain the reliability of a well-designed blockchain.

2.3 Oracle Security

The DeFi protocol is inseparable from Oracle. Without Oracle, the DeFi protocol will not be able to obtain all the data required for normal operation. The function of Oracle is that it allows certain smart contracts to respond to the uncertain off chain world. It is the only way for smart contracts to interact with the real world, and it is also the interface between the blockchain world and the real world. Therefore, Oracle is considered as the bridge between the decentralized protocol and the external data of the blockchain, and becomes an essential existence.

The Port of DeFi Network uses the Oracle assisted DeFi protocol smart contract as the data source outside the blockchain, avoiding the risks of forgery, tampering, modifying or hiding of the centralized data. It synchronously uploads the information of the world under the chain to the blockchain, and completes the information synchronization between the blockchain and the real world.

Port of DeFi Network has carried out thorough research on the whole logic of Oracle. In order to infer Oracle Security, we first define the related concepts: a trusted third party (TTP): an ideal entity or function, which always faithfully executes a letter and is responsible for running a command. We will use ORACLE to represent Oracle (usually all caps are used to represent the entity that the user fully trusts) and assume that TTP gets data from the fully trusted data source Src. In view of this magical service ORACLE, the whole implementation process is as follows:



The ideal Oracle behavior, ORACLE is defined by the following steps: 1) accept the request; 2) get

the data; 3) return the data. In addition, in order to protect the confidentiality of the request, ORACLE never uses or displays the data it contains when decrypting the request, except for querying Src.

1. Accept the request: get request Req = (SRC, τ, q) from smart contract USER-SC, which specifies target data source Src, time or time range τ, and query q.
2. Get data: send query q to Src at time τ.
3. Return data: after receiving answer a, return to smart contract.

These simple instructions that are executed correctly define a powerful and meaningful but simple concept of security. Intuitively, ORACLE acts as a reliable bridge between Src and USER-SC.

Confidentiality is another ideal attribute of Oracle. When USER-SC sends the Req in the area chain to the explicit Oracle, the req is public. In many cases, Req is sensitive and its publication can be harmful.

In order to protect the confidentiality of Req, we can require the data in Req to be encrypted under the public key belonging to ORACLE. Continuing to use the TTP property of ORACLE, we can simply provide information flow constraints to ORACLE:
When decrypting Req, do not display or use data in Req other than querying Src.

There are other important Oracle properties, such as availability, the last of the classic CIA (confidentiality integrity availability) triplet. Of course, a truly ideal ORACLE service will never fail. Usability also includes more subtle attributes, such as review resistance: an honest ORACLE will not pick out specific smart contracts and reject their requests.

The concept of a trusted third party is similar to the concept of an ideal function, which is used to prove the security of encryption protocols in some models. We can also model the blockchain in similar terms and conceptualize it according to the TTP that maintains the ideal bulletin board. Its instruction is to accept transactions, validate them, serialize them, and permanently save them on the bulletin board, which is an attachment only data structure.

Oracle maintains the current exchange rate of each supported asset; the Port of DeFi Network protocol entrusts the ability to set asset values to a committee that gathers the prices of the top 10 exchanges in order to obtain a fully reliable data source Src, thus ensuring the effectiveness of the whole process.

2.4 Asset Collateral / Loan Agreement

Port of DeFi Network is a digital money marketplace protocol established on Ethereum blockchain. Digital money marketplace is an asset pool with an algorithm derived interest rate based on asset supply and demand. Suppliers (and borrowers) of assets interact directly with the agreement to earn (and pay) floating interest rates without having to negotiate items such as term, interest rates or collateral with peers or counterparties.

When the system issues mortgage / loan agreement, the system automatically matches the system data through ORACLE. As an ideal service, ORACLE itself can be approximately a distributed system. In other words, instead of a single monolithic Oracle node O, we can have a set of n different Oracle nodes O1, O2. .., On. Each Oracle Oi associates its own set of different data sources that may or may not overlap with other system commands. Oi aggregates the responses from its data sources and outputs its own different answers Ai to the query Req.

