UCHAIN

UCHAIN

The Next Generation Distributed Smart Network

Blockchain for the Sharing Economy

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UCHAIN WHITEPAPER

The next generation Distributed smart network
blockchain for the sharing economy

Abstract

The market size of the global sharing economy is expected to reach 520 billion US dollars in 2018, according to Roland Berger's report [1] on the sharing economy. Along with the rapid growth, there are more problems exposed in this disruptive business such as:

- Excessive transaction costs
  Centralized platforms charge high commission fees for service matchmaking.
- The problem of trust
  There is no effective credit system reflecting both individual credit and organization credit.
- Data leakage and abuse
  Centralized data storage mechanism can easily lead to data leakage and misuse.

In our daily practice, we have come to realize and attribute these problems to the excessive centralization of the business. Combining U-bicycle's experience in the practice of sharing transportations along with support from our strategic partners, we have been working on a solution, realizing the way to solve these issues will be through the implementation of a truly free peer-to-peer network with the combination of blockchain technology along with an underlying sense of the sharing economy.

UChain is a public infrastructure blockchain network specifically designed for the global sharing economy. Along with other sharing economy enterprises, we aspire to build a decentralized worldwide sharing economy ecosystem where every user can exchange value and publish contents freely without intermediaries Through UChain and its decentralized autonomous ecosystem, all users and merchants will be empowered.

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1 Current State of the Sharing Economy Ecosystem

1.1 Potential Growth in the Sharing Economy

The sharing economy is also known as a collaborative economy or peer-to-peer economy. One of the pioneers in the sharing economy, Ms. Robin Chase, has given the formula for the sharing economy: $Idle\ resources + platform + public\ participation = the\ sharing\ economy$. In the era of the sharing economy 1.0, people provide their idle resources, either a physical property or a service through a third-party platform for other people in exchange for money.

Current iconic companies in the sharing economy can be divided into 8 major sectors:
Shared Accommodation (Airbnb), Shared Work-space (We-Work), Shared Services (TaskRabbit), Shared Transportation (Uber, Didi, Grab), Shared Resources (Open Garden), Shared Knowledge (Quora), Shared Medical Services (Medicast), and Shared Education (Coursera, KHAN).



Figure 1-1: Unicorns in the Sharing Economy

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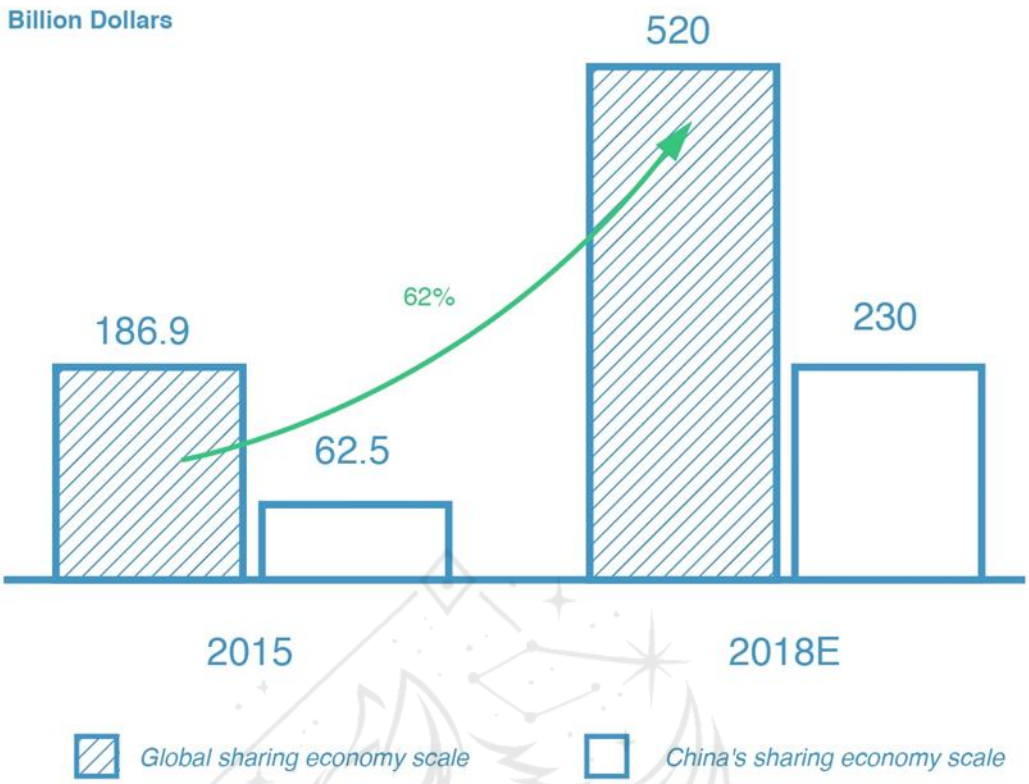


