BULL

Decentralized Finance

Decentralized E-Commerce

Symbiotic Ecological Network

Version 1.0

Contents

Abstract
Decentralized Finance & Decentralized E-Commerce

The rapid development of blockchain technology around the world has greatly impacted the development of many industrial functions. First of all, these changes have affected the financial department. The emergence of the possibility of decentralized data storage and the creation of services through smart contracts have ensured the opportunity for users to flow into cryptocurrency market and the exponential growth of the whole industry.

In this regard, creating tools is one of the urgent tasks in the field of cryptotrade and financial technology to ensure the safe storage and management of participants' funds while working in an untrusted environment. Its solution is achieved through the use of blockchain technology. The concept of Bull decentralized encrypted exchange is based on transparency and security. Based on blockchain technology, a "symbiotic Internet" is built on distributed nodes with decentralized anonymity as the design principle, which is accessible to the public. On this basis, through precise and rigorous product design, Bull runs the initial functions in the cryptocurrency wallet application, realizing a friendly user experience, forming a complete decentralized financial and commercial ecology, and ultimately creating an ecological future monetary network for decentralized symbiotic society. We call it as Bull (Decentralized Finance & Decentralized E-Commerce). Bull is a fusion of decentralized finance and e-commerce, and takes a symbiotic approach with the Internet to penetrate every corner of the world.

Bull's original design intention is to echo, circulate and balance with existing

mainstream Internet applications (such as Facebook, Youtube, WeChat), thus constituting a strong internal structure at the early stage of Bull. Its internal financial balance, community promotion, business interface, value deposition and network expansion will further improve the shortcomings of the centralized business model.

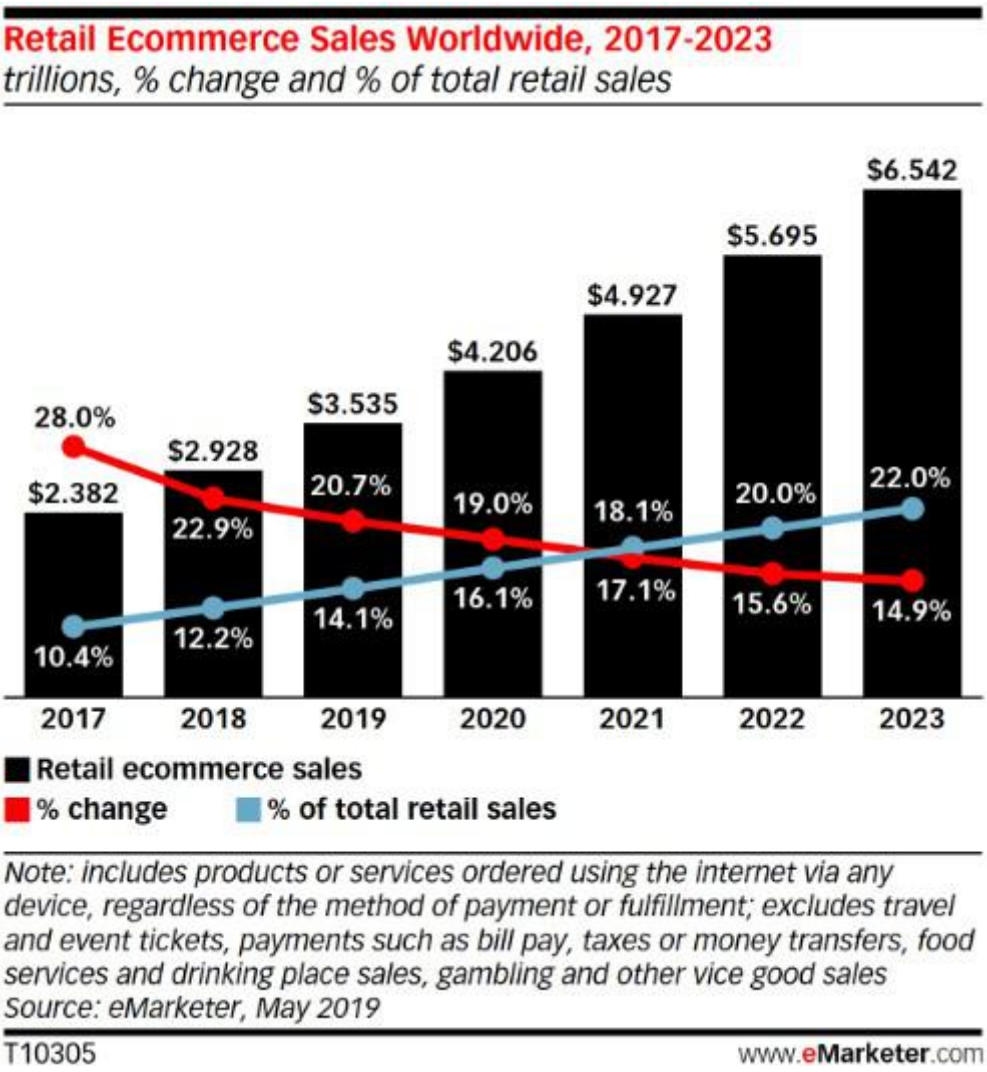
Ultimately, Bull will provide a coexisting and symbiotic Internet for the whole world. It supports the development of independent web browsers, in which each Bull address can be used as an anonymous IP address. In this open symbiotic network, all applications of the centralized Internet can be transplanted. Through the joint efforts of the community, a new and decentralized free ecology of Internet will be created.

Bull is not just a new cryptocurrency, nor is it just a new blockchain product. It is a new symbiotic blockchain financial network, and a truly overturning business practice. Bull hopes to make people realize the long-term significance of decentralized symbiosis, and experience the preciousness of symbiosis and freedom.

Bull will adopt a symbiotic and decentralized approach with the Internet to redefine and distribute global wealth. This is a major migration from centralized wealth symbiosis to decentralized wealth symbiosis. Bull is committed to providing everyone and even every generation with more fair, equal and private wealth autonomy.

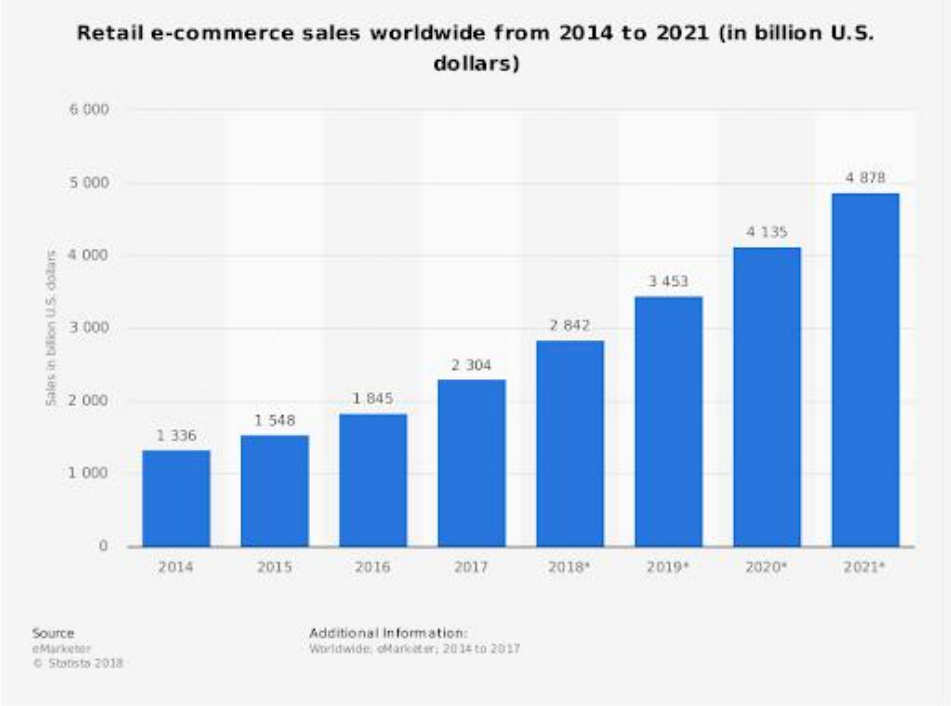
Project Background Information:

The global e-commerce market will reach 353.5 million dollars in 2019 The global e-commerce market will increase 20.7% to 353.5 million dollars in 2019. The growth rate in 2019 is lower than the previous two years, with growth rates of 28.0% and 22.9% in 2017 and 2018, respectively.



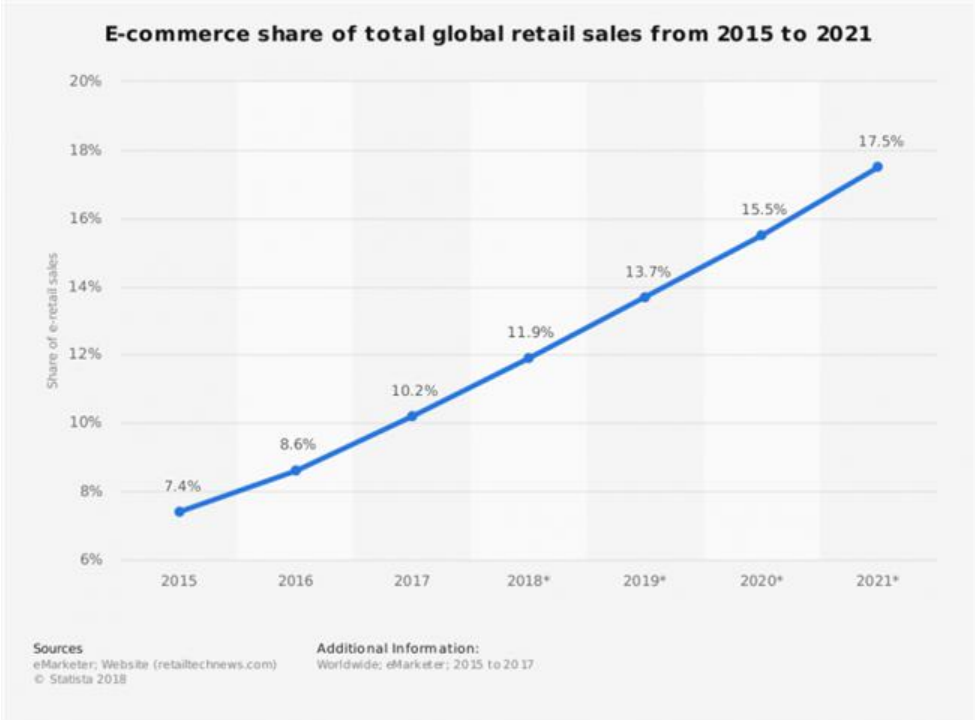
Global e-commerce sales will reach 4.9 trillion dollars by 2021.

By 2021, global e-commerce sales will reach a new high. The global e-commerce business is expected to increase by 265%, from 1.3 trillion dollars in 2014 to 4.9 trillion dollars in 2021, which indicates that the e-commerce market shows no signs of declining and will rise steadily in the future.



(Figure shows estimated global e-commerce sales from 2014-2021)

One of the more interesting points is that global e-commerce sales have continuously cannibalized the global retail market. By 2021, global e-commerce sales are expected to account for 17.5% of total global retail sales, according to the report.



(Figure shows the share of global e-commerce sales in total global retail sales from 2015 to 2021)

Global e-commerce sales are still only a small part of total global retail sales, which means there are more growth opportunities ahead for the e-commerce market. If this e-commerce trend is used, physical stores should embrace infrastructure such as the Internet, etc., to take their business from offline to online, while e-commerce enterprises must find new ways to further enhance their brand influence.

