SINSO ECONOMICS

White Paper

Part1 V1.0

SINSO Getway Distributed Cache Nodes Network

Content

1. Introduction

SINSO stood out from global competitors in the first Filecoin Frontier Accelerator (FFA) Camp. As a star project incubated by Filecoin, SINSO has evolved into a Web3.0 infrastructure, and some of its components contribute to the understructure of Filecoin Layer2 (L2). Setting as its goal is to build a strong operational guarantee for the Web3.0 ecosystem, SINSO makes it simpler for DAPPs to adopt decentralized storage and data governance.

SINSO has four major economic models, and this article elaborates on the first part - SINSO Getway, the Distributed Cache Nodes Network (hereinafter referred to as SINSO Getway). The three other parts include SINSO DAPP Cube, SINSO Donors Network, and SINSO DAC, which will be detailed in subsequent documents.

SINSO Getway is a Web3.0 distributed-cache secondary network based on libp2p protocols. It is built for current use scenarios required by GameFi, VR, AR, video streaming and high-speed CDN, as well as high-speed response of DAPPs such as the popular AIGC. In addition to ensuring decentralization, user data privacy and security, SINSO Getway meanwhile focuses on improving efficiency. With wide applications in the Metaverse ecology, it is the key infrastructure contributing to the Filecoin ecosystem by seamlessly integrating data and smart contracts.

SINSO Getway is a service-oriented middle-tier cache network, with its positioning mainly as the L2 cache acceleration service provider for the Filecoin ecosystem. It relieves all DAPPs from building IPFS adjacent nodes or other centralized nodes for data caching and provides a safer L2 cache network with higher performance and lower cost. Having not solely relied on the Filecoin ecosystem, SINSO can also store data persistently in the storage network.

Since the acquisition of valid data and the construction of actual applications have become the main orientation of Filecoin ecology construction, SINSO Getway will work on the standardization of communication protocols, so that mainstream data formats can be made applicable to Web3.0 ecology in an orderly manner.

SINSO Getway was incubated by the SINSO Foundation, and finally organized and taken over by the SINSO DAC framework to achieve automation and autonomy. Currently, SINSO Getway has convened over 6,000 nodes, and miners from 10+ countries and regions have participated in the network construction. There are not more than 2 years ahead when we can achieve true DAC autonomy. At that time, we will build a robust and completely decentralized network, from the technical level to the organizational level.

SINSO Getway is an open system. After the preliminary Testnet is complete, all roles and parties can enter it and exit freely. When SINSO Getway's economic model is mature, SINSO DAC will finally hand over and adjust the parameters in order to better maintain the stability of the system.

SINSO Getway, as the core and primary module of SINSO economics, will play a dramatic role in the SINSO system. But SINSO ecology’s weights and role will ultimately be governed by the SINSO DAC framework.

2. Design Goals of the Economic System

SINSO Getway set as the goal of its economic model to highly unify the interests of all participants with SINSO's ecological value. On one hand, it means protecting the interests of all

participants. On the other hand, it demands to maintain the stability of the SINSO ecosystem. For participants, they pursue their own interests, while also contributing to the SINSO ecosystem, thus achieving the sustainable win-win goal.

Important considerations of the economic design (the goals):

i) To ensure the stability and high quality of SINSO Getway;

ii) To ensure the sustainable development of SINSO Getway;

iii) To protect the reasonable interests of the participants;

iv) To encourage building applications in and for the ecology and promote valid data storage and collection.

SINSO Getway draws on the framework designs of many excellent economic models, including Bitcoin, Ethereum, Filecoin, etc. But distinct from other economic models, SINSO Getway pays more attention to creating practical value for the ecology. While constructing the economic model, we must consider the accessibility of the ecosystem and its sound development of high quality and must not blindly expand the capacity of nodes and pile up hardware resources.

SINSO Getway will not blindly pursue the expansion of capacity, but instead, take account of balancing calculation and bandwidth. With higher requirements for cache performance and bandwidth capacity, SINSO Getway focuses on comprehensive performance indicators, rather than a single indicator.

