

# **White Paper of GE-Chain**

**Creating Block Chain Game & Entertainment  
Sharing Community for Game Industry**

[www.gechain.cc](http://www.gechain.cc)

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## **Preface**

In recent years, the block chain technology and application alliance have been launching the incubation of the open source project in multiple application fields, and have gained extensive concept verification and landing. The block chain is not only a kind of advanced database technology providing the reliable mechanism for information and value delivery in the untrusted network, but also the foundation stone for building the value Internet in the future. At present, the governments, industrial circles and academic circles pay close attention to the application development of the block chain, and the enterprise application in the future is deemed as the main battlefield for the block chain, and alliance chain/private chain will become the mainstream.

The application of the GE-Chain will change from virtual manner to practical manner, so that more games and entertainments will make use of the GE-Chain to improve the collaboration efficiency and reduce cost; therefore, GE-Chain will become the Internet ecological chain of the entertainment industry for value innovation and creation, so as to build the block chain game & entertainment sharing community.

# Prospect and Current Situation of Game Industry

## Overview of Game Industry

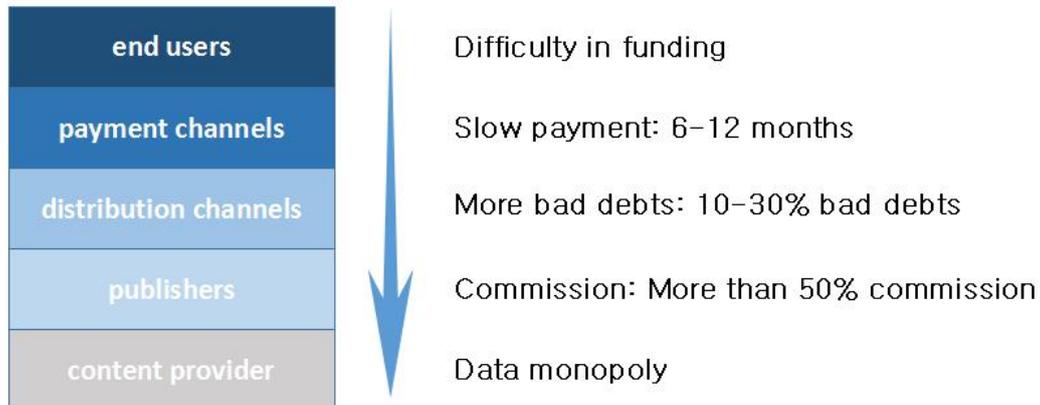
According to the statistics, the output value of the global game industry hits USD 100 billion mark for the first time in 2016, higher than the sum of the movie and music industries. It is expected that by 2020, the output value of the global game industry will reach USD 129 billion. The output value of the mobile game will account for 51% of that of the whole industry, higher than that of the traditional game platforms such as PC games and video game consoles. In 2016, there were 600 million game players in China with the market scale up to USD 24.6 billion Yuan, higher than that of USA up to USD 24.1 billion ranking the second place. The Asia-pacific region accounts for 46% of the global game market scale, North America and Europe account for 24% respectively. Among them, Chinese game players spend 93% of their expenditures on the games developed by Chinese game development companies, USA game player spend 56% of their expenditures on USA games, and European game players spend 36% of their expenditures on European games. In addition, since 2015, 70% of acquisition transactions in the game industry in the world are done by Chinese buyers. As a great power of the mobile game industry, Chinese enterprises shall inevitably play the leading roles in the future development of this industry, and GEC combining the technology of GE-Chain just emerges at the right moment.



**“GE-Chain – To Build Block Chain Game & Entertainment Sharing Community of Game Industry”**

# Dilemma of Traditional Game Industry

## Existing game industry chain



The quality of the game mainly depends on the content developed by the content providers and the operation service provided by the publishers; however, most of the profits are gained by the distribution channels and payment channels; the profits gained by the publishers and content providers at the source are limited on the basis of the highest risk. This is the unhealthy and incomplete root of the game industry chain, so that a great number of excellent games are stifled, while the resources of the content provider and the publishers are wasted.

## Pain spots in game industry

Misallocation of resources for game research and development

In the field of game research and development, the small and medium-sized CPs are unable to achieve the improvement of the game quality and the pursuit of IP under the pressure of capital, so that it is difficult to realize the good ideas, or such good ideas are abandoned prior to the realization; on the other hand, many small and medium-sized publishers are eager to find the most welcome games.

## Longer payment period

After the publishing of the game, there is a longer payment period. From the top-up by the users to the payment to the publishers, it will take at least 4 months, generally 5 to 6 months, or even a year. The publishers and CPs have to suffer from the longer

period of capital employment. It will take 1-2 years to develop a good game, but take 5-6 months to recover the capital after the launching of the game.

### **Non-exchangeability of game tokens**

Due to the non-exchangeability of the game tokens and the numerous game companies, the top-up by the user in the game is not universal, which often leads to waste. On the other hand, it is difficult for the game user to make the secondary switching, and there is a big barrier for the user in one game to switch to the user in another game.

### **Lack of IP protection**

The homogeneity and plagiarism of the games are spread unchecked. The launching of an excellent game will be followed by countless plagiarized versions, resulting in the lower development level of the whole game industry. The quality of the games in the same type also varies to an excessive extent; in the lack of IP protection, a large number of IP plagiarisms and shoddy games appear.

### **Disordered third party platforms**

Along with the development of the game industry, there are great demands for the transactions of game equipment, account, and token, and the transaction market for the third party's virtual game content gradually forms the scale. However, due to the lack of the mature third party transaction platform, such transactions are completely independent of the game system, resulting in the problems such as high transaction cost, difficulty in enforcement, and easy generation of disputes.

There are more than 566 million game players in China. We believe that the economic value of the aforesaid problems in the game industry accounts for 45% of the output value of the whole industry. Such problems concerned in the industry restrict the further improvement and evolution of the industry in a sense; the leap development of the block chain technology in recent years brings the opportunity of reform to the game industry.

## **Value Network of GE-Chain**

In the industry, most of the block chain solutions related to game purport to use the Ethereum common chain to perform the smart contract and store the data; however, based on the deep understanding of the game industry and block chain, we find that such design is unreasonable because the gas fee involved therein is so high, while the execution time also cannot meet the needs of the general gams; furthermore, stability of the Ethereum network is also alarming.

