



**The world's first digital currency balance value-added service and
current fund management service provider**



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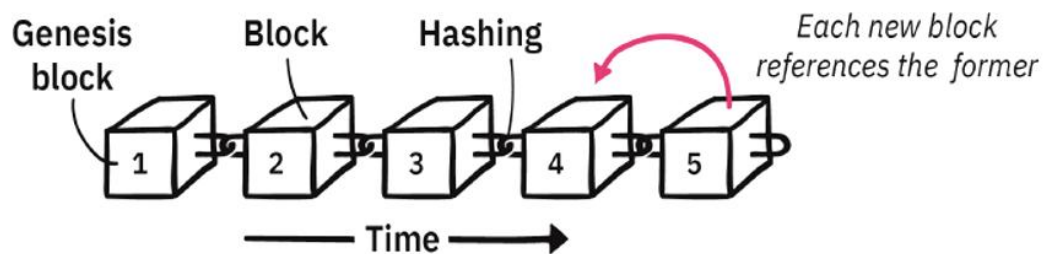
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Chapter 1: Market background Analysis

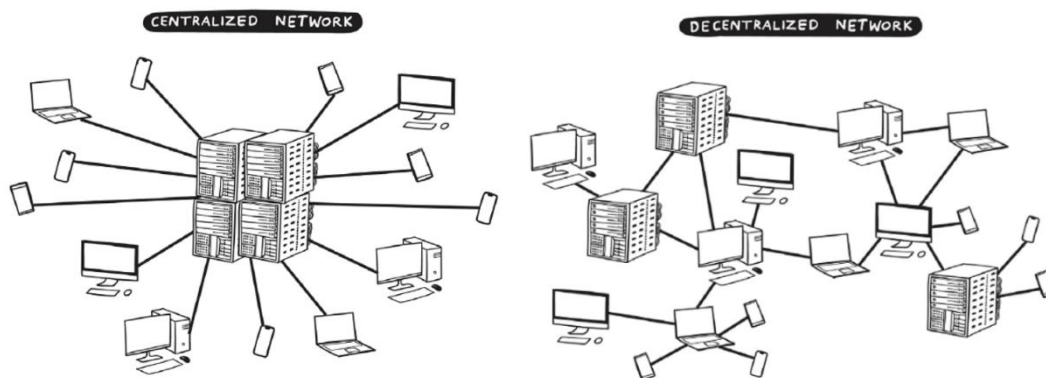
1.1 Blockchain technology and Bitcoin

Blockchain is a way to securely secure the data in a shared database. Its revolutionary breakthrough lies in building a system that requires no trust, but can fully control its own funds, easy to verify, easy to audit, without central authority.



Every few minutes, the network adds a permanent block to the blockchain to store the information, and it is firmly connected to the previous block by hash values.

Blockchain welcomes everyone in the world to participate, become a maintainer of its network and verify other maintainer to make sure that they are honest. When someone tries to disseminate and record information on the blockchain, the network maintainer groups the information by blocks and uses cryptographic tools to make the data untampered with and permanently added to the blockchain.



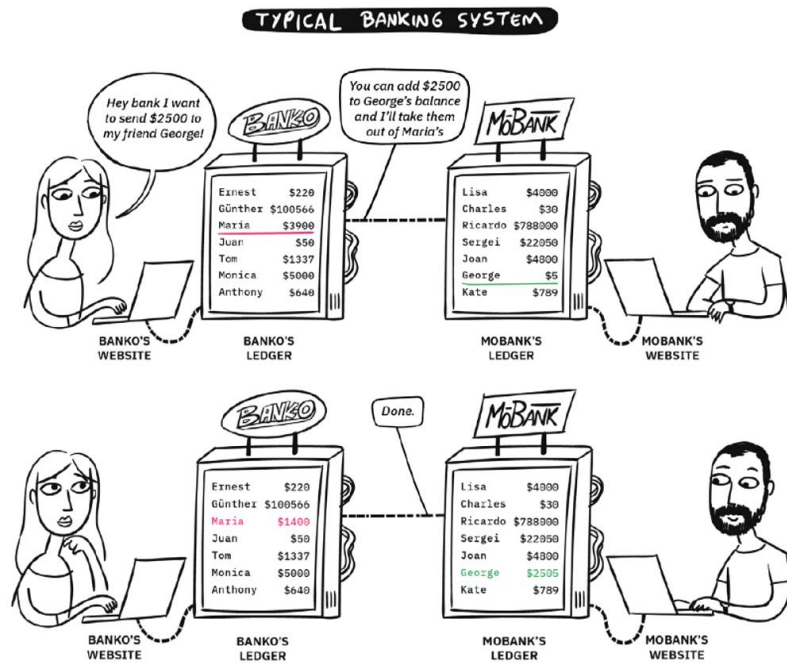
In a traditional centralized network (as shown in the first figure), all users must link to a specific device (server group) set up and maintained by a third party. In a decentralized network, users are connected and form their own network. PAY uses the latter: no special centralized server, and a highly resilient peer-to-peer network composed of volunteers to share information.

Once the data is recorded on the blockchain, it cannot be deleted, transferred, or changed. The record cannot be tampered with, and each participant on the network will hold a corresponding backup for verification. Most blockchains use a sophisticated mining model to encourage nodes to participate, ensuring that information is recorded and synchronized in the city. These types of decentralization are very robust and will not be maliciously attacked or manipulated by any single institution or centralized server.

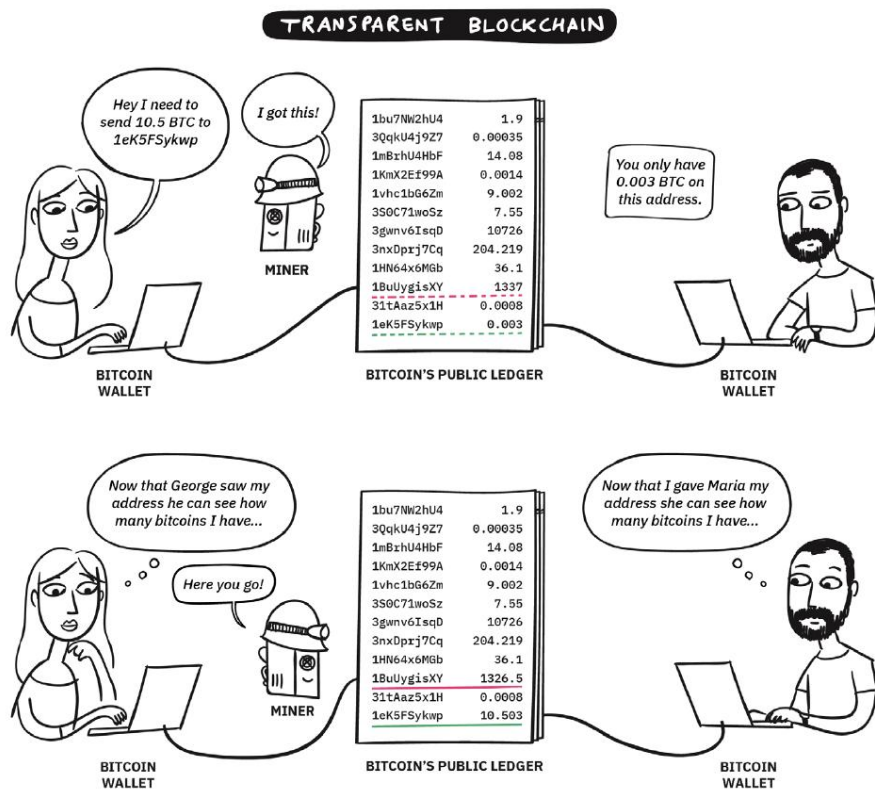
These decentralized systems also need no trust, because network participants maintain and verify their own backup ledgers without having to rely on third parties. Such a global, immutable bookkeeping system is particularly suited to recording financial data. The first modern distributed blockchain, as the underlying mechanism of Bitcoin, was first unveiled in 2008.

On the last day of October 2008, a person / organization under the alias of Satoshi Nakamoto published a white paper titled "Bitcoin: A peer-to-peer Electronic Cash System." In this future, world-changing document, the author describes the design framework for an open-source decentralized cryptocurrency called [Bitcoin], and the revolutionary technology it is based on called [Blockchain].

As shown in the figure below, to complete a transfer in a traditional banking system, the system needs to initiate several transactions, multiple books and trust in multiple banks.



In the figure below, Maria transfers 10.5 bitcoins to George through the blockchain system (from Maria address 1BuUygisXY to George address 1eK5FSywkp. For convenience, the image shows the scene of bitcoin transfer, in fact, almost all cryptocurrencies use this type of public ledger, but also experience its advantages and disadvantages.



Mariz makes cryptocurrency transfers (such as Bitcoin) to George via an open public blockchain.

Blockchain has several obvious advantages:

- Simple (& fast) : The process of Maria transferring money to George requires only a single ledger update, and the procedure is simple and can be completed in seconds or minutes (the confirmation time of the transaction). Bank and telegraph transfers often take days or even weeks.

No third party risk: Maria and George keep their funds in a cryptographically secure system that no one else needs to maintain, rather than a trusted third party.

Pseudonyms: Unlike traditional banks, cryptocurrency ledgers never record your real name in the account, such as "Maria" and "George." No personal information is required to create cryptocurrency money. George uses a pseudonym (1eK5FSywkp) to receive remittances from Maria (1BuUygisXY).

The revolution of cryptocurrencies like Bitcoin is still a work in progress. In a decentralized network, anyone can store and transfer money as they wish. Previously, if there were no trusted banks and credit bureaus, large-scale money storage would be a problem. Similarly, we rely on third-party payment tools such as checks, wire transfers and debit/credit cards for our transfers.

For the first time, we are free to exercise our financial rights without the permission of banks and other external institutions. All thanks to cryptocurrencies. In the near future, any device (computer, phone, tablet) can serve as a full-featured wallet for cryptocurrency to receive, store, and send funds. There is no need for any form of identity information, fees and authorization to create a wallet, as the system identifies users by their address (a "random" string of characters) rather than by name, address and mobile number.

1.2 The digital currency market is developing rapidly

With the rapid development of blockchain and other science and technology, digital currency has gradually become a new commanding point of global competition. Compared with the current paper money system, digital currency has lower operation cost and easier long-distance transactions. Therefore, digital currency may be widely used in cross-border payment and global trade in the future.

As of 2022, there are more than 12,000 thousand digital currencies, and that number is growing. The market value reached 2.3 trillion, and the market value of Bitcoin remained at 1.2 trillion yuan, making it the largest digital currency in the world by market value, accounting for 63.2% of the total market value of digital currency in the world. Ethereum and XRP are the world's second and third largest digital currency by market capitalization with 141.2 billion and 91.2 billion. Today, digital currency is not only a way of value storage and transfer, a series of excellent products are driven by blockchain, bringing us new ways of interaction. Digital currencies are moving global at a slow but firm pace. Companies are becoming increasingly interested in investing in blockchain and digital currencies. More merchants are starting to accept digital currency as a means of payment and value storage. People are also starting using crypto assets to raise money.

1) The scale of cryptocurrency users continues to expand

According to relevant data, as of December 2022, the number of global cryptocurrency users has reached 295 million, of which it took only four months to increase from 100 million users to 200 million users. The user growth from January and February 2021 was driven more by Bitcoin, but since May it has been driven by the adoption of altcoins, which increased the number of users from 143 million at the end of April to 221 million in June, a surge of nearly 80 million new users. Most of these new users are interested in tokens such as ShibaToken(SHIB) and Dogecoin(DOGE). Entering the second half of 2022, the growth rate of user size has slowed down, and as of December 29, 2022, there are 295 million cryptocurrency users worldwide, an increase of 178.30% compared to the beginning of 2021.