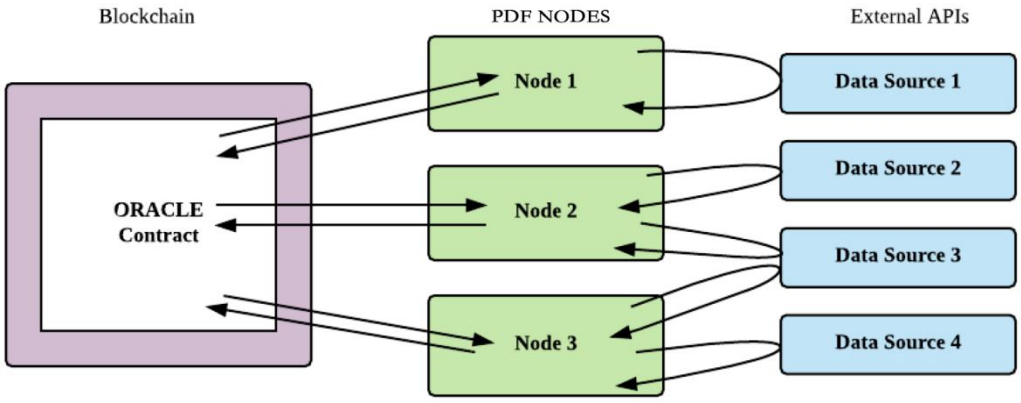


Fig 3: Requests are distributed across ORACLE and data sources. The figure shows an example of this two-level distribution.

Some of these commands may be flawed. It is clear that the set of all command answers A1, A2,..., An needs to be aggregated into a single authorization value A in a trustworthy way. But given the possibility of erroneous commands, where and how does this aggregation happen in the Port of DeFi Network?

The initial solution we propose in the Port of DeFi Network will be a simple solution called in contract aggregation. PDF Network-SC again means that the on-chain part of the Port of DeFi Network itself will aggregate ORACLE responses. (alternatively, the PDF network SC might call another aggregation contract, but for the sake of simplicity, let's assume that the two components form a contract.) In other words, PDF network SC calculates a = Agg (A1, A2 Agg for some functions (similar to AGG, as described above), and sends the result a to USER-SC,..., an).

This approach is very practical for small n and has several obvious advantages:

Conceptual simplicity: Although Oracle is distributed, PDF network SC, a single entity, performs aggregation by performing AGG.

Trustworthiness: because PDF network SC code can be publicly checked, it can verify its correct behavior. (PDF network SC will be a relatively small, simple code.) In addition, the execution of the PDF network SC is fully visible. Therefore, users (i.e. the creator of USER-SC) can gain high trust in the PDF Network-SC.

Flexibility: PDF Network-SC can achieve the most ideal aggregation function, aggregate most functions, average, etc. Although it is very simple, this method presents a novel and interesting technical challenge, that is, the free problem. The cheat command Oz can observe the response Ai of another command Oi and copy it. In this way, Oracle Oz avoids the cost of querying data sources, which may be charged per query. Freeloading weakens security by breaking the diversity of data source queries, and also prevents Oracle from responding quickly: slow response and fast response are cheaper strategies.

We suggest a well-known solution to this problem, which is to use the submit / display scheme. In the first round, Oracle sends PDF Network-SC encryption promises to their replies. After PDF Network-SC received a quorum of responses, it launches a second round, in which Oracle shows their responses.

Algorithm 1 shows a simple sequential protocol to ensure the availability of a given 3f + 1 node. It uses a submit / display scheme to prevent freeloading. The Oracle response is released, so it is only exposed to potential greedy people after all the commitments have been made, thus stopping the greedy from replicate the responses of others. Chain protocol can use block time to support synchronization protocol design. However, in the Port of DeFi Network, the Oracle node obtains data from a source that may have a highly variable response time, and the de-licensing time of the node may vary due to the use of different gas prices in Ethereum, for example. Therefore, in order to ensure the fastest protocol response, Alg, the asynchronous protocol is designed as 1.