Omni-channel shopping becomes increasingly popular

As the boundary between the physical store and the digital environment becomes increasingly blurred, multichannel shopping will become more prevalent. Data shows that 73% of customers use multiple channels in shopping, which further demonstrates the trend of multichannel shopping mode.

For e-commerce sellers, this means that they should know the purchase mode of customers, marketing channel, purchase motive and major driving factors. In short, omni-channel shopping means they should thoroughly understand what people buy, where they buy, when they buy, why they buy, and how they buy in a particular channel.

There are many ways of multichannel shopping. For example, people can study a product online and buy it in a store, or they can choose online shopping and pick up goods in a store. The more channels your customers use, the more likely it is that the average order value will increase. For example, customers who use more than 4 shopping channels spend an average of 9% more in stores than those who use only 1 channel.

Every contact point is important because even if only one piece of the puzzle is missing, it will not paint a complete story. Knowing your customers' contact point before they buy will give you a better idea of how you should promote your product and allocate your marketing budget.

In 2020, you should integrate offline and online sales into a single and coherent multi-channel shopping. You can create convenient purchase contact point for customers who conduct online study and then buy offline. You can also adopt the strategy of online shopping and picking up goods in a store that allows customers to pick up goods at a nearby store after online shopping. This also means that your offline and online data should stay in synchronization so that you can make faster and smarter business decisions.

Social shopping is on the rise

More and more people will choose shopping on social media platforms. With the improvement of social shopping function, social media platforms are no longer just an advertising channel. People can now easily and quickly buy products on the social media platform they choose. Social media channels such as Instagram, Twitter, PiBullerest, Facebook and YouTube have introduced "buy" buttons and significantly improved their social sales function. Instagram, for example, has introduced a "shoppable post" function and allowed enterprises to attach their product labels in the post and use product stickers in Stories.

Cross-border online shopping becomes increasingly popular

It is interesting that more and more consumers are looking for goods on foreign websites. It was reported that 57% of online shoppers said they had purchased goods online from overseas retailers in the past six months.

(Figure shows cross-border shopping rates of online shoppers in some countries in Latin America, Asia Pacific region, Europe, North America and Africa.)

According to the continent, the average cross-border shopping rates of consumers are as follows: 63.4% in Europe, 57.9% in Asia-Pacific region, 55.5% in Africa, 54.6% in Latin America and 45.5% in North America.

This increasingly growing e-commerce trend is also linked to the aforementioned "globalization". In the face of this trend, except for strengthening your global e-commerce operations, you need to invest in infrastructure and technology that will help you adapt more easily to the shopping habits of overseas buyers.

New payment methods will emerge

Payment options are a major driving factor for consumers to promote e-commerce transactions. Without their selected payment channel, they will not buy goods from your online store. That is why sellers need to stay competitive and always pay attention to new payment methods that potential buyers want.

Digital payment methods such as Google Pay, Paypal, Apple Pay and Samsung Pay are now widely used by e-commerce enterprises. This digital service allows people to go shopping through electronic e-commerce transactions, thus obtaining a more frictionless shopping experience. Furthermore, people truly prefer digital payment methods. In fact, 70% of people expect digital payment methods will exceed cash and credit card payment methods by 2030.

However, cryptocurrency is another payment option that leads the trend. While cryptocurrency is used for large e-commerce transactions at present, the retailer Overstock has also recently cooperated with e-commerce transaction platform ShapeShift, whose online stores will accept payments from customers using more than 60 cryptocurrencies. It can be seen that new payment methods may emerge in the future.

Chapter 1 Original Design Intention

1.1 Centralized E-commerce Transaction Platforms

According to eMarketer's latest forecast, the shares of top 10 U.S. e-commerce companies will increase to 60.1% in the whole e-commerce market by 2020. This proportion is higher than 58.2% last year, because consumers turn to trusted retailers of essentials and brands for reliable service.

Top 10 US Companies, Ranked by Retail Ecommerce Sales Growth, 2017-2020

% change

	2017	2018	2019	2020
1. Walmart	47.2%	38.3%	35.8%	27.0%
2. Wayfair	36.1%	41.1%	35.0%	27.0%
3. Target	28.9%	32.1%	28.1%	24.0%
4. Costco	26.3%	28.1%	19.4%	19.0%
5. Home Depot	22.0%	24.3%	21.3%	18.5%
6. Amazon	24.9%	19.7%	19.1%	17.2%
7. Best Buy	21.8%	10.8%	15.6%	14.2%
8. Apple	35.9%	16.4%	13.3%	10.0%
9. Macy's	13.1%	11.3%	10.0%	8.5%
10. eBay	5.7%	3.5%	-6.5%	-5.0%

Note: represents the gross value of products or services sold (browser or app), regardless of the method of payment or fulfillment; excludes travel and event tickets
Source: eMarketer, Feb 2020

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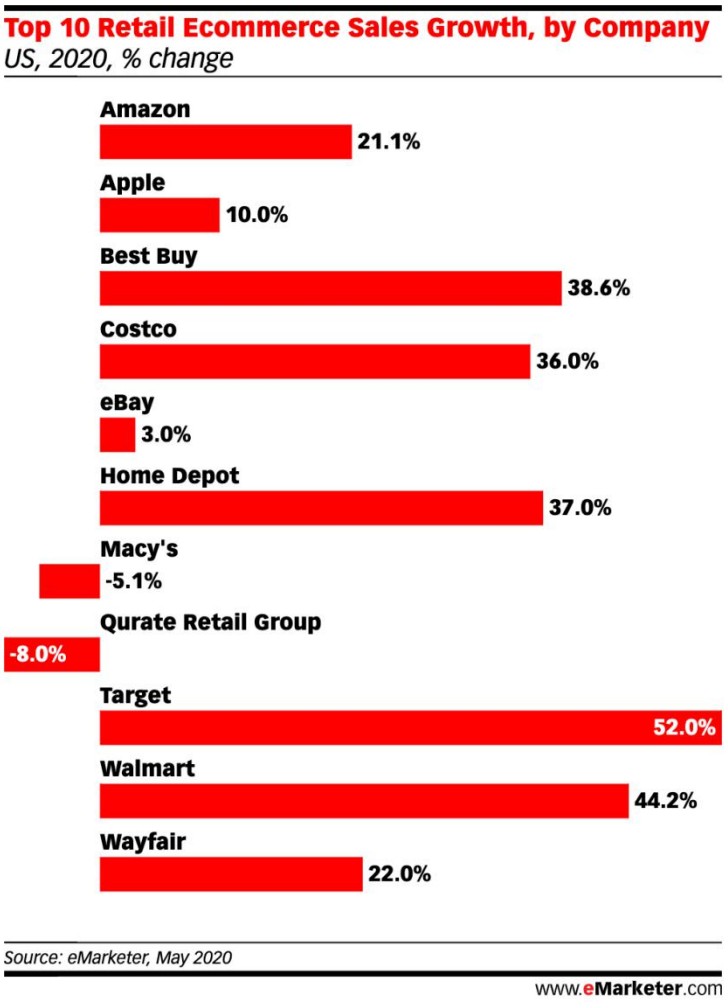
All of these companies experienced a surge in online sales during the COVID-19 pandemic.

E-commerce sales at the top 10 e-commerce retailers are expected to grow at an above-average rate, with 21.8% this year, exceeding the overall market growth rate (18.0%).

Amazon will maintain its No. 1 position as it increases its e-commerce market share to 38.0% from 37.0% in 2019. Walmart, with its 44.2% expected growth rate, will exceed eBay as the second largest brand with 5.8% market share, which is higher than 4.7% last year.



1.2 Analysis of E-commerce Transaction Platforms

1.2.1 Harm of Centralized Internet Platforms

On July 16, 2019, the Judiciary Committee on Antitrust of the United States House of Representatives held a hearing on the alleged monopolization of four major Internet enterprises, Amazon, Apple, Google and Facebook, signaling a new round of antitrust investigations into these Silicon Valley giants.

In recent years, Facebook and other Internet giants have been widely questioned for their lack of privacy protection, content regulation, and fair

competition, while achieving both user and revenue growth. The subject of this congressional hearing is "antitrust," but other issues have also been addressed in the hearing. On the eve of the hearing, the U.S. Federal Trade Commission (FTC) imposed a fine of 5 billion dollars and other additional restrictions on Facebook for the mishandling of users' personal information by this social network site.

In his book, The Master Switch published in 2011, Tim Wu points out that film, telephone, radio, television and other media have all gone through a history of starting out in chaos, innovation, openness and free access, but ultimately being captured by the enterprise benefits. So, what about the Internet?

1.2.2 Decentralized Blockchain Platforms

By observing the development of cryptocurrency in the past decade, we find that Bitcoin has brought people not only "a new technology", but also a kind of overturning thinking and exploration. Therefore, we continue to search for a fair, balanced, and credible way to change the Internet and shape our new future.

There is no doubt that the idea of "decentralization" is not new. What is certain is that Bull is a new approach and a new way of thinking to rebuild the current social order, not limited to online and offline, finance or interpersonal relationship. We will jointly build a complete ecosystem. We hope that the Bull will not only bear a currency in circulation or a blockchain industry, but also lead the development more constructively with decentralization as its core concept.

We also hope to bring true and comprehensive freedom to the world through Bull. Every participant deserves true symbiosis, wealth, Internet and freedom of thought, and keeps away from any restraints of centralized institutions. Achieving this freedom requires a mature Bull ecology, which can not be realized without the combined efforts of the participants. Only when enough people participate in the construction of Bull ecology can the entire ecological network have a safer, healthier, more stable, and more sustainable development. Only by allowing more people to participate can complete and lasting freedom be achieved. Belief is priceless, but it is not enough to motivate more people to participate. In order for more participants to participate in the construction and expansion of the Bull ecological network, we must provide all users with more stable and profitable opportunities. As the standard monetary unit in the Bull ecosystem, Bull is of great importance. It is the driving force for the stable development of the whole ecology. More people will intend to participate in the construction of eco-network only if Bull can provide considerable profits.

The current cryptocurrency industry is an internet based financial market. Experienced practitioners clearly know that they need to follow the user demands of the financial market under the premise of this Internet thinking.

Changes in the price of the transaction medium affect the market confidence.

1.2.3 Decentralized E-commerce Transaction Platform

Decentralized e-commerce transaction is based on distributed ledger technology, and it operates independently and does not need people to maintain its operation. An e-commerce trader's assets on the decentralized platform are kept in his own account, which is not accessible by the Internet giants, and he can conduct transactions directly on the decentralized platform. The supporting technology of the e-commerce transaction platform ensures that e-commerce transactions run smoothly and are settled correctly.

The decentralized e-commerce transactions have obvious advantages. Traders' assets are well protected, and transaction costs are low. Traders are free to participate or leave, and they can conduct transactions with anyone in the world as long as the other party also uses the same transaction platform. However, decentralized e-commerce transactions also have serious shortcomings, especially in terms of liquidity, matching speed and flexibility. In addition, existing decentralized e-commerce transaction platforms retain the e-commerce transaction instruction set of chain users. Once users choose to adjust or cancel the bidding instructions, the system will have an expensive return cost. Repeated modifications of e-commerce transaction instructions will make this problem more complicated, and costs will also rise rapidly. These shortcomings have resulted in decentralized e-commerce trading never being widely used in cryptocurrency e-commerce transactions.

