NODE PROVIDE COMMUNITY

THECHNOLOGY WHITE PAPER

CONTENTs

Abstract

The complete spelling of NPC is the Node Provide Community, which aims to create a large number of individual full nodes that provide a large amount of stability for the public chain, so that it make the new public chain truly decentralized, rather than just running on a network that is largely controlled by developers. Another goal is to provide fair and reasonable incentives and returns to node providers.

NPC's vision is to make it easy for every ordinary user to configure a variety of public chain nodes, not knowing how to install and deploy servers, without having to understand complex code, or follow up on new shared chains, but simply join NPC. Just do the same thing as browsing the Google Store, select the public chain node you want to be, and click on it. It's starting, it's done automatically, and you get the NPC and other public chain certification awards. The threshold for value creation in the blockchain area has been significantly reduced.

Chapter 1 Design idea

1.1 Introduction of Block chain Technology

Since the 1970s, with the rapid development of cryptography technology, distributed network, consensus algorithm and hardware storage computing ability, the conditions for the establishment of consensus mechanism among multi-agents through technical means have become more and more mature. It provides a new way to solve the trust risk, reduce transaction cost and enhance synergy efficiency in multi-agent environment.

In 2008, Nakamoto published the paper of title "Bitcoin: A point-to-point electronic cash System "Bitcoin: The paper by A Peer-to-Peer Electronic Cash system details how to create a decentralized electronic trading system. This kind of system does not need to be built on the basis of mutual trust between the two sides of the

transaction. For the first time, it realizes the establishment of the consensus mechanism among the trading parties through technical means, and the "block chain" is the basic technology that constitutes this electronic transaction system.

Ethereum, another pioneering blockchain project after Bitcoin, released a white paper in late 2013. By combining Smart contracts and block chains, the Ethernet solves the problem of the implementation of commitments between trading parties by automatically triggering executable electronic contracts on the basis of a consensual mechanism between the main parties of the transaction. It has effectively promoted the further development of the application of block chain industrialization. In recent years, the continuous development of blockchain technology and the accompanying digital currency upsurge have aroused widespread concern from geeks to IT technology circles, financial fields, industrial economy, government and public organizations, media public opinion, etc. We have carried out extensive and beneficial exploration and practice around block chain technology research, industrialization application, policy supervision and so on. The mature application of block-chain technology still needs to be done, but the idea of multi-agent consensus coordination mechanism will have a profound impact on social governance and business operation.

1.1.1 What is a block chain?

Block chain technology uses block chain data structure to verify and store data, uses distributed node consensus algorithm to generate and update data, uses cryptography to ensure the security of data transmission and access, and uses smart contract made up of automatic script code to program and manipulate a new distributed infrastructure and computing paradigm. In simple terms, in a block chain system, the transaction data generated by the participants will be packaged into a data block after a period of time, and the data blocks will be arranged in order of time to form a chain of data blocks. Each participant has the same data chain, and can’t be tampered with unilaterally. Any modification of information can only be carried out through the agreed proportion of the subject, and can only add new information, not

delete or modify the old information. In order to realize the information sharing and consistent decision-making among the multi-agents, ensure that the identity of each subject and the transaction information between the subjects can't be tampered with, open and transparent.

Technical commonalities of block chain projects: Block, account, intelligent contract, consensus, these four main parts constitute the current common model of block chain system.

1.2 On public chain, private chain and alliance chain

The block chain is currently divided into three categories: Private chain, public chain, alliance chain.

Private chain

It refers to the block chain with certain centralization control. Only using the block chain general ledger technology to account, it can be a company, can also be an individual. Exclusive access to the block chain write, this chain and other distributed storage scheme is not much different. The participating nodes are only users themselves, and the access and use of data is strictly managed. Because of the existence of centralized control, the alliance chain can also be considered as a private chain category. Characteristics of private chains: As all the users say, there are no features that can't be changed in the data, and there is not much protection for third parties. It is generally used as an internal audit. If the private chain can't make full use of the decentralized trust basis constructed by the public chain in practice, its development space will be limited.

Public block chain is the earliest block chain, and it is also the most widely used block chain. A completely decentralized block chain such as a bitcoin block chain that is not controlled by any one. Any individual or group in the world can send a transaction, and the transaction can be effectively confirmed by the block chain, and Anyone can participate in its consensus process. Participants in the consensus process maintain database security through cryptography and built-in economic incentives.

The characteristics of the public chain are completely open, uncontrolled, and rely on encryption technology to ensure security.