2) The scale of digital currency transactions is growing rapidly

According to CoinGecko's 2022 Digital Asset Industry Annual Report, in 2022, the total transaction volume of the world's top nine decentralized trading platforms and the top nine centralized trading platforms increased significantly, from \$131.3 billion at the beginning of 2022 to \$834.7 billion at the end of 2022. Top 9 decentralized exchanges Uniswap, Curve, SushiSwap, 0x, Balancer, KyberNetwork, 1Inch, dYdX, PancakeSwap, The top nine centralized exchanges Binance, OKEx, Huobi, Coinbase, Kraken, Bitfinex, Bitstamp, Gate.io, Gemini

Money is on the cusp of a transformation that could reshape banking, finance and even the fabric of society. Most notably, the era of physical money or cash is coming to an end, even in low - and middle-income countries; The era of digital money has arrived. On the international stage, a new round of competition between official and private currencies also looms. Digital technologies are driving this change, and their widespread adoption can foster effective innovation and increase access to basic financial services.

In recent years, the central banks of various economies have strengthened the development and pilot of digital currencies. According to the latest round of central bank digital currency survey released by the Bank for International Settlements in May this year, 90% of the 81 central banks participating in the survey are conducting research related to digital currencies, and 62% of the central banks are conducting relevant experiments or proof of concept.

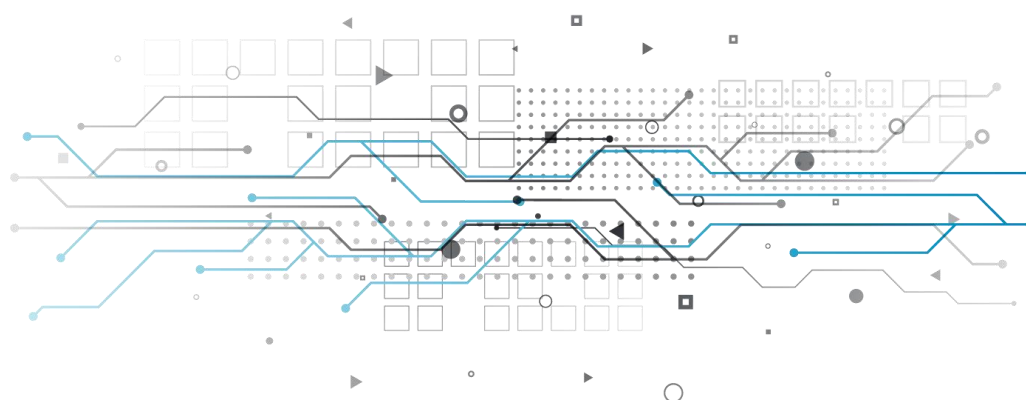
In the Caribbean, in October 2020, the Bahamas became the first country in the world to launch a central bank digital currency. In March last year, the Eastern Caribbean Central Bank launched a digital currency "DCash", making the Eastern Caribbean Monetary Union the first monetary union in the world to use a central bank digital currency. Recently, Jamaica also passed legislation authorizing its central bank to issue digital currency.

In Africa, Nigeria officially launched the E-naira digital currency in October last year. Godwin Emefile, Governor of the Central Bank of Nigeria, said that the government launched the digital currency to complement and strengthen the country's payment ecology and financial architecture in the new situation, and maintain the integrity and stability of the payment system. At the same time, South Africa's digital currency is in the testing phase, and Tunisia, Morocco, Ghana, Kenya and other countries have also begun to study the development of central bank

digital currency regulatory policies and implementation strategies.

In Europe, the Bank for International Settlements, along with the central banks of Switzerland and France, announced the completion of a test project last December to confirm that central bank digital currencies can be effectively used for international settlements between financial institutions. In July 2021, the European Central Bank launched the Digital Euro Project and launched a two-year study aimed at addressing key issues such as the design and issuance of the digital euro. European Central Bank Executive Board member Leon Panetta has said that the formal development of the digital euro is likely to start at the end of next year and take about three years to complete. Tristan Disoux, a professor at the Free University of Brussels in Belgium, believes that the development of the digital euro will help the eurozone to meet the challenges of digital transformation, ensure that the eurozone is better adapted to changes in the external financial environment, and seize a leading position in the global electronic payment field.

According to a report released last year by management consulting firm McKinsey, the macro benefits of digital currencies are mainly reflected in four dimensions: reducing the cost of providing cash, improving the inclusion of financial activities, reducing the dangers of private sector digital currencies, and enhancing monetary policy transmission. Analysts generally believe that digital currencies have many advantages and will inject new vitality into the global monetary and financial system.



1.3 Changes in the global clearing and settlement pattern

In the wide application of blockchain underlying technology and cryptocurrency payment, the change of the global clearing pattern is ushering in a new climax.

1) Defects of the traditional payment system

The value transfer of the traditional payment system needs to rely on the clearing center for the data interaction between the banks. With the development of Internet finance, third-party payment (especially mobile payment) has seen explosive growth, but it still relies on centralized solutions to solve the value transfer. The centralized scheme is to put all the value transfer calculations in a central server (cluster) through the endorsement of a company or government credit. Although all the calculations are also done automatically out by the program, the centralized person or organization must be trusted.

In fact, to solve the credit problem through the endorsement of centralized institutions, it can only be limited within a certain institution, region or country.

In the operation process of the traditional legal currency clearing and settlement system, the customer A of Bank A initiates A payment to the F customer of Bank C, which requires the endorsement and clearing of the intermediary agencies. Assuming that Bank A does not open a clearing account in the central Bank, Bank A must act as an agent through Bank B, and the payment between Bank B and Bank C will be settled through the clearing account of the central bank. Finally, customer F receives the currency transferred by A. With cross-border payments involved, the process is even more complicated.

For example, the settlement and payment of cross-border trade transactions shall be third-party intermediary, going through the opening bank, central bank, overseas bank (agent bank or overseas branch). Each institution has its own account system and isolated from each other, which requires agency relationship and credit line; each transaction shall be recorded in the bank, and liquidation and reconciliation with the counterparty, resulting in slow transaction speed and high cost. Many small and medium-sized enterprises, especially those in developing countries, pay even more high costs in cross-border payments.

2) Break through the limitation of Internet value transfer

At the beginning of the birth of the Internet, the core problem to be solved is information manufacturing and transmission, but it cannot solve the problem of value transfer, that is, a part of the value (including monetary assets, securities, financial derivatives, etc.) from one address to another in a way that everyone agrees in the network.

Blockchain technology can build an "trust" ecosystem to meet the needs of economic activities under the environment of information asymmetry and information uncertainty, and break through the limitations of Internet value transfer.

COINS is the first block chain technology in the field of finance, but if the block chain run not the currency but legal tender, commercial Banks formed alliance after establishing payment private chain, currency just as the block chain of digital assets registration, transfer, not by the limit of seven transactions per second, can with the aid of block chain technology quickly complete payment and settlement.

3) Blockchain technology changes to the global clearing and settlement system

Compared with the traditional legal currency clearing and settlement system, the blockchain legal currency clearing is a direct data interaction between the two sides of the transaction, and does not involve intermediaries. Even part of the network paralysis does not affect the operation of the whole system, which greatly reduces the systemic risk of centralized payment methods. As can be seen from the figure, the completion of a single clearing and settlement under the blockchain technology does not require the participation of any centralized institutions, and the banks and customers in the market can completely establish a private chain to complete the payment process.

Assuming that A initiates A payment to B in excess of its account balance, because each participant subject has a data copy of all the historical payments in the distributed book, it will not be certified by the other subject in step 4 of the figure above. Once the transaction is certified, the block representing the transaction will be permanently added to the data link, and the data link cannot be modified. The process of identifying transactions on the blockchain is the process of clearing, settlement and audit, which is of great significance to optimize the

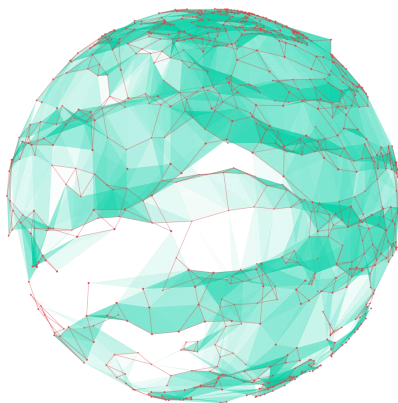
business process of financial institutions.

Example of the global legal currency clearing and settlement process under blockchain technology:

The fiat currency clearing network based on blockchain technology is expected to solve the global payment problem safely, quickly and at a low cost. Trust is a difficult problem faced by information interaction, that is, when any node in the whole network can not trust the other party communicating with it, how to create a consensus basis to conduct secure information interaction without worrying about data tampering. Without the review and endorsement of any centralized institution, blockchain technology can help market players to solve the problem of mutual trust. Blockchain uses an algorithmic proof mechanism to ensure the security of the entire network, and all nodes in the entire system can automatically and safely exchange data in a detrusted (truCoinbankess) environment.

By adopting block chain technology, can realize point-to-point real-time trading and improve the transaction efficiency, so that the central node or clearing houses become redundant, help businesses save 80% -90% of the transaction costs, and due to the authenticity of the transaction data is through the entire network node common verification, is tampered with, so can eliminate the necessity of trading intermediary, reduce transaction costs.

In addition to the listed advantages, through the combination of block chain technology can also make clear settlement, payment more fragmentation, based on block chain technology clear settlement means have lower cost of fixed handling fee, so online and offline payment scene gradually rich future trend, to meet the needs of users increasingly flexible clear settlement.



1.4 Digital asset wealth management market boom

With the change of the global clearing and settlement pattern, the digital asset wealth management has also ushered in the prosperity of the market.

With the booming development of the global digital economy, digital currency investment has become the choice of more and more investors. There are a variety of different types of digital assets and investment products emerging in the digital currency market, and how to choose the best digital asset allocation scheme has become a problem that all digital currency investors need to consider. Digital currency investment can be achieved through exchanges, over-the-counter trading and other ways. Investors can invest in equity digital currencies such as Bitcoin, Ethereum and Litecoin, and can also choose to invest in investment products launched by traditional financial institutions such as digital currency ETF and digital currency investment fund.

There are many different types of digital assets and investment products in the digital currency market, which have their own unique characteristics and advantages and disadvantages, which need a careful analysis and comparison. To give several examples, Bitcoin is the most representative digital currency in the market, and its market value occupies the majority of the digital currency market; Ethereum is a widely functional platform that issues many tokens that investors can choose to invest in; the products introduced by traditional financial institutions such as digital currency ETF and digital currency investment fund are more robust, with certain risk control ability and profitable.

Different digital currency investors have different risk tolerance and investment duration, so they need to formulate the best investment plan according to their actual situation. The basic principle is to accurately quantify individual risk tolerance and investment period, and make a comprehensive evaluation based on the characteristics of digital assets, investment products and market environment, so as to find the most suitable digital asset allocation plan for oneself.

In the changeable market, the deposit of currency interest, extended financial management, etc., because of its stable income, the market favor. For example, holding interest is a financial plan that allows users to earn some interest by holding digital currency. It is different from the traditional digital currency financial

management method, the traditional digital currency financial management can only store digital currency, and holding currency interest can allow users to obtain a certain income while storing digital currency. The scheme often works with financiers to invest users' digital currencies in various projects, some of which is returned to the user.

Users can store and manage their own digital currency. The currency-bearing interest bearing system usually provides some additional functions, such as loan services, trading services, financial planning, and so on. These features allow users to benefit while maintaining the digital currency.

