StockChain Cryptocurrency Quotation Platform

CATALOGUE

PROJECT BACKGROUND

2017 is destined to be the year of Bitcoin, the year of cryptocurrency. The price of Bitcoin has accomplished almost a 2,000% rise from less than 1,000 USD at the beginning of 2017, to 20,000 USD recently. The rise is underpinned by the market's strong approval and need for its functions and nature. 10% of the Russian billionaires are investing cryptocurrency. Venezuela is issuing the national cryptocurrency

Petro. Apple and Google have supported Bitcoin's API in their browsers. Japan, Korea and Philippines have established the laws for cryptocurrency. The U.S Congress has established the blockchain policy-making committee and opened the future market for Bitcoin.

From "10,000 Bitcoin for a pizza" to a Bitcoin worth more than 10,000 USD, Bitcoin has risen 22 million times in the past 8 years. Numerous people have invested in the cryptocurrency, and most of them have earned a lot. Under such a frenzy market, the investors have developed a huge need for market analysis, research reports and projects' background information. But there is no truly professional cross-platform information system in the market.

With the development in big data and AI this year, 70% of the trade volume in the US stock market was operated through program trading.

The characteristics of cryptocurrency, such as its 7*24 trading hour, T+0 trading rules and significant short-term turmoil, also bring huge opportunities for program trading. For the future cryptocurrency market, just like the mature stock market, institutions will dominant the trade, so the first market player who owns automated trading programs and smartest trading model will stand out. STOCKCHAIN's program trading sharing platform provides all sorts of programmed tools and trading models for all traders.

1.1 Our Goal

We aim to build a cryptocurrency quotation analysis platform for professional investors. Meanwhile, we strive to make the program trading strategies, traditional financial investment models and AI investmentstrategies applied by investors widely, so that every investor can choose desired strategy models to conduct program trading.

1.2 Our Vision

SCC aims to facilitate ordinary people to utilize the most professional automated trade system from Wall Street and let the successful and experienced investors lead others to share the benefits of the new world. The open, fair and impartial high-frequency trading interface ensures the automated programs can support the investors' operations in milliseconds.

Our team members have working experiences in Wall Street, famous securities companies and institutions as well as the big data and AI fields. We devote ourselves in the cryptocurrency market because we believe that we can achieve the most sharing and fair programmed software for the blockchain residents.

PROJECT INTRODUCTION

With the popularization and application of blockchain, cryptocurrency trading has expanded. Numerous cryptocurrency trading platforms in the global market appear to be unsystematic and disconnected. Our project aims to build a quotation exchange platform for cryptocurrencies that connect the whole network, thus fill the gap of trading global currencies through one Client. STOCKCHAIN team does not only strive to provide accurate and comprehensive quotation data and news timely, but also conduct researches and practices in advanced program trading and mathematical trade models, so as to serve the global cryptocurrency traders.

MARKET
PAIN POINTS

Isolated Island Problem

As the cryptocurrencies are normally based on the ERC20 standard and can be traded in any exchange, it has brought with us the isolated island problem. There are thousands of exchanges all around the world. But due to the centralization of each exchange, their data cannot be connected to each other. This could be a huge pain point to the traders. Our platform can make use of the big data and our deep understanding of the blockchain to solve the isolated island problem with the spirit of sharing. We will promote the development of the industry by decentralizing the originally centralized exchanges' data. We have designed a perfect data structure and owned related patents. The data structure can be plug into the STOCKCHAIN quotation system at any time in the future. Our team have all of the rights to provide value-added services based on the useful data.

High requirements for market access

Now the requirements for market access are higher than normal securities trading. In China, most trade are conducted between virtual currency and USDT which is exchanged by legal tender. But most platforms set requirements for USDT trading, so the price of USDT is unstable and the quantity is restricted. The market needs a more stable USDT supply and lower requirements.

Low quality of current quotation software

The quotation software on the market are poor at interface layout, not user-friendly, and in lack of comprehensive function, quotation information and necessary data. The web-clients also have problems at slow page refresh and too many bugs. These problems increase the understanding costs for new investors.

Difficulties in choosing quality virtual currency to conduct value investing

The varieties of virtual currencies are already large and are expected to expand in the future. While the current quotation exchange platform can't provide sufficient information for investors to evaluate its value rationally.

Incomplete varieties and information of virtual currencies

Now the varieties of virtual currency trading provided by domestic exchanges are very scarce compared with the large number varieties of virtual currencies, so the market needs an integrator which can introduce other currencies into the domestic trading market. Currently, the virtual currency markets vary in their quality. The investors have to acquire information of currencies through research reports, news and while papers.

Deep exploration of blockchain

Blockchain is a newly-emerging technology application. Now the market only utilizes virtual currency application such as Bitcoin. But the real futuristic technology here is the blockchain technology to be applied in the real-world, especially in finance and medical sectors. Their derivatives are the future trend for development.

Lack of integrated quotation presentation

Now most quotation software on the market are provided by trading platforms. Since every exchange only provides the quotations of its own trading currencies, a third-party software which integrate the quotations of various currencies is in need.

Complicated cross-platform trading

Now global investors have to choose a single platform to trade, while the platforms lack cross-market quotations. Cross-platform trading requires investors opening various quotation page to acquire comprehensive information, which is very inconvenient.

Lack of program trading

Cryptocurrency can be consecutively traded for 7*24 hours without restrictions from the price limiting mechanism. In the future, most trade will be program-based automated trading. So, excelling at program trading will enable market players to take control of the cryptocurrency trading market.

OUR ADVANTAGES

Professional financial team:

top traders and bankers from global traditional secondary markets.

Big data analysis:

data process experience at PB level and process ability above T level.

AI technology:

managing large accounts in traditional stock future markets and creating various high-yield investment models.

Public opinion monitoring system:

gpiathering information from the whole Internet and improve the trading models through semantic analysis.

Various traffic entrance:

utilizing rich experience in Internet products operation to better attract users.
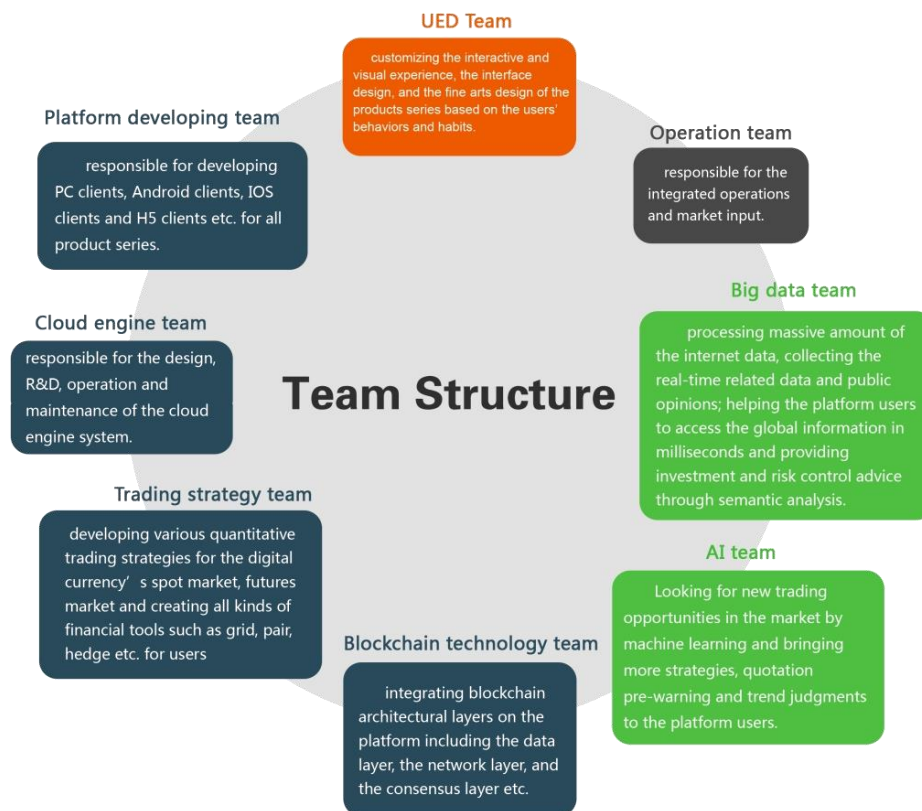
High-frequency trading system:

fully self-designed system from the network driver to hardware alteration.

Solid experience in products:

 top security and product architecture experts with years of experience in high concurrency Internet products.

BASIC INFORMATION ABOUT THE PROJECT

5.1 Organizational structure

UED Team
customizing the interactive and visual experience, the interface design, and the fine arts design of the products series based on the users' behaviors and habits.

Platform developing team
responsible for developing PC clients, Android clients, IOS clients and H5 clients etc. for all product series.

Operation team
responsible for the integrated operations and market input.

Big data team
processing massive amount of the internet data, collecting the real-time related data and public opinions; helping the platform users to access the global information in milliseconds and providing investment and risk control advice through semantic analysis.

Cloud engine team
responsible for the design, R&D, operation and maintenance of the cloud engine system.

Team Structure

Trading strategy team
developing various quantitative trading strategies for the digital currency's spot market, futures market and creating all kinds of financial tools such as grid, pair, hedge etc. for users

AI team
Looking for new trading opportunities in the market by machine learning and bringing more strategies, quotation pre-warning and trend judgments to the platform users.

Blockchain technology team
integrating blockchain architectural layers on the platform including the data layer, the network layer, and the consensus layer etc.

5.2 Product Structure

Cross-platform client support

PC clients

WEB browsers

Android clients

IOS clients

H5 mobile browsers

PRODUCT INTRODUCTION

6.1 Cryptocurrency Quotation Exchange System

Centralized Exchange

STOCKCHAIN team has cooperated with the domestic and overseas mainstream exchange platforms in an in-depth manner. We have access to all mainstream platforms' quotation and exchange interfaces, and integrate these interfaces to enable a cross-platform centralized trading for the investors. Investors can trade digital assets in real time, seamlessly through our system no matter where their assets are.

Quotation System with Special Features

Based on the currency type, the location, sectoral distribution, market influence, risk level and trading volume, etc. of the ICO issuers[companies], we will select a group of representative cryptocurrency samples and get the weighted average price. And then we will use effective algorithms to calculate various cryptocurrency indexes that can serve as valuable references for investments. Our calculation methods will adjust the index values with reference to the quotation fluctuations, which makes the indexes highly sensitive to the changing market. With these indexes, the investors can keep abreast of current market trends and thus come up with more detailed and well-designed investment strategies.

Information and Media

STOCKCHAIN digital quotation platform can provide the users with various kinds of the information including unexpected bad news, technical analyses, urgent notices and rolling information, etc. And STOCKCHAIN's homegrown media monitoring system will notify investors of the first-hand cryptocurrency updates, fresh-issued currency information and exchange news.

Index Collection

The system has preset about 100 classic technical indexes. For users with more complex needs, it alsoprovides the index formula editor which can help to edit and refine all kinds of formula indexes and early warning conditions.

Integrated interfaces

The system provides a wide range of integrated interfaces which flexibly combine quotation, information, platform, currency types and technique analysis. For instance, both the interfaces for ''one currency in different exchanges'' and ''multiple currencies in one exchange'' can offer comprehensive observations and analysis from different perspectives.

Comprehensive analysis of different currencies

New currencies in blockchain market often feature short listing cycle and high trading frequency and the ill-informed investors are likely to lose money if they buy these currencies hastily. This is one of the big headache for investors in the blockchain currency market. We offer the function of analyzing different currencies and place the most comprehensive and accurate currency information conspicuously on the quotation page. Moreover, we have researched on and offer various indicators and graphics to help investors identify the features of certain currency quickly.

Trading Analysis Assistance

The system presents complex exchange data in the form of graphics and tables so that the users can easily grasp the frequency, relative strength, feature of the currency trading. And detailed illustrations on the comparison between different currencies and calculations enable investors to master the powerful trading analysis tools on our platform.

Interface Preview

Quotation page

Detail page

By exchange

By currency

Ranking page

6.2 Financial Derivatives

At present, most exchange platforms only support single form of currency trading. There are huge gaps in the research and applications of the financial derivatives. With many years᾽ experience in the traditional financial industry and a professional team, STOCKCHAIN team boasts various cryptocurrency derivatives for the investors to choose from. The investors can also use SCCs to trade the derivatives.

Bitcoin, Ethereum and other ICO Token᾽s Options

We will offer different types of option contracts to investors. Meanwhile, we᾽ll provide a customer-to-customer (C2C) option exchange platform for them to participate in the option creation and trading, and to trade options directly with other investors (P2P).

Option is a contract, which gives the holder the right to buy or sell a good at a specific price on a certain date. There are mainly two kinds of options: call option and put option. After paying a certain amount of premium to the seller, the buyer will own the right to buy certain amount of specific goods at an agreed-upon price any time before the contract expires.

