



# — Social Ecommerce Chain

Block chain agreement in the  
next generation of e-commerce  
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## **Abstract**

This paper will analyze main technologies applied in Social e-commerce Chain ((A block chain used for e-commerce, P2P e-commerce, online celebrity e-commerce, content e-commerce and other e-commerce industries). In essence, SEC establishes trust value network of e-commerce and consumers through distributed accounting transaction relationship and trust endorsement, and introduces a new consensus algorithm to realize the feature of multi-project extension.

## **I. Project overview**

### **(1)E-commerce background**

The past has not gone, but the future has arrived at the doorstep. The e-commerce development has reached a new turning point and is moving fast to mobility, fragmentation and socialization. Ebay, Amazon and Alibaba are prominent in the field of e-commerce. The e-commerce industry in mainland China has achieved the explosive development for 17 years in the Internet wave. Although the absolute sales volume in the field of e-commerce is still growing, Alibaba e-commerce system, the leading enterprise this field, has constantly encountered various e-commerce modes such as social e-commerce online celebrity e-commerce and content e-commerce modes. The market competition atmosphere has extremely

intensified. Based on the social users of WeChat and micro-blog, the e-commerce forms have developed rapidly. Online celebrity e-commerce of the clothing has abruptly emerged and a single brand with annual sales exceeding 1 billion RMB has sprang up. For the three years when the WeChat system has been involved in the business e-commerce field, its market share has already accounted for 14% of the total market share of the e-commerce market, demonstrating the potential and advantages of the new generation e-commerce.

Based on user volume of WeChat in the Chinese market, model innovation and market capacity in the Chinese mainland market are world-leading. From the aspect of business mode, social e-commerce, online celebrity e-commerce and Wechat moments content e-commerce are different approach but equally satisfactory in results. All of them build trust relationship based on personal brands and acquaintance circles and then attract users to deal through content display. This is the most advanced product retail from so far. Take online celebrity e-commerce as an example, web celebrity acquire quantity forecast of fans purchase through product display first and then carry on quantity production in the factory and sale. From the sample display to the completion of the main sales cycle of individual products, fan purchase, then, carry on the sale. the efficiency of capital flow is different in order of magnitude from the original production and retail mode.

The traditional e-commerce form is based on the PC equipment era along with the development of intelligent terminals and is gradually transmitted to the mobile intelligent era with mobile terminals such as APP as the carrier. The deepening development of information technology is further empowering individuals. A new generation of e-commerce is in its infancy stage and the larger market has not be stimulated yet. For

example, many farmers' agricultural products in China lack effective information transmission and trust mechanism so they can not be sold to consumers at the right price. Consequently, to solve the two core problems of trust foundation and more effective means of communication is an opportunity for the development of new generation of e-commerce. To sum up, the construction of trust mechanism of a new generation of e-commerce can be regarded as an effective support for the new generation of e-commerce.

## **(2) The History of P2P Technology used in Electronic Commerce**

Many people devoted to the application of P2P technology in e-commerce previously. For example, Lightshare carry out e-commerce business on the P2P. In the P2P e-commerce mode, users have a more flexible communication transaction mode and each user node in the network can visit another and trade directly. It is developed as a new type of electronic commerce. But trust risk is the main obstacle to the development of P2P e-commerce.

## **(3) The Refactoring Relationship Management between E-commerce and Customer**

With the fragmentation of user time, most brands attempted to or have already applied social platforms such as facebook, twitter, Weibo and other channels for brand promotion and maintenance of user relationship. Many small and medium-sized e-commerce companies in China are draining consumers from other e-commerce platforms to WeChat personal numbers and chosen Wechat as a tool to manage customer relationship.

The e-commerce under the support of blockchain technology will be redefined as the P2P e-commerce model, redefining "customer relationship management" The whole process management of the intersex relationship is bound to that of the buyer and seller, the buyer and the buyer. Finally, the inter-sexual relationship is the core to build the new generation of

trust mechanism.

#### **(4)The rapid rising of Cross-border e-commerce**

Throughout 2017,, consumption of global cross-border e-commerce has further increased. The global purchase model was further consolidated, and there is still potential for rapid growth in the future. In the process of logistics warehousing and cross-border circulation, cross-border commodities still face cumbersome customs clearance and verification procedures in a certain degree. The technology of block chain can realize trust and verification and other links in the cross-border product flow. The realization of functions such as authenticity verification and traceability of cross-border commodities will be of great significance to global cross-border e-commerce.

#### **(5)Privacy protection**

The existing centralized network can collect user privacy at will. And personal information leakage resulted in a series of problems such as personal information transaction, even fraud. With the assistance of block chain technology, it is helpful to realize the technical protection of customer information, including but not limited to commodity trading information and many other aspects.

Therefore, SEC is the first trust-based block chain project in the world to promote e-e-commerce socialization. It is necessary for SEC to support large concurrency and infrastructural supporting massive transactions. SEC adopts consensus mechanisms and node algorithms different from bitcoin and Ethernet.

## **II. Summary of SEC Architecture**

## **(1)Block Chain System Based on Transaction Trust of Basic Protocol**

SEC system contain the complete implementation of the protocol, master tool and the API interface. As an open source project, its agreement will follow the license for knowledge sharing.

The interactive business logic based on e-commerce is relatively simple, but forms of transaction relationship are various. Therefore, we provide more flexible spaces and expansibility in the basic protocol. However, in terms of tools and API interfaces, the strong coupling state are demanded to be sustained for consistency and security. According to the rich experience in the field of P2P e-commerce in the early stage of the team, the market demand is very strong, it is believed that these two aspects of considerations will provide some help to the rapid large-scale commercial application of SEC.

## **(2)Summary of SEC Structure**

The overall structure of the SEC block-chain scheme is divided into three levels: (1) SEC Structure; (2) As the middle layer, the SEC service layer provides the function of transaction gateway, which is used for the interaction such as intra-chain and off-chain WEB protocols. (3) The upper layer is the SEC application service layer, which provides the API interface, web application development and DAPP development frameworks and the underlying application capability.

