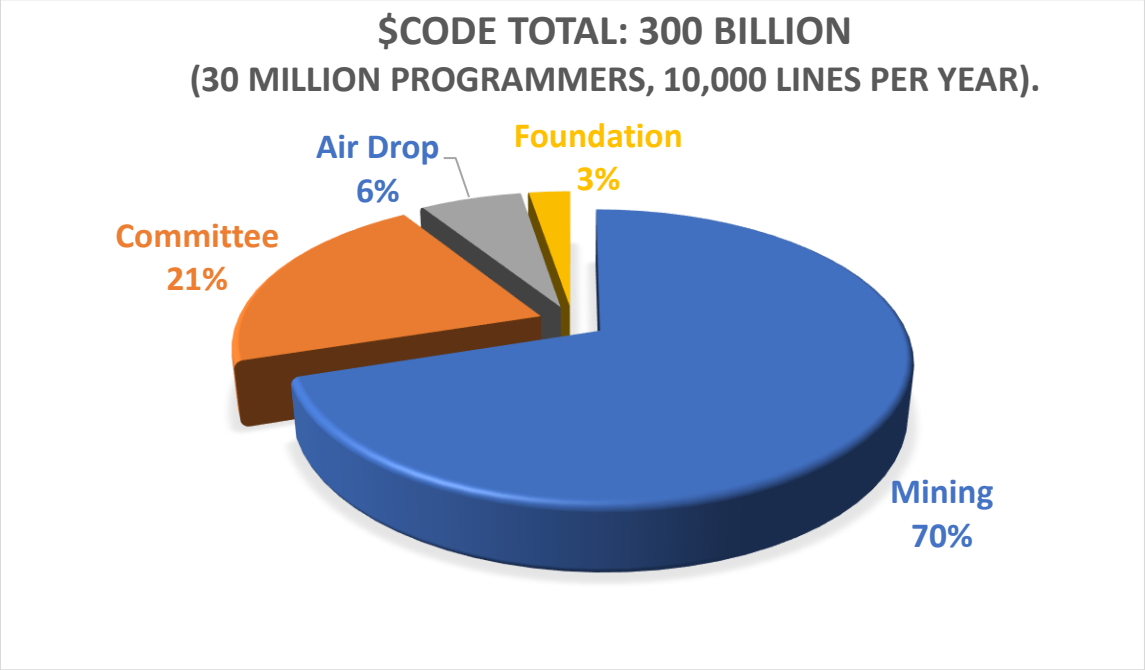
CodeDAO White Paper (Draft)

1. Introduction

CodeDAO is decentralized GitHub . Implemented by the CYFS Core DEV Team based on the CYFS protocol, the bootstrapping of the decentralized system is realized for the first time: the development of the decentralized system not rely on any old centralized platform. CodeDAO conducts a basic measurement of the value of source code through Proof Of Code Power (PoCP), means “code to earn” . In the future, CodeDAO will be a development platform for all decentralized projects and open source projects. It supports project teams to use DAO to effectively manage their own projects. We provide "SourceDAO" designed for software decentralized collaboration.

2. The $ CODE Economic Model

Total $CODE : 300 billion



21% of $CODE is allocated to committees, each committee seat holds 1% of $CODE. The first 5 members are founding members , and subsequent members must comply with

CodeDAO rules. The committee has a total of 25 members, and the last 4 members have no reserved $CODE.

9% of $CODE is reserved for the CodeDAO Foundation, and the use of the $CODE held by the Foundation requires the authorization of the committee. Its use is mainly: early team incentives, operation activities (such as airdrop for existing open source teams). The CodeDAO Foundation complies with regulations to disclose the usage and overall financial situation of its $CODE .

70% of $CODE will be mined in 1024 months (1 revenue decay every 16 months, a total of 64 times, and a total of 2.048% of $ CODE will be mined in the first 16 months) . Coding on CodeDAO and other activities can get PoCP (Proof of Code Power) , submit PoCP will earn $CODE .

The price logic of $CODE

the average price of 1 line of code, 1/300 billion of the value of all open source code of mankind in the future

Usages of $CODE

- Stake/pay to support your favorite projects/features
- Users stake $CODE to get some fixed professional titles, or improve their credit
- When the Project expands, core members need to stake CODE, or there are enough members with professional Titles
- When using some of CodeDAO's competitive features (project rankings, etc., roadshows with limited places, etc.), you need to stake or pay $CODE

Rights of $CODE

- Participate in the governance of CodeDAO itself.
- The right to receive CodeDAO dividends. CodeDAO itself has the ability to obtain income, and its income will be distributed to holders of $ CODE according to the functional contract.