The new decentralized financial e-commerce transaction platform (Bull)

takes a symbiotic model with existing Internet applications, perfectly solving the problem of blockchain liquidity, matching speed and lack of flexibility, while solving the problem of creating a fair, balanced and trustworthy complete transaction ecology to achieve the free and safe flow of wealth.

1.2.4 Changes by Symbiotic Ecological Chain

Bull symbiotic ecosystem includes a new cash collection market, which is planned to pop up online in the second half of 2020. In addition, Bull's new market provides the following advantages:

Up to 100% cash back: Bull customers can influence the speed and cash flow of all their purchases into their wallets on Bull. Bull users can influence the amount of cash back they receive through a variety of platform activities, such as inviting new active users, participating in surveys, or writing helpful professional pipeline reviews. Even after the first purchase, users will also receive a daily amount of cash back. This happens with their purchases until 100% of their purchases are fully repaid.

Unlimited cash back repayment, and 100% cash back is allowed.
Unlimited market: Bull decentralized ecosystem not only allows online retailers to place their products for free, but also allows offline stores to participate in their product diversity. The market is also a new and familiar platform.

Real-time cash back and fast payment speed: Of course, Bull can only pay what has actually been collected, which can not be withdrawn again. For example, it may take me several weeks to receive advertising revenue. To increase the speed of payments, Bull introduces Bull-Coin, which makes it

possible to pay advertising revenue immediately in cash. For Bull users, the coins are available in their wallet app within 24 hours as part of the cash back amount. This ensures that users get maximum cash back without having to search for coupons: there is a return. Users will not have to search for coupons or compare discounts, and they will get up to 100% cash back on all purchases.

100% cash back at most: For example, in the technology department, it is common to see an average of only 1% to 2% of the cash back quota. The cash back is not only paid out of the seller's profits. As a result, Bull can allocate higher amounts, even in categories with low profit margin and cash back.

Low expense: The expense provided by Bull for sellers is lower than other famous markets. This point, coupled with the competitive conditions in the market, results in significantly better prices for the end customers, producing less pressure on sellers.

Complete transparency: Bull has no customer loyalty system, no complicated points collection system, no cumbersome points exchange and no unattractive rewards.

Full-chain transaction: in Bull, e-commerce transactions, digital asset custody, and digital asset liquidation are completed in the centralized e-commerce transaction chain. Bull decentralized e-commerce transaction platform uses DeFi. Decentralized Finance, and all liquidation is completed in the Bull e-commerce transaction chain. Asset custody is placed in the local mobile wallets of customers. In this way, Bull decentralized financial e-commerce offers customers a great experience in terms of liquidity, matching speed and flexibility in e-commerce transactions, while addressing

the security of digital assets.

Specifically, Bull decentralized e-commerce transaction platform divides e-commerce transactions into separate entities, and the e-commerce transactions will be handled by the centralized e-commerce transaction service based on the Bull solution. Unlike centralized ecommerce transaction services, the liquidation service in Bull is based on distributed ledger technology, and distributed ledger technology ensures that the liquidation service is completed correctly and safely. By using distributed ledger technology, e-commerce traders' assets are kept in their own cold wallet accounts in the blockchain. No one can access e-commerce traders' assets without their permission, effectively eliminating the asset risk to the e-commerce traders in the current centralized e-commerce transactions.

Bull solution will be an open source e-commerce transaction service based on the public blockchain, with its code open for public inspection and supervision, and the Bull ecosystem provides users with the following advantages:

- **High security**

User assets are stored in cold wallets, all of which kept on the blockchain, and assets can not be moved without the permission of users. The multi-part private key further protects the user's assets and provides a secure recovery mechanism in case the user loses the private key. Smart contracts and blockchain technology ensure the correctness of e-commerce transactions and settlements. The original CVF-POS algorithm of the e-commerce transaction chain ensures the security, correctness and high speed of e-commence transaction chain.

- **Centralized e-commerce transaction experience**
- **Expansibility of ecosystem**

Bull ecosystem can be connected to a variety of functional platforms, such as instant communication platforms, shopping platforms, news platforms and so on. The various functional platforms can be interfaced with all the products and services offered by Bull, including basic wallet function and e-commerce transaction function.

In any e-commerce transaction market, the cash flow into the market is directly related to the number of users involved. Therefore, all users of Bull participate in the decentralized fission promotion, which provides a large number of users to the system while obtaining revenue.

It is a benign solution for cash flow. As Bull price rises, users will become more active in fission expansion, doubling the number of users in the Bull eco-network.

In addition, a large amount of Bitcoins will be used as a reward for week fission promotion of each block to motivate more users to participate in the Bull eco-network. The number of Bitcoin rewards all depends on the number of Bitcoins participating in financial e-commerce transactions. The higher the earnings generated by Bull, the more Bitcoins participating in financial e-commerce transactions and the greater the incentive for new user growth. We know that the price of e-commerce transaction medium depends not only on the cash flow into the market, but also on the total number of tradable e-commerce transactions in the market at the current time. In the Bull ecosystem, the creation of super symbiotic nodes will generate considerable Bull earnings for the participants. With the increase of Bull earnings, more and more participants will gradually understand its value,

thus creating more Bull symbiotic nodes in order to obtain more Bull.

The increase of super symbiotic nodes provides more stable network services for the Bull ecosystem. For example, to create light nodes, you need to lock 50 bull. A deposit of 10,000 bull is required to establish super symbiotic nodes, so more nodes means more bull will be used as the deposit, which helps to greatly reduce the number of tradable Bull in the market and stimulate its price growth.

In addition, the exponential growth of users within the Bull ecosystem has accelerated the purchasing demand for Bull, thereby multiplying the market demand for Bull, further reducing the total amount of tradable e-commerce transactions in the current period, and creating a virtuous cycle of value and a sustainable and stable growth.

As the value of Bull continues to rise, a large number of users will continue to participate in the expansion of the Bull eco-network. In order to increase user stickiness, we have added more meaningful functions in the ecological network, such as the whole network broadcasting system that precisely connects to all Internet users, the chain merchant function that connects to business value, and DeFi decentralized financial network function that securely connects to global legal tenders. With these functions and applications, the value of using Bull will be highlighted as people experience the Bull ecosystem,which has laid a foundation for Bull to become a universal currency in the future.

Driven by Bull's earnings and the joint efforts of a large number of participants, Bull's ecosystem will have a rapid development. The maturity of the Bull ecosystem is bound to have a huge wealth effect.

Chapter 2 Symbiotic Ecological Network

2.1. Formation Stage of Symbiotic Ecology

The decentralizing forces in the Bull ecology will redefine the way the centralized world works and bring a new symbiosis and inspiration to the operation of all aspects of society. The Bull ecological network, when truly formed, will achieve the following development goals.

2.1.1 Bull users has reached 100 million

Users determine the true value and activity of Bull's entire ecosystem. The current corporate valuation of Facebook is 580 billion dollars and the number of daily active users is 300 million, which is enough to make it the most influential and widely used social software in the world. We adopt symbiosis with Internet giants such as facebook. The number of Bull using the symbiotic e-commerce chain function will quickly reach 100 million. Bull ecology will thus gain enough vitality to provide strong support for the other links in the ecology.

2.1.2 Match the world's 50 major legal tenders

As the lifeline of the cryptocurrency economy, cash flow plays a key role in the overall ecological growth of the project. The more abundant the cash flow into the economy, the stronger the value driving force in the project ecology. Similarly, the more types of legal tenders Bull interfaces with, the more cash flow channels are formed to provide the project with an adequate base for currency exchange and circulation, and the larger the volume of funds flowing into the economy. As the world's largest third-party payment platform, Paypal is currently able to match more than 20 types of legal

tenders around the world. We believe that once the number of legal tenders exchanged by Bull reaches twice that of Paypal, and the number of legal tenders exchanged by Bull reaches 50, it will become the best channel for global currency circulation, which is sufficient to support Bull's business ecology. The formation of decentralized financial ecology enables everyone to participate more actively and finally realize the docking of all legal tenders around the world.

1. Connect 500,000 Merchants in the World

The number of merchants in Bull determines the economic viability and monetary use value of the entire ecosystem. Currently, Amazon has more than 2 million merchants and the world's largest real sales volume. We will reach 25% of Amazon's merchants in Bull ecology(500,000), which is enough to make Bull become the most influential decentralized e-commerce retail network, fully activate the potential spending power of the symbiotic ecosystem, and fully demonstrate the commercial value of the symbiotic ecosystem.

2. 20,000 merchants have become Bull super merchants

When the core merchants offering quality goods and services in Bull reaches a certain number, the synergy of entire ecosystem will be strengthened. Once the number of super merchants in the ecosystem activating chain merchant contracts reaches this number, with Bull's massive user base and superior financial design, the volume of e-commerce transactions and total amount of e-commerce transactions will exceed many of the current centralized mainstream e-commerce platforms, ushering in tremendous market value growth.

3. More than 2000 DApps in ecology

More than 50 fields have been affected

In addition to changing the centralized business pattern, the DApps in the Bull ecology and their developers, are fully capable of changing the operation modes in more fields throughout the world. As of today, the number of valid DApps in ethereum is 1,119, with a total value of 1.8 billion dollars, but they do not truly have an effect. Not only does Bull plan to surpass Ethereum in terms of the number of DApps, but its total market capitalization will also triple that of Ethereum. At the same time, these DApps will have a profound impact on more than 50 industries and sectors, including insurance, health, energy, catering, services, media, education, manufacturing, public benefit, etc., benefiting from the cyclic action of the entire ecosystem.

As Bull takes a symbiotic approach with the Internet giants, the number of users will no longer be an issue. In the Internet era with customer orientation, the expansion of ecology requires everyone's participation. Through an innovative trust symbiotic network system, Bull has built a completely decentralized and multi-level interpersonal fission promotion system based on blockchain technology. It achieves a symbiosis of trust between users, resulting in a significant increase in profit-driven sharing and an exponential growth in the number of new users. Bull has enabled more than 2 million users worldwide with at least 0.1 Bitcoin in their hands to become the initiators of the trust symbiosis system, based on the account e-commerce transaction snapshots of 558,000 blocks in the BTC chain., so that Bull has been present in every corner of the world from the beginning, covering a wide range of users

Bull has realized a symbiotic e-commerce chain system through a network with anonymous distributed symbiotic nodes. While managing your own symbiotic system of trust, you can also have highly private conversations with friends. This helps to maintain the viscosity of users to Bull, turn each user into a loyal fan and ensure the rapid and stable development of the ecology. According to the immutable law of the Internet, Bull will achieve higher social value once it has a large user base.

2.1.3 Decentralized Financial Network

Global legal tender docking will no longer be a problem. Bull has realized distributed DeFi decentralized financial network e-commerce transaction function through symbiotic e-commerce chain groups combined with smart contracts. Bull is used as an e-commerce transaction medium for seamless exchange with global currencies. Bull users can join multiple legal tender e-commerce transaction groups and exchange their Bull for any legal tender in the world. Because this method transfers money through a peer-to-peer personal bank account between two parties, legal tender remittances are fully decentralized and can not be locked by centralized financial institutions. In addition, real name authentication, anti-money laundering and "know your customers" are entirely at the discretion of the buyer and seller during the e-commerce transaction, and the group owners can set their own requirements on the DeFi network, but Bull is decentralized in any case. Therefore, the decision-making power is entirely in the hands of the participants. This eliminates the resistance of centralized finance to cryptocurrency e-commerce transactions, allowing Bull to complete e-commerce transactions without relying on third-party e-commerce exchanges. The global legal tender channel has been connected to the entire cryptocurrency industry, which has opened a free channel.