The overall frame structure is as follows:

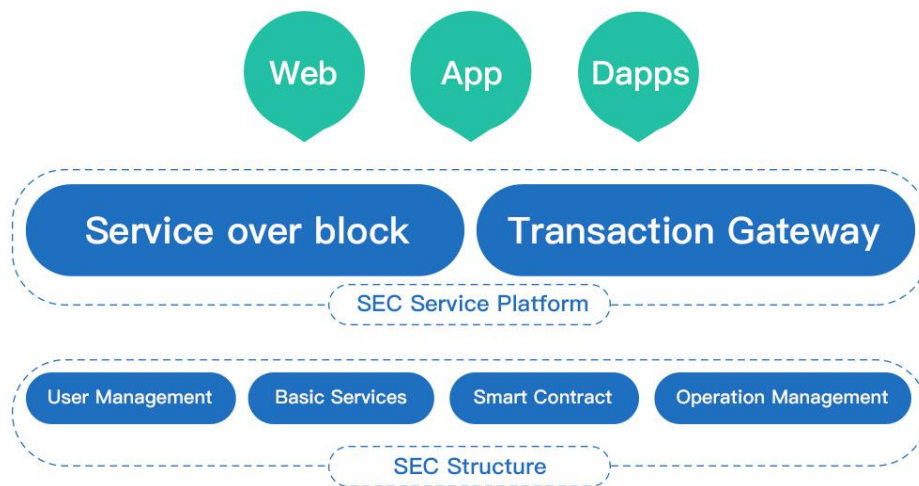


Figure 1 SEC infrastructure

## 1. SEC underlying architecture

(1) Account management: in charge of the identity information management of block chain participants, including maintenance of public and private key generation, key storage management, and user identity and block chain address correspondence maintenance and so on.

(2) Basic services: The basic service is allocated in all the nodes of the block chain to verify the validity of the business request and to record it to the account book after completion of the consensus on the valid request. For a new business request, the basic services first parse and authenticate the interface, then use a consensus algorithm to sign or encrypt the transaction or contract, and store it in a shared account book completely and consistently. Consensus mechanism can be adaptive and has strong fault tolerance under the circumstance such as network. Ark anomaly or node spoofing.

(3) Smart contract: in charge of the generation of block chain contracts for transactions and the triggering and execution of contracts. Users can complete P2P e-commerce contract logic through simple operation. After publishing on the block chain, the user can trigger the execution by other

events, such as collection or signature, and complete the transaction settlement and other contract logic in accordance with the logic of contract terms.

(4) Operations and maintenance management: in charge of deployment, configuration modification, contract settings and visual output of real-time state during product execution in the block chain release, such as: alarm, trading volume, network situation, node health status and so on.

## **2. SEC services layer**

The SEC services layer provides mediation between the intra-chain and off-chain transaction gateways and the information services layer.

The transaction webmaster assists users in performing an off-chain e-commerce purchase operation to an interactive interface on the chain, and provides authentication services: make the seller and buyer release the transaction information and other published on the block chain through a simple API interface and all the accounting node testify for themselves. In essence, it is the decoupling of differences of transaction trust and buyer's personal experience of trading target. The function of SEC chain system is to realize the trust relationship mechanism inside the chain, so the information of the commodity object outside the chain is separated from the transaction information. In the convergent period of the transaction relationship, if two parties do not complete the further transaction and the trust relationship between them is considered to be dissolved; The convergence period of the transaction relationship is related to the transaction speed and breadth of the chain of the autonomous domain formed naturally.

The information service layer abstracts a variety of information from the bottom block chain and provides the underlying information and message dialogue mechanism demanded by the upper application development



framework.

### **3. SEC application layer**

The SEC DAPP application service layer provides a framework for simple application development. Application types include basic application models such as digital assets, shared books, authentication, product traceability and ownership transactions. Users can develop business based on framework of these application development. Underlying structure of open block chain (SEC structure) and the ability of application layer (SEC) assist communities to develop new SEC e-commerce application services, match the corresponding application scenarios and jointly maintain block chain ecology.

### **4. Elements of performance considerations**

SEC is not the basic block chain application of e-commerce, but the underlying protocol as the foundation of e-commerce trust. SEC will satisfy the complex transaction relationship management and the underlying layer is designed to be extensible and scalable to achieve a wide range of e-commerce scenarios and energize innovative entrepreneurial e-commerce companies.

Key performance issues considered by the SEC in the light of existed block-chain technologies include:

(1) Scalability: based on the transaction scale of P2P e-commerce, take the current mobile terminal computing power, bandwidth changes and storage conditions into consideration and when dealing with the resources of a single transaction, the block chain needs the underlying mechanism to take into account the processing capacity of "low time consuming" and "low energy consumption" when designed;

(2) Developability: Considering the future trend of individualization and miniaturization of e-commerce participants, on one hand, we will

start with the convenience of tool implementation and provide users sufficient convenience to use tools that can be used by non-programmers without having to learn to do so and exceeds the convenience of current e-commerce tools; On the other hand, the SEC Foundation will set up to develop communities to share bonus of the e-commerce industry with all ecological participants.

(3) Governance: basic protocols need to be simple enough to retain the flexibility along with evolution and adaptation of time and making decisions can highly tolerant, reasonable and transparent to o provide efficient leadership for decentralized systems.

(4) Applicability: on the basis of protocol common chain and the service layer foundation, the ordinary user can carry out the decentralization of e-commerce application conveniently.

### **III. SEC Block Chain Platform in Bottom Floor**

SEC underlying architecture is a multi-domain autonomous two-chain parallel system. The main chain (trade chain) is in charge of the execution of transactions, the maintenance of transaction history and trust relationship and other information; Dynamic data structure with overall situation dependence can exist on the main chain and secondary chain (account and relationship chain) is responsible for maintaining account information and credit index. The main chain is used to store the user information of the transaction relationship that has been trusted and adopt the asynchronous updating mechanism.

Because the logic of P2P e-commerce business is relatively simple, SEC puts most of the complexity on the block chain and API.