How to get $CODE

- Creating a valid Commit on CodeDAO will generate Proof of Code Power, which can be rewarded with $CODE
- PoCP will be generated for operations valuable to software development . PoCP is first sent to Repo (Project), and then decomposed into specific operations.
- Project parties can also design their own rules to reward contributing developers, or those with special contributions, with additional $CODE
- By holding CodeDAO-related NFTs to get airdrops, addresses holding MileStone-NFTs and related NFTs have the opportunity to get more airdrops.

Milestone-NFT

CodeDAO is implemented based on cyfs:// , so rights of data created by developers has been confirmed by default (that means every data is NFT), and further economic value can be obtained through the concept of "data is an account". The governance structure design of CodeDAO itself also follows the basic governance framework of SourceDAO . When faced with major decisions, holders of $CODE need to participate in the decision-making by voting. For a major proposal that finally passes, the proposal is a programmable Milestone-NFT belonging to the proposer, and the vote is the NFT associated with it. When an address has Milestone-NFT and a certain number of votes at the same time, the programmable feature of Milestone- NFT takes effect, and the NFT of these votes is combined into a **complete Milestone-NFT** , and has a higher collection value.

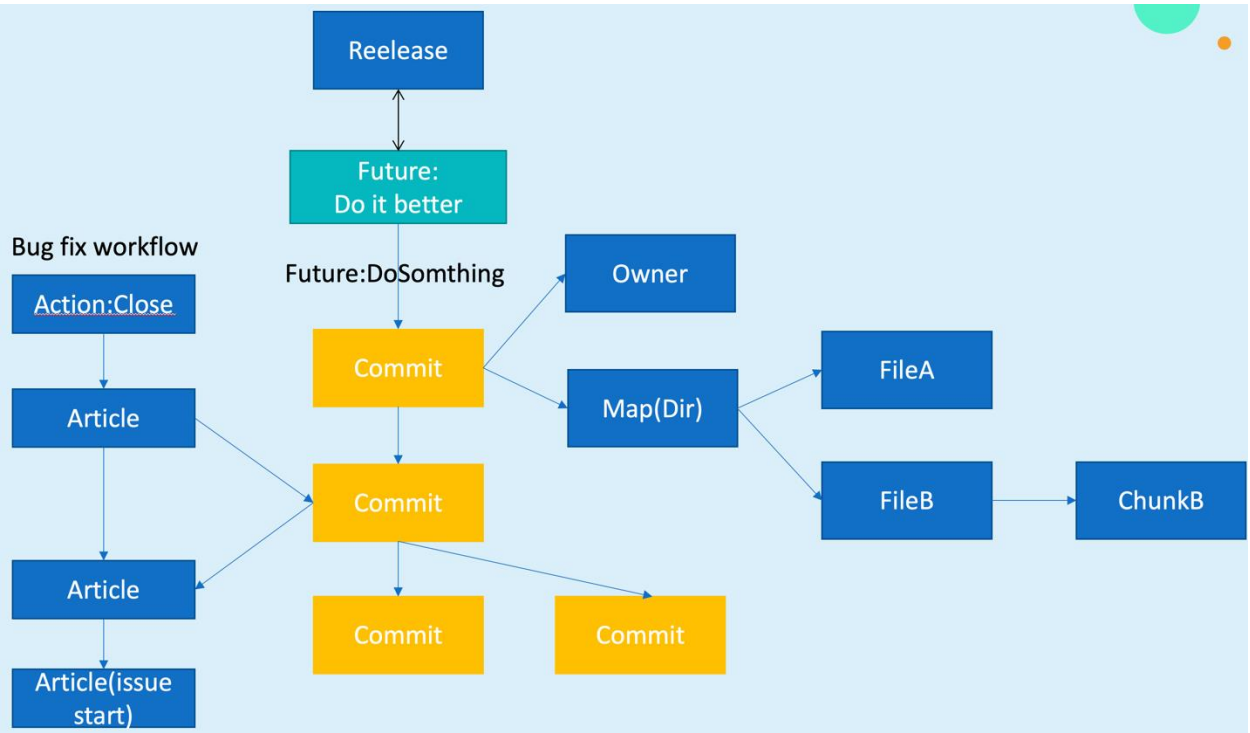
This design will increase the enthusiasm and prudence of $CODE holders to participate in major decisions.