Here, Commitr (a) represents the commitment of value a with witness r, and SID represents a collection of valid session IDs. The protocol assumes an authentication channel between all players. It's easy to see Alg. 1 will terminate successfully. Given a total of 3f + 1 nodes, at most f is defective, so at least 2f + 1 will send the commitment in step 4. Among these commitments, the most f comes from the failed node, so at least f + 1 comes from the honest node. All of these commitments will eventually be lifted.

In addition, it is easy to see that A is the correct Alg. 1. At least one of the f + 1 commitments for a single value a must come from an honest node. Polymerization within the contract is carried out through Alg. 1 which will be the main method for short-term support on the chain. The

proposed initial implementation will involve more complex concurrent variants of the algorithm. Our long-term proposal is reflected in the rather complex protocol OCA (off chain aggregation) specified in the algorithms, 2 and 3. In the appendix, A. OCA is a kind of off chain aggregation protocol to minimize the transaction costs on the chain. The protocol also includes payment to Oracle nodes and ensuring that they are not paid to freeloaders.

Algorithm 1 InChainAgg($\{O_i\}_{ni=1}$) (code for PDF Network-SC)
1: Wait until Req is received from USER-SC.
2: sid $\leftarrow_{\$}$ SID
3: Broadcast (request,sid).
4: Wait until set C of $2f + 1$ messages (commit, c_i = Commit$_{ri}$(A_i),sid) from distinct O_i are received.
5: Broadcast (committed,sid).
6: Wait until set D of $f + 1$ distinct valid decommitments (decommit,(r_i, A_i),sid) are received where, for some A, all $A_i = A$.
7: Send (Answer, A,sid) to USER-SC.

2.4.1 Mortgage assets

Unlike switching or peer-to-peer platforms, where a user's assets are matched and lent to another user, the Port of DeFi Network aggregates each user's assets, and these become replaceable resources when the user requires an asset. This approach provides more liquidity than direct lending; unless every asset in the market is borrowed, users can withdraw assets at any time without waiting for a particular loan to mature.

Assets supplied to the market are represented by the ERC-20PDF balance PDF, which entitles owners to more and more underlying assets. As money market interest increases, as a function of borrowing demand, PDF becomes convertible into more and more underlying assets.

Individuals who make long-term investments in Ether and PDF assets can use the Port of DeFi Network as an additional source of return on their investment. For example, users with PDF can provide their PDF to the Port of DeFi Network and receive interest on the PDF.

Applications, machines, and exchanges with PDF balances can use the Port of DeFi Network as a source of monetization and receive incremental returns through "scanning" balances; this has the potential to unlock a new business model for the Ethereum ecosystem.

2.4.2 Loan assets

The Port of DeFi Network allows users to borrow frictionlessly from the system, using PDF as

collateral, anywhere in the Ethereum ecosystem. Unlike a point-to-point agreement, borrowing from Port of DeFi Network only requires the user to specify the required assets; there are no negotiation terms, due dates or funding terms; the borrowing is immediate and predictable.

Similar to the provision of assets, each money market has a floating interest rate set by market forces, which determines the borrowing cost of each asset.

2.4.3 Mortgage Value

The assets held under the agreement (expressed as ownership of PDF) are used as collateral for borrowing from the Port of DeFi Network system. Each market has a collateral factor, ranging from 0 to 1, which represents the part of the underlying asset value that can be borrowed. The assets with low liquidity and small asset scale have lower collateral factors; they have no good mortgage value, while the assets with high liquidity have higher mortgage value.

2.4.4 Risk and Liquidation

If the value of an account's outstanding borrowing exceeds its borrowing capacity, a portion of the outstanding borrowing can be repaid in exchange for the user's PDF collateral at the current market price, less a liquidation discount; this encourages the arbitrage ecosystem to quickly intervene to reduce the risk of the borrower and eliminate the risk to the Port of DeFi Network.