#### **(1) SEC autonomous domain**

SEC is a network covering numbers of independent block chains and multi-domain autonomous domains is called as autonomous domains. In other words, the whole SEC network is divided into many smaller network units. And the nodes of frequent transaction and trust relationships are automatically generated and converged in the same autonomous domain. SEC autonomous domain is to make a kind of social relationship prove cryptographic currency network and can change and update the network through a simple management mechanism like routing. SEC autonomous domains can also be extended across-chains by connecting to other chains.

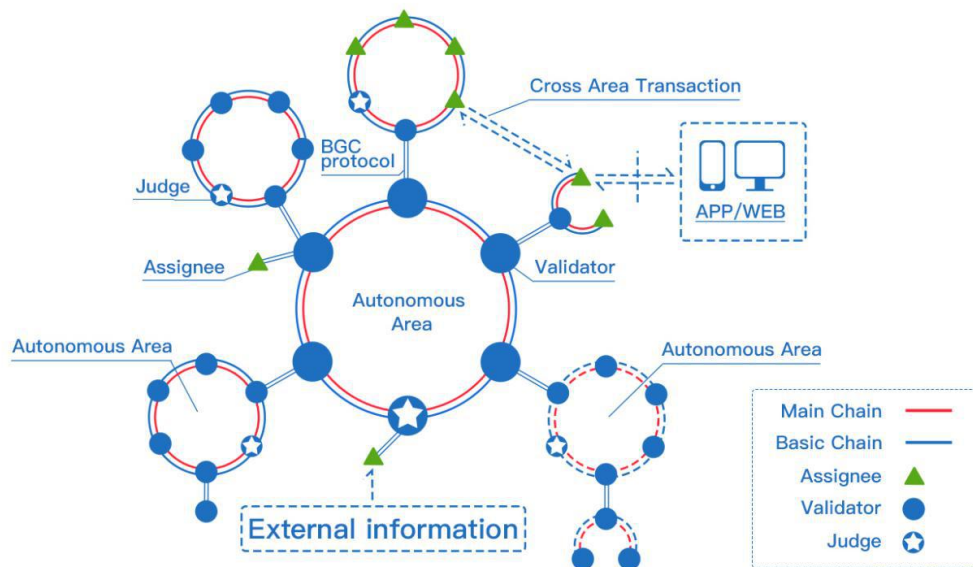


Figure 2 SEC schematic diagram

Carry out transactions through BGC agreement. The BGC protocol is to communicate through UDP and TCP of different domain concurrent users. Tokens can be transferred between domains safely and quickly and two items is unnecessary to reflect exchange liquidity. All transfers of Tokens within the same autonomous domain pass through the SEC key node, which records the

total amount of Tokens held by each autonomous domain. This autonomous domain will isolate each qualification from the other fault autonomous domains.

SEC is designed as a collection of autonomous domains that can be extended outwards and will own a very large number of autonomous domains. Each autonomous domain is managed in parallel through the same network model, so the system is elastic. Operating under the support of SEC scheduling kernel, it is a security consensus engine similar to asynchronous Byzantine fault-tolerant, which has the characteristics of consistency. And under its strict forking responsibility system, it can prevent malicious participants from improperly operating. Adopting SEC mode, block chain calculation can be combined or separated and load balancing is realized.

The SEC network runs a large number of block-chain autonomous domains through DPOS mechanism. It take the charge of the management of numerous independent block chains (called as "autonomous domain" and referring to routing protocol). Autonomous domains constantly submit the latest blocks, which allows autonomous domains to keep up with changes in the state of each node. Afterwards information packets are passed from one autonomous domain to another and indicate that the information has been transmitted or received by issuing Merkle-proof. This mechanism is called "communication between autonomous domains" or "Border Gateway Communication" for short.

Any block can become the verifier by themselves, thus forming an acyclic graph. As an independent block chain, SEC autonomous domain can exchange BGC information with other autonomous domains. From the point of view of the overall SEC network, the autonomous domain is a kind of double chain formation, which can send and receive the Tokens and account information through the BGC information interaction.

Set up the trust validator at the center of the autonomous domain. Although the number of SEC token decreases due to attack behaviors caused by by verifiers repetition. If over 2/3 votes in the autonomous domain appeared Byzantine issues, the verifier can be in invalid advertising status. Verifiers in Other autonomous domain will not verify or execute transactions submitted to other autonomous domains. The SEC management system may solve the malfunction problem of autonomous domain by improving the protocol. For example: When an attack is detected, the Tokens transfers initiated by some autonomous domains can be urgently interrupted.

## **(2) SEC Autonomous Domain Communication (BGC)**

One of the most critical parts of SEC is cross-domain communication. Because there are some kind of information transactions between autonomous domains, so it is a elastic block chain system.

In order to ensure minimum implementation complexity, risk and autonomous domain architecture constraints, these cross-domain transactions will have an initiator field to distinguish the identity of the autonomous domain. Cross-chain transactions are resolved to adopt a simple queue mechanism that uses the Meckel tree (Merkle tree) to guarantee authenticity of the data. The task of the verifier is to transfer the transaction from the exit queue initiating the autonomous domain to the incoming queue receiving the autonomy.

Take an example. If there are now two SEC autonomous domains—"Autonomous Domain 1" and "Autonomous Domain 2" respectively. One node A in Autonomous Domain 1 and Node D in Autonomous Domain 2 generate a transaction. In order to enable the Tokens and information to be transferred from the block chain node A to another block chain node D, a certificate needs to be issued on the receiver block chain node C to

confirm that the sender A has initiated the transaction to a designated location.