CodeDAO has a total of 64 Milestone -NFTs , with the growth of the project will gradually Mint . The early Milestone-NFT is CodeDAO's white paper (4 versions), the first use card for committee seats, and major decisions related to CodeDAO releases.

3. Proof Of Code Power (PoCP)

When developers conduct activities on CodeDAO (especially coding activities), they will be rewarded with $CODE according to the PoCP of their behavior.

The evaluation of PoCP is composed of the workload + quality + final value of an activity. The evaluation has an objective part and a subjective part. The objective part is calculated by **Repo Rank**(similar to Page Rank) and workload composite composition. Simply put, the more users a Repo has, the more other Repo's rely on the Repo, the more active the related activities, the higher the Rank of the Repo, and the higher the PoCP generated by the activities in the Repo . Therefore, the objective PoCP of a single event will be largely affected by the objective value of the Reop where it is located. The subjective part is evaluated by the CodeDAO committee according to their own rules. With the development of the project, the proportion of the subjective part in the PoCP will gradually decrease.



New activities will also drive old activities to generate PoCP. As shown in the figure above, a successful version release will cause all related activities of this version to generate PoCP again .

The design of PoCP is the key design of CodeDAO, and will invest core resources in the development process of CodeDAO to continuously improve it according to the actual situation. We will describe the detail of PoCP in Code DAO's technical yellow paper.

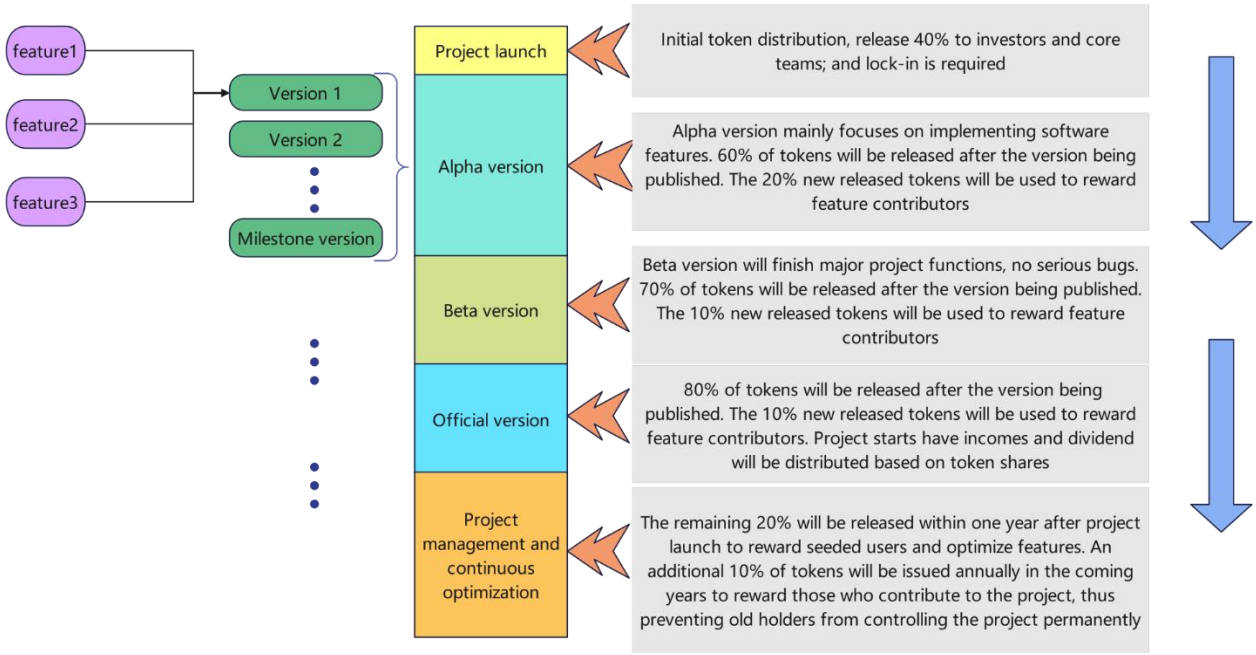
4. SourceDAO

The concept of DAO has been proposed for a long time, and we can come to a conclusion: not all businesses are suitable to be carried out based on DAO . We believe that at this time, only organizations whose people, money, and finance can be completed in the virtual-world are suitable for DAO. A large number of DAOs have done a lot of designs and attempts in the fields of investment decision-making, personnel appointment and dismissal, income and dividends, and other fields related to people and finance, but there is very little practice based on DAO to collaborate to complete one thing. At first, this field is highly specialized Related, usually requires the participation of a large number of experts, on the other hand, completing whole task usually requires the support of a complex information system, and a practical information system cannot be realized based on smart contracts.