Therefore, the GE-Chain that can really serve the game industry emerges at the right moment. In order to take into account the stakes of the partners and the feasibility of the project, GE-Chain adopts two of the most mature mainstream technologies simultaneously, i.e. Ethereum and HyperledgerFabric.

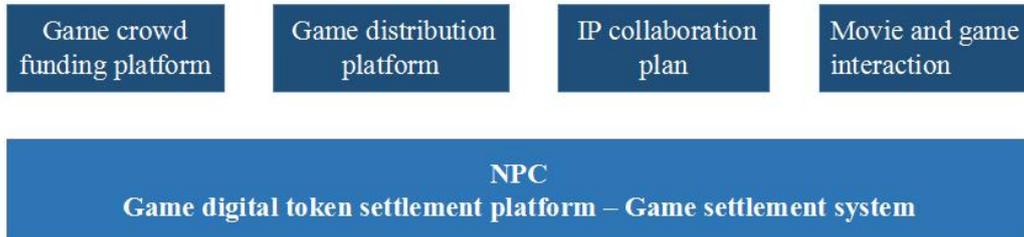
GE-Chain is a decentralized sharing community based on the game industry, and an ecological system built jointly for the small and medium-sized publishers, small and medium-sized CPs, all the game players, IP producers, distribution channels, and partners. The core of GE-Chain is a set of decentralized account and payment system based on the block chain technology. The NPC coin is used as the payment token in order to build up a universal digital token payment system and platform in all the games, which is used to connect the user relations between the levels, and to form a new type of block chain ecological community.

We deal with the token GEC representing the stakes and the token NPC practically used in the mobile game separately. As the credential of stakes of the project, GEC will be published on Ethereum; abiding by ERC 20 standard, 320,000,000 tokens in total will be published, and the additional publishing will never be allowed. In addition to the right to participate in the community, the investors holding GEC may use as the crowd funding token for the projects in the game & entertainment sharing community.

As the token used in the game, NPC shall be circulated in the private consortium chain, and used for the transaction and settlement in the game. As the technical core of NPC, Hyperledger Fabric adopts PBFT (Practical Byzantine Fault Tolerance) consensus mechanism. The private consortium chain can avoid such issues as the Ethereum network congestion, guarantee the speed and stability of the system, and reduce the cost of usage.

# Application of GE-Chain

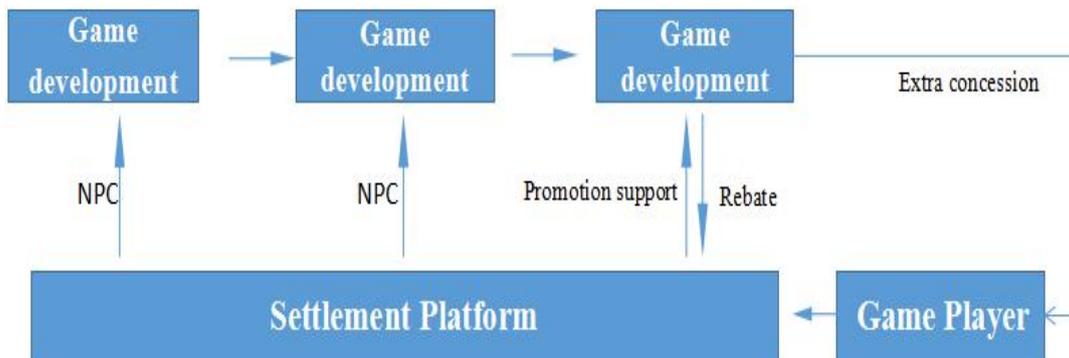
## Closed-Loop Ecological Industry Chain of GE Sharing Community



The game & entertainment sharing community is composed of five parts, including the **game crowd funding platform, game distribution platform, IP collaboration plan, film and game interaction, and game digital token settlement platform**, which shall be used as the core of the GE-Chain.

### A. Game digital token settlement platform

As the settlement token, NPC may be used to top-up directly in different games for settlement, and become the uniform token used by all the games. NPC shall be used to serve the small and medium-sized publishers, distribution channels, and developers while radiating the game users, provide the new digital token for transaction settlement, and break through the barriers between the roles.



1. General account – The players using NPC token may obtain the exclusive identity of the platform automatically when using such NPC token, so as to become the platform user entitled to various services without the repeated registration for different games. With the platform account, it is possible to log in with one click and enter the game conveniently and quickly.

2. Real-time revenue – In the games, NPC token settlement interface shall be added; NPC digital token is used to implement the recommended mode of settlement. The beneficiaries of the game may receive the game revenue directly from the settlement platform in the form of token, so as to avoid the original payment period of N+ several months, and the platform may make the payment within N+1 months, so as to gain the support of the rapid cash flow. Upon the settlement, it is allowed to convert into GEC for anticipated appreciation. It is also possible to calculate the data of shared revenue.

3. New distribution platform – The small and medium-sized distribution channels are collected, the payment mode of NPC is used for settlement, so as to facilitate the promotion and control of payment days, so that it will become an important distribution platform for all the games.

4. Popularization and users gathering – For the publishers, they can make full use of the user groups in the sharing community to popularize the game by means of sales promotion, marketing, player promotion, distribution platform, anchor consortium, and user sharing.

5. Create new mode for game sharing – In the game sharing mode, the players can share such game directly with the other players by the “one-key sharing” mode, and gain the sharing rewards. Each game is provided with SKD interface for NPC token. Once the interface is used, the play will become the member of the platform

automatically, laying a solid foundation for the sharing of the game. At the same time, the platform will also establish the stepped return mechanism according to the quantity of NPC used by the user, so that the user will give priority to NPC for settlement in the game, so as to form the benefit of mutual communication between the users.

More and more games, publishers, distribution channels and users join the digital token settlement system, and the digital token will be applied to all the games, so as to break the barriers between the games, publishers, and channels. By operation, the number of the users increased dramatically resulting in more revenues, and finally forming a big community for game sharing and communication.

### **B. Game crowd funding**

In the community, the special game crowd funding platform shall be established, through which so many small and medium-sized game developers and publishers can implement the crowd funding with GEC. The players may participate in the development of the game in advance by participation in the crowd funding, so as to experience the game early and obtain the game token. Such crowd funded games must be access to the NPC token settlement.