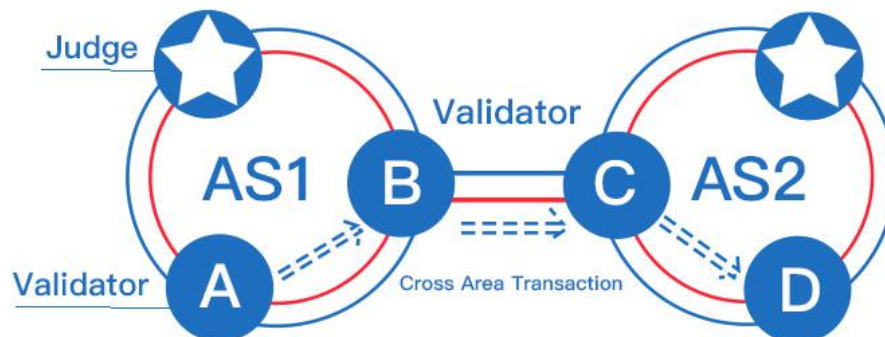


Figure 3 Cross-autonomous domain transaction diagram

On the premise of consistency, the autonomous domain of SEC can divide the autonomous domain to speed up the transaction by preferential transaction of relationship chain. Because of the frequent transaction in the autonomous domain, alteration of double-chain account information and transaction relationship is limited and the rapid completion of transactions is achieved-aiming at two-way order trading, BGC (Cross autonomous region communication) Tokens and transactions with other autonomous domains.

### (3) SEC Structure participants

SEC has three basic roles to maintain: Assignee, Judges and Validator. In the transaction trust relationship, the three have the same authority and function, while the roles of division of labor among the three aspects mentioned above are different under the packaging interests and confirmed rights.

## **1. Verifier**

The verifier has the highest authority and the responsibility is to package the new block in the SEC autonomous domain. The verifier needs to pledge enough deposits and must run a node's client on a machine with high computing power and bandwidth. In each block, the node must be ready to receive a new submitted block. This process involves accepting, validating, and republishing candidate blocks. The appointment of verifier is deterministic, but the result of operation logic is very difficult to predict and then improves security.

If the validators in different autonomous domains approve the new blocks of their own autonomous domains definitively, they must start updating the status of the transaction queues. In other words, enter into the entry queue of another autonomous domain from the exit queue of one autonomous domain. Then processes the approved transaction set, approves the final block and absorbs the final status of the autonomous domain.

Under the constraints of the consensus algorithm, a verifier failed to perform his duties will be punished. The first mistake will withhold their reward, but repeated errors will cause the deduction of their deposit and even lose their entire deposit (A small part will be burned and the rest of the reward will reward the judge and honest verifiers).

The unique permissions of validators is to create valid autonomous domain blocks.

## **2. Trustee**

The trustee has two roles. The first is that the trustee is a group that helps the verifier to create effective autonomous blocks within the domain. They will run the entire node of a particular autonomous domain and have the necessary information about the entire node in the autonomous domain. Moreover, they can package new blocks and execute transactions; In order to obtain more service charges, the trustee group competitively collects transaction information to promote the generation of trust transactions. Similarly, the decentralized nominees group will also allow multiple secured participants to coordinate and share the responsibilities of the verifier. This ability ensures openness to participation and benefits to become a more decentralized system.

The second is that the trustee delivers the role for trust. Automatic trust index generates in the trustee information field and the initial value is 1. When the trustee completes the transaction, TI value will increase correspondingly, up to 100 in maximum. Similarly, if the transaction is not completed, or if the seller sells fake or shoddy commodities or a buyer complains maliciously, the trust index will be reduced; When trust index is reduced to 0, the account is forbidden. On the contrary, the larger the Index, the more deposits the transaction submits depending on the volume of the transaction.

### **3. Judge**

Judges are not directly involved in the process of packing blocks. They are independent "bounty hunters" who are motivated by a one-off and high-value reward. Judges can be rewarded when they report and prove that at least one secured participant has committed an illegal act in a timely manner. Judges need relatively little resources to prevent excessive incentives caused by the disclosure of the private key to the judge and it is no necessary to commit to stable online time and large bandwidth. The



judge is required to submit only a small deposit used to prevent witch attacks that waste the verifier's computing time and computing resources. It can be recovered immediately, but if you monitor a certifier for misconduct, you may reap a lot of rewards.

## **IV. Consensus mechanism**

We choose to use a consensus algorithm based on DPoS.

In consensus, under the framework of any arbitrary network defects, as long as most verifiers are honest, it can provide an efficient fault-tolerant algorithm, which can guarantee the authenticity and accuracy of data at the level of large probability.

The SEC chain is created at the beginning stage and is continuously distributed in the application scenario. According to the requirements in different alliance chains, the detail functions of parallel chain and the specific information of service and parallel chain Tokens provided by parallel chains are customized and a part of synchronous shared account book is built among different alliance chains. The customized information forms data structures of a parallel chain and is recorded in blocks of the current period by the billing node in a manner similar to that of SEC transaction records. At this moment, the autonomous domain will act as a separate block chain and records the transactions in the autonomous domain Tokens.

### **(1) Double chain consensus algorithm**

The generated  $\Omega$  algorithm developed by team members was developed as a strictly block-chain-based cipher and consensus foundation. Differences to existing algorithms: the algorithm can meet the requirements of

e-commerce in the extreme speed consensus, security, and ultra-low computational power. Using the property of bilinear mapping function, the validity of "function" is verified without leaking dependent variables to avoid the influence of the natural advantage of the generator of a block when predicting the probability of the later generator, but realizes the effectiveness of the algorithm by delaying the network in fact (that is to sacrifice the speed). At the same time, the consensus mechanism of DPOS is constructed. Non-regularity of wrapper function can decide a block generator through method of cryptology. And the consensus mechanism is realized without sacrificing the speed of the next block.

Key points of the algorithm: (1) To ensure complete randomness, X block(sequence number of the block) is introduced into the block and only when the lurks of the current block are revealed in the entire network can the final confirmation be achieved. Prevent the the possibility of intrusion blocking from the aspect of the mathematical logic. (2) At the same time, the concurrency mechanism is constructed, and the blocks in which many potential lurks are located are completely independent. Through the public network, the blocks are collected in a unified way. It is given the priority to broadcast the block data and then the link is revealed to guarantee that the tampering is meaningless. (3) The algorithm supports the player replacement mechanism so that any node can be taken over by other nodes at any time. Consequently, comprehensively improve ageing advantage of the algorithm and promote economical efficiency.

In conclusion, the  $\Omega$  algorithm covers the following advantages: controllable bifurcation risk, little computation, tolerance expansion of node off-line, high security level of one-way irreversible key, voting mechanism of composite verification.