The SINSO token system is a continuous deflationary structure, and part of SINSO tokens will be burned with the construction of the system. SINSO Getway is only a part of the SINSO token system, while the latter will express more valuable points that will gradually appear in the acceleration of system construction.

In the maintenance of early construction, SINSO Getway adopts the logic of block rewarding. When the block reward is reduced to a certain level, the service charge brought by ecological applications will continue to subsidize SINSO Getway storage providers.

3. Roles in SINSO Getway

There are multiple parties participating in the entire SINSO system, each with a different division of labor. According to the way each role participates, we divide them into Storage Node Providers, Validator Nodes, Upload Nodes, Node Guarantors, and users.

3.1. Storage Node Providers

Storage Node Providers are the builders of SINSO Getway. They obtain benefits by providing nodes for users, with the services of cache storage and bandwidth resources.

3.2 Validator Nodes

Taking a dominating role in the SINSO network, Validator Nodes are not only managers of the network nodes, but also responsible for ensuring the stability and security of the network.

Among the important tasks shouldered by the Validator Nodes, the most important is the bookkeeping for storage nodes. The Validator Nodes record the details of each transaction in the network to provide the necessary evidence and data support for subsequent verification and audit.

In addition, they also undertake the work of traffic handling to ensure unimpeded communication between all nodes in the network. At the same time, they are required to quickly respond to requests from other nodes, handle various network events and abnormal situations in a timely manner, and ensure the normal operation of the network.

The Validator Nodes also need to always monitor the heartbeat status of the network so that any abnormalities that may threaten network security can be detected and dealt with in a timely manner. Only in this way can we ensure that there will be no faults or loopholes hindering the network operation, so that the security and stability of the SINSO Getway network can be guaranteed.

Validator Nodes are the backbone of the SINSO network. Only through its effective management and maintenance can the smooth operation and network security be ensured.

3.3 Upload Nodes

Upload Nodes refer to the nodes that package and generate blocks in the SINSO Getway network. They maintain the entire blockchain network and provide communication protocol interfaces for registration. The data submitted by Upload Nodes will be through orderly format processing, which may be also combined with industry-specific standard communication protocols. Data Protocol Stacks are important upload nodes. According to the vPoS (Value Proof of Stake) consensus of the SINSO network, the Data Protocol Stack Nodes need to have storage, computing resources and workload, as a guarantee before they can stake the corresponding amount of SINSO tokens. And meanwhile, they need to stay online.

The Upload Nodes participating in the network can obtain a multiplied reward specifically for valid data, and meanwhile bear the risk of being fined and confiscated.

3.4 Node Guarantors

The Node Guarantor refers to the account that provides a guarantee for any one or more nodes in the SINSO Getway network. The guaranteed node can only be an upload node. Any account with SINSO tokens can become a guarantor, and its SINSO tokens can be used as a collateral asset. The guarantor obtains income by providing a guarantee for the nodes, and meanwhile shares proportionally the risk of the nodes' being fined.

Node Guarantors play an extremely important role in the SINSO Getway network. They guarantee the stability and security for nodes and provide a source of income and a means of transaction for accounts with SINSO tokens in the network. Only through effective guarantee services and risk control can the stable and sustainable development of the SINSO Getway network be ensured.

3.5. Users

Users refer to participants who use resources in the SINSO Getway network, mainly users of storage and computing resources, who can use SINSO tokens to purchase resource services.

SINSO Getway is built to improve the access efficiency of DAPP. All participants who need to develop a Web3.0 ecosystem can use our network and become our users.

At the current stage of ecological construction, our users can use SINSO storage resources

completely free of charge. After the number of storage nodes reaches 10,000, storage resources will be mainly obtained through staking.

4. Token

In the SINSO Getway network, SINSO is a functional token that realizes the value of the entire network.

