Resource chain

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Introduction

With the continuous development of communication technology and electronic technology, the game media is constantly innovating, and the game industry has grown into a huge market of hundreds of billions of dollars. From stand-alone mainframe to end-game to page-game to mobile-game, the emergence of new media has brought more than 10 billion new industries.

However, the growth rate of mobile games, which has led the rapid growth of the game industry in the past decade, is close to saturation, while the innovation of business model has not yet been verified. The game industry may face a rare recession in the past two decades, and a new growth engine is needed.

The great development potential of blockchain games mainly comes from two points. First, the growth of traditional game industry requires the introduction of new gameplay, new modes and logic to break the ceiling of the existing industry and bring considerable increment to the game industry. Second,The traceability, fairness, transparency and more plastic economic model of blockchain can help traditional games break the existing pattern and provide new ideas and ways of playing.

In the past year, although blockchain games have developed, there are still outstanding problems and the road to development is confusing. But in the long run, the application of blockchain technology in the game industry will

bring unprecedented breakthroughs and changes, breaking the existing shackles and limitations.

Resource Chain believes: 1. Community-based operation of blockchain games will become the mainstream; 2. The profit model will be more diversified; 3. Blockchain technology will make the game world of "meta-universe" a reality; 4. "Explosions" game will drive the development of the whole industry; 5. Perfect industry ecology will be an important symbol of the eve of blockchain game prosperity.

Digital future centered on meta-universe

Countless people are eager to know how the next era after the Internet should be defined and where the next giant will be born. At present, Metaverse provides us with a vague and correct future direction, and is shaping a strong social consensus.

Meta-cosmic sword refers to the ultimate direction of Internet development, and it is a deeper practical application of virtual reality technology.

The concept of meta-universe originated from science fiction, or the "ultimate form" pointing to the Internet. Metaverse comes from the science fiction Avalanche by writer Neal Stephenson, which describes a world where people interact with various softwares in three-dimensional space with virtual images.

Conceptually, the word universe consists of Meta and Universe, Meta stands for transcendence, Universe stands for universe, which together usually means the concept of "transcending the universe": an artificial space running parallel to the real world. Looking back at the development of the Internet, from PC LAN to mobile Internet, the immersion of Internet use has gradually improved, and the distance between virtual and reality has gradually narrowed. Under this trend,Metaverse, where immersion and participation have reached the peak, or the "ultimate form" of the Internet.

Technically, on the basis of the traditional Internet, the meta-universe puts forward higher requirements in many aspects such as immersion, participation and sustainability, so it will be supported by many independent tools, platforms, infrastructure and protocols. With the maturity of AR, VR, 5G, cloud computing, cloud storage, cloud games, chain games and other technologies,Metauniverse is expected to gradually move from concept to reality.

Basically, the concept of Metaverse is a digital world, in which players can participate in and create social and economic activities with other individuals in a shared virtual environment. These computer-generated environments range from detail-oriented popular destinations (such as Hawaii or inland Australia) to the dystopian future world in our favorite movies.The possibilities are endless.

Project overview

As an epoch-making symbol, we will demonstrate and verify how to build a decentralized community autonomy online game asset platform.

—— Resource Chain 2021

Resource Chain (RR) is committed to building a blockchain game ecosystem. By combining the existing HTML5 game development with blockchain technology, it will create a one-stop blockchain game development workflow, bringing hundreds of thousands of developers and 1 billion mobile terminal users into the blockchain meta-universe.Resource Chain ecosystem includes open game platform, crowdfunding platform, digital asset exchange and incubator, providing comprehensive blockchain solutions for players, content providers, channels and advertisers.

Most of the core members of Resource Chain come from the unreal game engine development team, and they have 4 years' experience in HTML5 development workflow, which covers 14 development tools and all aspects of HTML5 content development. Resource Chain will provide a block link interface framework, which will not only support its own public chain, but also expand to support public chains such as Ethereum and EOS in the future.Game developers can easily and efficiently create HTML5 games based on blockchain.

”Cosmic Pursuit” movie chain tour product of the same name

With the rapid development of Resource Chian in the blockchain game industry, the industry popularity has increased rapidly, attracting a large number of excellent game teams and game producers. At present, the Resource Chain team has received investment from Hollywood film producers, set up a game development technical team, and work together to create a brand-new chain tour meta-universe around the movie ”Cosmic Pursuit”.

Problems to be solved

In view of some existing problems in the game industry, Resource Chain integrates blockchain with games, and solves the existing problems of online games through the construction of community ecosystem. In the future, Resource Chain will not only bring good entertainment and playability to online games, but also bring a safer, fairer and more independent game environment to all parties. Through the ecological construction of blockchain community,Help players protect their virtual property from theft and loss.

Resource Chain will solve the pain points of chain tour development, including high transaction cost, extremely slow speed, dependence on exchanges, great uncertainty, high development threshold, high user threshold, excessive non-game factors, poor player game experience, small user base and no distribution channel. With the empowerment of blockchain technology,Provide a future chain tour solution with players' experience, independent property rights, self-consistent economic system, transparent gameplay and no shady play, and the game is ecological. This scheme will be able to realize the meta-universe experience of interaction between the real world and the customized virtual world.

In fact, Resource Chain can be defined as a brand-new standard of augmented reality experience, which is positioned as the first "browser" in the world where users do not choose content, but the real world presents possible experiences according to specific geographical locations.

Resource Chain adopts the concept of open source, which means that the whole Resource Chain community contributes to its own growth, which also makes the whole platform independent of its creator, so that it can operate for a longer time.

Data can be trusted

Through the blockchain technology to record online digital assets, the core data such as the content, quantity and output of virtual props in the game are stored in the blockchain. In the whole community ecology of Resource Chain, game companies will be supervised and can't indiscriminately distribute game products and props. Similarly, the game data is made more transparent and credible,Reduce various contradictions and disputes between game companies and players caused by opaque information.

