

Chapter 4 Cyberspace Filling Plan

Blockchain technology is essentially a product of cyberspace science. We have analyzed the spatial structure of blockchain and its robustness in the block, chain, reward mechanism, contract, finance, and so on. The first law of cyberspace science is also established. This law reveals a gateway to the real world for blockchain technology. With this passage through cyberspace, we see that every part of the blockchain has a real-world ideology hidden behind it. Likewise, it is the birth of a perspective beyond cyberspace that allows us to use cyberspace as a tool or a path to accomplish the possibility of reversing the real world from cyberspace. This is the beginning of true cybernetics. A practical activity based on the understanding of cybernetics and beyond cyberspace.

For traditional technical workers, the parts beyond cyberspace and computer theory are practically alien to them. They may feel that philosophical thinking is not detailed enough to solve practical technical problems, and therefore feel that the humanities are not grounded; on the contrary, researchers in the humanities, in turn, believe that what is on the web is false, and that technology is merely the result of externalizing philosophical ideas. Without the guidance of the humanities, most technology is useless, and technology is the real ungrounded research. Admittedly, both of these are true. For humanities scholars to influence the real world with things that don't exist within the Internet seems a bit of a pipe dream. But compare that to the virtual currencies that are now forming a bubble in international markets. Practical attempts like applying blockchain to life have been much more reliable. And for technical people, to lead the development of technology in a humanistic way seems to limit the development of technology, they are not willing to listen to the advice of the humanities. But compared to the metaphysics of word games without technology at all. A humanistic proposal that contains practical implications can be adopted. I hope that people with both of these attitudes will understand each other and read books that they were reluctant to accept to dispel some of their misunderstandings. In short, their accusations, fears, and suggestions about a practical program do not really grasp the essence of the practice. Because they themselves are still deep in a structured mindset. The work of genius and any great human creation does not fit into such a framework. Nor does a true practice fit into such a framework.

However, I still attempt to present a practical solution in a way that is more acceptable to both sides. That is, I will add philosophical reflections to the description of the technology, and I will add the details of the technology to the philosophical reflections. I also need and want to address the questions and misunderstandings raised by both sides. This is a difficult task, though. Because most people do not escape from their own framework to understand the practice. Most people are self-centered. That is the nature of thinking.

Since this is a practical program, the contents of this chapter and the next chapter will be continuously added, changed, and modified to ensure that it is more feasible and effective, and there will also be a mechanism for updating the version to summarize the practical experience and make arrangements for the next practice.

A decentralized enriched blockchain system in cyberspace based on external centralization

First, since cyberspace does not yet have a general equivalence that expresses the symbolic desires of cyberspace, we need some kind of "device" to form a general equivalence in cyberspace. Since the virtual currency Ether is the existing complete cyberspace system, we need to link the behavior of cyber individuals to a complete system similar to Ether. Thus, in this way, we can achieve the result of enrichment for the cyberspace.

Second, we already know in our analysis that the stability of a complete Cyberspace is maintained by external instability, which in turn necessarily contains the ideology of reality. Therefore, we can directly build an internal decentralized Cyberspace system supported by external ideologies.

As a result of the above two points, it is possible to build a system to achieve a system of filling "devices" in cyberspace, but its stability is rooted in the real world. In other words, this system must contain the connection between reality and the most cyberspace. I call this system the Cyberspace. However, because the external ideology is not the same collectively, it can have other names at the same time. Undoubtedly, the most stable ideology of the external world is the state with real armed forces. Therefore, the later discussions of Cyber Place are based on the assumption of an ideological endorsement of the state. However, this does not mean that Cyber Place can only be used for the state. It can also be used in the management of companies and in the systems of various industries. It is a decentralized "device" system that links reality and cyborgs, and transforms the symbolic desires of cyborgs into real productivity.

Cyber Place is divided into three main parts: 1. the transaction chain part; 2. the space tree part; and 3. the faucet (faucet) account.

One of the transaction chain parts is the electronic bookkeeping system of blockchain, which he modeled on Ether but is also different because of its external centralized nature. And the spatial tree part is the decentralized spatial structure tree system that records the behavior of cyber individuals in cyberspace. He marks the general symbolic desires of Cyber individuals and forms a spatial structure about the symbolic desires of Cyber individuals. He ends with a client that records the online behavior of each Cyber individual when they are online. The client is voluntarily turned on and records the observed online behavior. Finally, there is the centralized tap account that links the first two parts, which is the intermediary that links the real world to the cyberspace and is the central bank of the cyberspace. It can also be the central bank of the real world. He constitutes the top end of the Cyber Place.

Correspondingly, the accounts in Cyber Place are divided into three major categories: 1. EOA (general or external account) contains three parts: (1), can execute transactions of Cybercoins; (2), provides Cyberspace behavior and provides the content of Cyberspace tree structure, thus obtaining rewards from the central bank. (3) Reviewing the space tree and thus obtaining rewards from the central bank; 2. Transaction chain mining account: can mine and contains all the functions of an external account; 3. Taps and a full node account with centralization: the embodiment of centralization in Cyberpolis. Contracts can be created. In

the state-centered CyberFang, generally state institutions or central or state-owned enterprises can also create other centralized sub-accounts under the faucet account. He can provide more stable space tree review mechanism (such as the three major network operators, he can provide more accurate verification of the Cyberspace structure) as well as more powerful technical and equipment support to ensure the stability of all Cyberspace.

As the innovation of CyberFang is partly in the collection of the state of Cyberspace and the centralized regulation. The transaction chain of CyberFang is actually not much different from that of Ether. Therefore, the same content as Ether will be omitted in the following. Only the parts that are different from Ether will be expressed. Please refer to the Ethernet white paper and yellow paper for the same parts.

4.1 Transaction chain part

Generated under the transaction chain is the general equivalent of the cyberspace cybercoin, generally referred to as cybercoin. In the case of a state, he can be called a state coin (because it is the general equivalent that responds to the state structure of the Cyberspace) or a state coin (statecoin, or SC). Although Bitcoin's blockchain system is more stable, Bitcoin cannot implement contracts, and Bitcoin without a sub-chain solution is not a complete Cyberspace, so even in the case of state endorsement, we still have to choose the complete Cyberspace of Ether to construct the Cyberspace transaction chain system. But some flexible changes can be made.

The transaction chain in CyberWire can also be seen as a transaction-based state machine: it starts with the Genesis block and its initial block under centralized regulations. After that, the state of the transaction execution changes step by step until the latest state. In a transaction chain, the transaction is the intermediary between two states and is the driving force for the state change. Therefore, there is a state transition function as in the case of Ether.

$$\sigma_{t+1} \equiv Y(\sigma_t, T)$$

Y is a state transition function that can perform arbitrary calculations

σ is the state in the storage transaction

T is for Trade

Note that when the transaction chain starts to operate, any centralization will not be able to affect the state transition of the transaction chain, but can only do the change of the transaction chain in the form of a transaction (in the form of a transfer) through the state transition function to ensure the decentralization of the transaction chain. That is, the centralized provisioned blocks exist only at the beginning of the transaction chain as the initial block group. The central account can set the values that can be changed in the transaction chain. However, it cannot change the whole spatial structure relationship. For example: rewards and taxes are paid out in the form of transfers. And not issued in any other way.

Mining changes to the transaction chain Mining is the act of competing with other potential blocks for the right to keep track of a series of transactions through a certain amount of effort. The CyberWire transaction chain uses the transition function of the transaction chain state of Ether.

$$\sigma_{t+1} \equiv \pi(\sigma_t, B)$$

$$B \equiv (\dots, (T_0, T_1, \dots))$$

$$\Pi(\sigma, B) \equiv \Omega(B, Y(Y(\sigma, T_0), T_1) \dots)$$

where B is a block containing a series of transactions and some other components

Π is a block-level state transition function

Ω is the block finalization state transition function

As you can see, CyberFang does not differ from Ether in the way of state transition of the transaction chain. Thus, after explaining the most important state transition function, the content that is the same as Ether will be omitted later. Only the parts that are different from Ether will be expressed. Please refer to the Ethernet white paper and yellow paper for the same parts.

The historical choice of chains Based on the Ether Ghost protocol, CyberFang also uses the principle of the heaviest chain. That is, the chain that guarantees the most uncle blocks. The principle of heaviest chain is to pursue the chain with the most number of transaction tree and state tree root nodes to leaf nodes. A Ghost (Ghost) protocol can be set here as in Ether. Most of the parameters can be designed with reference to Ether. In the case of state, the number of issued uncle blocks can be adjusted. To ensure a better decentralization as well as a universal policy. As the account of CyberFang is planned to be issued by the central account, in the case of the state as the center, it is possible to create different tokens and distribute them to specific groups that need to apply for labor subsidies, maintain low income, poor people, elderly people who are lost, etc., depending on the reality. Thus adjusting the amount of uncle blocks and the distinction of tokens, it is possible to achieve precise distribution of accounts as well as precise help. It can also ensure the possibility of getting more virtual currency for users whose devices are lagging behind. (In the next chapter we will discuss the account number as well as the mining machine. The conclusion is: the state directly issues accounts and gives farmers preferential policies for the purchase of mining machines. (And prohibit mining by non-ordinary users and non-personal forms of mining.)

The **unit is not** yet decided, and we hope to determine the unit of Cybercoin through the meeting.

Block **Out Rate** The block out rate can be slowed down because of centralization. Ethernet is generating a block in about 15 seconds. Whereas CyberFang can increase to about 1 minute as a way to ensure the benefit of areas with low bandwidth. But this will give birth to new problems. Because CyberFang is centralized, the number of transactions in a minute may be

very large given the country, which leads to a block containing a very large number of transactions. From this, the block-out rate can then be adjusted to ensure that the number of transactions within the block is not too high. However, this forces the block-out rate to be faster, but then makes bandwidth critical for mining. There are two directions to resolve this paradox: 1. Resolve the imbalance between bandwidth and hardware. Mining requires more hardware as well as bandwidth, and remote and rural areas may not have the advantage. The solution to this is to increase the number of unknowns and rewards. At the same time, the difference in arithmetic power and bandwidth can be filled in a centralized way. For example, use cloud computing to coordinate the arithmetic power in remote and rural areas (only provide arithmetic power and cache help, while the reward is still allocated to the original mining account). Because Cyber Place is a tool with centralized regulation of cyberspace, he can always compensate for the violation of decentralization in the transaction chain by centralized regulation of arithmetic power. This is the best example of external instability maintaining stability. It does not pose much of a problem at this point. This is because in the early stage of Cyber Place, there will not be a large number of transactions. And when there is a large number of transactions generated in the later stage, it will inevitably be able to have a huge influence and thus be supported by more regulation. 2. The scheme of central account support. As the problem of huge transaction volume may be faced later. It is possible to set the upper limit of the number of transactions contained in the block when the account is packed with a block through the contract. However, if the network will have a lot of transactions in a pending state, over time, the number of pending transactions will continue to pile up, which will cause more and more transactions to block. This time can still be solved by centralized way. That is, a centralized account (such as a large node of a state-owned enterprise or even a central bank) is added to the packaged as an account to ease the congestion in the transaction chain. The advantage of this solution is that the central account is always involved in mining as a mining account. It does not structurally break the decentralization of the cyberspace, but only creates a centralized hardware advantage in the part beyond the cyberspace. Of course, the time period in which the centralized account is joined, the reward of mining equals that most of it will be obtained by the centralized account. This can be solved by simply issuing some remedial coins from the tap account to the users who were mining at that time after the crisis was lifted. Since it is the centralized regulating account that is involved in solving the crisis, it is completely possible to withdraw from mining when it is not congested. To ensure the interests of other vulnerable miners. 3. Use a Casper-like mechanism to deal with the crisis of a large number of transactions pending: firstly, crowdsource some mining accounts with some cybercoins themselves to become Casper accounts in the usual period in the form of insurance, and they need to submit an amount of "insurance" to the central bank ". For the whole trading chain, when there is a crisis of pending, the mining mechanism of Pow is changed to the mining mechanism of Pos (Casper) combined with Pow. For the mining account submitted for insurance, the consensus of Casper is used to quickly decide which block to be on the chain (i.e. the way of betting, refer to Casper consensus). In normal times, the mining is still done by Pow consensus. 4. Open multiple token trading chains directly, and put different real groups into different token trading chains for "mining", which can ensure accurate regulation and also ensure that the volume of transaction data is not too large.