For example, call option: Bitcoin᾽s market price is 10,000 USD on January 1th. A thinks Bitcoin price is likely to rocket in the short term. But B thinks 10,000 USD is already the mid-term cap. Suppose A and B are brought together and a deal is negotiated: A buys a call option of Bitcoins at a 10,000 USD strike price by paying 500 SCCs premium and the call is set to expire after 2 months. On Feb. 1th, the price of Bitcoin rises to 20,000 USD. Now A has the right to buy Bitcoin at the strike price of 10,000 USD from B. At this moment, even if B doesn᾽t have any Bitcoin, he will have to buy the Bitcoins from the market at 20,000 USD and then sell to A at the price of 10,000 USD as agreed. If the price of Bitcoin drops below 10,000 USD when the option is expired, A can choose to give up exercising the option and he will only lose his premium, a total of 500 SCCs. Put option: On Jan. 1th, Bitcoin᾽s market price is 10,000 USD. A buys a put option from B at 10,000 USD by paying him 500 SCCs and the put is set to expire after 2 months. On Feb. 1th, the price of Bitcoin drops to 5000 USD. Then A can buy Bitcoins from the market at the price of 5000 USD and sell it to B at the price of 10,000 USD.

Therefore, Option is like a valuation adjustment mechanism (VAM). The profit of the buyer is determined by the gap between the market price and the contracted price; the profit of the seller is the premium paid by the buyer when the market trends are not as expected and he gives up exercising the option. As such, option is a super leverage without risk for a margin call or a bust account. It is also a perfect hedge tool, by which the participants can customize and choose the deal by themselves.
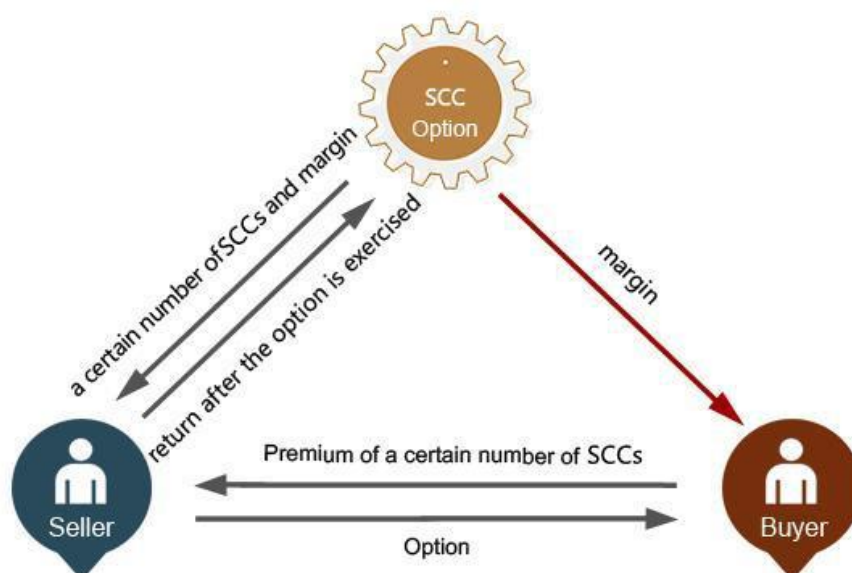
C2C margin trading platform

STOCKCHAIN will launch a token margin trading platform with effective and consistent interest algorithms and a margin management system for all kinds of ICO tokens, which will make the token margin financing and loan process safe, fair and transparent. The investors can use SCC to pay for the margin and the interests and can also loan out the tokens to earn the interests. Margin trading, i.e., loaning out the cryptocurrency, means that the short sellers borrow the tokens with margins as collateral. They then sell the loaned tokens to the market, and when the market price is lower, they repurchase the same amount and type of tokens from the market to repay the lender on the expiration date; they can also pay the interest on their loan with SCC. For example, an ICO token's market price now stands at 1 USD. A thinks the price

will drop drastically in the short term whereas B thinks the price will rise and is willing to hold the token for the long term. Through STOCKCHAIN C2C margin trading platform, A pledges 10,000 as the collateral to borrow a certain number of tokens from B and agrees to pay 1000 SCC as interest one month later when the deal expires. A then sells the loaned tokens on the market at the price of 1 USD. After one month, token's price drops to 0.5 USD, and A repurchases them from the market at 0.5 USD to pay B back.

So basically, A profits from the price gap or in this case, the price drop and redeem the margin collateral.

Conversely, if the token's price ends up higher than 1 USD a month later, A will suffer losses: he has to buy back the same number of tokens at the higher price and return them to B.

ETF index fund portfolio

STOCKCHAIN platform will launch a series of index funds based on the blockchain cryptocurrency index. ETF (exchange-traded fund) index fund owns the ownership of a basket of cryptocurrencies and divides it into shares, which means its exchange price and the net asset value (NAV) per share basically mirror the tracked benchmark index. Therefore, if the investors want to buy a number of related cryptocurrencies, they can buy or sell an ETF with SCC, which has the same effect of buying or selling the index it tracks and the basket of the cryptocurrencies included in the index, and thus yields basically the same returns of the index.

6.3 Program Trading and Data Service

Program Trading System

The system automates trading strategies by using programs developed by strategy designers. All of the strategies have gone through long-term trials, and the program trading has proven to be a truly effective and efficient way of investment. Our program trading system aims to provide professional "Wall-Street level" trading strategies for non-professionals. The strategies are accessible to all registered users. Our platform will categorize strategies by their features and highlight and recommend the well-performingstrategies to investors. When investors profit from using the trading strategies, a certain percentage of their earnings will be collected by the Platform in the form of SCC as a commission.

Tool Module

Understanding the significant role of program trading tools in cryptocurrency trading, we developed practical program trading tools based on classic financial models and the 7*24 non-stopping feature of cryptocurrency trading. Our tools include the grid trading model and the calendar spread model etc. The former one has fully automated the trading process to save the investors' time, enhance efficiency and gain more profits.

Strategy sharing

The program trading system offers official strategies, and also allows its users to customize their own trading strategies using all kinds of pointers, functions and scripting languages. Users can upload their strategies and share with others. Uploaded strategies will be back tested by the system and later, be examined by firm offers. Strategies that prove to be high-yield with low drawdown will be recommended to other users of the platform. Strategy providers will be awarded SCCs based on the popularity of their strategies.

Data Service

The system's big data center stores massive historical data of currency trading, including line charts, candlestick charts and settlements data of all major currencies traded in exchanges. Users who have higher requirements for program trading can use these data whenever they need. Based on big data computers, the big data center traces transaction history and examines the performance of program trading strategies, so as to provide guidance for investors.

Interface Preview
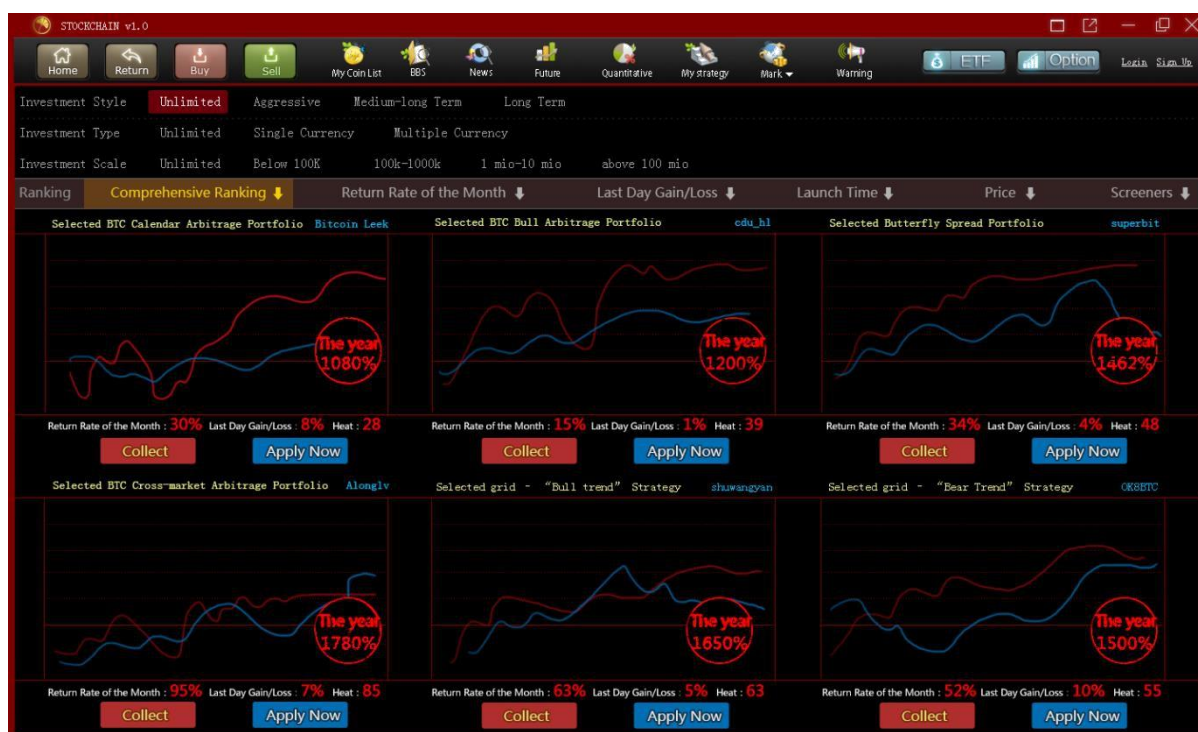
Interface for Quantitative Trading Strategies

Interface for Strategy Details
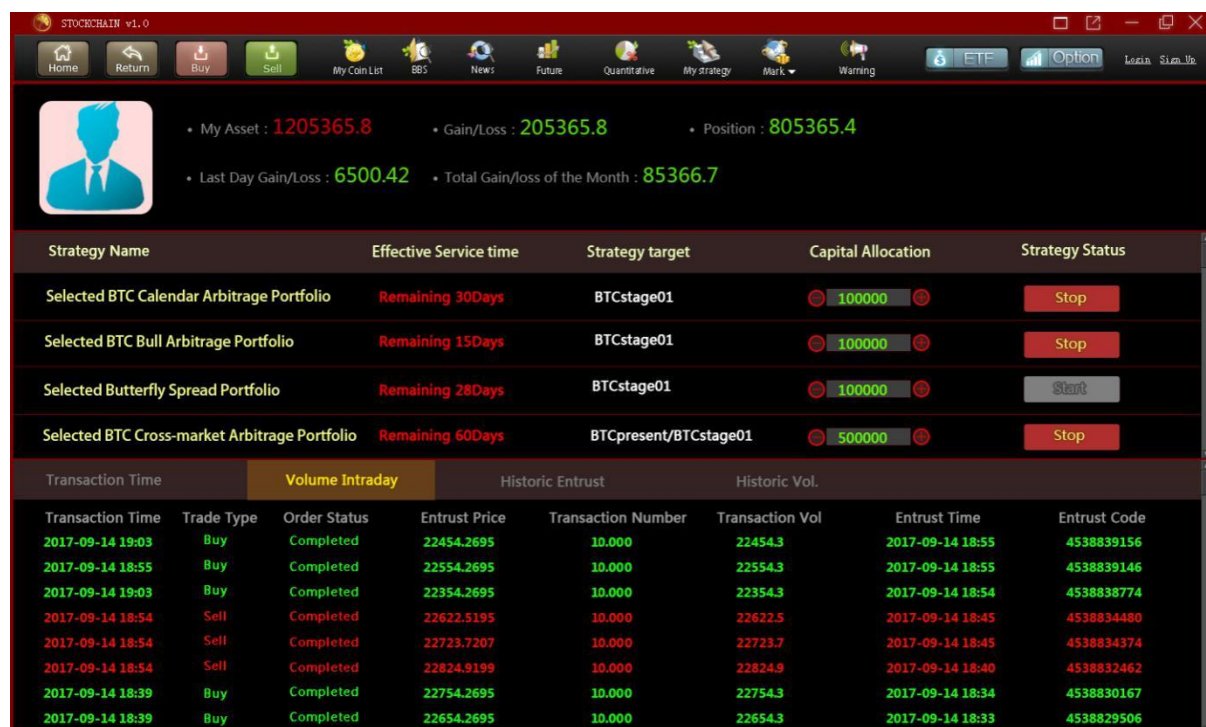
Interface for a User's Strategies

6.4 Mobile Financial Service

Details on quotations:

STOCKCHAIN mobile client offers real-time information of currency market quotations, public opinions and news. The client can arrange and select targets according to users' individual needs. It provides comprehensive currency trading information to assist users in making right choices of buying and selling.

Details on trading:

STOCKCHAIN mobile client, compared to similar platforms, offers much more detailed information on trading, including transaction details, tape tendencies, money flow and other indexes. These indexes serve as reference for users' buying and selling.