In this way, the small and medium-sized developers can not only obtain a more relaxed research and development environment, but also interact with users in real time, so as to make the game products that truly meet the needs of users.

By this platform, it is possible to expand the products containing the digital token settlement technology rapidly, so as to change the settlement mode in a faster manner in the future.

### **C. Game distribution platform**

There are many small and medium channels, which are assembled together to form a

new game distribution platform.

In case of the settlement by NPC, the support from many channel platforms may be available by means of gift and subsidy at the early stage, so that the distribution channels can promote the settlement mode of digital token rapidly, and more products and users will use the digital token, extending the scope of application. NPC is used as the general token in the platforms, and the account system of the GE-Chain is used as the general account for all the games, running through the whole platform.

Due to the players' reliance on the application of NPC and account system, more and more channels will join the consortium, which will become an important distribution platform for publishing of the games in the community.

#### **D. IP collaboration plan**

The bridge between IP creator and user will be built through IP collaboration platform. This platform will cooperate with a great number of enterprises and teams owning IP, including films and television programs, novels, cartons and other IPs, and offer the IP cooperation to the game publishing company and research & development company, so as to achieve the IP value appreciation of the game.

IP collaboration platform will provide both parties with the negotiation mechanism, set the game appreciation value of such IP, and stipulate such value by means of the agreement on the block chain technology. As stipulated, the virtual token may be used directly for partial and conditional settlement, or the revenue may be shared according to the profit of the game.

The game & entertainment sharing community has established the strategic cooperation with a well-known copyright owner in China, so that hundreds of IPs will be available to numerous game manufacturers and publishers for the purpose of IP cooperation.

IP collaboration mode can be used not only for development of the game, but also for the creation of the game derivatives. If the support is required for development of IP, the community can provide the support of crowd funding.

#### **E. Film and game interaction**

As the most popular forms of entertainment at present, the cross-border cooperation between the film and game shows the huge market potential. In the European and American countries with highly developed cultural industry, there is no lack of the cases for successful linkage between the film and the game. IP covering many business modes such as film, game, and carton gradually becomes the core factor of the culture industry in the Internet industry. The combination of Chinese online games with the market value of RMB 100 billion Yuan with the film industry in the scale of RMB 30 billion Yuan will drive the supporting industries to grow to a scale of RMB 10 trillion Yuan.

The game & entertainment sharing community will put the film and game on line simultaneously, so that the picture style of the television play and the pass-through of the game can complement each other; such new combination also changes the layout pattern of the film and television industry. The film and television play are synchronized with the game based on the different focuses on the display content; but for the fans, the entertainment experience may be overlaid, and even upgraded.

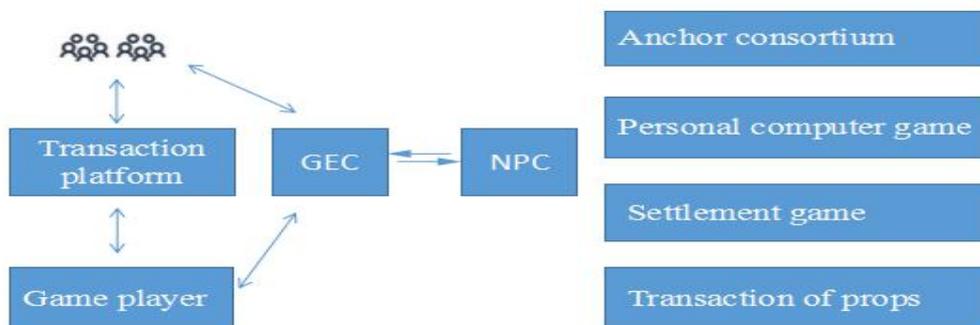
# Relationship between GE-Chain Community and User

The game & entertainment chain community is composed of the developer, operators, distribution channel, player, and partner. A closed-loop game & entertainment sharing community is established via the crowd funding platform and the settlement system throughout the community; as the stake token in the community, GEC is used for crowd funding of the game and the sharing of the GE-Chain stakes.

The developer can make the crowd funding with GEC through the GE-Chain community, in order to obtain the digital assets for the game development, and establish a fully trustless revenue sharing mechanism with the operators and distribution channels.

When becoming the user of the community, the player can also access to a great number of the services:

Own the uniform account so as to enter any game and transaction by one click without the need of multiple accounts; unify the virtual tokens, which are generally applicable to various related services, and used directly in game, live broadcast and derivative product. Meanwhile, the player can obtain the revenue from the “sharing games”; if the user uses the digital tokens for settlement in the game, in addition to the equivalent tokens, the user can also receive the reward of the extra digital tokens. Such reward also the liquidity and appreciation space.



## Introduction to two games taking the lead in GE-Chain



Name of game: Hunting World

Type of game: MMORPG

Background: Medieval Magic

Art style: 3D Realism

Developer: Hunting Network

Publisher: Sendon

Scheduled time of testing: October 2017

Developed by a team from Perfect World Network, Tencent, and Kingsoft, based on the leading programs of “My Own Swordsman”, “Ether Saga Online”, and “Jade Dynasty” with the monthly turnover more than 200 million, characterized by high ecological degree and strong lasting appeal, Hunting World returns to the purest MMO, creates the immersive experience with 14.00 million grand map, and achieves the all-round online coverage at Android, iOS, and PC. This game is expected to operate for more than 2 years with the total turnover more than RMB 1.0 billion Yuan and the revenue more than RMB 650 million Yuan.

Sendon 新动

来一局棋牌



Developed by a golden team from QQ chess and card game hall for 1 year based on the new architecture, Lai Yi Ju is a platform that offers more than 20 chess and card games including Niuniu, Landlord Fight, Sichuan Mahjong, and Guangdong Mahjong. It targets players from 20-50. Due to the cute picture style, adorable and lovely character image, it gives people a comfortable and casual visual sense for 20-50 year old players. This product is easier to be accepted, and easier to enter the market.

## **Characteristics of GE-Chain**

### **Design of Sub-Chain and Parent Chain, Real Application**

The fairness and transparency of private chains are often questioned, and their tokens are not accepted by mainstream exchanges; the speed and stability of the public chain are often affected by the conditions of the network, and the situations such as Ethereum network congestion will arise from time to time, which are not suitable for the products with higher requirement for system stability such as mobile game. The impossible control of the block time and the gas fee/transaction fee also results in the increased difficulty in application of the public chain. Therefore, GE-Chain adopts the sub-chain and parent chain system, operates the parent chain representing the stakes of the GE-Chain, and issues the GEC, which is a kind of token conforming to ERC 20 standard.