Figure 1-2: Roland Berger's report "The sharing economy" [1]

1.2 Current Problems in the Sharing Economy

All of the iconic sharing economy companies are still in generation 1.0, where users are not truly making communication peer-to-peer. Users still obtain matchmaking services through a centralized platform. All exchange of services and values need to be managed and distributed through intermediaries, bringing up some substantial shortcomings.

1.2.1 Excessive Transaction Costs

Excessive transaction costs have always been the norm in the centralized matchmaking business which is no different in the sharing economy. For example, Uber's key profit comes from commissions with the rate starting at 20% [2] and varying (usually higher) at different times and locations. Most companies try to maximize their profit while reaching their operational KPI (key performance indicator). Hence, sometimes they will limit the supply of their sharing service in order to maximize profit. Among famous unicorn companies, this practice is even more common, since they have gained a considerable market share that allows them to challenge and test user's acceptance of price and service quality. Banks and other financial institutes would charge users extra transaction fees, with more costs being added to the user if they're using fiat via the default payment gateway.

1.2.2 The Problem of Trust

Trust is essential for the sharing economy. In order to make a transaction possible, the consumers and suppliers of the market have to achieve a mutual trust first. Traditional technology has not been able to solve the problem of trust between people through technical means. As a result, the platform, acting as an intermediary, vouches for both parties to facilitate the transaction. Sometimes it collects deposits or collateral from both parties to reduce the financial risk, which has virtually increased the barriers and cost to the sharing economy.

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1.2.3 Data Leakage and Abuse

The sharing economy and the companies behind it have benefited everyone, bringing a more convenient lifestyle. At the same time, more users give out their identity information for registration purposes. At present, most companies and sharing economy platforms store users' data in centralized databases. If the server is breached or any inappropriate internal management conduction is performed, a large number of sensitive data would be at the risk of theft and leakage. In Uber's 2016 user data breach, the data leak was due to inappropriate user data access on third-party cloud services performed by two people outside the company. Hackers gained access to over 600,000 U.S. driver's name and license numbers, as well as the personal information of 57 million Uber users worldwide, including e-mail addresses and mobile phone numbers. In 2017, Equifax, the largest US credit rating company, also leaked 140 million users' data from various malicious attacks, which equates to nearly half of the U.S. population's information.

Data abuse is also a common social phenomenon, with users having to provide their personal information such as phone numbers and email addresses to the sharing platform of their choice. After obtaining user's information, instead of complying with the user agreement, some companies use this data for other purposes, with some cases showing it being sold for money. The recent Facebook-Cambridge Analytica data scandal involves the collection of personally identifiable information of up to 87 million Facebook users that Cambridge Analytica began collecting in 2014. The data was used to influence voter opinion on behalf of politicians who hire them. Not only do users not have control over their own data, they sometimes will also be troubled by all kinds of harassment.