Alliance chain

Multiple pre-selected nodes are designated as bookkeepers within a group. Each block is generated by all pre-selected nodes, and other access nodes can participate in the transaction, but do not bother with the accounting process (essentially, managed bookkeeping), just become distributed bookkeeping, pre-select the number of nodes, how to determine the bookkeeper of each block become the main risk point of the block chain). Anyone else can use API of the block chain open to make a limited query.The nodes participating in the block chain are selected in advance, and there is probably a good network connection between the nodes. Other consensus algorithms that are proven by not workload can be used in such a block chain, such as the establishment of a block chain between 100 financial institutions, which requires the consent of more than 67 institutions before consensus can be reached.The characteristic of the alliance chain is that the alliance chain can do very good connection between nodes, it can run at very little cost, it can provide rapid transaction processing and low transaction cost. Good scalability (but scalability decreases as nodes increase and data can have some privacy.).The alliance chain also means that the block chain will not be used too widely and lacks the network propagation effect of bitcoin.

1.3 Background of the Times and Development of Motivation

Since the birth of Bitcoin in 2009, the people who first put into the machine as nodes and started mining bitcoin have been geeks, programmers and developers. Whether because of interest or other reasons, deployment nodes still have a certain technical threshold, and there are a lot of technical points that most people can't pay attention to. The blockchain technology to 2017, began to attract a lot of attention, whether it is the technical circle, the financial circle, or even the attention of the

general public. In the next 3-5 years, there will be a large number of public chains, hoping to become or surpass the giant of Bitcoin and Ethernet. There is no doubt that the competition between the public chain will be extremely fierce, eventually becoming a giant, will be rare. We believe that the future will only be the alliance chain and the public chain. The former occupies the enterprise internal application market, and the latter occupies the high-value block chain commercial market. However, the biggest pain in the blockchain public chain project, which has the highest value and the largest market share, is the lack of nodes in the early stages of its birth to ensure its advantage in the block chain. Users also lack sufficient identification and technical infrastructure to support valuable projects in the jumble of block-chain projects. This pain points make NPC come into being.

NPC will gather a group of dedicated service providers, and any new public chain that wants to get enough nodes can choose to pay NPC TOKEN to use community resources to reward node providers. Before the value of the public chain is uncertain, few users are willing to provide nodes, but if there is NPC as the value circulation, the project side simultaneously issues NPC and their own token. Then the user is willing to provide nodes for his project if he pays security. When the project succeeds and the token value of the project itself increases, there are people who are willing to provide nodes when the NPC is no longer issued. NPC acts as the medium of value transmission in the whole system, and provides value for different project parties in a unified way.

The Early TOKEN of NPC was released using ERC20 standards to ensure that the total is fixed, visible to all people, and fair. Later, as the main chain goes online, we will start the exchange mechanism of side chain coins of main chain coin 1: 1).

Chapter 2 Technical details

2.1 Technical architecture

This project consists of public chain project store, cross chain digital money wallet, block chain client container based on Docker, resource separation lock and reward algorithm model.

2.2 Application Store user role

Ordinary user

The user needs to authenticate the device and bind the corresponding wallet address to distribute the proceeds. After the initial setting is completed, the user can browse and search the public chain item of interest in the common chain project store, and at the same time, the user can choose to deploy the item to the device with one key, convert it into the actual node of the project, and participate in the data record on the chain. The user has an interest in interacting with other roles, while editing and adjusting the running project.

Project party

The identity of the project party needs to be officially reviewed, the project will be evaluated in advance, and the technology will be butt joint. Access to the community is possible only through evaluated projects. Through the evaluation of the project will have the relevant program node and client source is placed in the store. The user chooses to deploy, and the corresponding client will enter the user's DOCKER container to run. Each project party generates two wallets, one for transferring to the user to pay the rent, and the other for the total NPC of the project.

Official

Officials will have the right to minor adjustments to ensure that the ecological environment works, and that the community is not controlled by the giants. Official control of project audit, advertising and user systems. Officials are unable to operate

on the digital assets of users, but only to maintain and manage the ecology.

2.3 Cross chain digital money wallet

Cross-chain digital money wallets support multi-protocol digital tokens and fully support the customization requirements of public chain projects. At the same time, the wallet will not save the private key of the user, but will generate an account for each user. The official will asymmetric encrypt the MAC address of the client, generate a unique account, and log on as the secret key of the account.

Ensure one account to one machine, and at the same time the user's privacy is fully protected. Only active users can use many of the rights offered by the authorities. For example: Click on advertising to obtain incentive money, and only the accumulative contribution of certain resources of the user, will get the rights and interests to eliminate a large number of false, zombie account brush. It can ensure the health of the network and the economic system.