Money-holding interest-bearing schemes usually design some ways to play, such as recommending friends to store digital currency, or pledging digital currency to gain profits. These games allow users to gain revenue while maintaining their digital currency. At the same time, it can also provide digital asset trading service, so that users can directly trade with the assets in the wallet, without having to go to the exchange for trading and then transfer to the wallet storage, which enables users to trade digital assets more conveniently.

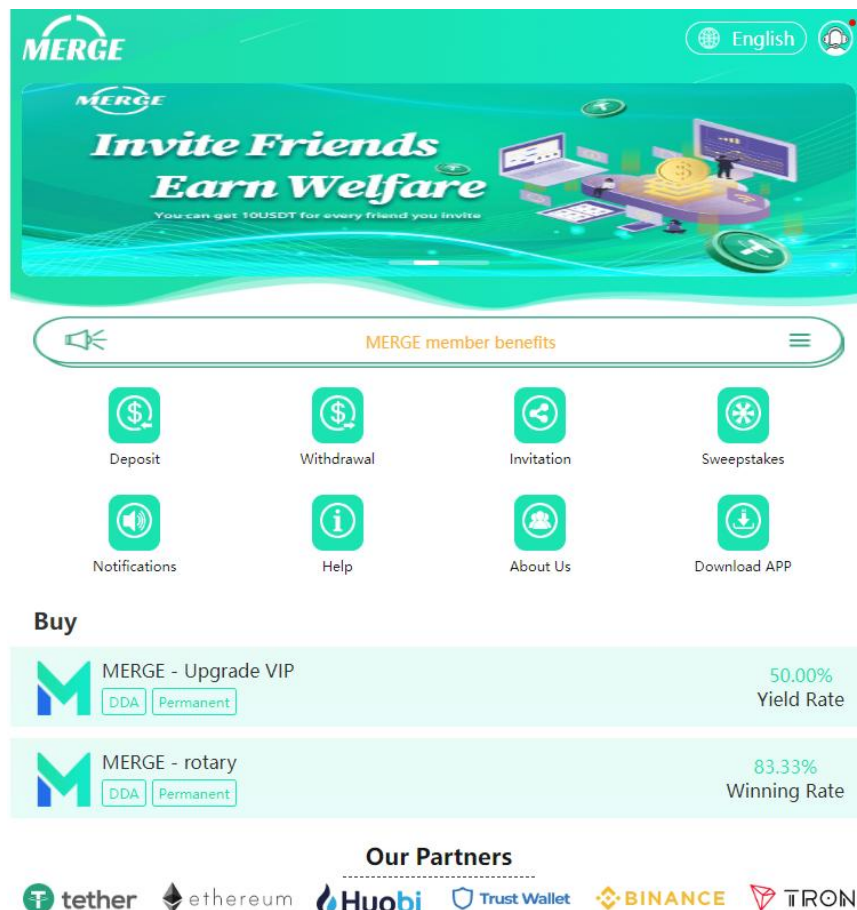
Based on the above background, the MERGE project was born.



Chapter II: An Overview of the MERGE projects

2.1 Introduction to the MERGE platform

MERGE is the world's first digital currency balance value-added service and demand fund management service platform built by MERGE US LIMITED. It aims to enable users and investors to achieve the asset income portfolio through deposit treasure, invitation reward, rotary lottery and other ways, so that more people can get continuous holding income.



As a deposit-and-withdraw deposit value-added service. MERGE users can transfer their idle coins to the Savings Bank and enjoy the benefits every day, with the features of save and withdraw, daily interest, and no minimum deposit limit. Relying on MERGE's strict risk control system, Saving Treasure fully guarantees the safety of users' assets and enjoys the benefits with peace of mind, such as inviting users to purchase 20u membership.

The MERGE platform builds an open and comprehensive digital currency incentive ecosystem based on Depository. For business users and individual users to provide different services and products. For merchant users, MERGE provides a Commercial platform that enables one-click access to MERGE and digital currency deposit solutions. For individual users, MERGE provides mobile DAPP, communication module based on RSA algorithm encryption, deposit interest, turntable lottery, speed trading and many other functions customized for cryptocurrency users.

- Save as you go, save as much as you want
- More convenient appreciation of remaining coins, zero threshold for the amount of deposit coins
- International top risk control system to ensure the safety of principal

In addition, more derivative services will be expanded to meet the value added of digital currencies, such as leveraged trading.

- Hourly interest, flexible use, market pricing
- Dynamic adjustment of borrowing rate on an hourly basis
- Small funds leverage large wealth, and the risk of multi-fold leverage is controllable

In the future, through the implementation of application practices, MERGE will provide users around the world with a fast, safe and trusted digital currency balance value-added service and demand fund management service products. By establishing the connection between different blockchain ledgers, it can realize cross-ledger transfer of digital assets, multi-chain barrier-free transactions, cross-chain flash exchange, simple and easy operation, low GAS fees, etc.,

providing high-quality asset media for deposit applications based on smart contracts and digital assets. The function of blockchain to carry value and transfer value to the extreme, and the equality and open concept of blockchain and digital currency to the extreme, will make the assets of hundreds of millions of users more free.

2.2 Platform design principle

MERGE focuses on the core value of digital currency balance value-added service and demand fund management service. The principle design includes:

1) The principle of value dissemination

MERGE's value-oriented output results show a diorama of digital currency balance value-added services and demand money management services through multiple dimensions. In the model, all participants are attached to the whole carrier, no longer a separate presentation of results, industry applications in a field through different combinations to reflect the multi-dimensional value.

2) Principle of autonomy

We believe that decentralization should do less to reduce the interference of external forces, but to maintain the normal functioning of the system as much as possible. Only by releasing power to countless carriers can individual productivity be further released. If the Internet liberates productivity, then decentralization further releases productivity, allowing individuals to reach consensus between individuals, then node autonomy is the law that decentralization must follow.

3) Principle of sustainability

The dissemination of information can create value, open up the intrinsic value link of crypto assets, achieve sustainable development, constantly spawn new demands, give birth to new products and applications, and promote the continuous iteration of information, forming a virtuous cycle. The growth speed of the information carrier does not depend on the height of the starting point, but on the number of iterations. With the change of demand, the more times of iterations, the higher the maturity of the system, the greater the influence, the higher the value degree, and the stronger the sustainability of its internal value chain.

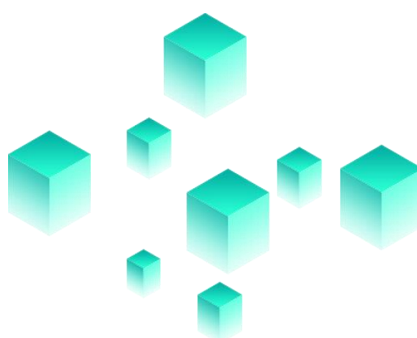
4) Principle of high efficiency

With the support of core technology, MERGE uses dynamic sharding technology to divide network nodes into fragments according to the characteristics of transaction requests and node resources. Each fragment node only processes transaction requests with corresponding characteristics. This sharding mechanism improves the transaction processing speed and TPS of nodes. In order to ensure the reliability of shard nodes, shard will adopt a dynamic mechanism, each shard node member is not fixed, will be elected. In theory, dynamic sharding technology can enable the system to reach millions of TPS processing capacity.

5) Principle of decentralization

MERGE from the node accounting qualification election, data accounting packaging, user service request access, distributed data processing, distributed computing collaboration and other aspects to ensure its fairness and credibility, and from the mechanism to achieve the true sense of decentralization of the network ecology.

The MERGE platform hopes to build a new digital currency balance value-added service and demand fund management service system as an optional Internet value transfer protocol in the future world, and take the ease and practicality of the entire blockchain industry one step further. Real is combining blockchain with traditional business applications to bring this technology to People's Daily lives. At the same time, the MERGE platform will first gain market share and accumulate solid user support through penetration of target industries (deposit interest, financial management, rotary activities, lottery rewards). Based on this, it has gradually developed into a digital currency balance value-added service and demand fund management service platform that is truly combined with real business applications.



2.3 core-competitiveness

Thanks to the continuous development and innovation of blockchain technology, a wide range of business applications, and refined governance, MERGE is competitive in the following areas:

- **Technology:** With very mature and strong technical support, MERGE has accumulated rich industry and technical experience in finance, payment, digital currency transaction, wallet, information technology, web3.0 and other fields, and has made industry-leading breakthroughs in the development and application of blockchain technology. The MERGE team brings together senior people from multiple industries with years of hands-on operational experience and deep insights into industry development.

- **Industry resources:** MERGE will sign strategic cooperation agreements with top leading enterprises in target industries, which will provide strong support for MERGE platform to cut into target industries, so as to truly promote the actual landing of Deposit treasure applications.

Business governance: Unlike typical projects, MERGE has a clear and unambiguous strategic plan for the target industry. More focused and professional use of blockchain technology distributed decentralization, immutable and encrypted security and peer-to-peer transmission of value characteristics, penetration of target industries and rapid market share.

Capital Management: MERGE's capital management will adhere to the principles of fairness, fairness, and openness, with the growth of MERGE as the primary purpose. We will set up an investor protection fund for safekeeping and to ensure the safety and sustainability of the funds. All use of MERGE and Foundation funds will be disclosed to all investors on a regular basis to ensure that the use of funds is public.

- **Space for growth:** MERGE's target industries are all trillion-dollar digital asset markets. The development team has developed a sound governance structure to effectively manage matters such as general procedures, code management, financial management, compensation management and privileged operating areas to ensure sustainable development.

2.4 Future potential

MERGE perfectly inherits the characteristics and advantages of the traditional blockchain ecosystem technology. In addition, MERGE vigorously and continues to invest in the research and development and innovation of commercial technology represented by blockchain technology, apply it to enhance the value of traditional industries and promote the vigorous development of the application of blockchain technology in all walks of life, so as to build a mutually beneficial and win-win blockchain ecosystem in the future.

1) Forming a new hybrid digital currency system

MERGE verifies the feasibility of digital currency balance value-added services and demand fund management services on the basis of facts, and also proves that blockchain technology can enable information sharing and transparency. Issued by influential banks, so that no matter its issue scale and exchange rate are uniformly controlled by the state, thus forming a diversified monetary system based on fiat currency and supplemented by digital currency. This has spawned the process of transaction rules for virtual finance, which has played a huge role in promoting the prosperity of the real economy. Of course, those financial entities with credibility based on MERGE to launch balance value-added services and demand funds management services and create actual transaction scenarios, so that users can experience better innovative services.

2) Create a new credit formation mechanism

Credit system has always been the core of the development of financial entities. In the traditional model, business entities maintain credit and manage risk control through relevant management agencies, and credit rating technology is classified according to different natures of users, such as credit granting technology for small credit loans.

When customers apply for loans, business entities need to query various credit information related to customers. In the verification process, there are many links in the information collection chain and the scope involved is relatively wide, but there are still defects such as incomplete information and incomplete data preparation, and problems such as high cost and lengthy decision-making procedures are also

caused, which has a great impact on the efficient completion of business operations by financial entities. In the era of big data, enterprises often take a multi-dimensional perspective to mine and analyze the behavioral characteristics of customers and analyze the credit rating of customers.

Although big data can be used for batch credit granting for consumption, small loans, etc., which can improve work efficiency to a certain extent and make data information have certain reliability and high timeliness, it only realizes the electronization of traditional finance, but does not fundamentally change the way of credit creation.

The technology and operation mode of MERGE itself is to create credit in a decentralized way, which has the characteristics of strong information reliability, low credit establishment cost, and open and transparent information.

