Bytewallets White Paper

A global barrier-free payment system based on blockchain technology.

ByteWallets • 2024

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Chapter 1: Blockchain Technology and Global Payment Applications

1.1 Introduction to the Payment Industry

Payment transactions are the foundation of socioeconomic activities, primarily managed by banks and regulated by banking regulatory authorities such as the China Banking and Insurance Regulatory Commission. With the rapid evolution of information technology, the proliferation of mobile payment scenarios, and the increasing frequency of small-value offline transactions, various payment and settlement scenarios and terminal demands have witnessed rapid growth. The traditional banking system is increasingly unable to cope with the growing demand for payments. Third-party payment providers complement traditional financial institutions by handling a large number of small-value, high-frequency payment settlement needs, offering customers more convenient and personalized payment services.

The market size of third-party payments has grown rapidly from 16.9 trillion yuan in 2013 to 200 trillion yuan in 2023, representing a tenfold increase in transaction volume, with a compound annual growth rate of over 80% in the past three years. It is expected to reach a market size of 400 trillion yuan by 2025, with sustained high growth over the next three years.

After over a decade of industry development, the rise of Internet and mobile payments has further propelled the third-party payment industry, surpassing trillion yuan transaction scales. This emergence has significantly ameliorated traditional banking issues like high remittance fees and slow arrival times.

Traditionally, third-party payment encompasses online payments, mobile payments, bank card acquiring businesses, cross-border e-commerce, and more. Third-party entities, as non-financial institutions, establish payment settlement channels between banks, merchants, and users. On one hand, they sign agreements with banks, constructing data exchange and information transmission networks. On the other hand, they connect merchants, integrate users, gradually forming transaction-centered platforms, and establish fast, convenient, and effective

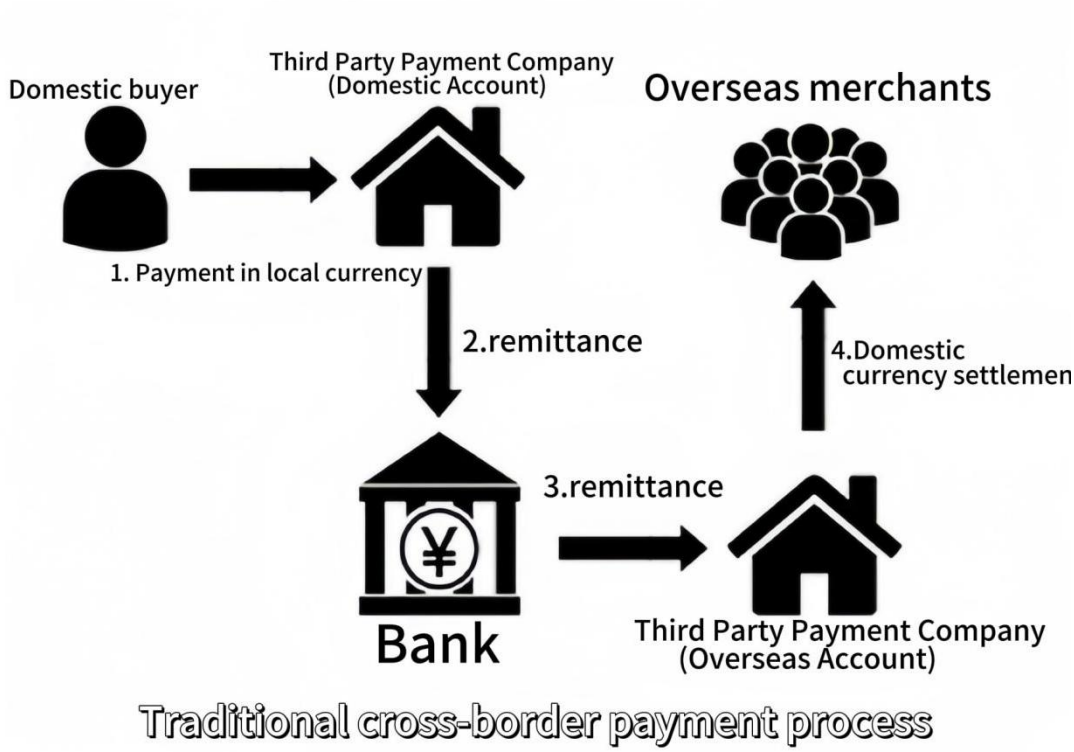
transaction settlement services.

Currently, the third-party payment market has become the most mature industry in the Internet finance sector and is widely used as a basic service in various scenarios. Payment serves as a crucial node in transaction activities for both information and fund flows. Controlling payment means controlling the entrance to traffic. For Internet companies, traffic brings users, data, and capital flow, constituting the core competitiveness in the era of the Internet of Everything. For blockchain companies, importing traffic activates the application scenarios of encrypted digital currencies. In the early stages of blockchain development, mastering payment terminals means controlling channel access.

Although third-party payments have made significant progress compared to the banking clearing and settlement system, they are still based on the banking clearing and settlement system and inherit many shortcomings. The traditional banking clearing and settlement systems still have many problems that urgently need to be addressed. Using cross-border payments as an example, we can clearly see the core issues at hand.

(1) Low Efficiency

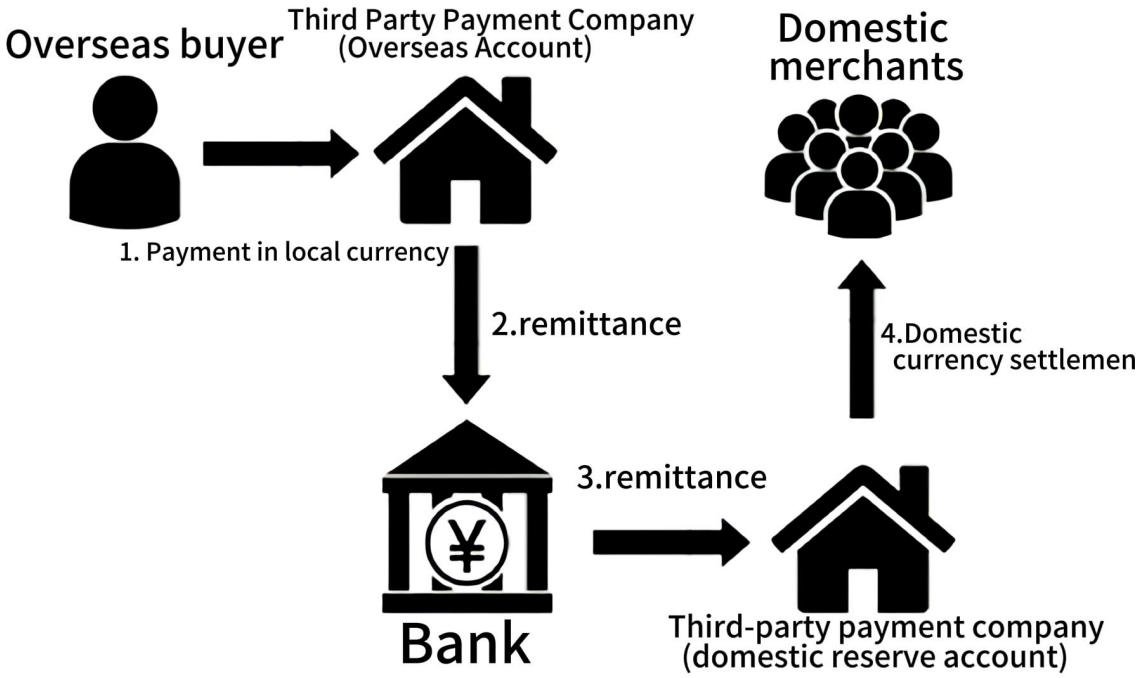
In the traditional cross-border payment model, banks typically batch process payment transactions at the end of the day, often taking at least 24 hours to complete a single cross-border payment. Additionally, in traditional payment models, interbank reconciliation requires manual intervention, further consuming time.



Traditional cross-border payment process

(2) High Costs

In the traditional cross-border payment model, there are four cost components: payment processing costs, receiving fees, financial operational costs, and reconciliation costs. According to the World Economic Forum report "The Future of Financial Infrastructure," the remittance fee for the remitter is typically 7.68% of the remittance amount. The average cost for a bank to complete a cross-border payment using correspondent banks ranges from $25 to $35. This cost is more than 10 times higher than using an Automated Clearing House (ACH) for settlement, using Japan as an example.



Traditional capital entry process

(3) Poor Liquidity

In the traditional cross-border payment model, banks need to maintain liquidity by holding multiple currencies in bank accounts, known as "nostro accounts." Because remitting banks cannot predict exactly when correspondent banks will confirm their transfer information, they must hold a certain amount of foreign currency in nostro accounts.

(4) Force Majeure Factors

Due to external force majeure factors such as changes in policies or wars affecting a country's currency, there is a high likelihood of losing trust and endorsement, leading to currency devaluation and circulation issues. Additionally, not all banks in the traditional cross-border payment model can join SWIFT, or joining SWIFT may not be economical.

The emergence of blockchain technology has had a significant impact on the trillion-dollar payment industry. Theoretical and practical developments in network

payments, mobile payments, and even smaller and more frequent M2M (machine-to-machine) payments are shifting towards decentralized network payment systems. Payment methods based on blockchain technology have become a hot topic and focus of current research. At the same time, cryptocurrencies born on the basis of blockchain technology have brought about powerful changes in the transformation of payment models.

1.2 Blockchain and Token Economy

Over the past 40 years, the Internet has introduced new phenomena and concepts such as email, web companies, social media, mobile networks, big data, cloud computing, and the Internet of Things, significantly reducing the cost of searching, collaborating, and exchanging information, as well as lowering barriers to entry in various fields. This has fostered the emergence of industries such as new media, entertainment, and retail, while also giving rise to new organizational structures and unprecedented digital business models.

In 2008, Satoshi Nakamoto first released a peer-to-peer cash system and its underlying protocol—Bitcoin: the white paper "Bitcoin: A Peer-to-Peer Electronic Cash System," giving birth to Bitcoin. After more than a decade of development, the blockchain technology behind Bitcoin has gradually become known to more people and continues to evolve and innovate upon its foundation.

Thanks to the characteristics and advantages of blockchain technology: blockchain data structures verify and store data, consensus algorithms of distributed computer nodes generate and update data, cryptography ensures the security of data transmission and access, and smart contracts composed of self-executing script code program and operate data, forming a new distributed infrastructure and computing paradigm. Additionally, blockchain technology can establish reliable trust between peers in the network, enabling value transfer processes to break free from reliance on intermediaries, ensuring both transparency of information and protection of privacy, facilitating collective decision-making while safeguarding individual rights. This mechanism enhances the efficiency of value exchange and reduces costs.

The role blockchain plays in trust is akin to the role the internet plays in information. Leveraging its capabilities in enhancing transparency and protecting privacy, blockchain connects the deepest human need for "trust," paving the way towards a more equitable, efficient, and interconnected global business system. Blockchain technology holds immense potential and is poised to bring about significant changes to traditional commerce, the financial industry, government sectors, and human society as a whole. With the development of blockchain technology, the token economy based on blockchain's underlying technology is also flourishing rapidly. Blockchain enables the transition of the internet from "information" to "value," bringing two unique functional characteristics to the internet and the digital world:

- The first is the technical blockchain credit layer, used for "value transfer" in the digital world.

- The second is the economic token (Token), used for "value representation" in the digital world.

With the significant development of blockchain technology, especially the underlying public chains, various industries have been exploring and experimenting with blockchain applications, and the possibility of implementation

is gradually emerging. Currently, major application platforms and international top institutions are leveraging token incentives and governance functions based on the representation and transfer of value in blockchain. They are mobilizing various user groups and partners to transform internet platforms, aiming to construct a fair, just, and transparent decentralized value ecosystem.

However, current internet technology still cannot achieve peer-to-peer value transfer. Unlike the replicable nature of information transfer, value transfer requires ensuring the uniqueness of ownership. Therefore, the current transfer of value still relies on central institutions to undertake accounting functions. If the network itself could provide reliable accounting functions, it would make value transfer no longer completely dependent on central institutions, enabling peer-to-peer transfer of value.

With the support of blockchain's distributed ledger technology (DLT) and token economy models, participants can establish trust at the technical level. This has the potential to become the foundation for building a future network of freely circulating value, thereby forming the Internet of Value.

1.3 Value Applications of Blockchain

Through comparative analysis, research of typical application cases in various fields, and relevant reference literature, combined with our own research and application practices, we have gained some experience helpful for promoting the application of blockchain in business. Based on this, we recommend the following characteristic application scenarios or problems that should actively consider experimenting with blockchain technology:

(1) Business operations require cross-entity collaboration.

When it comes to developing IT systems for cross-entity business operations, traditional solutions typically follow two approaches. One is to establish and operate a centralized system to handle the business needs of all participants, with business data maintained by a centralized organization. The other approach is to adopt a Service-Oriented Architecture (SOA), where each participant publishes service interfaces for mutual invocation, with data still maintained by each participant.If a centralized approach is chosen, especially when the participants are relatively independent and equal, developing such a system becomes challenging, involving issues like coordination, project initiation, and cost allocation. On the other hand, adopting an SOA approach brings technical complexity and a lack of universality in technical solutions, making it difficult to support complex business scenarios. Additionally, from a data perspective, both centralized and SOA approaches struggle to achieve data tamper resistance.