Fast trading:

With optimized network components and low-latency trading servers, the mobile client can send real-time trading requests, thus accomplishing fast transactions (more information available in the technical framework part).
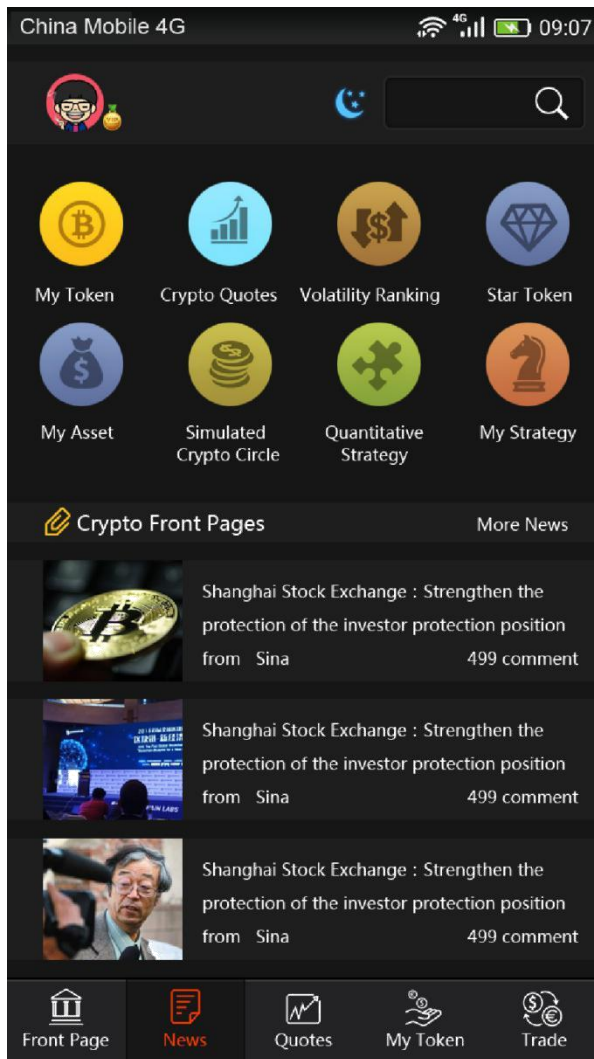
Interface Preview
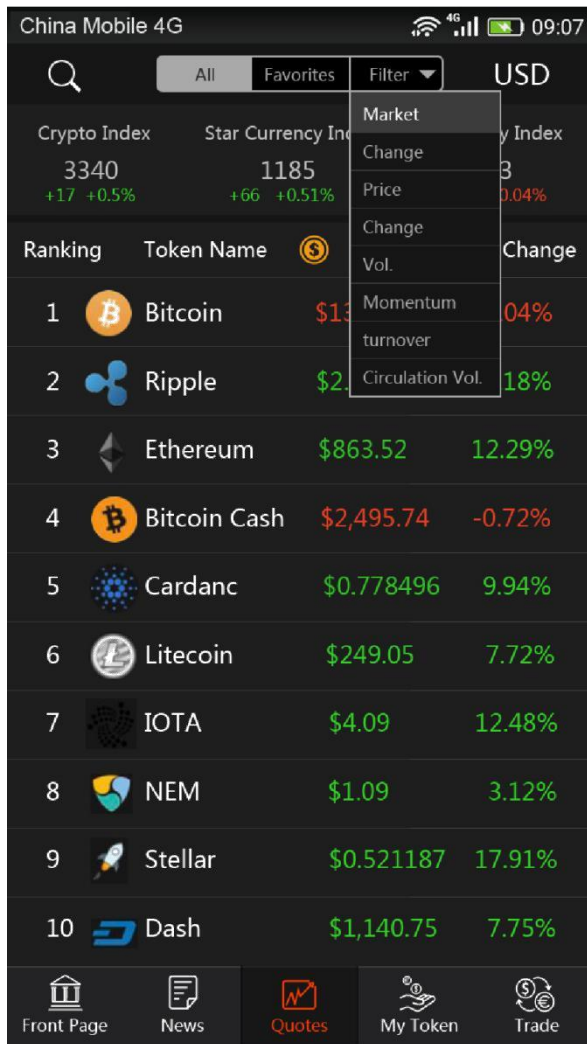
front page of the mobile client/   quotation interface
currency trading details
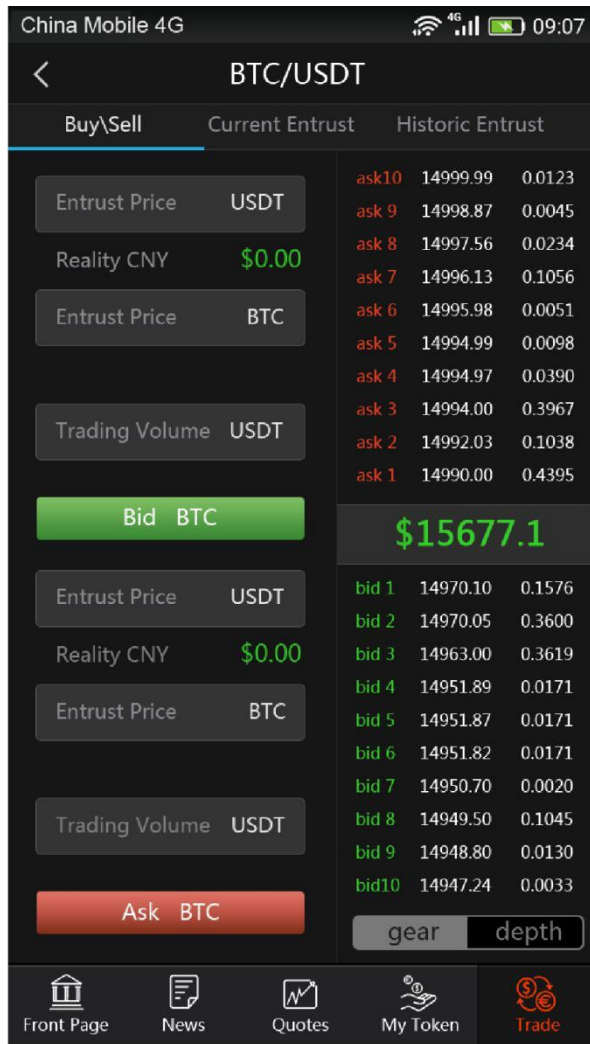
TECHNICAL FRAMEWORK

7.1 System Structure

Cloud engine for quotation and other services: the service will push quotations of all exchanges to cross-platform clients and support high concurrency, load balancing and hot backup switching. The service has wide applicability and high availability, laying a solid foundation for STOCKCHAIN's business expansion and its fast launch.

Storage and uploading data to the blockchain module: The module is responsible for uploading the data generated from the client and the global exchanges to the STOCKCHAIN storage system and also to the blockchain. Then STOCKCHAIN will normalize the global quotation data formats to decentralize the data and store it permanently, and share with the whole blockchain industry to promote the development of blockchain and the cryptocurrency market.

Analysis module: The module uses open source technology of Hbase and Hadoop for analysis of collected data, including but not limited to the quotations, users' comments, news etc. Through data analysis, STOCKCHAIN will launch a public opinion analysis system for the cryptocurrency world and in-depth analysis on the quotations as well as other services to continuously inject new vitality into the Platform.

Third-party API: Based on the IPFS network storage, we provide historical quotation data API of all exchanges, real-time quotation subscription API, public opinion analysis API for third-party developers. Files and demo are also provided on the Github for developers.

7.2 About the Blockchain

Since the 2008 financial crisis when appalling events like the bankruptcy of Lehman Brothers and Iceland's sovereign debt default happened, the financial industry has been exploring ways of decentralization. But the progress is quite slow.

The birth of bitcoin finally showed possibilities for decentralization. Blockchain, the underlying technology of bitcoin, has been developed and improved. Based on the decentralization, data transparency and immutability enabled by blockchain, STOCKCHAIN Platform uses this technology in providing value-added services (level2 quotation service, short-term investments) and derivatives, thus avoiding defaults or under-the-table deals in traditional finance.

Blockchain's technical architecture:

Blockchain's Technical Architecture

achieve money transfers
and record keeping

| Application Layer |
Incentive Layer	issuance mechanism	allocation mechanism
Consensus Layer	POW
Network Layer	P2P network	transmission mechanism	verification mechanism
Data Layer	block data	chain structure	digital signature
	hash function	Merkle tree	asymmetric encryption
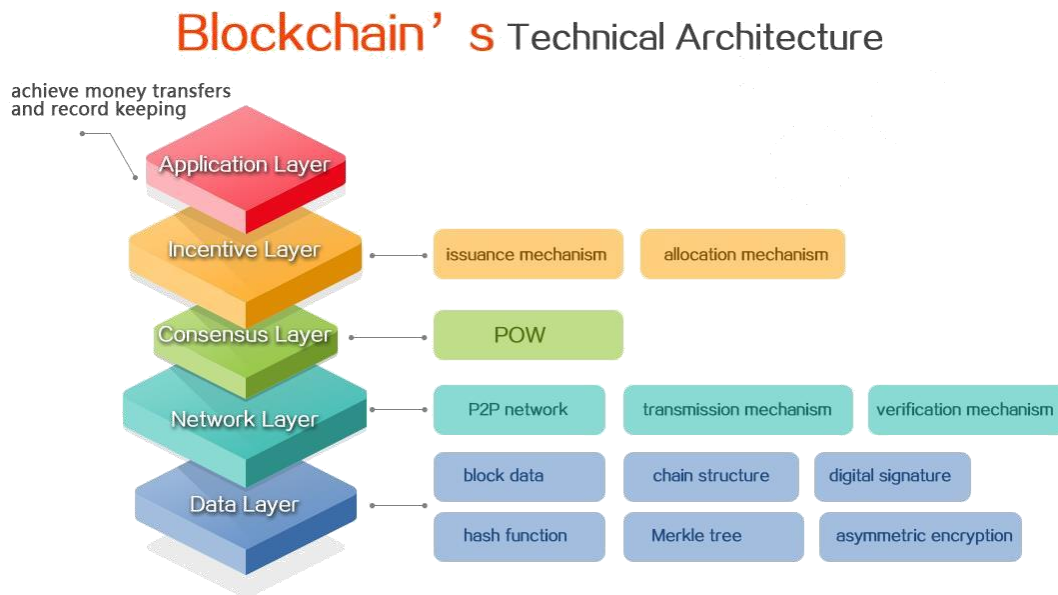
Blockchain's data structure:

Block101		Block102
hash value of the last block		hash value of the last block
hash value of the block		hash value of the block
mining random number		mining random number
difficulty		difficulty
timestamp		timestamp

Transaction A   Transaction A

Transaction B   Transaction C   Transaction B   Transaction C
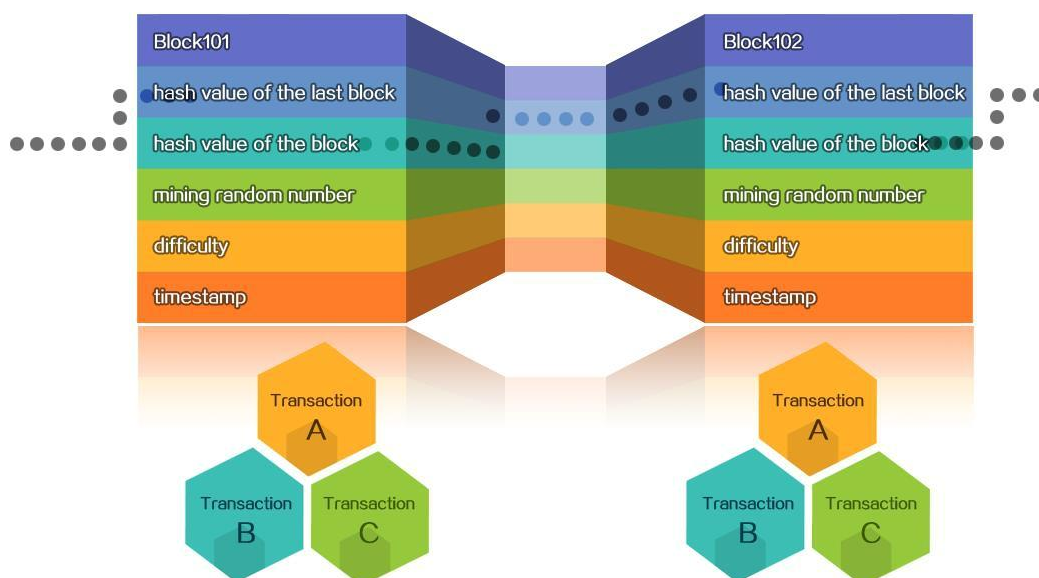
Blockchain's innovations:
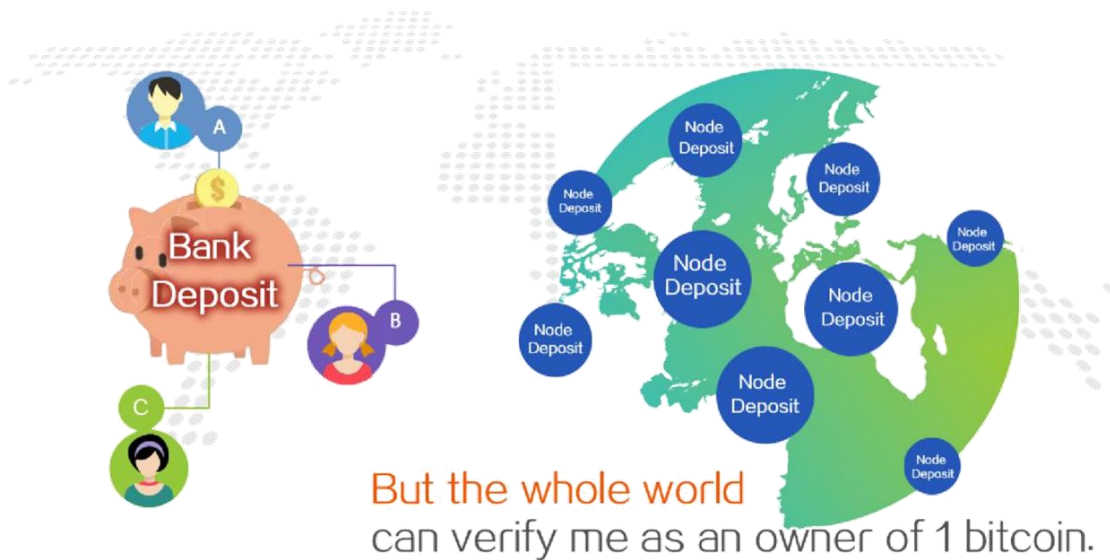
Uploading data to the blockchain:

The module is composed of Uploader, Adapter, Stored and IPFS. Using the PipeLine idea, the global exchange quotations are collected via Uploader to the STOCKCHAIN System Storage Cluster (k-v storage) for fast quotation distribution. The data are imported into the IPFS file system to enable data to be uploaded to the blockchain in a real sense. In this way, the historical quotations of the cryptocurrency world will be broadcast to the whole industry through our platform. Through data normalization, we can ensure practitioners read the data in a unified format easily.

IPFS:

The IPFS project developers, following the similar idea with Ethereum developers, intend to decentralize the Internet (http) and have files stored on all machines in the form of sharding. The file sharding model is already widely used in traditional Internet and its can serve as a stable and permanently sustainable file system in the blockchain.

Smart contract:

A smart contract comprises codes and data, occupying an address on the blockchain. Like an automatic agent on the blockchain, it has its own account and is able to perform some functions under certain conditions, such as automatically exercising an option contract on the STOCKCHAIN platform at the given point in time, providing the level2 quotation service and the short-term investment function for users for one month and charging them SCCs, and being Turing complete (meaning it can do everything that a Turing machine can do).

An example of smart contracts:

Code example for buying level2 service in SCCs

mapping (address => uint256) public balanceOf; //account balance

//financial service data structure struct
f_srv_info {

string name; //service name uint32
price; //service price

}

mapping (uint32 => f_srv_info) public f_srv_info_map; //financial service ID mapping table uint32[] buy_srv_list; //bought service id table

mapping (address => uint32[]) public acc_buy_srv_map; //mapping of the account's bought financial service ID table

event Transfer(address indexed from, address indexed to, uint256 value);

```
/**

* buy service */

function byeSrv(address owner, uint32 srv_id, string name) public returns (bool success) { bool is_buy;

    is_buy = false;

    for(uint i = 0; i < acc_buy_srv_map[owner].length; i++)
        { if(acc_buy_srv_map[owner][i] == srv_id){

            is_buy = true;

        }

    }

    //check if bought or not require(is_buy
    == false);


    //check the balance

    require(balanceOf[owner] >= f_srv_info_map[srv_id].price);

    //add the bought service's id
    acc_buy_srv_map[owner].push(srv_id);

    //deduct the fees, account based on ORG_ACCOUNT
    _transfer(owner, ORG_ACCOUNT, f_srv_info_map[srv_id].price); return
    true;

}
```

Token: STOCKCHAIN Platform's token follows the ERC20 standard which was published in November, 2015. ERC20 Tokens are universal and predictable. That is to say, all ERC20 tokens are compatible with ethereum wallets (wallets like Jaxx, MEW and imToken all support ERC20 tokens). And exchanges have already known how to trade these tokens so they can easily integrate them, meaning the tokens can be directly traded in many cases. The ER20 standard enables tokens to be connected. ERC20 tokens are only subsets of ethereum tokens. To ensure the compatibility with ERC20 standard, developers should include a set of functions (interfaces) in the smart contracts, so as to perform the following functions in higher layers:

- Obtain the total amount of tokens

- Obtain the account balance

- Transfer the tokens

- Approve token spending

Regarding the wide applicability feature of IPFS, in terms of storage and performance, IPFS is a double-edged sword. That's why it is just an expedient plan for our transition period. We are planning to develop a blockchain STOCKCHAIN especially designed for financial use and will transfer the existing tokens and on-chain data smoothly to the STOCKCHAIN.

7.3 Cloud engine
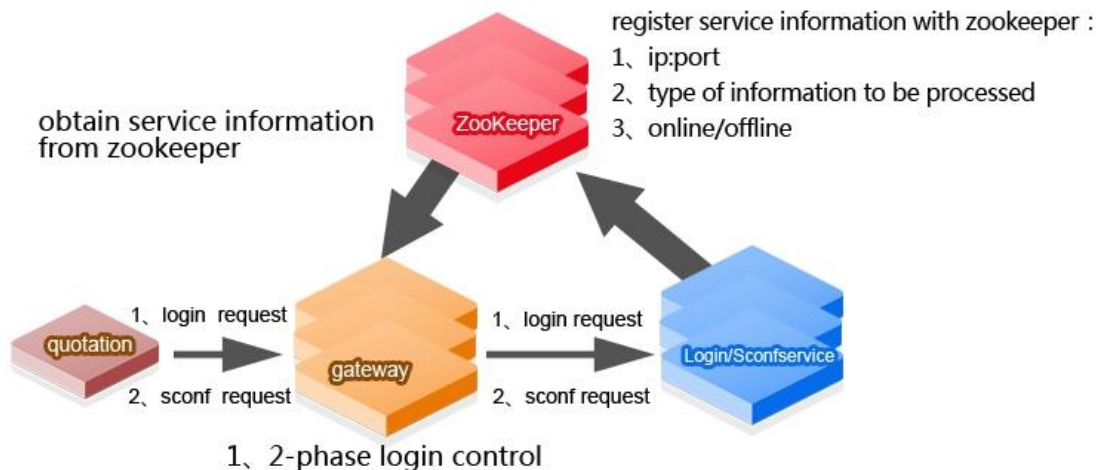
- The client sends a login request by sending an XOR-encrypted format string to the server; (the key used here is fixed); after the server verifies the legitimacy of the login request, it will send an XOR-decrypted string back to the client and bring the key to gateway; the gateway will record skey information on this connection;

- The client encrypts a sconf request with the asymmetric cryptographic algorithm, and at the same time, uses the skey returned from the server to encrypt the encrypted data with the XOR algorithm,and sends it to the server; (mainly to prevent public key disclosure and increase the complexity of connection replay requests); after receiving the request, the server will first decrypt it with the XOR algorithm and then decrypt the data with the asymmetric cryptographic algorithm; after the server verifies the legitimacy of the sconf request, it will generate private keys for communication, encrypt the response using a temporary private key string created by the client and send it back to the client. The client will thus communicate with the server using the private keys created by the server.

- To prevent slow connections, we have defined on the server: 1. time interval between establishing connection and the first login request 2. time interval between successful login and sconf; the connection will be closed if time is out to avoid handle waste.

persistent connection-based multi-service access framework

obtain service information from zookeeper

register service information with zookeeper :
1、 ip:port
2、 type of information to be processed
3、 online/offline
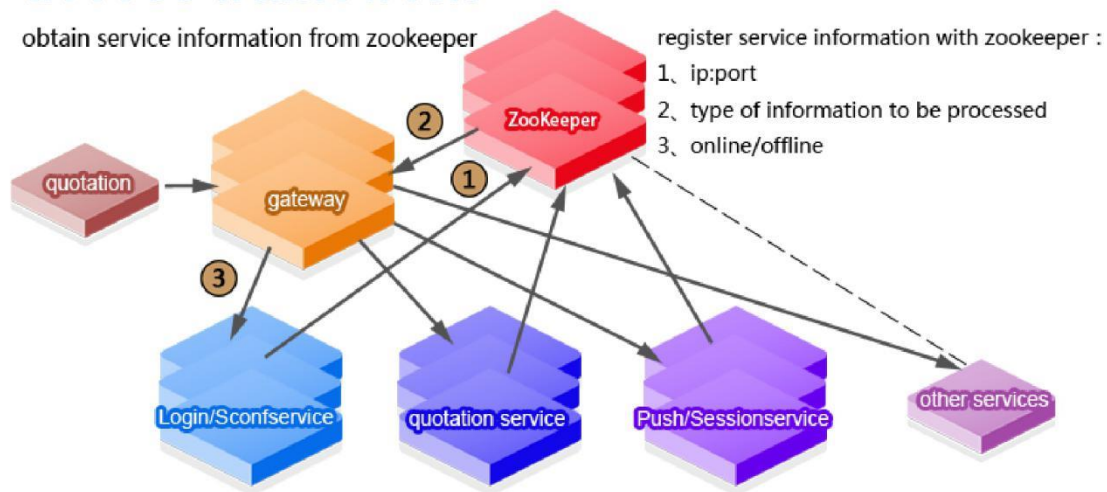
persistent connection-based platform framework

obtain service information from zookeeper

register service information with zookeeper :
1、 ip:port
2、 type of information to be processed;
3、 online/offline
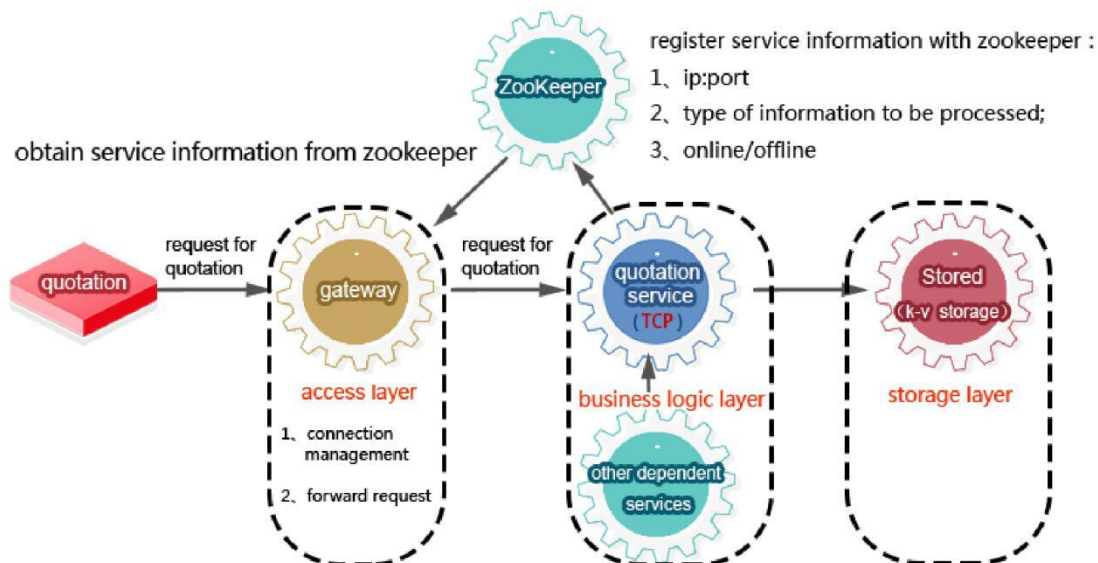
The gateway is equipped with retry mechanism to avoid failures caused by back-end server update or restarts etc.

quotation and other services'
access to the persistent connection-based engine framework
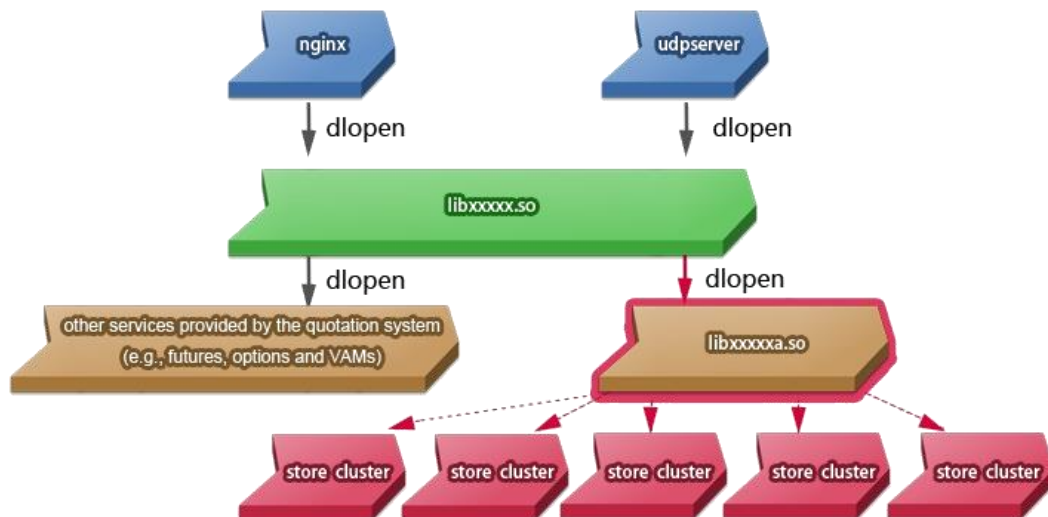
The persistent connection-based quotation service is our existing service. It supports both http interface and udp interface. When developing the quotation system, we fully used the conformity of the interface layer to make other services support the above requests as well.