3) Form a new scene value chain

The rapid development of the Internet and the great impact on the market have made the traditional model no longer adapt to the operation needs of modern economy. MERGE technology and operation model itself architecture is flexible, according to different application scenarios, different user needs, different user structure and different value operation processes to create a relatively independent, can further strengthen the integration of financial and real economy scenario value chain. It is manifested in the following aspects:

- Increase customer viscosity and stability, making value-added balance services and demand money management services more dependent on the scene;
- All balance value-added services and current funds management service information of users in the application are recorded on the blockchain, which is more secure;
- Based on the "trust machine" of blockchain, the needs of scene customers are no longer dependent on third-party institutions as before, or even on the support of centralized big data, and there is more trust between the platform and customers than ever before.

4) Form new payment and settlement methods

Although in the current Internet era, the efficiency of payment and settlement has been improved to a large extent, it is still restricted in multi-center and multi-link aspects under cross-currency, cross-border and multiple economic contracts, which often makes the efficiency of payment and settlement seem inadequate. The decentralized and peer-to-peer nature of MERGE balance value-added services and demand money management services can reduce intermediaries, reduce transaction costs, greatly improve transaction efficiency, and form a new payment settlement method to drive the borderless flow of value.



Chapter III: Products and Solutions

3.1 Coin depositor

Deposit Treasure is one of the core products of MERGE platform, and it is also a demonstration of digital currency balance value-added services.

Depository is a product that helps connect users who have spare digital assets with those who need to borrow coins. It has the characteristics of deposit-on-demand, interest based on the confirmed share, and support interest rate customization. After the user transfers the digital asset to Depository, the system will determine whether the loan is successful at each hour according to the lending rate set by the user. After the loan is successful, the user can get the interest of the confirmed share. Otherwise, the user cannot get the interest and needs to wait for the matching result of the next confirmed share.

As the industry's first digital currency demand financial product launched for investors, it fills the gap of no T+0 products in the digital currency financial services industry. Depository offers current banking. Demand banking can be subscribed or redeemed at any time, and regular banking needs to be subscribed and redeemed based on rules.

Depository Treasure is capital protected financial management, 100% guarantee the safety of the principal. And has a unique lightning access, stable capital protection and low investment threshold advantages.

Depository not only provides the service of withdrawing lightning into the account, but also greatly improves its clearing and settlement ability by adopting distributed architecture and other technologies, providing users with an ultra-low investment threshold, so that small and medium-sized retail investors holding small amounts of digital assets can also participate in investment and obtain considerable returns. In the case of ensuring the absolute safety of investors' principal, Depository Treasure adopts the settlement mode of "day" to give investors more sense of security. When investors need to use the assets in Depository Treasure, T+0 product features realize that the assets in Depository treasure can be redeemed at any time, real-time account, the whole process is simple and efficient.

1) Deposit rules of transfer and transfer rules

Support at any time transfer out, real-time account

- The interest will be calculated from the income on the second day (after 0:00), the income on the third day (after 0:00), the income will be automatically transferred to the account to calculate the interest after the account. Users transfer out of the deposit currency treasure assets, the transfer out of the day without interest.
- Users can open the function of "automatic transfer of wallet available assets at 0 point every day". After opening, the wallet available assets (only the currency supported by Qianbao) will be automatically transferred to the depository account at 0:00 every day. Because the system needs to calculate and process, the transfer time to the account will be delayed.

2) Daily yield rate calculation formula

Cunbibao Profit Description
07/23/2023 07:40:31

Frequently Asked Questions about Cunbibao Earnings Check:

1. How to calculate yesterday's income?
Calculation formula: share confirmed yesterday * annual interest rate / 365
Confirmation time of shares: The funds transferred to Cunbibao will be confirmed by the platform on the second trading day; the funds transferred after 00:00 will be confirmed one trading day later.
2. Why has the income remained unchanged after just transferring 20,000 usdt?
It is necessary to check whether your 20000 usdt has been confirmed and distributed.
3. Is there any profit for the money transferred out today?
The amount transferred out in real time on the day (natural day) does not enjoy the income of the day.
4. Will Cunbibao first consume the share of the generated income when transferring out?
Yes, you will no longer enjoy the confirmed share income.

Daily yield = daily distributable interest / interest currency for all users today

3) Daily distributable interest

On that day, the interest income will be used for the interest distribution of the

depository users. MERGE will draw 15% of the daily distributable interest as the platform income. Currently, the income of the platform will be injected into the risk margin of leveraged trading for the allocation of leveraged trading. The remaining 85% of the daily distributable interest will be paid according to the proportion of the user's currency. The platform reserves the right to process the revenue from the platform in the future

4) Deposit money treasure limit

The assets transferred to the account of the user and the assets transferred out in a single day are not limited temporarily. MERGE will set the limit of personal deposit transfer and the total deposit limit according to the actual operation of the market and the risk degree.

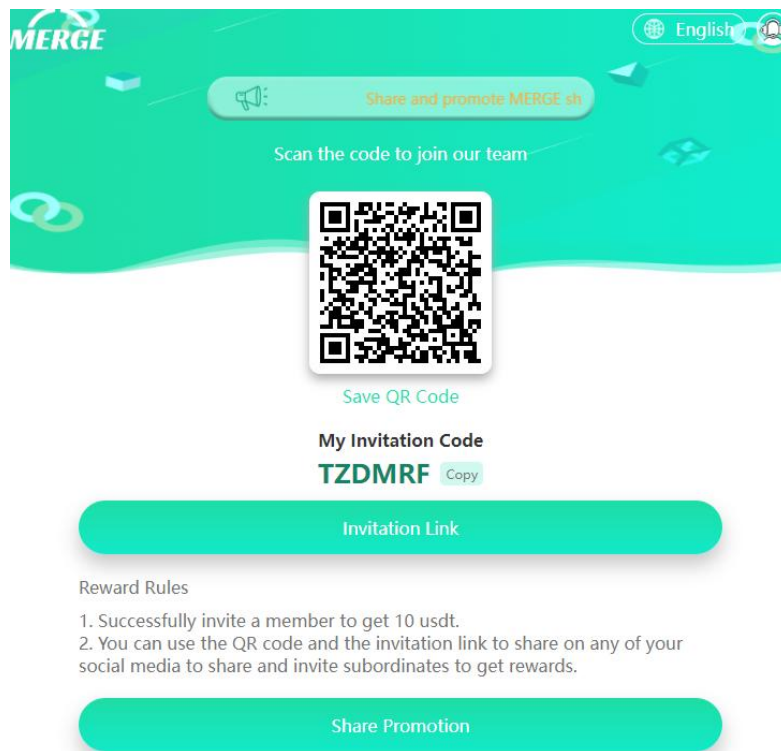
In the future, Deposit Treasure will also take improving the efficiency of users' funds as the core, extend multiple scenarios, open up more use scenarios such as transfer, financial management, lending, become the floor capital tool and underlying capital account of digital asset financial service products, and expand the adequacy of users' digital asset investment.

3.2 Reward and value-added services

Relying on the business function of Cunbao, MERGE has also developed a variety of incentive programs, such as invitation reward, turntable lottery, member reward and so on.

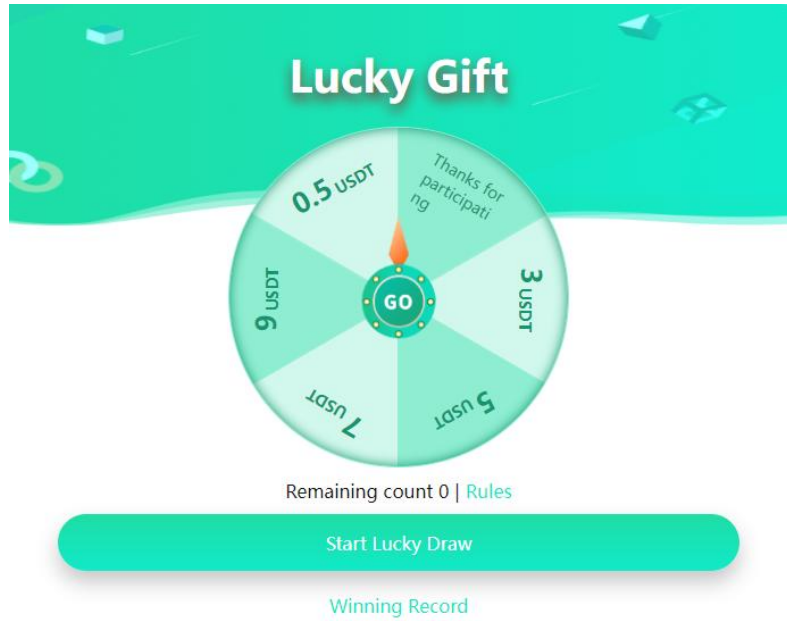
1) Invite rewards

MERGE users generate their own exclusive invitation code on the platform, and their friends scan the code to join the team, and the inviter can get the invitation reward. Users who promote MERGE automatically participate in the invitation program and divide 20USDT.



2) Turntable draw

- Get the number of draws to participate in the Roulette draw and get the corresponding rewards.
- The rewards obtained are distributed in real time, and users can freely transfer to the deposit treasure or withdraw money.
- The number of lucky draws can be obtained by purchasing a member or inviting a specified number of subordinate users



3) Member rewards

Purchase open membership, can get three privileges exclusive courtesy.

Buy

	MERGE - Upgrade VIP	50.00%
	DDA Permanent	Yield Rate
	MERGE - rotary	83.33%
	DDA Permanent	Winning Rate

3.3 Deposit currency treasure sentiment index

The sentiment index is an index used to depict the willingness of retail investors to enter the market by mining the capital data of the customers flowing into the market. Specifically, the sentiment index of Cunyuanbao is based on the data of tens of millions of users and the transaction data of tens of billions of yuan, and the application of big data analysis model and cloud computing technology.

The compilation method of depository sentiment index is based on the business scenario of depository, subdivide the transaction behavior, and select the funds that users directly or indirectly enter the digital currency trading market. After stripping ICO, IDO, IEO, holidays and earnings, the data are constructed. The sentiment index of depository currency reflects the willingness of users to participate in the digital currency trading market. When the sentiment index rises, it means that the willingness of users to enter the market increases, and vice versa.

The Emotion Index tracks the performance of 21,000 individual encryption protocols and uses a rule-based system to filter and assign to 7 cores and 38 emerging crypto domains. The sentiment Index enables investors to conduct in-depth analysis of core and emerging industry use cases, compare relative market capitalization and performance, as well as identify, rank and track leading protocols.

As the world's first digital currency big data sentiment index, the advantage of the sentiment index is that it can be released daily, at a higher frequency than bank-securities transfer data, and it is purely involved in the sentiment of digital currency exchanges that does not include ICO, IDO and IEO. This makes the sentiment index has more value, will provide investors with more objective and accurate reference for investment.

In addition, the number, type, and use cases of cryptocurrency items have grown exponentially, making industry selection an increasingly complex technical challenge for investors. Recent market turmoil has also highlighted the need for greater transparency to manage risk. By using industry-based methods commonly used in traditional finance, it enables investors to flexibly adjust and implement hybrid investment strategies according to their market prospects. For example, the Layer 1 Foundation sector can be allocated during the risk aversion period, and with the improvement of market conditions, the weight of growth sectors such as Metaverse can be increased.

In the future, MERGE will set new standards for institutional analysis, transparency, and understanding of the crypto market. These unique new tools track the evolution of the crypto space in real time and lay the foundation for the next generation of targeted investments in the crypto industry.

3.4 Digital currency banking services

MERGE will achieve services similar to B2B bank through the landing of the deposit treasure.