4.1. Primary Functions

1. Staked to preserve the vPoS consensus of the SINSO network;
2. Used as the guarantee fee for selected nodes;
3. As a guarantee and commission for the provision of resource services;
4. As a transaction fee paid to use the network;
5. Can be used to purchase resources and services, including storage resources, minting NFTs, the use of plug-ins such as ChatGPT, etc.
6. Can be used for the election and voting in the on-chain governance mechanism, which is reflected in the SINSO DAC system where proposals are voted on.
7. The blockchain consensus in the SINSO network is the vPoS consensus, referring to the value proof of stake. vPoS is an upgraded version of the PoS consensus mechanism and combines the resource fairness of PoW and the high performance of the PoS chain.

Like existing PoS projects, the nodes in the SINSO network need to stake SINSO tokens to compete for the privilege to generate blocks. The difference is that the nodes also need to have storage resources and workload as a guarantee. Only when within the guarantee quota will the staked tokens be valid. In this mechanism, three types of assets, namely storage resources, bandwidth resources, and SINSO tokens, are needed to qualify a node, which can more effectively combine the advantages of resource-based and token-based consensus mechanisms, to further ensure network security. To initiate a consensus attack against the SINSO network, one needs to control over 51% of the computing and storage resources of the entire network in addition to having a large proportion of SINSO tokens.

Under the premise that the node has storage resources and a workload, he can also seek guarantors whose SINSO tokens are used as a guarantee. That is, the node’s staked tokens can be its own or come from other guarantors. However, only data protocol stack node verifiers are qualified to enable the guarantee function, and ordinary nodes will not be qualified. The node's own staked SINSO data and the guarantors’ SINSO together make up the total amount of the node’s staking.

When a guarantor uses SINSO tokens as a guarantee for a node (data protocol stack node verifier), the number of the SINSO tokens as the guarantee, together with the number of SINSO tokens staked by the node, will be combined into the total amount of node staking. When the total amount of node staking exceeds a node's guarantee quota, only the amount within the quota is the effective amount. While the total amount of node staking is less than the node's guarantee quota, the total amount of staking is the effective amount.

To attract guarantors, the node needs to pay a guarantee fee at a rate set by the node itself. The guarantor chooses the guaranteed income that he is willing to accept and to guarantee the node, and meanwhile bearing the risk of the node's being punished. If the node is fined and confiscated by the system for triggering the penalty mechanism, the guarantor shall be fined and confiscated proportionally. In this mechanism, the guarantor will tend to choose a node with good faith and good service quality, and the guaranteed income and penalty risks will be balanced by the market.

SINSO tokens function as the maintainer of the SINSO Getway network ecology, and serve as a guarantee in this market to ensure the order of the storage market.

SINSO DAC is a voting governance contract on the chain. In the future, community voting governance amendments will be made to the parameters of the SINSO Getway ecology to continue to ensure the rationality and sustainability of the SINSO economic model.

4.2. Generation and Destruction of Tokens

The total number of issued SINSO is 100 million, of which miners account for 60%, totaling 60 million SINSO. SINSO Getway accounts for 25% of the entire miner's pool and is an important part of the SINSO mining system.

There are two ways to generate SINSO: one is to generate a portion when the Mainnet is launched; the other is to create with the generation of blocks. The portion owned by SINSO Getway is generated by the latter method. As the scale of network construction expands, SINSO will continue to be generated.

The overall release method is as follows:

X (t)=(e^(-λt)-e^(-λ(t+1)))　15,000,000

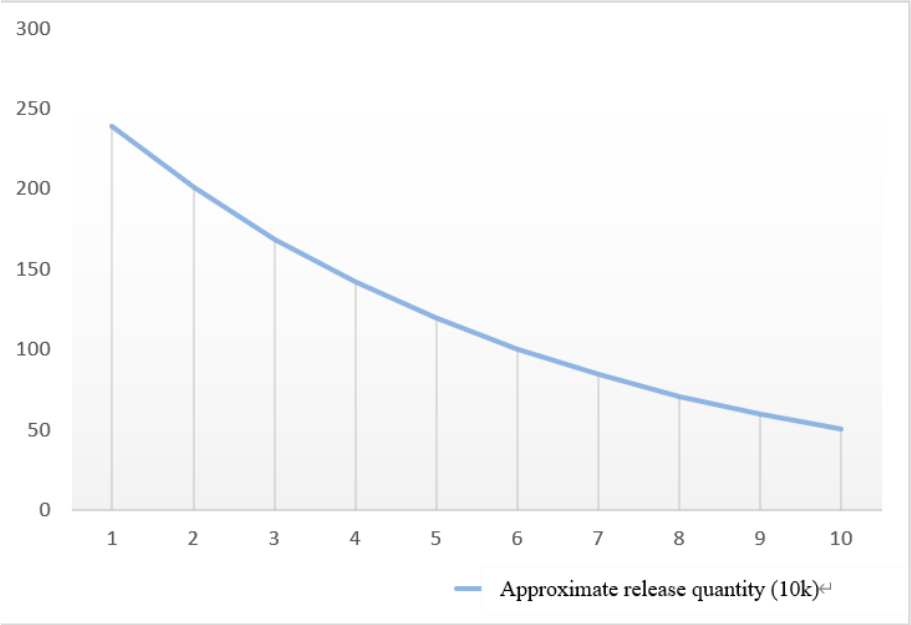
t=days　　λ=0.000475

As shown below: 2.388 million pieces will be released in the first year, and the issuance volume in the second year will be about 84% of the previous year until the release is completed in the tenth year.

Year	Number of released SINSO
1	238.8
2	200.8
3	168.8
4	141.9
5	119.3
6	100.3
7	84.4
8	70.9
9	59.6
10	50.2

The overall token release cycle of SINSO Getway lasts for 10 years, and most of the tokens it owns will be released in 10 years. If SINSO Getway cannot meet the development of the business ecosystem after 10 years, the SINSO DAC governance will start to vote and decide if to allocate funds from the mining pool, until the release of tokens matches the applications ecology.

As shown below:



When the initial network construction reaches 500 nodes, we will start rewarding. If the number of nodes is less than 500 nodes, the entire network will not receive block-explosive rewards.

Initial staking amount: each node stakes 200 SINSO.

4.3. Value of Tokens

SINSO is the functional token of SINSO Getway, and its value is positively related to the scale of the SINSO network. When the network is used by many users, the demand for SINSO will rise accordingly. There are two main ways SINSO tokens capture network value. One is when it's used in the network (being locked or occupied) - its total amount of circulation is reduced, such as being used for node staking and paying guarantee fee, purchasing storage services, chain voting on governance, other various staking, etc. The other is when it is destroyed in use, for example, as a part of the transaction fee, leading to a reduced total amount of the token.

5. Economic Model

The main problem to be solved by the SINSO economic model is how to reasonably distribute the benefits of all parties on the promise of ensuring the security of the network protocol. The economic model encourages all participants to join the network and use the SINSO token as a value carrier in value circulation to maintain the sustainable development of the system. Meanwhile, it makes the system safer, more robust and valuable.

5.1. Design of vPoS Consensus

For the second stage - after the first stage reaches a certain scale - we will immediately start the Effective Computing Power Nodes, which is to encourage real data and deploy large-scale

applications, in the meantime avoiding blindly pursuing capacity construction.

Effective Computing Power Nodes: After SINSO Getway improves the capacity and completes node construction, SINSO Getway data protocol stack nodes will cooperate and provide valid data upload.

SINSO Getway bound to valid data protocol stack nodes will be rewarded at β times - β refers to its weighting coefficient, which will be determined by the SINSO DAC voting governance. This means that SINSO Getway Distributed Cache Nodes will play a critical role in actual production. For Effective Computing Power Nodes, its income will be multiplied by the coefficient β, and the staked SINSO will also be multiplied by β. If SINSO Getway is used as the pre-incentive layer for Filecoin's effective data, we will enhance the application value of the entire ecosystem by verifying the stability and performance of the Distributed Cache Nodes network, and how the nodes are bound to the industry communication protocols.