The percentage eligible for closure, the closure factor, is the fraction of borrowed assets that can be repaid, ranging from 0 to 1, e.g., 25%. The liquidation process can continue until the user has borrowed less than its borrowing capacity.

Any Ethereum address that owns the borrowed assets can call the clearing function to exchange its assets to the borrower's PDF collateral.

Since both users, assets and prices are included in the Port of DeFi Network, liquidation is frictionless and does not rely on any external system or order book.

Port of DeFi Network-SC system recommends using a simple protocol involving threshold signature, but using a Schnorr signature is easier to be implemented. In this method, Oracle has a collective public key pk and a corresponding private key sk shared between O1, O2. This sharing means that each node Oi has a different private / public key pair (ski, pki). Oi can generate a partial signature that can be verified relative to PKI, σ I = sigsk [AI].

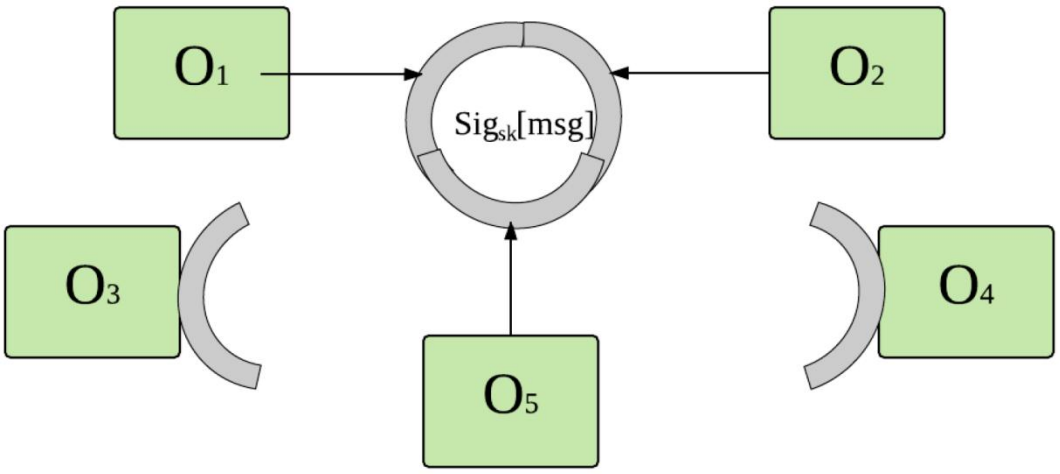


Fig 4: Sig_{sk}[Ai] can be implemented with any n / 2 + 1 command.

The key feature of this setting is that partial signatures on the same value A can be aggregated on any set of sequences to produce a single valid collective signature Σ= Sig_{sk}[Ai]. However, no set of T 1 Oracles can generate a valid signature on any value. Therefore, a single signature Σ implicitly embodies at least part of the partial signature.

By making Σ explicitly include a set of valid independent signatures from each node, a threshold signature can be achieved naively. The threshold signature has security properties similar to this naive method. But they offer significant on chain performance improvements: they reduce the size and cost of sigma by a factor of T.

With this setting, it appears that Oracle can only generate and broadcast partial signatures until such partial signatures can compute Σ. However, once again, the problem of greed arises. Therefore, we have to make sure that Oracle actually gets data from the source specified, rather than spoofing and copying Ai from another command. Our solution involves a financial mechanism: the real PROVIDER (which can be implemented as a smart contract) rewards only an oracle that provides raw data for part of its signature.

In a distributed setup, determining which oracles are eligible for payment results is tricky. Oracles may communicate with each other outside the chain. We no longer have a single authoritative entity (PDF Network-SC) to receive the response, so we will not be able to directly identify eligible payees in the participating commands. Therefore, the PROVIDER must obtain evidence of bad behavior from the command itself, some of which may be untrustworthy. We recommend using a similar consensus mechanism in the Port of DeFi Network solution to ensure that provider does not pay for free movement orders.