1) Quarantine your wallet

Store customers' digital assets in an off-balance sheet segregated wallet in an institutional-level trust.

2) One-stop shop

A single entry point provides modular access to Depository's entire suite of banking services, including accounts, payments and custody, brokerage, tokenization, lending and asset management.

⊗ Automatic integration

Through a seamless integrated setup, Depository enables established financial institutions to position themselves as innovation leaders and participate in the emerging digital asset economy.

In the process of entering and expanding your digital asset offerings, Depository will be your trusted partner:

- Before and after setup: Expand traditional fiat products into the digital asset class to significantly enhance the value proposition of the target audience.

Revenue opportunities: A seamless and easy-to-use bridge between traditional and digital asset markets, enabling our partners to expand their product offerings and reach a new and growing customer base.

Who you are: Our end-to-end outsourcing model enables our partners to create a digital asset footprint under their own brand, while reducing time to market and operating efficiency to the highest standards.

3.5 Hosting and pledge

MERGE's regulated multi-custody solution is designed to provide institutional-level security and is hosted by Swisscom, a leader in banking infrastructure, enabling our clients to invest in the digital asset economy with complete trust. At MERGE, users will gain institutional trust to store their digital assets.

- ◉ Secure key management

MERGE's managed technology is built with a multi-layered security approach that covers hardware and software, as well as processes and governance - maximizing the security of private keys. Key ceremonies have been approved by ISAE 3000. This eliminates the administrative requirement for customers to protect and maintain their private keys and allows them to invest in digital assets with full trust.

- ◉ MERGE Anti-Money laundering

All digital assets are screened through MERGE's proprietary AML tool, which is specifically designed for MERGE's digital asset offerings and is fully compliant with the Swiss regulatory framework and industry best practices. In this way, our strong compliance makes digital assets fully fundable.

- ◉ Pledge as a Service - ETH 2.0

A pledge is essentially the allocation of tokens to verify transactions on the proof-of-stake network in exchange for a reward. This means that for Ethereum 2.0, by pledging at least 32 ETH, the reward will be paid in the form of newly created ETH. MERGE offers ETH 2.0 pledge as a service for easy integration into our e-banking portal.

Safety and convenience are MERGE's customer service standards. It also provides investors with an institutional-grade, secure and regulated solution to store private keys to their digital assets.

Maximum security: An institutional-level security solution with a separate

wallet for each protocol token that meets the highest industry standards.

Full control: Our multi-custody solution consists of proprietary MERGE software and components from leading technology and security companies, providing best-in-class solutions for a wide range of use cases such as crypto custody, tokenization or collateral.

- Ease of use: An integrated solution that connects digital assets and the legal world in one interface.

3.6 Wallet service

In the MERGE system, the wallet will carry a key role. MERGE wallet can be used for the storage of digital assets, management, trading, the user can not only to fully control their own digital assets, and greatly reduce the threshold of digital tokens and management burden, effectively promote the flexible application of digital assets, and through MERGE wallet transactions, will become the main payment of global payment users.

The core value of MERGE Wallet is to implement and reflect the market authenticity and circulation power of digital assets, so as to create a more convenient and fast way for individual users to realize the authenticity and circulation performance of the global cryptocurrency industry. In our plan, any cryptocurrency can be paid by scanning the code in the MERGE wallet, which is a secure address. Even if the coin charges, withdrawals or more functions.

Supported by the underlying technology, the MERGE Wallet has the following features:

- More secure: path security, data security, tamper-proof and no single point of failure;
- Faster: real-time transactions, no payment intermediaries, faster cross-border settlement;
- Cheaper: Low cost trading, low trading commission, no middleman cut.

1) Asset management

MERGE Wallet provides users with unified management of multiple blockchain assets, with local wallet, cloud wallet and transaction functions to achieve integrated asset management.

2) Multi-currency service

The MERGE wallet system can simultaneously manage multiple digital currencies in a unified manner, not only supporting the storage and management of mainstream assets such as BTC, ETH, TRX, but also supporting the standard protocols of smart contract platforms, and rapidly increasing the tokens issued based on each platform. Achieve multiple digital asset management integration, reduce user operating costs. At the same time provide cloud wallet and local wallet, local wallet private key support; Cloud wallet transaction fee free, real-time account, convenient for users to transfer inside and outside the wallet.

3) The concept of on-chain and off-chain dual storage

MERGE adheres to the core of blockchain, providing decentralized digital currency storage solutions, user-held wallet keys and address private key information such as all types of currencies, and the platform does not touch user assets. At the same time, MERGE offers a convenient key backup solution - users only need to make one backup, write down 12 mnemonics, and save them to a safe place. Even with the subsequent addition of digital currency categories, all categories of digital currency assets can be recovered with the backup of 12 mnemonics.

4) Multiple security verification

In addition to allowing users to hold their own wallet keys and private keys, it also provides multi-signature technology assurance and two-step authorization verification for digital assets of different sizes. In addition, users carry out verification methods such as mobile phone verification code, fingerprint, and face recognition when transferring transactions to ensure the security of digital currency assets in a full range.

5) Multi-language support

MERGE Wallet will support multiple languages such as Arabic, Chinese, English, Russian, Japanese, Korean, German and other mainstream digital currency markets, providing a more comprehensive global service and creating a world-class wallet application.

6) Dual Wallet application

For the convenience of users, cloud wallet and local wallet will be opened in two wallet forms, and users can freely choose the wallet they need.

- Cloud wallet: Transfer between cloud users to the account in seconds, no fees; The private key is kept by the cloud, storing the user's address and transaction records, and the wallet does not touch the user's assets. The user can retrieve the cloud account through the authentication method of user name, password and face recognition.
- Local wallet: The user's private key is self-held, and the asset is more secure. Users can derive any number of sub-accounts (that is, sub-keys) from the master key to add multiple wallet addresses for each digital asset in the local wallet, facilitating asset separation.

3.7 Other supporting support

1) Blockchain browser

MERGE provides a blockchain browser for ordinary users to check the number of any assets connected to MERGE. In order to ensure the validity of the ledger, the blockchain browser supports links to different blockchain nodes to query the ledger, and can observe the generation of each block and each transaction in real time. When entering the corresponding account, you can query the balance of various assets of the account and all the transaction records.

2) Encryption communication

MERGE built-in encryption communication function, based on AES algorithm encryption, using the principle of private key to build efficient, trusted and secure encrypted communication services, all users send information through the AES algorithm, ensure the user's data and privacy, built-in encryption communication function will provide encrypted digital users with absolute privacy communication services. Ordinary IM communications have a central system to manage user accounts, and security issues rely on reliable or qualified certificates.

In this mode, if the certificate authority has certain network hardware between the user server and the target server, it will be able to conduct targeted man-in-the-middle attacks on seemingly secure communication at will. On the basis of the traditional server technology, MERGE will generate a pair of public key and private key for users, in which the public key and private key are generated by the core algorithm and are unique and corresponding to ensure data security.



Chapter 4: MERGE Technical system

4.1 Overview of system technology

With the core support, the bottom layer of MERGE blockchain is composed of three levels of participant management, blockchain layer and application layer, in which the payment system consists of two sub-levels: verification node and voting node.

1) Management of the participant

MERGE system participants join the blockchain network as super nodes. Different business parties can join and exit as required. The information between the super nodes is interoperable to jointly ensure the authenticity of the certificate carrier and the certificate data. Through the effective formulation of unified and applicable transaction standards, STO gateways, smart contracts, etc., the identity functions and contract elements of each node in different events are effectively linked and transmitted.

2) Blockchain layer

Key technology: This part is the basic support of each module of the application service part.

Blockchain technology: including network structure, data structure, consensus mechanism, signature check, etc., is the basis of system operation.

Related technologies:

- Data storage module: Content-based addresses replace domain name based addresses, where users are looking for content stored somewhere rather than an address, without verifying the identity of the sender, but only the hash of the content, by making payment verification faster, more secure, more robust, and more durable. At the same time, storage security measures are provided to avoid forced data theft; The data access audit is convenient to trace the data change and flow.
- Identity module: Perform blockchain authentication for users and devices,

register and mark their validity, and manage the user's identification, namely the private key. The system also includes access security functions as an important guarantee of system security.

- Timestamp service: provides unified time service for the system.
- Data encryption and decryption module: provides data encryption and decryption services for the system. The module should support national secret algorithms and can support pluggable encryption and decryption algorithms.
- Client module: The client provides users with the management and query functions of accounts, blocks, nodes and wallets, such as creating accounts, sending transactions, generating random seeds, obtaining block information, obtaining wallet status, etc. All payment transactions pass through the client, are signed and encrypted and sent to the blockchain.
- P2P module: P2P module connects each node and broadcasts transactions and block related information in the whole network.

Mempool module: Transaction cache pool. mempool stores transactions from RPC interfaces and transactions from P2P. The implementation of Mempool is mainly to solve the problem that the processing speed of consensus module is slower than that of RPC module.

3) Application layer

Application services are implemented and packaged for various service modules based on the support provided by the key technologies of the MERGE system. Each service is composed of a set of related specifications, processes, and supporting interaction interfaces.

You can connect to specific business scenarios through secondary development by calling the MERGE system blockchain layer application service.

4.2 The overall architecture of technology

The MERGE system is a high-speed, secure, and scalable digital currency payment infrastructure consisting of two layers of super nodes and storage nodes. And through the support of public chain technology, processing millions of transactions per second service, through a secure decentralized cloud database, to provide Dapps with unlimited expansion of storage capacity.

The MERGE architecture system consists of the following components:

- Isomorphic multi-chain chain system, providing high TPS access capabilities, cross-chain payment capabilities, etc.;
- P2P network system MERGE P2P, providing network layer addressing capabilities;
- Multi-database cluster system, providing unlimited expansion of secure encrypted data storage capabilities;

The underlying structure of the MERGE system supports the system, including a block storage system and a distributed file system.

- Attribute based encryption authentication access system composed of multi-node consensus, database access control gateway;
- A data integrity verification organization consisting of multiple verifiers;

An adaptive probe system that provides in-memory data storage, performance monitoring, security monitoring, and Metrics data upload capabilities.

The core of MERGE system is library separation mechanism and function subchain design. Decentralized applications can store data in on-chain and database systems according to different trust and public verification levels of data. MERGE system provides different types and levels of data collaborative management. And, because a multi-database cluster system is a Permissionless environment. The MERGE system also completes an access control mechanism based on multi-authority attribute-based encryption, as well as complete proof of ownership of stored data.

The main reason for the design of link database separation is to consider the future upgrade and update of the system, because the update of the blockchain system will lead to the fork of the system, which will have an irreversible impact on the entire economic system. Therefore, we put the main data processing capacity on the database system, and the access control system of the database system through the functional sub-chain to complete. One is designed for future scalability, and more is to complete the two core functions of decentralized storage systems: privacy protection and proof of data ownership. We use an efficient multi-authority attribute based encryption scheme to realize the access control and encryption functions of cloud storage data.

1) Account

MERGE uses the concept of state to store a series of accounts, each with authentication information and its own unique data. In some cases, if there is code in the receiving account that needs to be executed, the transaction triggers the execution of that code, then the internal memory of the account may change, and additional information may even be created to be sent to other accounts, resulting in a new transaction.

2) Merkel Patricia Tree

Bitcoin works through something called a Merkle tree. IPFS also stores this data through a directed acyclic graph data structure of the Merkle tree. Merkel Patricia tree simply put, when our file is relatively large, let alone one or two megabytes, two or three megabytes, or even larger, the IPFS system will be when you upload the file to the IPFS node, it will split the file, and then after the partition of each file is a hash value as its file name. And then these files are saved in a number way, and the total number, for example, is like there are a lot of leaves, and the branches of the two leaves that are connected are actually a hash of the two leaves, so from the leaves to the branches, and then from the branches all the way to the root.