Game property confirmation

Online game is a small society, where a large number of gamers invest time and money in the game and create a large number of virtual property. Resource Chain will provide a safe and controllable storage method for the protection of game property and the exchange of rights. Based on the unchangeable and decentralized characteristics of blockchain, the production and sale of game equipment become difficult to tamper with. In the Resource Chain community ecology,All virtual property of players can be preserved forever and freely exchanged.

Realize the inheritance and permanent record of the game process

Once the game virtual property is linked through the resource chain, operations such as transfer, splitting and withdrawal will be strictly controlled through the public and private keys of the account. All operations need signature verification, and both sides of the transaction will leave traces.The

inheritance of game property will be permanently preserved and recorded to establish a full emotional connection between players and digital property.In the future, no matter when,Players can access, view and interact with each other on the resource chain to make it an eternal memory of players, and keep happiness and memories forever.

Core idea

Resource chain is committed to breaking through the isolated island phenomenon in the game industry and solving the problem of game asset ownership confirmation;At the same time, it focuses on the chain reform of traditional game development and the infrastructure construction of meta universe facilities.

In the field of data chain, each participant has his own unique game data on the resource chain as long as the data is on the chain.Moreover, resource chain helps game users to confirm the game data rights. The data owner is the data producer himself, and others have no right to obtain and use the data without my consent.After the user agrees with the data information,It can be opened to game developers, game organizations, game business organizations, game research institutions, and get the corresponding RR awards.At the same time, the accumulation of data information also increases the stickiness of game users, which helps to establish game users' lifelong game files and provide long-term and effective game service plans around the users.

In the field of chain reform, resource chain will provide one-stop online services for traditional game development, investment and financing services for game developers on the chain, and liquidity mining and product preheating and drainage services for game developers.

The purpose of these is to make it easier for traditional games to enter the blockchain industry, so that game developers with dreams can no longer worry about operation and capital, so that users can have a player center to exchange experiences and discover new high-quality projects;It's good to have any wealth opportunity in the chain game.

Decentralized governance (DAO)

The decentralized operation of resource chain is inseparable from Dao governance.As a decentralized autonomous organization, Dao maintains its operation through smart contracts. It encodes transactions and rules on the blockchain. It has various advantages and realizes openness, impartiality, no intervention and independent operation. On chain voting and management of decentralized autonomous organizations.The verifier is a distributed autonomous group that provides and obtains benefits based on participation.Chain tour / meta universe project can use the platform to run Dao governance mechanism, such as proposal and voting system, community fund collection, etc.

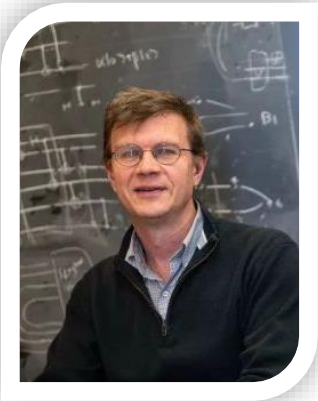
Resource chain will ensure the release and development of its own ecological applications until the establishment of a resource chain community sufficient for fully decentralized self maintenance.The Dao governance of resource chain ecology adopts the token incentive mechanism, which will be used as the value storage carrier to capture and solidify the growing value of the protocol network.

As a decentralized platform, resource chain is supported by a completely transparent decentralized autonomous system.This structure enables each pass holder to clearly understand all the technology construction and value flow within the public chain foundation, and fully reflects the public credit value of the blockchain.The completely decentralized management system

of resource chain will completely avoid the disadvantages of centralized management of traditional institutions.It provides a good and no trust risk solution for the problems of centralized management, tampering with data and independent decision-making group.

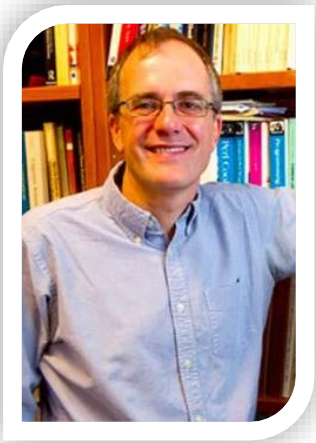
Resource chain is not only supported by the above-mentioned technical features, but also employs financial audit, analysis and investment practitioners from many global core financial institutions to join the game financial regulatory Council, providing professional supervision and guidance from the financial perspective.

Technical team background



- **Mikhail Lukin, Professor of physics at Harvard University**

It may not take as long as 30 years for quantum computers to move from scientific theory to popularization.This is an exciting field. We have entered a new era with great potential for scientific discovery, and soon we will begin to find that quantum computers can work on a broader scale,It includes material science, chemistry, physical systems, artificial intelligence and machine learning.

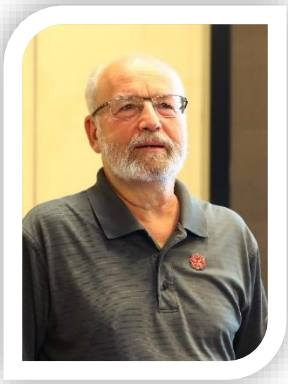


- **Christopher D. Manning**

Professor of computer science and Linguistics at Stanford University, director of the Stanford artificial intelligence laboratory and co director of the Institute of artificial intelligence at Stanford human center.The software he uses can intelligently process, understand and generate human language materials.

Bob coecke

Coecke previously served as a senior scientific consultant to CQC to develop and build leading quantum natural language processing (qnlp) capabilities. Prior to that, he worked at Oxford University for more than 20 years and since 2010 has been professor of quantum foundation, logic and structure at the University.Bob coecke has been appointed chief scientist in the field of quantum computing software and algorithms.



ADI Shamir

ADI Shamir is a famous international cryptography expert, who provides many new ideas for modern cryptography. He has been active in the forefront of cryptography for many years, and is recognized as a leader in the academic field.

Dr. Dan Boneh

Professor of Stanford University, his main research focus is applied cryptography and computer security.