2.4 Docker container technology

Docker is an open source application container engine that allows developers to package their applications and rely on packages into a portable container, and then distribute them to any popular Linux machine, as well as virtualization. Containers are fully sandboxed and do not have any interfaces with each other.

Docker uses the client-server C/S architecture pattern, and uses remote API to manage and create Docker containers. The Docker container is created through the Docker image. The relationship between containers and mirroring is similar to objects and classes in object-oriented programming

Docker uses the C/S architecture Docker daemon as a server to accept requests from customers and process them (create, run, distribute containers).The client and server can either run on a machine or communicate through socket or RESTful API.

Main limitations:

Docker is based on Linux 64bit and cannot be used in 32 bit's linux/

Windows/unix environment.

As a result, Docker will only be deployed in officially released hardware, or in an linux 64bit environment.

2.5 Resource separation lock

In order to make the new public chain project fall to the ground in a short time, the model of resource separation is designed in the system. All the hardware resources (such as storage space, computing power and bandwidth) of the nodes involved in the project are all resource separate lock controls. Through resource separation locks, the total resources of the nodes are divided into 30% of lock-in resources and 70% of own resources.30of Lock-in resource is based on user's consent, and the resource pool is directly deployed by the project side through the official. All proceeds are owned by the user. The project side needs to pay more NPC for the reward. The 70% of free resource is the resources that users can choose to deploy through the public chain project store, which can be added or deleted by users themselves, and all the proceeds will be returned to users.

2.6 Excitation algorithm

NPC will be issued in a simple metering way:

C (single contribution)

TC (all personnel contribution)

R (amount of resources)

T (hours of service)

L1 (Project personal daily limit)

S (Project daily supply)

NUM (number of awards per day)

C = R * T;

NUM = (C/TC) *S;

If(NUM >L)

NUM = L;

For each project and individual, the formula for calculating awards is transparent, and the more services you provide, the more you reward, the more people, the less you reward.

Chapter 3 Application scene

3.1 Token use

As the token of the system, NPC token is an important tool of value circulation in the whole NPC system. As the carrier of value, it is also the original driving force to drive the node community.

3.1.1 For node renters to issue incentives

The public chain project with rented nodes (30% lock resources) will reserve a certain number of NPC. According to the size of the nodes, the time and the amount of storage space, we will provide NPC rewards to the users who provide the above resources according to the system algorithm.

3.1.2 For partner purchase and promotion

The project side uses NPC in exchange for advertising coverage, which affects the size of the people receiving the program's candy incentive plan. The node users can choose the common chain for the one key deployment of the client (70% idle resources) and get the TOKEN reward.

3.1.3 For the purchase of hardware

When the NPC full - node miner begins to sell, users can use NPC to offset up to 50% of the purchase discount. When the NPC full-node mine machine adopts a

limited sale strategy, the authorities will open the queue mechanism for bidding to obtain the right to purchase the best option using NPC.

3.1.4 As a medium for value transmission

The digital currency with valuable value can be traded. After constructing the relevant ecology, the NPC will positively dock various exchanges and increase the circulation of tokens, so that the NPC TOKEN can gradually appreciate as the project is strong.

3.2 Token acquisition

3.2.1 Prophase Community publicity Award

As a community that provides all node resources from the public, the community attaches great importance to the number and the total number of active members of the community. In order to get more people involved in this great cause, NPC officials will distribute NPC TOKENs to the world at an early stage, and members of the community who have obtained TOKEN will gather together with popular local social tools to open up resources for the next step in the deployment of technology.

3.2.2 Become a NPC node

Users who download NPC client or purchase hardware to become nodes will get the reward of NPC TOKEN and project TOKEN according to the system reward algorithm model and based on the common chain project and the resources provided by themselves. It can Implement the results of a single node, multiple awards.

3.2.3 Free market purchase

Users can purchase NPC and cash from NPCusing other types of equivalent digital currency and through point-to-point and centralization / decentralization of the

digital currency trading market, , so that it can achieve the purchase of NPC.

Chapter 4 NPC Foundation

4.1 Node Provide Community Foundation Ltd. Foundation

The Node Provide Community Foundation Ltd. Foundation (hereinafter referred to as the Foundation) was established and operated in London, England, dedicated to the development, deployment, promotion and maintenance of NPC.

The Foundation will help manage the general and privileged aspects of the NPC community by implementing good governance structures. The goal of the foundation governance structure is mainly to consider the sustainability of the platform, the effectiveness of management and the security of raising funds.