Open source organizations have a long history and brilliant achievements. Practice has proved that an open source organization can achieve the goal of writing better code only work in virtual world . Therefore, we believe that software development work is very suitable for DAO. We call this DAO for decentralized organizations to jointly develop software as **SourceDAO**.

SourceDAO can be divided into LibraryDAO and ProductDAO (ServiceDAO). ProductDAO can be divided into four categories: those with Crypto income and those without Crypto income, whether it is oriented to end consumer users.

The trusted workflow of SourceDAO is as follows, and CodeDAO implements the corresponding system based on this process. This white paper is not a software requirements specification, and we do not intend to give a complete explanation of the design, but only explain its key design (see the figure below for the overall process).



SourceDAO basic process:

1. The founding team (can be 1 person) creates a Repo, writes down ideas about the project. The way SourceDAO works at this stage is that a simple majority of administrators handles all transactions.

2. The founding team uses the standard git repository provided by CodeDAO to collaborate and carry out some early development work freely. There is no complicated process for development here. But unlike other git platforms, everyone's git commit is an NFT with long-term value, and can generate PoCP and earn $CODE.

3 . The founding team decided to make the project public. Open projects need to prepare a white paper, select the SourceDAO template, and fill in the parameters to complete the establishment of the DAO. Based on the initial rules of DAO, the founding team has a certain Project Tokens . At this point, DAO has been irrevocably made public . At this moment, the founding team has completed the transition to DAO, and through CodeDAO has: DAO's personnel, finance, major decision-making sections, as well as the type and parameter constraints selected according to SourceDAO The trusted project development process.

4. Then Project started to move forward according to the Alpha , Beta .. plan agreed in the white paper . In this version plan, the official stable version release is very important. Before the official stable version, Source DAO's rules tend to encourage rapid progress, and after the official stable version, Source DAO's rules encourage more fair and stable iterations. Different DAO templates define the conditions for reaching the official stable version, the key conditions is that the Project has enough publicity (enough participants) or enough influence (enough users), or the income arrived the line.

5. Each major version is composed of a series of Futures during planning, and each Future can agree on Token rewards. For example, from the Alpha version to the Beta version , it is agreed that 10 % of the Project Token can be released, then all Future rewards during this period are at most 10 % of the Token. In addition to Token rewards, Future can also attach other Token rewards. For example, consumers can request the Project to add a function through issue, and give a award of 1 BTC to this function.

6. After the version is released and accepted, the agreed Future rewards will be automatically transferred to Future. Future will make an automatic and objective distribution according to the contribution (by PoCP) of the participants. The Project Manager of Future can distribute the subjective part of the reward within the scope of his own authority.

7. When the Project cannot reach the consensus (the version always fails to meet the release conditions), anyone can Fork Project . A new Project DAO is created after fork, new project DAO is back to the initial part and can be reassigned to a new Project Token. The forked project can be set to have a certain inheritance relationship with the old project: the new project Token will be airdropped to the Token holders of the old project.

The improvements to the above process aim to achieve three key purposes of SourceDAO :

A. The game based on the maximization of individual interests can lead to the development of collective interests

There are two core games in SourceDAO .The first is the game of decision-making power: early team contributors usually own a large number of projects Token, the decision-making power is centralized, but the influence of the project is small, and the price of the token is also low. As the project grows, more and different people will get project Token by DAO rules, the decision-making power of the project will be further dispersed, but the price of Token is also high. Another core game is the game around "version-acceptance". After the important version is accepted, a lots of project Token will be released (additional shares) by DAO rules, the increase in liquidity will make the drop in the price of project Token ,and increase the number of people participating in the project's dividend distribution. On the other hand, only after passing the acceptance of the important version let the project become more mature and obtain more resources from CodeDAO to gain more new users / developments investors/investors. This game will make prject Token holders treat version acceptance with caution, and strive for important versions from the perspective of maximizing their own interests. At the same time, the rights and interests will not be concentrated on the early main contributors and Project Token holders, so that the subsequent contributors can obtain more reasonable benefits.