Compare these four solutions. The advantage of option 1 is that he can use cloud computing technology to coordinate arithmetic power and bandwidth to solve the problem well. But the disadvantage is whether the technical difficulties of compatibility between cloud computing or quantum computing and blockchain can be solved. He relies on the arithmetic co-ordination technology of computing (also needs to ensure the distribution of arithmetic power to mining accounts evenly in order to maintain decentralization), which is more dependent on technology; the advantage of Option 2 is to solve the crisis with decentralization that is not in cyberspace. The disadvantage is that if the number of transactions on the trading chain is always large, centralized accounts are needed to join for a long time. Then it is equal to the mining account cannot get the mining reward for a long time. It is easy to cause the policy of giving vulnerable groups to backfire; the advantage of option 3 is that a kind of stock system is formed within the mining account, which is actually a solution to the crisis by forming an elite collective within the mining account. The disadvantage is that this small collective approach is no longer decentralized within the mining. The accounts that can provide "insurance" already have a certain amount of original accumulation of cybercoins. The more important disadvantage is that there are problems with switching between different consensus mechanisms. It would destroy the structure of the transaction chain. Option 4 is actually the fundamental solution, and the future regulation will be based on precise regulation, and the transaction chain of tokens will share part of the transaction volume. Therefore there will not be too much pressure on the main trading chain of CyberFang. Some people may question that such a scheme means that the miners of the trading chain of CyberPalace are of an "elite" nature. This is indeed a problem for CyberFang, but this "elite" can be regulated by the state, even by the state institutions themselves. On this basis, for some real people who need strong incentives, the state can adjust the exchange rate of tokens to Cybercoins, so that a token is more valuable than a Cybercoin, for example, $0.8 \text{ a token} = 1 \text{ Cybercoin}$, so that there is no mining user on the main trading chain who is more "elite" in terms of coin value. But since the main trading chain is responsible for most of the transactions (because all tokens must be exchanged for cybercoins, the number of transactions recorded on the trading chain must be more than that on the token trading chain), the main chain must require more computing power. Therefore, under the mechanism of Pow, it must be the one with high arithmetic power that has the advantage. But this "elite" can be relieved by the first 3 options. Even this "elite" can be the national institution. In other words, only state institutions are allowed to mine on the main chain to ensure the decentralization of other token chains. But in fact, you can also set the consensus of the main chain as Ethash consensus to solve the problem caused by arithmetic power. All these can alleviate this disguised "elitism".

4.1.1 Transaction chain blocks

The block header content is mostly similar to that of Ether, with only the following to clarify.

stateRoot: Keccak256 hash of the root node of the state tree (state trie) after all transactions

are executed and the block is finalized; note that in CyberFang, this is only the state tree on the transaction chain. Not to be confused with the spatial tree state.

Difficulty: a purely quantitative value of the current block difficulty level, which in Etherpad is calculated based on the difficulty level and timestamp of the previous block. And in CyberFang, the difficulty also needs to be added to the self-set value of the tap account (central bank). It is denoted by H , i.e.: $H = T + BD \vee F$ (where F stands for the real-world regulation scheme of the tap account, T stands for the time used to calculate the previous block and the current block, and BD is the difficulty of the previous block); the difficulty is automatically calculated in general according to a pre-defined difficulty calculation rule ($T + BD$). The central bank can then regulate the difficulty of mining according to different circumstances. The advantage of doing this is that it completes the regulation of the desire to mine in Cyberspace, while helping mining accounts to increase or decrease their motivation to mine. Since the accounts are issued as well as regulated by the state, this can be used to ensure social security for the corresponding population. But if it is too much, their enthusiasm to work in the real world will be reduced again. Therefore, it can be regulated by a token system (through contracts and internal instructions of the Cyberspace virtual machine) depending on the period of time and even on different accounts.

gasLimit: the current upper limit of gas spending per block; according to the previous analysis, this is the upper limit of the symbolic desire value that Cyber individuals are willing to spend on this block.

gasUsed: the sum of the gas used by all transactions of the current block; in cyberspatial perspective, he means the symbolic desire value consumed to mine the block.

Nonce: a 64-bit value used together with mixHash to prove that the current block already carries enough computation. In Cybernetics, he implements the second axiom and its corollaries to guarantee the stability of the transaction chain.

4.1.2 Mining

The mining process is similar to Ether, with only the following to clarify.

The most important element of the mining ***tax is that*** mining requires a portion of the mining rewards to be paid to the central bank in the form of a "tax". For the central bank to regulate. This article is a mandatory contract. For each mining reward role. By regulating the size of the tax paid, the central bank account can regulate the motivation of the mining account. For example, if the mining account can live only by mining and does not go to work or labor, the tax rate is regulated higher; if the mining account needs support, the tax rate is lowered. In addition, the feasibility of the state being able to collect taxes on virtual currencies is that cyberspace is not really a space that affects people's lives, so collecting taxes does not affect people's real-world lives, but only diminishes the rewards that come from cyberspace. In other words, people will only get less rewards, but not the original income. From the perspective of real life, rewards are always positive (without taking into account the psychology of people suffering from uneven distribution of rewards), so taxing rewards is just, it just makes people less rewards. At the same time, taxation can ensure the stability of the

cyberspace and maintain the healthy development of the cyberspace. Therefore, taxation of cybercoins is just. In addition, the tax can prevent people from being too dependent on the Cyberspace and improve the meaning of real life. It can also help the social people who have difficulties in the real world and implement the regulation of the society. In fact, since Cyberspace prohibits non-individuals from mining in the case of the state, it means that mining accounts will always be personal and most people will still be real-life people, so he does not need much virtual currency. Besides, virtual currencies are of limited use (we will talk about that in the next chapter).

Consensus ***mechanism*** Another key is the mining consensus mechanism. Mining on the transaction chain is still done in the Ethash way, i.e., by randomly finding the corresponding instruction element in the dataset to gain on-chain power. The Bitcoin Pow mechanism can also be used to obtain the up-chain power by calculating the hash function. For CyberFang from the state perspective, since the account is issued by the state to specific users (often the masses who need social help) and mining by non-individual users is prohibited, the system can be guaranteed to operate by the state by directly issuing mining machines. This then means that mining has real-world implications - it can lead to the development of the downstream industry chain. Improve the development of domestic computer-related industries. Revitalize the computer downstream industry chain. At the same time, since the national infrastructure is all in place, it is only necessary to provide incentives for computer purchases directly to remote areas and poor users, or even to give away computer equipment directly to achieve incentives for the computer industry. To complete the export of electronic equipment to domestic sales, the electronic equipment industry has a better ability to resist the economic crisis (just as the village project solved a large number of exports of home appliances to domestic sales, saving a number of enterprises). At the same time, he can also drive the rural economy and become a growth point for rural revitalization. Of course, this is based on the perfect road, electricity and network infrastructure in China. It is for this reason that I think there is no need to adopt the consensus mechanism of Pos in the transaction chain. although the consensus mechanisms of Pow and Ethash consume electricity and rely on equipment, the bad effects of the consumed electricity and consumed equipment are far less than the stimulation of the economy and the incentive effect on the country's overall high-tech industry. Under the regulation of the state, the utilization of electricity for mining on the trading chain is very high. Likewise, he structure is more favorable to the stability of the cyberspace than the Pos mechanism, which does not have to take a sham form of equity system to vote out blocks on the chain. As a result, the state is also able to regulate more detailed downstream industry development by switching between Pow and Ethash consensus. For example, adopting Pow strengthens the research motivation and downstream industry development of graphics card and Cpu companies. Adopting Ethash consensus is more favorable to network bandwidth, memory, smartphones, home computers overall research and downstream industry development. Similarly, since the mining account of CyberFang is directly issued by the state to specific people and collective mining is not allowed. Decentralization on the device is thus well ensured.

Mining ***Rewards*** Mining rewards like Ether contains (1) block rewards; (2) uncle block rewards;

(3) uncle block citation rewards; and the difference of Cyber Place lies in the fact that the number of uncle blocks can be set higher (Ether is up to 8, while the highest uncle block reward is 7/8). For Cyber Square in the national situation, the number of uncle blocks can be greatly increased. It is also possible to increase the reward of uncle block references, while the Ether of a block's reward can be adjusted according to the Cybernet space (the function of Cyberfang's space tree is to achieve this).

The formula for the uncle block bonus is as follows.

$$\text{uncle block bonus} = (\text{uncle block height} - \text{block height of referenced uncle block} + n) * 1/n \text{ of ordinary block; (positive values only)}$$

where n represents the number of uncle blocks set under different ideological endorsements, 8 for Ether.

Mining **Client** There is a specific mining client for mining accounts. It contains everything that is available in the regular user (EOA) client, and adds mining functionality to it. Please refer to the section General User Client for the contents of the General Account Client. The client is divided into computer side and cell phone side, the computer side can support Pos, Pow, Ethash consensus, the cell phone side currently only supports Pos, Ethash consensus.

Statistics of symbolic desires on the transaction chain Reflecting cyberspace is the hallmark of Cyber Place. In addition to the structure on the transaction chain. A website dedicated to statistics of various data on the transaction chain is also needed. Each transaction on the transaction chain represents an exchange of desires in cyberspace. Therefore there is a need to count the symbolic desires of cyberspace reflected by the transaction chain. This is also very easy to achieve, because the transaction chain is essentially a public distributed bookkeeping, while CyberFang is still in the form of an account. Any website with the permission of the central bank can do this work (the significance of such statistics is significant, see 4.3 for details). It is possible to leave this work to the commercial Internet companies of the society to realize it.

4.1.3 Token system on the transaction chain (involved after filling up)

The token system on the trading chain is built on the fact that the filling of CyberFang has reached a certain level. The original intention of the token system design is that in the case of the state, in order to better distinguish between different trading chain accounts and achieve more detailed macro-regulation by the state, it is possible to start the re-symbolization of Cyber Place on the trading chain based on a token contract similar to the Ether ERC20 contract. Since this work must be considered when the application of CyberFang reaches a certain level, here is a brief introduction of the idea first.

In the case of the state. The state needs to macro-regulate as well as help specific groups of people. Therefore it is inevitable to create some sub-accounts on the trading chain.

However, in order to differentiate the different accounts in the trading chain, it also means that mining in different token systems is needed. Thus new trading chains as well as token systems have to be created. For accounts, they can be distinguished according to realistic policies. For example, Gansu province help account, Yunnan province help account for laid-off workers, Guizhou city self-purchase mining machine policy account, etc. Different tokens can be set for each different type. Then it can be exchanged into the corresponding Cybercoins according to the policy. The tax deduction is also achieved by deducting the corresponding Cybercoins at the exchange rate exchanged at that time.

The token system is entirely set up according to reality and therefore necessarily under the centralization of the tap account. As CyberFang is not yet full, here we leave room for the token system to be applied, but he is unable to go into detail as it is a realistic practice.

4.2 Space tree section

The spatial tree of Cyberworks is the core part of Cyberworks to achieve its purpose. It is a state-space structure based on the Polka (Plokadot) architecture. It contains a general workshop and a relay structure to be audited (called relay workshop) for auditing, as well as a structural schema reflecting the Cyberspace at all times. What he is going to get at the end is a structure of symbolic desire relations about all cyber subjects in cyberspace. It is because the spatial tree reflects the structure of Cyberspace that it is called a spatial tree. At the same time, since it records the symbolic desires of the cyberspace subjects, he can also be called a desire tree or a cyber tree. However, in order to distinguish it from the state tree structure on the transaction chain, I generally do not call it a state tree (although he does record the state of the whole Cyberspace). The main task of the spatial tree is: to record a perfect and constant reflection of the network behavior in the whole cyberspace and to derive a structural map of the recorded behavior and to ensure its relative accuracy by a review mechanism. To provide a basis for the issuance of rewards by the central bank.

Since the spatial tree records cyberspace states and not transactions, he does not use transactions as the state transition function. However, since cyberspace is not a linear structure, it does not satisfy the self-stabilizing linear development law of cyberspace (i.e., Axiom 2), so we need to guarantee the credibility of the state to derive a more accurate and complex cyberspace structure. The credibility of the state is the "mining" process of the spatial tree. The credit approval of the spatial state by each account determines the structural transformation of the spatial tree, which is rewarded by the "mining" (later called "approval").

The state transition of the spatial tree is to do the state transition by the fully approved state, he contains three approved state changes, his state transition function is.

$$\sigma+1 = \text{network behavior approved structure} + \sigma$$

where σ denotes the current state of the spatial tree.

Among them.

Network behavior approval structure = approval of each general account + node-wide status approval + final central bank approval.

Among them.