In scenarios where business participants are relatively independent and equal in cross-entity business collaboration, leveraging the characteristics of blockchain such as shared data, tamper resistance, distributed ledger, and digital contracts can shift some of the problems that traditionally require business-level coordination to the technological level. This allows for a more efficient, flexible, and objective resolution process.

(2) Business operations require establishing low-cost trust among participants.

Most business operations require establishing a certain foundation of trust, especially in cross-entity scenarios. For applications where trust establishment is challenging and trust maintenance costs are high, blockchain can provide significant assistance. We will examine how blockchain can establish low-cost trust from three aspects:

- Data Trustworthiness: In traditional solutions, data is typically stored in a centralized manner, often held by dominant participants instead of being shared as it should be. In this model, data trustworthiness relies on the commercial or social credit of the data holder, ensuring only subjective trust. For some critical domains, additional costs are necessary to guard against the risk of malicious tampering. The blockchain solution combines cryptographic hashing and digital signatures to chain the historical changes of data in the form of a blockchain ledger, ensuring that all participants jointly own this data through consensus protocols. With multiple parties

holding identical data copies, each data is signed, and its "fingerprint" (hash value) is recorded, ensuring data cannot be tampered with using cryptographic techniques, making the data trustworthy. Blockchain decentralizes data ownership, achieving objective data trust through technical means.

•Contract Fulfillment: Traditional contract fulfillment is fundamentally guaranteed by law. Contracts are usually fulfilled voluntarily due to benefits, moral principles, or legal consequences, influenced by many subjective factors. In commercial activities, preventing breaches or pursuing breaches requires high costs. The essence of blockchain smart contracts is a set of digitally formed contracts, ensuring strict enforcement by computers. In terms of execution, traditional contracts are typically executed based on subjective human will after the fact, while smart contracts are promptly executed by computer programs once trigger conditions are met, possessing objectivity. Blockchain smart contracts bring about a new, more precise representation of "contracts" and a more objective, rigorous execution method. As contracts are the foundation of our social activities, this change will have broader social implications.

- Historically Verifiable: Blockchain solidifies transaction history and provides traceable queries for transaction history, ensuring transactions are tamper-proof and irrefutable. If an event, along with its timestamp, is recorded on the blockchain when it occurs, it can be proven in the future through the blockchain that the event indeed occurred at that time. Therefore, blockchain preserves trusted historical records for all parties involved in transactions.

(3) The business process involves long transactions and extended chain cycles.

The business encounters challenges in verifying the authenticity and validity of indirect parties' involvement and struggles to extend multi-level transactions due to business isolation among multiple entities. Blockchain technology ensures the authenticity of all participating entities, data integrity, and facilitates multi-level

trust propagation, thereby promoting the flattening of business chains and enhancing business efficiency. Bitcoin, as a typical application of blockchain technology, has achieved a market capitalization of billions of dollars in the trading market. Despite its high market value, this system has been running on public networks in an open-source manner for many years, demonstrating good security and robustness. The performance of the Bitcoin system reveals an important fact: objective blockchain technology can directly establish trust without the need for intermediary endorsement. If we widely apply blockchain technology to various industries, finance, and public services, it will lead to significant changes in the division of labor in society. These changes include:

- Business transactions are more likely to establish trust, reducing risks, and making transactions more certain.
- Intermediate steps in business transactions are reduced, allowing multi-party transactions to be directly concluded.
- The traditional centralized service model of intermediaries will undergo significant changes.

This impact is gradually becoming evident, and as blockchain matures and its applications become more diverse, this influence will gradually amplify and permeate throughout society like the butterfly effect, driving efficient collaboration and consensus decision-making among decentralized or multi-centralized entities. Human civilization has developed through the mastery of "tools," and we believe that blockchain is a new "tool" that will ultimately promote progress and development in human society.

1.4 Blockchain is Changing the Global Payment Landscape

(1) The shortcomings of traditional payment systems.

The traditional payment system relies on clearing centers for interbank data exchange in value transfer. With the development of internet finance, third-party payments (especially mobile payments) have experienced explosive growth, but

they still rely on centralized solutions for value transfer.

Centralized solutions rely on the endorsement of a company or government credit, consolidating all value transfer calculations on a central server (or cluster). Although all calculations are automated by programs, trust must be placed in this centralized entity. In fact, relying on the endorsement of centralized institutions to address credit issues confines credit within certain institutions, regions, or countries.

In the operational process of the traditional payment system, when Customer A of Bank A initiates a payment to Customer F of Bank C, it requires endorsement and clearing through intermediary institutions. Assuming Bank A does not have a clearing account with the central bank, Bank A must use Bank B as an agent bank. The payment between Bank B and Bank C is then settled through the central bank's clearing account. Finally, Customer F receives the transferred funds from Customer A. If cross-border payments are involved, the process becomes even more complex.

Currently, cross-border trade transactions and settlements rely on third-party intermediaries, involving the originating bank, central bank, and overseas banks (acting as agent banks or overseas branches). Each institution maintains its own ledger system, isolated from others, requiring the establishment of agency relationships and credit limits. Every transaction needs to be recorded by the originating bank, followed by clearing and reconciliation with the counterparty, resulting in slow transaction speeds and high costs. Many small and medium-sized enterprises, especially those in developing countries, bear disproportionately high costs for cross-border payments.

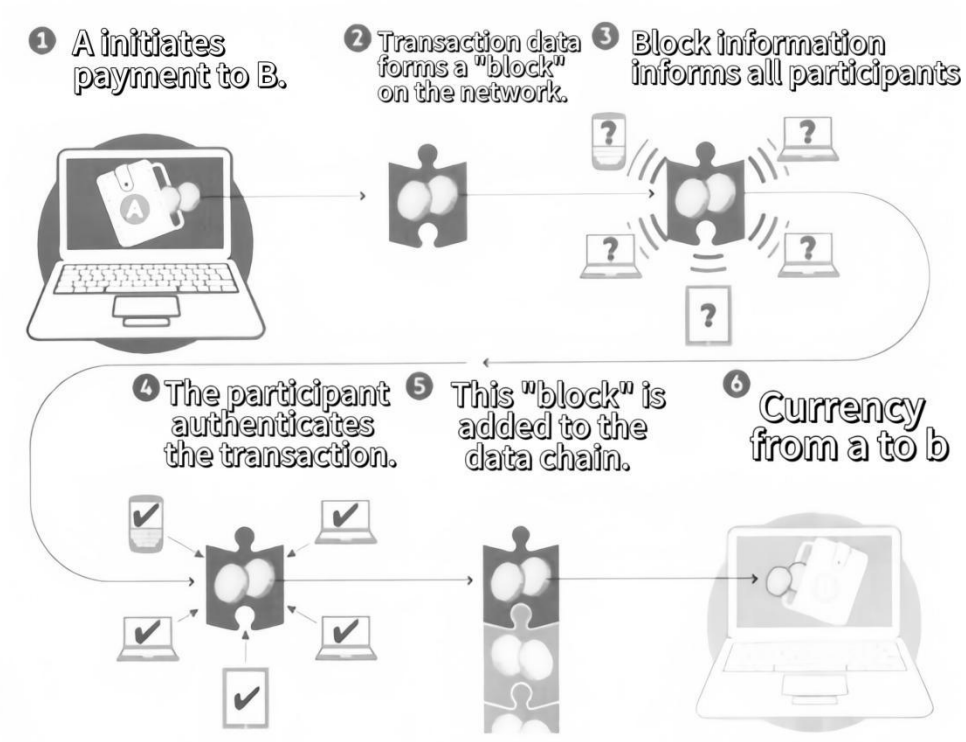
(2) Overcoming the limitations of internet-based value transfer.

The core problem that the Internet initially aimed to solve was the creation and transmission of information. However, it couldn't address the issue of value transfer, which involves accurately transferring a portion of value (including monetary assets, securities, financial derivatives, etc.) from one address to another in the network in a way that is universally recognized by everyone.

Blockchain technology has the potential to establish a "trust" ecosystem that meets the needs of economic activities in environments characterized by information asymmetry and uncertainty, thereby overcoming the limitations of value transfer on the Internet. While Bitcoin represents the initial application of

blockchain technology in the financial sector, if blockchain operates with fiat currency instead of Bitcoin, commercial banks can form alliances to establish payment private chains. In this setup, currency serves as a digital asset registered and transferred on the blockchain, not subject to the limitation of Bitcoin's seven transactions per second, enabling swift payment and settlement leveraging blockchain technology.

Payment Process Example Under Blockchain Technology:



(3) The Transformation of Payment Systems by Blockchain Technology:

Compared to traditional payment systems, blockchain payments involve direct data exchange between the two parties involved in the transaction, without the need for intermediaries. Even if part of the network experiences disruptions, it does not affect the overall system operation, greatly reducing the systemic risks associated with centralized payment methods. As illustrated in the diagram, completing a payment using blockchain technology does not require the involvement of any centralized institutions. Banks and customers in the market can establish a private chain to complete the payment process.

If A initiates a payment to B that exceeds their account balance, each participant in the distributed ledger possesses a copy of all historical payment data. Consequently, in step 4 of the diagram, the transaction won't receive validation from other participants. However, once a transaction is authenticated, the block representing that transaction becomes permanently added to the data chain and cannot be altered. The process of confirming transactions on the blockchain constitutes the clearing, settlement, and auditing process, which holds significant importance in streamlining financial institution business processes.

Based on blockchain technology, payment networks hold the promise of solving global payment issues securely, swiftly, and at a low cost. Trust is a challenge when it comes to information exchange. It involves creating a consensus mechanism for secure information exchange across the entire network, where any node cannot trust the communicating party without worrying about data tampering. Without any central authority for verification or endorsement, blockchain technology assists market participants in addressing trust issues. Blockchain utilizes algorithmic proof mechanisms to ensure the security of the entire network, enabling all nodes in the system to automatically and securely exchange data in a trustless environment.

By adopting blockchain technology, it becomes possible to achieve peer-to-peer real-time transactions, thereby eliminating the need for central nodes or clearinghouses. This helps businesses save 80% to 90% of transaction fees. Furthermore, since the authenticity of transaction data is verified by all nodes in the network and is immutable, the necessity of transaction intermediaries is eliminated, leading to reduced transaction costs. In addition to the aforementioned advantages, combining blockchain technology also allows for more fragmented payment methods. With lower fixed transaction costs associated with blockchain-based payment methods, it meets the increasingly flexible payment needs of users in the evolving landscape of both online and offline payment scenarios.

1.5 The Birth of ByteWallets

Comparing the development path of internet technology, we find that whether it's blockchain technology, digital payments themselves, or blockchain-based payment applications, they are all in the early stages of industry development with many directions worth exploring. Therefore, we aim to build a brand new blockchain payment ecosystem as an alternative internet value transmission protocol for the future world, advancing the usability of the entire blockchain industry further. Thus, ByteWallets has developed a global payment system based

on blockchain technology called ByteWallets and an accessible payment medium called the BWS token.

ByteWallets believes that for blockchain and digital currencies to have long-term development, they must be supported by a wider range of applications. Currently, with the deepening research in the blockchain field, especially in the exploration of smart contracts, there are gradually some product solutions combining with real economic life, seeking win-win cooperation on the enterprise side. However, truly landing and scaling usage is still scarce, and services for end-users are even more limited. Whether it's Bitcoin, Ethereum, or various tokens issued on smart contract platforms, only with more interaction with the real world can the value of digital currencies increase, thereby promoting the prosperity of the digital currency market and improving the efficiency of the real world.

ByteWallets has undertaken a series of innovations in technology and philosophy to address the pain points and challenges in the current payment field. By providing a comprehensive blockchain + multi-scenario application payment solution, ByteWallets aims to become a bridge between the blockchain world and the real business world. ByteWallets hopes to expand the application boundaries and technical boundaries of blockchain and payment systems, allowing ordinary Internet users to experience the value of blockchain technology and building a new ecosystem for developers and users based on blockchain + payment technology.

The underlying payment infrastructure of the "Blockchain + Digital Currency + Diversified Solutions" built by ByteWallets mainly includes:

- Building the underlying payment platform of the ByteWallets blockchain, providing blockchain support services for the digital economy.
- Providing blockchain + multi-industry application solutions, third parties can combine the actual situation of various industries to formulate reasonable blockchain application models and token issuance mechanisms.
- Creating the ByteWallets ecosystem, integrating payment industry assets, and realizing production-finance integration services.

In the future, ByteWallets will continue to expand the application boundaries and technical boundaries of blockchain and payment systems, enabling ordinary Internet users to experience the value of blockchain technology and building a new

ecosystem for developers and users based on blockchain + payment technology. A series of innovations have been made in technology and concepts, providing comprehensive payment solutions for blockchain + physical scene applications, making it expected to become a bridge between the blockchain world and the real business world.

Chapter 2: Overview of ByteWallets

2.1 Introduction to ByteWallets

ByteWallets is a technology company specializing in providing comprehensive digital asset payment solutions for enterprises. We utilize blockchain technology and intelligent payment systems to create secure and efficient payment services for businesses, promoting digital transformation and commercial development.

The core team of ByteWallets comes from renowned enterprises such as Citibank, Royal Bank of Scotland, Canadian Imperial Bank of Commerce, Google, and IBM, with outstanding academic backgrounds and rich experience in financial products and digital platform development. The management team has ten years of experience in banking, payment, finance, and risk control.

Currently, the company has established branches in Hong Kong, Tokyo, Singapore, Jakarta, and London. Simultaneously, subsidiaries in France, the United Arab Emirates, the United States, Australia, and other regions are under simultaneous construction. A global network of new payment services has taken shape, enabling businesses to operate in over 130 countries.