B. Contributors are always free

The participants of SourceDAO are developers. Developers always have the right to overcome complex political issues to freely implement the functions they want. We encourage developers to Fork. And for developers, to contribute to mature large projects, the Token obtained is relatively small, but the price of Token is relatively higher. Contribute to immature new projects and get more tokens , but the price of tokens is relatively low. Token holders of each Project must carefully consider how to make decisions to retain the best developers. CodeDAO will realize the dynamic balance of the distribution of intellectual resources in the open source ecosystem with the support of this underlying logic .

C. Trusted Workflow

In addition to the traditional struggle between democracy and efficiency, the main problem of the current DAO is the inability to effectively implement the resolutions that have been reached. The key issues that cannot be implemented effectively are:

1. The decision-making level cannot obtain comprehensive, accurate and credible information, and the information provider can deceive the decision-maker,
2. There are too few functions to execute the resolution using smart contracts, the cost is too high, and the performance is too poor.

CodeDAO is built on CYFS, and the "Data Exchange Contract" theory of CYFS can effectively track and verify the trusted execution of traditional full-featured information systems. And based on the data property rights theory of CYFS, the process of executing a decision generates multiple key data (Milestone-NFT) belonging to different executors . These NFTs confirm each other, which greatly increases the risk of fraud. Cost, through the game consensus among team members, the effective supervision of the implementation of key decisions is realized, and finally the whole process from resolution "proposal- > decision- > execution- >acceptance- > reward or punishment" is realized .

5. SourceDAO 's development of DAO

We believe that DAOs will eventually replace companies in many areas in the future as the preferred organizational structure for people with common goals. CodeDAO uses the new trusted computing capabilities brought by CYFS , and has also made some improvements in the three directions of voting decision, personnel appointment and dismissal, and financial management that traditional DAO design is more concerned about.

Decision board

Anyone has the right to put forward a proposal, but the importance of the proposal will be affected by the contribution of the proposer in the DAO and the support rate that has been collected (achieved by staking Token). By sorting the importance of proposals, the problem that there may be too many DAO proposals can be effectively solved.

Another improvement of CodeDAO's decision-making is MileStone-NFT, participating in important decisions can get at least one historic NFT, which will change the problem that most members in the DAO are reluctant to vote.

Financial disclosure

Each DAO is usually designed with a core Token, which essentially replaces shares and plays a key role in the operation of the entire DAO. In practice, this Token is usually used for financing, and a large number of illegal financial activities have arisen. In order to protect the majority of investors, the regulatory agencies in various countries are more cautious about DAO. We believe that in the future, DAO must be the most transparent human organization in the disclosure of financial reports and key information, and it will be fairer to investors. CodeDAO provides a complete financial system for each project, and its basic functions are:

The holding wallets: Generally divided into asset accounts, contract accounts, and budget accounts (teams with budget accounts can withdraw freely). Based on blockchain technology, we can also easily see real transaction records.

Revenue contract: List the contract addresses (there can be multiple) that the system uses to obtain revenue. Based on the contract addresses, the overall revenue structure of the system can be further analyzed.

Spending contract: Automatic payment based on smart contracts. These fees are automatically transferred out when the system is running, and are not transferred by specific managers.

Budget management: Everyone can see the composition of the budget, discussion records, and current expenditure records. The most common use case of budget is for some scenarios that cannot be spent by encrypted assets. For example, the project hired two full-time staff and needs to pay them monthly salaries in dollars. The person in charge of using the budget is required to submit the necessary reports and records of the use of funds.

Investment management: It can be either the investment accepted by the project or the external investment of the project. The investment account needs to be opened only after the project reaches a certain level of maturity.

Custom DAO

CodeDAO also allows a Project to further expand the functions of DAO by developing plug-ins according to its actual needs, which gives CodeDAO the opportunity to become the basic platform of a new cross-organizational workflow system and information system in the Web3 era.

6. Liber Internet Movement

We are big believers in open source and firmly believe that the 4 fundamental freedoms of the free software movement belong to all. But the free software movement is now nearly 40 years old, and open source itself has undergone a lot of changes. We hope to solve several key problems of open source software through CodeDAO, better protect people's basic rights, better reflect the value of code, and improve the relationship between people and technology.