2.5 Interest Rate Mechanism

The core of the Port of DeFi Network is the interest rate, which is uniformly applicable to all borrowers and is adjusted with the change of supply and demand over time. The history of each interest rate in each money market is recorded by the interest rate index, which is calculated every time the interest rate changes. This is caused by the user casting, redeeming, borrowing, repaying or clearing assets.

2.5.1 Market Dynamics

Each time a transaction occurs, the interest rate index of the asset is updated to compound interest, because the previous index uses the interest of the period, expressed in r*t, using the interest rate of each block:

*Exponent a, n = exponent (n − 1) * (1 + r * t)*

The market's total outstanding borrowings are updated to include interest accrued since the last index:

*Loan balance a, n = total loan balance (n − 1) * (1 + r * t)*

And part of the accrued interest is retained as a reserve (reserved) and determined by a. Reserve factors, ranging from 0 to 1:

*Reserve a = reserve (n − 1) + total loan balance (n − 1) * (r) * t * reserve coefficient)*

2.5.2 Borrower Dynamics

The borrower's balance, including accrued interest, is only the ratio of the current index divided by the index when the user's balance was last checked. The balance of each borrower's address in the PDF is stored as an account checkpoint.

2.6 Lending

If the user wishes to borrow money and has a sufficient balance stored in the Port of DeFi Network, the loan can be called according to the relevant PDF contract. This function call checks the user's account value and provides sufficient collateral, updates the user's loan balance,

transfers PDF to the user's Ethereum address, and updates the floating rate in the money market.

2.7 Liquidation

If a user's borrowing balance exceeds its total collateral value (borrowing capacity), because the value of the collateral decreases or the value of the borrowed asset increases, the public function liquidation (address target, address collateral asset, address borrowing asset, PDF closing amount) can be called, which exchanges the calling user's assets to the borrower's collateral in a manner slightly better than the market price.

3. Port of DeFi Network Technical Support

3.1 Technical Architecture Design

Port of DeFi Network adopts a 6-layer architecture: data layer, network layer, consensus layer, incentive layer, contract layer and application layer.

Data layer: the block data of Port of DeFi Network is stored in a chain structure, and all blocks are provided with the pointer reference of the previous block to ensure that the data is not tampered with.

Network layer: the network layer uses P2P network to spread messages. P2P network is a peer-to-peer network, which can also become a self-organizing network without centers.

Consensus layer: in order to ensure the consistency of data in the whole Port of DeFi Network, all miners need to confirm the order of transaction packaging through the consensus mechanism. The Port of DeFi Network adopts a POS consensus mechanism, and anyone can join to earn rewards at any time.

Incentive layer: in order to ensure the efficient operation of the Port of DeFi Network, all miners will receive an equal proportion of block rewards according to the pay ratio while paying out computing power.

Contract layer: currently, the contract layer of Port of DeFi Network is only a simple script code. The verification script of anti-counterfeiting code and the redemption script of consensus margin are independent smart contracts. The positioning of the Port of DeFi Network is an asset lending

platform, which is different from other smart contract platforms.

Application layer: in the early stage, Port of DeFi Network will provide a general application protocol at the bottom to assist investors in asset investment and ensure that blockchain benefits the public as soon as possible.

With technology application as its core field, the Port of DeFi Network will gradually improve its access to the financial service system and further play an important role for capital in this market. The implementation of decentralized technology can effectively solve the value transfer between assets and asset lending.

3.2 Governance

The Port of DeFi Network will start with centralized control of the agreement (e.g. selecting the interest rate model for each asset) and over time will transition to passing the control to the community and stakeholders.

The following permissions in the agreement are controlled by the administrator:
● ability to list a new PDF Market
● ability to update interest rate models per market
● ability to update Oracle addresses
● ability to withdraw PDF reserves
● ability to select a new administrator, such as a community-controlled DAO; since the DAO itself can choose a new administrator, management has the ability to evolve over time based on stakeholder decisions.