… …

We are a team founded by professors' lifelong research achievements.In the past few years, resource chain has evolved from a research project to several teams and self-organizing communities that have been trying to make the vision of the world's computers a reality.

The team has been focusing on the development of new blockchain technologies for resource chain: establishing self sovereignty data, point-to-point e-cash protocol, cryptographic commitment protocol, on chain meta protocol, communication protocol, smart contract, Merkel tree, storage proof, copy proof, post, capacity proof, distributed storage, etc,Start to promote its potential use.

The blockchain technology of resource chain will be a global open-source and decentralized new technology application. Using its native cryptocurrency cross-border payment and settlement system, it will serve global applications, and will be called resource chain or RR.Resource chain enables developers to create arbitrary consensus based, extensible, standardized, feature-based, easy to develop and collaborative applications.By establishing the ultimate Abstract basic layer (blockchain with Turing complete programming language built in), resource chain enables anyone to create contracts and decentralized applications, and set up their freely defined ownership rules, transaction methods and state transition functions.

At present, there are 12 science professors in the research and development team, mainly focusing on research and development activities.Another 10 elite teams manage and implement their business plans.

Strategic platform

For gamers:

The strategy of resource chain blockchain platform aims to build a brand-new chain game ecosystem, provide ordinary entrepreneurs or players with a complete set of operation support such as products, marketing, payment funds, flow, etc., and provide comprehensive and personalized services for small online game operators through cooperation with third-party partners.

For game companies:

Resource chain will open up the links of ”chain game development operation promotion payment profit sharing”, so that all partners can enjoy corresponding rights and interests in the development, marketing, payment and technology of resource chain community ecology,It provides a complete blockchain operation solution for millions of on chain game developers, game operators, community ecological builders, etc., and forms a huge blockchain online game ecological network focusing on online game development, operation and consumption behavior.Resource chain global game blockchain is an integrator of channel resources,It can make game developers, traffic channels, players, community ecological builders, operators and so on can get their own corresponding interests.So that everyone can participate in the operation of the game, and get rich returns.


Development
Operation
Promotion
Payment
Profit sharing

Main chain function

Permanent preservation of game assets on the chain

Traditional online game companies, E-sports games or online Red economy all take game gold coins as the main value carrier, but there are some problems such as the weakening of game value exchange, serious centralization, insufficient customer stickiness, and difficulty in user recall after game replacement.

From the perspective of individuals in the global game blockchain, resource chain influences others by preserving and displaying the digital assets of personal virtual world and creating content, and forms a unique ecological chain of personal game assets storage and interactive sharing.In short, on the resource chain, all virtual assets of users will be well preserved and can be shared with others.

Asset added e-commerce capability and intelligent distribution function

In the resource chain ecosystem, participants can share or exchange digital assets online, and everything can be easily traded. The transaction is decentralized without any restrictions.

Resource chain provides a richer ecosystem for the game community by joining large game companies, channel providers and players. Game players can share other people's digital assets while managing their personal digital assets.The distribution commission system is a very important link in the

traditional social marketing. Its playing methods are diverse and complex, and the traditional system is weak in level and limited in coverage.

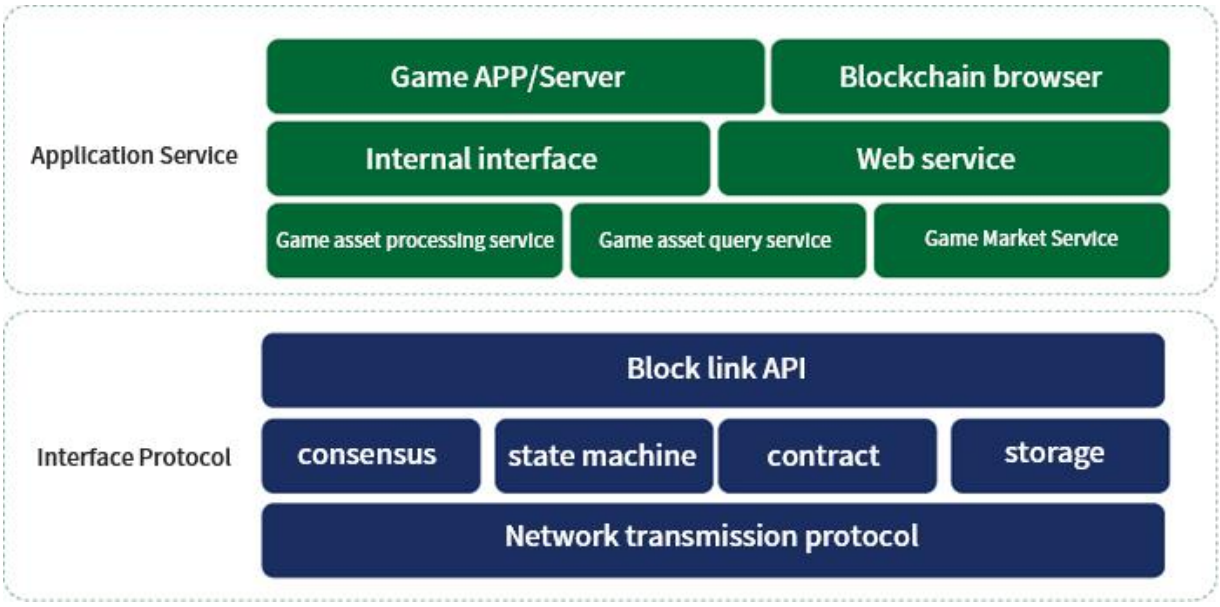
In the resource chain, the distribution of rewards for various marketing methods is decided by the game manufacturer’s suppliers and players independently. Each interactive sharing can automatically distribute the profits of all parties. At the same time, each participant can view the allocation steps on the chain to ensure the fairness and transparency of the whole process, which will produce a matrix marketing effect close to infinite fission.