Full-coverage Distributed Bidding Information Network:

The commercial viability in the Bull's symbiotic ecology will no longer be an issue. Bull's large user base and accessible payments are two necessary foundations, but it is not enough to make Bull become a universal cryptocurrency in the future, and be widely used in all business environments. Even if the value is high enough or merchants are ready to accept cryptocurrency payments, the inability of merchants to accurately find cryptocurrency holders creates informational resistance to purchasing or sales behavior.

The full-coverage distributed bidding information network enables merchants to accurately find Bull holders through decentralized advertising delivery mode. This enables easy, efficient and fast connections between supply and demand in the Bull ecology, stimulating the rapid development of business activities. The value promotion of Bull will also mean that more merchants will be willing to accept Bull payments. These merchants will also be able to accurately find their target users through the symbiotic full network (full-coverage distributed bidding information network) and send their product and service information directly to Bull users' wallets, making Bull form a strong business ecosystem.

Smart Business Embedded in Consumer Capital System:

The sales power of merchants who join the Bull symbiotic e-commerce chain is no longer an issue. Bull facilitates business development and accelerates the circulation of economic elements in the Bull ecology by effectively connecting the supply and demand parties. We have also deepened the Bull business ecosystem with a unique smart contract - the chain merchant contract. All merchants who activate the chain merchant contract will become super merchants in the Bull ecosystem, so as to obtain the enormous spending power generated by the huge user support, which

will be translated into absolute sales power of super merchant.

Any user can convert consumers in their trust symbiotic system into consumer capital through chain merchant contract. This will effectively stimulate retail consumption across the entire ecosystem, helping merchants gain great promotion, sharing and sales power in the symbiotic network of trust. It enables Bull to own the value of payments while facilitating collaboration. It brings a new complex commercial system so that the business development becomes more free and active. The chain merchant contract allows Bull to evolve into a balanced, positive and circular ecosystem. Merchants will offer products and services with competitive prices to consumers in a free market environment, while at the same time consumers will be able to profit from the promotion of their products. It is a completely consumer-driven business environment. Its decentralized nature overturns the entire traditional Internet business and promotes the benign development of commerce. This is the charm of decentralization.

Highly Expanding Contract Social Collaboration System:

Realizing the value of applications will no longer be a problem. In the future, Bull will be a collaborative network, which means that it will carry out fast and efficient collaboration through network in organization, production and creation. Blockchain technology will allow the collaboration of things, exchange units of value such as resources, time and money, and reconfigure supply chain and production process based on shared supply and demand information. This means that anyone who wants to create or capture value in the future must participate in this collaborative network. Blockchain technology is the key to turning our global collaborative network into reality.

2.2 Chain Merchant Contract Function

2.2.1. Chain Merchant Contract

According to the report of World Economic Forum, by 2027, 10% of global GDP will be stored via blockchain technology. There have been several government reports on blockchain and over 500,000 blockchain publications have come out in the last two years. There are over 3.7 million search results of blockchain in Google. It is worth noting that this technology field is attracting a lot of investment. Venture capital investment in startups continues to rise, reaching 1 billion dollars in 2017. Funds raised through ICO (blockchain's unique fundraising channel) have soared to over 5 billion dollars.

However, putting aside all the promotional hype, there are few real applications of blockchain technology. The blockchain market has only begun to sprout and has no complete and clear business route. In this market context, with its decentralized concept, Bull's chain merchant contract function opens the door to a whole new world of blockchain business applications. Chain merchant contract is a unique smart contract system in Bull. Supplier around the world can register a collection address on the Bull chain, set smart contract commission rate, and activate the chain merchant contract. Through these smart contracts, merchants register their collection addresses under their trust symbiotic system, set the distribution rate of the contract commission, and further create their own blockchain symbiotic sales network. All Bull users in the trust symbiotic network purchase in the merchants with the activated merchant contract, and all of the unlimited upward Bull with direct connection in the Bull fission tree will receive the chain merchant contract commission from the merchant.

Example 1: Amy is the merchant who activates the chain merchant contract. If John purchases Amy's goods, all line relationship superiors in John's trust symbiotic system can get the corresponding commission.

This design stimulates product promotion because any user who wants to receive commission must share the seller's product information with their subordinate users under the trust symbiotic system. This is equivalent to easily having a large sales team in the world. All Bull users can convert every Internet user in the trust symbiotic system into their own consumption capital through chain merchant contract.

Example 2: Amy is a merchant who activates the chain merchant contract, and John wants to receive Amy's commission. So John promotes Amy's product to all Internet users in his trust symbiotic system. When any user in John's trust symbiotic system purchases Amy's products, John will get the corresponding commission, and all John's superiors will get the corresponding commission at the same time. All users in John's trust symbiotic system can be regarded as John's consumption capital.

In the practical application of Bull chain merchant contract, various sales promotions can be made. This is a high degree of integration of blockchain technology with daily life. Consumers can completely use Bull and complete consumption expenditures through chain merchant contract. Whether it is a fast food or medical treatment bill, we can create a unique chain merchant contract to complete a series of related payments. Likewise, suppliers can use Bull's bidding advertising function to obtain a large number of consumers, provide more convenient services and experiences for their customers, and carry out rapid promotion through trust symbiotic network and simple commission settings. When combined with other Bull functions, everyone can simply integrate his existing resources to complete

consumption or sale. It is also feasible for virtual products. Consumers can buy and sell coupons and game props directly within the Bull through chain merchant contract. Regardless of the amount of consumption, every payment will be made precisely according to the contract. The relationship between supply and demand, and the promotion method will be extremely clear. We will complete the capital flow of various categories in a more efficient, flexible and convenient way. Even large shopping platforms, such as Wal-Mart, can further develop and apply Bull chain merchant contracts and integrate them into their payment systems of shopping platforms. When a new user completes registration, a corresponding merchant contract collection address will be generated.. Compared with the traditional shopping platform, this is a very subversive blockchain industry practice, because it will transform every new user into a marketing promotion force. Based on the Bull smart contract, the chain merchant contract, by implanting each user and the interpersonal relationship under its trust symbiotic system, constitutes a decentralized business model of value sharing. Any merchant can carry out commission allocation settings through smart contract in case of decentralization and mobilize the promotion enthusiasm of each users relying on the trust relationship established within the blockchain. The users share the sales commissions received from that product or service, help the merchants to get a constant flow of customers and promote the sales of products or services. The high-quality products will receive greater promotion to increase product sales, which will overturn the existing centralized business mode of thinking. Each user will build his own business ecosystem through Bull and use decentralized thinking to reshape the blueprint of a global business empire.

2.2.2 Quick Pass Network

Cryptocurrency has enormous advantages. It is safe and is completely controlled by us. But it also faces a great challenge when it comes to daily payments. The payment speed is too slow. Every penny paid by us needs to be queued up on the blockchain, waiting for miners to broadcast and record e-commerce transactions. The payment speed is entirely determined by miners. You can also pay high service charges to increase the speed of e-commerce transactions, but the result is likely to be that you go to Starbucks and buy a cup of coffee with cryptocurrency. The e-commerce transaction service charge greatly exceeds the price of the coffee itself for the sake of a fast e-commerce transaction. In terms of cryptocurrency, increasing the speed of e-commerce transactions is conductive for daily payments. Otherwise, cryptocurrency may be difficult to compete with Visa or other payment methods. The advent of Bull Quick Pass allows cryptocurrency to be used for daily payments and develop in a better direction. Bull Quick Pass opens a payment channel by setting up a multi-signature wallet containing a certain number of cryptocurrencies and setting up a savings wallet address on the blockchain. This payment channel allows all parties to complete an unlimited number of e-commerce transactions, but none of these e-commerce transactions are made public on the blockchain. After completing all the planned e-commerce transactions, the final balance will be stored in the blockchain and the parties can recover their wallet shares. In short, Bull Quick Pass allows direct e-commerce transactions between users rather than broadcasting e-commerce transactions to the world in a manner similar to recharging an address in advance. In this way, e-commerce transactions can avoid expensive and slow interactions on the blockchain and directly carry out fast and cheap payments. Bull has an open attitude to Bull Quick Pass and will continue to optimize and upgrade the main chain after it is launched. Bull will also

support the Quick Pass network to make e-commerce transactions faster and more convenient. Bull Quick Pass provides Bull with a scalable micro-payment channel, which greatly improves the processing capacity of e-commerce transactions outside the Bull chain. If both parties of e-commerce transactions have a payment channel on the blockchain in advance, they can make multiple, fast, high-frequency and two-way micro-payments. If there is no direct peer-to-peer payment channel between the two parties, Bull Quick Pass can realize the reliable transfer of funds between the two parties through a single payment path composed of multiple payment channels.

2.3 Unique Selling Points of Sellers

I have developed an attractive platform for both customers and sellers (and advertisers). On the one hand, the platform takes into account the customer needs to save opportunities more consistently than all other cash companies. On the other hand, Bull's new market also creates attractive opportunities for retailers (and advertisers) and offers the following unique selling points:

High willingness to buy: Customers can get 100% cash back from Bull. I provide advertising revenue for all items they purchase on Bull. This encourages people to be willing to spend more money and accept the purchase decision. For example, a recent study has showed that consumers spend an average of 46% more when they receive cash (Source: Cash payback industry news).

Loyal customers: Bull customers will have an incentive to always choose the products available on Bull because they receive up to 100% cash back. Therefore, viral marketing and "user-generated contents" will be the main factors in the rapid growth of the reward community.

Perfect goal: Utilize the market in real time and provide effective and efficient advertising opportunities. For example, sellers can accurately address users who are looking for products.

Increase customer loyalty

Sellers not only win customers who are willing to buy in return, but also retain these customers more easily.

2.3.1 Unique Advertising Selling Points

With millennials as the primary target group, Bull just contacts people (between the ages of 18 to 35) who rarely use traditional media, such as television and print media. For many advertising agencies, this makes it difficult to contact this group.

2.3.2 Function Comparison

Comparison of different e-commerce transactions and e-commerce transaction mechanisms			
	Centralized e-commerce transactions	Distributed e-commerce transactions	Bull
Asset custodian of a single party	Yes	Yes	No
The customer owns the private key	No	Yes	Yes
Private key change	No	No	Yes
Deposit and withdrawal	It takes a long time to approve withdrawal.	No limitation	No limitation
Internal fraud risk	High	Low	Low
E-commerce transaction cost	Low	High	Low

E-commerce transaction speed	High	Low	High
Fraudulent e-commerce transaction	Maybe	No	No
E-commerce transaction liquidity	High	Low	High
User experience	Good	To be improved	Good
KYC	Yes	No	Yes
AML	Yes	No	Yes
Penalties for e-commerce transactions	No	No	Yes

Chapter3 Symbiotic Network Technology Framework

3.1 E-commerce Transaction Function Units

➢ **E-commerce transaction chain**

The e-commerce transaction chain is the core of the Bull e-commerce transaction ecosystem. It is an open source cryptocurrency e-commerce transaction solution based on distributed ledger technology, and provides e-commerce transactions and settlement services to individual and institutional users. The chain is deployed on multiple nodes in the public cloud, and it uses a CVF-POS symbiotic mechanism to validate e-commerce transactions.