All miners tend to earn more SINSO tokens. Following the profit-oriented rule, SINSO will provide incentives for valid data collection and verification. SINSO Getway is not designed to be an isolated system, and its benefits are not static. Rather, SINSO Getway, together with other project economic models in SINSO, has abandoned the construction idea of blindly pursuing scale and belittling quality.

The comprehensive computing power of the node will increase when more valid data is stored and bound with data protocol stack nodes. In the case where effective nodes are scarce, we will reward effective nodes up to 5 times. As the scarcity decreases, and the proportion of nodes bound to effective computing power in the entire network increases, the coefficient for obtaining additional rewards will decrease, as a result, the additional rewards for effective computing power nodes are reduced to C.

The relationship between the proportion (X) of the effective computing power nodes in the entire network and the coefficient C can refer to the following formula:

$$c(x) = 1+4*\exp(-r*x), \quad r=3.69$$

Proportion (X)	**Reward coefficient(c)**
1.00%	4.86
2.00%	4.72
3.00%	4.58
4.00%	4.45
5.00%	4.33
6.00%	4.21
7.00%	4.09
8.00%	3.98
9.00%	3.87
10.00%	3.77
11.00%	3.67
12.00%	3.57
13.00%	3.48
14.00%	3.39
15.00%	3.30
16.00%	3.22
17.00%	3.14

18.00%	3.06
19.00%	2.98
20.00%	2.91
21.00%	2.84
22.00%	2.78
23.00%	2.71
24.00%	2.65
25.00%	2.59
26.00%	2.53
27.00%	2.48
28.00%	2.42
29.00%	2.37
30.00%	2.32
31.00%	2.27
32.00%	2.23
33.00%	2.18
34.00%	2.14
35.00%	2.10
36.00%	2.06
37.00%	2.02
38.00%	1.98
39.00%	1.95
40.00%	1.91
41.00%	1.88
42.00%	1.85
43.00%	1.82
44.00%	1.79
45.00%	1.76
46.00%	1.73
47.00%	1.71
48.00%	1.68
49.00%	1.66
50.00%	1.63
51.00%	1.61
52.00%	1.59
53.00%	1.57
54.00%	1.55
55.00%	1.53
56.00%	1.51
57.00%	1.49
58.00%	1.47
59.00%	1.45
60.00%	1.44
61.00%	1.42

62.00%	1.41
63.00%	1.39
64.00%	1.38
65.00%	1.36
66.00%	1.35
67.00%	1.34
68.00%	1.33
69.00%	1.31
70.00%	1.30
71.00%	1.29
72.00%	1.28
73.00%	1.27
74.00%	1.26
75.00%	1.25
76.00%	1.24
77.00%	1.23
78.00%	1.22
79.00%	1.22
80.00%	1.21
81.00%	1.20
82.00%	1.19
83.00%	1.19
84.00%	1.18
85.00%	1.17
86.00%	1.17
87.00%	1.16
88.00%	1.16
89.00%	1.15
90.00%	1.14
91.00%	1.14
92.00%	1.13
93.00%	1.13
94.00%	1.12
95.00%	1.12
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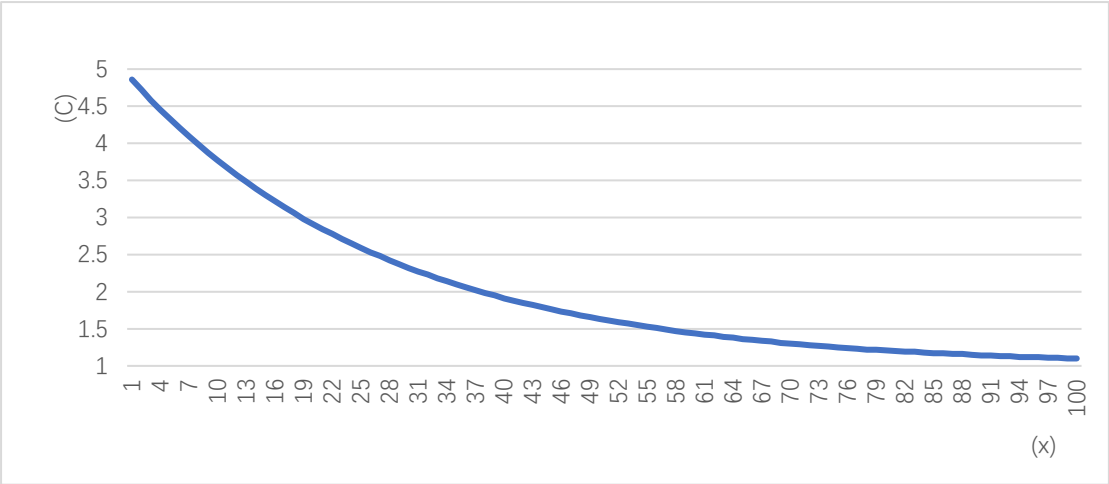
97.00%	1.11
98.00%	1.11
99.00%	1.10
100.00%	1.10