The smart contract based on blockchain runs through the whole ecology

Users get RR through community incentive mechanism (mining, participating in games and content, sharing, distribution and other dimensions), as well as creating personal digital assets through RR, purchasing and distributing, etc., will be written into the blockchain smart contract, so as to protect the rights and interests of users.

Efficient operation of smart contract

Resource chain uses token with constant circulation for self benign operation of community ecological internal value.With the smart contract, token is used as the settlement token for distribution Commission, traffic advertisement and interaction in the community, so as to improve the operation efficiency of the game ecology. At the same time, token value-added can promote the continuous iteration of the ecology, and make the resource chain community ecology develop healthily and orderly.



Mining mode

Resource chain mining mode is a distributed computer network composed of game traffic nodes (such as home computers, Internet cafes, etc.) Distributed in different regions. Each mining node provides a certain amount of game traffic, CDN and storage capacity resources, forms a massive game resource pool, and provides external game acceleration services.

Resource Chain mining mode carries out decentralized distributed computing through certain redundancy and security rules, and enables users to obtain the required game asset content safely, quickly and nearby, thus realizing the privacy and security of user asset data.

Resource Chain mining mode can effectively reduce the construction cost of game server resources, improve the response speed of game services and improve the user experience. Resource Chain mining mode can make full use of the layout and number of infinitely expanded nodes of edge nodes of mining server, and improve the security and stability of game network.

The game traffic mining node service based on blockchain created by Resource Chain is the industry–leading online game resource ecosystem. It can greatly reduce the waste of personal computer computing resources, increase the utilization rate of idle computing resources by more than 50%, and greatly improve the utilization rate of overall social resources, which is in line with the general trend of social environmental protection and resource conservation.

Resource Chain mining mode is based on blockchain technology, which naturally has decentralized and distributed attributes. The core value of the network belongs to the resource providers and users of mining.

Wallet function

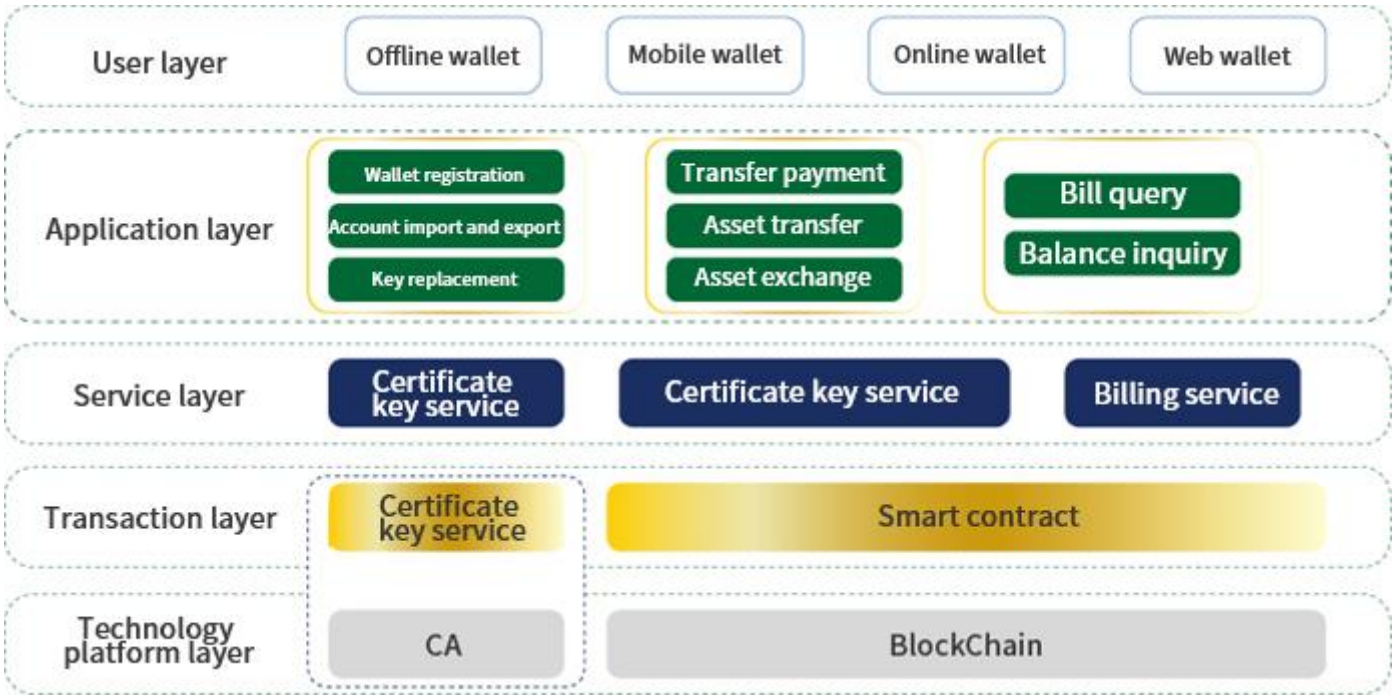
The Resource Chain wallet architecture is divided into user layer, application layer, service layer, transaction layer and technology platform layer, providing decentralized account management, sharing rewards, settlement interface, secure storage and transaction, etc. The main body is a light–weight blockchain client.

Fundamental function

Resource Chain wallet provides wallet registration, account import and export, key replacement and other functions. The user's wallet file and private key are kept by the user, and the user's rights are completely returned to the user, making the system more private and secure. Once the user's private key is lost, the wallet will never be retrieved.

Asset function

Resource Chain wallet provides the functions of asset transfer payment, asset transfer and asset exchange. With the wallet, you can safely and conveniently manage the digital assets of Resource Chain. Inquire about transactions and bills of Resource Chain, so that all data of Resource Chain are under control.