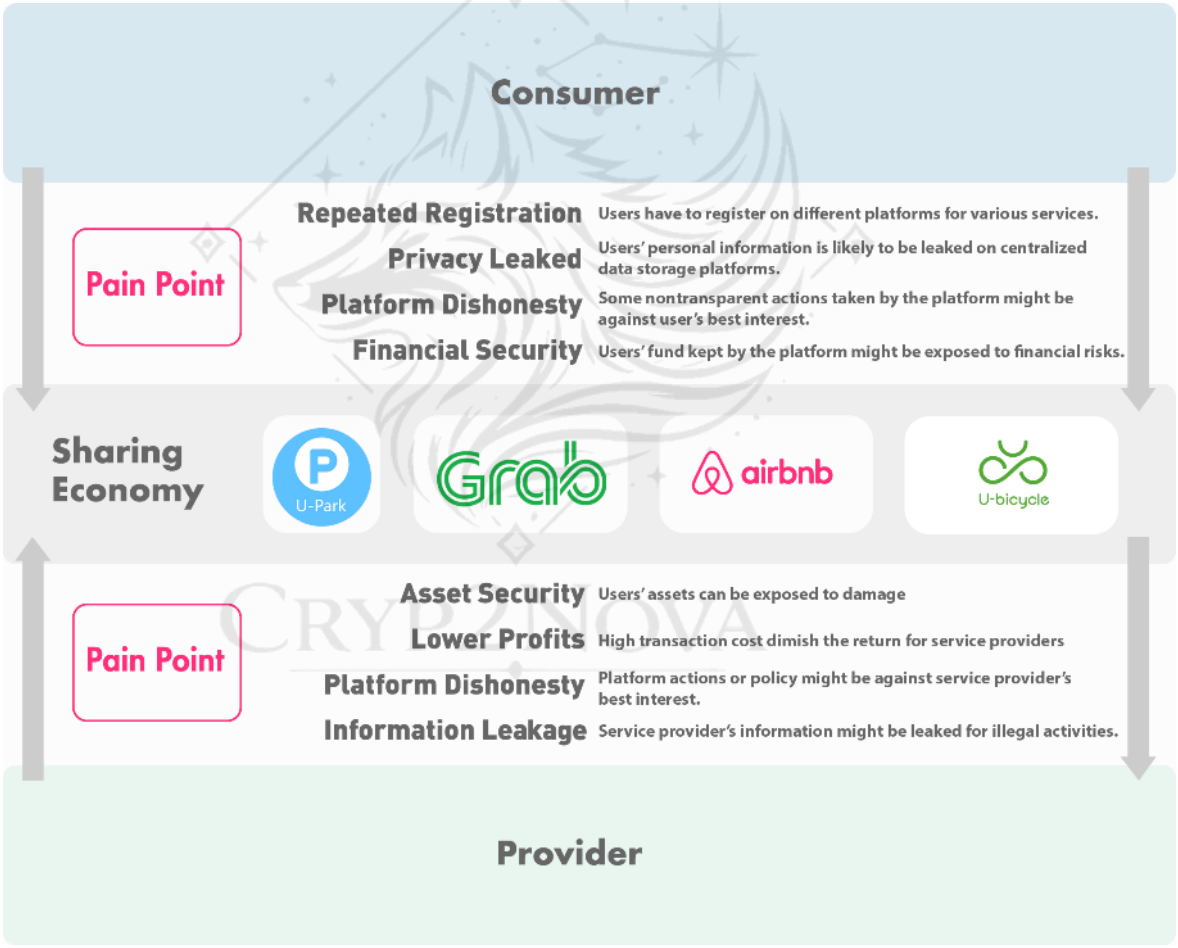


Figure 1-3: Pain points in the Sharing Economy

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2 The UChain Solution

The essence of blockchain is an autonomous peer-to-peer network. It can achieve a tamper-proof, decentralized and fully autonomous ecology that everyone can participate in, which coincides with the nature of the sharing economy. The sharing economy is a peer-to-peer business model that would be in a far more advanced state with the application of blockchain. The idea behind the community autonomy would inspire people around the world to participate in and benefit from the development of UChain.

2.1 Blockchain solutions

2.1.1 Excessive Transaction Costs

UChain will establish a decentralized Blockchain network. During the peer-to-peer transaction settlement between user and service providers, intermediaries will be cut off and we estimate to reduce the transaction fee by nearly 20%.

During the transaction, UChain's token will be used as a transaction certificate when the user subscribes to or purchases a service, such as booking a room. The user may need to freeze a certain amount of tokens as a deposit, which will be released upon completion of the transaction. The whole transaction process will be handled by smart contracts and cross-chain hosting technology to ensure the authenticity, legality, and compliance. With users and merchants using UCN for transacting, we will be able to achieve a real-time settlement and eliminate the risk and cost involved with the usual way of payment on existing platforms

2.1.2 User Credit Passport

UChain records transaction activities on the Blockchain, which is broadcasted and stored by nodes in the network. This distributed ledger is tamperproof with and fully traceable, creating a decentralized and unbreakable "chain of trust."