(The reward coefficient decreases as the proportion of valid nodes increases)

At the later stage of ecological application construction accompanied by the release of SINSO Getway data protocol stack nodes, we will see that the profits of the overall network will be entirely directed towards application deployment and high-quality data rather than expanding nodes. Ordinary nodes will hardly get more revenue.

Compared with the data protocol stack node verifiers, Upload Nodes have no workload to generate blocks, do not bear the relevant penalty risk, nor enjoy the benefits involved. The asset cost categories invested by the node include hardware equipment, electricity costs, labor costs, site costs, and SINSO token assets. Income includes SINSO tokens and asset classes that can be independently determined by the trading market, mainly divided into fiat currency denominated assets and SINSO token assets.

The invested assets of the Node Guarantors are SINSO tokens, and the income is also SINSO tokens. In such a case, the ROI (return on investment) can be measured by SINSO currency standard. According to the first phase test (from February 2023 to June 2023), there were more than 5,000 storage nodes, and over 80 registrations for Validator Nodes. Basically, a balance has been achieved in terms of token release and economic model self-regulation. The first batch of storage nodes and Validator Nodes were successfully built, which shows that SINSO's incentive model has played a role in application.

5.2. Transaction Fee Composition

In the blockchain network, the typical design of resource and corresponding cost is as shown below:

The basic fee is to be paid for each transaction, byte fee = fee/byte × number of bytes. The system will reserve an initial cost configuration, which can be upgraded and updated at any time. The dynamic fee rate will be adjusted according to the block resource usage ratio. The transaction fee will increase when the network resource usage rate is high and will decrease in the opposite case. Tipping is a fee determined by the initiator of the transaction. When the network is particularly congested, the tip can be added to boost the priority of the transaction being packaged.

The basic fee will be destroyed directly, and other fees will be paid to the node that packages the block. The destroyed basic fee makes the tokens in the system deflation.

5.3. Forfeiture and Penalty Mechanism

SINSO's staking module has a forfeiture and penalty mechanism for validators. At the end of each cycle, the network will detect the validators. When the validator is detected to be offline or maliciously attacking the network, the mechanism will be triggered and the penalty amount will be calculated. The penalty content includes the proportional deduction of valid staked SINSO tokens and the removal of the verifier's identity. If it is the instability of the node that leads to disconnection, inefficiency, and non-malicious network attack, a penalty of stopping mining for 24 hours will be imposed.

If the node has unstable service quality (dropping out or being inaccessible), or found malicious moves, it may be punished with stopping mining SINSO token (block be prohibited for 24 hours), or face confiscation by DAC. The confiscated tokens will enter the community account. As a guarantor, when the guaranteed verifier is punished, the amount of guarantee will be confiscated accordingly.