The "approval structure for each general account" is a mandatory decentralized review mechanism, while the "full node status approval structure" and the "central bank final approval structure" are also in the structure design. However, it has a lower priority and can even be replaced by Pos mechanism in some cases. In other words, the approval of each general account (including mining accounts) is always approved in a decentralized way in general. The full node account is then handled by Pos consensus, and his state transition is subject to the winning structure proposal in the Pos vote.

4.2.1 Hierarchical assembly shop with space tree

The space tree is composed of two hierarchical structures. Similar to the parallel chain and relay chain composition of Polka, but not exactly, first of all it is no longer a chain, but a normal workshop and a relay workshop. Again, the relationship between them is hierarchical and decentralized. There is a "parallel pool", a data workshop for general accounts. The relay workshop is a relay data workshop. The structure of the entire spatial tree is divided into two parts. The "mining" is the process of finding the behavior data blocks of the associated cyber subjects in the cyberspace (essentially an audit), and the audit of the spatial tree structure of the full node accounts in the relay workshop. This process needs to be divided into two parts to ensure decentralization. and the fairness of the user to get the corresponding reward.

The entire spatial tree runs in cycles, with the final spatial tree state submitted once a cycle, with the following flow.

- 1, first of all, the general account has a general account client, which will record the behavior of the general user when surfing the Internet (privacy issues we will discuss in the next chapter), note that the client does not record the behavior of the general account's Cyber individual only related to the Cyber platform (i.e., the behavior of the network in the non-public private homepage, chat software, etc.). Chatting on a private chat software is not recorded because he does not generate a public web page. (From a cyberspace perspective, the behavior of private chat software is only using the web as a communication tool, and thus does not count as symbolic desire). A normal client will pack a user behavior into a data block, plus the private key, and put it into the normal user's normal workshop along with the public key.

2. The data workshop of ordinary user is a cache space, he is supported by decentralized cloud storage technology, he does not need a large space because every once in a while, this storage space will be liquidated to transfer all data to the relay data workshop. In the data workshop of ordinary users, ordinary users decrypt the data blocks uploaded by all users with public keys, get the data, and do the integration of the data that are related. Firstly, the data needs to be processed into a structure of a chain table so that it gets a data part with a pointer part. The pointer part is used to connect the related blocks. For example, if a comment in a data block uploaded is a reply to another comment, then that data block associated with him is linked together based on the timestamped content of the data block. A chain or tree structure is formed. Here, the more cyberspace related actions there are, the more complex the structure is and the heavier the chain. At the same time, this indicates that it is more credible in the cyberspace (i.e., it prevents repetitive commenting that would deliberately damage the network environment). In the general account workshop, general accounts (mining accounts of trading chains are of course included in it) are able to participate in the integration of the state structure. The function of the general account is to integrate the network behavior to form the heaviest possible chain; another job is to review the general workshop for a general account that self-replies with comment swiping. (See the next section)

Every time T , the data workshop of ordinary users will be cleared. During the first t time, do the following operations: (1) All ordinary users decide whether to continue to participate in the audit of the relay workshop. (Because the audit of relay workshop has requirements on bandwidth as well as equipment, he will occupy too much bandwidth as well as equipment resources, which will slow down the Internet access and make the equipment load higher. This is the reason why the space tree is divided into two data shops for processing. (Ordinary accounts can choose to participate only in the integration work of the ordinary workshop when using the equipment; and choose the work of the relay workshop when the equipment is idle), those who choose to continue to work in the relay workshop become a space tree light node (can be set by themselves in the client). (2) a. Transfer all the combined and non-combined chains and blocks and "special single interaction" (i.e., recording video, article, and live-starting behavior) to the relay workshop; b. Put the orphaned blocks that come in within time t into the relay workshop (to prevent them from being discarded before they are assembled); c. Discard those "blocks" that do not The "single interaction behavior" of orphan blocks that do not enter the shop at time t is discarded. This behavior can be performed right at the beginning of t . (3) Approve the orphaned blocks discarded at time t for a swipe attack (see the Audit section). The result of the first audit is submitted (the act is called "first audit") and needs to be broadcasted to the whole network for confirmation, and the auditor gets a reward from the tap account. (4) Start the next cycle of general workshop integration.

In addition, during time t , the tap account will record the packer's reward, and the reward will be issued in the next cycle and treated as a transaction chain transfer that is recorded on the transaction chain. for the transaction chain miner to pack up the chain. If the transaction chain is blocked at a certain time, the reward is delayed and issued with subsequent rewards (the billing for each account is recorded in the faucet account, allowing for multiple payments to be temporarily stored and issued at once. (The faucet account has a realistic centralized protection mechanism).

3. The relay workshop is the final data integration pool. Compared with the normal workshop, he has two types of account identities: first, light node account (i.e., the same EOA that enters the data workshop). Second, the full node account; he is the account with centralization. Keeps the current state of the Cyberspace structure (this Cyberspace structure is not a database where the data of the whole Internet is stored. It is just the result of the spatial tree structure obtained during the last spatial tree cycle, which is downloaded from the tap account and saved by the full node account itself.) and the mechanism of searching the whole Internet. That is, the full-node account is actually a network search engine. He can traverse all the web space (of course, different search engines search in different ways as well as with different results, which is a matter for the full-node account itself).

The full node accounts in the relay workshop are often big cyber platforms, large websites, government websites, government regulation accounts, etc. For major Internet platforms to come, he can share the data inside his server in the relay workshop. This part of the data is highly credible (backed by real companies) and can help record more accurate data on the Internet. This includes the number of videos played, the number of plays, likes, views, etc. without differentiating from differentiating users. The publication of these data can earn rewards from the tap account. Under the Cyber platform there are cyber self-publishers

who upload videos, articles and live views of live streams. If the Cyber platform discloses the internal data of the server, the number of plays of the self-publishing account equals to get the verification and can reward the related behavior. The Cyber platform also gets the reward. If the content uploaded by the self-publisher has airtime when the platform publishes the data, then you can set a conversion function between a certain amount of airtime (likes, views) and "multiple interactions" (e.g. 100 airtime equals one comment interaction). After converting to "multi-interaction behavior", all the behaviors of the homepage are combined, added to the block and put into the structure. If some video bloggers and anchors upload videos and articles with high play volume, but no one comments on them, and the server does not publish the internal data of the server, they cannot get credit (other cyber subjects do not have the condition of active behavior to record play volume), and they may be discarded as "single interaction behavior" (even in the relay). In the workshop, "single interaction" is marked as special. But this special means that it can bypass the first discard, i.e. the discard in the normal workshop, but not the discard in the relay workshop). If a video is uploaded and there is no proof of play or like from the server. But there are comments, then it is treated as a comment interaction and the "special" flag is removed here. Thus, the action (e.g. posting a video) is treated as just one "multi-interaction" (e.g. more than two Cyber subjects commenting back). This means that it will not be rewarded with a play portion.

Since the relay shop is equivalent to a search engine, this means that practically the whole Internet space becomes a huge database. And the structure we have to deal with is again a block of data consisting mainly of URLs, IP addresses, and names of cyber subjects. And all the web pages in cyberspace are also an address. All the addresses within the data block are also combined in cyberspace with just a number of elements (i.e., numbers of IP addresses). In other words, the whole network becomes the DAG in Ethash consensus, and the light node is the audit process that goes in the database to confirm whether the structure of the full node account is correct. In short, it is the process where the full node account uses its full node advantage to integrate first, and then the light node account acts as a reviewer to review the full node account through the data of the existing data blocks. This review process is the mining process of the light node account. Since it is the second review after the regular workshop, it is called "second review". Light nodes are reviewed not through the full node account, but by visiting the website itself (bypassing the DNS server). This may seem like an unnecessary burden on the web server. However, since the data blocks at this stage have already been integrated first. Visiting one of them determines the accuracy of the entire block associated with it (most of the comments are in the same page). Therefore it does not add too much burden to the server.

In addition to confirming that the behavior is saved on the Internet, the audit also includes a review of some malicious behavior (see the section on auditing).

In addition, at the end of the second audit, i.e., in time $r-r$, the tap account issues a reward for the second audit, and the reward is treated as a transfer from the tap account to the light node account; it is recorded on the trading chain and waits for the miners on the trading chain to book it on the chain (again, it is possible to sign an account opening agreement in such a way that it exists in the central bank account first, which can ensure the reduction of the number of trading chain transactions and prevent congestion on the trading chain). Note that until the end of the third audit, within the time r , can still continue to do the second audit

work continuously.

4. When the full node account receives data from the general workshop, the first thing it does is to unpack the packet and check whether the behavior chain inside is already on the behavior that has been recorded. If it is, discard and broadcast it to the whole workshop. If not, it is considered as new structural content.

Every R-r time, the node-wide accounts compile a structure based on individual cyborgs and broadcast it to all accounts. At the same time, we discard the "special single-interaction behaviors" that are not supported by the data published by the cyber platform (i.e., cyber self-publishing behaviors that are not supported by the cyber platform in terms of the number of plays and likes, and no one comments on them) in the R-r time. We also quantify and convert the status of the likes and broadcasts of the Cyber Subjects that are supported by the data provided by the server (also converting the number of broadcasts and likes into the behavior related to the Cyber Subject). The structural state of the external broadcast is centered on a tree structure, and each tree node has a packer, i.e., a Cyber Place account, to endorse the block content. That is, the whole structure map needs to be recorded with the Cyber Place account number (i.e. packer) as the block tree node. The internal structure of the block is a structure recorded by the cyberspace behavior of the cyber individual. The internal structure is distinguished by the domain name, IP address, and username obtained from the web pages parsed by the client. In other words, here the structure map forms a three-dimensional structure. However, this "three-dimensional structure" is a paradoxical one. It can be recorded in only two sets of hierarchical desire diagrams (see 4.3). In other words, the accounts in Cyberworks are not related to the network actors recorded in the spatial tree. As an example. Suppose my CyberFang account address is: 0f7b73f3034d0d17a165e4cf50bd77051235b4e6; and the web page of cyberspace behavior recorded through this CyberFang account is: <https://space.bilibili.com/90070513> (or for some IP), and the user name is. Qian Jindo (of course, it is a string of code after encryption, and here, for the sake of example, we directly show the decrypted content). The Cyber Place address is not associated with this Cyber Subject. That is to say, the client records only the behavior of a web page seen on an account, and does not logically determine what the relationship is between this Cyber Place account and so-and-so Cyber Subject on a website, and does not determine that a website is the personal homepage of the holder of a certain Cyber Account. Likewise, what is reflected in the structure is only the relationship of the behavior based on the Cyber Place account, without associating the relationship between the account and the cyber subject.

Since each light node account uses a different plugin for parsing web pages, the number of reviews of a packet can vary. Thus disputes arise over some web behaviors and the packets thus constituted. Some audit accounts will consider the audit passed. Some accounts do not. Still other accounts do not observe it. As for the full-node account, he has to grasp the entire network space structure and derive a spatial tree. Therefore he is bound to be caught in a kind of ambivalence about the disputed block. How to choose whether to believe this disputed block or not, CyberFang leaves this power to the full-node account itself. He can confirm it by himself by means of his own page traversal, or he can confirm it by the degree of trust he has with other full-node accounts. In short, it will make different full-node accounts

get different tree structures of blocks in the end. Thus, the final spatial structure will be different. (Of course, in a decentralized broadcast, most of the blocks are identical and there must be identical parts.) The task in $R-r$ time is to confirm the identical parts of the structure and upload them to the central bank. And the controversially dissimilar parts are elected using Pos consensus.

For disparate structures, one needs to rely on a contract that implements Pos. All full node accounts with Pos consensus are allowed to propose their own different structure proposals separately. More than half of the structure parts can be adopted. The part of the structure with less than half is discarded. Note that a tie may occur if there is an even number of all-node accounts voting to participate. The tie is considered as adoption of the data block. This Pos consensus mechanism consumes time r . Within r time, the discarded non-identical structures can be subject to re-audit by the light node accounts, this is called the third audit. If more than half of the light node accounts approve this action, then he will be finally added to the final structure. This work is done by the light node accounts directly associated with the central bank. It is a complement to the final structure. Eventually the central bank confirms the final review result and adds it to the final structure graph, which is broadcasted to the whole network. The full nodes store the final structure themselves as the basis for the next cycle. The end of r time (and also the end of R , the end of the cycle) is declared only when the central bank has released the final spatial tree structure map and all full node accounts have broadcast that they have downloaded the latest structure map.