In this "chain of trust", UChain will establish a credit passport mechanism open to all sharing service providers. Keeping track of all participants' behavior once the user's credit passport is verified by the service provider, they can use it as identity authentication and directly transact without having to pay a deposit. UChain will be integrated with a variety of sharing economy enterprises specialized in travel, travel, accommodation, knowledge, and education industry. In the nearby future, users can use it on different occasions for various services, bringing them much smoother experience

2.1.3 Security of Users' Data

UChain records user and service provider's data on the Blockchain, such as identity information, property information, transaction records and reviews on different services. Instead of storing and accessing data from a centralized database, we store and extract data through a distributed storage scheme with a private key, which means that data cannot be tampered with and is only accessible by the owner. Users and service providers have to sign with their private key if they want to revise their information, with all changes being fully traceable.

With the distributed storage scheme, data will be encrypted, split, shredded and scattered on different nodes. Retrieval of any single piece of data stored by a node will not be complete or readable. It ensures that if a single node is compromised, it does not reveal full information.

When UChain records data on the Blockchain, it is actually storing the address where they can retrieve this data. UChain is able to modify user's data access through a smart contract, only under the user's authorization. When users authorize the merchants to access their data, the authorization information such as access time and operation log, along with the user's public key signature will be recorded on the blockchain, making all actions traceable, eliminating the possibility of data misappropriation.

2.2 Value recreation: Sharing Economy 2.0

2.2.1 The new Sharing Economy Model

In the sharing economy 1.0, intermediary platforms play an important role by facilitating the transactions between users, whilst charging commissions for this service. All transaction settlements are dealt with in fiat, however, in the new sharing economy 2.0 era, users are connected peer-to-peer without intermediaries and commissions, with all transactions being settled in the local token.

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In addition, our underlying Blockchain architecture will provide users and enterprises the opportunity to distribute their own tokens. Through UChain, users can easily share, pay, and settle sharing services. UChain also encourages users and service providers to contribute their idle resources to the ecosystem for more token rewards and community interaction.

2.2.2 Dependent digital assets distribution

UChain will look to cut out the intermediaries by developing a peer-to-peer transaction network, giving the benefits back to users and service providers. Furthermore, the service providers can issue their own digital assets, tokenizing their own sharing services. Besides acting as the main circulating currency for every transaction taking place in the UChain ecosystem, UCN can also be employed as the basic unit in exchange for other tokens issued by service providers who decide to build within the ecosystem.

Any DApps built on top of UChain can issue their own token and develop its sub ecosystem. For example, U-Parking, a strategic partner, can build their own DApp with our infrastructure Blockchain and various API services provided. In addition to developing their own DApp, they can also issue their own token in exchange for UCN from their service users. U-Parking can use all UCN raised from its token sale to pay for API services provided by UChain. Users can use its native token to pay for sharing parking services provided by U-Parking with an exclusive offer. U-Parking could also build its sub ecosystem where its users can participate in and own these tokens such as by contributing their idle parking spots.

As more and more sub-ecosystems issue their own tokens, UChain will also build a DEX (decentralized exchange) to provide liquidity options for these tokens.

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3 Technical Framework

UChain's overall product structure can be divided into four layers: core blockchain layer, API / SDK Layer, service layer, and application layer.

The UChain platform uses a middleware technology that combines innovative blockchain technology with traditional database technologies to enable the creation of tables similar to traditional databases on the blockchain, enabling rapid conversion of platform data between local databases and blockchains. Only by using this technology can we ensure that complex data and historical reviews within shared economy applications can be stored intact, well-structured and quickly on the blockchain. The UChain platform adopts the same properties that all blockchain data cannot be tampered with, including service providers' transaction records, historical reviews, and other structured data to ensure legitimacy.