➢ **E-commerce transaction contract**

Based on smart contract technology, the e-commerce transaction smart contract plays a key role in this e-commerce transaction service. All the

e-commerce transaction and settlement business rules have been incorporated into this e-commerce transaction contract, and this smart contract completes the entire e-commerce transaction and settlement cycle of matching e-commerce transactions.

After Bull forms a matching e-commerce transaction, it is sent to the e-commerce transaction chain, and then an e-commerce transaction smart contract is formed for the matching e-commerce transaction. This e-commerce transaction smart contract will first validate the matching e-commerce transaction to ensure that it meets all business requirements. Once the validation is complete, the smart contract will update the corresponding account on the ledger through symbiotic mechanism.

- **E-commerce transaction account**

A dedicated networking e-commerce transaction account (hot wallet) will be created for each user. This account is used to register digital assets and retain asset balances and e-commerce transaction history. Since all Bull users use one e-commerce transaction ledger, customer accounts are created and managed on the same ledger, and customer e-commerce transaction assets are managed on the same ledger as well. Bull's supporting technology and e-commerce transaction rules significantly reduce the cost and errors of e-commerce transaction platforms. The technology and business rules used by Bull are open and transparent to users and e-commerce traders, so Bull can provide them with reliable and trustworthy e-commerce transaction and settlement services.

In order to protect the security of sensitive messages on public network and the user's autonomy of clear, transmitted messages use smart contracts as carriers. The message contains elements such as public key signature, smart contract address, clear message, random number, signature, etc. The clear

message is a binary string specified in the form of the above protocol and the signature is the ECDSA result of the clear message computed by Hash algorithm.

Bull uses cross-chain technology and the e-commerce transaction chain supports multiple assets. These assets can be transferred between different chains via IBAS (IBuller Blockchain Assets SettlemeBull) protocol. Based on the e-commerce transaction chain, Atomic settlement supports the settlement of asset e-commerce transactions between different user wallets. Using atomic settlement, Bull wallet users can handle different types of digital assets securely and directly, while the underlying e-commerce transaction chain performs all the necessary work, such as encryption and coexistence. Atomic settlement in the e-commerce transaction chain solves the current problem of digital asset islet and makes financial e-commerce secure and convenient.

- **Bull cold wallet**

Bull cold wallet is a customer system for the e-commerce transaction chain. It is a non-networking and distributed wallet that supports many types of cryptocurrencies. It has the following characteristics:

- Multi-part private key: Three parts of private key are used. Any two parts need to be used together to access the assets in the wallet;
- The private key can be recovered: If the user loses part of the private key, the private key can be recovered;
- Full autonomy: Users have full autonomy over the digital assets in their wallets.

3.2 DeFi Technical Components

3.2.1 Basic Components

The Bull platform, based on the Solidity language, is the main basic component of the DeFi protocol, that is, a flexible smart contract for asset security.

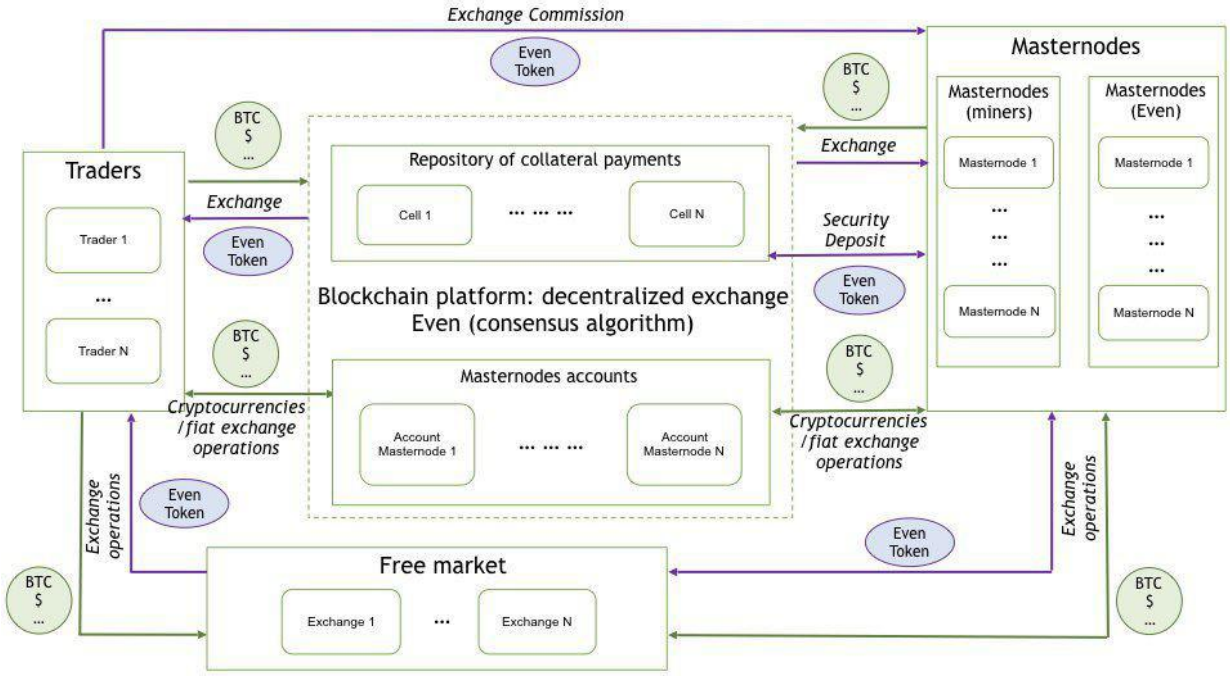
3.2.2 Design Concept

Bull, as the core on-chain framework, is based on Solidity smart contract and has been adjusted and optimized to address the inconveniences of contract development while insisting on decentralization and asset ownership.

Bull's core idea is asset security and component flexibility, with the following three key characteristics:

- •Assets Protected
- •Logic Upgradable
- •Data Extensible

3.2.3 Structure Chart



Bull as a whole can be divided into 3 major modules:

Data: The data part of the classical contract structure is independent, and a data contract or a group of data contracts are made for data storage. The necessary read-write interfaces are only exposed outside.

Logic: Logical contracts are responsible for pure business logic, excluding business data.

Router: The field data that business logic needs to read and write can be queried from the routing table according to the data module and field name, and then accessed according to the location result.

Routing table

The routing table is an independent contract and contains a routing comparison table that stores routing mappings to logical and data contract addresses and can be continuously updated with the system upgrade

After the entire deployment of the contract system, the addresses of each logical contract are stored in the routing table, and external requests can access the routing table, obtain address mappings for the logical contracts, and invoke their interfaces. Data contracts can also query the routing table for logical contract addresses and make calls or callbacks to business logic.

For each set of data, there will be a separate data contract of its own, and the address of the data contract will be automatically stored in the routing table when it is created. Before the logical contract can access the specified data, it first obtains the data contract address from the routing table, and then reads and writes the data contract from the address.

Logic upgradable

Logical contracts do not store assets and do not contain business data, so there are no asset security or data migration issues. As a result, logic is upgradable and pluggable. The new version of the logical contract can be deployed to the chain after it has been tested and audited.

The deployment of the new contract will update the mapping table data in the routing table contract at the same time and change the address mapping direction of the logical contract in the routing table for query and invocation of other contracts or application front ends.

Data extensible

As an iterable and upgradable application, its data structure is often required to be iterable as well. However, data contracts are not upgradable considering data ownership and asset security. The solution we adopt is extension. If the business needs to add new fields, those fields are stored in a completely new data contract. At the same time, the address and field name of this new data contract are added and updated to the routing table. The

business logic queries the routing table to get an address route for reading and writing the new field.

The expansion of data contracts should be moderate and limited. Adding new data contracts all the time increases the complexity and operational efficiency of the entire system. The data extension mechanism simply makes the need of data structure iteration become possible, and frequent and arbitrary use of the mechanism is not recommended.

In designing and using data structures, we still need to follow the classical design principles and best practices of the contract to design adequate and flexible data structures. Data extension should always be done with restraint, and data extension mechanism should not be used unless necessary.

3.2.4 Asset Security

If logical contracts are upgradable and data contracts are extensible, the accompanying question is that whether the user's data ownership and asset security can be guaranteed.

It is well known that for traditional DeFi applications, all of the user's assets are locked in a contract. Smart contracts, especially open-source contracts, guarantee the user that no one else, except the user, can have access to the user's assets locked in the contract. Further, the unmodifiability of the contract makes no change in codes once the deployment is done.

Bull has adopted the separation of duties approach to address the security of contract assets under the upgradable framework.

While business contracts are modifiable and upgradable, data contracts

follow the idea of classic contracts and can not be modified or upgraded. At initialization, each data set automatically generates an initial data contract whose code logic can not be modified once it is deployed on the chain.

The data contract maintains an internal mapping table of user addresses and asset details. This mapping table is in the data contract and provides only two interfaces for the user's assets. Other interfaces have no authority to write and update the asset table.

The user records the e-commerce transaction and sends it directly to the data contract address, calling its entry interface. After the user's assets are locked into the contract, the user's address and assets details are recorded in the asset mapping table. The logical contract is invoked to process and record the business logic.

The user still calls the outgoing interface on the data contract directly when making an outgoing e-commerce transaction. The contract will verify whether the user's address exists in the asset mapping table, then call the logical contract, calculate the outgoing amount, and finally transfer the asset directly to the user's requested address.

Any address that is not in the asset mapping table, the outgoing interface will not respond to its asset request, which logically ensures that any outgoing asset belongs to the original address where the investment was recorded, and ensures the ownership of the investment asset and the safety of the user's asset. Even the operation team can not tamper with and impersonate any of the user's locked assets.

By ensuring ownership and security of user assets through strict ownership constraints in data contracts, Bull's security philosophy is consistent with

what smart contracts have always been about: going beyond Don't Be Evil to realize Can't Be Evil.

3.2.5 Limitations of Blockchain

The blockchain is almost completely disconnected from the real world. It can not actively push off-chain messages, and the real world is not passively aware if the logic of smart contract is faulty or under attack. Therefore, we need to constantly monitor the operation of the contract, rigorously audit the data and assets in the contract, sound the warning as soon as possible when there is a problem, and try our best to ensure the safety of the application.

The blockchain interaction experience is naturally unfriendly for users. Asynchronous feedback due to block latency, frequent and massive on-chain data reads and business model reestablishment, and on-chain and off-chain message fragmentation all contribute to a slow experience and even confusing interactions.

3.2.6 Design Concept

The existence of the above problems has prompted us to build a system that connects on chain and off chain, continuously monitors the operation of contracts, audits data and assets, speeds up the response time of the product, smooths the fluctuation curve of the response time, and makes the inevitable asynchronous feedback smoother. A variety of condition-triggered status alerts and push messages allow users to have a more humanized product experience in addition to using DeFi applications to solve financial demands.

Data query

Core e-commerce transactions involving asset changes trigger custom on-chain events. The query system continuously monitors the generation of new events, and queries the corresponding contract data based on the event content. The data contracts provide read-only interfaces to the outside to expose data, and the query system reads the relevant data from the contracts according to the requirements of the data model.

The read data is collated and aggregated into Bull's data warehouse and its changes are recorded. The data warehouse, which is the data core of the entire system, provides a quasi-real-time data cache to the front-end via the back-end API interface, and provides the data required for calculations and triggers to the message module. The audit module will also use these data to review and audit state transition and data changes to on-chain contracts.

Audit risk control

The audit risk control module will continuously monitor the status and data changes of each contract. For the asset changes involved, the audit risk control module will use independent and parallel logic to double-check the asset changes, and notify the system administrator in real time if any exception occurs.