User layer
Offline wallet
Mobile wallet
Online wallet
Web wallet
Application layer
Wallet registration
Account import and export
Key replacement
Transfer payment
Asset transfer
Asset exchange
Bill query
Balance inquiry
Service layer
Certificate key service
Certificate key service
Billing service
Transaction layer
Certificate key service
Smart contract
Technology platform layer
CA
BlockChain

Technological development advantages

1. Resource Chain public chain transfer speed is fast, reaching TPS-10w+;

2. The public chain carries 100 billion nodes, which can truly realize the interconnection of everything;

3. With 10,000 sets of smart contract concurrency on the chain, quickly promote the development of DApp;

4. Add zero-knowledge proof to fully protect user privacy and safety;

5. Adopt post-quantum cryptography to combat quantum cracking;

6. Self-created VDFNRF lightning consensus, using random verification functions, second-level confirmation and traceability;

7. Neutral distribution network, using layering, fragmentation, and compression transaction technology, Z.K.Rollup is compatible with more than 90% of the public chain, and realizes cross-chain transfer and payment;

8. With the function of independent upgrade;

9. In terms of storage, Resource Chain adopts PoC mining, and uses distributed computing and distributed storage technology to realize big data intelligent storage and mining.

Advantages of chain tour industry

The concept of ”chain tour/meta universe” rises, changes the profit model, and players participate in/share the dividend of game development.

In traditional games, it is difficult for us to make suggestions to the project side, and the proposed construction is also difficult to be adopted. However, unlike chain games, chain games are decentralized projects or organizations, in which participants can propose the game through points or some behaviors, and participate in the governance of the game. Players will feel that they are the owners, participants and even shareholders of the game.More sense of participation and accomplishment.

This is the biggest promotion of chain tour to the game industry, and it is also the biggest advantage of Resource Chain tour.

Resource Chain Tour will no longer interfere with game resources.

In the meta-universe ecology of chain tour created by Resource Chain, it mainly relies on transaction fees to realize profits, and issues governance tokens to gradually realize community governance. Game resources are produced and freely traded by players. Players can get game resources for sale by playing games, and their monthly income can be as high as thousands of dollars.

As a result, Resource Chain Tour has changed the previous game form. Players can find their own virtual world in the chain tour, and get behavioral

incentives that can be realized. Compared with traditional games, its value lies in that the time spent by players in the game can be converted into pass–through incentives. For the first time, the assets of the game really belong to the players themselves,Game virtual assets, such as props, weapons, characters and even gold coins, can be wound up, which means that these data are stored in an unmodifiable and decentralized blockchain network.

Nowadays, the game industry has become a traditional mainstream recognized by everyone. Therefore, we have higher expectations and expectations for the game industry. At present, many traditional big companies are running and entering the chain tour. It is expected that there will be many interesting chain tour projects emerging next year. I believe that the chain tour in the future will not be inferior to the traditional games at this stage.

Underlying technical framework

Account function

User management: User management mainly solves the mapping relationship between Resource Chain user identity and blockchain address, and the confidentiality of user privacy.

Account management: account management is responsible for account management of Resource Chain users, including account registration, login and cancellation, and the irrelevance between account and key. When registering an account, map the identity information such as user name and password used by the original user to the blockchain address.

Key management: In the fully managed mode, the key management system is responsible for the association between the user key of Resource Chain and the account, key security management and lost recovery. The key is generated by the user at the client, and the user can choose to save the key in the key safe or entrust it to an associated account so that the key can be retrieved after it is lost.In ord to ensure that reliability of the relationship between the user account and the key, the key management system store the signature of the relationship in multi-node chain.

Authority: Authority management module is responsible for the control and management of authority such as user account, key system, node joining and exiting, data access, etc. Include account delegation authority, node

consensus authority and user data access authority. Audit authority is to provide audit function for regulatory agencies, and strictly control access authority and data range.Users who share the irrelevance of transactions in books can be associated with each other. Account delegation authority is used to control the access control of user account delegation relationship. Consensus authority manages consensus authority for participating or newly joined nodes, and access authority is used to manage the data query authority of the client on the blockchain.

Heterogeneous chain structure

In the traditional Internet, we usually use the browser to enter the website address, and click the page link to access the resources inside or outside the station to get information.

In technical terms, it refers to cross-network call access in the vast Internet, and behind this, DNS(Domain Name System), one of the basic protocols of the Internet, has made great contributions. The value internet constructed by blockchain is a huge network cluster all over the world. Each blockchain and subnet generate the same or different services and provide different services.There are also a large number of cross-chain (domain) requests between different chain networks, and the stable operation of clusters provides a good value transmission service for human beings.

Drawing lessons from the successful experience of DNS, Resource Chain puts forward the heterogeneous chain network architecture, which builds a bridge between the real world and the digital world to realize the definition, storage, transfer and conversion of resources and assets on the value Internet, thus promoting the integration of value Internet services and traditional Internet services.

Digital fingerprint (DF)

In the field of games, real-name authentication is the precondition of value interaction between players and game developers. At the same time, because in the Resource Chain game ecology, the value generated by game players

and developers far exceeds that of traditional games, it is particularly important to determine the right of value assets.

In the core architecture of Resource Chain, the first problem to be solved is the confirmation of rights by digital fingerprints and mutual verification. In the account management system of Resource Chain, digital fingerprint verification will be carried out on the personal identity of gamers, the identity of asset owners and the identity of resource owners respectively. Personal identity information is verified by digital fingerprint signature,The verified identity information will be stored in. Resource verification ensures the ownership of game development rights and the permanence of profit sharing and revenue.

All verified digital fingerprints will be securely encrypted through the Certificate Authority mechanism, so as to ensure the privacy and security of the authorized and responsible individuals while ensuring the right and responsibility. Cryptography is the core of digital encryption. The process of converting plaintext into ciphertext through encryption algorithm and encryption key, while decryption is the process of restoring ciphertext into plaintext through decryption algorithm and decryption key.