The design concept of ByteWallets is to build a multi-dimensional business interconnection payment platform. Through blockchain underlying technology, a comprehensive solution set is built on ByteWallets, using a unified digital currency (BWS) generated by blockchain technology for rewards.

- BWS Token Economy Solution
- Multi-Industry Interconnection Solution
- Digital Asset Trading and Circulation Ecosystem
- Global Cross-Scenario Solution Based on Blockchain Technology

- Global Seamless Cross-Chain Payment Solution

At ByteWallets, the fusion of blockchain and payment is innovatively applied at the underlying technology level. Blockchain technology is utilized to achieve peer-to-peer value transfer, and based on underlying communication protocols, a decentralized payment application ecosystem supporting multiple industries is constructed. This distributed computing storage can maximally protect the system from attacks and damages caused by failures, and the decentralized network structure can handle large concurrent data access in a short time, suitable for future development.

This provides three major development possibilities for the ByteWallets payment system:

- Peer-to-peer merchant payment solution: Customers recharge normally on the merchant platform, then transfer funds to the merchant through ByteWallets. The merchant exchanges the currency using the platform's built-in OTC function, and ultimately, the amount recharged by the customer will be credited to the merchant platform.

- Barrier-free payment solution: Supporting cross-scenario and cross-chain payments, customers purchase digital currency (such as BWS) using fiat currency, transfer it to their ByteWallets wallet, and then use cooperating payment institutions to pay merchants. The payment institution swiftly converts the customer's digital currency into the fiat currency of the merchant's location and pays it to the merchant in the middle.

- Third-party interface calls: In the form of payment interfaces, ByteWallets will provide payment services for global enterprises and business functional scenarios.

In the future, within various solutions and scenarios, when participants in ByteWallets make contributions to the ecosystem, the system will provide

corresponding reasonable rewards (Bytes) based on the calculation of the contribution mechanism. As a blockchain solution at the business application level, in the future, with the support of the company's strong capital, business network, core talents, and strategic partnerships globally, ByteWallets will form a diversified business matrix and token incentive ecosystem, laying a solid foundation for borderless and barrier-free value flow.

2.2 Design Principles

ByteWallets revolves around the core values driving the arrival of the Value Internet era (blockchain encrypted payments), with principle designs including:

(1) Principle of Value Transmission

ByteWallets is oriented towards value-driven outcomes, presenting a multi-dimensional model of blockchain payment applications and BWS token asset incentives. In this model, all participants are interconnected within the entire ecosystem, showcasing multi-dimensional value through different permutations

and combinations in industrial applications.

(2) Principle of Autonomy

We believe that decentralization should minimize external intervention and instead focus on maintaining the normal operation of the system. By decentralizing power among numerous entities, individual productivity can be further unleashed. If the internet liberated productivity, then decentralization further unleashes productivity by allowing consensus among individuals. Node autonomy is the rule that decentralization must follow.

(3) Principle of Sustainability

Information dissemination can create value by establishing a sustainable development by unlocking the intrinsic value chain of encrypted assets. This leads to the continuous emergence of new demands, the birth of new products and applications, and the continuous iteration of information, forming a virtuous cycle. The growth rate of information carriers does not depend on the starting point's height but on the number of iterations. With changing demands, the more iterations, the higher the system's maturity, influence, and value, making its intrinsic value chain more sustainable.

(4) Principle of Efficiency

Utilizing blockchain technology, ByteWallets employs dynamic sharding technology, fragmenting network nodes based on transaction characteristics and node resources. Each fragment node only processes transaction requests corresponding to its characteristics, thus improving transaction processing speed and TPS. To ensure the reliability of fragment nodes, sharding will adopt a dynamic mechanism, with fragment node members elected. In theory, dynamic sharding technology can enable payment systems to achieve processing capabilities of millions of TPS per second.

(5) Tokenization Principle

ByteWallets ensures fairness and credibility in various aspects such as node qualification elections, data accounting packaging, user service request access, distributed data processing, and distributed computing collaboration. It achieves decentralized token incentives in the network ecosystem from a mechanistic perspective.

ByteWallets aims to build a brand-new blockchain payment ecosystem as an optional Internet value transmission protocol for the future world. It aims to advance the usability and practicality of the entire blockchain industry further, integrating blockchain with traditional business applications and bringing this technology into people's daily lives. Additionally, ByteWallets will first penetrate target industries to gain market share and accumulate strong user support. Based on this foundation, it will gradually develop into a blockchain payment technology platform that is truly integrated with real-world business applications.

2.3Application Objectives

ByteWallets will gradually achieve the following goals:

- Build a convenient and efficient payment system: ByteWallets offers simple, secure, and efficient virtual currency collection services, enabling one-click collection and real-time settlement. All nodes in ByteWallets share the same ledger, and peer-to-peer payments between nodes are confirmed through consensus algorithms and broadcasted to all nodes. This eliminates the need for hierarchical account agent relationships between payment parties, facilitating peer-to-peer value transfer and making payments more

convenient and efficient.

- Improve payment processing efficiency: ByteWallets utilizes intelligent and blockchain technologies to automate and streamline payment processing, speeding up fund turnover. While the internet has significantly improved payment settlement efficiency, there are still limitations in multicurrency, cross-border, and multiple economic contract scenarios. ByteWallets' decentralization and peer-to-peer features can reduce intermediate links, lower costs, significantly enhance transaction efficiency, and establish a new payment settlement method to drive borderless value circulation.

- Reduce payment processing costs: ByteWallets optimizes payment processes, reduces labor costs and intermediate links, thus lowering enterprise payment costs and enhancing profitability. ByteWallets' peer-to-peer direct trading eliminates the reliance on traditional central finance for credit endorsement and accounting services, reducing payment costs.

- Achieve data transparency and regulatory compliance: ByteWallets utilizes blockchain technology to achieve real-time recording and traceability of payment data, meeting regulatory requirements and ensuring enterprise compliance. Through distributed ledger technology, each participating node can make complete backups of on-chain data, minimizing the possibility of payment data loss. Even if some node data is lost or damaged, it has no impact on the overall system operation, database integrity, or information updates.

- Provide diversified payment solutions: ByteWallets covers various payment methods such as digital currency and stablecoins to meet the payment needs of different industries and enterprises. It also offers instant payment functionality, enabling users to conduct payment transactions quickly and conveniently, with on-chain instant completion for time-saving efficiency. ByteWallets also features smart contract capabilities, automating the merchant settlement process for faster receipt of payments.

- Support enterprises in issuing their own tokens: ByteWallets provides a platform and services for enterprises to issue their own tokens, expanding their digital financial business, and enhancing brand influence and competitiveness.

2.4 Core Advantages

The advantages of ByteWallets payment system are evident:

•Security and Reliability: Utilizing advanced encryption technology and multi-factor authentication mechanisms to ensure the security of user assets and transaction reliability.

•Intelligence and Efficiency: Implementing automation and efficiency in payment processing through intelligent payment systems and smart contract technology.

• User-Friendly: Providing a simple and intuitive user interface and operational process to facilitate quick user adoption.

•Global Coverage: Supporting payment services worldwide, providing enterprises with cross-border payment solutions.

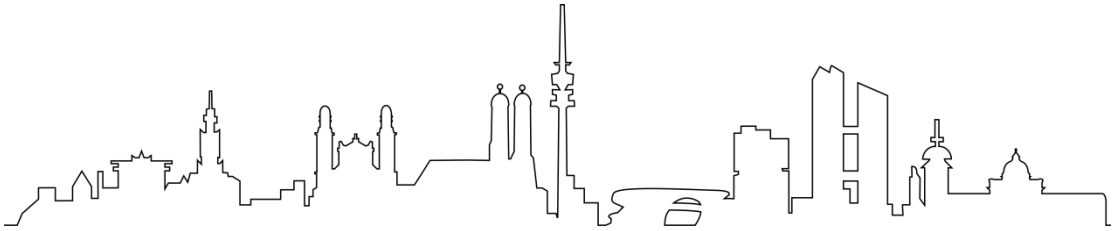
•Compliance and Regulation: Strict adherence to laws and regulations to ensure platform operation compliance and protect user rights.

In terms of application, ByteWallets offers different services and products for merchant and individual users. For merchant users, ByteWallets will provide a Commercial platform, enabling one-click access to ByteWallets and application payment solutions. For individual users, ByteWallets will offer a mobile DAPP wallet, communication modules encrypted with RSA algorithms, off-exchange guarantee transactions, and high-speed transactions, providing customized features for encrypted digital currency users.

In the incentivized scenario, when participants contribute to the development of ByteWallets, the system will provide corresponding fair rewards (BWS tokens) based on the calculation of the contribution mechanism. As a blockchain payment solution at the business application level, the ecosystem construction and transformation of third-party commercial institutions can also be addressed

through the application of ByteWallets.

ByteWallets perfectly inherits the characteristics and advantages of traditional payment technology and blockchain technology, while overcoming the current technological bottlenecks of blockchain. It truly integrates blockchain with business applications. Furthermore, ByteWallets vigorously and continuously invests in the research and innovation of business technology represented by blockchain, applying it to enhance the value of traditional industries and promote the vigorous development of blockchain technology in various industries. This aims to create a future blockchain payment ecosystem that benefits all parties involved.



Chapter 3: Functional Modules of ByteWallets Application

3.1 Wallet System

In the ByteWallets system, the wallet plays a crucial role. ByteWallets wallet can be used for storing, managing, and trading digital assets. Users not only have full control over their digital assets but also greatly reduce the threshold for using and managing cryptocurrencies, effectively promoting the flexible application of digital assets. In the future, transactions through ByteWallets wallet will become the primary payment method for global payment users.

The core value of the ByteWallets wallet is to implement and embody the authenticity and circulation power of digital assets, creating a more convenient and efficient way for individual users to achieve the authenticity and circulation of the global cryptocurrency industry. In our planning, any cryptocurrency that is in the ByteWallets wallet can be scanned for payment, and scanning is a secure address. It

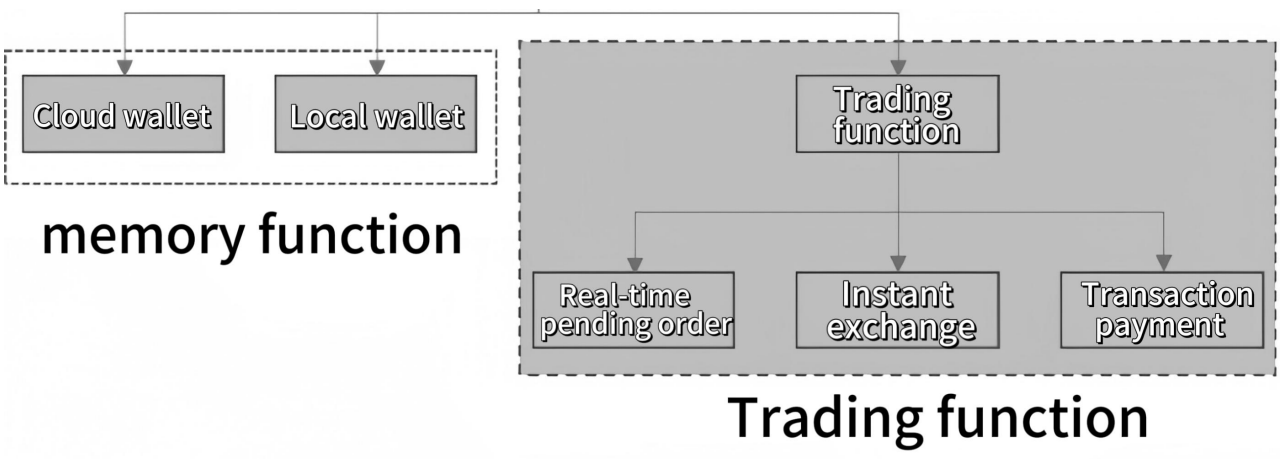
supports functions like depositing, withdrawing, and more.

The ByteWallets wallet has the following characteristics:

- More secure: Path security, data security, tamper resistance, and no single point of failure.
- Faster:Real-time transactions, no payment intermediaries, faster cross-border settlements.
- Cheaper: Low-cost transactions, low transaction commissions, no commissions taken by intermediaries.

(1) Asset Management:

Through the ByteWallets wallet, users are provided with unified management of multiple blockchain assets. It includes local wallet, cloud wallet, and transaction functions, achieving integrated asset management.



(2) Multi-Currency Services:

The ByteWallets Wallet System can simultaneously manage multiple digital currencies. It not only supports storage and management of mainstream assets like BTC, ETH, and Ethereum but also supports standard protocols of smart contract platforms. Additionally, it quickly adds tokens issued based on various platforms.

This achieves integrated management of multiple digital assets, reducing user operating costs. It provides both cloud wallets and local wallets. Local wallets support private keys, while cloud wallets have no transaction fees, offer real-time settlement, and facilitate transfers within and outside the wallet.

(3) On-Chain and Off-Chain Dual Storage Concept:

ByteWallets provides decentralized digital currency storage solutions. Users hold wallet keys and all types of currency address private key information, and the platform does not touch user assets. Moreover, ByteWallets offers convenient key backup solutions. Users only need to back up once, jot down 12 mnemonic words, and keep them in a secure place. Even if additional digital currency types are added later, all types of digital currency assets can be restored using the backed-up 12 mnemonic words.