## (2) Equity proof

Through an updated the structure of stockholder's equity certificate ( DPOS) , the verifier relies severely on their mortgaged interests. The interests of current verifiers will begin from their dimission. Such a long period of deposit freezing is intended to penalize misconduct in the future until the periodic check points in the block chain arrive. Misconduct may be punished, for example, reducing incentives, and if the integrity of the network is deliberately compromised, the verifier will lose some or entire of his interest and transfer it to other verifiers, information providers or holders of all rights (by burning down). For example, a verifier attempts to approve two branches on different forks at the same time (Sometimes referred to as a short attack), he will be identified and punished by the later method.

### **(3) Packing of blocks**

Each autonomous domain uses a different block packaging method and integrates consensus through BGC protocol. Under the consensus integrity mechanism, the primary nodes account, and the heartbeat mechanism is used to maintain the integrity of the consensus.

### **(4) Light client**

One of the benefits of the  $\Omega$  consensus algorithm is that it can develop a secure and easy light client, which helps to become an ideal tool for social e-commerce applications on the mobile terminal. The light client must synchronize the chain formed by block headers and find the one with the most proven workload. SEC light client only needs to keep consistent with alterations of validation group and then verify most of the transaction to confirm the latest situation.

### **(5) Network design and consideration**

Based on the continuation of Ethernet devp2p protocol series including libp2p and IPFS standards, we will effectively improve privacy, robustness, latency and modularity.

In the SEC network, we focus on solving the trust problem of e-commerce transactions, without consideration of selling products of text, pictures or video information storage. so it is enough for SEC application based on devp2p protocol. Of course, in the current network architecture and e-commerce business, servers or cloud servers have become monopoly capabilities. Even if the application of simple cloud servers, it may become a barrier for ordinary individual e-commerce participants. SEC foundation, will focus on P2P network services. The decentralized computing projects and other projects benefit to reduce personal web applications. Of course, seller information stored in the central computer room does not affect the application of SEC networks.

## **V. Account Management and Business Logic**

### **(1) Account management**

#### **1. SEC provides accounts and functionality**

(1) User management. User management mainly solves the mapping relationship among user identity, block chain address and the confidentiality of user privacy.

(2) Account management. Account management is responsible for the user's account management, including account registration, login, cancellation, and irrelevant processing between account and key. When the account is registered, the identity information of the original user are mapped to the block chain address such as user name and password.

(3) Key management. In the overall mandatory mode, the key management system is responsible for the connection between the user key and the account, the key security management and the loss and retrieval. The user key is generated on the client side. The user can choose to preserve the key in the safe box or delegate the key to the associated account to retrieve the key after the loss of the key. In order to ensure the reliability of the relationship between user account and key, the key management system stores the signature of the association by adopting mufti-node chain.

(4) Authority management. The authority management module is responsible for the control and management of jurisdiction such as user account, key system, node join and exit, data access and so on including account delegation permissions, node consensus permissions and user data access rights and so on. The audit authority is to provide the audit function for regulation bodies and strictly control the access authority and data scope and connect to users unrelated to transaction on the shared account book. Account delegation permissions are used to control access to user account delegation relationships. Consensus permissions are adopted to manage the consensus rights of the participating or newly joined nodes, and the access rights are launched to manage the client's permission to query the data on the block chain.

(5) Control management of user credit risk. The risk control module is responsible for the risk control of the transaction behavior of users in the block chain.

## **(2) User creation and living examples of users**

The user creation of SEC network is derived from the community users, and enter the network by the way of transaction. Therefore, there is a trust relationship between the two parties whose initial trust value remain 1.

User A set up an automatic contract address on the SEC user interface that automatically conclude a transaction seven days after receiving the commodity. The social network / web e-commerce website releases product information. Assume 158 RMB of the price and leave the SEC automatic contract address.

After found by unfamiliar user B sees, the mobile phone scans the SEC automatic contract address and finish the payment. Since the two parties did not generate a trading relationship, they must be located in different autonomous domain. Therefore, user B notifies verifier C in the autonomous domain. The verifier C finds the verifier D in the autonomous domain where user A is located through the hash table, sends out transaction information and updates the record. Verifier D issues payment transaction information to user A's automatic contract address.

User A found a change in the status of the contract address and updates the automatic contract delivery status. After receiving the commodity, user B can update the status information according to the original path. User A carry out the contract automatically. Seven days later, A executes contract automatically without the operation of user B. Carry out the guaranteed transaction through automated contracts and verifiers.

After completion of the transaction, user A and user B form a relationship chain and converge and attempt to establish an autonomous domain. If the path in the network meets the convergence conditions, both the parties enter the new autonomous domain and broadcast the transaction information.

If user B identify the product as a fake product, he will issue distrust confirmation to the automatic contract address and user A will deduct the

specified portion of the purchase price and reduce the trust index. If the trust index is reduced to 0, it is permanently prohibited by the network.

To sum up, this scheme enables realization of trust transfer and social sharing in cross-border, cross-platform, cross-category P2P e-commerce market. It will be a new underlying framework platform based on the e-commerce application scenario: decentralized, open, safe and efficient. In the ecosystem, participants can get appropriate Tokens rewards through sharing behavior and effectiveness sharing and businesses can also enjoy technical services while reducing the cost of platform entry and variable cost of information processing, thus achieving many advantages in one stroke. Block chain and e-commerce are two areas with rapidly growing dividend. As a transparent and open system, SEC hopes to promote global e-commerce development and reshape social e-commerce through a sharing economy. As a result, it will form an effective decentralization market.

In the first phase of the solution, we will implement the technology application in many vertical commodity fields, agriculture, cross-border e-commerce ecology in China, Germany, Canada and Thailand, and build a complete initial P2P e-commerce credit case.

## **VI. Governance structure**

### **SEC Foundation**

The SEC Foundation is a non-profit organization dedicated to supporting e-commerce application projects based on SEC platform.

#### **(1) Governance of the SEC Fund Committee**

The committee of the SEC Fund Alliance adopts the alliance rotating chairmanship to conduct its work. The Chairman-in-Office is elected by voting every two years and the term of office of the Chairman-in-Office is one term, renewable once. Several management centers have been established by the SEC Fund Alliance Committee including: technology development center of block chain, block chain business application center, financial management center, risk control management center and integrated affairs management center.