In Resource Chain, the security of key does not need centralized trust authority to issue, but through decentralized certificate chain witness mechanism, with CREM economic model framework to generate fair super nodes to issue and chain, which not only avoids centralization, but also clarifies the rights and responsibilities of issuing, so as to be orderly and

efficient. In addition,A permission model is established in the account management system of Resource Chain. The rights management mechanism is adopted to specify the rights content in the form of signature authorization. Usually power is tied to individuals or groups of individuals that can be classified.

Resource Chain implements a declarative rights management system, which allows the account to control who can do what and when at a fine-grained and high level. Each account can be controlled by any weighted combination of other accounts and private keys. This mechanism creates a hierarchical authority structure that can truly reflect the organization of authority in reality,And make it easier for multi-users to control funds than ever before.

Multi-user control is the most important factor to improve security. If used correctly, it can greatly eliminate the risk of hacker theft. For example, there are many services for playing gold coins or props in current games. In the past, users often needed to give their account numbers and passwords to the players. And through permission mapping,The game operation authority can be granted to the proxy account by authorization. To authorize future generations to play accounts, they need to use their own key to sign the login operation. Asset transaction authorization is not included here, thus improving the security of the account.

Decentralized computing power cluster (DCC)

At present, the speed of block-out in the industry is relatively restricted by consensus agreement. After consensus optimization, Resource Chain can achieve second-level block-out through pog consensus, and it is driven by technology to the forefront of the whole industry. However, this is still far from enough for the interaction efficiency required by millisecond games.

While continuing to optimize the consensus algorithm, Resource Chain has also developed a set of millisecond response data interaction and processing system driven by DCC+RDSN, which can meet the speed/efficiency requirements for running large-scale games on the chain, while the existing technology can achieve it. In order to solve the current pain point of blockchain games-speed bottleneck, establish industry standards.Realize millisecond data processing response, and ensure the ecology of all high-concurrency games.

After in-depth research, the technical team of Resource Chain first proposed the Decentralized Computing Cluster (DCC for short), that is, in the form of distributed computing cluster, it can efficiently complete the logical computing and interactive services in game running, break through the existing blockchain public chain, and still cannot support the bottleneck of high-frequency data interaction in games (including computing power/state storage/persistent storage, etc.).

Although the existing cloud resource services can meet the demand of medium and high frequency data interaction to a certain extent, they still

face the problems of high centralization, and the stability and security cannot be guaranteed. With the node program client equipped with Quorom Protocol provided by Resource Chain, cloud computing resources can be efficiently deployed,The original centralized service is replaced by distributed computing power cluster, and the coexistence of efficiency and security is ensured by decentralized resource coordination. Quorom Protocol completes the decentralized ecological network operation with a two-tier structure.

In this structure, the Master node matrix composed of Master Standby and Backup Master ensures the high availability of scheduling resource nodes. Agent matrix accesses bandwidth resources, computing power, etc., to complete logical services of different resource types of games. To ensure the efficient operation of DCC and the quality and stability of each resource node,All nodes must meet the ecological access standard and be authorized before they can be incorporated into the Resource Chain DCC ecological network.

Decentralized operation of autonomous economic system

In order to ensure the effective utilization of resources in DCC ecology.We do not adopt the traditional mode of fixed super nodes + spare nodes.Considering the expansion of the ecological development of resource chain and the adaptability of the whole DCC network, DCC operates in a decentralized and self consistent economic system, with an automatic reward mechanism, and through the spontaneous regulation of the market economy model, it achieves decentralization,In the case of no human

intervention, the computing resource nodes can automatically allocate and control the supply–demand relationship through the Crme model, adjust the number of nodes incorporated into the network, realize the self–consistent ecosystem of resource allocation, resource utilization and reward in the whole ecosystem, achieve the optimal distribution and utilization of resources, and ensure the enthusiasm and stability of node resource providers,To ensure the permanent online computing power, high–efficiency interaction with high–frequency data, to meet the millisecond processing requirements of the game.

In the actual operation process, DCC evaluates the computing power demand to be responded through performance evaluation, and determines the required amount of computing power resources. Then, through the matrix scheduler, it dynamically schedules the node resources such as memory, bandwidth and computing power that match the demand, so as to achieve high efficiency and stability;After deployment to the required resources, DCC will obtain the corresponding service packets from rdsn,The isolation container of a single service is formed to delimit the exclusive computing power range for the service program to be run, and the redundant mirror copy of the service program is generated to realize the global multi node resource backup for cross validation.In this way, not only the computing power required by the service is stable and undisturbed, but also the operation of the master node can be verified,Such as computing power confirmation, preventing data tampering and so on, it makes multiple protection and verification for the safety and reliability of data.

The data generated by the server in the isolation container will interact with the client through the lightning gateway.Lightning gateway can provide efficient and stable data interaction services, automatically match the nearest and fastest DCC computing power nodes for users, and achieve rapid response to delay sensitive and high-frequency services in the network.In addition to solving the bottleneck of the operation speed of the blockchain game industry,Compared with the traditional centralized cloud server, DCC can effectively solve the cheating in the game in the way of decentralization.

For example, in the game skill trigger, damage output, the burst rate of props and equipment and other random numbers.Generally, game developers and operators control the core value of the game through the centralized server in a dark box.As a result, the game's playability, fairness and continuous operation ability are affected.Based on the characteristics of smart contract and multi node resource distribution, decentralized computing power cluster builds a solid defense wall for resource chain ecology, ensuring the fairness and playability of the game.

Standard access license

Resource nodes must not only meet the requirements of specific memory space, bandwidth space, CPU performance, region and so on, but also need to pay a certain amount of RR as margin, so that the node can go online to provide services and obtain revenue.When a node fails to provide stable resources or conducts malicious behavior directly, which has a negative

impact on the whole architecture,Crme model will automatically deduct the deposit deposited by nodes, and regard it as the reward for honest nodes who make contributions to eliminate negative effects, so as to increase the self-discipline of each node.