(4) Multi-Factor Security Verification:

In addition to users holding wallet keys and private keys, ByteWallets provides multi-signature technology and two-step authorization verification for managing digital assets of different scales. Furthermore, during transfer transactions, users undergo verification methods such as mobile verification codes, fingerprints, and facial recognition, ensuring comprehensive security for digital currency assets.

(5) Multi-Language Support:

ByteWallets wallet will support various languages including Arabic, Chinese, English, Russian, Japanese, Korean, and German, catering to diverse global markets and providing comprehensive global services to create a world-class wallet application.

(6) Dual Wallet Applications:

For user convenience, ByteWallets will offer both cloud wallets and local wallets. Users can freely choose the wallet they need.

- Cloud Wallet: Inter-user transfers settle within seconds with no fees. The cloud stores private keys, addresses, and transaction records, without touching user assets. Users can retrieve cloud accounts through username, password, and facial recognition.

- Local Wallet: Users hold their private keys, enhancing asset security. Users can derive any number of sub-accounts (i.e., sub-keys) from the master key in the local wallet, enabling multiple wallet addresses for each digital asset, facilitating asset segregation.

3.2 Global Payment Clearing System

In addition to revolutionizing traditional payment models, ByteWallets will also establish a Global Payment Clearing System based on blockchain technology through the application of the Lightning Network and the integration of high-frequency payments.

(1) Transaction Channels and Lightning Payments:

ByteWallets utilizes multi-signature technology to establish transaction channels, achieving transactions comparable to the Lightning Network's lightning speed. The core of ByteWallets technology is to achieve lightning-fast transactions through multi-signature technology, with security higher than zero confirmations, and simplicity and implementation superiority over the Lightning Network.

(2) High-Frequency Payment Clearing System:

- Personal Nodes: ByteWallets will design personal distributed account nodes for users based on blockchain nodes, which serve as the unique IDs of ByteWallets users. Through the platform's built-in payment system, based on the scalability of the Ethereum technology underlying layer and cross-chain

technology, ByteWallets users will be able to achieve a global fast payment system.

- Data Collection: The platform will analyze the data of individual node users through data collection to build a trust system for users. All data information will be based on the private data of individual users. Meanwhile, during the process of trust authentication, broadcasting, and transmission, data will be desensitized and encrypted to fully protect personal privacy and data.

- Private Key DApp: The financial transaction data of ByteWallets users flow through personal private key DApps. All data will be authenticated through blockchain technology and returned to individual user wallets through smart contract confirmation, ensuring real trust, fairness, and security. Moreover, ByteWallets has realized global cross-chain connection, allowing all users to enjoy fast transactions, financial services, financial application data provided by global finance based on ByteWallets. Users can also achieve long-term preservation of digital assets for quick exchange of other blockchain digital assets. This model will make financial data commercialization fairer, with long-term storage and value-added benefits.

- Encrypted Data: ByteWallets encrypts user data based on decentralized storage technology. For the security of all transaction data processes, the platform will desensitize private information through broadcasting, ensuring ByteWallets users have no worries when authorizing platform payments and using financial service data.

3.3 Multi-Currency Management and Trading System

ByteWallets offers users unified management of multiple blockchain assets through its wallet and payment clearing system, forming a comprehensive asset management system that provides one-stop, decentralized, multi-layered security, and multilingual support.

•Diverse Applications: ByteWallets aims to provide users with a rich variety of applications.

•User Experience: The platform strives to deliver a user-friendly and satisfactory experience.

- Exploration of Diverse Digital Asset Application Scenarios: ByteWallets seeks to explore various scenarios for the application of digital assets.
- Comprehensive Control to Facilitate Faster and Better Value Circulation: ByteWallets enables users to have complete control over the circulation of value, ensuring it happens swiftly and efficiently.

ByteWallets' digital asset exchange network employs smart contracts, cross-chain gateways, and cross-smart contract technology to facilitate risk-free digital currency exchange services. Users can exchange digital currencies through ByteWallets' network, with the platform or other third parties creating smart contracts for exchanges, which are then monitored and executed by contract mechanisms to mitigate default risks during the transaction process. In the future, ByteWallets will develop a new digital asset management ecosystem that includes multi-currency accounts and exchange functions, peer-to-peer trading, and peer-to-public trading functionalities.

(1) Multi-Currency Accounts and Exchange Functionality:

- ByteWallets plans to provide users with exchange rates between fiat and digital currencies.
- Users can make free transfers to other users via popular social media tools.
- Collaboration with other licensed financial institutions.
- Efforts to provide more services to our users.

(2) Peer-to-Peer Trading Functionality:

Global value transfer should be as simple as saying hello in a chat tool, no matter where you are. Funds transfer on ByteWallets is designed to be entirely barrier-free. Through any supported channel, users only need to:

- Specify the transfer amount (e.g., 0.1 ETH).
- ByteWallets will then return a "hash value" in the form of a unique 18-character hexadecimal string.
- The user who submits this "hash value" to ByteWallets first will receive the transferred amount.

Users can transfer funds by directly specifying the recipient's nickname or phone number in the chat tool and complete the transaction instantly.

(3) Peer-to-Public Trading Functionality:

Every user verified through KYC will receive a virtual debit card provided by ByteWallets. This virtual debit card allows eligible users to use the card for consumption at any place (both online and offline) that accepts the card for payment.

(4) Security and Compliance Commitment:

We believe that compliance and security are the foundation for mainstream adoption of cryptocurrencies. As ByteWallets' business and team develop, compliance and risk management professionals will follow compliance policies and procedures to ensure full compliance with all regulatory requirements.

- ByteWallets adheres to the concept of "defense in depth," where security and compliance mentality are relevant to all aspects of ByteWallets' business. Everyone plays a role in security, and we will take comprehensive measures for network security.

•As the project progresses, ByteWallets will conduct detailed security assessments in real-time, including external penetration testing, threat modeling, and risk control reviews.

•ByteWallets will engage leading third-party security professionals for thorough external security testing to ensure the integrity of security controls. Anti-money laundering, counter-terrorism financing, proliferation financing, and sanctions compliance (collectively referred to as "AML/CFT") are also critical for ByteWallets.

3.4 Cross-Border Financial Services

(1) Business Finance Payment and Collection:

ByteWallets can provide comprehensive financial services such as fast fund settlement, turnover, credit, and wealth management for the overall upstream and downstream links of cross-border businesses, using BWS tokens as a medium. For example, providing optimal interest rate credit loans to small and medium-sized enterprises, supporting flexible credit based on receipts, credit, and collateral. ByteWallets' diverse global payment products will meet various capital appreciation needs.

(2) BWS POS Services:

ByteWallets will create BWS POS services based on BWS tokens to enable transactions between BWS tokens and global mainstream credit cards, including Visa, MasterCard, American Express, JCB, Diners Club, Discover, etc. In the future, BWS POS can be used by global merchants to accept cryptocurrency payments. Users only need to transfer the cryptocurrency to the card wallet. In addition to launching physical cards in major economic regions worldwide, BWS will also add support for stablecoins (such as USDT) on cryptocurrency debit cards, allowing users to pay with their tokens.

(3) Global Merchant Collection Services:

ByteWallets can meet the diversified collection needs of enterprises in different formats:

- Multi-currency: Receive payments in mainstream currencies such as US dollars, pounds, euros, as well as small currencies such as Indonesian rupiah, Thai baht, etc.

- Multiple scenarios: Support B2B trade exports, mainstream cross-border

platforms, and independent sites.

- Corporate Accounts Can open accounts with the same name for enterprises, and support the creation of multiple accounts.

- Global local collection Accounts Covering countries and regions in Asia, Europe, the Americas, Oceania, Africa, etc.

In the future, ByteWallets' global network of partner banks will cover the globe, effectively reducing enterprise costs with more competitive fee rates. It will have local collection capabilities in multiple mainstream countries and regions, enabling faster and more cost-effective global collections. Additionally, it supports 24/7 withdrawal operations, with the fastest real-time arrival. Users can flexibly choose currencies, amounts, account subjects, etc., according to their needs. Moreover, the independently developed powerful technical engine will provide secure and timely responses throughout the collection process. By directly accessing mainstream cross-border platforms and strong data synchronization mechanisms, order data can be obtained in one step and automatically synchronized.

After receiving these payments, merchants/companies can convert the funds into BWS tokens in the wallet to access more services and support.

3.5 Supporting Functionalities

(1) Asset Registration and Rights Confirmation:

ByteWallets provides a full-process service for asset registration and on-chain rights confirmation, which is completed by gateways or gateway agents. All assets registered by gateways or agents require the trust of the asset owner. Only trusted parties can trade the same type of asset. Registered assets are mainly divided into currency-type assets and physical-type assets.

- Currency-type Assets: Currency-type assets are mainly used for gateways to

connect with other digital currency and digital asset platforms. For example, a gateway can register the asset code of BTC. Any account holding BTC can trust the gateway and deposit BTC assets to the gateway account. Currency-type assets are not limited in quantity. Gateways can register as many asset symbols as they have actual currency assets.

- Physical-type Assets: This mainly refers to the digitization of assets. Such assets are generally registered by enterprises or institutions and sold by gateway agents. These assets usually have a certain limit. After registration, the asset registration party will be restricted from increasing issuance by suicide through operational permission thresholds.

(2) Blockchain Explorer:

ByteWallets provides a blockchain explorer to facilitate ordinary users in verifying the quantity of assets accessed through ByteWallets. To ensure the validity of the ledger, the blockchain explorer supports linking to different blockchain nodes to query the ledger situation. Users can observe the generation of each block and transaction in real time. When entering the corresponding account, they can query various asset balances and all transaction records.

(3) On-chain Traditional Industries:

ByteWallets' asset on-chain system meets the demand and extensive application scenarios of tokenization (issuing tokens) for high-value fixed assets, providing a platform and services for enterprises to issue their own tokens, expand digital financial business, and enhance brand influence and competitiveness. By using blockchain as the underlying technology, ByteWallets places fixed assets on the chain, conducts valuation, rights confirmation, collateral, and trading around core enterprises, solving the problem of difficult circulation of high-value fixed assets and promoting the improvement of financial circulation efficiency.

- Utilizing third-party institutions to register, confirm rights, evaluate, appraise, value, and custody valuable assets.

- Blockchain deposit to ensure the validity of rights certificates: Utilizing the characteristics of blockchain technology to ensure immutability and transparency of information.

- Using blockchain token economics to achieve the tokenization of physical assets (issuing tokens), enabling the segmentation of fixed assets' value and making rapid circulation a reality.

- Collaborating with multiple public credibility institutions to form a unique and valid asset code for copyright information, confirming rights on the chain.

- Using technical means to ensure the effectiveness of tokenized assets' circulation (issuing tokens) and safeguard the interests of all parties in transactions.

Chapter 4: Technical System of ByteWallets

4.1 Technical Overview

At the core of the ByteWallets blockchain infrastructure, there are three main layers: Participant Management Layer, Blockchain Layer, and Application Layer. Within these layers, the payment system is further subdivided into two sub-levels: Verification Nodes and Voting Nodes.

(1) Participant Management Layer

Participants in the ByteWallets system join the blockchain network as supernodes. Different business entities can join or exit according to their needs. Supernodes exchange information, ensuring the authenticity of certification bodies and stored data. Through the effective formulation of universally applicable transaction standards, STO gateways, smart contracts, etc., various nodes' identity functions and contract elements can be effectively linked during different events.

(2) Blockchain Layer

Key Technologies: This part forms the basic support for various modules in the application service section.

Blockchain Technology: This includes network structure, data structure, consensus mechanism, signature verification, etc., which are the foundation of the system's operation.

Related Technologies:

- Data Storage Module: Based on content addressing instead of domain-based addressing, where users search for content stored somewhere rather than a specific address. It eliminates the need to verify the sender's identity and only

requires verification of the content's hash, making payment verification faster, more secure, robust, and enduring. It also provides storage security measures to prevent data theft and enables data access auditing for tracking data changes and circulation.

•Identity Module: Authenticates and registers users and devices on the blockchain to identify their validity. It also manages user identifiers, namely private keys, and includes access security functions as an essential guarantee of system security.

- Timestamp Service: Provides unified time services for the system.

- Data Encryption and Decryption Module: Provides data encryption and decryption services for the system. This module should support national cryptographic algorithms and be capable of supporting pluggable encryption and decryption algorithms.

- Client Module: Provides users with management and query functions for accounts, blocks, nodes, and wallets, such as creating new accounts, sending transactions, generating random seeds, obtaining block information, and checking wallet status. All payment transactions are routed through the client, signed, and encrypted before being sent to the blockchain.

•P2P Module: Connects various nodes to broadcast transactions and block-related information across the network.