Building open source basic Internet services

The historically important free software movement has triumphed, but people are using less and less software , replaced by Internet services. All software is on the way to service. According to the technical architecture of today's Internet services, "whoever owns the server owns the service". Under this rules, the model of solving software copyrights through open source cannot be applied to solving the ownership of services.

Bitcoin has pioneered a new technical architecture for Internet services: a decentralized distributed system with incentives, so that services can run in a decentralized network, and services are no longer owned by a single person or organization. Bitcoin became the world's first "liber service". However, decentralized incentive systems based on blockchain technology usually run slowly, have high calling costs, are widely used in the financial field, and cannot be used to build basic Internet services.

Technically, based on the "Data Exchange Contract " theory of CYFS, a large number of basic Internet services can be realized in the form of free services (decentralized architecture) without damaging the experience. We need more incentivized decentralized systems. The goal of the Liber Internet Movement is to complete the liberalization of basic Internet services and ensure people's freedom to use basic Internet services.

CodeDAO is a decentralized R&D collaboration platform based on the CYFS protocol, which itself is also a free service. The R&D collaboration platform is the basic service of the Internet. In the future, the R&D of all liber services should not rely on centralized services for collaboration. CodeDAO sets an example for the liberalization of all basic Internet services in the future.

Open source contributors should have incentives

decentralized system proposed by Bitcoin lies in not believing that human beings can make selfless contributions for a long time. The free software movement has made open source deeply rooted in the hearts of the people. To make open source the cornerstone of long-term support for the development of core software technologies, consideration should be given to designing a long-term incentive mechanism so that contributors to open source projects can receive reasonable returns.

In the past , the GPL was a key weapon in the free software movement. Although many people did not like the GPL , the less liberal GPL protected the freedom of more people. GPL makes open source no longer just a display of noble spirit, but tells all contributors that: everyone must work together to achieve the victory that free software movement. Under the actual constraints of the GPL, all GPL software contributors form a decentralized community of interests with the same goal, which is essentially today's DAO .

In order to allow open source contributors to obtain reasonable returns, we have upgraded the GPL . Before the upgraded license is accepted by the GPL, we call it LIL (Liber Internet License) . The LIL imposes two new requirements while preserving the key features of the GPL.

1. The project using LIL must be a DAO. If the project is not a DAO, using LIL will fall back to GPL, but the contagion of LIL is still there.
2. The Project using LIL should give its Project Token to its upstream Project according to a certain percentage .

These two requirements further protect the interests of open source projects on the premise of preserving the contagiousness of the GPL . A popular/core project based on LIL will get a lot of tokens from other projects. For users of open source projects, give their own published projects Token has no direct cost and no additional burden. Under the constraints of the new LIL, the commercial revenue obtained by the decentralized Facebook in the future will be passed on to all the open source projects it depends on. In the case,these open source projects have the opportunity to obtain more intellectual resources to improve these very human beings. important code.

Who own open source projects

In recent years, many “do-not-be-evil” commercial companies have used the community's natural favorability towards open source to build some business models based on open source, and have achieved considerable commercial success. Although objectively attracting more people and capital to pay attention to and enter open source, it brings new energy to the development of open source itself, but in essence, these companies are engaged in authoritarian open source, which is forced to transfer through the CLA (contributor) agreement. many rights that belong to contributors. Who should own open source projects? How to own? Who has the right to initiate and complete an important decision (such as switching licenses), many questions have no standard answers in the traditional open source community, but these questions must be solved for many projects, and different people are in different situations. purpose, gave different answers. CodeDAO solves the above problems more holistically through the rules of SourceDAO.

Therefore, LIL requires Project to be a DAO , which further guarantees the rights and responsibilities of open source projects, and allows those who own Project Token to participate in Project decision-making according to the rules. Let open source

contributors and users establish a more direct binding of responsibilities and interests, and make open source software development decisions more in line with the demands of most people.

7. Implementation of Code DAO

CodeDAO is a CYFS symbiosis project born in 2020. It shoulders the important task of verifying the completeness of the CYFS protocol. In order to achieve the goal of CYFS decentralization, many functions are planned. CodeDAO will complete the prototype version development in September 2022 , which basically achieves the purpose of CYFS decentralization and bootstrapping: the developer community of CYFS can no longer rely on any traditional Internet services today.

The prototype version has implemented the following basic functions:
1. Create a decentralized Code Repo. After the Repo is created, there is a unique repo_id in the entire network . Developers can use the Repo using the git standard command line.

git clone cyfs://o/$owner_id/$repo_id

Then , operations such as *git commit/push/pull* can be performed normally .