As the sub-chain of the application, the private consortium chain uses NPC received by SDK wallet as the token. NPC is the settlement medium in the GE-Chain, and used for transaction of the virtual asset of the game, for sharing and rewarding, and as the transaction platform of the third party props.

### **Block Chain Service for Game Developer, SDK**

With the block chain technology, in combination with the software development kit (SDK) developed by Sendon Group, it is possible to provide the game developers with the complete kit for income plan, marketing plan, settlement interface, one-key publishing account and virtual asset management. Taking SDK as the interface, the game developers can use the GE-Chain with the most familiar language and development environment, so as to lower the technical threshold for access to the block chain.

## **Real-Time Clearance**

Aiming at the problems such as bad debt for payment and the longer collection cycle, NPC is the perfect solution. First, by the access to SDK, it is possible to implement the props transaction and the service purchase in the game through NPC. Second, NPC is a kind of virtual product based on the block chain, resulting in the safety in transaction and no occurrence of the fraud and bad debt. Third, based on the intelligent contracts, the revenues from channel, publishing, and research and development may be recognized clearly by the parties, and shall not be changed after the recognition. Finally, any expenditure of the player shall be immediately transferred through the intelligent contract to the NPC wallet of each party, so as to achieve the real-time crediting into the account.

## **New Experience in Game Play**

The GE-Chain guarantees the liquidity of NPC, and the game players can acquire the virtual assets through the game, and transfer such virtual assets to the other players to obtain NPC; meanwhile, the players can also obtain NPC by sharing the game, so that they can enjoy the new experience in game play in addition to the entertainment.

## **GEC Accelerator**

Subordinate to Sendon Media Group and located in Software Town of Shenzhen UNIVERSIADE with the building area of 10700m<sup>2</sup>, Weiyouhui Incubation Park has become one of the few large-scale incubators in China. GEC Accelerator is a kind of the block gain accelerator based on the existing incubator. Taking the game and entertainment ecological system settled with NPC as the main axis, it is possible to build the game and entertainment sharing platform.

## **Game & Entertainment Sharing Ecology**

From the proposal of the concept of pan-entertainment in 2001 to the full outbreak in

2016, the overall industrial scale of the pan-entertainment reached RMB 500 billion Yuan in five years, and the interaction between various types of business became more diverse and frequent. By building the pan-entertainment industry chain on the block chain, GE-Chain attracts more and more capitals invested in such industry, so as to get the ideal return from the explosive growth of the pan-entertainment industry in the consumption upgrade era. The investment of the capital also injects the vitality into the development of the pan-entertainment industry, and promotes the economic growth.

## **Technical Details of GE-Chain – Design of Token**

GE-Chain adopts the sub-chain and parent chain system composed of GEC on Ethereum as a public chain and NPC on private consortium chain. With the total circulation of 320 million, GEC is the stake certificate of GE-Chain; NPC is the settlement medium in the consortium chain.

### **GEC**



In addition to the initial issue, the price of GEC shall be determined by the market. Furthermore, the supporter holding GEC shall become a member of the game and entertainment sharing community automatically, and have the right to use the resources of the community. The specific arrangement shall be decided by GE – CHAIN overseas foundation.

One example is the participating in the crowd funding. As a crowd funding accelerator platform built on the block chain, GEC Accelerator will implement the crowd funding for the potential project, so as to speed up the development of the project and produce generous returns for supporters; the crowd funding must be implemented through GEC.

### **NPC**



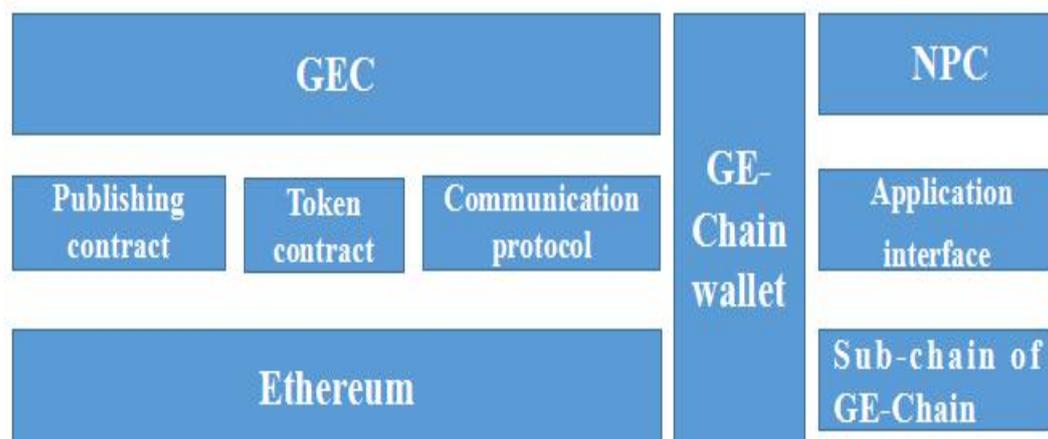
The price of NPC shall be assured by the game and entertainment sharing community; at the same time, we also entered into the agreement with the international third-party transaction platforms, which shall provide the exchange windows in order to guarantee the exchange price; the exchange price of NPC to RMB shall remain constant, so as to facilitate the settlement of the parties.