## **(2) Source of funds and its management**

1. The fund to maintain the operation of SEC project mainly comes from original assets SEC coins in different batches, venture investment, capital membership fees and donations of alliance chain and so on. Some SEC will be converted into other forms of equity assets for project operation if necessary.

2. Encrypted digital and underlying assets raised by SEC through private equity will be kept in cold wallets or converted into other assets and managed by specialists. If necessary, it is considered to employ service providers of cryptographic asset management to provide financial management services, while manage the private key in the form of multiple signatures at the same time.

3. Financial management. Principles of financial management of the SEC Foundation: overall management, comprehensive evaluation of performance application; frugality; maximization of financial use value.

The asset management of the SEC Foundation is integrated into the overall budget management, and the financial revenue and expenditure budget is compiled in accordance with the actual operating conditions.



The annual financial revenue and expenditure budget shall be submitted to the autonomous committee for approval, and the monthly financial budget shall be deliberated by the Executive Committee. The Financial Management Centre shall be responsible for the preparation and implementation of the budget, and shall disclose it quarterly.

The disclosure of finance report:official website <https://SECblock.io/>.

The SEC Foundation will introduce a third-party audit to oversee the financial operations of the project and conduct a capital audit and draft the audit report, which will be reflected in the annual disclosure bulletin. The quarterly report will be revealed within two months after the end of each quarter. Draw up and reveal annual report within three months with the end of each fiscal year (December 31st every year) as the beginning. The report content include but not limited to milestones and progress of SEC project and application development, digital asset management, team performance, financial situation and so on.

### **(3) Progress and Information Disclosure**

The SEC project sponsor team is committed to managing and using project funds on the principle of diligence and good faith. At the same time, in order to protect the interests of investors, strengthen the management and high efficient application of SEC, promote the healthy development of SEC project and set up information disclosure system.

The SEC Foundation will employ well-known law firms as legal advisers for the SEC project. Provide comprehensive legal services for the SEC project such as trading structure design of digital asset, operational compliance, legal risk control system design and overseas legal advice.

SEC will reveal critical temporary information on the SEC project irregularly, including not limited to major cooperation issues, alteration of core team members and litigation involving SEC. We hope to standardize the management of digital assets of private equity project, increase the self-discipline of block chain industry, enhance the transparency of digital asset management of block chain encryption and maintain the long-term development of block chain industry.

SEC will disclose information reports on the website:  
<https://SECblock.io/> website.

## **VII. Team introduction**

Collin Chu: former project principle in the third largest company FinTech company. He has over 20 years experience in the design and development of bank application systems, financial software systems in china and north America, the PhD. D. in computer science at Nanyang Technology University, Singapore.

Chen Siyu : graduated from UCLA (UCLA) Computer department, computer major, in charge of machine learning in Amazon, Baidu and unicorn Procore Technologies, big data mining and related projects of computer vision automatic recognition, in favor of block chain project development.

Oliver Gu: chairman of the North American E-Commerce Forum, Co-founder of the Center for International Productivity Cooperation, Co-founder of the China-Canadian Electronic Commerce High-Tech Alliance, Co-Chair of the

China-Canada E-Commerce High-Tech Summit, Master of computer Science from Bridgewater State University, Massachusetts, USA.

Rain Liu: winner of Ontario Distinguished Women Award , president of China-Canada E-commerce Science and Technology Association, Senior engineer of Canadian multinational corporations certificated by Sun and IBM, former host and planning program of Canadian National Television, Canadian Chinese Radio and Fujian Zhangzhou TV.

## **VIII. Investors and advisers**

Li Mengran:technical director in China region of SEC, CEO of maizuo net(social e-commerce), developer of China' s real-time linux in early stage, Internet serial entrepreneurs.He has been a member of the project team of INT Internet of Things block chain under China Telecom Group.

Chen Yingkui:founder of Maizuo net, early employee in Tecent and angel investors.

Wang Xing: co-founder of maizuo net, one of Tencent's top 100 employees, angel investors.

Tan Lei: mining expert in block chain and big data, NASA initiator of the North American Block-Chain Association, 13 years of work experience in Microsoft headquarters, Master of Duke University, work and translation including *Block Chain 2.0* and *Social E-commerce*.

Wang Yong:the specialist in national Thousand Talent Program ,doctorate in Dalhousie Unveristy, the holder CFA and FRM Certificate, former former Managing Director in risk division of Royal Bank of Canada, author of financial risk management monographs and risk

management and derivatives, block chain and other translations;He is also an academic consultant at the Rottmann School of Management at the University of Toronto and a visiting professor at York University.

Xiao Min: the partner of Matrix Partners. Successively holding the positions of General Manager of Pinyin gaga, product manager of Baidu TV, General Manager of IT Division in Tianji Media. Currently specializing in investment in the Internet, e-commerce, wireless, software and other areas.

Shan Feng:SEC China e-commerce director, senior investor in block chain, e-commerce operation expert, previously worked in Alibaba B2B business division, then becoming the principle of Ali service provider training department, operation department and product department, engaged in the field of e-commerce for nine years and providing service and docking more than 5000 e-commerce enterprises.

Zhao Yafu:Director of risk Control, Guangdong Zhuotai Investment Management Co., Ltd.

Ge Lei: partner of Guangdong Guangxin Junda Law firm .

## **IX. SEC allocation plan**

### **SEC Tokens private placement scheme**

#### **Presale on Tokens**

The booming development of block-chain technology has also attracted more attention on the realization of the value of encrypted digital assets. With the introduction of various virtual technologies, developers can construct intelligent ecosystem in a more flexible way. Tokens, which visualizes the underlying block chain technology, has further improved the management efficiency of the platform. Among them, the basic application of e-commerce based on block chain technology and contents such as internal information exchange, certainty and time can solve the problem of decentralized trust with method of encryption of Tokens.

The application of SEC in the field of e-commerce plays a key role in encouraging investors to participate in community construction, ensuring the effective operation of the platform, and generating benefits to further distribute dividends to investors. At the same time, as a project, Tokens obtain funds in early development and project operation and will bring a solid guarantee for the success of the project.