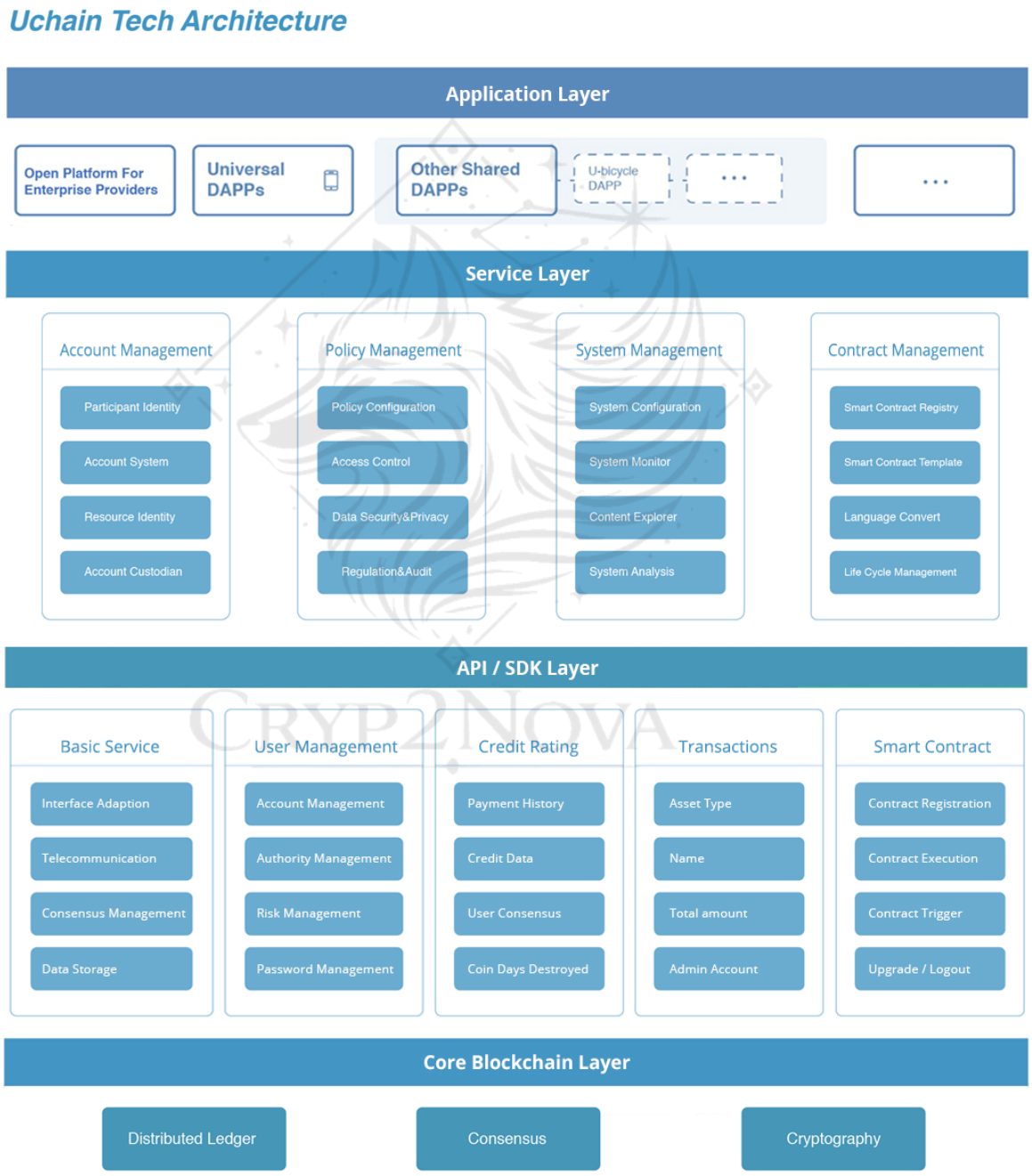


Figure 3-1: UChain's overall product structure

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3.1 Core Blockchain layer

3.1.1 Distributed Shared Ledger [3]

UChain is deploying a decentralized peer-to-peer distributed storage technique by applying a DHT (Distributed Hash Table) based distributed storage protocol, with data being indexed by file content (Hash) instead of a file path (URL). Large files will be partitioned into fixed-size data chunks and distributed across multiple nodes. Each file fragment is indexed by a hash value, which is stored in the distributed hash table of each node. When the user needs to extract the complete file,
the Kademlia DHT algorithm [4] will retrieve the file fragments from the distributed storage network, and reassemble it into a complete file. Each server node does not have a complete file or even a full fragment index from one file. Therefore, if a single server is compromised by hackers, they cannot obtain complete file data.