## Technical Details of GE-Chain – Design of Architecture

### GE-Chain adopts sub-chain and parent chain system:

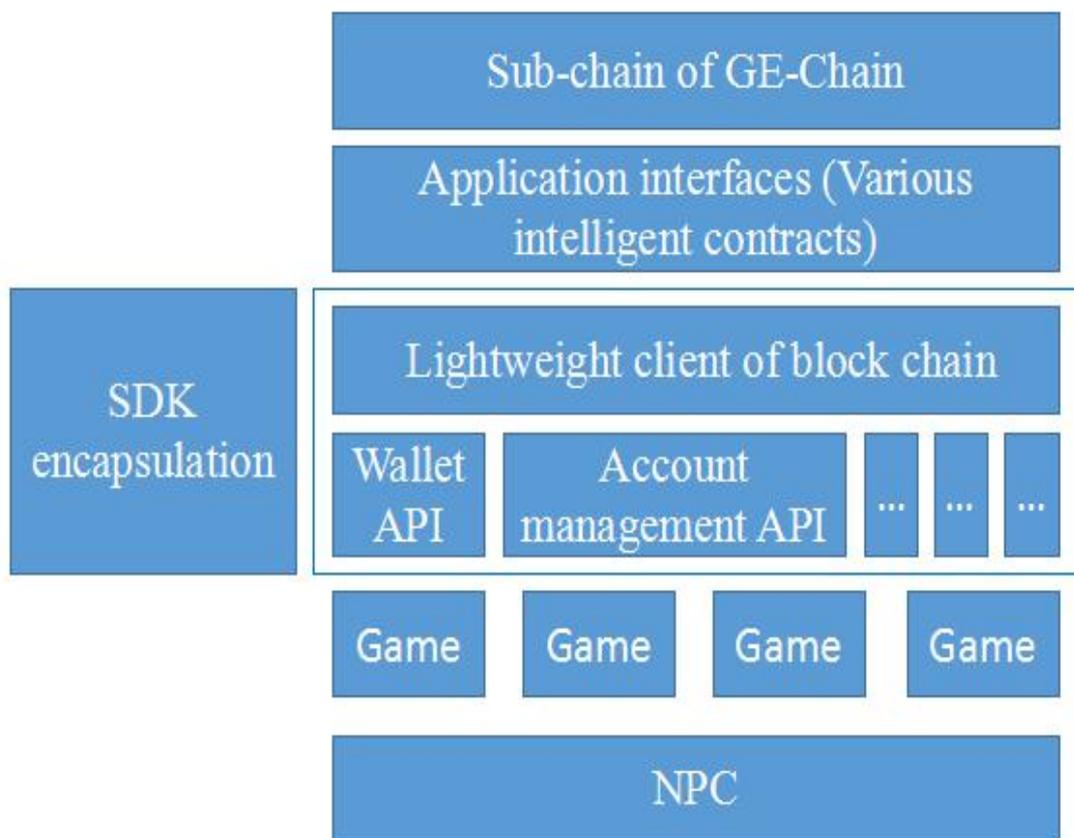
Based on Ethereum, the parent chain of GE-Chain is used to deal with the relevant stake issues on GE-Chain; the publishing of all the tokens and the relevant intelligent contracts shall be operated on Ethereum as a public chain, in order to ensure the openness and transparency. The token corresponding to GE-Chain is GEC, which shall be in conformity with Ethereum ERC20 standard and compatible with domestic and international major exchanges.

As the sub-chain of GE-Chain, NPC is a kind of private consortium chain, and used for the transaction, settlement and account management in the game; the public can check all the messages and transactions on the consortium chain, but not participate in the verification of the transaction. NPC adopts PBFT (Practical Byzantine Fault how) consensus mechanism; the private consortium chain avoids such issues as the Ethereum network congestion, and guarantees the speed and stability of the system. The Cross – Chain Communication Protocol CCCP is responsible for the communication between the sub-chain and the parent chain in GEC and NPC.

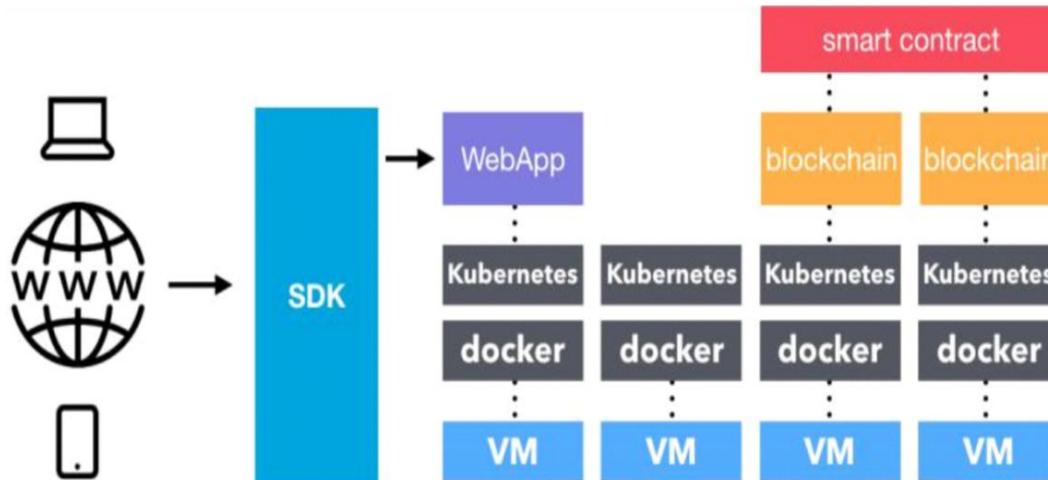


## Technical Details of GE-Chain – Design of SDK

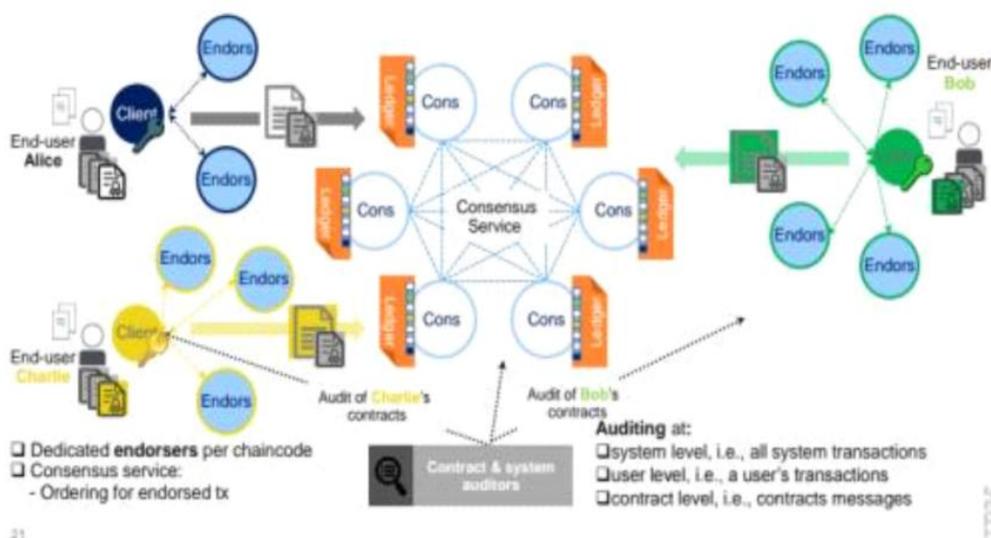
In order to enable the game developers to access to the block chain quickly, GE-Chain specially provides the developers with SDK (software development kit) in support of android and iOS; SDK offers the functions such as decentralized account management, sharing reward, settlement interface and wallet. The main body of GE-Chain SDK is a lightweight client of the block chain, the game developers can develop the games compatible with the GE-Chain through API and with their familiar programming languages, and achieve the trans-game one-key login and accept the crypto token (NPC) as the settlement mode through the decentralized account management service and settlement interface.