The Central Bank issues rewards in a final structure, which includes rewards to the Cyber platform (i.e., rewards for sharing internal data on its servers). Second audit reward (to light node accounts). The collation reward for full node accounts. As well as rewards for special interactions in the final structure where the platform server provides data that can be verified, i.e., rewards to self-publishing subjects for replenishment. Finally, the issuance of rewards for the underlying behavior (it seems that this data will be very large, but the central bank has enough time - the time of a cyberfang cycle - to process them. And he has centralization, it doesn't matter how good the equipment is used. (It is even possible to use arithmetic coordination to coordinate the arithmetic in the community). These rewards can be stored in the central bank servers and disbursed in a lump sum when the transaction chain is free, or you can simply sign a central bank account agreement with the CyberFang account. The rewards earned will be stored in the central bank in the form of demand deposits. Access it anytime. Stress on the transaction chain can be reduced. The final structure tree is transferred to the statistics office and processed statistically, and eventually the results of various data such as the state of the Internet over a period of time are published to the whole society (as economic indicators are published).

5. A cycle ends and a new cycle begins; note here that the network space tree may not always be 100% accurate at the end of a cycle. But because the network behavior in the later cycles will be built on the existing network space structure, so he is bound to slowly fill in the missing parts. The extra part, compared to the real structure, is at the edge of the structure because the wrong ones are always in the minority. Often they will only be confirmed once or twice and they will be viewed as inaccurate data.

4.2.2 Workshop finishing and audit rewards

All rewards of the Space Tree are issued by the tap account (central bank), and the central bank "reserves" are derived from taxes in the chain of transactions and from virtual cybercoins issued by institutional macro-regulation.

The first is a reward for packing among ordinary workshops. Since the base of the structure is a structural record of behaviors that have a Cybershop account. So if a behavior is not associated with other Cyberworks accounts. That is, no other Cyberworks account has also recorded this behavior. Then it will be considered as a "single interaction", i.e. an absolute orphan block. No reward will be issued. During the time t of the transfer from the normal workshop to the relay workshop, a bonus is issued for the transferred packets.

Reward for general workshop finishers.

The reward rule is a linear function of $h = kx + a$, i.e., the more data packed, the more rewards are earned. Where a is the base reward supplement, k is the reward base for each block, and x is the number of blocks (x is greater than or equal to two). a can be positive or negative. Water supply tap account adjustment. Such a reward mechanism means that whenever a word comment is made in public cyberspace and someone replies, if the interaction is recorded by another CyberFang account at the same time, the packer gets the reward and the person who sent the action also gets the reward (which is issued last).

Secondly, the relay workshop auditors are rewarded for.

The total value of rewards implied by a packet is g_x . In the second review, every reviewer who confirms the structure gets $g_x = kb$, k is the reward base, and b is the sum of the number of confirmations of this block structure in the second review. That is, the number of times the behavior is observed by different light node accounts. Since each light node account is only confirmed once for one behavior at a time during the review. Therefore b is the number of light node accounts that are concerned about this behavior. Therefore, his meaning is both the sum of the number of audits of one data within the relay shop. It is also the number of light node accounts within the relay shop that observed this packet in time R . The second review is settled every time $R-r$ (each reviewer receives a bonus of $g_x = kb$). And different structural parts. First it is necessary to select more than half of the approved structures by the Pos mechanism of the full node accounts. Then the number of confirmations reviewed in the second review is used to calculate. For example, the Pos mechanism passes a packet that more than half of all nodes have. And this packet is acknowledged 126 times in the second audit. Then all these 126 auditors are rewarded with $126k$. There is no reward for the discarded part. That means the final reviewer gets a reward of $G_x = g_x + g'_x$. This means that the more people confirm the accuracy of a block, the higher the reward he is able to offer to all the reviewers involved. Similarly, the full node account gets more rewards.

The second is to reward the full node on the relay chain.

The total value of the reward is the sum of the reward audits for the number of data blocks for all structures added in time R . Let the total value of rewards for the second review

of a data block be g_x , and the total value of rewards for all structures of the full node account be G . Then, the same structures make each full node account to receive rewards for the corresponding data block in R time. Let the total value of rewards for data blocks elected by Pos voting that are not identical structures be g'_x . $g'_x = kc_x$, c_x is the total number of confirmed, which is the average number of reviews among all proposals with this data block, and the expression is $c_x = (c_1 + c_2 + \dots + c_n)/n$, for example, the full node accounts A, B and C have this structure. And this data block is finally voted to be confirmed. Then its review count is the average of the review counts for each full-node account with this structure. If a full-node account does not have this voted block. then he does not get the reward for this block.

The final reward value received by a full node account = the reward value of the same structural data block that all accounts agree on + the reward value of the data block that is present in their own proposal and passed. That is, $G = g_x + g'_x$

Among them.

The reward value of the same structural data block that all accounts agree on = the sum of each identical structural block, i.e. $g_1 + g_2 + g_3 + \dots + g_x$, and the sum of each data block = the sum of the audit reward base * audit confirmations, i.e. $g_x = kb$.

sum of audit confirmations = sum of audit confirmations for all light node accounts = number of all light node accounts that follow the data.

Reward value of individual data blocks that have in their own proposal and passed the election = review reward base * sum of other reviews with that structure recorded in different proposals. That is, $g'_x = k(c_1 + c_2 + \dots + c_n)/n$; the total value of the rewards for data blocks that have and passed the election in their own proposal = $g'_1 + g'_2 + g'_3 + \dots + g'_x$

Finally, there is a reward for the third review. Since there is no full node account participating in the third review, but rather a light node account supplementing the review. Therefore it is only necessary that the faucet accounts give a value j , and each participating account in the review just shares it equally. Third review reward per account per data structure = j/n ; total value of the reward received by each general account for the third review = $j_1/n + j_2/n + j_3/n + \dots + j_x/n$

In addition, for blocks that are reviewed for problems, the account that reviewed the problem will receive a bonus commensurate with the number of blocks in question.

There also needs to be a function that indicates how many different plays, likes, and views are considered to be review interactions (all packed into a block, e.g. 10,000 plays equals one single interaction. The data in the record block is 40,000 plays, so the person with the video upload behavior is rewarded with 4x the number of single interactions, as is the reviewer who reviews this data). This can be set flexibly according to different moderation policies and different cyber platforms, so the formula is not given here.

Finally there is the analysis of the final uploaded structure map and the issuance of a reward for each actor. The amount of his reward is equal to the amount of the reward for the review. The issuer of the behavior gets three times the k -reward. That is, the behavior undergoes three reviews. Note here that rewards for behaviors are issued only based on the final structure. Proposals for other full-node structures are considered as sibling structures, and there are necessarily parts of the sibling structures that are identical to the final structure

that issue rewards to full-node accounts. As for the behavior issuer and reviewer, he may pack and issue behaviors that are not in the final structure but only in the sibling structure, and then he cannot get the reward.

The issuance of behavioral rewards for the final structure needs to be parsed for a period of time before issuing them to obtain the Cyber Place account corresponding to the packer of the lowest level behavioral data. This takes into account the data processing capacity of the tap account. But the tap account usually has nothing to do. He has enough T+R time to issue on rewards. It is also possible to store rewards to be issued together. If it would cause congestion in the disbursement calculation. Then other central nodes would be needed to help in that way. Or remote coordination of data processing capabilities. As well as increasing the T,R time to ease the congestion of the reward calculation.

The above rewards are issued by the tap account at time t for the regular workshop, time R-r for the relay workshop, and time point r for the relay workshop, respectively. All three issuances of rewards are treated as transfers from the tap account to the corresponding accounts. All are recorded separately in the transaction chain at different times. Since there may be a large amount of money transferred from the faucet account to each account as rewards at a certain time thus causing congestion in the transaction chain. It is possible to slow down the release of rewards when the chain is congested. First record within the faucet account, and then combine many of the same rewards over a certain period of time and pay them all at once during the free time. It is also possible for the faucet account to enter into an agreement with other accounts to open an account, and then the rewards are considered as demand deposits stored in the central bank. The transfer will be made at any time when needed.

Packing ***advantage*** It can be found that in the ordinary workshop packing time, if the behavior is sent by oneself, especially when it is sent to someone else's reply, the client can record it before sending by oneself. Therefore, the Cybershop account records the behavior sent by its own Cybershop subject with the packing and finishing process is always one step faster than others integration, which is a self-sending advantage, and he can motivate people to reply to the behavior related to packing themselves.

4.2.3 Block and structure of space tree

Contents of spatial tree block The desire relationship structure of the spatial tree is based on the tree structure. On the basis of the tree structure it is possible to take the expansion of the tree structure to constitute a discrete topological structure, so as to go beyond the cyberspace structure with this structure. It is also possible to constitute a linear structure path structure within the cyberspace to examine the development of a part of the cyber subject. But they are all based on the tree structure as the center. Therefore, for the description of the spatial tree of Cyber Place, we take the tree structure as the main object of description. Or rather, take the tree structure as the logical starting point for discussing other structures. The spatial tree of CyberPalace is actually the externalization of the tree structure of the whole network space (including the transaction chain of CyberPalace itself). It combines the symbolic

desire relations among Cyber subjects. At the same time, the structure of the network, the data storage structure of the computer, is also a tree structure on this basis (which is the embodiment of the axioms of Cyberspace).

Behavior ***recording In*** order to organize the Cyberspace structure, then it is necessary to make a record of the behavior in the Cyberspace determination. Behaviors are distinguished as follows.

1. Non-symbolic desire, unrecorded online communication behavior; this type of behavior is in the private space of the app (such as WeChat, etc.), he is not regarded as a symbolic desire because it is related to real life and people also use such chat as a way of interpersonal communication. It is not in the scope of cyberspatial studies and therefore will not be recorded. And to protect privacy this kind of behavior is also forbidden to be recorded.

2. The behavior that only interacts with the Cyber platform. This behavior is more complicated and divided into the following cases: (1) behavior in online games: according to the previous analysis, online games are undoubtedly symbolic desires. However, since the specific behaviors within the online game have been marked by the tokens of the online game, only the exchange rate between tokens and cybercoins in the online game needs to be recorded (when the filling plan of cyberspace is completed, cybercoins can be directly used as in-game currency in the online game). At the same time, one might be willing to spend real money to buy symbolic virtual goods in the online game, and he simultaneously marks the symbolic desires with fiat money. Therefore no records are needed. He is related to the real world and only needs to check the financial statements of each online game to know it. But some people might think that symbolic desires in online games will affect cyberspace. But this point is actually a superfluous worry, because symbolic desire either has to be expressed with the help of comments and the behavior of circles in cyberspace. Either it reacts to reality. In the former case, our record of cyberspace behavior already reflects this, while in the latter case, his reaction to reality transforms symbolic desire into real desire, and therefore does not need to be recorded. He promotes the development of the reality industry (although consumerist, it is impossible to remove it completely, and under the control of the network, this symbolic desire will reach an equilibrium without becoming too large, which is the effect of the network regulation). Therefore, there is no need to record the individual's various behaviors in playing online games. (2) Stand-alone, independent games: stand-alone games generally need to spend money to buy first, and there is no cyberspace relationship for the behaviors in stand-alone games. Therefore, there is no need to record them. Even if the stand-alone game forms a symbolic desire. Then he either turns into real consumerist desire or forms a cyber circle in cyberspace to express it. (3) The number of likes and views of videos, articles and artworks are recorded. There is a distinction here: First, some cyber platforms only record one number of likes even in the platform server. Then this kind of interaction can only be provided by the open data of the cyber platform to provide an overall desire about a cyber subject. For example, a cyber blogger uploaded a video. The number of video plays is 10000. if the cyber platform, as a full node account, is willing to publish such data under a realistic agreement, then he can serve as a symbolic desire obtained by that cyber self-publisher. Include the

name of the cyber subject in the relay workshop structure in relation to the cyber platform. For example, record its video play volume 10000. then put it into the structure by the play volume conversion function. Later, when the final structure is accounted for, the reward is calculated using the converted "multi-interaction behavior". If the Cyber platform is not willing to disclose this data. Then neither side will be rewarded. The possible scenario is: for the cyber self-publisher, he is likely to switch to a platform that has signed a contract with the central bank to disclose the server data to upload videos. At the same time, for the cyber individual, if the cyber platform does not disclose this part of the data. Then there is no behavior to support the recording of plays and likes. Then he will not constitute a condition to be recorded. Therefore it will not be recorded. In other words. For the like behavior that only records the number of likes. The likes of an individual Saibo will not be recorded. Because it only constitutes an interaction between the individual and the platform, and the platform is recorded mechanically in the code. It is not an interaction between individual cyborgs. Therefore it will not be recorded. This also means that the number of likes, views, and page views of a cyber individual without behavioral support is just the basis for the central bank to issue rewards to cyber self-publishers for uploading videos, relying on the willingness of the platform to publicly have the data of that user to support it. In this act, the only ones who get rewarded are the cyber self-publishers with video production rights and the cyber platform, while cyber individuals cannot get rewarded if they only like.