In this way, it can be ensured that when the data above a certain leaf changes, the hash value directly reflected in the root also changes. This method is actually the same as the data storage method of Bitcoin. Its purpose is to allow the entire network to verify the integrity of a data as quickly as possible. Because we don't need to compare the whole file, we just need to see if the root value is still the same. If consistent, different nodes can prove that the data has not been tampered with.

The Merkle Patricia tree (trie), conceived by Alan Reiner and implemented in the Ripple protocol, is the main data structure of the MERGE system for storing all account status, as well as transaction and receipt data in each block. MPT is short for the combination of Merkle tree and Patricia tree, and combining these two trees creates a structure with the following properties:

- Each unique key-value pair uniquely maps to the hash value of the root; In MPT, it is not possible to fool members with only one key-value pair (unless the attacker has $\sim 2^{128}$ computing power);
- The time complexity of adding, deleting or changing key-value pairs is logarithmic.

MPT provides MERGE with an efficient, easily updated fingerprint that represents the entire state tree.

3) RLP coding

RLP is intended to be a highly simplified serialization format whose sole purpose is to store nested byte arrays. Unlike existing solutions such as protobuf BSON, RLP does not define any specified data type - such as Boolean, float, double, or integer. It simply stores the structure as a nested array and leaves it up to the protocol to determine what the array means. The RLP also does not explicitly support map collections, and semi-official recommendations are to adopt `[[k1, v1], [k2, v2], ...]` To represent the set of key-value pairs `-k1, k2...`. Sort by the standard string.

A scheme that has the same functionality as RLP is protobuf or BSON, which are algorithms that are used all the time. However, we prefer to use RLP because:

- It is easy to implement;
- Byte consistency is absolutely guaranteed.

4.3 Consensus mechanism

As one of the cornerstones of blockchain, fast and irreversible is our focus. In addition, in order to better build ecological chain, we believe that fairness is equally important, if the big capital can easily occupy the public chain block consensus discourse, then there will be a lot of public chain on the interests of the developers and users without damaged, a cannot protect the interests of the chain builders of ecological, it is difficult to precipitate the depth of value, and MERGE design principle. Therefore, when designing the consensus algorithm, we will pursue fairness as much as possible to safeguard the interests of the public chain builders under the condition of ensuring fast and irreversible priority. The consensus of MERGE is the POD consensus algorithm mechanism.

1) The new block is produced

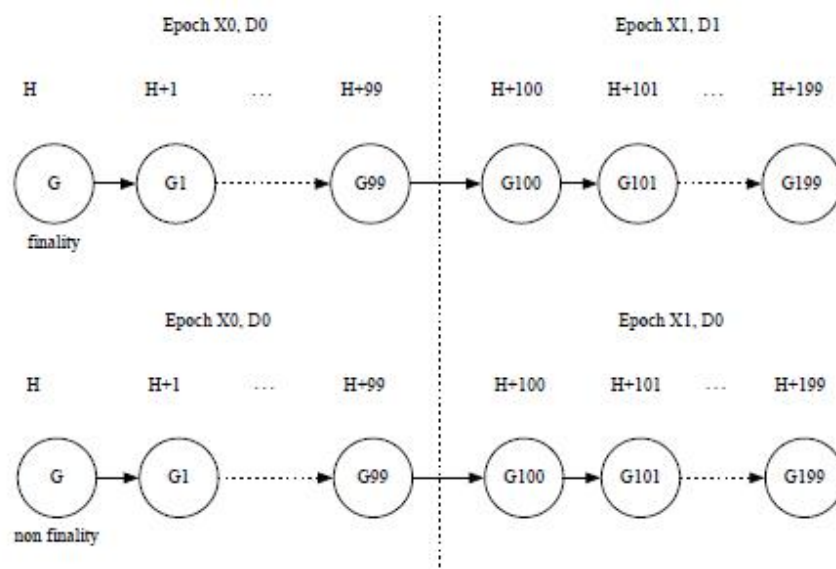
Similar to the PoI consensus algorithm selecting accounts with high importance, PoD will select accounts with high contribution in the ecology. The difference is that PoD gives the selected accounts the accounting right of equal probability to participate in the generation of new blocks (block) to prevent probability tilt derivative monopoly.

When selecting accounts with high contribution, we used the MERGE native universal value scaling evaluation. In the algorithm design, the liquidity and transmission of the account are emphasized. (we believe that the account satisfying these properties contributes more highly to the ecological construction. Therefore, in PoD, after some accounts voluntarily pay a certain amount of USDT as a deposit, they are eligible to be the verifier (validator) of the new block and participate in the bookkeeping.

After a given set of verifiers (validatorsset), the PoD algorithm determines who is the proposer (proposer) of the new block by pseudo-random numbers, and the proposer produces the new block. The verifier set is not fixed, and eligible accounts can choose to join or exit the verifier set, and eligible accounts will vary as periodic MERGE incubation cornerstone holdings change. So we designed the dynamic change mechanism of verifier set in PoD to realize the change of verifier set.

2) verifier set change

The change of the verifier set is like the change of the dynasty, so we divide the verifier set according to the dynasty, and the verifier set does not change within a dynasty. A dynasty cannot change too fast, at least for a period of time, so we define each X block as an Epoch, and there will not change in the same Epoch dynasty. Therefore, the change of dynasties will only occur during the handover of Epoch, when the first block of the previous Epoch will be examined. If this block reaches the finality state, then the current Epoch will enter the next dynasty D1, otherwise the D0 of the previous dynasty will remain unchanged, as shown in the figure below.



Due to the network delay, each node may see whether the state of block G finality is inconsistent during the dynasty changes, so referring to the dynamic verification set strategy of Casper, the consensus process of each dynasty will be completed by the set of verifiers of the current dynasty and the previous dynasty. Therefore, in any dynasty, qualified accounts can only apply to join or withdraw from the collection of verifiers of $D + 2$ dynasties, and only when the dynasty changes to $D + 2$, can they join the consensus process of new blocks.

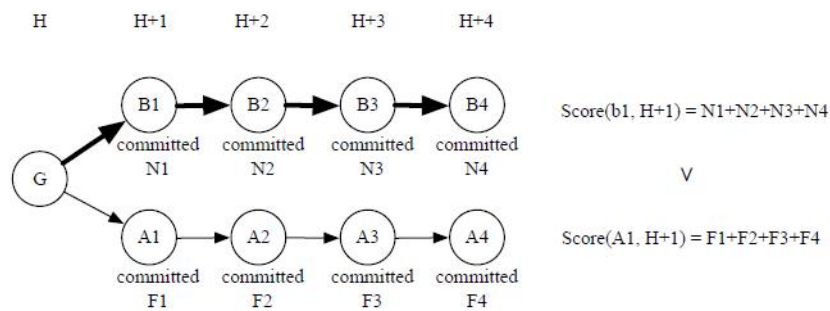
3) Fork selection

The PoD algorithm selects the chain of authority with the score of each block at

height, always selects the block with the highest score to join the chain of authority, and the score of block b at height h is as follows,

$$Score(b, h) = \sum_{(b', h') \in children(b)} Score(b', h') + \sum committed\ deposit\ in\ b$$

This is the sum of the deposit corresponding to the commit tickets received by the block and all of its descendant blocks



4) Voting rules

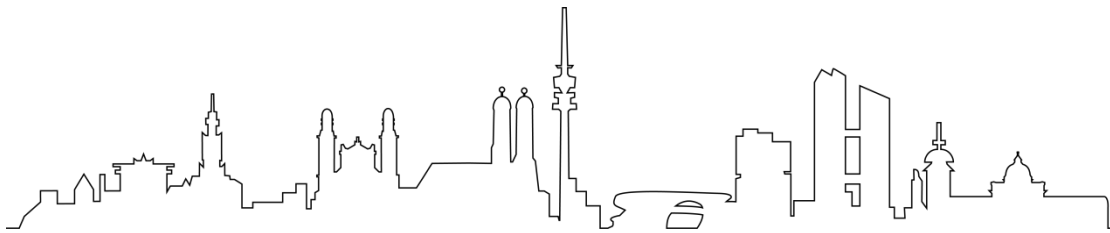
In order to prevent the consensus process from being maliciously destroyed, resulting in the failure to complete the consensus process and hindering ecological development, PoD constrains the verifier's consensus activities by referring to Casper's minimum penalty rule.

Assume the Prepare and Commit vote structure in the consensus process: Prepare($H; v; v_s$), where H is the hash of the current block, v is the height of the current block, and v_s is the height Commit of an ancestor block of v ($H; v$), where H is the hash of the current block and v is the height of the current block.

The PoD algorithm sets the following four basic rules for the entire voting process:

The two-stage consensus process of a single block has a strict sequence, and only after the first stage Prepare($H; v; v_s$) After the total vote weight reaches 2/3, the verifiers can cast the second stage Commit($H; v$) Tickets,

- Multiple blocks are not forced to start the consensus after the end of one block, allowing interwoven consensus, but not completely disorderly, only highly vs completed the first stage of the process, with 2/3 of the Prepare(Hanc; vs; After vs'), you can cast Prepare(H; v; vs) votes, guaranteed to weave steadily forward
- In order to prevent nodes from maliciously using interleaved consensus to vote across multiple blocks, Prepare(H; w; After the u) vote, no further Commit(H; v) Vote to ensure the efficient and orderly consensus process
- To prevent nodes from placing bets on multiple branches with the same deposit at the same time, resulting in nothingatstake problems, Prepare(H1; v; vs1) After voting, you cannot cast a different Prepare(H2; v; vs2) ticket violators will be reported and verified, all deposits will be forfeited, whistleblowers will share 4% of the fine as a reward, and the rest of the fine will be destroyed.



4.4 Security encryption algorithm

MERGE selects an encryption mechanism that meets international standards and encrypts various data. The payment data and transaction information between users can only be viewed by both parties of the transaction and users with corresponding rights.

1) privatekey

Non-public, is a random number of 256 bits, kept by the user and not open to the public. The private key is usually randomly generated by the system, which is the only proof of the user's right to use the account and the ownership of the assets in the account. Its effective bit length is large enough, so it is impossible to be

breached, and there is no security risk.

2) publickey

Publicavailable, each private key has a public key that matches it. The ECC public key can be generated by the private key through a one-way, deterministic algorithm. The current commonly used solutions include: secp256r1 (international general standard) and secp256k1 (Bitcoin standard). The MERGE control chain and the initial data chain select secp256r1 as the key scheme.

3) encryption

MERGE through the non-symmetrical encryption digital signature technology, the service request is not tampered with in the transmission process, and the data of each node is consistent through the consensus mechanism. For the stored data records, they are verified by the self-verification system and quasi-real-time multi-node system in the node to ensure that the stored data records can not be tampered with.

The self-verification of nodes refers to that MRGE uses the block chain structure to store data records, where tampering with the data will destroy the integrity of the block chain structure, and the system can quickly check out and recover the data from other nodes. In addition, each accounting node of MERGE has its own private key, and the signature of the private key of the node is recorded in each block. The modification of the data in the block can be verified by the signature.

The on-time multi-node data verification is that when the private key of the node is stolen, it is possible for malicious users to modify all the data on the ledger chain. MERGE provides an on-time multi-node data comparison mechanism, which can find that the ledger data of a node is tampered in time.