## Technical Details of GE-Chain – Infrastructure



In order to ensure the stability and scalability of the system, our consortium chain adopts the substructure as shown in the figure above, and deploys Hyperledger Fabric on Kubernetes cluster; in order to ensure the normal operation of Hyperledger Fabric, we will need at least 6 Kubernetes clusters, 4 of which shall be used as the validating peers, and 2 of which shall be used as the other peers. As an open source container cluster management system developed by Google, Kubernetes provides the functions such as application deployment, maintenance and expansion mechanism; with Kubernetes, it is possible to manage the cross-computer running containerization application easily. It is the most mature contain cluster management solution at present.



Hyperledger Fabric is built on the basis of the modular architecture, which shall divide the processing of the transaction into three stages, i.e. chaincode (i.e. intelligent contract), transaction scheduling, and transaction authentication. Such separate architecture leads to the lower trust and authentication level required between different types of the peer, and the optimization of the system scalability and performance. With regard to the consensus mechanism, GE-Chain adopts PBFT (Practical Byzantine Fault Tolerance), so that NPC tokens can be independent from the consensus mechanism.

# GEC Mining Box



## Original purpose of design

Due to the huge demand of the game distribution platform and the Internet celebrity live show union operating on GE-Chain for bandwidth and CDN, the technical team began to develop the GEC Mining Box to meet the requirements of the game.

## Upgrade of design

During the design of GEC Mining Box, the technical team realized that GEC Mining Box has a firm relationship with IPFS. Moreover, GEC Mining Box can also act as the carrier for deploying full nodes of other public chains. Hence, the team redesigns and upgrades GEC Mining Box.

## GEC Mining Box and IPFS

The reliability of block chain always depends on the quantity and distribution of its nodes. Based on the thorough understanding of distributed system and block chain (As the founder of GEC, Mr. Chen Yunchuo is one of the co-founders of Thunder), GEC community decides to issue the plan of super nodes – the ocean of stars. It aims to build super nodes for all the people to mine through the GEC Mining Box. The first system that GEC Mining Box supports is the Inter-Planetary File System (IPFS).

What is the Inter-Planetary File System (IPFS)

IPFS (The Inter-Planetary File System) is a peer to peer distributed file system. It has two main approaches:

1. Distributed file access system (Decentralized Baidu Cloud)
2. Distributed content distribution network (CDN)

The protocol of IPFS takes the advantages of Bitcoin block chain protocol and network infrastructure to store the unchangeable data, remove the redundant files on the network, and acquires the address information of the storage node, which shall be used to search the file in the network. In the future, IPFS may replace HTTP to become an integral part of the Internet. The coin circulating in the network of IPFS is named Filecoin. Miners in IPFS may earn Filecoin by providing storage space for clients. On the contrary, the clients can spend FileCoin on hiring miners to store or distribute data. FileCoin shall complete the confirmation of the mining based on the “proof of replication” (POR) mechanism.

## GEC Mining Box – The ocean of stars

Since the birth of Bitcoin, the block chain underlying technology on which it relies attracts attention from more and more people. Its attributes of decentralization and

tamper-resistance are widely applied. However, the realization of decentralization and tamper-resistance requires sufficient network nodes, sufficiently distributed network nodes, and stable nodes to guarantee the formation of the consensus mechanism, so as to avoid the excessive centralization of the data, avoid 51% attacks, and realize the decentralization and tamper-resistance.

Therefore, the security of a basic chain or public chain depends on the quantity and stability of the full nodes. As the most basic footstone for construction of the whole block chain, such nodes may have an influence on the performance of the whole block chain and even endanger the security of the whole block chain. The insufficient and instable nodes will result in the collapse of the whole chain easily. Bitcoin is highly praised and believed today. However, due to the lack of full nodes and the instability of nodes, Bitcoin is still criticized by people and regarded as the biggest risk.

The launch of GEC Mining Box is based on the reasons mentioned above. The nodes of the third party's block chain are deployed on GEC Mining Box, so that the third party's block chain can obtain a great number of the safe, stable and reliable nodes, so as to guarantee the security and stability of the third party's block chain. In another word, any public chain that deploys nodes on the GE Mining Box can receive thousands of reliable nodes which are safe and stable, which ensures the stable function of the public chain.

To build more full nodes promptly for GEC Mining Box, combining the concept of shared economy of Internet, we design an incentive mechanism through bandwidth sharing and storage space. Users can be rewarded by GEC, FILECOIN and BCD through contributing bandwidth and storage space, so as to form a benign interaction. When purchasing GEC Mining Box, the users can use the PC functions of the box while gaining the revenue. Therefore, more people will use GEC Mining Box, and the nodes on GEC Mining Box will operate in a safe and stable manner.

For all the public chains, if they deploy the chains on GEC Mining Box, they can have thousands of safe and reliable nodes in an instant. The security, stability and performance of the chain will be improved to a decisive extent. Such improvement is so valuable to all the public chains.

## **GEC Mining Box – A Comprehensive Mining Tool**

In the type of OPS-J1900, with the main control chip with four cores and four threads, the CPU basic frequency and turbo of 2Ghz-2.41Ghz, the storage space of 4G, the hard disc of 4T, and the mining with multiple coins (First supporting GEC FileCoin BCD for mining), GEC Mining Box is not only a huge system integrating CDN technology, P2P technology, IPFS technology, block chain technology, and shared

economy of Internet, but also the supplier providing the basic services for IPFS and all the public chains.