Therefore, we can interface the quotation service and the TCP engine without rewriting the service's code (few adjustments of statistical information may be needed). Meanwhile, other services, including option, futures and VAMs, can also be connected to the engine by converting requests on the libxxxxx layer.

This idea has wide applicability.

persistent connection supporting other services framework
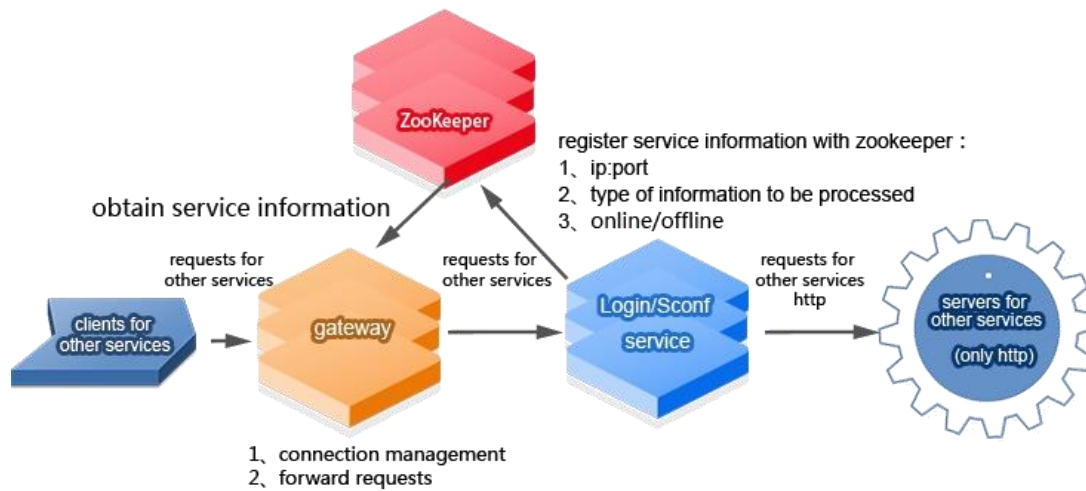
To connect services that only have the http surface to the persistent connection, we developed the broker; also, to converge the connections with the back-end server (which can also be achieved by lvs)

persistent connection-based push service overall framework
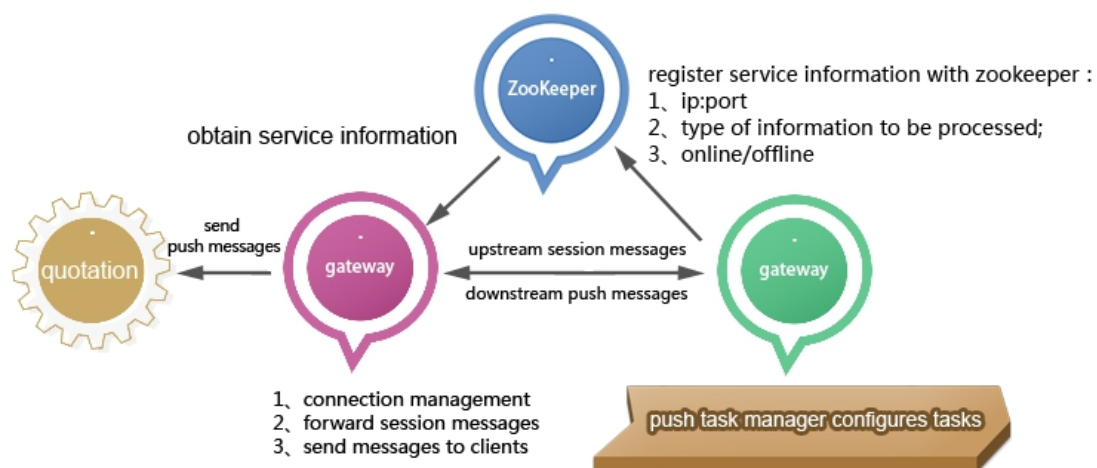
PUSH Service Framework
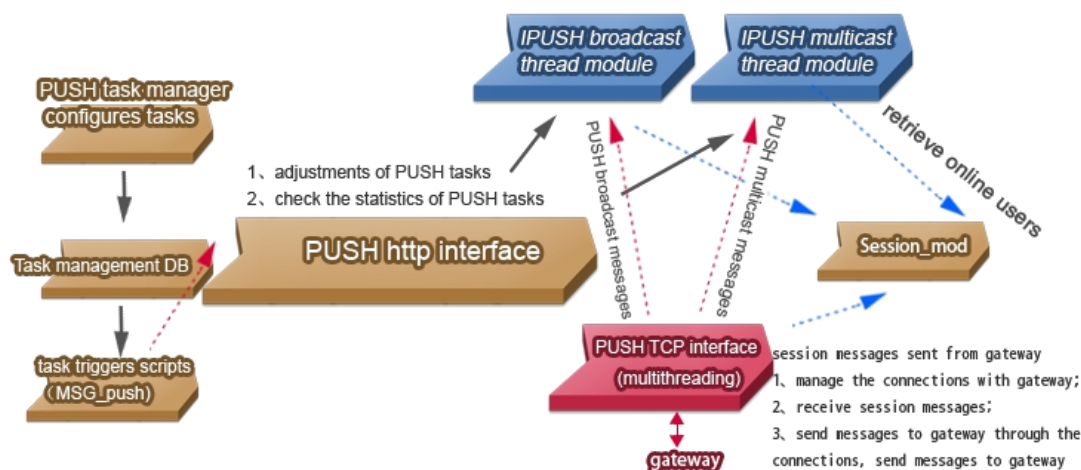
7.4 Cross-platform and High-performance Client Terminal

Currently, cryptocurrency quotation and exchange software on the market are all cross-platform integrated systems with the B/S architecture, developed by html, CSS or JavaScript. Their communication mode is timed pulling over http. In this way, the development cycle is relatively short and the system is easy to maintain. But due to limitations of screen compatibility, data processing ability and communication mode, these applications may present pages in disorder and incomplete data, or encounter lags and update failures etc. when operating in different systems and devices. These problems can result in users' wrong judgments and revenue losses.

Quotations are rapidly changing and it's not easy to seize trading opportunities. A good quotation and exchange software should therefore provide real-time and comprehensive quotations for its users in a user-friendly way, so that the users can make quick and right decisions. Thus, we offer personalized systems on different platforms based on the C/S architecture: the server, with the Cloud Engine as its carrier, collects, analyzes and disseminates real-time quotations and forwards users' orders; for the client which is responsible for presenting quotations and sending orders, we choose native development technologies with the best performance and the greatest stability for different operating systems, based onthe system's visual, performance and communication features. Real-time data interaction links are established between the server and the client using the socket communication and the async non-blocking I/O mode. In this way, our platform has covered almost all operating systems and devices on the market. Users can check real-time quotations and conduct transactions at any time and any place, with no concern for data latency.

Technical solutions for the client are as follows:

- **Windows platform:**

we use C++, MFC and Boost technologies, socket communication technique and the async non-blocking I/O (ASIO) mode. For PCs with Windows 7 and later operating systems.

- **Mac OS platform:**

we use Object-C, Cocoa and Boost technologies, Socket communication technique, and the async non-blocking I/O (ASIO) mode. For all Mac OS versions.

- **IOS platform:**

we use Object-C, Cocoa Touch and Boost technologies, Socket communication technique, and the async non-blocking I/O (ASIO) mode. For iPhone5S and later iPhones, IPad mini2, Ipad Air2, Ipad Pro and later Ipads.

- **Android platform:**

we use Java, SWT and Mina technologies, Socket communication technique, and the async non-blocking I/O (NIO) mode. For mobile phones and tablets with Android 2.3 and later operating systems.

- **Browser platform:**

we use Html5, CSS3 and JS technologies, WebSocket communication technique, and sync standard I/O mode. For PCs and mobile phones with Linux or Windows Phone system and browsers.
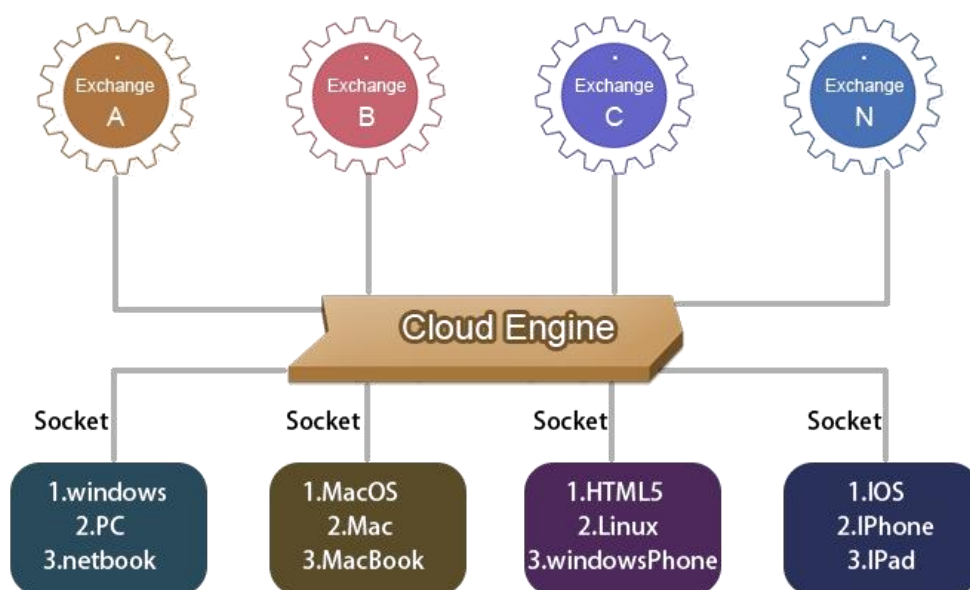
7.5 Optimized network components

The network components have been optimized in three aspects: we developed the ZeroCopy network communication module with large volume and low latency; optimized communication protocols between clients and exchanges; deployed proxy servers for transactions in major IDCs of the core cities.

The optimized network components enable the quotation and exchange platform to provide real-time quotations and in-depth analysis for users and forward their orders in a quick and steady way.

● **Develop the ZeroCopy network communication module with large volume and low latency**

The traditional network communication module transfers data from the network card to the kernel buffer, analyzes the data according to the service model and returns the data back to the buffer to be sent by the network card. In this data transmission process, the data is copies for at least 4 times, and there are also multiple context switches between the user mode and kernel mode. The operating system firstly copies the data to the buffer of kernel space using DMA; after the kernel network protocol stack resolves it, the data will be copied to the buffer of user zone by the CPU; the CPU will copy the data which has been analyzed based on the service model to the kernel buffer, and finally send it to the network card using DMA.