The audit risk control module will use different review methods such as total amount of assets, change logic and status verification to audit the contract data in real time from all directions to improve the accuracy of audit. The audit module can rate and give an alarm on exceptions, and the risk control module even has the right to interfere with and manage the operation of on-chain contracts in scenarios judged to have extremely high risk.

The audit risk control module will also be responsible for statistical analysis of the user's order records, historical earnings, asset changing curve, real-time earnings indicators of the platform, historical earnings curve and other system operating data, so as to predict and control risk points, and provide data reference for the direction of product operations.

Push message

In order to improve the user experience of asynchronous feedback due to the characteristics of blockchain, the push message module will play an important role in all aspects of the user process. In particular, in the aspects such as alert notifications and alert messages that involve the user's own interests, blockchain that lacks infrastructure needs a push message system to work with it.

On the side of the page, the message push module will preferentially use the Websocket long connection mode to establish a two-way real-time link between the front page and the user, monitor the execution status of the on-chain e-commerce transaction at each link where the on-chain e-commerce transaction needs to be executed, and push the e-commerce transaction results and on-chain status to the user after the e-commerce transaction is completed.

For asset liquidation, earnings distribution, redemption alert and other messages, the push message module continuously monitors and analyzes the contract data. When the trigger condition is reached, it can use various methods including email and SMS to push notifications and alerts to users in real time.

3.2.7 Financial Assets Security Lock

Bull financial assets security lock can achieve the following goals:

Protect the platform from attacks and invasion

In case of invasion, protect asset security

If assets are no longer safe, minimize losses

Bull financial security system is a multi-layered and comprehensive system. Decentralization is the core and the foundation, but it is not the only and all. If an open financial application with security and reliability that has good scalability, can deal with the potential tens of millions of users in the future and has complete risk control capability only relies on decentralized infrastructure, it cannot be established successfully.

In the Bull system, a global emergency lock switch is taken on all smart contract interfaces that involve asset changes. If there is a contract problem, the emergency lockout can be triggered manually or automatically, disabling all outgoing and incoming calls and protecting the locked assets within the contract.

Bull uses the administrator key mechanism, which allows administrators to use the key to set permissions at all levels, such as updates to contract routing, feed price permissions to oracle machines, and permissions to set global lockout flag bits. The administrator key can add, delete, and update subordinate permissions and can be quickly replaced when the subordinate permission key is leaked.

If an administrator key is leaked, the attacker will not be able to perform high privilege operations with that key. Platform administrators can use the multi-signature mechanism to delete the leaked key and make it invalid.

If an administrator key is lost, he can use the remaining administrator keys to add a new administrator key and delete the lost key.

The mechanism that only multi-signing of administrator keys can take effect makes each high-level authority operation rely on collective decision and execution, effectively preventing internal control risks and further protecting asset security.

3.3 Symbiotic Chain Merchant Transaction

Bull customizes a specialized symbiotic mechanism based on the e-commerce transaction value factor (CVF-POS). It is a governance standard for the distributed digital e-commerce transaction ledger and is designed to prevent malicious disruptive behaviors through strict liability arrangements for e-commerce transactions.

The high performance of CVF-POS will realize relative decentralization by technological democratization to avoid concentration of computing power and clear capacity and extend network effects at relatively low network cost. Every wallet user with digital assets can participate in the e-commerce transaction process and become a witness to the e-commerce transaction. The "e-commerce transaction base mining" e-commerce transaction mechanism provides Bull wallet users with an effective way to obtain real economic returns. At the same time, the liability mechanism of the e-commerce transaction can identify the process that leads to symbiotic errors and enforce penalties according to the rules of the e-commerce transaction.

In the traditional POS mechanism, the weight of each node is associated

with the capital at that node. This can lead to the Matthew effect that makes the rich richer. In the Bull e-commerce transaction ecosystem, each Bull wallet user has the same accounting power, but has different accounting scores. Accounting power is determined by the ecosystem, and specific accounting scores are obtained through value factor evaluation and e-commerce transactions, and those nodes with a certain number of accounting scores can be defined as validators. Validators in the e-commerce transaction chain are similar to miners. E-wallet users can choose a verifier to delegate their accounting scores. Validator is a secure machine that generates blocks and performs accounting and symbiosis by broadcasting encrypted signatures.

Bull pass is like a chip on the e-commerce transaction chain, and users are responsible for choosing a trustworthy validator. The e-commerce transaction alliance will continue to improve the verifier's judgment ability and the constraint force of the ecosystem to protect the user's interests. When wallet users trust their Bull pass to get any validator on the platform to obtain some Bull pass rewards, the bonded pass will be penalized if the verifier is hacked or violates any protocol. CVF-POS provable security mechanism and pledged assets of the concerned parties provide strong security to the light node customers. The management system of the e-commerce transaction chain can solve the problem of temporary e-commerce transactions, and it can suspend the clear request when a malicious attack is detected. Bull can support a sufficient number of validators to implement a global distributed blockchain, and it can also be done in a short period of time. With advances in bandwidth, storage, and parallel computing, the Bull e-commerce transaction chain can support a much larger scale of validators.

The accounting authority for the Bull ecosystem is determined at an early

stage and includes the accounting scope and ecosystem parameters. However, with the development of ecosystem, users can suggest to change the ecosystem parameters. Users can also suggest to change the ecosystem rules. These rules link interested parties together to address asset theft and gaps in the contract, thus obtaining a better and clearer solution.

After a user completes the KYC process and registers on the e-commerce transaction chain, a unique public address on the e-commerce transaction chain will be assigned to him. His e-commerce transaction digital assets will be managed at this address. He uses the digital assets in this address to conduct e-commerce transactions on all participating e-commerce transaction platforms, and when generating this Bull wallet, a private key composed of three parts is also generated and stored in different locations. In this way, it provides a secure and recoverable mechanism for private key management.

•User cold wallet part: It is stored on the user's mobile cold wallet client, with a non-readable format and can not be copied or exported. It usually remains in the cold wallet state. It completes the first level of signature only when the user transfers assets in the wallet.

- Mobile wallet part: It is stored in hot wallet mode on the Bull server on the internal network separated by DMZ zones, and it supports second-level signature on top of the user's first-level signature.

- Backup part: It is stored in the e-commerce transaction chain in a cold state. It is not involved in any e-commerce transactions, and is used for recovery purpose only.

3.4 Broadcast Order

For the emergence of the liquid market, there must be a public place for buyers and sellers to release orders, and these orders will be summarized to the e-commerce transaction platform later. Broadcast orders solve this problem by allowing anyone to act as the e-commerce transaction platform, maintaining the order book (public or private) and charging the e-commerce transaction fee for all resulting liquidity. We refer to the entity that hosts and maintains the order book as the relayer rather than the e-commerce transaction. In the traditional e-commerce transaction platform, proprietary infrastructure must be established and operated to execute e-commerce transactions and process user funds. However, the Bull relayer facilitates signaling among market participants only by hosting and propagating the order book containing general messages. The relayer does not execute e-commerce transactions on behalf of market participants, and Takers execute their own e-commerce transactions to broadcast orders to the e-commerce transaction chain.

The message format for broadcast orders includes two changes to the peer-to-peer message format to facilitate public e-commerce transactions and stimulate relayer. First, the broadcast order does not specify the recipient address, allowing anyone who happens to intercept the broadcast order to fill the broadcast order. Second, the broadcast order includes feeA, feeB, and feeRecipieBull parameters, which specify the value of the e-commerce transaction fee and the address used by relayer to collect the e-commerce transaction fee. If the order is filled, the e-commerce transaction platform smart contract will transfer these fees to feeRecipieBull.

Relaying a host and maintaining an off-chain order book to exchange

e-commerce transaction fee. The figure illustrates off-chain order relaying and the sequence of steps in which the publisher and relayer negotiate the e-commerce transaction fee in a trustless manner. The e-commerce transaction fee is transferred from the Maker and/or Taker to the relayer after the e-commerce transaction is settled.

- ❖ The relayer references the fee schedule and the address they use to collect e-commerce transaction fees.
- ❖ The publisher creates the order, sets fee A and fee B to satisfy the relayer fee schedule. The set value fee receive the receipt address required by relayer and the private key is used to sign the order.
- ❖ The publisher sends the signed order to relayer.
- ❖ The platform relayer receives the order, checks if the order is valid and provides the required fee. If the order is invalid or does not meet the requirements of relayer, the order will be rejected. If the order is satisfactory, relayer will post the order to the order book.
- ❖ Takers received an updated version of the order book, including orders from Maker.
- ❖ Taker fills Maker's order by submitting it to an e-commerce transaction contract on the ethereum blockchain.

Table 2: Message format of broadcast orders.

Name	Data type	Description
Version	Address	The address of the e-commerce transaction platform for smart contracts
Maker	Address	The address where the order is initiated
tokenA	Address	The address of the pass contract
tokenB	Address	The address of the pass contract
Value A	uiBull256	Total unitof tokenA provided by the publisher
valueB	uiBull256	Total unitof tokenB required by the publisher
Expiration	uiBull256	Order due time(number of seconds since unix)
feeRecipieBull	Address	Relayer's address. Charge for e-commerce transactions.
feeA	uiBull256	protocol pass Maker's total unit paid to feeRecipieBull.
Minute	uiBull256	protocol pass Taker's total unit paid to feeRecipieBull.
v	uiBull8	The above arguments of ECDSA signature
r	bytes32	
s	bytes32	

While it may seem strange for the publisher to specify the e-commerce transaction fee, the relay platform has the right to control whether orders are posted. Thus, if the publishers wish to post an order to a specific order book, they must set feeA, feeB, and feeRecipieBull to satisfy the value of the relayer associated with that order book. Since fees are negotiated off chain, the relay can dynamically change the fee schedule at its discretion (for new orders that have not yet been signed rather than existing orders), the relay information available on or off chain can be used in setting and adjusting costs, allowing flexible fee schedule (fixed cost, percentage based, quantity based, layered, subscription model, etc.). However, once the relayer accepts the order, the order's fee value can not be changed.

Traditional e-commerce transaction services use matching engines to fill in market orders on behalf of their users. Users must believe that the e-commerce transaction platform will provide them with the best price and will be held accountable if these regulated entities attempt to cheat or in the event of malfunction of matching engine. For the Bull protocol to remain untrusted, the platform relay can not execute e-commerce transactions on behalf of Makers and Takers, and relayers can only recommend the best price to Takers, who must then independently decide to sign and send the

e-commerce transactions to the blockchain. This means that the Bull protocol can not support true market orders, but a well-designed web application can approximate this type of user experience.

It is important to realize that feeRecipieBull address can point to arbitrary smart contract, which means that complex relayer incentive structures can be "plugged" into the Bull protocol. For example, the feeRecipieBull contract can be designed to split e-commerce transaction fees across multiple relays or allocate e-commerce transaction fees across a group of nodes based on the level of contribution of each node to propagate the order book in an anti-review p2p network.

Chapter 4 Issuing Mechanism and Liquidity Mining Mechanism

4.1 What is Bull

Bull is the name of the basic unit of circulation within the Internet symbiotic ecosystem and is its only commercial and financial transfer medium. In addition to being used for account recording and payment, Bull can also activate symbiotic nodes, bid for symbiotic e-commerce advertising space, stimulate the operation of symbiotic nodes (to ensure network stability), and run smart contracts in the system.