Another scenario is to record the user's likes and viewing behavior. However, it is possible that the user does not have access to such information from the web page (the client cannot get it by analyzing the web page). This situation therefore relies more on the platform's initiative to publish it. This may involve the commercial privacy of the web platform versus the privacy of the Cyber individual. This requires the technology of privacy computing. If the privacy computing technology is realized, the likes of a Cyber individual will be recorded in the Cyberspace tree structure every time he likes because of the differentiation of users, and thus he will be rewarded. The corresponding self-publisher and the Cyber platform will also be rewarded, of course, if the server publishes the data and provides the possibility for the Cyberspace account to access it (i.e., by making a web page or providing a server port that directly indicates this behavior), so that the light node account can be audited.

In short, the corresponding rewards given directly by the tap account to the cyber self-publisher are based on the total value of the identifiable number of plays as well as comments. The cyber platform's, on the other hand, is rewarded by the central bank through the cyber subject whose data he has published in relation to it. This means that some self-publishing bloggers are paid by the state. For the cyber platform, the open data also allows its anchors to get more income, so that more anchors come to their platform to publish their works. They can also get more income from the state. This will incentivize the cyber platforms to share their server data. As well as the self-publishing media to create more virtuous art.

3. "Single-interaction behavior" - refers to the behavior of only one non-Sabotage subject in the cyberspace. For example, you post a message *on your own public* personal page (e.g. Weibo) and no one comments or likes it. At this point you constitute a single interaction with your own homepage (as a Cyber self-publisher). To protect privacy, you can choose to make the page private or turn off the client when you do, and of course you can't get a reward for

this behavior. Because the client only records the number of behaviors but not the content, and does not associate the Cyber Subject with the Cyber Place account. Therefore, he will be put into the normal workshop as one interaction. But the comment will eventually become an orphan block and be discarded by the normal workshop if there are no more interactions for that comment. And no reward is given.

4, "multi-interaction behavior" - greater than or equal to three other cyber subjects (not including cyber platform) interaction relationship behavior. Regardless of whether there is a Cyber self-publishing homepage (i.e., no need to comment under a certain self-publishing homepage, this point is the key to determine the future Cyber circle).

5、Saber self-publishing behavior - uploading, posting, opening live stream, etc. will be recorded. It is marked as a "special single interaction". The URL that is marked as a special "single interaction" is the homepage of the self-publisher (i.e. the homepage generated after uploading content). The special "single interaction" can avoid the abandonment of the "single interaction" by the first general workshop, and enter the relay workshop, wait, and see if the server discloses the data. If there are comments, but no public data, then the comment is recorded and is treated as a single comment; if there are comments and server data, then the number of views, likes, and plays are converted to the corresponding "multiple interactions" by the redemption function in exchange for a reward. If none of them are available, they are considered as "single interaction" and will be discarded at the node of time R.

Note that Cyber self-packaged acts need to be authenticated by real names to become special external accounts of Cyber self-packaged acts. Because Cyber Place does not associate ordinary accounts with Cyber Subjects, the rewards for acts are also issued on Cyber accounts that are packaged with acts (it is perfectly possible for other Cyber Place accounts to be packaged, only that their own packaging has the advantage of packaging). But the reward distribution of the cyber self-publisher is different. This is because he records Cyber self-publishing uploads with multi-behavior specificity, and this multi-behavior specificity means that one upload is treated as several Cyberspace behaviors (different conversion functions mean different values). Therefore, he is a scarce resource for ordinary workshops. Without real name authentication, the Cyberspace account is linked to the upload behavior by realistic means. Then it is likely that there is no guarantee that the rewards will be authentically distributed to the creator, and everyone in the ordinary workshop will compete to pack the upload behavior of the self-publisher. On the other hand, due to the special nature of the upload behavior of self-published media, its corresponding Cybershop account cannot be obtained through other account verification (i.e., it is impossible to confirm which Cybershop account is the releaser of this behavior). Therefore, the act of self-publishing uploads must be associated with real-world real-name authentication and self-publishing accounts. This ensures that rewards are not released to other CyberFang accounts for theft. And it prevents cheating attacks (i.e. attacks that disguise all of your actions as uploads so that you can cheat your way to more rewards).

6, cyber circle behavior determination: if some cyber individual behavior only other cyber individual related, and in a cyber platform, but no self media upload behavior (i.e. no

comment in the self media home page) under the page comments, then this relationship reached a certain number, and there are some "black words" (and not record all the content, only record fixed black words), then he is judged as a cyber circle; but if it is in the self media home page under the comment interaction, then it is considered the self media subject's circle. However, if the interaction is commented under the homepage of the self-publisher, it is considered as the circle of the self-publisher. This is only a distinction in the Cyberspace perspective. It is a distinction made in the analysis of the final cyberspace statistics. It is made after adding the analysis of "black words" under the degree of filling up the Cyberspace.

7. Determination of Cyber Individuals: Unless it is actively associated through the real world, the Cyber Place client does not close the Cyber Individuals and Cyber Place accounts.

In short, in the behavior record, the client only needs to distinguish two kinds of behavior: 1, the content uploaded by the subject of self media; what he passed is generally video, article, audio, picture; once marked as "special single interaction behavior"; 2, the behavior with only a small amount of text: comments, replies, "multi-interaction behavior "; 3, only with a Cyber Self-Media "single interaction behavior"; 4, no account differentiation of a video, article, etc., the number of plays, views. (With server support, the number of likes and plays of sub-accounts, not recorded by the client)

Internal content of the block structure (draft, with a better way of recording behavior in the future) Since the spatial tree part of CyberFang is a non-linear structure type. Therefore, in order to satisfy a linear and stable development (i.e. the second axiom), it is necessary to consider any structure as a subset of a set in each section. That is, there is a "packing" that treats the structure as a block and thus identifies it as a part of a chain. Thus, at each packing, it is considered as a whole. At the same time, a new block structure is created. And the corresponding data content is filled.

Client recording of one client interaction is the lowest level form of block formed by Cyber Place. The block contains the following.

Block packer's CyberFang account address: note that the address of the packer's account is recorded here. Not the address of the actor's corresponding CyberFang account.

Version: The version of the rule that **records the** behavior of the CyberFang Records network to which the **record** corresponds.

Attributes of the behavior: distinguishes whether it is a "special single interaction" (the distinction between "multiple interaction" or "single interaction" can be obtained directly from the integration address).

URL: the URL (domain name or IP) to which the act relates.

Name of the subject involved in the behavior: the name of the subject involved in the behavior; obtained by analyzing the web page. If the web page cannot be parsed, the server encrypts the web code. If the web page is not parsed, the server encrypts the code of the web page and parses the presented page (directly through the parsing of the presented screen, artificial intelligence analysis, which, of course, requires greater

consumption of the client and technical support). "Single delivery" involves only one self-publishing subject and one account's comments. "Multi-crossing" involves one original comment, one reply, and one self-publisher. In other words, the subject of the single transaction is 2; the subject of the multiple transactions is greater than 2.

Integrating address chains: Combining names with URL content and giving a numerical value in a behavior-centric way. Form a structure. For example, a domain name represents the name of a self-publishing subject. The format is.

n (packer's nonce for the act) - self-publishing URL - self-publishing name - name of the subject to which the comment was replied - name of the subject of the reply - platform URL; (if one of the above structures is not available, write 0 instead)

For example, the comment with nonce 2 in the CyberFang account packaged in the domain name: <https://weibo.com/u/1998462073> replied to another comment, then the format is

2-1998462073-Readers Qian Jindo-I love the Ether-I love the metaverse- weibo.com.

It means that the comment with the behavior nonce of 2 is under the page of the self-publishing blogger Readers Qian Jindo with the cyber self-publishing URL of 1998462073, and the subject named I love the meta-universe replies to the behavior of the subject I love the ethereum, and they jointly belong to the platform weibo.com.

Special interaction behavior integration address chain: 0-n - self media URL - self media name - the name of the subject of the reply comment - the name of the subject of the reply comment - the platform URL; that is, one more link head "0" logo.

Behavior Summary: A summary of the comment content encrypted with a private key (privacy computing techniques can be added); used to extract "dark words" from comments later.

Time: the time when the act occurred (based on the time of successful packing).

Nonce1: the value of the sequence given by the client in this row, 2 in the example above.

Data space1: a space for ordinary accounts in the general workshop to write data.

Contract space: a space for contractual data recording, for future recording of "black words" in comments, filtering of symbolic elements in images, videos and temporary storage for privacy calculations. He provides the CyberFang virtual machine to write some data through the client to pack into the block (to be studied).

The blocks generated on the client side are what we call the first block or the bottom block. The bottom block is encrypted with a general account electronic signature and broadcast to the general shop. A behavior broadcast is completed. You can see that a common block already contains a "chain" of behavior, that is, "n - self media URL - self media name - the name of the subject of the reply comment - the name of the subject of the reply - the platform URL;" such a chain structure, which serves as the "gene" of the whole. It is regarded as the "gene" of the whole cyberspace. Call it the underlying chain. The underlying block packages its genes into a block structure, which is broadcast to the general shop for assembly. The general accounts in the general shop reassemble it to form a new data block, called a relay block, which has the following contents.

Account address: the Cyber Place account address of the general workshop packer.

Nonce2: i.e. the nonce value of the assembly accounts in the general shop, which is used to record the order of the assembly accounts in the general shop. This means that after assembly in the common workshop, the linked structures are again formed into a block.

Integrating the underlying chain structure: The underlying chain of blocks is processed into a database's linked table structure, which contains a data part with a pointer indicating the next element in the list. A tree structure is then formed based on the behavior associated within the data. In this way, the more advanced the Cyber body, the higher the root of the tree is constituted. In general, the cyber platform serves as the root of the tree; cyber self-published, much-replied comments serve as intermediate nodes; and comments with only one reply, as leaf nodes. Note that the bottom block here actually must contain at least two replies, three cyber subjects (at least one self-publisher, two replying cyber individuals, except for the uploading behavior of the self-publisher subjects who have not yet been identified).

Address of special interactions: Since the special interactions are uploaded videos, articles and images, they are not yet converted to the corresponding number of comments in the normal workshop by the conversion function. It is still considered as a normal "single interaction" or "multi-interaction". However, the blocks involved in packing this behavior are marked with a "0" to ensure that they are processed in the relay shop. In this case, the same integration is done according to the tree structure.

Time: a timestamp of when the packing was successful.

Data space2: A space for other accounts to write data.

The normal workshop puts the blocks into the relay workshop between the experience times T , regardless of the result of the integration, according to the rules (cf.

above). Since the relay workshop is a full-node account that already has a full network structure, he only needs to add the already processed structure to the current structure state. The data he needs to process are: 1) the data blocks of the common workshop; 2) the orphan blocks that have not been integrated within t time of the common workshop; 3) the data content marked with "0" at the beginning of the server of the cyber body that has made the data public, and if there is corresponding data, it will be converted into the corresponding interaction behavior according to the contract to facilitate the calculation of the reward and add it to the spatial tree. added to the spatial tree.

The relay workshop focuses on the integration of the full node accounts with the review of the general accounts. A structure tree is eventually derived in R time and is updated and saved to the full node account and uploaded to the central bank. Since we only record the symbolic desires of the cyberspace and the associated behavior, and not the entire cyberspace, the structure obtained can never be absolutely accurate; it allows for a small margin of error. And, the real role of the spatial tree is not to get the most accurate map of the spatial tree structure. The most important thing is that it can give Cybercoins to Cyber individuals and convert all symbolic desires into meaningful activities in the real world. By using the spatial tree structure diagram, we are able to accurately assign rewards to the real-world meaning of online behaviors, which is the real role of the spatial tree. Obtaining an accurate map of the spatial tree is a very secondary purpose of his.