6. Trading Market

The first phase of SINSO will complete the storage resource market, allowing storage resource providers and storage resource users to trade in this market, and will further introduce the computing resource market in the future.

6.1. Hot Data Storage Resources Market

In the storage resource market, the services provided mainly include two types: file storage services and file retrieval services. The storage resource provider is a merchant in the SINSO network, and both verification nodes and candidate nodes can become merchants. Storage resource users are users who have data storage and retrieval requirements including Web2 centralized cloud storage users and decentralized users with big data storage needs in the Web3.0 ecosystem.

In order to meet the service requirements of the storage market, resource providers need to be online 24-7. We have designed corresponding mechanisms in the network access agreement for verification nodes and candidate nodes, and there are also requirements in the trading market for merchants be online.

6.2. File Caching and CDN Distribution Services

In the SINSO network, when users want to store files, they need to pay a fee calculated by the system's pricing formula and broadcast the storage order to the entire network. The order submits the basic information of the file to the blockchain, including the file’s hash value, file size, etc. After the merchants in the network receive the broadcast order information, they can search for the corresponding file in the SINSO network and download it, and then save it in the merchant's node server. When a merchant submits the storage certificate of the saved file to the blockchain, the user's storage order becomes effective. In order to ensure that a merchant can search for the files that users need to store, users need to provide file uploads.

After the user’s storage order comes into effect, the user’s payment to the network is divided into two parts. One part goes to the network’s reward pool, contributing to nodes that provide SINSO

token staking. The other part goes to the files' reward pool, distributed to the merchants who provide the storage certificate. The distribution rules followed by nodes that provide SINSO token staking are the same as those for nodes staking rewarding. The SINSO network initially sets the part for the files' reward pool as 20% and 80% for the network's reward pool. The part distributed to storage merchants will be allocated according to the merchants' queuing order. Merchants' queuing order is based on the time when the merchants submit the document storage certificate, that is, whoever submits the certificate first has priority. In each spot check cycle, if a merchant cannot submit a storage certificate, it will be kicked out of the queue immediately. When it submits the certificate again, it will be placed at the back of the queue following the time priority principle.

6.3. File Retrieval Service

As a storage network, SINSO not only needs to be able to store files, but also needs to provide users with a convenient way to obtain files. Therefore, another important function in the SINSO network is to retrieve files. The SINSO network provide additional incentives to encourage merchants to provide retrieval services to users. In the current system design, such retrieval services are free. Merchants can obtain more valid data by providing retrieval services, thereby increasing its effective staking amount and allocating more network rewards.

6.4. Computing Resources Market

As an important part of Web3.0, the Computing Resources Market has the distributed computing cluster network contributed by SINSO Getway nodes. Whether it is to build decentralized computing in the hot data system, or perform decentralized computing in Filecoin's Layer 2 framework, or perform collaborative filtering, the Computing Resources Market will have an extraordinary meaning. This part is still being carefully designed and will be released in the future.

SINSO network will support decentralized cloud computing in the future. Unlike the storage market, computing resource services generally do not set long-term staking assets, and users are required to directly pay for computing services in the form of fees. The design of this type of trading market will be updated in subsequent versions.

The feasibility of distributed storage and distributed CPU participating in small model training has been widely recognized and applied in modern computing technology. This kind of technology can simultaneously train models on multiple computing nodes, thereby greatly reducing the time for training with improved efficiency. Next, we will gradually explain this part. For the miner network, the computing resource market will set an independent incentive model framework. SINSO will play a role in AI small model training.

Introduction to the Feasibility of Small Model Training:

As deep learning models are becoming more and more complex with increased parameters, it requires large amount of training time and computing resources. Therefore, distributed computing was put forward for the training of large-scale deep learning models. Distributed computing can decompose a single computing task into multiple subtasks and assign these subtasks to multiple computing nodes for processing. In this way, it improves computational efficiency and speeds up training.