Why is it called Bull:

Bull

Combines Decentralized Finance and Decentralized E-Commerce

In symbiosis with all the Internet giants to form a new world. The goal is to

become the universal "symbiotic pass" in the future decentralized global finance.

Basic information:

Bull issue volume:

In total, there are 21 million Bull Token

20 million Bulls for symbiotic mining

1 million Bulls for the ecological construction of symbiotic network.

Mining mechanism: CVF-POS symbiotic mechanism

4.2 Smart Contract

The Bull e-commerce transaction protocol is implemented in the smart contract that is publicly accessible and can be free for use (with no additional charges to the user other than the standard Gas fee). It is written in the Solidity programming language and contains two relatively simple functions: fill and cancel. The entire contract has about 100 lines of code and the cost to fill the order is about 90k.

4.2.1 Signature Verification

The e-commerce transaction smart contract is able to verify the signature of Maker by using the ecrecover function, which takes the hashed signatures as parameters and returns the public key that generated the signature. If the public key returned by ecrecover is equal to the address of the issuer, the signature is trustworthy.

address publicKey = ecrecover(hash，signature(hash)); if(publicKey！= maker)throw;

4.2.2 Filling and Partial Filling

The e-commerce transaction platform smart contracts store references to each previously filled order to prevent a single order from being filled multiple times. These references are stored in the mapping. In this case, a data structure will map a 32-byte data block to a 256-bit unsigned integer. A unique 32-byte hash is generated by passing the parameters associated with the order to the Keccak SHA3 function, which can be used to uniquely identify the order (probability of hash conflict, finding two different orders with the same hash, actually zero). Each time an order is filled, the mapping stores the order hash and the cumulative value of the filling.

When calling the filling function of e-commerce transaction smart contract, Taker can partially fill the order by specifying the additional parameter valueFill. As long as the sum of the partial filling does not exceed the total value of the order, multiple partial filling can be performed on a single order.

4.3 super symbiotic node and User Incentive

4.3.1 super symbiotic node

Based on the contribution of Bull wallet user to the community, that wallet user may apply to become a super symbiotic node. Depending on the number of Bull holdings and duration of validity, different levels will be awarded. Higher levels will earn more reward income.

4.3.2 User Incentive

Bull tokens will reward those who contribute to the work of e-commerce

transactions in the Bull ecosystem.

1. Reward for witnessing e-commerce transactions

Wallet users can delegate their accounting scores to the Bull public node in order to obtain reward for witnessing e-commerce transactions. There are two prerequisites for earning this reward.

①Hold Bull and clear energy greater than zero;

②Link the wallet to the public node for accounting contributions.

2. Reward for user participation

User participation is the foundation of this ecosystem and the reflection of its value. User participation will be rewarded through the following ways:

Open an account and invitation to open an account

Open an account or invitation to open an account will be rewarded with Bull pass. After the issuance of Bull, the total number of accounts opened will gradually decrease, and the total number of invitations will decrease as the number of invitees increases.

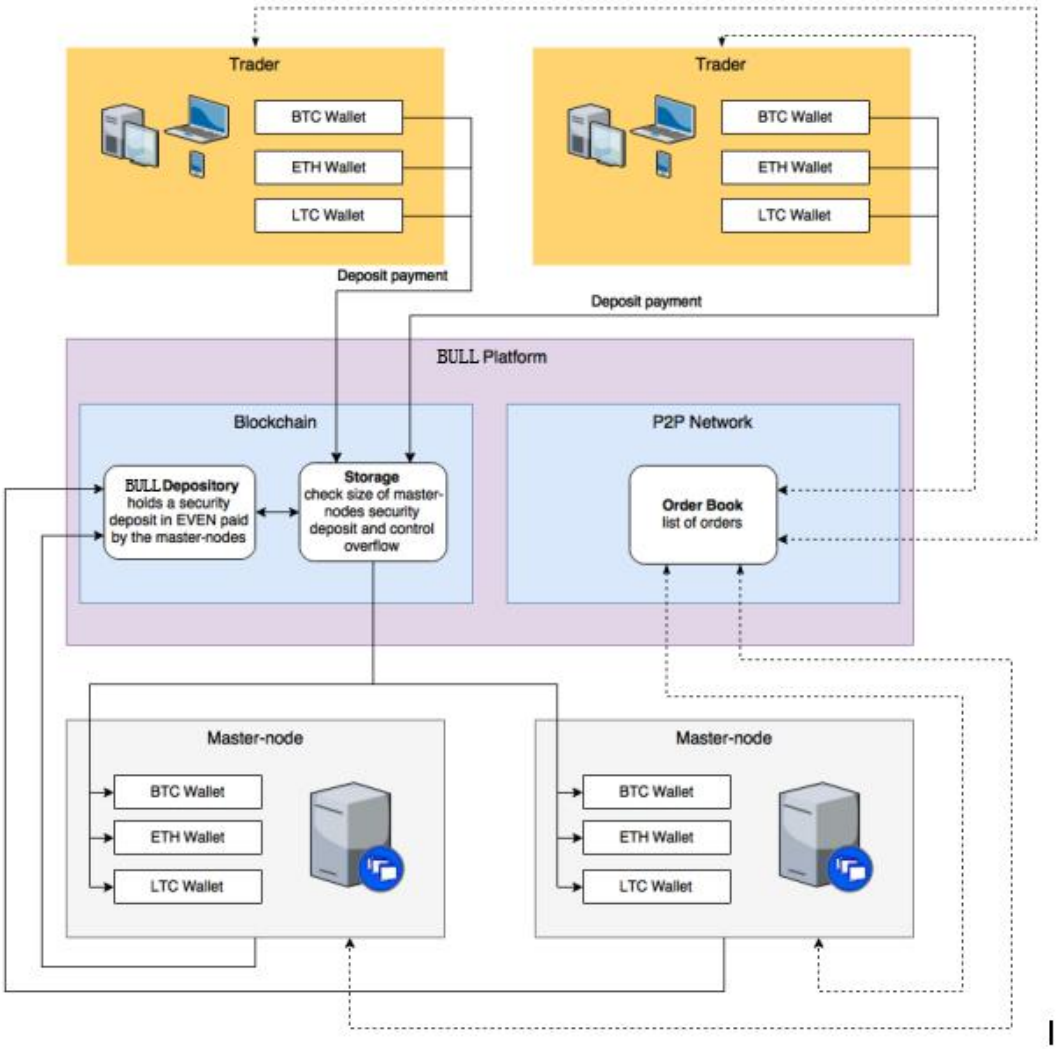
Users will be rewarded with Bull tokens when they conduct e-commerce transactions or bring e-commerce transactions or settlement services into use.

3. Symbiotic node

symbiotic nodes have specific requirements and must be online 24 hours a day, constantly synchronizing data between distributed network servers. Other nodes use them to receive dynamic data update and synchronization throughout the network. These symbiotic nodes need to have sufficient bandwidth and set hardware requirements. symbiotic nodes are very important for the health of the network, as they make the information

transmission and data synchronization across the Bull chain network more secure and stable, and continuously enhance the use experience of every participant in the Bull chain.

Bull chain e-commerce transaction data synchronization, whole network broadcast, symbiotic e-commerce network and other functions require symbiotic node support.



The symbiotic nodes in the Bull ecosystem are divided into super symbiotic nodes and light symbiotic nodes, and the operation of the entire Bull ecosystem is dependent on the support of each symbiotic node for the network. In this fully autonomous decentralized network, Bull hopes that more fans will participate in the network services for creating symbiotic nodes, and work together to ensure the stable operation of the Bull network.

Each Bull user who meets the condition can become a super master or light symbiotic node. Participants can earn significant rewards for providing network services. Participants are rewarded for providing network services, which ensures that the network will continue to expand efficiently. As the number of super master and light symbiotic nodes increases, the security, stability, and fluidity of the network will also be improved. On this network basis, Bull will realize its broader application landing and functional practice, achieving the ultimate goal of symbiosis and win-win of centralized Internet and decentralized network ecology.

- **The role of the symbiotic node and the basic conditions for its construction**

The characteristics of Bull symbiotic node:

Symbiotic nodes are the foundation of the Bull anonymous network and the circulation channel of encrypted messages. All symbiotic nodes

involved in the maintenance of the Bull network must use Bull addresses for network identification to achieve anonymity. symbiotic nodes do not provide IP addresses and port numbers to ensure anonymity and information security. Super symbiotic nodes and light symbiotic nodes act only as information transmitters in the Bull network. No chatting record or other information about users will be stored by any symbiotic node server. Each message transmitted can be sent through different symbiotic nodes by using various encryption algorithms when users use symbiotic e-commerce chain function. Third parties can not access the user's chatting records. The symbiotic node is used only as the channel. Information exchange of users and advertising contents are stored in the user's local client. With this design, Bull protects everyone's symbiosis to the maximum extent.

- **Basic operating instructions for creating symbiotic nodes:**

- Both super symbiotic node and light symbiotic node need to be built by downloading Bull's mobile wallet for operation.
- The symbiotic node must be continuously kept online to provide information transfer and data synchronization services.
- Bull is required for network identification, and the block height must also be fully synchronized.
- The symbiotic node server must then bind the Bull address, and Bull can only support one symbiotic node for the same network

identification.

- **Symbiotic node hardware configuration requirements**

As a Bull distributed network server, the symbiotic node has minimum configuration requirements for hardware. If the participant's hardware can not reach the standard, there is a possibility of disconnection, collapse, or other problems, which will affect the symbiotic node's reward earnings. According to the program logic, the better the hardware configuration, the faster the network information will be transmitted and the more rewards will be received.

Chapter 5 Cold Wallet Technology Mechanism

5.1 Wallet Function

In summary, Bull provides advertisers with the following data for the creation of individual target groups (all of which comply with the data protection rules set out by DSGVO):

Externally validated social demographic data (age, gender, marital status, etc.)

Complete purchase history

Access all the associated data (click stream e). g. Access product details PAGES).

Provide technical data (browser, operating system, geographic IP, etc.)

Provide all intention data (price list, wish list and shopping guide)

All search keywords

Provide all survey data and customer surveys are also possible

All data from display, mobile, search, video and communication

Target groups in all specific industries

Target group extensions similar to the current customer base (modeling with similar appearance)

User interests at the product category level

Take the mother tongue as the target

By collecting this extensive data, they form a high-quality user profile over time that shows precise user interests and purchase intention (see Figure 8). This user profile is updated in real time and is provided for the advertising server when targeting groups are selected. I offer the following media to advertisers: display, mobile, video and email/electronic communication. All IAB standard advertising media are available, with specific advertising formats of customers.

Bull gives users the opportunity to convert their master data and their

interests into cash. Users who take advantage of this point will generate a large number of latest data about their current needs, interests and purchase intentions. Clues that retailers or advertisers are interested in can be provided in real time with the user's consent.

In addition, there are other forms of advertising that can be published entirely online on Bull while using REME-Coin's self-service booking system. This means that retailers not only benefit from the huge advantages of the Bull market, but also have exclusive access to innovative and effective advertising formats through REME-Coin.

5.2 Wallet Design Principles

Bull Wallet is positioned as a multi-asset steward, supporting all major digital assets and conducting normalized management of account assets through unified identify label, so as to solve the integration challenges of different blockchains with their own account systems and technical architectures. Multi-segment key separately protects the user's assets, and the user owns the absolute e-commerce transaction right of the assets. No other key fragment custodian institution can independently recover the key or initiate an asset e-commerce transaction. It is a professional asset manager platform that is independent and suitable for e-commerce transaction platforms, embedding enterprise-level functional attributes such as multi-level authorization and business collaboration. It is a

one-stop digital asset management tool, which meets the needs of storage, payment, exchange and third-party services, and expands the value-added function of digital assets.