### **Brief analysis of mining principle**

In many block chains, mining is an absolutely necessary part. Mining means the return of virtual currency produced when the block is generated through the consensus mechanism. The most famous example is the mining mechanism Bitcoin and Ethereum. Through proof of workload, the nodes need to solve a complex equation to get the right to verify the blocks. In case of the successful verification and the generation of the block, the nodes will gain the return of the virtual currency.

The mainstream consensus mechanisms available in the market include:

1. Proof of workload (Bitcoin)
2. Proof of stake (PoS, Qtum chain)
3. Proof of time and space (IPFS)

Of course, in the block chain technology, there are all kinds of formula mechanisms, such as the importance proof mechanism, delegating stake proof mechanism, Byzantine fault tolerance mechanism and so on. Regardless of the mechanism, all the methods of proof method are used to ensure that there are enough individuals to maintain the security of block chain jointly. Therefore, the proof mechanism requires only hash rate, hard disk, time, power and bandwidth. If owning resources mentioned above and a suitable algorithm, people can mine on any block chains in principle.

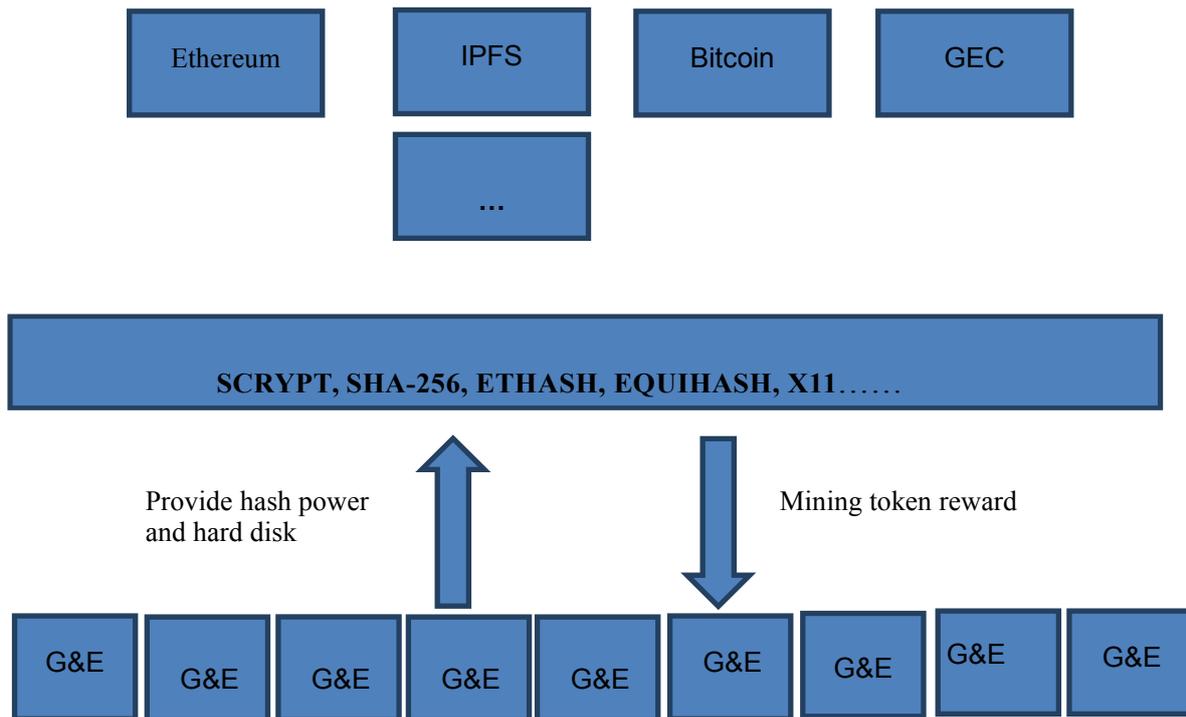
### **Evolution of mining process**

When there is only bitcoin in the application of block chain, mining is almost a personal action. Most of the nodes are personal computers. Whenever the designated software is installed and the Internet is connected, it is possible to start the mining. In the lack of the intensive competition, this is an easy and convenient way. However, as the price of bitcoin is rising continuously, mining becomes a business action gradually.

More and more companies are established specially for mining, and the individual mining becomes infeasible gradually due to the influence of the scale economy. Mining is profitable, so the mines of the crypto become popular. Taking bitcoin as an example, the current hash powers used for maintaining the safety of bitcoin are centralized in the top 10 mines in the world. The high centralization goes against the spirit of block chain, while making the block chain unsafe. Therefore, in addition to the centralized mining in the mine, the decentralized mine (Commonly known as mining pool) is also rising in recent years. By installing the software, the users can connect the computers distributed all over the world to share the hash power and cooperate in mining. In this way, all people can participate in the maintenance of the security of the block chain, and convert the block chain back into a real decentralized network. Even though, some problems will be caused. For instance, after contributing the hash power in part, the routine use of the computer is influenced. Furthermore, the running cost and efficiency of the computer are much lower than the equipment designed especially for mining.

As it is stated above, GE-Chain decides to launch the plan of the ocean of stars. Through the devices designed to mine, the distributed mining device plan may be implemented for mining by all people. After the users purchase the device and get connected to the Internet, they can use the backstage system to mine with different algorithm. It will not influence the daily use of computers and it is more efficient than normal mining software.

GEC Mining Box – Comprehensive mining tool



GEC Mining Box provides hash power and hard disc capacity, the cloud mining platform of GEC provides algorithm (Supporting SCRYPT, SHA-256, ETHASH, EQUIHASH, X11, PoTS in the first stage). The only thing users need to do is to get GEC Mining Box connected to Internet and log in the cloud platform to select the coin, so that GEC Mining Box can work 7/24 to operate without interruption.