Minimal node incorporation

Under the operation of quorum protocol (smart contract based on DCC), resource nodes that meet the admission criteria and obtain approval certification will be incorporated into the DCC ecological network of resource chain.In order to complete the ”minimalist” integration at the technical level, the resource chain will provide dedicated BPP program ports for each node,After running the program port, the global distributed node servers can be integrated into the DCC ecological scheduling network with one click.After the successful integration of the participating computing power scheduling, the RR benefits will be obtained through the automatic reward mechanism.

Redundant distributed storage network (rdsn)

The biggest value of blockchain games to players is based on the economic benefits of playability. Without the arbitrary control of centralized game operators, the value and benefits of roles, props, equipment and virtual assets in the game are returned to players.

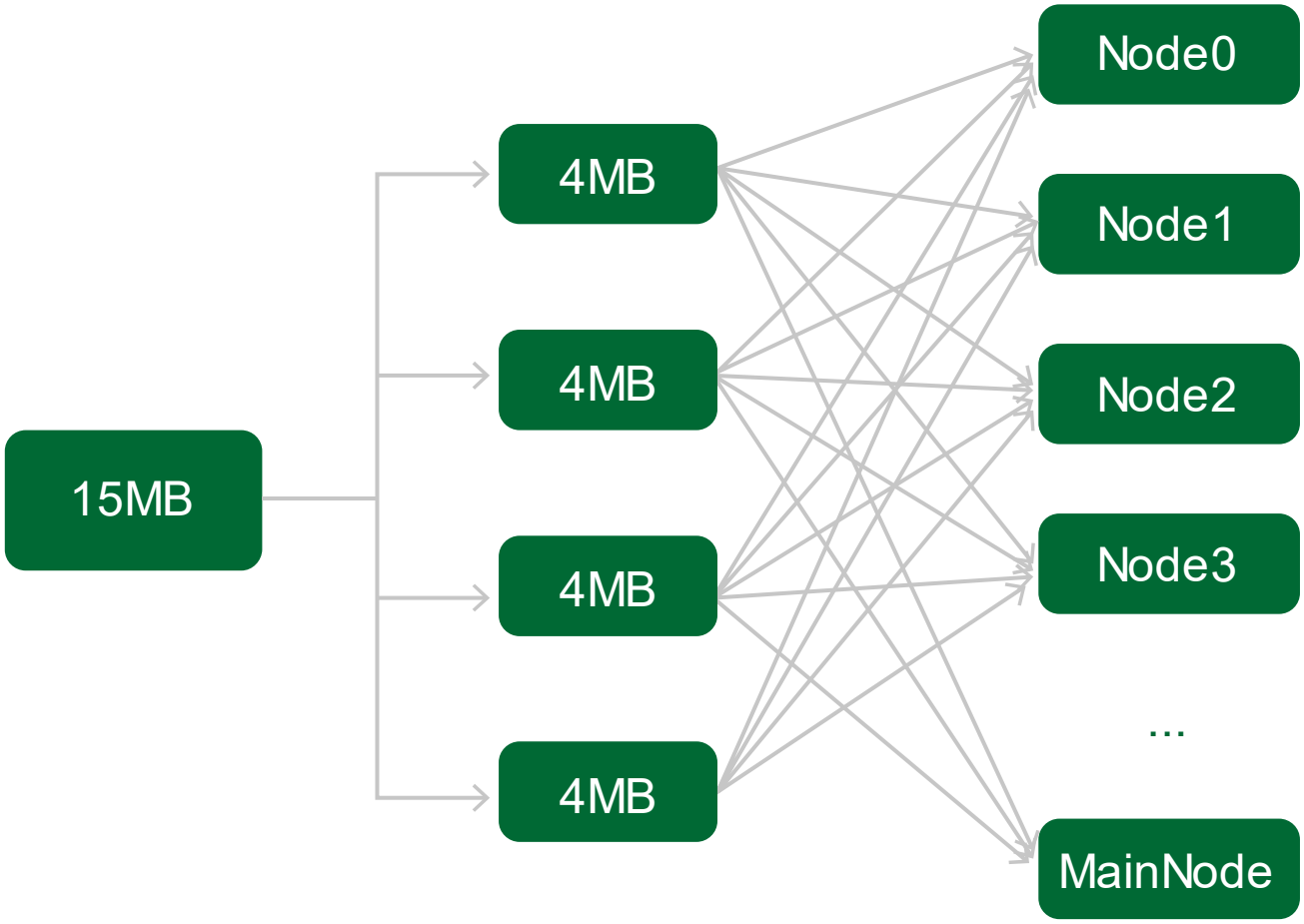
Therefore, players have rigid requirements for the permanent storage of game data.At the same time, in order to solve the efficient storage and effective call of large static data in the whole ecological network of resource chain.The resource chain technology team has built the redundancy distributed storage network (rdsn) by using kad algorithm, DHT, P2P network, TCP protocol and other technologies.Through redundant distributed node storage network, data storage will become efficient and reliable.For the game, it avoids the centralized data storage mode of the traditional game service operators. Therefore, even if the developers run away, the value and assets held by the players will not be lost. At the same time, the game itself can be forever on the chain.

Rdsn is a distributed version storage protocol which uses hash table technology.In this network, large static data files such as game resource download package and patch will be divided into fixed size data blocks (each block is no more than 4MB).

After the data is partitioned, it is distributed stored in each resource node in the form of encryption through the data encryption protocol, and the resources are synchronized quickly by means of P2P network.The P2P

network built by resource chain mainly adopts kad algorithm. Kad is a distributed hash table (DHT) technology. DHT algorithm uses distributed hash table service on resource number and node number.In other words, the data will not be indexed in the form of file name, but will be segmented by hash table and file content summary (sha256) using the uniqueness of hash.This will improve the search efficiency and realize the fast and accurate data routing and positioning in the distributed environment.

In addition, all data are backed up redundancy through redundancy replication protocol to avoid single node file damage, data loss, network failure and other factors affecting data integrity.In rdsn architecture, the core is the real data verification, efficient storage and call.