5.3 Wallet Technology Mechanism

Bull wallet asset addresses are randomly generated and users can customize the management of various mapping assets. The asset transfer process within the ecosystem is completed through credit accounting of mapping assets in the e-commerce transaction chain, and supports asset transfer based on user-defined ID. The settlement process is based on risk level with corresponding layered strategies, and supports cross-validation of multiple combinations of dynamic password, biological information and physical information. In each settlement verification, two-way balance verification is conducted based on the settlement flow to ensure consistency between e-commerce transaction chain data and wallet asset accounts. The risk control platform provides a prior and in-process risk control system for digital assets, which protects user assets and assists in the procedural supervision from multiple dimensions such as identity and equipment identification, risk monitoring, dynamic strategy, etc.

Bull wallet adopts a three-section key mechanism (client side, server side and custodian side) to realize the security control of digital assets, in which the private key segmentation is stored in cryptograph and the key

fragment is stored in multi-party and multi-media. Relying on the trusted computing and communication environment, the key mechanism covers the whole process including key creation, private key slicing, private key fragment encryption storage, key secure transmission, key local recovery and signature. Therefore, the security requirements of different scenarios can be realized in combination with authority management policies.

Everyone can have an independent hot and cold wallet, which can meet the needs of convenient one man operation and process control of multi-party operations. At the same time, by creating different levels of sub-accounts, it enables fast cross-platform and cross-business asset financial management. Bull wallet is committed to building a one-stop digital asset wealth market, including derivatives services, quality wealth management, digital asset investment, financial tools such as financial coins, etc. In addition, the wallet provides an ecosystem with abundant digital asset applications, such as market information, third-party DAPP and other services.

The wallet also integrates the various benefits of the Bull pass, allowing Bull users to fully participate in the construction of the e-commerce transaction ecosystem, including trust votes and access to e-commerce transaction witness rewards.

5.4 Wallet E-commerce Transaction Chain

Bull sets up the Digital Assets Registration CeBuller to achieve the registration and custody of digital assets in the settlement chain and the assets mapping in the e-commerce transaction chain. Asset mapping supports the free issuance and circulation of all digital assets through cross-chain lock. At the same time, it verifies the authenticity of the "registrant" through a variety of authentication technologies and policies, enhances the security of value management through distributed architecture and dynamic accounts, and avoids the "freezing" of assets due to single point of failure. The digital asset custody wallets in the asset registration center are all cold wallets located in an offline safe house. All types of digital assets are operated and monitored independently in heterogeneous servers by using isolated network. The main responsibilities of the DARC include.

- *Dynamic creation and distribution of custody keys*
- *Key fragment encryption and storage*
- *Verification of asset receipt*
- *Asset registration and mapping*
- *Cross-chain interchange of assets*

The Bull e-commerce transaction ecosystem enables cross-chain value transfer on top of the blockchain protocol layer, which in a way can be

understood as a side-chain solution. Specifically, digital assets can be transferred from the first blockchain to the second blockchain, and at some point afterwards from the second blockchain safely returned to the first blockchain, where the first blockchain is the main chain of settlement, such as Bitcoin, Ethereum, etc., and the second blockchain is the "side chain", the e-commerce transaction chain. It is precisely the existence of the e-commerce transaction ecology that enables various types of digital assets to conduct e-commerce transactions and clearing and settlement of assets outside the main network, which is more in line with business scenarios and regulatory compliance.

Chapter 6 Bull Token

6.1 Bull Eco-community

The Bull eco-community, as a blockchain eco-community, operates on the basis of objectivity, transparency and fairness, and implements community symbiosis, co-construction and sharing. The community's digital rights certificate (Token) is the community's reward for each participator for symbiosis and co-construction in the community. The Bull community's Token is abbreviated as Bull. Each Bull holder enjoys the rights of community governance and exercises voting power through the community governance BULL Coin.

6.2 Bull's Rights

The Bull community aims to be a co-construction and sharing ecological platform with objective, transparent and fair operation. 80% of the Bull platform income will be distributed to the holders of Bull, and the remaining 20% of the income will be used for the operation and maintenance of the Bull platform. The major decisions of the Bull platform will be made through smart contract voting initiated by the holders of Bull with the governance coin BULL.

6.2.1 Decentralized Voting

Through decentralized voting, Bull hopes to elect an elite group of loyal Bull members to lead the community development in the future. These elites carry out work on behalf of the community to achieve its autonomy, ensure efficiency and involve every Bull user participating in decisions about the development of the community. In this way, everyone becomes a Bull owner and jointly achieve the important transformation of decentralized autonomous community. One of the most powerful forces of cryptocurrency is the community autonomy formed by decentralization in which everyone can participate. An important reason for the success of

BTC is that it is decentralized enough.

When the Bull chain reaches the height of 61,720 blocks, the system will automatically initiate the decentralized voting function. This is a decision-making mechanism involved all Bull members. To ensure the authenticity of voting, only Bull that meets the following conditions can perform the voting operation.

The address must have at least one symbiotic major network and hold more than or equal to 1 Bull.

The holding period must be more than 1,080 blocks under this address.
The Bull user only sends the BULL special e-commerce transaction of the governance coin he holds to the elite voting address he wishes to support. All Bull users who receive a vote will be entered into the system's elite campaign list. The system will update election results every 1,080 blocks, and the top 33 Bull's in each campaign period will be authorized to become a symbiotic councillor and receive the development guidance fund of Bull community.

When there is a duplicate vote, the system automatically makes the following determination.

If there are 2 or more candidates with the same number of votes, the

system will calculate the number of BULLs held under each Bull address and rank them from highest to lowest.

If the number of BULLs held by 2 or more candidates is the same again, the system will make statistics the sum of the number of coin age blocks in theBULL private key for each symbiotic major network and ranks the voted Bull users in order of their total coin age.

The first 33 Bull addresses on the final elite campaign list become symbiotic councillors. Each Bull can only vote once per week When we find that the supported elite Bull is unqualified or incompetent, we can send the BULL to another Bull address to vote again and the previously supported symbiotic councillor will lose that vote.

Candidates for symbiotic councillors are appointed from the vote election of all Bull users. Under the guidance decision of electing symbiotic councillors by the community, the decision-making efficiency of the whole community will be greatly improved. The first round of voting will be done at the 620,799th Bull block height. The system will produce the first 33bull addresses to become symbiotic councillors, who will receive community development guidance funds.

Starting at the 620,800th block, for every 144 blocks, the system will pay out one symbiotic councillor address and 33 addresses will be paid out on

a recurring basis. The capital pool of symbiotic councillors must be equal to or greater than 33 BULL. If the quantity is less than 33 BULL, it will be deferred to the next block until the capital pool is equal to or greater than 33 BULL.

For the fairness and flexibility of election, the system will "re-elect" symbiotic councillors based on the number of votes in each week, making the whole community democratic and free. We work together to jointly maintain the healthy and stable development of the Bull chain and test the wisdom of the whole community by taking full advantage of development guidance funds.

Through the decentralized voting function, any Bull has the opportunity to participate in fair competition and become a symbiotic councillor, providing development guidance to the whole community. The symbiotic councillor without contributions can not help Bull to achieve healthy and stable development. Therefore, the authority of the symbiotic councillor will be lost, and the decision power is entirely in the hands of Bull members.

6.3 Allocation Plan

Bull is the proof of stake of the Bull e-commerce trading platform, and the total number of Bull issued is constant at 21 million as a negotiable

encrypted digital proof of stake, which is the circulating token in the Bull ecosystem.The reasonable allocation of Bull is conducive to promoting the healthy development of the Bull ecosystem. Among them, 20 million Bulls are used for CVF-POS symbiotic mining and 1 million Bulls for the ecological construction of symbiotic network. The specific allocation of this 1 million Bulls is shown in Table below:

Table Allocation table of Bull

Holder	Proportion	Quantity	Use
Community feedback and construction	51%		For mining and Bull community promotion, eco-building, user rewards and pass replacement
Bull funds	19%		For investing in relevant digital ecosystems, philanthropy, and rewarding outstanding contributors. It is released in the same proportion as mining, with a lock-in period of 12 months after release.
Founding team	15%		Including 10% for technical team, 5% for operation team. It is released in the same proportion as mining, with a lock-in period of 12 months after release.
Strategic partners	8%		It is released in the same proportion as mining, with a lock-in period of 12 months after release.
Private placement	7%		It is released in the same proportion as mining, with a lock-in period of 6 months after release.

6.4 Community Feedback and Construction

The Bull Community feedback and construction include the following aspects:

6.4.1 E-commerce Transaction

The service charge of e-commerce transaction will be 100% returned with Bull

6.4.2 Mining

Those who use the cold wallet will receive a different number of Bull depending on their start date.

6.4.3 super symbiotic node Construction

When a Bull wallet user reaches a certain level of contribution to the community, that wallet user may apply to become a super symbiotic node. Depending on the number of Bull holdings and valid time, this super symbiotic node will obtain different levels. Higher levels receive more income from miner fees.

6.4.4 Sub-ecological System Construction

After the basic wallet function and e-commerce transaction function are completed, the community construction will enter a new phase, i.e., the gradual creation of a sub-ecosystem that meet various needs of the community users according to their needs.

Chapter 7 Project Governance Structure

7.1 Introduction of Bull Inc.

Bull Inc. is registered in Singapore and is responsible for the general and privileged matters of the project.

Bull Inc. is committed to the technical development, transparent governance, community service and ecological chain construction of the project for the long-term and stable development of the Bull ecological chain.

The company's governance objective is to ensure the sustainability, management effectiveness and fund-raising security of Bull's project. The company is committed to using all funds raised for technology development, community development, and ecological construction of the Bull project.

Bull Inc. consists of decision making committee, product center and operation center.

7.2 Governance Structure of Bull Inc.

The division of labour among Bull Inc. agencies is as follows:

Decision making committee

It is responsible for the management and decisions on major issues, including the appointment or dismissal of the head of the product center and operation center, making important decisions, etc. The members of the decision making committee are appointed for a term of three years and can be reappointed consecutively. The committee has a chairman, who is voted on by the committee members. The first members of the decision making committee are elected by the founding team of the Bull project and early investors. Starting from the second term, the members of the decision making committee are elected by the community based on the number of smart contracts formed by the number of Bull holdings.

Product center

It is responsible for project technology development, product test, product launch, product audit, etc. Product center members communicate technical progress and product progress with equity holders, community contributors, and open source project developers in the Bull community, hold technical exchanges and product research meetings from time to time, and continue to expand the Bull project ecosystem.

Operation center

It is responsible for technology, products, community, open source project promotion and publicity, as well as financial, legal, personnel, administration and other daily management. Finance is responsible for the use of project funds and audit. Legal personnel is responsible for the review and preparation of all kinds of documents to prevent possible legal risks. Administration and human resources are responsible for personnel, payroll and other personnel work and daily administrative management.

Disclaimer

The blockchain industry, as an emerging industry, has a very high investment risk and technical risk. The Bull white paper serves as a technical and product description of the project, describing the technical and industrial layout and prospects of the gaming industry, and is not recommended for those who do not have the risk tolerance to invest.

Version Declaration

In case of discrepancies between versions, the latest version shall prevail.

Interpretation

Bull Inc. reserves the right of final interpretation of this white paper.