2. Build some basic Web pages around the git Repo to view the content of the branch online and view the commit history. The important point here is to make all git commits an NFT and guide users to use NFT-related economic functions.

3. Decentralized issue management. Can be further developed into a decentralized message board/forum.

4. Decentralized wiki management. Including entry management and article management.

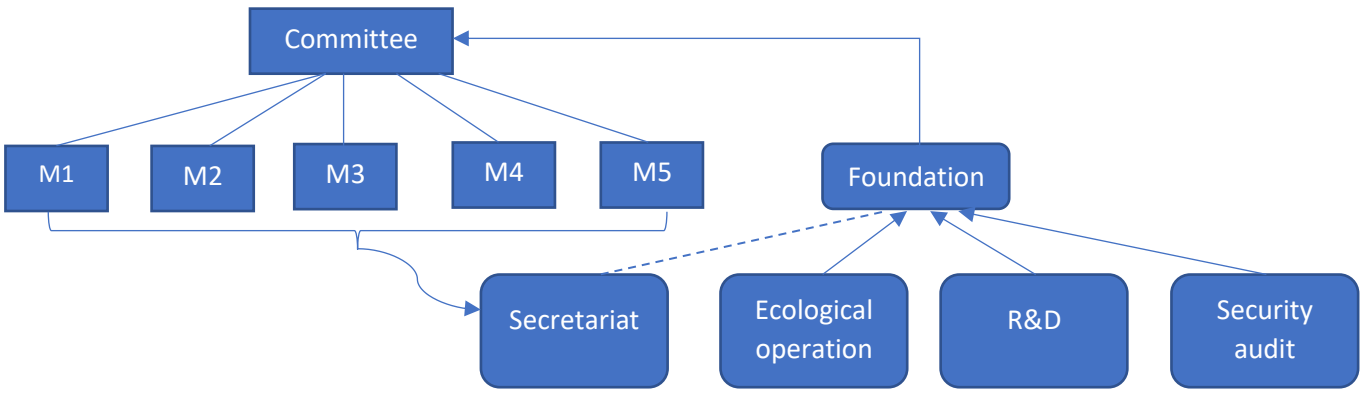
5. Decentralized instant messaging, including friend list, friend group, Direct Message , Group Message . This sector can be the starting point for future decentralized social platforms.

6. With the support of the above functions, a decentralized personal homepage that can display everything is realized. It can be the starting point of future decentralized social media.

CodeDAO fully follows the architecture of the CYFS DEC App. And it is developed and almost completely uses all the basic functions of CYFS . This article will not an in-depth understanding of the principle of the DEC App framework, you can refer to the relevant documents of CYFS. (http://www.cyfs.com Or check out the CYFS code repository temporarily hosted on GitHub : https://github.com/buckyos/CYFS)

The infrastructure of CYFS , using OOD-Network at the Layer-0 provides CodeDAO with basic service running container and identity management functions, and further provides decentralized storage, decentralized CDN, Data Exchange Contract framework, asset bridge, consensus list framework ... The CodeDAO development team deployed only 3 OOD for release applications. It has successfully built a highly reliable and highly available decentralized code collaboration platform that can theoretically be used by tens of millions of people. We believe that the implementation architecture of CodeDAO will become the typical architecture of future decentralized Internet services.

8. CodeDAO governance



Code DAO Committee

The Code DAO Committee is the decision-making body of CodeDAO, with a total of 25 members. The composition structure we conceive is: 7 seats for open source contributors, 4 seats for open source foundations, 6 seats for universities, 4 seats for investment institutions, and 4 seats for open source enterprises. The first 21 committee seats have 1% of $ CODE , and when CodeDAO reaches the set goal, a part will be unlocked to the committee members who have the current seat.

Election and term of office for members:
Before the official online launch, the first 13 seats are invited to join the committee. $CODE holders can also be nominated to the committee by staking their tokens. Commissioners at this stage can take office without staking any $CODE . The last 12 seats are completed using an open election, and all $CODE holders can elect two new members in each round of voting. The participating members can buy and staking 0.1 % of $CODE to join, or they can be selected by the committee (must staking at least 0.5 % of $CODE)

After the election begins, the committee members with seats should hold at least 0.1 % of $CODE , otherwise they will be frozen. If you cannot replenish enough tokens within 1 week of qualification freeze, you will be automatically disqualified. Members with seats can also voluntarily give up their seats. Abandoned seats become open a week later for the next round of elections.