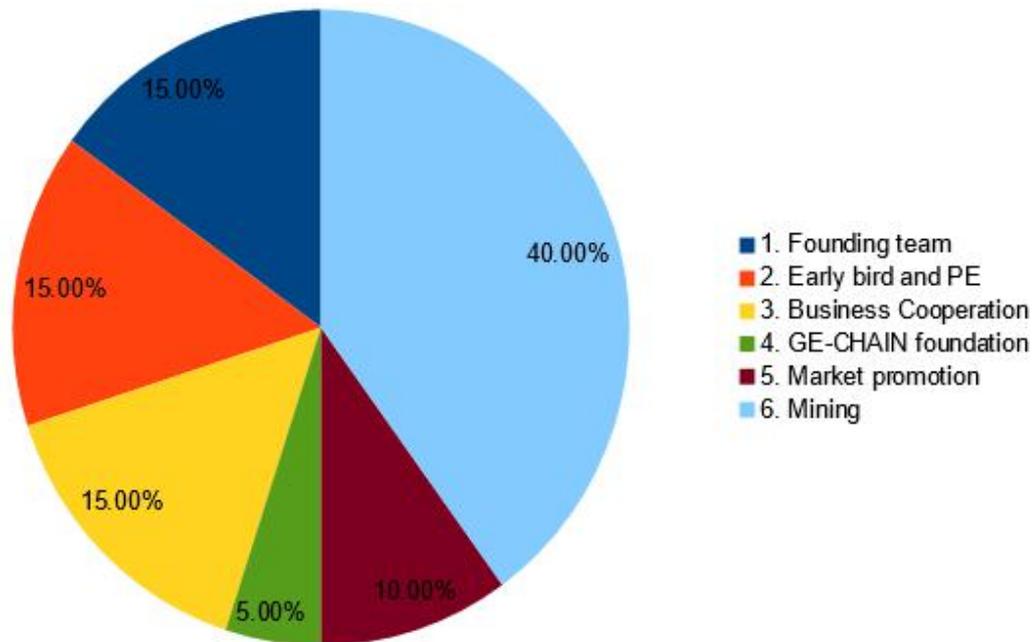
# Introduction and Distribution of GEC

Total supply of GEC: 320,000,000

Ticker: GEC

1. Founding team: 15%
2. Early bird and PE: 15%
3. Business cooperation: 15%
4. GE-CHAIN foundation: 5%
5. Market promotion: 10%
6. Mining: 40%

the total volume of mining in the first year is 64,000,000, and halved year by year



## Operation Management System

The digital assets received from the crowd funding by GE-Chain shall be managed by GE-CHAIN Foundation. The operation management system of GE-CHAIN Foundation is shown as follows:



### **SINGAPORE ASIAN STAR FOUNDATION LTD.**

**In GE-CHAIN Foundation, four committees are responsible for management of the routine business:**

Crowd Funding Committee – Be responsible for the crowd funding for the game projects on GEC

Technology Committee – Provides technical support and service for game developers which are connected to NPC

Legal Committee – Be responsible for any legal matters for GE-CHAIN Foundation

Finance Committee – Be responsible for the use and financial auditing of the digital assets in the community

## Introduction to Team

The biggest difference between GE-Chain and general block chain in initial founding is that the team has the ability to develop and operate the class-S mobile game and has the scale, which is more mature and sound than the general block chain in the initial founding. In addition to the experts in the block chain and the mobile game industry, there are some operators and supports with abundant experience. Meanwhile, as the core service of the GE-Chain, GE-Chain SDK is being used by the game developers.

## Members of core team



### Yunchuo Chen

As the project initiator, Chen is the Executive Chairman of King Force Group Holdings Limited (HKSE:8315), and the president and CEO of Sendon Group. He previously served as senior management and core founder in 51Job, Xunlei Ltd, Focus Media, and Bus Online Holdings Co. Ltd, and other well-known listed companies. Chen has extensive experience in game development, and participates in a number of large-sized game products. Over the past two years, he has been studying landing and application of the GE-Chain technology.



### Jun Yao

Engaged in the cultural advertising media and futures exchange industry for 12 years and started his investment in multiple cryptocurrencies in 2013, Yao made great achievements. Since 2015, he was specialized in the development and application of the block chain, and acted as the consultant for many block chain projects with the focus on the commercial landing and application of the block chain projects.



**Johnny Au Yeung**

As the member of the technical team and one of the developers of Ethereum, he has ever participated in the development of the railway system valued at RMB 100 billion Yuan. In recent years, he is mainly engaged in the study on application of Ethereum, and developed a number of commercial applications of Ethereum, and accepted the interview by block blog, which is the largest block chain media in Taiwan.



**David Tang**

As the member of the technical team member and the early participant in block chain, he was invited by Mastercard to participate in the development of work for the payment system in Silicon Valley, USA. Currently, he is committed to block chain application research. At the same time he is the champion of Mastercard's Asia hackathon and participates in hackathon world finals on behalf of Asia Pacific area.

## Members of game experts



**Xiang Fang**

He graduated from Hefei University of Technology, joined Sendon in May 2017, and served as the platform operation manager of Huawei game center for erection and operation of the operation platform of Huawei game center. He has ever worked for i9Games as COO taking the overall responsibility for overseas game distribution business (In Southeast Asia). He has abundant experience in the game product testing, channel business, market, and especially the distribution plan and strategy. He also has the unique insights on the game operation and platform operation.



**Wei Yu**

With over 12 years of experience in game development and operation, he has ever worked for the well-known game companies with a decade of practicing experience in terminal game and mobile game, and takes the lead in a number of game operation works for assembly products in the amount more than RMB 10 million Yuan.

## **Members of advisor team**



**Hongcai Guo**

As a celebrity in digital currency field, and a famous angel investor in Bitcoin and Ethereum startups, he has been studying and exploring the virtual currency and block chain industry for many years.



**Ryan Xu – Martian**

He is the founder of Australian Collinstar Capital, a famous investor in block chain industry, the initiator of Bitcoin development foundation, a member of Asian DACA Block Chain Association, and a member of Chinese Bitcoin Round Table Forum.



**Wei Feng**

He serves as the general manager of Sendon Pictures, the president of USA Rising Star International Limited in Asia region, and the vice president of Canada Euro-Asia International Film Festival. He imitated and established Dinglongda, which has

produced the films “Painted Skin I and II”, and participated in the investment planning and management for the international films such as Hacksaw Ridge, The Moon and the Sun, Birth of the Dragon, Shanghai Sojourners, and Adventurers.



### **Chunfeng Wang**

As the founder of Wuhe Tianchen Capital, co-founder of Chenxun Media, and partner of at Yafo Capital and Herui Capital, Wang is the publisher and one of the co-authors of Entrepreneurship at Home and Finding Digital Currency.

### **Early Investors**

#### **Xiaoting Chen**

The partner of Shengshi Investment (The largest parent fund in China).

#### **WILL**

Chinese American, graduate student of New York University, senior vice president of Merrill Lynch. An investor in virtual currencies, who has been making investment various virtual currencies since 2011, and making great achievements.