4.5 P2P protocol

On MERGE, each node (client) uses P2P protocol for message broadcast interaction. For MERGE's data block, the P2P protocol adopted is the standard cryptocurrency protocol, and the core feature of the protocol is the introduction of

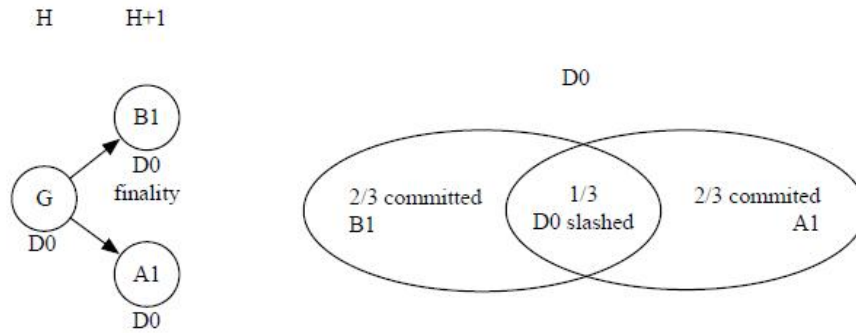
the "ghost" protocol. MERGE's control blocks use standard P2P protocols and do not support ghost protocols. Clients usually work in a daemon state. In this state, the work performed by the client includes:

- Call network daemons to maintain connections and send messages regularly;
- Obtain the current block information and associated block information;
- Obtain industrial manufacturing parameters, analyze industrial manufacturing parameters according to the standard model, and determine whether to submit updated parameters.

4.6 Malicious attack prevention and punishment mechanism

Each block at a height in PoD has a consensus expiration date, and if a height exceeds 100 from the latest height, all blocks of that height will be considered expired during the consensus process, then all new consensus activities on those blocks will be directly ignored. Therefore, it is impossible to complete several long range attacks (long-rangeattack) in PoD, but there is still the possibility of launching a short rangeattack within the shelf life. The short-range attacker Attacker tries to forge the A chain to replace the B chain and become the authority chain when the high $H + 1$ block has not expired. The Attacker needs to make the block A1 score higher than the B1.

Since multiple shots will be severely punished, Attacker will inevitably bribe the verifier, otherwise it cannot complete the short-range attack. To demonstrate the security of the PoD consensus algorithm, the following analyzes the cost of Attacker to disable different numbers of blocks.

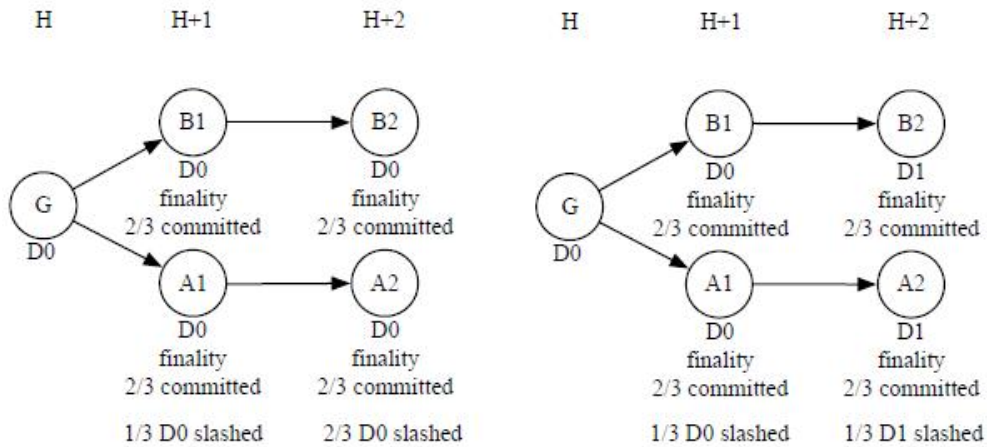


If Attacker wants to fail B1, the minimum cost is quite a double payment attack, Attacker is lucky to become the $H + 1$ height block proposer, then at least need to bribe $1 / 3$ of the verifier in Dynasty D0 to make A1 to finality, the minimum cost is $1 / 3$ of all deposits. If Attacker wants to void B1-B2, assuming that both B1 and B2 have reached finality and the transactions in the block are effective, in order to void these transactions, two cases are considered here.

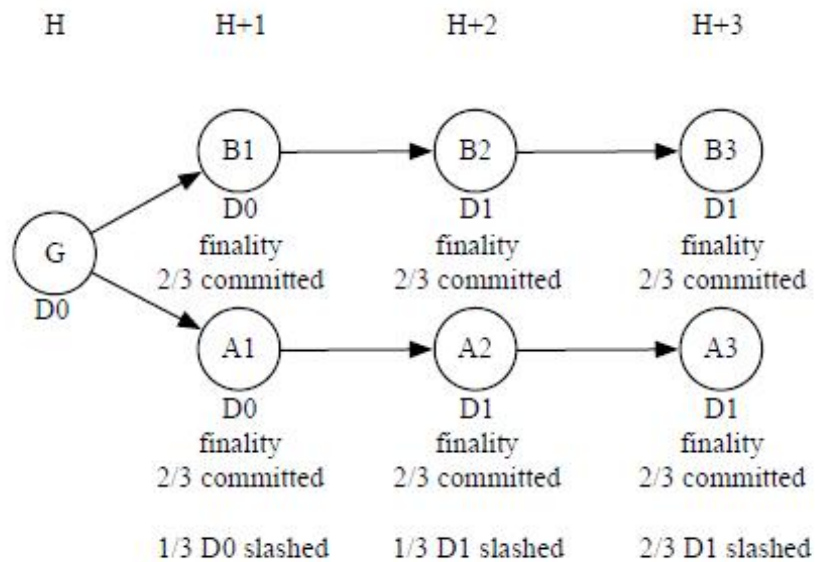
The first one is shown in the figure below, height $H + 1$ and $H + 2$ in the same Epoch, the same dynasty, so Attacker first needs to bribe one third of the verifier in D0 to make A1 to finality, then this third of the verifier will be punished and the deposit will be punished.

In the verification of A2, the total overall deposit is only $2 / 3$ of A1. At this time, if Attacker wants to make A2 reach the committ ticket with the same value as B2, it needs to bribe all the remaining verifiers without cheating, which requires at least $3 / 3$ of the total deposit. Even so, A1 score is higher than B1, and the risk of attack failure is high.

In the second case, as shown in the figure below, the height $H + 1$ and $H + 2$ are exactly in different Epoch, and the dynasties are different, so Attacker needs to bribe $1 / 3$ of D0 to make A1 reach finality, and then bribe $1 / 3$ of D1 to make A2 reach finality. One such an attack requires at least $2 / 3$ of the total deposit. In conclusion, launching a short-range attack that leads to the failure of two finality blocks costs at least two-thirds of the total deposit.



If Attacker wants to fail B1-B3, as shown in the figure below, Attacker first needs to bribe a third of D0 to complete finality of A1, then bribe a third of D1 to complete finality of A2, and finally needs to bribe all of D1 to complete finality of A3, losing at least $4/3$ of the total deposit. It will be difficult to complete these attacks, and even if you are lucky enough to do it, the A1 may score higher than the B1, and the attack may fail.



4.7 Risk control of the payment systems

Both blockchain and the circulation and payment of cryptocurrency are in a very early stage, so in order to realize the secure development of the project, MERGE provides complete risk control solutions.

1) System risk control

- Database read/write separation mechanism: In the initial stage, system risk control generally ensures data synchronization and read/write separation between the database of the payment system and the risk control system through the establishment of database master/slave replication, read/write separation, Sharding and other mechanisms. System risk control generally only has the permission to read the required customer/account data and transaction payment data, so as to ensure the safety and reliability of account data.
- Cache/in-memory database mechanism: An efficient cache system is an effective measure to improve performance, and generally the mechanism will store frequently used data in a cache system such as Redis. For example, risk control rules, risk control case base, intermediate result set, black and white list, pre-processing results, transaction parameters, billing template, clearing and settlement rules, distribution rules and other data. For some high-frequency trading, based on performance considerations, memory databases will be used for storage (generally combined with SSD disks).
- RPC/SOA architecture: Reduce the coupling of trading systems and system risk control. In the initial case of fewer system services, the general use of RabbitMQ/ActiveMQ and other message-oriented middleware or RPC mode to realize the inter-system service invocation. When the number of system services increases and service governance issues arise, SOA middleware such as Dubbo is used to implement system service invocation.
- Compound Event Processing (CEP) : Real-time/quasi-real-time payment risk control, compared to purely rules-based processing, using the compound event processing (CEP) model has better performance and scalability.
-

2) Product risk control

The first stage of product risk control mainly focuses on the pre-market due diligence of the product, including the rationality test of historical data and parameters in the database, and the walking test of historical payment data or standardized derivatives and its market value to judge the rationality of its design.

The second stage of the product risk control focus on the stable operation stage, through all kinds of payment and financial products access standardization terms, in the form of smart contract set up time through the lock, all through the audit products online, in the form of block chain decentralized data on sales, form the financial product library. At this stage, investors can freely choose the products, and each product will not mislead the investors because of the artificial background. The instructions of all listed products are supported by the data generated after strict intelligent audit, and these data can not be changed or deleted forever.



Chapter 5: MERGE US LIMITED

5.1 Company profile

MERGE US LIMITED, the parent company of MERGE, is the world's leading one-stop financial technology service organization and an open platform providing full-capacity payment output, aiming to integrate new electronic payment services in countries and regions around the world and provide intelligent integrated payment services to merchants around the world. We are committed to providing secure and efficient digital global payment and Treasury management solutions to enterprise customers around the world.

At present, the company has branches in Hong Kong, Tokyo, Singapore, Jakarta and London, and at the same time, France, the United Arab Emirates, the United States, Australia and other regions are under construction, and a new global coverage of payment services network has been formed, which can help enterprises to carry out business in 130+ countries.

The core team of MERGE US LIMITED comes from Citibank, Royal Bank of Scotland, Canadian Imperial Bank, Google, Apple, Starbucks and other famous companies, with excellent academic background and rich experience in building financial products and digital platforms. The management team has more than 10 years of experience in wild card receipt and risk control, and the risk control, channel, customer service and sales teams have 5-15 years of experience in e-commerce, banking and payment related fields, and can provide customers with professional and high-quality cross-border payment solutions.

MERGE US LIMITED has been committed to helping businesses digitize global payments and provide them with more resources through highly adaptive Treasury management solutions, allowing them to focus on their core business and easily conduct global trade.

Since its inception, MERGE US LIMITED has maintained strategic relationships with Visa, MasterCard, American Express, JCB and Discover card organizations, supporting more than 140 transaction currencies and more than 240 international and local payment methods. With Visa PF, MasterCard PF, American Express PA, JCB,

Discover contracting agency and other qualifications.

MERGE US LIMITED does not forget the original intention, keep in mind the mission, continue to carry out bold exploration of technology, products and services, concept, management, system, business model, profit model and other aspects, unremitting innovation, and strive to become a global service cross-border acquisition brand. Open and inclusive, respecting differences and encouraging every employee to reach their true potential make MERGE US LIMITED a rich and diverse company offering more personalized, innovative and efficient collection solutions for global cross-border commerce.