4.2.4 Audit work

The spatial tree to get an accurate structure map is actually actually a secondary job for the whole Cyber Place. Therefore the review allows some minor errors. And the Cyber Place spatial tree is a periodic observation of web behaviors, behaviors are saved on the internet and sooner or later they will be reviewed. This also means that the real focus of the review is not on what behaviors are missed, nor on the screening of extra behaviors. Rather, it lies in the review on malicious vandalism and cyber attacks. Therefore, we have to consider here the possibility of various cyber attacks on Cyber Place. All the attacks we discuss here are committed on the underlying chain, such as swiping reviews. The client is the lowest level censorship mechanism, but because his code is open and very unreliable. Therefore the role of the client is only to raise the threshold for some attacks and not to really prevent them. The client is the first line of review defense of CyberFang that only prevents the gentleman, not the villain.

Except for the integration in the relay shop, the rest of the space tree is decentralized, with electronic signatures at each step, and is not vulnerable to attacks on the block. And attacks often come from a forgery of reality. Namely, the deliberate swiping of comments. This kind of attempt to swipe comments and replies in exchange for more cybercoins or even deliberate sabotage is called a "swipe attack". In fact, there are the following situations: First of all, it is necessary to distinguish the situation of filling up the cyberspace. If people in cyberspace have already used cybercoins to exchange for virtual items or even to buy real items. Then it can be said that the cyberspace has gained fullness. Virtual coins can't actually be used for many things (there will be policy control). Then the brush reviews lose their meaning. Or in other words, the income does not cover the expenses. And there would be no one to do this. But if someone were to deliberately destroy the cyberspace environment, most people's interests would be reduced, so it would necessarily be the behavior of a few. Then, if it is the behavior of a few people is also the case of cyber coin filling. Individuals' individual brush reviews will be allowed. Because it reflects exactly the symbolic desire of the person who swiped the review. And the original purpose of Cyber Place is to mark such symbolic desires. Therefore no review is required. It is out of the scope of this chapter.

Essentially, there will still be people controlling public opinion in cyberspace in the case of abundance, and will constitute such a metaphysical game in the network. It is a kind of internal control. They do not use Cyberpolis as a way to earn benefits, but they pursue opinion control and gain benefits in the form of fiat money or acquire real power. The purpose of this behavior is not to obtain the rewards under the rules of Cyber Place. He varies according to the filling of Cybercoins. In the stage when Cybercoin is not yet full, such behavior is the case of confusing the viewers and consumers by swiping reviews with the purpose of earning fiat money (e.g. Taobao swiping, Weibo water army). It is the way we treat brush reviews now, such as the way Taobao treats brush orders. He is more of a real-world problem, and the fundamental solution lies in the policy issue of the Cyber Place itself filling up in the real world. When the Cybercoin is filled up, on the one hand, it can be stipulated that the advertising industry must trade in Cybercoin and its tokens. The problem of swiping reviews to get good reviews can be fundamentally solved by the filling of Cybercoins. Because the general equivalent of the transaction is no longer in fiat currency, then there is no point in swiping reviews without logging into the client. Because everyone is trading with Cybercoins. Such a brush with positive reviews would also have no economic benefit. Such swiping of positive reviews is also in effect ideological control, i.e. control of people's reviews. But this degree of control is essentially a manifestation of the metaphysical argumentative character of cyberspace.

It is to be seen as a symbolic desire, and therefore in a state of abundance, this situation also falls within the regulation of Cyber Place.

But the key is what to do if such behavior goes beyond cyberspace and affects public opinion in the real world? Because there will always be people caught behind metaphysics, there will always be people who are ideologically influenced and simultaneously unable to distinguish between reality and the internet, leading to extreme confusion in the real world as well. However, the situation of enrichment actually limits from an external environment the situation where people are inextricably caught in metaphysical arguments and, moreover, is able to maintain this tension between transcendental metaphysics and internal opinion-controlling behavior through practical education (see Chapter 5 for details). That is to say, the act of controlling public opinion by brushing off comments can indeed affect many people with very serious consequences. In this regard, CyberFang, through a kind of geodesic post-transformation education, maintains that this part of the controversy remains only in cyberspace, part of CyberFang's regulation and part of the regulation of symbolic desire, and therefore does not need to be dealt with. The more extreme case is: what to do when this opinion control forms self-consistency and has an impact on reality? Then, it needs to be dealt with by realistic means. That is actually a conflict of ideologies. If the number of people is small, the law can be used to punish. But if a certain ideology affects most people in reality through logical self-consistency, such as conspiracy theories, or anarchist ideology. And in the network to influence a lot of people, they can not distinguish between network speech and reality, forming a self-consistent system, it is bound to involve the impact on the real world. Then, it needs to be solved by the organization of the future world, which is a "religious" organization.

In short, the brush comment under the filling basically falls within the regulation of Cyber Place, only when the brush comment behavior through the formation of public opinion of self-consistency goes beyond the cyberspace, it becomes a real problem beyond the network and reality, which is the problem of the whole Cyber Place, even all the cyberspace, including the real world. If the real world is in chaos, then Cyber Place is bound to be affected, and then it is not only the problem of Cyber Place, not only Cyber Place is under attack, but the whole economic system and cyberspace are under attack, and all may collapse. But even if this is the case, the future society has a strategy to cope with it under the regulation of Cyber Place. This is what will be discussed in the philosophical and political issues related to Cyber Place later on. (This section can be found in Chapter 5, Speech and Rumors on the Internet, and in the Pantheon section)

Therefore, in this chapter, we need to consider only the swiping behavior under a

condition that has not yet reached the filling of Cyber Place, and this swiping behavior does not involve the control of public opinion and the part of public opinion beyond cyberspace. The purpose of this kind of swiping is just to get a reward through the mechanism of Cyber Place, so this chapter will only discuss this kind of situation. Here, people have to upload through a regular Cyber Place account regardless of whether they change their main account (e.g. social account), otherwise he cannot get a Cyber Place reward. However, this is divided into several cases to consider.

(1), the use of scripts and other brush comments on the software to repeat the content of the brush comments. The content that needs to be audited is the act of replying to oneself. But in fact this rarely happens, because the major platforms themselves have a short time brush comment behavior restrictions, and it is easy to be found by the audit of the space tree process.

(2), the use of scripts and other software to brush the review of the slow speed of the review. More common with microblogging, Taobao, etc. This is a cyberspace business and actually reflects the symbolic desire of cyberspace, which, as mentioned above, does not need to be audited in the case of surplus. But in the case of non-filling, it will destroy the decentralization of Cyberspace, so it needs to be prevented. And the prevention is also very simple, for mechanical swipe review behavior. Because people can easily see that this is a robot brushing up the comment, and thus will not reply, slowly Cyber Place will also regard it as a single interaction behavior not recorded. Those with few replies will be discarded in the general workshop as well. Thus, we get a way to prevent this kind of swiping behavior - by observing the discarded "single interaction behavior" to examine. This is because the most flexible way of reviewing is by the web visitors themselves. This approach takes advantage of this. If a page has too many discarded "single interactions". A normal account can then check if the content comes from the same page. If so, it is determined that the page has been reviewed. The corresponding behavior will not be recorded. In this way, we can reverse the "single interaction behavior" to find out the pages with swiping behavior. It is also possible to flag the page so that people will be aware of the possibility of the scam when they browse the page. People will then not believe the comments on the page as a punishment.

The special case lies in the act of swiping reviews where the swipers give their own reviews to increase the number of their own reviews in exchange for more rewards. However, this behavior is only seen when reviewing, and if the same cyber subject account name always replies to itself, then the series of replies will be invalidated. It will not be recorded in the structure.

But if the swipe person wants to disguise as a non-mechanical swipe comment behavior, change the name of the main account, and disguise or use artificial intelligence swipe comment, then it is difficult for people to distinguish, and he changed the name of the account, and give these false comments to leave a message, or swipe commenter himself to change the account to their own message? First of all, the cost of such brush reviews is very high. May not be able to make ends meet. Secondly, since people can not distinguish this kind of brush comment is a kind of "brush comment", it will form a desire in the network, constitute the development of cyberspace, should be rewarded. In other words, this kind of behavior is allowed occasionally, because he is not harmful, and shows a symbolic space desire, which is the reason for Cyber Place to send rewards, he should get this kind of reward. Finally, if this kind of account change is really too much, forming an industry, but this is not yet able to be distinguished by the real people, then in fact this behavior will certainly affect the ideology of cyberspace, the environment of cyberspace. Then, it is the above-mentioned situation that goes beyond the influence of the network on reality. It is no longer within the scope of this chapter. In other words, if the impact is not serious and positive, then there is no need to deal with it. Instead, it shows the falsity of the Internet, so that a part of the population does not believe what is said in the Internet, so that a part of it feels that it is all artificial intelligence talking inside the Internet, so that it recognizes the falsity of it in order to come back to life in a good way. But who will be willing to spend so much money invested in this? Much less make money from it. Unless it's a deliberate ideological sabotage. Then, it's the case described above. If the impact is serious and bad, it will be treated as a rumor, or disturbance of public order, and be criminalized, and crack down on such a review chain. This is the "cyber terrorism". This is the part of Internet management that is already there now, and it doesn't need to be emphasized by Cyberpolis. Finally, if a self-consistent ideological logic is formed, then it is a religious issue, and if it is a cult, then crack down on it. If it is a religion that is good for people, it will be dealt with by the Religious Administration (Pantheon).

(3) Multiple Cyber Place accounts to swipe reviews. That is, having multiple Cyber Place accounts to record their actions at the same time so as to get more rewards. This situation requires realistic regulatory measures. And it is not in the scope of the internal audit of Cyber Place anymore. A centralized account or a tap account is needed to supervise Cyber Place accounts with the same IP address in the structure chart. If there are hundreds of CyberFang accounts logged in from one IP address, they are either mining or maliciously damaging the network environment, both of which need to be banned. In addition, only one Cyber Place account can be applied for one identity

information.

Some other possible attacks.

Since this chapter is a hands-on program. Therefore, there will be vulnerabilities and attacks that are not yet known. So we leave some space here to summarize them when we encounter them in practice. And update in this chapter.

In a nutshell, Cyberworks sees the audit as the "mining" of the general account itself, rewarding those accounts that contribute to the stability of the Cyberworks system. This is the principle of rewards in CyberFang's space tree. The general auditing work is to check the disputed parts of the account structure of the whole node. As well as proactively reviewing the parts of the structure that have errors or excesses. This active review includes the review of the Cyber subject name, URL, Cyber Place account address, and nonce. For example, if there is an error in the nonce, the duplicate nonce behavior is removed. Others are obtained by actively visiting the website through the analysis of the web pages.

4.2.5 General Account Client and Privacy Issues

The General Account Client can also be called the Behavior Client or the Spatial Tree Client since he is the software that records the behavior of the web. The final job of the general client is to record, at the opening stage, the behaviors in the web pages observed by the Cyber Place general account holder while browsing the public web pages. In other words, he does not distinguish which Cyber Place account a behavior was issued by, but only records which Cyber subject issued it, which means that he also records the behaviors already issued by others in the web page.

Multi-functional access Since the common client is the lowest structure of Cyber Place, he is the lowest maintenance system of Cyber Place. However, the data of the client does not exist in the decentralized Cyberworks, nor in the centralized server, but in everyone's personal computer and cell phone. Therefore, it is extremely easy to be modified. But even so, there are some settings on the client side that can greatly reduce the audit workload of Cyberworks. It can raise the threshold for some attacks. For example, the client can set the setting to prevent the attack of brush comment. For example, repeated replies within a short period of time will not be recorded (see the section on auditing).

The client can act as an intermediary for the implementation of some functions. Due

to the structure of Cyberworks, auditing is the focus of the Cyberworks space tree. However, it can be seen that the auditing of the space tree relies entirely on the client itself running in the background to access the web page to get the code to confirm. This means that this auditing mechanism is very dependent on the technology of web page parsing. However, if the whole Cyberworks adopts only one set of web parsing technology, it is likely to cause the whole Cyberworks to enter the misunderstanding caused by the unified web parsing in the audit. This is very fatal. Therefore, for the audit of Cyber Place space tree. To allow a variety of different parsing technology as a way of plug-in, connected through the interface of the client. Therefore, it is necessary to set different technologies for parsing web pages among the clients. It is possible to let CyberFang users choose by themselves. It is also possible to assign them automatically according to the requirements of Cyberworks. Of course, different web page parsing will bring different audit results and upload different behavioral data to Cyber Place. But all these are in the design of Cyber Place. A kind of unification and selection can be reached through various ways.

The client also provides a structure for other technical access, such as the use of artificial intelligence, privacy computing, and other technical means to parse web pages as well as network conditions. Note that these technologies can only exist in the client as technical plug-ins for web page parsing and analysis, they are not allowed to have their own collection of user behavior, so these plug-in technologies must be regulated in through the central bank. To prevent the misuse of permissions.