The Foundation publishes the progress of projects on a monthly basis, conducts annual audits and publishes audit reports.

4.2.1 Executive team

CEO Steven Marsh

Dr., University of Cambridge, former Millennium Foundation technical director of high-frequency trading systems, R3 CEV technology deputy director, chaired the DLT platform technology research anddevelopment and promotion work.

CTO Kai van Duuren

Graduated from Cambridge University, former Bloomberg Block chain Project platform architect and former core member of the HyperLedger Fabric project.

COO Dr. Derrin Disley

Cappa Tim Foundation. Investors

Dr., University of Cambridge

Now Kapadimu fund investors, the investment of more than 40 companies, the main investment field, block chain, big data, and biological technology, a total investment of more than 40 million pounds, the rate of return on investment of more than 20%.

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4.2.2 Advisory team

Dr.Michael Pederson

Dr., University of Edinburgh

Deputy Director, IBM Block chain Laboratory

Jon Travers

Graduated from Cambridge University,

Engaged in product design, product design spanning, big data visualization, data interaction, smartphone software, with AAA games. The total operational project is worth 10 million pounds.

Dr.Jonathan Miler

Abcam plc, chairman, investor, consultant, has helped more than 40 tech companies and achieve IPO on the London Stock Exchange.

Chapter 5 Development plan

5.1 Milestone planning

5.1.1 Early planning

Community needs support, some of the token will be distributed by NPC to as an incentive to early supporters and promoters. Any successful public block chain community has a large number of active people, especially technicians, preachers, and supporters.

5.1.2 Medium-term planning

Create a public chain app store, where users can choose to download the public chain directly from the app store, and install and deploy it to their own machine with one click. The public chain in the app store will not contain wasteful block chains, such as pow mining chains. The system will support new workload certification mechanisms such as DPOS, POS, POR and so on. The aim is to protect the equipment life and resource consumption of community members, and to avoid unnecessary waste of resources (such as electricity) supporting the block chain industry.

5.1.3 Later planning

The proprietary node provides the device. The community specifically introduces dedicated nodes to provide equipment, configure application stores, and use mobile devices to manage and control node devices. Enables the user to monitor the status of the node equipment at any time, anywhere. Node equipment is very different from personal PC, is to be able to maintain the stability of the node for a long time. Take the proof-of-replicable filecoin as an example, the node that provides storage can get a filecoin as a reward, but obviously.If the user wants to extract the file and your device is not online, the reward should not be received. So a proprietary device is necessary.

5.2 TOKEN allocation planning

The total circulation of NPC is 20 billion. 30% of them were given free to early promoters and registrants. Every 50 thousand NPC enjoys a 2% discount when buying a node host or client. The purchase node host will give 30% NPC, the remaining NPC will be paid to 10% of the hardware providers, 10% will be used for online exchanges, and 20% will encourage the technology team to update and iterate.

Chapter 6 Other

6.1 Terminology interpretation

6.1.1 Virtual machine

In this paper, we refer to state machine technology, rather than virtualization technologies, (such as:VMWareg)， and it is the running environment of the programming language for intelligent contracts.

6.1.2 Distributed

A distributed system is a system composed of a group of computer nodes that communicate, through the network and coordinate their work, and in order to accomplish common tasks.

6.1.3 Consensus mechanism

Consensus is a process in a distributed system that is used to achieve data consistency among all nodes. It realizes Data consistency across all nodes and agreement on a proposal.

6.1.4 PoW

Proof of Work workload demonstrates that consensus algorithm is first proposed in bitcoin. Digital currency miners receive block rewards by using random hash calculations, so that they can obtain the right to account for the current block. The characteristic of PoW is that hash computation randomly . It is difficult to cheat and easy to be verified. On the other hand, hash computing competition among miners wastes a lot of resources.

6.1.5 PoS 和 DPoS

The consensus algorithm of Proof of Stake is an alternative to PoW. According to the proportion of the rights and interests occupied by the nodes, the probability of obtaining the block accounting rights is determined. The more the rights and interests, the more opportunities to obtain the block accounting rights. DPoS goes further on the basis of PoS, where nodes delegate their rights to other nodes and which exercise power on their own behalf.

6.1.6 Intelligent contract

Intelligent contract is a kind of computer protocol, which aims to spread, verify or execute the contract in the way of information. Smart contracts allow credible transactions without a third party that are traceable and irreversible. The concept of intelligent contract was first proposed by Nick Szabo in 1994. The purpose of intelligent contracts is to provide security superior to traditional contract methods and to reduce other transaction costs associated with contracts.

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