5.2 Company business sector

1) International payment

MERGE US LIMITED connects directly to the global payment network to optimize timing, cost and payment methods. With high quality service level and continuous service innovation for many years, it has increasingly become one of the world's most intimate financial companies. MERGE US LIMITED International Payment benefits:

- Global Payment network: Seamless access to a global payment network in 130+ countries;
- Flexible payment methods: full payment is supported, and different payment methods can be flexibly selected according to customer needs;
- Local settlement network: covering Hong Kong, the United States, Europe, the United Kingdom, Southeast Asia, Japan and other countries and regions;
- Reduce payment costs: Access to the global clearing network, provide lower fees and better exchange rates, effectively reduce payment costs, intelligent routing automatically matches better payment paths, and efficiently complete payment;
- Accelerate the speed of funds to the account: greatly shorten the cross-border capital flow link, the fastest to achieve instantaneous arrival. Make full use of the local clearing and settlement network, so that the funds enjoy fast arrival;

- Ensure transaction security and compliance: Obtain payment licenses and qualifications from many countries and regions such as the UK, the US, Singapore, Japan and Indonesia, and access WORLD-CHECK for blacklist screening to ensure clients' funds safety and transaction compliance.

2) Global collection

MERGE US LIMITED's "Global Collection" business can meet the diverse collection needs of enterprises in different formats:

- Multi-currency: mainstream currencies such as US dollar, British pound, Euro and small currencies such as Indonesian rupiah and Thai baht;
- Multiple scenarios: Support B2B trade exports, mainstream cross-border e-commerce platforms and independent stations;
- Enterprise account: you can open an account with the same name for the enterprise, and you can create multiple accounts at the same time;
- Global local collection accounts: covering Hong Kong, the United States, Europe, Indonesia, Japan and other countries and regions.

MERGE US LIMITED has a global network of partner banks, which effectively reduces enterprise costs with more competitive fee rates, and has local collection capabilities in many mainstream countries and regions to complete global collection faster and cheaper. Support 7*24 hours operation withdrawal, the fastest real-time account, according to user needs, flexible choice of currency, amount, account subject, etc. In addition, the self-developed powerful technology engine supports the whole collection process, providing a safe and timely response. Direct access to mainstream e-commerce platforms, powerful data synchronization mechanism, one step to obtain order data, automatic synchronization.

3) Life service

MERGE US LIMITED provides individuals with a series of convenient life services such as money transfer, phone charge recharge, utility bill payment, etc., creating a discount business circle around users, allowing individual users to enjoy various benefits and convenience brought by financial technology.

For example, MERGE US LIMITED is a cash register and management solution

for the life services industry that can be used to: Car service, shopping card, medical examination/dental, clothing/leather goods washing and care, training courses, mirror, wedding photography, other photography, personality photo, photo printing, parent-child photography, mother and child, hair acne, beauty makeup, beauty body, nail beauty, yoga dance, Korean makeup, slimming, other life. On this basis, we will enrich and improve the big data service platform that integrates data collection, analysis and application, dig deep into the value of data, provide more diversified big data extension services for service subjects, and create more value.

4) Payment technology solutions

MERGE US LIMITED also provides payment technology application solutions for merchant users:

Merchant Solutions: Providing payment technology and software solutions to a global customer base. Offers a variety of value-added services, including professional POS solutions, analytics and engagement tools, payroll services, and reports that help customers drive demand.

Card issuer solutions: Enable financial service providers to manage their card portfolios, reduce technical complexity and overhead, and provide a seamless experience for cardholders on a single platform. It also offers business payments and electronic accounts payable solutions that support B2B payment processes.

Business and consumer solutions: Universal reloadable prepaid debit and payroll cards, demand accounts and other financial services solutions for underbanked and other consumers and businesses through an unsecured lending system.

- **Cross-border financial services:** For merchants in the overall upstream and downstream links of cross-border business, to provide rapid settlement of funds, turnover, credit, financial management and other comprehensive financial services. For example, it provides optimal interest rate credit loans for small and medium-sized enterprises, and supports flexible credit for a variety of targets based on collection, credit and mortgage. Diversified global investment and financial products to meet the different value-added needs of funds.

5.3 Investments in the blockchain sector

In addition to traditional payments, MERGE US LIMITED has been in blockchain and crypto digital for years. The current business system involved includes:

1) Distributed finance

MERGE US LIMITED is one of the first companies to study the application of blockchain technology in the financial sector, and is far ahead in the field of distributed finance. The general public will have the opportunity to enjoy the financial value contained in their financial assets, and financial business users will also have the opportunity to enjoy services at a lower cost, and the operation efficiency of the entire financial system will be greatly improved, while the cost will be greatly reduced.

2) Digital transactions

MERGE US LIMITED has participated in or independently developed the digital currency business system, which has served more than 200,000 users in more than 80 countries around the world. MERGE US LIMITED's digital currency exchanges provide digital currency storage and trading for users around the world. MERGE US LIMITED's related projects of digital currency storage and exchange, can achieve the unified management of multiple blockchain assets, one-stop management, decentralized services, multiple security, multi-language support functions.

3) Digital currency cross-border payments

MERGE US LIMITED has been continuously investing, supporting and incubating related projects in the field of digital currency cross-border payments. Cooperated with IDG Capital to successfully implement a number of payment-related projects. MERGE US LIMITED continues to drive the borderless flow of value and is committed to making cross-border payments more efficient, convenient and secure. MERGE is a project that companies are working hard on.

4) Application of digital asset technology

MERGE US LIMITED is committed to promoting the creation of a third blockchain ecosystem beyond Bitcoin and Ethereum, and expanding the

application and technical boundaries of blockchain technology so that ordinary Internet users can feel the value of blockchain technology.

At present, MERGE US LIMITED is transforming the traditional payment service model, introducing blockchain and cryptocurrency, creating a global barrier-free balance value-added service and demand fund management service product supported by blockchain technology - MERGE, and has carried out a series of innovations in blockchain technology and concept.



Chapter 6: Global Team and Development

6.1 Global team

The MERGE team brings together experts from all over the world in blockchain, transactions, payments, finance, digital currency, wallets, e-commerce and more:

Algernon -- used to be a famous blockchain software development engineer, responsible for the cross-platform transplantation of mining algorithms and mining machine software development management of Bitcoin, ETH and other virtual currencies. Algernon has extensive industry experience in the technical architecture of virtual currency wallets and virtual digital exchanges.

Bradley's research focuses on big data parallel computing and distributed algorithm optimization, and has extensive research experience in blockchain, cryptography, and data mining. Bradley will provide in-depth algorithm support for the project at the level of blockchain core mathematical model, artificial intelligence core algorithm and big data parallel computing.

Chapman -- M.S. and Ph.D. in Electrical Engineering and Computer Science from Columbia University. The research involves data mining, business travel data and algorithm optimization. Responsible for the construction and optimization of project artificial intelligence algorithm.

Nicolaw - He has a deep understanding of blockchain based digital currency mining design optimization, transaction algorithm hardware and other aspects. At present, I am responsible for the formulation of complex algorithms and the testing and calculation of platform rules.

Donahue, a blockchain and 5G technology expert, has long been engaged in large-scale systems engineering development and works for top international companies such as Qualcomm. Visiting Professor of Data Engineering at Columbia University and well-known scholar of blockchain.

Wesley is proficient in the principle and implementation of mainstream blockchain technology such as Bitcoin, Ethereum, HyperLedger, and has a deep understanding and rich practice of blockchain consensus mechanism, smart contract, cross-chain technology, side chain technology, privacy protection, etc.

Brian Bright is a former Airbnb engineer with a PhD in computer engineering from Yale University. During his tenure at Airbnb, he participated in the core technology development and platform architecture of many agricultural projects, and has professional technical level and rich operational experience. During his doctoral study at Yale University, he began to engage in project operation, and the platform he built was recognized by Google and was fully acquired.

Asiff Hirji - Asif was born in Washington, D.C., to a German family. He holds a bachelor's degree in economics from Harvard University. He received his MBA from Harvard Business School in 1995. In 2001, Asif joined Microsoft, where he later served as vice president of Internet sales. In March 2008, he joined Google in key operational roles.

Srinivasan - Over the past 20 years, his career has spanned both academia and business as a blockchain technology researcher, engineer and leader. He held various engineering management positions at Google and mobile advertising company AdMob. In addition, he is an advisor to several Silicon Valley startups and an active angel investor.

Richard Dobrow - an American blockchain technologist who graduated from Virginia Tech in 2002 with a PhD in computing. He worked at IBM Computer Research Center. Through the paper "New Direction of Cryptography" to contact with digital cryptography, through asymmetric encryption, elliptic curve algorithm and other means to verify the feasibility of distributed ledger books. He has been involved in the design of more than 10 digital currencies and discovered several security vulnerabilities, and is a well-known and trusted member of the digital currency community.

Karina Dalmás - has over 3 years of experience in major software and game development in Singapore. He entered the Ethereum world 2 years ago and currently leads a team programming in Solidity, Python, C/C++ and C# languages, leading more than 10 people to write the blockchain source code for the project.

Justin Drake - Advises crypto companies, crypto startups, venture capital funds and international decision makers on blockchain solutions. Director of the Private Investment Fund Institute (PIFI). He previously worked with Cravath, Swain & Moore LLP (New York) and Goldman Sachs (London). Currently working as a financial operations consultant, MERGE's 30 years of experience in the financial industry helps Merge understand the real needs of users.

6.2 Strategic cooperation

MERGE takes pride in working with the best talent in the industry. We have significant long-term partners specializing in online banking solutions, statutory gateways, blockchain development, and dApps. MERGE also has servers hosted by Amazon Web Servers, dedicated nodes provided by Fasnode and CoinMarketCap Developers API. Meanwhile, MERGE has top partners in the world:

Platform partner



1) Global Community Cooperation

As a community-driven versatility platform, MERGE genes bring in decentralized values. At present, our partners are all over the world, especially in the community field, very influential, we will promote through the community channels.

2) Top Media Collaboration

With the launch of the MERGE community, we will also launch in the global media. For example, Deutsche Finance, The Wall Street Journal, Yahoo Finance, Google News, Bloomberg and so on.

3) Exchange cooperation

MERGE has reached a cooperation with Binance, and in the future, it will continue to cooperate with major international top exchanges, such as coinbase, pancake, Huobi, Oeas, etc., to share the publicity channels of the exchanges.

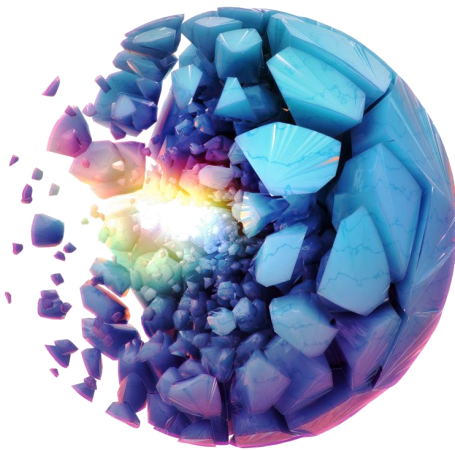
4) Strategic cooperation

MERGE top applications have reached strategic cooperation: BlueMove, PancakeSwap, PONTEM, APTOS, BINANCE, CoinMarketCap, crypto.com, coinbase, CoinGecko, nomics.

6.3 Compliance exploration

MERGE has nearly 100 security personnel, including a senior person in assessing peripheral risks and a PhD in cryptography for cryptographic attack analysis. MERGE also has nearly 100 compliance personnel who sort through money laundering by checking transactions. In addition, MERGE has also conducted extensive cooperation with law enforcement agencies. Follow strict authentication procedures to comply with regulations such as KYC (Know customers) and AML (anti-money laundering), and to track and monitor crypto assets sent to and from its websites.

MERGE has established a project Review committee composed of well-known institutions and professionals. The committee has multiple functional departments, and at the same time, MERGE introduces an authoritative third-party rating agency to independently review the compliance risks existing in the project. The third-party authorities should participate together to ensure that the review results are true, objective, reasonable and credible. In order to ensure the safety of user investment and income security.



Chapter 7: Disclaimer

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