Such innovative investment and financing mechanisms have been widely used in block-chain industry and has become the most feasible and efficient solution so far.

## **SEC initial Tokens private placement plan**

Continuous-operating fund demands of the SEC project needs to be distributed evenly in the long run and is carried out in a sustainable and scalable manner. At present, the project has been favored by some high-quality investors, some of which have become cornerstone investors. In private placement phase, the founding team and strategic investors will release a small amount of Tokens; In the middle and later stages of project development, more emphasis will be placed on the development strategy of

investor diversification, including but not limited to e-commerce practitioners, venture capital, virtual digital industry R & D institutions and R & D personnel, individual investors and so on.

## **Distribution principle**

The owners of SEC Tokens are the earliest investor in the SEC project. In order to protect the investment interests of early supporters and the healthy development of the project, Tokens in this time releases a small amount of money and others will be frozen. The frozen systematic Tokens will be released gradually for up to three years to fully guarantee interests of investors and return on investment.

The total number of SEC Tokens has reached 1.5 billion, but at the same time, it has set up a mechanism of additional issuance for merchants to pay for their purchases. In view of the rapid growth of e-commerce networks, they can issue additional shares in accordance with the market price in real time under the circumstance of merchants' investment and purchase. Do not dilute the connotation value of current Tokens; The presale volume of Tokens is expected to be between 3 and 600 million units. Early supporters of the SEC by virtue of the most efficient market operations will have the opportunity to participate in the initial phase of the project and investors will be involved in completing the replacement of SEC Tokens, and the digital currency we have acquired will support the development of the SEC project.

Standards and methods of SEC Tokens Private Placement and Exchange

This investment take ETH as the exchange criterion. The final exchange criterion is subject to Bitfinex average price at 1:00pm of the first day

after end of Presale Token. The recruitment work starts on January 22nd 2018, and the period of one month is taken as the time of collection; If the offer is completed in advance, it will be sealed in advance correspondingly and announcement of the official website announcement shall prevail.

## SEC Tokens allocation

The underlying Tokens allocation schemes and benchmarks for SEC are as follows:

**Table 1 SEC Tokens allocation planning**

Type	Tokens quantity	Share of total	Total proportion	Description
Angel investment	105,000,000	7%	0.40	Angel 50% release, 50% lock for 3 months; unlocked period for private placement; adopting white list system
Private placement	495,000,000	33%		
Foundation (Technical iteration)	150,000,000	10%	0.10	Financial disclosure
Business / strategy	300,000,000	20%	0.20	Other private placement and institutional financing
Founding team	150,000,000	10%	0.10	3-Year maturity period
Investment, Partners and Communities	300,000,000	20%	0.20	
	1,500,000,000	100%		Total amount

**Note:** 1ETH=11000 SEC

**Table 2 SEC Tokens soft and hard top**

Type	Soft top	Hard top
Private placement	19,800 (ETH)	39,600 (ETH)

## X. Fund application planning

**Table 3 SEC Tokens and description of fund application**

Proportion	Distribution scheme	Description
20-40%	Angel Investment and Private Equity	Angels and private placement adopt an invitation system, will provide a discount, but there is requirement of lockup period.
	Private equity, early investors, institutions, and early people who provided resources and technical support for SEC development	
10%	SEC Project Foundation	used in the project development, money reward program and so on, the initial release of 20% fund, release 33.3% in the follow-up every 365 days, a total of 3 years for thawing
10%	Founding team	The foundation and development release 25% initially and , discharge 25% in the follow-up every 365 days.
20-30%	Investment institutions, partners and communities	Initial lock(it is unlocked for community promotion, community operation and reward)
20-30%	Other private placement, business development / strategic cooperation	SEC will consider launching private placement in parts of of the world;Brand building, strategic cooperation, listing fees, etc., will release in accordance with the project process and need to be announced in advance

## IV. Technology deployment and landing application

Summary of the project plan:the project will complete the fund-raising work in early 2018, and it is estimated to release specific application scenarios and new project partners successively this year. This application will undertake the heavy task of developing and innovating the e-commerce industry and will profit from the development dividend of the e-commerce industry.

The market demand corresponding to the project is urgent. With rich experience and resources in Internet and e-commerce operation, the team is expected to become one of the largest block-chain applications with the largest number of users in June 2019.The current project time plan is as follows, but because the block chain technology has certain ti



me risk, therefore the accurate technology release time will have a adjustment and the corresponding commercial landing application will also change accordingly. The announcement of the official website prevails.

**Table 4 Time Road-map in the Initial Stage of Project**

时间 Time	计划 Plan
2017 年 7 月 July 2017	卖座网社交电商业务模式测试 The Test of the Business Mode of Social e-commerce on Maizuo net
December 2017	SEC based on DPOS consensus algorithm and Network Scheme
February 2018	Technical cooperation between SEC and Maizuo net , the social e-commerce project(current users of Maizuo net is 41 million and annual sale reached in 1.67billion RMB in 2016.)
March 2018	Development and application of out-of-chain application of Social e-commerce
April 2018	Open source of display code of WEB commodity, H5 version and Wechat small program version
May 2018	Open source of display code of Apple and Android AP
June 2018	Promotion of Toronto project: business collaboration and community user popularization with local partners
August 2018	DAPP development framework
September 2018	Intelligent contract function based on ERC233 Standard
September 2018	Issuance of Leibniz version of SEC main chain
September 2018	SEC Wallet and issuance of browser
October 2018	Issuance of SEC Trade Gateway
October 2018	Issuance of SEC AS and BGC
October 2018	The current 80,000 agents guiding into the main chain and application to complete the creation of the user construction
October, 2018	Cooperation with Shanghai Fishery Association and Shanghai Conghe Agriculture Co., Ltd. on the business of high quality agricultural products of origin
November, 2018	Project promotion in Silicon Valley, business cooperation and user promotion with local partners
December, 2018	Packaging of Service over Block
December, 2018	SEC main-chain Issuance of Wiener version of SEC main chain (Deposit, trust endorsement and judge judge)
February, 2019	project promotion in Munich, Germany, business cooperation and user

	promotion with local partners.
March, 2019	Issuance of Turing version of SEC main chain, breakthrough made in TPS main chain.
April, 2019	Import of existing core users, start user operation and scale partner promotion
June, 2019	The expansion of SEC network