Verification mechanism

In order to ensure that the data of each node is true and effective and prevent false nodes from broadcasting, the resource chain uses automatic compensation and hash index to verify the data authenticity.In other words, each node must complete the data feedback through hash summary.Only when the verification is successful can it be integrated into the rdsn network.

Efficient storage and transfer

According to the call frequency of data, rdsn divides the storage requirements into three categories: high frequency / intermediate frequency / low frequency, and optimizes the configuration according to different requirements

A. Special node ”super miner” is equipped for high-frequency demand, which focuses on processing high-frequency interactive data to ensure efficiency and stability;

B. If demand will be processed by large-scale and large-scale intelligent hardware, which is an important resource node in the whole distributed network architecture. It is developed in the form of intelligent products, enabling the scientific and technological upgrading of intelligent products;

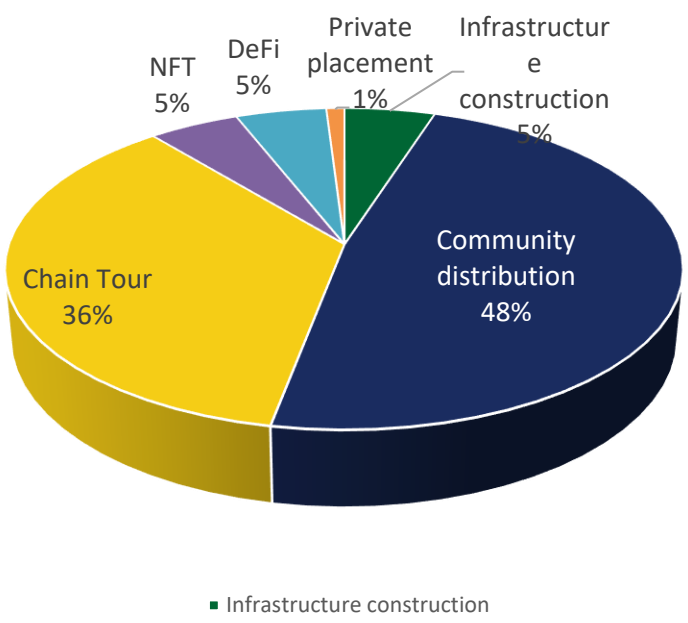
C. Low frequency requirements will be redundant storage through the external distributed network to deal with low frequency and no frequency requirements. Due to the low utilization rate of such data, it will be stored in the distributed external network to meet the accidental call demand and ensure the permanent preservation of information.

When each node realizes data classification storage, it uses TCP protocol to establish connection with adjacent nodes. When establishing connection, automatic compensation mechanism is used to realize authentication

”handshake” communication process, which is used to determine protocol version, software version, node IP, block height, etc.After identification, according to the frequency of data interaction in the network,The path of data storage resource node is allocated and dynamically updated and optimized.Therefore, compared with the traditional cloud storage, in the rdsn network, the data access speed is faster, more secure and more durable. In combination with the redundancy of the resource chain super node, the game resources are permanently online.

Token Economy

Token Name: RR constant issue: 36 million

Infrastructure construction 5%;	
Community distribution: 48%;	
Chain Tour: 36%;	
NFT：5%;	
Defi：5%	
Private placement: 1%	

Development planning

2021年

Launched the first chain game and meta universe game platform, RR went online on the exchange; Resource Chain DAO global community autonomous alliance organization was established.

2022年

The construction of the main body of the public chain is completed, the ecological structure of the chain game meta-universe is improved, the game API interface based on the NFT standard is established, and the traditional game-related enterprises are connected; the development of wallets and DApps is started, and the internal testing is developed.

2023年

More trading functions of the chain game Meta universe platform are open, and the game ecology is gradually improved; Meta universe check-in services are provided, and game scenes are started to be built; more game ecological development and applications are developed.

Appendix

Risk tips

There are various risks in the development, maintenance and operation of resource chain, many of which are beyond the control of resource chain developers.In addition to the other contents described in this white paper, participants are requested to fully understand and agree to accept the following risks:

Market risk: the price of RR is closely related to the situation of the whole digital currency market. If the overall market price is low or there are other uncontrollable factors, the price of RR may still be undervalued for a long time even if it has a good prospect.

Regulatory risk: as the development of blockchain is still in its early stage, there are no relevant regulatory documents in the world such as pre requirements, transaction requirements, information disclosure requirements, lock-in requirements and other relevant requirements in the process of raising funds.At present, how the policy will be implemented is still unclear. These factors may have an uncertain impact on the development and liquidity of the project.Blockchain technology has become the main object of supervision in major countries in the world. If the regulatory body interferes or exerts influence, resource chain may be affected by it, for example, the use of RR may be restricted, hindered or even directly terminated the application and development of RR.

Competition risk: at present, there are many projects in the blockchain field, and the competition is very fierce. There are strong market competition and project operation pressure.Whether the resource chain project can break through many excellent projects is widely recognized. It is not only linked with its own team ability and strategic planning, but also influenced by many competitors in the market, which may lead to vicious competition.

Risk of brain drain: resource chain gathers a talent team with both vitality and strength, and attracts senior practitioners of blockchain and technical developers with rich operation.In the future development, we can not rule out the possibility that the overall resource chain will be negatively affected by the departure of core personnel and conflicts within the team.The accelerated development of project technology risk cryptography or the development of science and technology, such as the development of quantum computer, or bring the risk of cracking to the resource chain platform, which may lead to the data loss of resource chain.

In the process of project updating, loopholes may appear, which will be repaired in time after they are found, but there is no guarantee that they will not cause any impact.In addition to the risks mentioned in this white paper, there are also risks not mentioned or anticipated by the founding team.In addition, other risks may arise suddenly,Or in the form of a combination of multiple risks already mentioned.Before making participation decision, participants should fully understand the team background, understand the overall framework and ideas of the project, and participate rationally.

Disclaimer

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