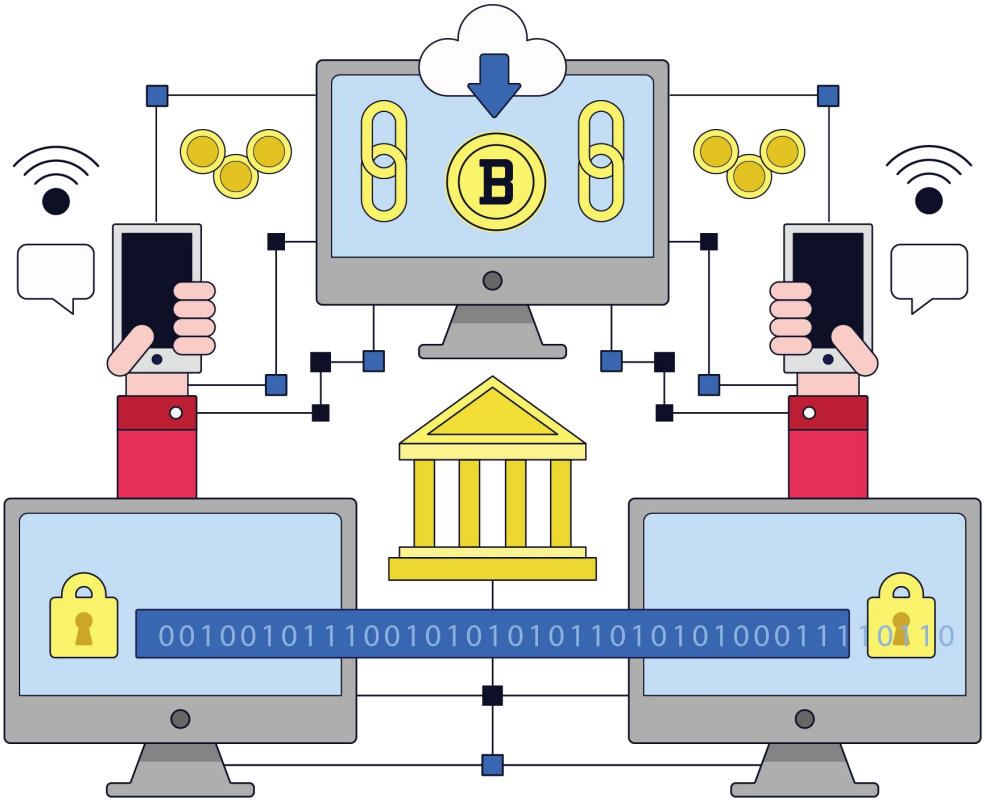
•Mempool Module: Transaction cache pool, where mempool stores transactions coming from RPC interfaces and P2P. The implementation of Mempool mainly addresses the problem of the consensus module processing speed being slower than the RPC module.

(3) Application Layer

Application services are implemented and encapsulated based on the key technologies provided by the ByteWallets system. Each service consists of a set of

related specifications, processes, and supporting interaction interfaces.

Specific business scenarios can be integrated through secondary development by calling ByteWallets system blockchain layer application services.



4.2 Overall Technical Architecture

ByteWallets is a high-speed, secure, and scalable digital currency payment infrastructure composed of two layers: supernodes and storage access nodes. Supported by blockchain technology, it processes millions of transactions per second, providing unlimited storage capacity for Dapps through a secure decentralized cloud database.

The ByteWallets architecture system consists of several components:

- Homogeneous Multi-Chain System: Provides high TPS access capability and cross-chain payment capability.

- P2P Network System (ByteWallets P2P): Provides network layer addressing capabilities.
- Multi-Database Cluster System: Provides infinitely scalable secure encrypted data storage capabilities.
- Underlying Structure Support System of ByteWallets: Includes a block storage system and a distributed file system.
- Attribute-based cryptographic authentication access system composed of multiple consensus nodes: Acts as a database access control gateway.
- Data integrity verification organization composed of multiple validating nodes.
- Adaptive probe system: Provides capabilities for memory data storage, performance monitoring, security monitoring, and Metrics data upload.

The core of the ByteWallets system lies in the chain-library separation mechanism and functional sub-chain design. Decentralized applications can store data in both chains and database systems according to different levels of trust and public verification. ByteWallets provides coordinated management of different types and levels of data. Additionally, due to the Permissionless nature of the multi-database cluster system, ByteWallets has implemented access control mechanisms based on multi-authorized attribute-based encryption and complete proof of data ownership.

The chain-library separation design is primarily intended to consider future system upgrades and updates. Since updates to blockchain systems can lead to forks and irreversible impacts on the entire economic system, ByteWallets places the main data processing capabilities on top of the database system and completes the access control system for the database system through functional sub-chains. Functional sub-chain design is not only for future scalability but also to achieve two core functions of decentralized storage systems: privacy protection and proof of data ownership. ByteWallets has efficiently implemented access control and encryption functions for cloud storage data through a multi-authorized attribute-based encryption scheme.

(1) Accounts

ByteWallets adopts the concept of state to store a series of accounts, each with its own identity authentication information and unique data. In some cases, if an account contains code that needs to be executed, the transaction will trigger the execution of that code, potentially changing the account's internal storage and even creating additional information to be sent to other accounts, resulting in new transactions.

(2) Merkle Patricia Tree:

Bitcoin and IPFS both utilize a data structure known as a Merkle tree. A Merkle Patricia Tree, in simple terms, is a directed acyclic graph data structure employed by IPFS to store data. When uploading a file to an IPFS node, the system divides the file into segments, with each segment assigned a hash value as its filename. These segments are then stored using a tree-like structure. To illustrate, think of this structure as having many leaves, with each pair of connected leaves represented by a hash value calculated from the content of the leaves. This structure extends from the leaves to branches and eventually to the root.

This method ensures that when data in any leaf changes, the hash value at the root also changes accordingly. This approach is consistent with how Bitcoin stores data and aims to enable the network to quickly verify the integrity of data. Rather than comparing the entire file, nodes only need to check if the root value remains the same. If it does, different nodes can verify that the data has not been tampered with.

The Merkle Patricia Tree (Merkle Patricia tree/trie), conceived by Alan Reiner and implemented in the Ripple protocol, serves as the primary data structure in the ByteWallets system. It is utilized to store the state of all accounts as well as the transactions and receipts in each block. MPT is an abbreviation for the combination of a Merkle tree and a Patricia tree, and the structure created by combining these two trees possesses the following properties:

- Each unique key-value pair is uniquely mapped to the root hash. In MPT, it is not possible to deceive members with just one key-value pair (unless the attacker has ~2⓪ computational power).

- The time complexity of adding, deleting, and modifying key-value pairs is logarithmic.

MPT provides ByteWallets with an efficient, easily updatable, and fingerprint that represents the entire state tree.

(3) RLP Encoding

RLP is designed to be a highly simplified serialization format, with its sole purpose being to store nested byte arrays. Unlike existing solutions such as protobuf and BSON, RLP does not define any specific data types such as Boolean, float, double, or integer. It only stores structures in the form of nested arrays, leaving it to the protocol to determine the meaning of the arrays. RLP also does not explicitly support map collections; the semi-official suggestion is to represent key-value pairs using nested arrays such as [[kl, vl], [k2, v2], ...], with kl, k2,... being sorted according to the standard of strings. Similar solutions with the same functionality as RLP include protobuf or BSON, which have been used consistently. However, we lean towards using RLP because it is:

- Easy to implement.

- Guarantees byte consistency absolutely.

4.3Consensus Mechanism

Consensus algorithms serve as one of the cornerstones of blockchain technology, with rapidity and irreversibility being our primary focus. In addition to these, to better develop the system's ecosystem, we believe fairness is equally crucial. If large capital can easily dominate the discourse on consensus within the system, it could lead to unwarranted harm to the interests of developers and users. An ecosystem that fails to safeguard the interests of its builders is unlikely to foster deep value, contradicting ByteWallets Design Principles. Therefore, in designing consensus algorithms, while prioritizing rapidity and irreversibility, we strive to pursue fairness as much as possible to uphold the interests of system builders. ByteWallets' consensus is based on the Proof of Devotion (PoD) consensus algorithm mechanism.

(1) Generation of New Blocks

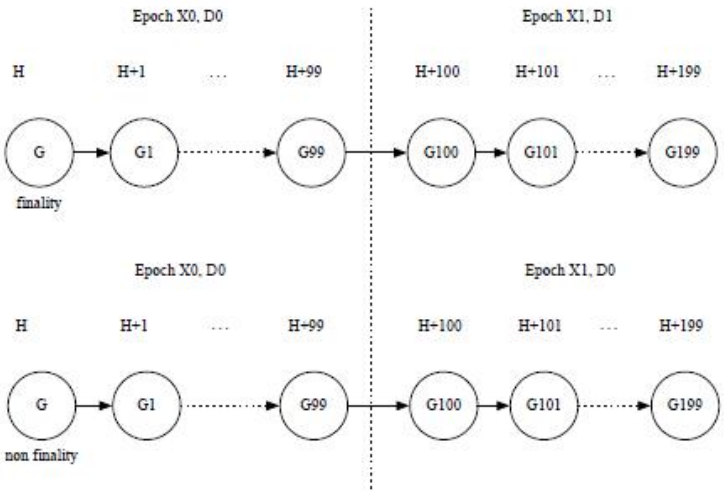
Similar to the Proof of Importance (PoI) consensus algorithm selecting accounts with high importance, PoD selects accounts with high contribution levels within the ecosystem. The difference lies in PoD granting equal probability to the selected accounts to participate in the generation of new blocks, thus preventing the skewing of probabilities that may lead to monopolization.

When selecting accounts with high contribution levels, we utilize ByteWallets' native universal value scale assessment. In the algorithm design, we focus on the liquidity and dissemination of accounts (believing that accounts meeting these properties contribute significantly to ecosystem development). Therefore, in PoD, some accounts voluntarily deposit a certain amount of BWS tokens as collateral, qualifying them as validators to participate in block generation.

After establishing the set of validators, the PoD algorithm determines the proposer of the new block through pseudo-random numbers. The proposer then creates the new block. The set of validators is not fixed and immutable; eligible accounts can choose to join or leave the set of validators. With the periodic changes in ByteWallets' incubation cornerstone holdings, the eligible accounts will also change. Therefore, we have designed a mechanism for dynamic changes in the set of validators in PoD to facilitate turnover.

(2) Turnover of Validator Sets

The turnover of validator sets is akin to a change of dynasties. Thus, we partition the validator set into dynasties, with the validator set within a dynasty remaining unchanged. A dynasty cannot turnover too quickly; it must remain unchanged for at least a period of time. Therefore, we define every X blocks as an Epoch. Within the same Epoch, the dynasty remains unchanged. The change of dynasties only occurs at the intersection of Epochs. At this time, the first block of the previous Epoch is examined. If this block reaches finality status, the current Epoch enters the next dynasty D1. Otherwise, the previous dynasty D0 remains unchanged, as illustrated in the diagram below.



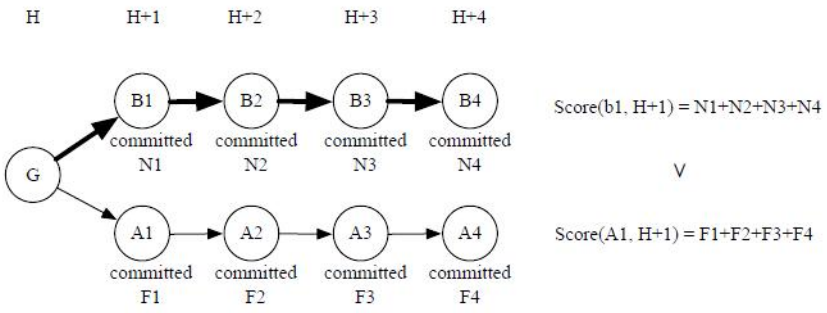
Due to network latency, various nodes may perceive the finality status of block G differently during dynasty turnover. Therefore, referencing Casper's dynamic validator set strategy, we require each consensus process of a dynasty to be jointly completed by the validator sets of the current dynasty and the previous dynasty. Thus, in any given dynasty, eligible accounts can only apply to join or exit the validator set of dynasty D+2. When the dynasty changes to D+2, they can participate in the consensus process of new blocks.

(3) Fork Selection

The PoD algorithm selects the authoritative chain based on the score of each block at each height. It always selects the block with the highest score to join the authoritative chain. The score of block b at height h is calculated as follows:

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

The sum of the total deposit corresponding to the commit votes received by this block and all its descendant blocks.



(4) Voting Rules

To prevent malicious disruption of the consensus process, which could impede ecosystem development, PoD adopts Casper's minimal punishment rules to constrain the consensus activities of validators.

Suppose the structure of votes during the consensus process: Prepare(H; v; vs) represents the Prepare vote for the current block hash H at height v, and vs represents the height of some ancestor block of v. Commit(H; v) represents the Commit vote for the current block hash H at height v.

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

- There is a strict sequence of two-phase consensus processes for individual blocks. Validators can only cast Commit(H; v) votes in the second phase after the total weight of Prepare(H; v; vs) votes reaches 2/3 in the first phase.

- There is no strict requirement for consensus on multiple blocks to start after the completion of consensus on one block. Interwoven consensus is allowed, but there must be some order. Only after height vs completes the first phase process with 2/3 of Prepare(Hanc; vs; vs') votes, validators can cast Prepare(H; v; vs) votes based on vs for its descendant blocks to ensure steady progress.

- To prevent nodes from maliciously voting across multiple blocks using interwoven consensus, it is required that once a Prepare(H; w; u) vote is cast based on height u, no Commit(H; v) votes can be cast for all blocks between spans u and w to ensure the efficiency and orderliness of the consensus process.

- To prevent nodes from simultaneously betting on multiple branches with the same deposit, causing the "nothing at stake" problem, it is required that after casting a Prepare(H1; v; vs1) vote at a height, no different Prepare(H2; v; vs2) vote can be cast. Validators who violate the above rules, once reported and verified, will be fined all their deposits. The reporters will share 4% of the fine

as a reward, and the remaining part of the fine will be destroyed.