The data flow diagram of the whole process is shown below:
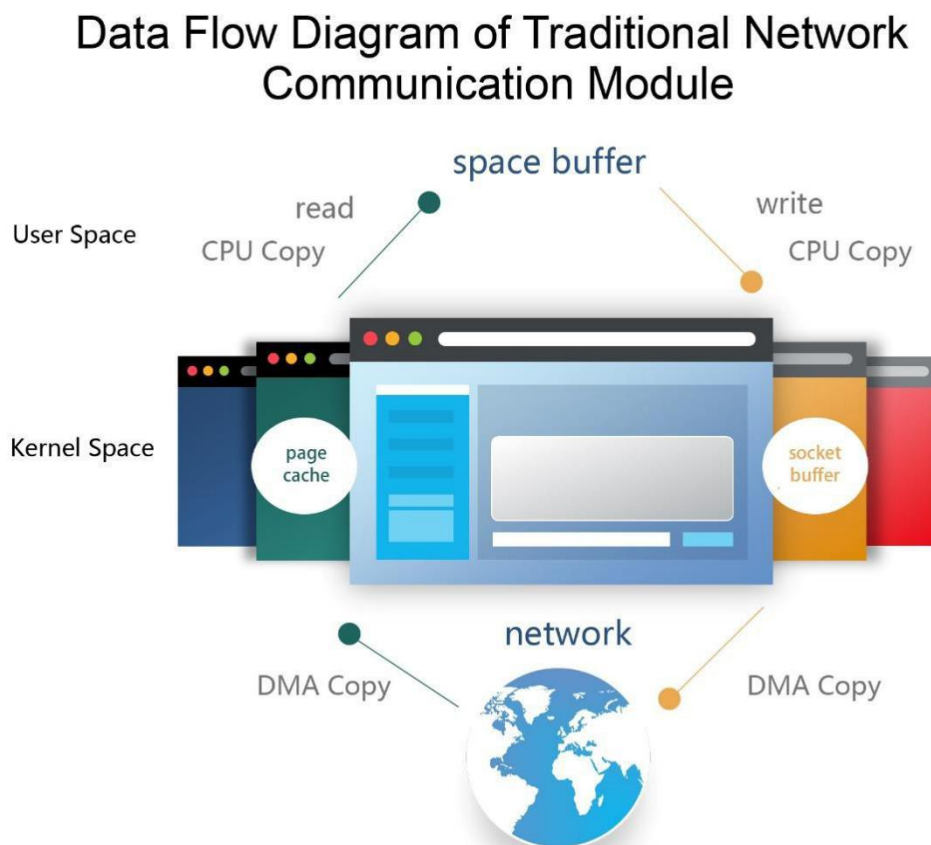
Data copy using the CPU is low-efficient, accounting for nearly 80% of the total time cost. The application of the Linux-based ZeroCopy technology can remove the data transfer tasks undertaken by the CPU, enabling the CPU to focus on model analysis in order to achieve the efficient use of system resources and low latency.

First, we use MMap to share the kernel buffer with the application, so that the content in the kernel buffer does not have to be copied to the user space. Second, we put the service model-based analysis before the kernel network protocol stack resolution, to reduce unnecessary copies. Finally, we use the self-developed card driver to work with the Intel NIC to achieve page cache and DMA collect copy. With the three steps of optimization, we do not only reduce data copy tasks, but also reduce context switches between the user mode and kernel mode. The whole data transmission and processing process only happens in the system's kernel space, taking only 25% of the time spent in the traditional communication model.

The data flow diagram of the optimized ZeroCopy-based network communication module is shown below:

Data Flow Diagram of ZeroCopy Network Communication Module
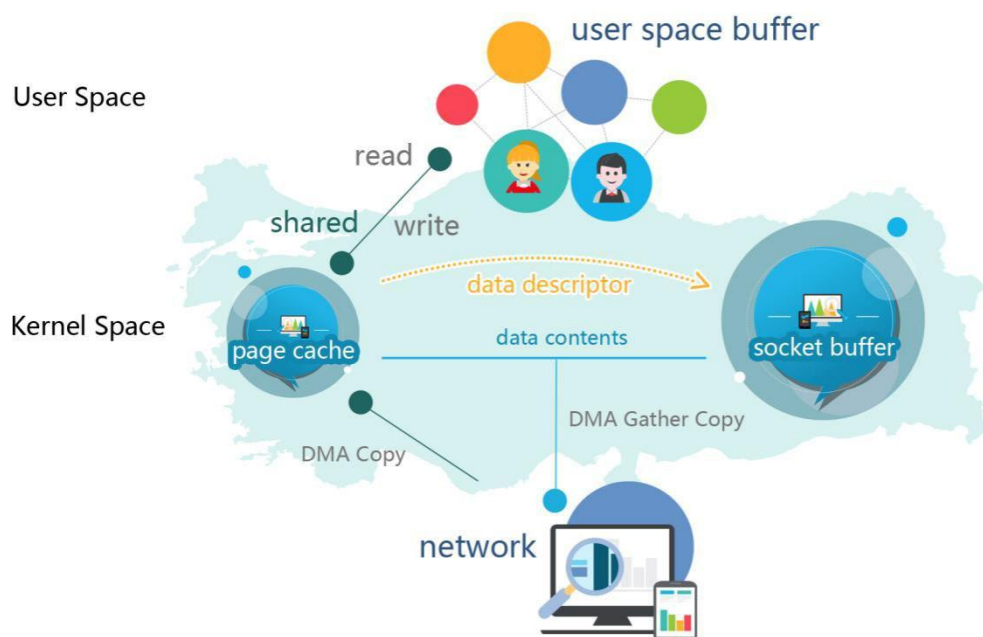
Based on network communications module supported by ZeroCopy, a single server can process data at 40Gbps with a transmission delay of less than 10ms, or at 10Gbps and with a transmission delay of less than 1ms.

- **Optimize communications protocols between clients and exchanges**

Currently, the worldwide exchanges offer interactions based on the WEB access communications through the clients' browsers. However, as an open and shared framework, the browser cannot be restricted to interacting with the exchanges. These ways of transaction are susceptible to changes in the users' browsers, which could cause lengthy delays in communications or even failure of the trade.

- **Deploy proxy servers for transactions at the backbone IDC in the core node cities**

We will look for high-quality IDC resources in the countries all over the world to deploy the transaction proxy servers according to market demands.

7.6 Big Data

In the era of Big Data, STOCKCHAIN also starts to develop the big data industry. It has developed a series of big data-based smart business applications, such as DMP (an enterprise-tailored database), DSP (a precisely targeted platform), PAS (a user profile analysis system). It also collaborates with several large enterprises to marketize and cash profits in data mining.

7.6.1 Big Data Coverage

STOCKCHAIN has developed distributed, high-concurrency, large-scale data acquisition engines on its own. These engines collect data from clusters at home and abroad. They cover more than 80 million websites and 1 million APP. Acquisition engines are equipped with pattern recognition modules so as to acquire data from images. With resources accumulated in the past few years, STOCKCHAIN has established good partnerships with several large enterprises, and realized data coverage over the whole network.

| Data access layer | Data center | Data processing layer | Data storage layer |
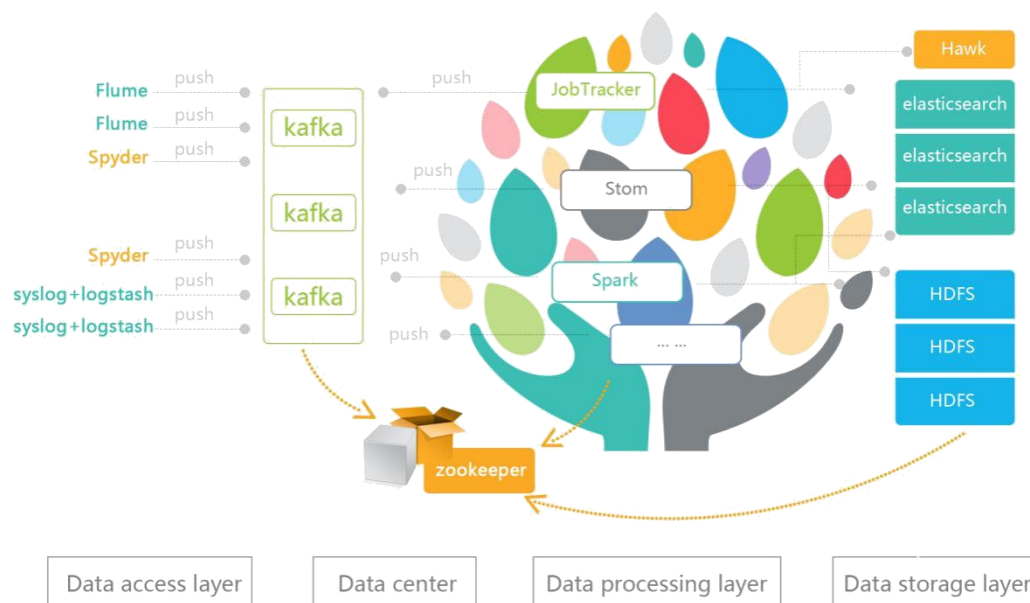
7.6.2 Highly Efficient Computing Platform

By leveraging open-source big data frameworks such as Hadoop and Spark, STOCKCHAIN has established a private cloud computing platform, capable of storing distributed big data. The platform's architecture is designed with high reliability, high scalability and high fault-tolerance. The platform can conduct offline and real-time computation, perform various MR tasks and provide Pig, Hive, Hbase and other components. It is also able to process huge amounts of data.
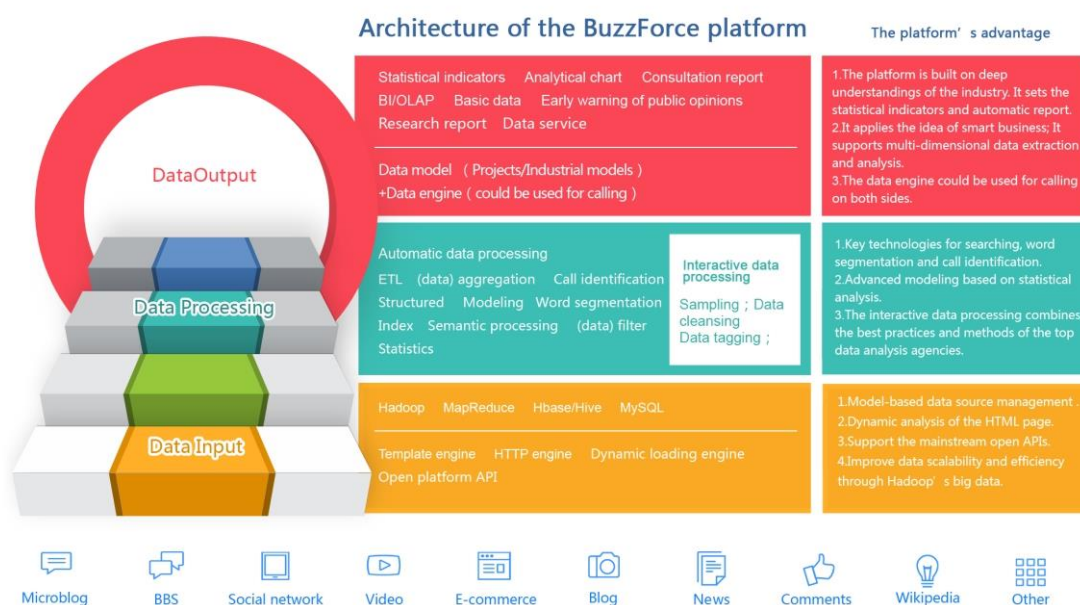
7.7 Financial Public Opinions

The platform is able to acquire data efficiently and store huge amounts of data. It could acquire financial data timely and efficiently. Through machine learning and natural language processing technologies, the platform can identify and structure information of text data, image data and voice data. It can also do timing, opinion, emotion and event analysis for structured public opinion data, and extract hidden information. Through RNN, CNN, DNN and other neural network models, the platform can predict risks in the financial market. It can issue early warnings of risks, analyze trends and hotspots so as to monitor and deeply analyze real-time public opinions.

Model of public opinion analysis system

Based on big data   **Public opinion applications**   **Clients**

Public opinion monitoring   public opinions analysis

Data processing technology for public opinions

Data mining   Timing analysis、Opinion analysis、Event analysis   Government
Communication analysis、Netizen analysis

Big data   Public institutions

semantic analysis   Public opinion data platform   Enterprises
Searching engine、Microblog、Tieb、BBS、Blog
Stable service   News、WeChat public account   Agents

Hot topic of public opinions	A	B	C	D			
Headlines					Source	Time	Popularity
1 10:35. It seems like a (small) earthquake. Have you felt it?					news media	2012-11 16:40	15612
2 The guide's robbery saves nine Greek climbers from the earthquake.					news media	2012-11 16:40	15612
3 After the golden 72 hours, more victims are found in Nepal					news media	2012-11 16:40	15612
4 Soldier Chen went for the rescue mission in Nepal					news media	2012-11 16:40	15612
5 10:35. It seems like a (small) earthquake. Have you felt it?					news media	2012-11 16:40	15612
6 Comment earthquake aids in a less subjective way					news media	2012-11 16:40	15612
7 Death toll in Nepal earthquake may top over 10,000					news media	2012-11 16:40	15612
8 After the golden 72 hours, more victims are found in Nepal					news media	2012-11 16:40	15612
9 Soldier Chen went for the rescue mission in Nepal					news media	2012-11 16:40	15612
10 10:35. It seems like a (small) earthquake. Have you felt it?					news media	2012-11 16:40	15612

7.8 Quantitative Trading Strategy of Financial Artificial Intelligence

After acquisition of financial data, the platform can input massive data concerning financial transactions through machine learning. Via the deep learning technology, the platform can automatically identify transaction models among billions of data and find the changing Eigen factors during transactions, so as to predict trends and design successful strategies. We can establish and improve trading models by using trading algorithms based on the history of regression analysis and statistical probability. The platform acquires data regarding all the important financial indicators and leverages deep reinforcement learning technology and multi neural networks to learn about changes in the market and predict rules and trends in the market, so as to produce new parameters, and further optimize transaction models. Based on machine learning, the platform builds the financial knowledge graph. It leverages the public opinion analysis system and integrate data (both structured and unstructured) from multiple sources. The platform will also check the data inconsistency, add the targeted market's risk coefficient to the Eigen factors, so as to maximize benefits (or minimize losses) in the transactions.