## V. SEC Media and Community

Table 5 SEC Media and community list

Name	Address
Official website	<a href="https://SECblock.io">https://SECblock.io</a>
Telegram English group	<a href="https://t.me/joinchat/HszzcVKwZXyl5LbH8Ywx8Q">https://t.me/joinchat/HszzcVKwZXyl5LbH8Ywx8Q</a>
Telegram Chinese group	<a href="https://t.me/joinchat/HszzcUiWaWtR5pPmOhDPwg">https://t.me/joinchat/HszzcUiWaWtR5pPmOhDPwg</a>
Twitter	<a href="https://twitter.com/SECblock">https://twitter.com/SECblock</a>
Facebook	<a href="https://www.facebook.com/SecChain">https://www.facebook.com/SecChain</a>
Github	<a href="https://github.com/SECblock">https://github.com/SECblock</a>
WeChat Official account	SECblock
Sina Weibo	<a href="https://weibo.com/SECblock">https://weibo.com/SECblock</a>
Slack	<a href="https://secblock.slack.com/">https://secblock.slack.com/</a>
Reddit	<a href="https://www.reddit.com/user/SECblock">https://www.reddit.com/user/SECblock</a>

## VI. Project supplement

### Disclaimer

This document is intended only for the purpose of communicating information and does not constitute related suggestions on the business

of shares or securities of SEC. The above information or analysis does not form investment decisions or specific recommendations.

This document does not make up any capital proposals, investment intention, or solicitation for investment in the form of securities. This document shall not constitute or be understood as providing any transaction, or any transaction invitation, any forms of securities, or contract or commitment in any form.

SEC clearly indicates that the relevant intended users clearly recognize the risks of the SEC platform. Once investors participate in the investment demonstrate that they understand and accept the risks of the project and are willing to bear all the corresponding results or consequences.

SEC explicitly state that it would not bear any direct or indirect losses caused by participation in the SEC project, including:

- (1) The reliability of all third party information provided by this Document.
- (2) Any errors, carelessness or inaccuracies arising therefrom
- (3) Or any act resulted therefrom

SEC token is a digitally encrypted currency used on the SEC platform. At the time of writing this paragraph, the SEC currency has not be used to purchase the relevant goods or services yet. We can not guarantee that SEC coins will appreciate or depreciate. Those who do not use SEC coins correctly may lose their right to use them, or even lose their SEC coins.

SEC coins are not a form of ownership or control power. Control of SEC coins does not indicate ownership of SEC or its applications. The SEC coins does not grant any individual any right to participate in, control, or make any decisions on SEC and SEC applications.

## **Risk statement**

### 1. Risk of loss of SEC coins caused by loss of certificates

The buyer's SEC currency will be associated with the buyer's SEC account after it is allocated to the buyer. The only way to enter the SEC account is the relevant login credentials selected by the purchaser. Losing these credentials will lead to the loss of SEC coins. The best way to safely store login credentials is to separate the credentials into one or more places and preferably not to preserve them in a public place or places with a stream of strangers.

### 2. The risks associated with the ethernet core agreement

SEC coins are developed based on Ethernet protocols, so any failure of ethernet core protocols, unexpected functional problems or attacks could cause SEC coins or SEC applications to stop working or lose function in unexpected ways. Additional information about the ethernet agreement, please refers to <http://www.ethereum.org>

### 3. Related Risk associated with buyer's vouchers

Any third party obtains the buyer's login certificate or private key, which makes it possible to directly control the buyer's SEC currency. To minimize the risk, buyers must protect their electronic devices from unauthenticated access requests and its access to device content.

### 4. Risks associated with judicial regulation

Block-chain technology has become a major regulatory target for major countries around the world, and if regulators impose influence, SEC applications or SEC coins may be affected, such as legal restrictions on use, sales. Electronic Tokens such as SEC coins may be restricted, hindering or even directly terminating the development of SEC applications.

#### 5. Risk of lack of attention in SEC applications

SEC applications has the possibility that not used by a large number of individuals or organizations, which indicate that there is not enough public interest in exploring and developing these related distributed applications. Such a phenomenon could impose a negative impact on SEC coins and its applications.

6. The risk that SEC related applications or its products fail to meet the expectations of SEC itself or its buyers

SEC applications are currently in the development stage and may be subject to major changes prior to the release of the official version. Any expectation or envision of SEC itself and its buyers on functions or forms of SEC application or its coins may not be achieved (including the behavior of the participants). Any erroneous analysis or changes in the underlying design may result in the generation of this situation.

#### 7. Risk of hacking or theft

Hackers or other organizations or countries have the possibility of attempting in any way to interrupt the SEC application or the functionality of SEC coins, including service attacks, Sybil attacks, smurfing, malware attacks or conformance attacks, etc.

#### 8. Vulnerability risk or the risk of rapid development of cryptography

The rapid development of cryptography or other related technologies such as quantum computers may bring the risk of cracking to cryptographic Tokens and SEC platforms, which may result in the loss of SEC coins.

#### 9. Risk of Lack of maintenance or application

The purchase of SEC coins should be considered as a support and investment in the development of next-generation e-commerce applications, not as a speculative act. Although the SEC currency may have considerable market value after a certain period of time, result in the early investors to produce a larger profit, but if the SEC platform is not maintained or applied enough, this appreciation obtains much practical significance.

#### 10. Risk of uninsured loss

Unlike bank accounts or the accounts of other financial institutions, there is usually no insurance stored on SEC accounts or Ethernet networks. In any event, no public organization or individual will cover your losses.

#### 11. Fault risk of application

The SEC platform may fail to provide normal service due to malfunctions caused by a variety of reasons.

#### 12. Other unforeseen risks

As cryptographic Tokens is an emerging technology, it carries risks that have not been foreseen by the block chain industry or the SEC team in addition to the risks mentioned in this white paper.