4.4 Security Encryption Algorithms

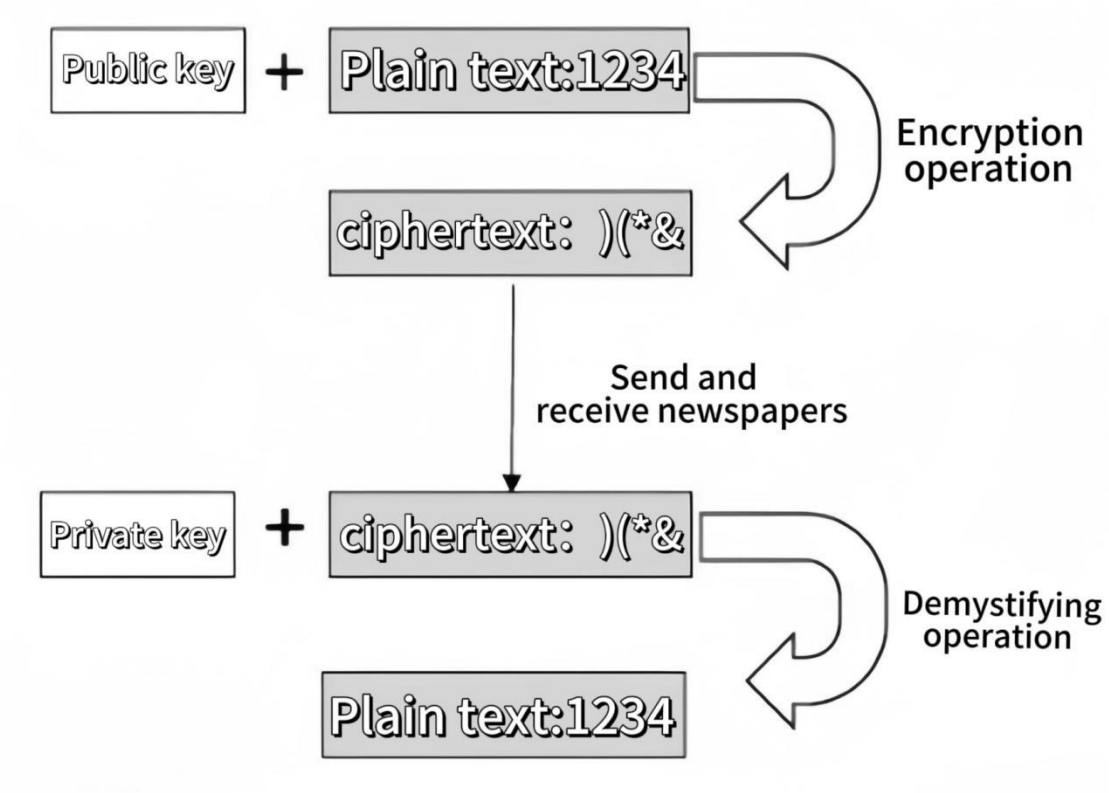
ByteWallets selects encryption mechanisms that comply with domestic and international standards to encrypt various data. Payment data and transaction information between users are only viewable by the parties involved in the transaction and users with corresponding permissions.

(1) Private Key

Private keys are not disclosed to the public and are 256-bit random numbers. They are kept by users and not made public. Private keys are typically generated randomly by the system and serve as the unique proof of user account usage rights and ownership of assets within the account. With a sufficiently large effective length, private keys cannot be compromised and pose no security risk.

(2) Public Key

Public keys can be made public, and each private key has a corresponding public key. ECC public keys can be generated from private keys through a one-way, deterministic algorithm. Currently, commonly used schemes include secp256r1 (international standard) and secp256k1 (Bitcoin standard). ByteWallets, for its control chain and initial data chain, chooses secp256r1 as the key scheme.

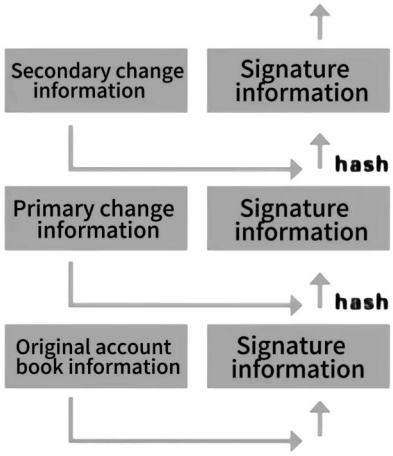


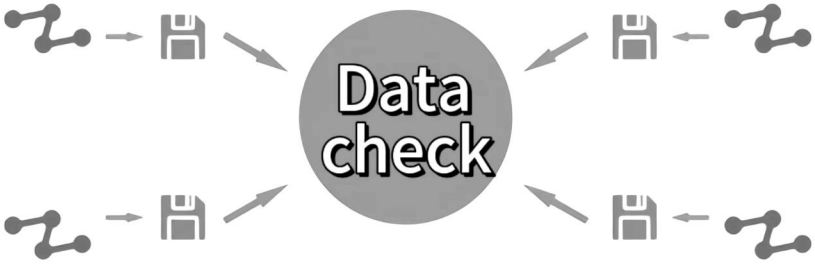
(3) Encryption

ByteWallets employs asymmetric encryption techniques, specifically digital signatures, to ensure that business requests are not tampered with during transmission. Additionally, it ensures data consistency across all nodes through the consensus mechanism. For data already stored, ByteWallets utilizes internal node self-verification systems and quasi-real-time multi-node systems to ensure that stored data cannot be tampered with.

Node self-verification refers to ByteWallets' use of blockchain structure to store data records. Any tampering with data would disrupt the integrity of the blockchain structure, allowing the system to quickly detect and recover data from other nodes. Additionally, each accounting node in ByteWallets has its own private key, and each block records the signature of the node's private key. Any modifications to block data can be verified through signature validation.

Quasi-real-time multi-node data verification comes into play if a node's private key is compromised, allowing malicious users to potentially modify all data on the ledger chain. ByteWallets provides a mechanism for quasi-real-time multi-node data comparison to promptly detect instances where ledger data on a particular node has been tampered with.





4.5 P2P Protocol

On ByteWallets, each node (client) utilizes the P2P Protocol for message broadcasting and interaction. For ByteWallets' data blocks, the P2P Protocol used is the standard Encryption Currency Protocol, which introduces the "Ghost" protocol as its core feature. However, ByteWallets' control blocks use the standard P2P Protocol and do not support the "Ghost" protocol. Clients typically operate in a guardian state. In this state, the client performs the following tasks:

- Calls the network guardian process to maintain connections and periodically send messages.
- Retrieves information about the current block and associated block information.
- Obtains industrial manufacturing parameters and analyzes them according to standard models to determine whether to submit updated parameters.

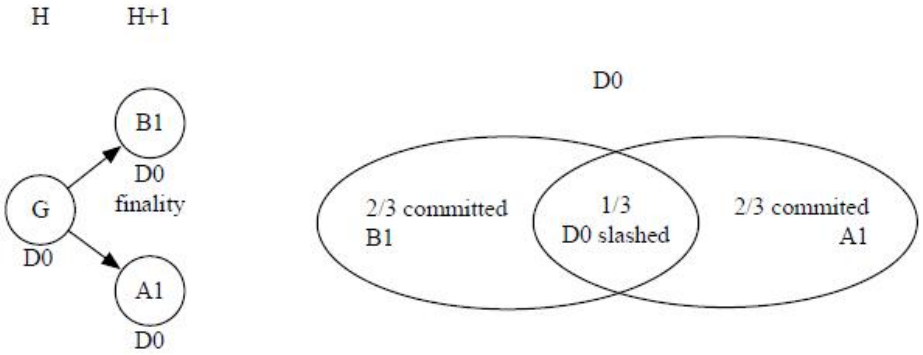
4.6 Prevention and Punishment Mechanisms for Malicious Attacks

In PoD, each block at every height has a consensus validity period. If a height is more than 100 blocks behind the latest height, all blocks at that height will be considered expired during the consensus process. Consequently, all new consensus activities on these blocks will be ignored. Therefore, completing a long-range attack in PoD is nearly impossible, but the possibility of launching a short-range attack still exists within the validity period.

In a short-range attack, the Attacker attempts to forge Chain A to replace Chain B as the authoritative chain while the blocks at height H+1 are not yet expired. The Attacker needs to ensure that the score of Block A1 is higher than Block B1. Since multiple voting will be severely punished, the Attacker will inevitably need to bribe validators to complete the short-range attack.

To demonstrate the security of the PoD consensus algorithm, let's analyze the cost that the Attacker needs to bear when different numbers of blocks become invalid.

If the Attacker wants to invalidate Block B1, the minimum cost scenario is as follows, which is equivalent to a double-spending attack. If the Attacker becomes the proposer of the block at height H+1, they need to bribe at least 1/3 of the validators in Dynasty D0 to vote multiple times to finalize A1. The minimum cost is 1/3 of all deposits.



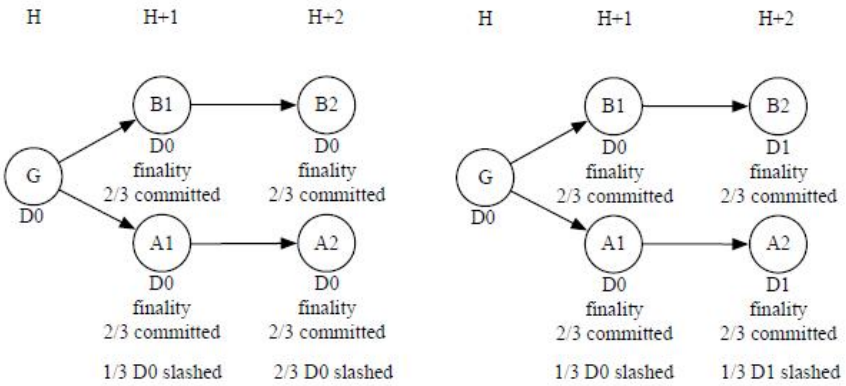
If the Attacker wants to invalidate both B1 and B2, assuming B1 and B2 have already reached finality and all transactions in the blocks have been executed, two

scenarios are considered here.

In the first scenario, as illustrated below, both heights H+1 and H+2 are within the same Epoch, belonging to the same Dynasty. In this case, the Attacker first needs to bribe 1/3 of the validators in Dynasty D0 to finalize A1. However, these validators will be penalized, and their deposits will be forfeited. During the validation of A2, the total deposit amount is only 2/3 of that in A1, considering the forfeited deposits from the punished validators. To ensure that A2 receives commit votes equivalent to those of B2, the Attacker needs to bribe the remaining validators who did not cheat. This would result in a loss of 3/3 of the total deposits. However, even with this effort, there is no guarantee that the score of A1 will be higher than that of B1, posing a high risk of failure for the attack.

In the second scenario, as depicted below, heights H+1 and H+2 are in different Epochs and belong to different Dynasties. In this case, the Attacker needs to bribe 1/3 of the validators in Dynasty D0 to finalize A1 and then bribe another 1/3 of the validators in Dynasty D1 to finalize A2. Completing such an attack would require a loss of at least 2/3 of the total deposits.

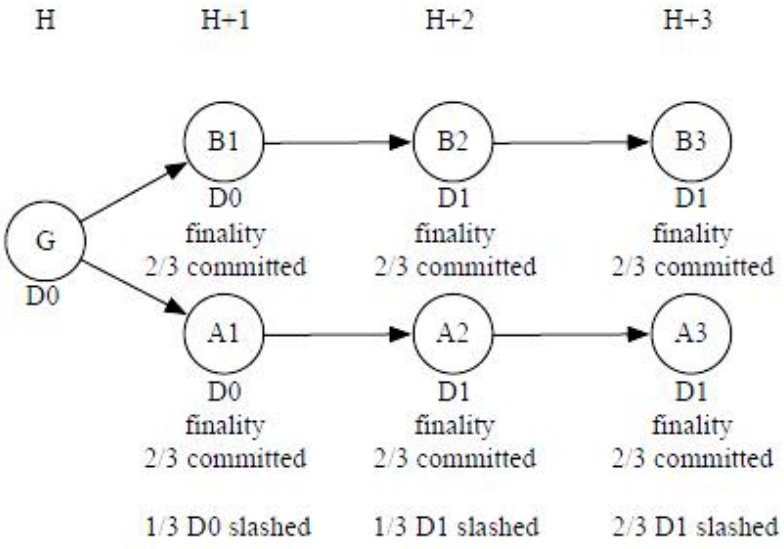
In summary, to launch a short-range attack resulting in the invalidation of two finality blocks, the Attacker would need to spend at least 2/3 of the total deposits.



If the Attacker wants to invalidate B1-B3, as shown in the illustration below, the Attacker first needs to bribe 1/3 of the individuals in Dynasty D0 to finalize A1. Then, the Attacker needs to bribe 1/3 of the individuals in Dynasty D1 to finalize A2. Finally, the Attacker must bribe all the remaining individuals in Dynasty D1, which is 2/3 of the total, to finalize A3. Altogether, this would require a loss of at least 4/3 of

the total deposits.

Preparing for these attacks would be extremely difficult, and even if successful, there's no guarantee that the score of A1 would be higher than that of B1. Therefore, the attack could still fail.



4.7 Risk Control in Payment Systems

ByteWallets provides a comprehensive risk control solution to ensure the secure development of the project, whether in blockchain or the circulation and payment of encryption digital currency, which are still in their early stages.