Drawdown indicators and rights and interests
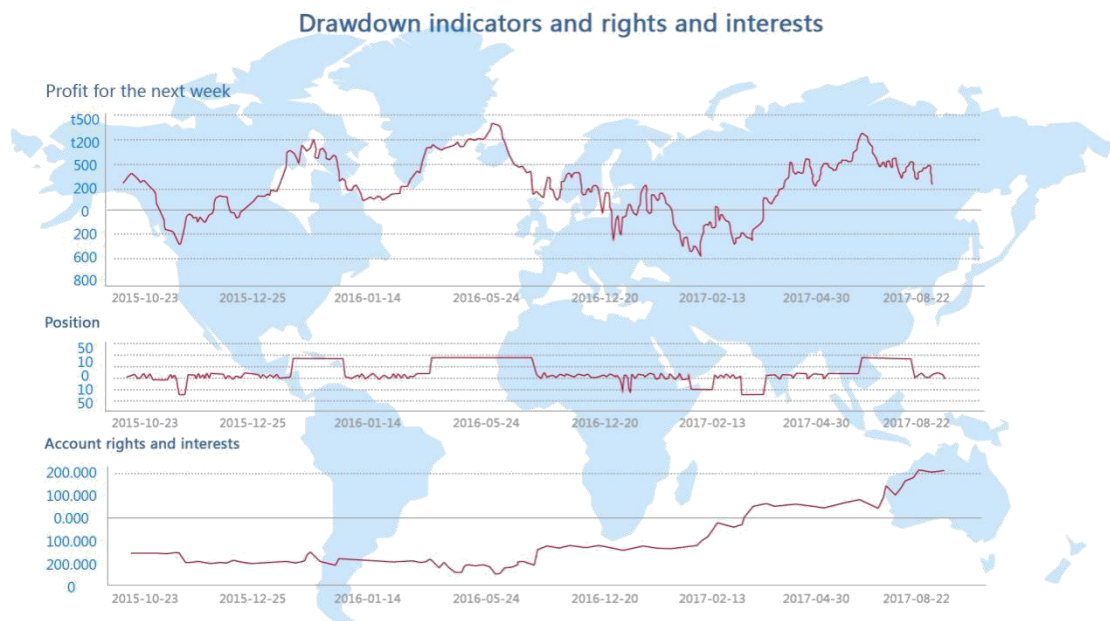
THE FINANCIAL SYETEM OF STOCKCHAIN COIN (SCC)

STOCKCHAIN Foundation's finance management team will be divided into two departments, responsible for the company's operation and cryptocurrency respectively. The former will manage the company's daily expenditure, including salaries, travel expenses and fees of hardware procurement, and makes financial statements regularly. The latter will handle and update data of wallets, transfers, exchanges, cashing, etc.

8.1 Source of capital

In the beginning, STOCKCHAIN coin system mainly relies on its own investment, private placement and public sales. When the system runs smoothly, it will earn growing profits by liquidity diversion from the exchanges, profit sharing of programmed trading systems, derivatives' service charges and the platform's value-added services.

8.2 Rules of SCC issuance

The platform issues STOCKCHAIN Coin, simply called the token of SCC. The total issuance will stay at 10 billion, as the platform pledges not to increase its SCC supply. The allocation of SCC is planned as follows. 60% of the currency will be distributed to users, 20% to the founding team and 20% to the management fund.

8.3 Issuance method

Proportion	Allocation plan	Number	Explain
45%	issuance	4.5billion	the income will be used to invest in product development and upgrade, cover software and hardware costs, and support project operation and market promotion.
20%	founding team	2billion	used to incentivize the team to provide better technical support and product support for the project; part of the SCCs will be reserved as future rewards.
20%	Management foundation	2billion	STOCKCHAIN quotation system and community need continuous improvements, so we will recruit more talents. The Foundation is established to attract and encourage talents and partners in the future.
15%	ECO incentive fund	1.5billion	we will reserve 15% of SCCs as the ECO incentive fund. This fund will be mainly used for awarding trading strategy developers to encourage users to create their own strategies and achieve a better community eco system.
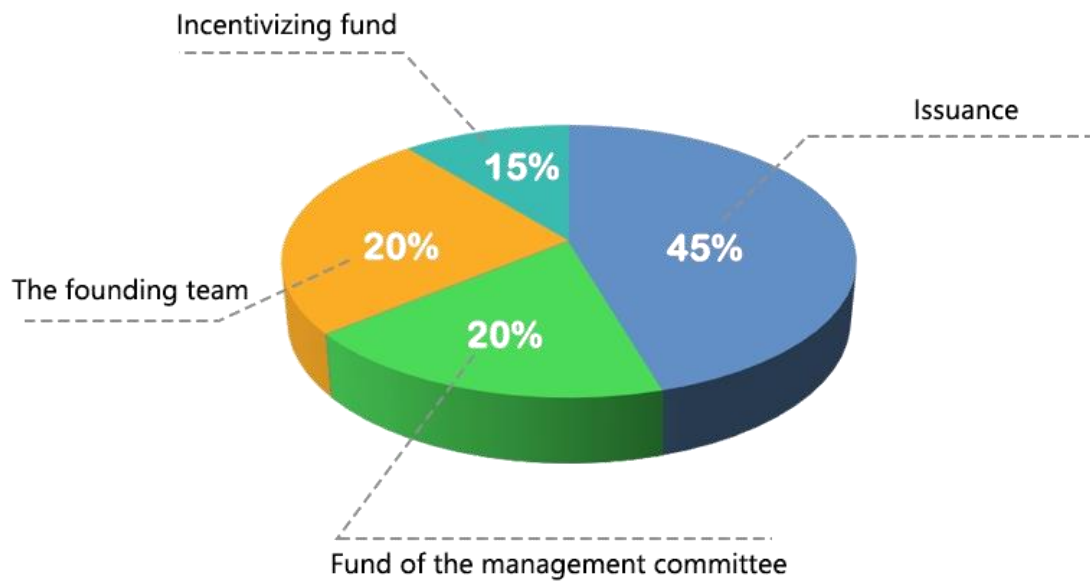
8.4 Issuance plan

Currency for crowdfunding: Ethereum (ETH)

Total issuance: 10 billion SCC

8.5 Development plan

October 2017	project conceptualization
November 2017	market survey
Early December 2017	team building
Middle December 2017	architecture design of the product system
Late December 2017	finish the Product Requirement Document
January 2018	finish the development of the underling technological structure
February 2018	official advance booking
March 2018	PC version launch
April 2018	Android, IOS and H5 versions launch
May 2018	quantitative strategies supermarket launch
Q3 2018	finish the development of STOCKCHAIN public chain; financial derivatives launch
Q4 2018	STOCKCHAIN public chain launch

8.6 Disclosure

Every year, the foundation will disclose the development, operation, use of SCC and related management systems on the official website.

STOCKCHAIN'S ORGANIZING STRUCTURE

9.1 Research and development team

R&D Team has initiated the STOCKCHAIN platform. It is the builder and defender of the platform. For its prosperity, the STOCKCHAIN team will improve the cryptocurrency market system and apply the blockchain technology in programmed transaction. It will also continue to provide more and better strategies and products, improve user experience, so that they be actively engaged.

9.2 Management team

The management team maintains and operates the STOCKCHAIN community. It is responsible for retaining users, encouraging them to be active in the platform and devising quality strategies. It is also committed to maintaining a positive and optimistic atmosphere for communicating in the community.

9.3 User

Users are the cornerstone of the STOCKCHAIN community. When they enter the platform, they can not only know about quotations in the multi-currency market and exchange currencies online but also interact with other users on the message board, or through other functions, such as questioning. Users will also be the main force of consuming SCC. For example, they can reward others, purchase service, rent strategies, participate in financial derivatives trading, etc.

9.4 Trading strategy developer

Strategy developers propel the STOCKCHAIN community. The platform will not only research and develop a lot of programmed trading strategies, but also rely on more personal strategy developers. Every strategy developer can edit and share his or her successful trading experience on the platform. The developers will earn benefits if their strategies are used by other profits and make profits for them. At the same time, every year, STOCKCHAIN platform will reward developers who provide high quality strategies with the incentivizing funds.

9.5 Third-party platform

The Third-party platforms are loyal partners of STOCKCHAIN community. STOCKCHAIN platform leverages the third-party platform to complete online transactions. It also brings those third- parties visits and commissions. After the STOCKCHAIN platform adopts the 7* 24 trading strategy, it doubles the turnover at the third-party platform and user engagement, delivering win-win results.

HOW TO GET SCC

- **Private placement in advance:**

  Strategic investors bring in fund and resources.

- **Ico:**
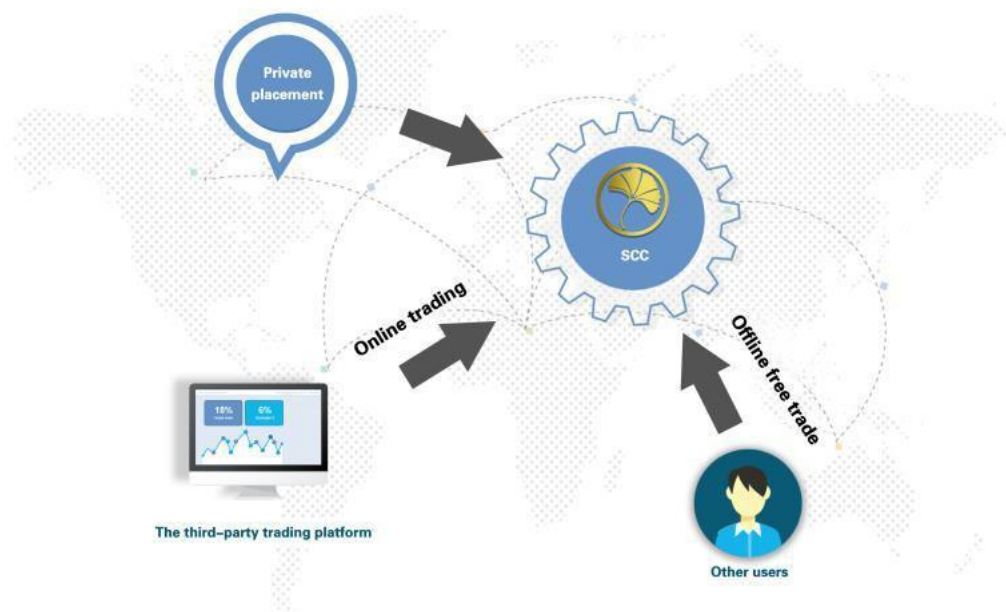
  ICO based on Ethereum, which can also be joined on our website : www.stockchain.co

- **Offline free trade among users:**

  every user has his own wallet. Users could transfer through the blockchain. The transaction and its results will be recorded on the chain and will never be changed.

- **The third-party trading platform:**

  SCC will also be issued on third-party trading platforms.

SCC'S VALUE AND ITS FLOW IN THE SYSTEM

11.1 SCC's value

Deduct service charges:

in all of the transactions, the system will offer discounts on any service fee if it's paid by SCC.

Program trading settlement:

when investors record gains from the programmed trading strategies, they are required to pay a certain number of SCC as commission for the program, some of which wil lcompensate the program provider, and 30% of the rest will be destroyed.

Consumption on the platform's services:

SCC could be used for cloud and custody services provided by the SCC platform.

Consumption in the SCC community:

SCC could settle transactions with automatic trading procedures and strategy models, such as buying, rewarding, crowdfunding, etc.

Trading of financial derivatives:

SCC could settle transactions of financial derivatives provided by the STOCKCHAIN platform, such as futures, options, ETF, and indexes.