In the training process of deep learning models, data is very important. Distributed training require data in distributed storage, which can realize both the storage and sharing of large-scale data,

making itself very suitable for the training of deep learning models. There are currently many distributed storage technologies to choose from, such as HDFS and Ceph, which can distribute data on multiple storage nodes and provide highly reliable data redundancy.

SINSO Getway provides an even better solution, which includes privacy inclusion and determination of data ownership for training data and AI Generated Content (AIGC). When training the deep learning models, the data can be distributed on different computing nodes, to break the bottleneck of data transmission during the training process and improve the training efficiency. When training large-scale deep learning models, GPUs must be used for calculations. If the CPUs on multiple computing nodes cooperate, distributed computing can be realized, and training efficiency can be improved. For some small deep learning models, it is very common to use a CPU for calculation, because the calculation speed of a CPU is fast enough in this case. When using distributed CPUs for training, each computing node can process different data sets separately, thereby reducing computing time and computing costs.

6.5. Data Trading Market

Data constitutes an indispensable part of the information industry. However, although data has huge commercial value, the data marketplaces are permeated with problems such as data theft, data leakage, and data tampering. These issues will not only affect the security and credibility of data, but also affect the fairness and efficiency of the data market. Therefore, a Data Trading Market based on blockchain technology emerged as the times require. The decentralization, traceability and immutability made possible by blockchain technology provide a strong guarantee for the security and credibility of data transactions and promote the fairness and efficiency of the data trading market. The following lists several major issues that the data market needs to deal with in the current market environment:

1. **The trust between the two parties in the data transaction.** Usually, due to information asymmetry and lack of trust, it is difficult for all parties to negotiate reasonable transaction conditions.

2. **Difficulty to assess data value**. Since the value of data is often related to the cost of data collection, processing, storage and analysis, the evaluation of data value is not only difficult but also has insufficient transparency.

3. **Data security risks**. Due to threats such as network attacks, data theft, and tampering in data transmission and storage, the security of data cannot be guaranteed.

The Scheme of Building a Data Trading Market through Blockchain Technology:

1. **Establish a distributed trust mechanism**. The traceability and non-tampering of transaction records can be realized through the blockchain, and a distributed trust mechanism between transaction parties can be established, so that all parties to data transactions can safely participate in data transactions.

2. **Introduce smart contract technology**. Using smart contract technology, automated data transactions can be realized in the data trading market, saving transaction costs and time, and realizing rapid evaluation of data value.

3. **Encryption technology is used to ensure data security**. By using encryption technology, data can be encrypted for transmission and storage, thereby the security and non-tampering of data

is ensured.

In order to build the application scenarios of SINSO Getway, SINSO hatched a general-purpose application “SINSO DataLand”. Our first step was to store data in SINSO Getway and display data in a certain format in the browser. For the second phase, we conduct in-depth research and development of the data trading market, allowing users to define their own decentralized trading paradigm.

7. On-chain Governance

SINSO built an on-chain governance mechanism using DAC technology, which is called SINSO DAC On-chain Governance Voting Function in the SINSO system. It allows holders of SINSO tokens to participate in the network construction, and ensures major decisions are governed by proposals. While the governance mechanism is still under development, Data-oriented DAO is an important application of Filecoin’s Virtual Machine (FVM).

SINSO DAC will focus on introducing and bridging to FVM to build SINSO DAC, which will realize Data-oriented DAO governance. The advantages it has are as follows:

1. **Efficiency**: The design of FVM is based on the lambda calculus, and some advanced programming techniques (such as binary code generation and memory layout techniques) are used to achieve efficient code execution and data storage.

2. **Security**: FVM adopts many security technologies (such as sandbox technology and permission control technology) to ensure the safe execution of smart contracts and avoid malicious code attacks on the network.

3. **Flexibility**: FVM provides a very flexible smart contract function, which can support the business needs of various DAOs, with very good scalability.

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