(1) System Risk Control

- Database Read/Write Separation Mechanism: In the early stages, system risk control is generally achieved through mechanisms like database master-slave replication, read/write separation, and sharding to ensure the synchronization and separation of read and write operations in the payment system's database and risk control system. System risk control typically only has read permissions for the required customer/Accounts data and transaction payment data, thereby ensuring the security and reliability of

Accounts data.

- Cache/Memory Database Mechanism: An efficient caching system is an effective measure to improve performance. This mechanism usually stores frequently used data in caching systems like Redis. For example, risk control rules, risk control case libraries, intermediate result sets, blacklists, whitelists, pre-processing results, transaction parameters, billing templates, settlement rules, and profit-sharing rules are stored in the cache. For some high-frequency transactions, memory databases are used for storage (usually combined with SSDs for performance reasons).

- RPC/SOA Architecture: Reducing the coupling between the transaction system and the system risk control. In the initial stage where there are few system services, RabbitMQ/ActiveMQ or RPC methods are generally used for inter-service communication. When there are more system services and governance issues arise, SOA middleware like Dubbo is used for service invocation.

- Complex Event Processing (CEP): Real-time/near-real-time payment risk control. Compared to purely rule-based processing, the CEP pattern offers better performance and scalability.

(2) Product Risk Control

In the first stage, product risk control focuses on due diligence before product launch. This includes a rational examination of historical data and parameters in the database, conducting walkthrough tests on ByteWallets' models using historical payment data or standardized derivatives and their market values to assess their design rationality. In the second stage, product risk control focuses on the stable operation of the product. This is achieved by formulating standardized terms for various payment and financial product admissions, setting up sequentially passable locks in the form of smart contracts. Once all products that have passed the audit are launched, they are listed and sold in a decentralized blockchain data form to form a financial product library. During this stage, investors can freely choose products, and no product will mislead investors due to human factors. All descriptions of listed products are supported by data generated through rigorous smart contract-based audits, and this data cannot be changed or deleted permanently.

Chapter 5: Design of ByteWallets Token Economy Model

5.1 Economics of BWS Token

ByteWallets will issue a high-value token called BWS (Block Web Services), primarily used for circulation within the ByteWallets ecosystem, cross-border payments, global finance, and value transfer in various real-world scenarios. For example, in the future, BWS can be used in commercial scenarios worldwide.

Full Name: Block Web Services

Abbreviation: BWS

Total Supply: 21 million tokens

Initial Price: 1 BWS = 0.5 USDT

Distribution: The project's shares will be evenly distributed among the 21 million tokens, meaning investors holding BWS will have corresponding shares of the project proportionally.

(1) Profit Mechanism

• Quarterly Dividends: Investors will receive project profits quarterly based on their holdings of BWS.

• Trading Profit: Investors can profit from the appreciation of BWS value by freely buying and selling BWS on exchanges.

(2) Project Operations and Profit

ByteWallets generates profits by charging enterprise service fees while providing a mechanism for issuing and distributing tokens (BWS) to attract investors and share project profits.

As the ByteWallets payment ecosystem matures, general and cross-chain payments become frequent events, leading to increasing demand for BWS tokens from all parties involved. BWS token holders have the original allocation rights to the platform's development direction. After the BWS token is listed on exchanges, efforts will continue to strengthen the incentive model for BWS tokens and release new technologies and applications on the chain, thereby expanding the ByteWallets ecosystem and enriching the vitality of BWS tokens.

5.2 Value Attributes of BWS

We aim to establish a healthy and sustainable ecosystem model through the circulation of the BWS token within the ByteWallets payment system, channeling most of the revenue back to project investors/community members. By doing so, project investors/community members will be more inclined to support and improve the community network. Community members can contribute to value creation by utilizing, popularizing, and effectively marketing the project.

We aspire to reflect the values of the BWS token to the fullest extent in the design of the financial payment economy:

- Independent survival: With a clear business model, it can sustainably exist, thereby creating a circulation foundation for BWS.
- Autonomy and consensus: Gradually establish common decision-making mechanisms within the community and sub-communities, eventually operating based on consensus principles, and develop a decision-making system based on the participation of BWS holders in voting.
- Sharing: A portion of the value generated by the community serves as common wealth to enhance the survival and competitiveness of the community.
- Self-evolution: Establish a BWS reward mechanism to encourage members to continuously propose suggestions for the technical and economic mechanisms of the community.

BWS's fundamental value attributes encompass the following dimensions:

(1) Property rights attributes

In a clear market circulation scenario of ByteWallets, users who possess BWS enjoy ownership and disposal rights over the tokens, meaning they have the property rights to dispose of the tokens within the scope prescribed by law.

(2) Currency attributes

With Encryption currency at the center, data circulation and token circulation are achievable. In the circulation scenario of BWS, user behavior data, electronic currency, and consumption can all be recorded on the blockchain, and valid behavior can be further transformed into tokens. Each member has an independent node, sharing ledger data, effectively enhancing the transparency of token usage. In essence, tokens establish a "value exchange" bridge.

(3) Equity attributes

BWS is a digital token with ByteWallets' global payment network as one of its use cases. Users holding tokens have ownership of specific projects. That is, holding a certain amount of BWS translates into token dividends. It should be noted, however, that tokens do not represent any specific investment.

(4) Governance attributes

In a decentralized governance system, any decision must be voted on within a fixed period, which varies depending on the nature of the proposal. A proposal will only be executed when enough high-stake votes are collected; otherwise, it will be closed. In a decentralized autonomous system, decisions are not solely determined by those with high stakes; those with lower stakes can collaborate to balance the influence of those with high stakes. Decentralized governance content includes but is not limited to user registration, statistical functions, collateral tagging ranges, etc. These upgrades can be decided by joint voting of participants in the autonomous system. Holding BWS tokens is the basic threshold for possessing governance

assets.

5.3 Market Incentives

In the early stages, we will distribute BWS tokens through airdrops, rewards, and other means to attract more attention from fans to the ByteWallets global payment network. Within the ByteWallets global payment network, users holding BWS tokens can enjoy a series of benefits such as token appreciation, fee

deductions, asset appreciation, profit rebates, supervision, voting elections, token appreciation, NFT rewards, and more. The ByteWallets global payment network rewards users who contribute to system liquidity through various incentive measures by awarding them with BWS tokens. The platform returns to the community users through incentive mechanisms, allowing them to enjoy various benefits of the ByteWallets community by holding BWS tokens.

Upon the initial listing of the BWS token on exchanges, ByteWallets will actively promote registration giveaways, recruit partner activities, transaction fee reduction activities, and engage in community operations and development through various channels such as key opinion leaders (KOLs), media news, and community leaders. Through comprehensive community promotion activities, such as community management by leaders, community promotion activities, lottery events, and Q&A gift-giving activities, we aim to demonstrate the platform's determination to progress and attract global advocates and newcomers to see our commitment to progress.

5.4 Application Value of BWS

(1) Basic Application Value

BWS, as a highly valuable Encryption digital currency, will realize functions similar to traditional currency. Traditionally, currency serves four major functions: a store of value, a medium of exchange, a unit of account, and a standard for deferred payment. To meet these functions, BWS is specifically designed with the following characteristics:

- Store of Value: A store of value refers to an asset that retains its value over time and does not significantly depreciate with the passage of time. BWS, as

a payment medium, is designed to maintain price stability and steady appreciation even in highly volatile markets.

- Medium of Exchange: A medium of exchange refers to anything that represents a standard of value and is used to facilitate the sale, purchase, or exchange (transaction) of goods or services. BWS can be used to facilitate transactions in various types of exchanges worldwide.

- Unit of Account: A unit of account is a standardized measure of value used for pricing goods and services. Although BWS has not yet become a standard unit of account outside the blockchain, it serves as a unit of account within the ByteWallets global payment network and some partnered dApps.

(2) Diverse Payment Application Value

Based on the foundational design of the ByteWallets global payment network, we can clearly see that BWS will play a significant role in the fields of transactions, payments, and investments, and will also enter into various aspects of society in the future:

☑Transaction Field

•Users can use BWS to replace fiat currency for transactions, enabling true peer-to-peer cash;

- Users can use BWS to exchange for other digital currencies instead of fiat currency;

- Users can trade other digital currencies for BWS to hedge against price depreciation risks.

☑Payment Field

•Greatly save payment time, especially in cross-border payments;

•Transaction records stored on the blockchain enable better tracking;

- Effectively reduce payment costs in Encryption currency payment scenarios.

☑Investment Field

•Mortgage other Encryption assets to obtain BWS for investment and wealth management, enjoying double value appreciation of assets;

•Transaction records stored on the blockchain are immutable, eliminating accounting disputes;

• Combine BWS with IDO, IEO to reduce ICO risks;

•Utilize BWS features to develop blockchain-based loans, derivatives, prediction markets, and other long-term smart contracts that require price stability.

5.5 Examples of BWS Circulation Scenarios

The circulation scenarios of BWS include but are not limited to the following:

- Ecosystem Circulation: Derived from the ByteWallets ecosystem, numerous real-world applications will emerge. When BWS is listed on exchanges, it can be exchanged with all digital currencies, supporting circulation and payments in various aspects of the ecosystem, such as payments, transfers, fiat currency transactions, deposits, withdrawals, listing voting, STO gateways, airdrops, lending, charity, gaming, shopping malls, and all trading transactions, as well as settlements with fiat currencies worldwide.

- Third-party Ecosystem: In addition to circulation within the BWS ecosystem, it will also circulate within third-party applications developed based on the ByteWallets global payment network and exist as the sole value token. This will accelerate the circulation of BWS, adding more circulation value attributes to the scarce BWS, thereby increasing overall value and price.

- Cross-Border Payments: Users can use BWS for cross-border shopping, including online and offline purchases at physical stores. It can also serve as a basic means of cross-border payments, bringing more benefits to users. When ByteWallets is integrated with global mainstream platforms, users can enjoy the convenience of purchasing a wider range of global products with BWS.

- Global Trade Financing: Establishing a consortium blockchain among trading financing participants such as suppliers, purchasers, and banks, recording qualifications of trading entities, multi-frequency transaction information, and commodity circulation information on the blockchain, enabling trading parties and banks to share real, reliable information openly, transparently, and securely. For large enterprises in the supply chain, banks can enrich financing risk control models, reduce the workload of offline manual collection and verification of information authenticity, and provide financing services based on movable asset assessment. For small and medium-sized enterprises (SMEs) facing financing difficulties in the upstream and downstream of the supply chain, they can obtain credit endorsements based on blockchain-provided entity qualification certification and multi-frequency transaction information certification with large enterprises, thereby alleviating financing problems. BWS can be used as the main digital currency for trade financing, facilitating seamless exchange with mainstream fiat currencies worldwide and achieving more convenient trade financing

functions.

- Universality: ByteWallets can adapt to diverse business needs and meet data sharing requirements across enterprises' business chains, which means ByteWallets has sufficient generality and standards for recording data, representing various structured and unstructured information, and meeting cross-chain requirements as business scope expands. This provides a value foundation for the universality of BWS, allowing BWS to circulate more confidently in various industries and scenarios worldwide.

5.6 Driving Value Circulation Beyond Borders

In the ByteWallets global payment network, we center around the BWS token and fully leverage the advantages of value transmission protocols in the payment domain to realize the implementation of a globalized, faster, and low-cost financial system for payments, clearing, and currency exchange. This system supports various types of currencies, making internet payments as simple and convenient as emails.

Based on this financial system, BWS will be introduced into third-party physical industries, bridging the "real world - blockchain world - real world" and establishing a global BWS circulation and value-added ecosystem. Within this ecosystem, smart contracts can manage participants' identity information, providing better financial, transaction payment, clearing, and settlement services for organizations and individuals within the system.

In consumer scenarios, BWS will tightly integrate "blockchain + finance + physical entities + consumption" in new ways, forming an unprecedented digital world application ecosystem. The "blockchain + finance + physical entities + consumption" forms a vertically integrated closed-loop ecosystem chain, while blockchain, finance, physical entities + consumption each form horizontally expanding open ecosystems. These ecosystems and chains intersect and form a matrix structure, collectively constituting a complete value cycle for BWS.

In financial scenarios, BWS tokens will be core to finance, based on frictionless payments, cross-border transaction settlements, and global currency exchange (including digital currency and fiat currency), driving breakthroughs in other industry applications through financial innovation. With the widespread application and increasing social awareness of BWS tokens, they will gradually penetrate into various sectors of society, such as blockchain-based online finance, corporate equity distribution, supply chain finance, DeFi, etc., realizing unlimited value-added potential.

(1) Formation of a New Hybrid Digital Currency System

ByteWallets, based on empirical evidence, has verified the feasibility of cross-border applications of digital currencies and demonstrated that blockchain technology can achieve information sharing and transparency. Issued by influential banks, regardless of issuance scale and exchange rates, are unified and controlled by the country, forming a diversified currency system based on fiat currency supplemented by digital currency. This has spurred the flow of transaction rules for virtual finance, greatly promoting the prosperity of the real economy. Of course, reputable financial/corporate/commercial entities launching their own digital currencies based on ByteWallets and creating virtual trading scenarios can provide users with better innovative services.

(2) Creation of a New Credit Formation Mechanism

The credit system has always been the core of financial development. In the traditional model, commercial entities maintain credit and manage risk through relevant regulatory agencies. Credit rating techniques classify users based on different characteristics, such as credit-granting techniques for small loans, etc.