VIP of STOCKCHAIN platform:

the user's holding of SCC in various platforms decides its VIP level on the STOCKCHAIN platform. VIPs could enjoy their privileges provided in each function of the platform.
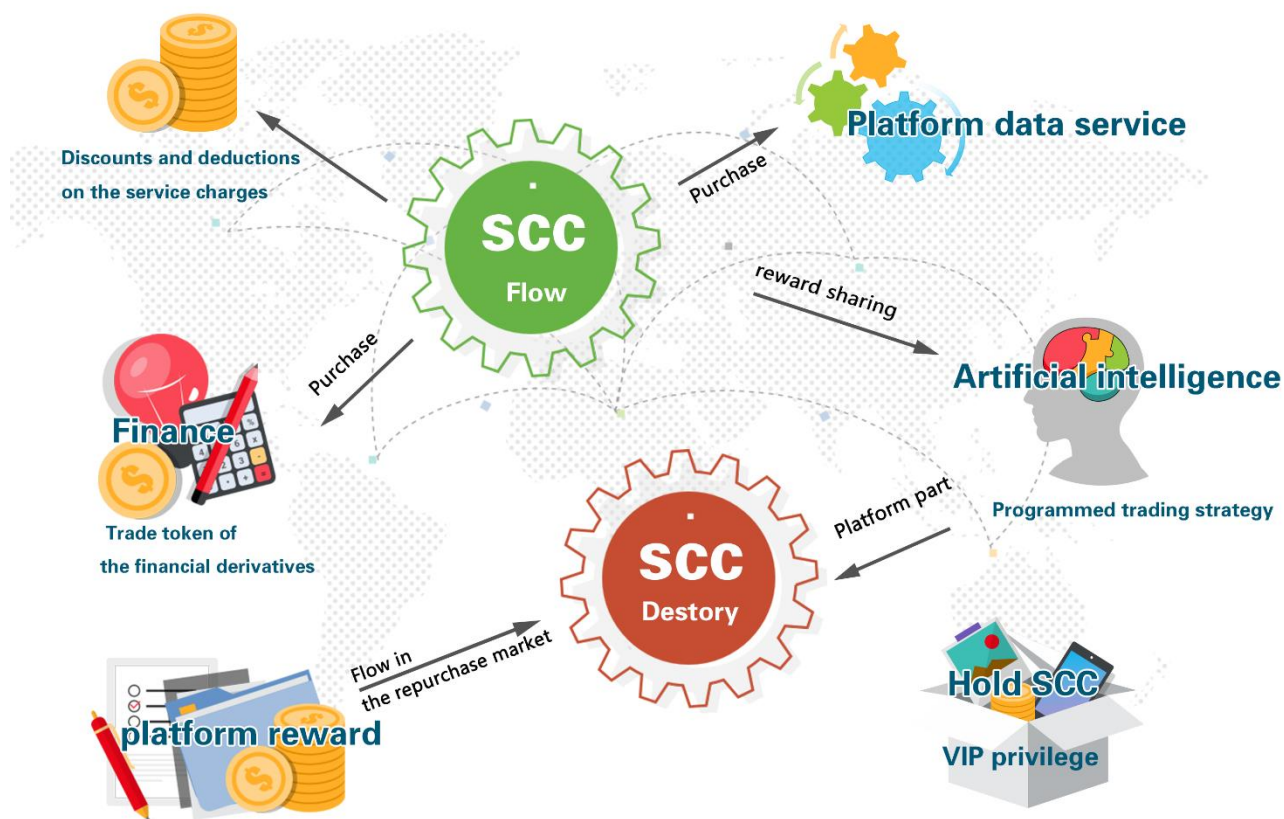
11.2 Purchase Mechanism

The STOCKCHAIN platform will report its financial statements in each season. The platform will execute repurchasing and destroying SCC in the market and ensure the total amount of SCC will stay at 500 million. All users could view the transaction history in the blockchain browser.

11.3 The Unlock period of the STOCKCHAIN team

Initial Release	25%	500 million
The end of the 1st year	25%	500 million
The end of the 2nd year	25%	500 million
The end of the 3rd year	25%	500 million

MANAGEMENT TEAM

Mr. Jin Xiang (CEO)

former technical director (Greater China) of IGE, the largest fictitious currency dealer in the world; Successive entrepreneur. Established multiple highly successful websites with DAU more than ten millions and Internet products; founded a quantitative trading trust fund; has extensive experience and deep understanding on the integration of Internet, big data, AI and finance.

Mr. Yang Bo (CTO)

worked in 360 for over 10 years; co-founder of the Cloud Engine; developed 360 Safe, 360 Search and PB-level sample storage and identification process; capable of handling high concurrency and distributed storage system.

Mr. Edoardo Bertolani (CMO)

previously served as portfolio manager for both institutional and affluent clients of BPER banking group in Europe, Mr. Edoardo Bertolani, after obtaining his International MBA from IEDE business school,   has been working in Asia for the past 15 years: first as a Senior Consultant for interChina Consulting in Shanghai, directly involved in +20 M&A projects; later, as an Independent investor in start-up companies, based in Singapore.

Ms. Yan Yating (COO)

former Sales & Trading department director of Huatai Securities; former partner of Rui Dong Capital; former director of Investment and Business Development department in Kuang-Chi Science (0439,HK) (during her term of office, the company's stock price grew by 800%, the company financed 1.65 billion HK dollar and accomplished two overseas acquisitions)

Mr. Michael Ai (BD Head)

postgraduate from Columbia University New York. As an ex-Goldman Sachs Investment Banking Executive Director, Michael acquired extensive experience in the financial services industry from working in both GS's New York and Asia offices for 7 years.

Mr. Zhu Ciyang (Trading Head)

graduated from NYU-STERN and worked in Icahn Capital of the Wall Street as an analyst and trader for 2 years. After returning to China, he then traded on the A-share market as one of the top 10 private capital known as "the Ningbo Expendables". Focus on short-term quantitative trading, he is now an A-share high frequency hedge fund manager.

Mr. Zhao Hui (Product Manager)

one of the top Internet product managers in China; worked in Baidu for over 10 years; senior product manager of Baidu Search Engine and manager of the Baidu Mobile searching business sector; has outstanding abilities in product structure and design; good at locating market pain points and address users' need.

Mr. Yu Huanyang (Sales Head)

worked in Microsoft, IBM and Baidu (won the Best Professional Manager while working in Baidu); has outstanding strategic insight and strong market sense.

ADVISOR

Mr. Ye Peng (Internet Advisor)

Mr. Ye Peng used to serve as the general manager of Apple China, Baidu COO, VP of Alibaba group, general manager of Tmall, President of Ali small enterprise and business department, and general manager of Lufax. He has a doctorate in Information and Software Engineering from University of Ulster, and has a master degree of EMBA from China Europe International Business School.

Professor Nickolaos G. Travlos (Financial Analysis Advisor)

Chair in Finance at ALBA Graduate Business School and Chair in Finance at Surrey Business School in the UK. Prior to ALBA he taught at Boston College, New York University (L. Stern School of Business). Travlos was recognized as one of the "most contributing" authors in the Journal of Finance, He is a finance consultant and has served on the Board of Directors of several national and international firms such as Hellenic Capital Market Commission, Academic Committee of the Hellenic Banks Association and Athens International Airport S.A.

Professor Robert Dixon (Risk Control Advisor)

Director of Institute for China Development and Research in Durham University and Dean for Durham Business School from 2008 to 2016, and prior to that held various administrative roles including Chair of the Board of Studies. His research interests are broad and include investigations of the contribution of venture capitalists and the impact of regulation on business. He is a highly regarded speaker and has held visiting professorships in Malaysia, Hong Kong, France and Finland.

Professor Dimitris Petmezas (Investment Advisor)

Chair in Finance at the University of Surrey, UK. An independent M&A advisor and also an investment analyst for many major M&A projects. Professor Petmezas has also been invited to deliver speeches at more than 30 Universities in the USA, Canada, Europe and China. Additionally, his research has been featured on the programs of various high profile international conferences, such   as the *American Accounting Association (AAA)* Conference, and quoted in widely read international media, such as the *Financial Times* and *The Economist*.

Professor Ian Vernon (Algorithm Advisor)

Student of Dr. Stephen William Hawking, PhD (Theoretical Physics) University of Cambridge. Specializing in the Bayesian analysis of complex systems including large scale Galaxy formation simulations.   In 2011 Professor Ian Vernon was awarded Michell Prize for best applied Bayesian article worldwide, which is considered to be the top research prize for Statistics.

Professor Chris Florakis (Crypto-Index Advisor)

Professor of Finance in the Management School of the University of Liverpool. His research interests range from Corporate Finance and Governance to various aspects of Asset Pricing and Risk Management. He has received research funding from the Association of Chartered Certified Accountants (ACCA) and the Bank of England (BoE). His research findings have been presented into high quality academic conferences-workshops organized by central banks, think-tanks and research organizations e.g. Bank of England, Financial Management Association (FMA).

Mr. Jiang Hai (Blockchain Technology Advisor)

Founder and CEO of Bubi Chain. Ph. D of China Academy of Science. Mr. Jiang Hai has deep understanding of the essence and commercial application of the blockchain technology.

Mr. Gu Kai (Investment Advisor)

Founder of QF Capital. Since the establishment of QF Capital, Mr. Gu Kai was bullish on the internet's capability of transforming the traditional industries and has achieved successful investment on some influential internet projects such as Gen Shei Xue, 56PingTai, and Health160 etc.

Mr. Li Zong Cheng (PR Advisor)

Partner of 8BTC, Founder of Timestamp Capital. Timestamp Capital, subsidiary to 8BTC, in charge by Mr. Li Zong Cheng, is a professional investment platform mainly focus on investing in the projects with great potentials on the blockchain core technique, supporting facilities and application scenarios.

Mr. Lv Sheng Qiang (Trading Advisor)

Chairman of Winning (Shanghai) Asset Management Co., Ltd. EMBA of PBC School of Finance, Tsinghua University. Mr. Lv Sheng Qiang used to serve in the senior management team of DZH (601519.SH) and has more than 20 years' experience on stock information service. He established Winning on 2012 and has achieved outstanding investment performance.

DISCLAIMER

This document only provides information rather than advice for trading STOCKCHAIN shares and securities.

Any similar suggestion or price reference shall be provided under trustworthy provisions and applicable securities laws or other concerning laws.

This document doesn't involve any investment suggestions on forms of securities, investment intentions or abetment. It neither includes nor understands any practices of trading or trading invitations. It is neither a contract nor a promise of any form.

STOCKCHAIN notes that potential users are fully aware of the platform's risks. The investor recognizes and is willing to take risks and all consequences the moment he invests in the platform

STOCKCHAIN is not obliged to recoup any direct or indirect losses caused by the users' participation in the STOCKCHAIN platform, such as

1. Any mistakes, errors or imprecise information or any behaviors thereof.
2. Any losses incurred by personal trading of blockchain assets or any behaviors thereof. SCC is a digital cryptocurrency used by the STOCKCHAIN platform.

SCC is not an investment. We can't guarantee that SCC is bound to appreciate. Under certain circumstances, there exist possibilities of SCC depreciation. Those who fail to use the SCC in an appropriate way will forfeit right of using the currency or even lose their currencies.

SCC is neither an ownership or control right. Possession of SCC doesn't equal ownership of STOCKCHAIN or STOCKCHAIN application. SCC doesn't entitle anyone to participating in, controlling or deciding issues regarding STOCKCHAIN and its application.

RISK WARNING

The issuing party is StockChain Foundation Ltd (the "Foundation"), a public company limited by guarantee pursuant to the Singapore Company Act (Cap. 50) and registered at 3 Shenton Way #14-05, Shenton House, Singapore (068805).

1. Risks in respect of the Ethereum Protocol

Any failure, destruction, dysfunction of the Ethereum protocol will beyond the control of the control of the SCC team and may have a material adverse effect on the SCC tokens, which   is being established upon Ethereum protocol;

2. Risk in respect of delivery

Due to the nature of the blockchain technology which is diffusely adopted for cryptocurrencies, include but not limit to smart contract system, the purchaser may not receive the tokens on the same day which purchaser finish the payment process of SCC tokens. By offering to purchase the tokens from SCC platform, the purchaser agrees that it is purchaser's responsibility for implementing reasonable measurements for securing the receiving wallet, vault or other storage mechanism you use to receive and possess the SCC tokens.

3. Risks in respect of security failure

SCC platform and/or SCC tokens remain susceptible to vindictive cyberattacks by autonomous nature person, legal person, software, illegal cyber activities and organized crime. The internal security of the SCC protocol's core infrastructure might also be debilitated under the security failure.

4. Risks in respect of regulatory impacts

The regulatory status of cryptographic token is unclear or undefined in many jurisdictions. In the event that any legislative authority or administrative authority publishes or amend the laws, regulations and guidance might have negatively impact on the SCC tokens.

5. Risks concerned with various competitions

We recognize intense competition in the field of cryptocurrency. Thousands of teams are planning or developing relevant applications. The competition will be more than fierce. But in this era, any good concept, startup or even full-fledged company face the risk of competition. But for us, they are also the driving forces.

6. Other unpredictable risks

In addition to the risks mentioned thereto, there still exists other undefined or unpredicted risks. Besides, other risks may arise all of a sudden and many above-mentioned risks may arise in a combined way.