3.3 Core Values

- Port of DeFi Network as an ETH asset creates a functioning money market
- Each money market has an interest rate determined by the supply and demand of the underlying asset; when demand for borrowed assets increases, or when supply is cancelled, interest rates rise, encouraging additional liquidity
- Users can offer tokens to the money market to earn interest without having to trust a centralized authority
- Users can borrow PDFs (use, sell or refinance) by using the balance in the agreement as collateral

4 Token Model

The Port of DeFi Network is a decentralized lending platform within the DeFi ecosystem. PDF is the token of the loan agreement, investors will be rewarded with a platform pass PDF while pledging their borrowed assets. At the same time, PDF can enhance the community governance of the Port of DeFi Network. The Port of DeFi Network agreement will open up the borrowing and mining mechanism as an incentive to improve the liquidity for borrowers and lenders.

Total PDF: 12 million (of which 2 million are in circulation; 10 million are borrowing and mining)

Unlike costly BTC mining, PDF mining mode is very simple, completely decentralized, and you can opt to exit at any time, which are the key advantages of PDF mining. The Port of DeFi Network platform does not handle any funds and does not set up a fund pool. Through the Port of DeFi Network platform, the operations team promote globally, so that every A miner can take an interest and actively participate in global lending.

5 Incentive & Economy

The miners in the Port of DeFi Network system obtain PDF by paying ETH commissions and bearing a certain price fluctuation risk; while the verifier calculates direct profit based on price deviation and bears the risk of transaction quotations. Therefore, for the verifier, the cost-benefit is relatively clear. For miners, the model of mining quotation needs a corresponding economic basis.

All ETH contributed by miners as X, are recorded, and are returned to PDF holders regularly (usually weekly). This process constructs an automatic allocation model, so that each PDF has an intrinsic value, which can be proved in the chain.

However, it is not enough to complete the logical closed-loop only by quoting the ETH of the miner. This goes back to the original intention of building the Port of DeFi Network: the fact that the price on the chain is the fundamental demand for all the DeFi products, and is the most important infrastructure of DeFi. Therefore, any DeFi developer or user will pay the corresponding fee when calling the Port of DeFi Network, and this part of revenue is recorded as Z. Therefore, the value of PDF is recorded as X + Z.

And in general, the cost of getting PDF is X, that is, PDF creates value on the whole.

It should be noted that the overall value of PDF is greater than the overall cost, but for each miner, the cost is uncertain. There is the possibility of trading. PDF owners with different costs can trade on the basis that the overall value is greater than the overall cost, so as to achieve

equilibrium, which is similar to the equilibrium of the stock market.

PDF is only used for incentives. The PDF model is completely decentralized and does not set a threshold for anyone. Its characteristics are similar to Bitcoin. The PDF protocol is upgraded in the form of DAO, that is, sponsors initiate and the community vote, and pass and run with it according to a certain proportion.

6 The DeFi Oracle Ecosystem

7 Risk Reminder

As with all financial products or services, the Port of DeFi Network is not free of risks. Here, we will briefly describe the reference risk of Port of DeFi Network. Of course, there may be other risks that are not described or recognized:

1） Due to the existence of the minimum arbitrage space, there may be some risks when using the Port of DeFi Network for financial services, which require a very precise price difference, and

some compensation should be made for this in the design.

2）The depth of the market arbitrage mechanism is not sufficiently deep, that is, the arbitrage mechanism is not sufficiently sophisticated, and there is a huge opportunity, but no one cares. This needs market acceptance and recognition, and it is a matter of deepening the development of the industry.

3）Although it is impossible to attack the price, you can indirectly attack the price mechanism by attacking PDF. For example, if more than 51% of PDF is quoted, then important parameters can be modified to make the quotation mechanism invalid. This problem can be prevented by limiting the key parameters. At the same time, if the PDF market scale is improved, it makes it difficult to achieve a 51% attack.

4）The risk of code loopholes or significant external changes. If Ethereum’s underlying code and PDF system code have vulnerabilities, or if the external environment changes greatly, it will affect the price caller, which can be corrected through chain governance and contract bifurcation.