In the big data era, companies often adopt multidimensional perspectives to explore and analyze customer behavior characteristics and use them to analyze customer credit ratings. Although big data can provide batch credit for consumption, small loans, etc., and improve work efficiency to a certain extent, making data information reliable and timely, it merely achieves the electronicization of traditional finance and does not fundamentally change the way credit is created.

The ByteWallets global payment network system itself creates credit through decentralized credit creation, characterized by strong information reliability, low

credit establishment costs, and transparent information disclosure.

(3) Formation of a New Scenario Value Chain

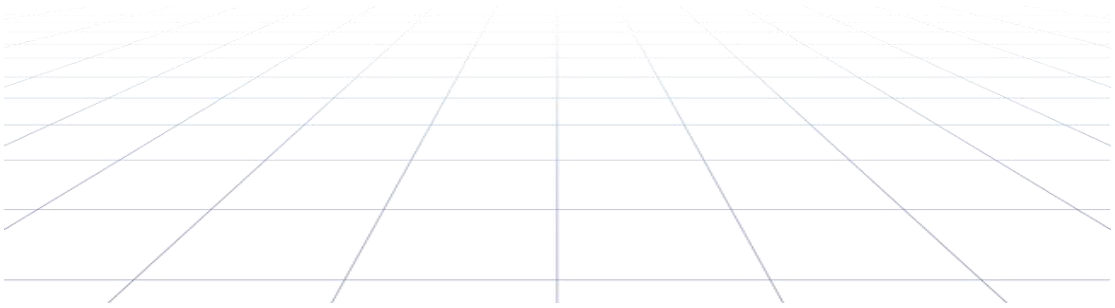
The rapid development of the internet and its tremendous impact on the market have rendered traditional sales models inadequate for modern economic operational needs. ByteWallets technology architecture is flexible and can create relatively independent scenario value chains according to different application scenarios, customer needs, customer structures, and value circulation processes, which can further strengthen the integration of finance and the real economy. This is manifested in several aspects:

- Increasing customer stickiness and stability, making transactions more dependent on scenarios;
- All transaction information of customers in the application is recorded on the blockchain, enhancing security;
- Based on the "trust machine" of the blockchain, the demands of scenario customers are no longer dependent on third-party institutions as in the past, or even on the support of centralized big data. The trust between the platform and customers is stronger than ever before.

(4) Formation of a New Payment Settlement Method

Although in the current internet era, payment settlement efficiency has been greatly improved, it still faces limitations in terms of multi-center, multi-link aspects under cross-currency, cross-border, and multiple economic contract situations, making payment settlement efficiency often inadequate.

The decentralization and peer-to-peer features of BWS tokens can reduce intermediate links, lower transaction costs, significantly improve transaction efficiency, and form a new payment settlement method to drive borderless value circulation.



Chapter6:Project Implementation and Development

6.1 Global Team

The core technical development team of ByteWallets consists mostly of tech elites from Silicon Valley, other top blockchain projects, and renowned internet enterprises. It brings together industry-leading experts in various fields such as computer science, information security, payments, communications, mathematics, finance, web development, and high-frequency algorithmic trading. The team members not only possess strong technical capabilities but also excel in research skills, with market and practical experience in DApp development, payments, big data, wallets, and other areas.

Rick Fishbune - A computer scientist from Singapore who previously worked at the IBM Computer Research Center. He is proficient in mainstream blockchain technologies such as Bitcoin, Ethereum, HyperLedger, with a deep understanding and rich practical experience in blockchain consensus mechanisms, smart contracts, cross-chain technology, sidechain technology, and privacy protection.

Richard Dobrow - A renowned blockchain software development engineer from Silicon Valley, responsible for the cross-platform porting of mining algorithms for virtual currencies like Bitcoin and ETH, and managing mining software development. He has accumulated extensive industry experience in the technical architecture of virtual digital currency wallets and virtual digital currency exchanges.

Justin Drake - His research focuses on big data parallel computing and distributed algorithm optimization, with rich research experience in blockchain, cryptography, and data mining. He will provide in-depth algorithm support for the

project in blockchain core mathematical models, core artificial intelligence algorithms, and big data parallel computing.

Jimmy Lee - Holds a Master's and Ph.D. in Electrical Engineering and Computer Science from the National University of Singapore. His research covers areas such as data mining, e-commerce data, and algorithm optimization. He is responsible for the construction and optimization of artificial intelligence algorithms for the project.

Tony Wong - Holds a Ph.D. in Computer Science from Yale University and has 10 years of experience in data storage research and development. He has served as Chief Scientist at several big data companies and is an expert in business intelligence systems. He will lead the project's architecture and solution design.

Maaghul Clinton - A technical developer with a Master's in Computer Science from Harvard University, specializing in Python language and blockchain technology engineering. His research covers areas such as data mining, artificial intelligence, and algorithm optimization. He is responsible for the construction and optimization of artificial intelligence algorithms for the project.

Matthew Walther - A seasoned engineer in blockchain technology applications and programming, with extensive development experience in the field of private social networks. With 15 years of experience in the internet industry, he is proficient in various computer languages and excels in designing massive high-concurrency available architectures, with rich experience in research and development management.

6.2 Project Implementation Support

Thanks to the continuous development and innovation of blockchain technology, widespread commercial applications, and refined governance, the ByteWallets project has the following support for implementation:

- Strong Team: ByteWallets boasts a mature and robust technical backbone, accumulating rich industry and technical experience in fields such as supply

chain finance, cross-border payments, Internet of Things, information technology, and web3.0. The ByteWallets team consists of seasoned professionals with diverse industry backgrounds, years of operational experience, and profound insights into industry development.

- Abundant Resources: ByteWallets platform will sign strategic cooperation agreements with top enterprises, banks, financial institutions, and others in target industries, providing strong support for ByteWallets to penetrate target industries and truly promote the implementation of payment applications.

- Project Governance: Unlike typical platforms, ByteWallets has clear and specific strategic plans for target industries. It focuses more professionally on leveraging the characteristics of blockchain technology such as distributed decentralization, immutability, Encryption security, and peer-to-peer value transfer to penetrate the payment industry and rapidly gain market share.

- Fund Management: ByteWallets' fund management will strictly adhere to the principles of fairness, impartiality, and transparency, with the development of ByteWallets as the primary objective. A special Byte Ecosystem Development Fund will be established to ensure the security and sustainability of funds. The usage of all funds for ByteWallets projects and foundation will be regularly disclosed to all investors, ensuring transparency in fund utilization.

•Future Space: ByteWallets targets trillion-dollar payment markets. The development team will effectively manage general affairs, code management, financial management, compensation management, and privilege operation scope through a well-designed governance structure to ensure sustainable development.

- Compliance Development: ByteWallets is absolutely secure, determined by technology, with no possibility of offline escape, as ByteWallets is a truly decentralized on-chain open platform, open source, without central servers. This ensures that ByteWallets is safer than existing banks. ByteWallets has no fund pool, completely off-chain consensus transactions. Rooted in the Internet and surviving on the Internet, ByteWallets' rapid development will undoubtedly usher in a new era of currency.

6.3 Market Cooperation

In order to drive the development of BWS token users and the ByteWallets market, we will implement comprehensive promotion and marketing through community, media, and exchange channels.

(1) Community

As a community-driven payment project, ByteWallets inherently embodies decentralized values. Currently, our partners are spread globally, especially in the community field, with significant influence. We will conduct promotion through community channels in multiple countries including the United States, Australia, Singapore, Japan, France, South Korea, and the Seychelles, covering 120 communities simultaneously.

(2) Media

As more application features of ByteWallets are launched and the BWS token is listed on exchanges, we will carry out promotion through global media outlets. These may include outlets such as Deutsche Welle, Lianhe Zaobao, Daily News, BBC, The Wall Street Journal, Yahoo Finance, Google News, Meta, CNN, Bloomberg, Voice of America, and World Journal, among others.

(3) Celebrity Partnerships

To ensure the security of ByteWallets, we have recruited a group of all-star partners from the fields of mathematics, computer science, artificial intelligence, payments, finance, wallets, and Web3 as validators of the BWS token network.

(4) Application Partnerships

The BWS token will establish strategic partnerships with top applications such as BlueMove, PancakeSwap, PONTEM, APTOS, BINANCE, CoinMarketCap, crypto.com, Coinbase, CoinGecko, and Nomics.

(5) Exchange Listings

ByteWallets will collaborate with top global exchanges to introduce the BWS token to the market. By providing liquidity to the market and increasing the value of the token for investors, we aim to attract more like-minded individuals and

entrepreneurs. In the future, with the listing of the BWS token on top exchanges such as Binance, Coinbase, Huobi, OKEx, MEXC, and Bitget, the value of the BWS token will continue to rise.

In the future, ByteWallets aspires to develop more high-quality applications and work with global users to create brilliance, continuously improve decentralized payment infrastructure for global users, and achieve consensus on the value of the BWS token with the support of the community, media, and exchanges.

6.4 BWS Ecological Development Fund

To achieve rapid deployment of ByteWallets globally, we will collaborate with top global institutions to establish the BWS Ecological Development Fund, continuously optimizing the platform ecosystem.

The foundation's responsibility is to focus on the construction of ByteWallets and advocate for governance transparency, promoting the safe and harmonious development of the open-source community ecosystem. Additionally, the foundation will commission credible third-party institutions to assist the team in establishing operational entities and handle daily operations and reporting affairs of the physical architecture. Through the foundation, appropriate community members will be selected to join the foundation's functional committees, participating in actual management and decision-making.

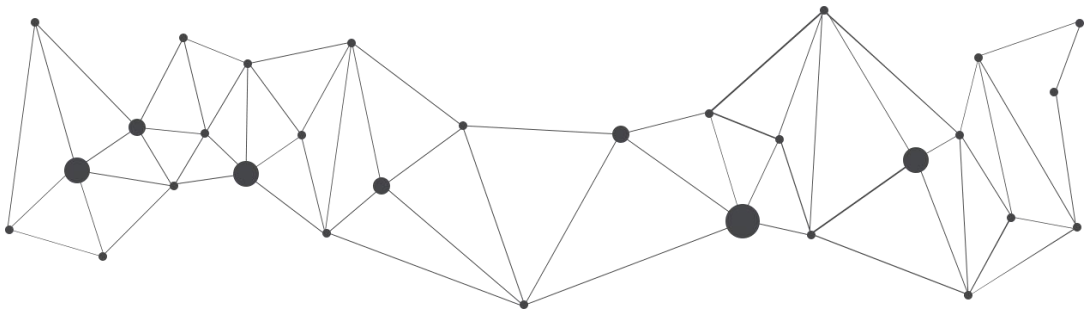
(1) Foundation Organizational Structure

The foundation's organizational structure proposes a combination of professional committees and functional departments to address daily work and specific issues. The foundation will establish various functional committees, including the Strategic Decision Committee, Technical Review Committee, Compensation and Nomination Committee, and Public Relations Committee.

(2) Risk Assessment and Decision-making

Blockchain, as an innovative technology, not only disrupts core computer technology but also revolutionizes various industry sectors. Hence, the importance of risk management cannot be overstated.

The foundation upholds the establishment of a blockchain community-oriented towards sustainable operation guided by risk. The foundation will continuously manage risks in its operations, including the establishment of a risk system, risk assessment, and risk response activities. For significant risks, the foundation's Strategic Decision Committee will discuss and decide. The foundation will categorize events based on their characteristics, such as the degree of impact, scope of influence, amount of token influence, and probability of occurrence, and prioritize decisions accordingly. For events with high priority, relevant foundation committees will be organized promptly to make decisions.



Chapter 7: Risk Warning and Disclaimer

7.1 Risk Warning

- Market Volatility Risk: The virtual currency market is subject to significant fluctuations, and investors should exercise caution regarding investment risks.
- Policy Risk: Changes in policies and regulations may impact project operations. Investors should pay attention to relevant policy changes.

ByteWallets is committed to providing enterprises with more efficient and convenient virtual currency collection services, as well as offering investors stable investment returns and opportunities to participate in project governance.

7.2 Disclaimer

This document is for informational purposes only and should be used as a reference. It does not constitute any investment advice, solicitation, or invitation to buy or sell stocks or securities in ByteWallets or its related companies. Any such invitation must be made through a confidential memorandum and must comply with relevant securities laws and other laws.

The content of this document shall not be construed as compelling participation in the public offering of tokens. Any actions related to this whitepaper shall not be considered as participating in the public offering of tokens, including requesting copies of this whitepaper or sharing it with others. Participation in the public offering of tokens implies that participants have reached the age of majority, possess full legal capacity, and the contracts signed with ByteWallets are genuine and valid. All participants sign contracts voluntarily and have a clear and necessary understanding of ByteWallets before signing the contract.

The ByteWallets team will make reasonable efforts to ensure the information in this whitepaper is true and accurate. During the development process, the platform may be updated, including but not limited to mechanisms, tokens and their mechanisms, and token allocations. Some content in the document may be adjusted in the new version of the whitepaper as the project progresses, and the team will announce the updates to the public through announcements on the website or new versions of the whitepaper. Participants should ensure they obtain the latest version of the whitepaper and adjust their decisions promptly based on the updated content.

ByteWallets complies with any regulatory regulations beneficial to the healthy development of the industry, as well as industry self-disclosure statements, etc. Participants agree to fully accept and comply with such inspections. Additionally, all information disclosed by participants for such inspections must be complete and accurate. ByteWallets explicitly informs participants of potential risks. Once participants participate in the public offering of tokens, they are deemed to understand and accept the terms and conditions in the details, accept potential risks, and bear the consequences.