Space **Tree Mobile Client** Smartphones are undoubtedly one of the most important ways for people to access the Internet. Unlike mining clients, Space Tree's client is very suitable for cell phone installation as it does not rely on arithmetic power. However, this may require obtaining some cell phone permissions. However, in the case of the country, the primary popularity stage of CyberFang, it is perfectly possible to implant the Space Tree's client into the cell phone system functions. In the case of Cyber Place's abundance, even if the state does not make such a request, commercial companies will certainly implant this function into the cell phone system.

For Space Tree mobile client, he can handle only normal workshop work in normal times. to keep the phone running smoothly. And you can enter to relay workshop work in your leisure time. Of course it can also be closed, which can all be set by the user.

Privacy Privacy is a key concern for the client. Many people would think that recording user data violates personal privacy. But in fact, if we analyze it line by line, we can see that the structure of the spatial tree well avoids violating the privacy of individual users.

1, whether to open the client is completely voluntary behavior. Perhaps some

people may wonder here may be born a new problem: if not open the client, then the network filling situation will not be reached? But in fact, in the case of a full network, the results obtained will be just the opposite. Because when everyone records every action to get Cybercoins, when everyone believes that this system becomes a daily routine, no one will care about the deeper "privacy" of an action (because it really does not violate personal privacy, the deeper is actually the choice of political ideology here). That's one thing. The second is that some people may continue to ask questions, and then they may close the client while browsing a particular indescribable website, and that will create a cognitive bias in the desire of the Internet for a particular indescribable behavior. This situation is not a problem either. First, it is exactly the case that can be moderated with the Cyber Place system. More cyberbucks can be issued for behavior while browsing a specific website. Philosophically speaking, this is justified. Because indescribable websites release people's desires into reality with the help of such websites. It becomes a physical desire. Naturally, it should be rewarded more highly. However, some people may insist that "your moderation is an invasion of privacy", but this accusation is actually ideological in itself, and it is a matter of ideological choice. It's not a Cyberspace issue anymore. It is a choice based on whether the holder of the Cyberpolis account believes in the ideology behind it. Just as anarchists would accuse the existence of banks of being evil. Yet the reality is that we all need a government to maintain social stability, as derived from the structural nature of civilization as revealed by Cyberspatialism. And, because Cyberspace necessarily has an ideology behind it, he is not set up for anarchism at its root. Marxism is not anarchic. Society is in need of Marxist guidance. This is precisely the problem of ideological choice. For real people, would you feel that the existence of banks, and the fact that they have information on your bank account, is an invasion of privacy? If so, then this is a manifestation of the Anatsuki, and then he is indeed an "invasion of privacy", and if not, then again, the client is not an invasion of privacy with this kind of recording behavior. Because there are so many behaviors in cyberspace, no one will be watching what you do on the Internet every second of every day.

Because of this, such an abundance of cyberspace actually presents a reverse statistic. This is the second answer to this question. Because when people close the client while browsing a specific website are commonly occurring. Then it is equal to not relevant. This instead gives the state more important data - he identifies the level of trust that people have in the state. The state only needs to check the number of page views on specific websites, the situation with regard to the statistics of the competition BoF, to know the level of trust of the people in the government. Even, the state could

open such a website on its own to facilitate the release of symbolic desires into physical desires, thus ensuring the stability of the internet and society. Again, if you think this is an invasion of privacy, then all managers of websites can be considered an invasion of privacy. Because people are social animals. True privacy exists only among the autistic.

2. The client is completely open to the underlying code. The space tree of Cyber Place is essentially an auditing mechanism. Therefore, the underlying code of the client is completely open. It can even be modified at will. (However, the random modification may make the client unable to prompt the user which behaviors are forbidden, thus leading to the banning of Cyber Place account.)

3, the client does not record the complete content of the behavior. Comments only record the number of times, and a small amount of recorded content is only used to distinguish the brush comment behavior. Although the analysis of the cyber circle may be added later. But he will not record the complete meaning, only the specific "black words" to extract.

4. The recording principle of Space Tree is to record only the public, anyone can access the network environment, not to record the privacy of the application and software behavior. Moreover, the privacy record of space tree must be "multi-interaction behavior" (greater than or equal to three times), their own mood expression will not be recorded.

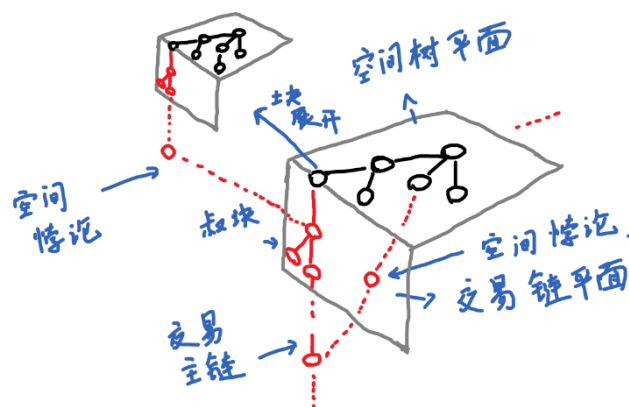
4.3 Connecting reality and Cyberspace

The main structure of the whole Cyber Place is the spatial tree, the transaction chain and the tap accounts that connect and regulate them. Under that, there are some connections across the space tree to the transaction chain. However connecting the space tree to the transaction chain is practically impossible to be done in the Cyber Place structure itself. The more complete the two systems of space tree and transaction chain are, it also means that the more impossible it is to connect them to each other. This is because the stability of a system must be maintained by external instability, which is the first law of Cyberspace. However, the creation of Cyberspace comes from the recognition of this impossibility. Cyberspace confronts this paradox head-on, instead of running away from it as previous blockchain systems have done. This is what makes Blockchain 3.0 so innovative from Bitcoin and Ether. Here a tap account must be used as an interface between CyberFang and the real world. This account is also the absolute center of CyberFang. Here, all systemic paradoxes depend on this unstable external world body to be maintained. Therefore, we need the connection between the space tree and the transaction chain to reveal where Cyber Place is really paradoxical and its impossible paradoxes to solve. From there, we can look at it directly.

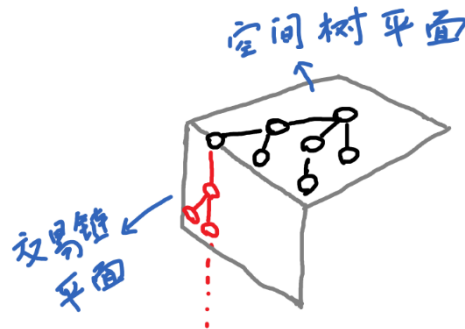
First, we obtain a spatial tree structure about the structure of symbolic desires in cyberspace. At the bottom of this structure, however, are the cyber actions of cyber subjects

recorded by each cyberspace ordinary account, which cyberspace receives by using cybercoins as a reward. Cybercoins are then generated on the transaction chain. The transaction chain generation, in turn, is built on the real world sense. There doesn't seem to be a problem here. However, there is an irreconcilable contradiction here. Namely, the object of the record of the spatial tree is the cyber body of the network, which is the cyber body. And it is the real-world people behind the Cyber Place accounts, the miners. They are both pouring their desires into the Cyber Place, constituting two structures. However, these two desires cannot be equated. This contradiction can be seen even more clearly when examining the block in detail: the data within a block records the cyber subject's network behavior, while we record the cyber subject's network behavior precisely because we have a general account in Cyber Place. This means that Cyber Place gives a transit train station to every cyber subject that joins it (Indians often travel between them in this train). It is the provision of this new cyberspace that allows cyber subjects to record online behavior. The paradox here, however, is this: do the actions in this transit station count as desires in cyberspace? In other words, the cyberspace account that records the network behavior has a new space to observe the network behavior, yet the cyberspace account itself constitutes the behavior in the network. That is, its observation itself will get Cybercoins, which makes the observation of the CyberFang account itself a symbolic desire, and this reward for the observation of the CyberFang account is recorded in the transaction chain in the form of transfer, which is an absolute cyberspace symbolic desire. So, does the Cyber Place account need to record this central bank transfer to itself when it gets the reward? You will see that a loop has occurred here. If Cyber Place records it, then a dead loop is formed; if not, then the cyberspace desire is incomplete again. This is exactly the result of violating the first law of Cyberspace. A system that is too complete is bound to form an internal paradoxical loop. And this paradox can only be solved externally.

Or let's discuss it specifically in the context of the design of Cyber Place. This paradox reacts to the combination of the spatial tree and the transaction chain. What the whole work of the spatial tree is for is to get a structure that reacts to the symbolic desires of the cyberspace. Thus, we get a tree structure. Any node of the tree structure is packed by a Cyber account. And the Cyber account itself has transactions in the transaction chain. As in the figure.



In terms of structure, we can no longer reflect the plane of the spatial tree combined with the chain of transactions in a flat map. They are necessarily at some cyber ordinary account (he packed the block), constituting a three-dimensional image. However, this is true for every node on the spatial tree. Then what about the account number on each node corresponds to when on the transaction chain its own transaction behavior? Here the paradox of space occurs. As in the figure.



That is, here we can never get a structure that can be seen as a complete and stable combination of spatial tree and transaction chain. This is the same as saying that with the spatial tree it is never possible to fully reflect the entire cyberspace symbolic desire, which is missing the symbolic desire constituted by the very act of transferring money that the cybershop account is rewarded for when recording the spatial tree. The spatial tree can only reflect the symbolic desire of the cyber subject, but not the symbolic desire of the recorded cyber subject. This is a very fatal blow to the space tree when the Cybercoins are in abundance. Because at that time the cyberspace's online game equipment, copyright, membership of a website may be traded entirely with cybercoins. If these sources of symbolic desires of Cyberspace accounts in the case of filling are not recorded, it also means that most of the symbolic desires formed inside Cyberspace are not recorded on the space tree, and at the same time it means the complete failure of the Cyberspace part of the record. He would also be unable to reflect the state of symbolic desires in cyberspace at all. And if the transaction chain is forcibly combined into the spatial structure in an attempt to get the whole cyberspace desire structure in one structure, it will be counterproductive and accelerate the collapse of Cybercoin. Because he constitutes the cycle. Every time it is packed, the tap rewards Cybercoins, and the rewarded Cybercoins are regarded as a transfer from the tap to the Cyberpolis account, representing symbolic desire. Then the Cyber Place account records this symbolic desire, and the reward from the tap is treated as a transfer, thus gaining desire, record, transfer, desire, record Perhaps we can cover this cycle with a more complex system. For example, I could make the transfer happen slower, so it wouldn't be circular? But in fact it won't, the transfer is slow and sooner or later this reward has to be sent, and as soon as it is sent, he is inevitably recorded as a symbolic desire, and the total value of his symbolic desires remains infinitely rising in the middle of Cyber Place.

Because we have a deep understanding of the paradox that arises under the structural completeness that is Cyber Place, we should now not run away from it as we did with the previous blockchain systems - to construct new Cyber spaces that are constantly being created. We should face up to paradoxes like his, and so we need to acknowledge this

paradox and let the instability of the real world, let the real world be powerful, and let real world, potential people manage this Cyberspace. From this, we arrive at the principles that Cyberspace must adhere to.

1. There must be an absolute center that connects the real world and regulates Cyber Place - the tap account; it is the connection between the real world and the cyber world. It is also the connection between the space tree and the transaction chain. He needs real people to manage it through real governance capabilities. Rather than relying on automated programs or any artificial intelligence.

2. The symbolic desires of cyberspace must be divided into two parts to be counted separately. One part is the spatial tree recording the network behavior, who consists of the behavior of the Cyber subject; the other part is the desire reflected by the transaction chain (a desire tree or desire chain can be formed to visualize the statistics), which consists of the transactions of the Cyber Place account.

3. The two structural reflections of symbolic desire in cyberspace must not be combined within the Cyber Place system itself, but must be experienced by real people as a necessary condition for their combination. That is to say, only real people can relate the Cyber Place account to the Cyber subject. The structure of the Cyberworks system is never designed to associate the cyber subject with the Cyberworks account (that is why the Cyberworks spatial tree must record only the network behavior and the name of the cyber subject, without identifying it in the structure as the desire of the Cyberworks account. -- Even if there is a large amount of data to show that the name of a real natural person behind a certain Cyber Place account in a certain Cyber platform is a certain Cyber subject cannot make such a connection. [For example, if you check the data, a Cyber Place account always records the comments of a certain blogger, you can know with a high probability that this Cyber Subject account is the same person registered by that Cyber Place account. (Cyber Place will never make such a connection, and what connects this relationship can only be the feelings and judgments of real people)]. Only a realistic natural person can arrive at what he himself perceives as a desire relationship between the spatial tree of cyberspace and the chain of transactions associated with it. Such a combination either does not occur or is necessarily a personal, non-universal feeling.