The committee can also initiate a resolution to remove a member: After two weeks of voting meet the conditions for passing major issues, the member loses his seat, and the seat becomes open one week later.

The term of office of the members is 16 months, with a maximum of two term. Commissioners who have lost their term can run for election after the next term.

The committee elects a secretary general and 2-4 standing committee members to handle the daily affairs of the committee and to guide and supervise the daily affairs of the foundation.

CodeDAO Foundation

CodeDAO Foundation is the executive agency of CodeDAO , which consists of four working groups: Secretariat, Ecological Operation, R&D, and Security Audit. Decisions of the Foundation Executive Committee. The committee can directly appoint and remove members of the foundation. The foundation will also establish multiple legal entities with clear functions when necessary according to the decision of the committee.

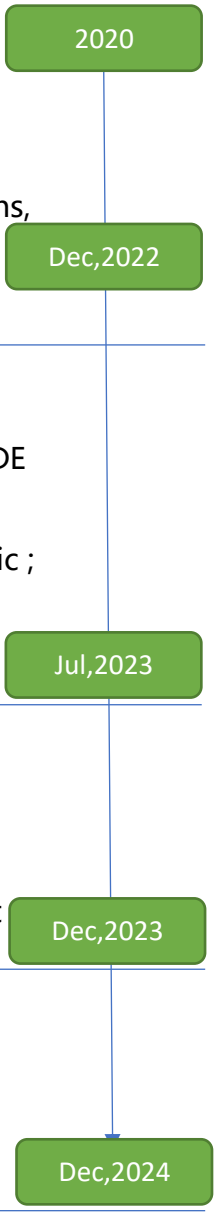
The foundation's finances are open to the public, and its financial budget is audited and approved by the committee and implemented as planned. The foundation directly holds 9% of the $CODE according to this rule , of which 6.4% of the $ CODE is used for airdrops, and the remaining 2.6 % can be used freely according to the decision of the committee (such as additional incentives for full-time staff in various working groups) . To supplement CodeDAO's early experience funds, the foundation can sell its MileStone - NFTs and part of $CODE to investment institutions, but not more than 6 billion (2 % of $CODE) .

9. Team Introduction

CodeDAO is a CYFS symbiosis project born in 2020, by CYFS Launched by Core Dev Team . CYFS Core Dev Team consists of the core R&D team from China's famous P2P download software Xunlei(NASQ:XNET), with decades of rich experience in network protocols, decentralized systems, distributed storage systems and cloud computing. The founder, Liu Zhicong, is the chief engineer of the Xunlei.

With CYFS Testnet_I will be launched in October 2022, and CodeDAO has officially entered the independent development stage. At present, two of the early five members of Code DAO have been confirmed, except for CYFS Core Dev Team ,another committee member outside the is FogWorks . Fog Works is a CYFS ecological company established in Silicon Valley in 2022, dedicated to the development of Web 3 decentralized storage software and hardware for ordinary consumers . For related information, please refer to: http://www.fogworks.io

10. Roadmap



Phase 1: Publishing the draft white paper;

> The prototype version of CodeDAO is online, and the first Hackathon;

Develop 4 committees (individual developers, open source organizations, universities/investment institutions);

CodeDAO open source;

Phase 2: Publishing the white paper;

Under the decision of the committee, the foundation will start the $CODE airdrop for the entire open source community;

CodeDAO releases Alpha version, and starts CodeDAO trial for the public ;

CodeDAO The open source repository migrated to CodeDAO Alpha ;

Develop 6-8 committee members;

Phase 3: release the official version of the white paper ;

Complete the last $CODE airdrop;

Develop 6-8 committee members according to the rules

CodeDAO released the beta version, $CODE entered the stable output

Phase 4: release the final revised version of the white paper;

The official stable version of CodeDAO is online;

$CODE forms a value consensus;

25 members have been developed;

11. Related information

CodeDAO official website: http://www.codedao.ai

CodeDAO Hackathon: https://codedao.ai/hackathon.html

Liber Internet Movement official website: https://www.fidao.io/index_en.html

CYFS : http://www.cyfs.com, https://github.com/buckyos/CYFS

Contact: liuzhicong@buckyos.com, bd@codedao.ai

Feel free to contact us to recommend yourself as an early-stage committee member or make an early-stage investment.