4. The mining behavior of the trading chain must be mastered by a real person. Not a cyber individual indulging in cyberspace. This also means that the closer to real life people are, the more they have the right to get the mining behavior. This is exactly the meaning of Cyber Place and the inevitable requirement of the earthiness of Cyber Place and Cyber Space.

5. The behavior on the transaction chain strictly adheres to decentralization within the structure, but on the faucet account, the same must be regulated by the real world and cannot be replaced by any formula, program and artificial intelligence.

6. Any structural crisis that occurs in Cyberspace must first be stabilized by the power of the real world. After stabilizing the structure, then the decision will be made whether to solve it in a realistic way or inside the Cyber Place space, and after solving it, it will revert to an automatic decentralized operation inside the Cyber Space. And you can't rely on structural internal resolution at first and then rely on real-world forces for stabilization. This order cannot be reversed.

8. The right to initiate the contract must be held in the central account. Because the

contract means to continue to construct the illusion system in Cyberspace. It is to detach people from real life. Therefore it must be regulated by the centralization of reality.

It is on the premise of understanding this paradox of Cyber Place that we can further design the various functions that play a connecting role in Cyber Place. And to realize their realistic meaning.

4.3.1 Faucet accounts

The Taps account is the only absolute center of the entire Cyber Place. This is because he is the interface between the ideologies of the external world and Cyber Place. In other words, Taps connects not only the spatial tree with the chain of transactions, but also Cyber Place with the real world. It is this property that ensures the maintenance of stability inside Cyber Place and inside the entire cyberspace under the centralization of the outside. He can use this to regulate the internal structure of Cyberspace. Adjustment of the Internet structure. In the case of the state, the faucet account of Cyber Place is the central bank.

The closest means for a tap account to connect the space tree to the trading chain is through the rewards and collections coming from Cybercoins. This has already been discussed above. Here, we can summarize the sources of income and expenses of the Taps account.

1. real world cybercoins given directly to the tap account - income; 2. cybercoins obtained through the collection of taxes on mining - income; 3. rewards issued to the general account - -expenses; 4. Rewards issued to full node accounts -expenses; 5. Cybercoins from the above two that have not yet been issued and are stored in the central bank in the form of deposits. 6. Cybercoins directly destroyed by any account. (The so-called destruction of Cybercoins by any account is actually the execution of a transfer, i.e. the transfer of the Cybercoin balance from one's account to the tap account, which decides whether to destroy or treat it as income, depending on the spatial structure).

Contracts

The centralization of the faucet account is also reflected in the fact that some accounts can be set up as sub-accounts under the faucet account only with the permission of the faucet account. In the case of the state, he must be a government agency of the state as well as a centralized enterprise. Essentially, they are all parts of the tap account cut out. He takes into account the functional refinement made at the time when Cyberfang fills the cyberspace to a certain value. This type of account is called a central account. Another important manifestation of the centralization of the central accounts is that they are the only type of contract accounts available in CyberFang. All other account types can only passively accept contracts and cannot make them. So far, the only CyberFang contracts we can foresee are the following, all written by tap accounts.

1. Tax contract: It defines how many Cybercoins the mining account contributes from the income mined and how it is contributed. It is a mandatory contract (set it as mandatory in the

CyberFang VM). It is possible to set different forms of taxation for different mining accounts, depending on the regulatory needs. Different forms of taxation are imposed on different tokens. To cope with real world differences.

2. Audit reward contract: It specifies the rewards for different accounts audited in different auditing stages. At present to have the audit for the general account audit (divided into the first audit, the second audit and the third audit); as the full node account rewards rely on the general account audit rewards to count, so the contract also includes the issuance of integration rewards to the full section of the account.

3. Integration contract: Used for what way each structure in the spatial tree is integrated together. And contains the base contract of each workshop related settings. Generally does not change. Unless the research in topology can make the spatial tree structure more complex and can be implemented.

4. (Possible contract) Integration speedup contract: equivalent to the Thunderbolt network contract of Ether. It is used for the integration of full node accounts with normal accounts for spatial trees. It allows to establish a partnership with each other from the similar structures provided in the past. Later, when integrating structures, it is possible to quickly search first for structures given by accounts with cooperative relationships. Thus the integration of structures can be accelerated. (cf. optimization scheme)

5. Final structure tree Pos contract: The voting consensus scheme of Pos is used in the final selection of the structure by the full node accounts, then there will be a Pos issuing reward contract. Full node accounts participating in Pos voting put a portion of their principal into the tap so that they can participate in the election of the equity system. The initiator of the structure tree that is eventually chosen can receive more rewards.

6. Homogenized token contract: a contract for issuing new tokens for the CyberFang central account. Equivalent to Ether ERC20.

7. (Possible contract) Non-homogeneous token contract: a network (blockchain) game contract (or other roles such as collection, commemoration, etc.) for the possible future release of CyberFang regulated by a central account. It will enable people to feel happy in the game and forget about the reality. Feel the memorial and collectible value of the network within CyberFang with non-homogeneous virtual objects. In this way to regulate the relationship between the network and reality. The contract is equivalent to the Ether ERC721.

8. (Possible Contract) Voting Dapp Contract: A Dapp contract that enables voting elections; this means that real democratic elections can be achieved on Cyber Place. It is the embodiment of grassroots democracy.

9, malicious account penalty contract: The contract includes: 1, when the space tree in the audit of some accounts have malicious brush reviews or damage the network structure, will prohibit the cyberspace account for a period of time to send behavior. 2, the malicious behavior of the account fine.

There will be more contracts in the future. All need to be derived from continuous exploration in practice.

4.3.2 Other accounts

With the faucet account as the core, we can summarize the income and functions of other account types.

General account *The* general account is an account for recording network behaviors. It includes the following functions: 1) recording the behavior of the cyber subjects in the network; 2) initial organization of the network behavior relations in the general workshop; 3) review of the network behavior in the intermediate workshop; 4) review of the network behavior in the final structure; 5) (not yet covered) sending any proposal to the central account; 6) (not yet covered) voting on the proposals made by the central account through Dapp; 7) purchase or transfer; 8) (not yet covered) purchase of Defi; 9) acquisition and transfer of non-homogeneous "items". Vote on proposals made by the central account through Dapp. 7. purchase or transfer of funds. 8. purchase of Defi (not yet covered). 9. acquisition and transfer of non-homogeneous "items".

The general account can get rewards, its income and expenditure sources: 1, the rewards of their own recorded behavior; 2, the rewards of the preliminary finishing of the general workshop; 3, the rewards of the relay workshop audit; 4, the rewards of the final structure audit; 5, (not yet involved) with the rewards or expenses obtained by involving related proposals; 6, the balance deduction from the mandatory contract binding by the tap account that needs to be punished due to the violation of the Cyber Place rules and 7. the expenses of buying things online and the expenses and income of transferring other Cyber Place accounts; 8. (not yet involved) the account income and expenses from Defi's purchases and earnings.

Central account *The* central account is a branch account under the tap, which in the case of the state is managed and distributed by the central bank. It serves as an interface between Cyber Place and the real world. Therefore there are different real world functions. Therefore it is not possible to list them all. For its basic functions and receipts and expenditures refer to the previous section - Taps Account.

Full node account Full node account is an account with certain centralization in CyberFang (central account can run as full node account), his functions are: 1、Organizing network behavior on relay workshop and proposing final decision plan. 2、Participating in voting activities under Pos consensus of relay workshop; 3、Sharing own server data for audit; 4、(currently not involved in function) Providing central account with related business help, technical support. 5、Transfer and purchase; 6、(currently no function involved) Defi purchase; 7、Join the trading chain mining with the permission of the central account. (This situation only occurs when there is a large number of blocked transactions in the trading chain)

Sources of income and expenditure for the full node account: 1. Rewards obtained after finishing the final solution proposed by the relay workshop; 2. Rewards given directly by the tap account; 3. Rewards and help from real-world policies; 4. Income and expenditure generated by transfers and purchases; 5. (Not yet covered) Expenditure and income from Defi

purchases; 6. Mining proceeds after entering the trading chain with the permission of the central account.

Trading ***Chain Account*** Commonly known as "mining account", it is a generic term for each sub-account type of trading chain. In the future, CyberFang can open more distinguished sub-accounts under the trading chain account in the national context. For macro regulation. For example, the account of a worker in Ji'an City, Jiangxi Province who was issued a mining machine, the account of a farmer in Anhui Province who was issued a mining machine, the account of a help program in Yunnan Province who was issued a mining machine, the account of a village in Hebei Province who purchased a mining machine on their own, and so on. The token system corresponding to these sub-accounts is not the same. In other words, different accounts mine in different "sub-transaction chains" and exchange them for Cybercoins in the form of tokens.

In general, the functions of a trading chain account are the same as those of a regular account, except for the following additional functions: 1. mining work under Pow and ethash consensus; 2. issuance of tokens under ERC20-based contracts and participation in the mining process therein.

Receipts and expenditures on the trading chain account (more than the ordinary account): 1. rewards from mining (net of taxes); 2. token rewards, providing a channel for conversion into cybercoins (with reference to the exchange rate net of taxes on cybercoins corresponding to the exchange rate at the time). 3. the rest of the receipts and expenditures with reference to the ordinary account.

4.3.3 Optimization scheme (draft)

The optimization schemes are drafted considering various scenarios that may occur when Cyber Place is applied in practice. Since these optimization solutions are hypothetical until Cyber Place has problems in practice. Therefore he is not the solution that Cyber Place must adopt. And it is very likely that in future practice, these solutions will not be used at all. It is also possible that huge modifications to the scheme will be needed. But it makes sense to do so, and he is himself an exploration of the Cyber Place application. Although he can't really anticipate the future problem in practice and solve it in advance, but at least it gives people an idea to solve it.

Thunderbolt Network: Thunderbolt Network is a Thunderbolt Network optimization scheme similar to that in Ethernet. On the integration of CyberFang space tree. There may be inefficiencies. However, we can expect that in the actual integration process, it is not really necessary to do purposeless integration search in every integration cycle. Take the integration behavior of a general account in a general workshop. Often, behind a Cyberworks account are people with regular online habits. Therefore, the web behaviors he records are always concentrated in a few websites. Therefore it is natural that when it integrates in the general workshop, it will always be easy to form a record of interactive behaviors with those

CyberFang accounts who have the same Internet habits as him. Therefore, we do not need to search the whole web behavior in the ordinary workshop without purpose every time. During the integration process of several previous times, the connection of Cybershop accounts that often have a common record will slowly be formed. Thus, it is possible to form a family and friend connection of a Cybershop account in the first several records of a Cybershop account (note that it is not the family and friend connection of the subject of the Cybershop that is recorded here, but of the Cybershop account). From this, we can make the following priority settings according to the habits of this Cyber Place account in recording online behaviors, such as: 1. Cyber Place accounts that frequently record to the same behaviors. 2. Cyber Place accounts that occasionally record to the same behaviors; 3. Cyber Place accounts that do not record to the same behaviors. This results in a hierarchy of Cyber Place accounts in relation to each other. When a behavior data block is broadcast to the general workshop. Due to the integration advantage (i.e. the uploader is bound to focus first on what he/she has uploaded), several Cybershop accounts will first check if the account with priority 1 has recorded the same behavior. After that, they will integrate by priority. Doing so can greatly improve the efficiency of integration in each workshop. Similarly, in the relay workshop, the full node accounts can also do the same job.

Client monitoring options Ordinary clients generally monitor network behavior according to the user's access to the cell phone, computer browsing web pages and operations synchronized. However, it is also possible for users to choose to monitor several web pages or websites, traverse the websites specified by the user and record the behavior of the specified websites by themselves (of course, doing so does not have the advantage of recording their own web browsing behavior in advance).

Website (full node account) browsing optimization Since CyberFang records behavior based on multiple interaction behavior. This will lead to a future problem in the Internet where the popular sites are more popular and the less popular sites have no one to participate. At this point, it is possible for the website (full node account) to sign an agreement with the central bank to make the central bank regulate the behavioral rewards issued to the website higher. The full node account (website) cannot send rewards to users on its own, but must first give the money to the central bank, which will then send rewards to users. This is used to attract users to visit and leave comments on the site. The central bank can also support or suppress some sites on its own according to its policy.