The customer's sensitive data, track data with core values and unstructured data on the platform, including avatars and photos, are all stored on a distributed storage network. The data hash index will also be saved on the blockchain. Comparing the hash later can identify the authenticity of the data.

One of the main problems with this kind of system is the need to balance between redundancy and reliability. This conflict is resolved through implementing token incentives and backbone nodes. Users can choose reliability for files, low-reliability files can be stored and accessed for free or minimum cost. Highly reliable files will be provided by stable and reliable services from backbone nodes.

The block data structure of UChain is as follows:

```
public class Block //Block
    {
        public uint Version;                // version
        public UInt256 PrevBlock;           // Connected Block
        public UInt256 MerkleRoot;          // Hash value of the transaction list
        public uint Timestamp;              // timestamp
        public uint Bits;                   // reserved field
        public ulong Nonce;                 // random number
        public UInt160 NextMiner;           // bookkeeper of next block
        public byte[] Script;               // signature
        public Transaction[] Transactions; // transaction list
    }
```

3.1.2 Consensus Mechanism (RPCA) [5]

When choosing a consensus mechanism algorithm, UChain considered several mainstream algorithms, including POW, POS, DPOS, DBFT, and RPCA (Ripple Protocol Consensus Algorithm), and finally chose RPCA as UChain's consensus algorithm utilizing the fact that RPCA is designed primarily for transaction speed, aligning with various scenario needs in the sharing economy. The information can be broadcasted efficiently to every node in a few seconds with high performance and high Byzantine fault tolerance. Moreover, the RPCA algorithm has been proven robust and effective with Ripple.

Transaction speed and high concurrency are two benchmarks to evaluate the system designed for the sharing economy, and with that we ruled out PoW and PoS, which are slow in block generation, thus, heavily reducing transaction speed. The main purpose of RPCA is designed for transaction speed, which also meets the scenarios in the sharing economy. The information can be broadcasted efficiently to every node in a few seconds with high performance and high Byzantine fault tolerance. Moreover, the RPCA algorithm has been proven robust and effective in Ripple.

The UChain network generates a new block every few seconds by reaching consensus through the RPCA algorithm, assuming that the consensus process is successful and there is no fork in the network. The newly generated block is unique across the entire network.

The RPCA algorithm completes the transaction in two stages, the first is to achieve consensus on the transaction set, the second is to propose the newly generated block and add it to the blockchain.

The consensus achievement of a transaction set is carried out in sub-rounds. The following operations are performed in each round:

A. Each node collects as many possible consensus-required transactions as possible in the "candidate set" at the beginning of the consensus.
B. Each node makes a union of its "candidate set" in the list of trusted nodes and votes for each transaction.

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C. The UNL service nodes will communicate node to node about the result of the votes. The transactions that reach a certain approval percentage will reach the next round. Others will be discarded or re-elected in the next consensus process round.
D. In the final round, all transactions with more than 80% of approval votes will be placed in a consensus transaction set. The transaction set here is similar to Bitcoin and is in the structure of a Merkle tree.

After the transaction set is formed, each node starts to pack new blocks. The process of packaging blocks is as follows:

A. The creation of a block hash consisting of the following: a new block number + the Merkle tree root hash of the consensus transaction set + the parent block hash + the current timestamp.
B. Each node broadcasts its own block hash to its visible nodes. The visible nodes not only refer to the nodes in the trusted list but also to the nodes that can be discovered through the node discovery process.
C. After the node collects the hash of the block broadcasted by the nodes in all its trusted lists, it combines the block hash generated by itself to calculate a ratio for each block hash.
   - If the ratio of a certain hash exceeds the threshold (usually 80%) it is considered to be the block hash that achieves consensus. If your own hash agrees, it indicates that the block you packed has been confirmed, agreed upon and therefore is stored locally while its status is also updated at the same time.
   - If your hash is different from the consensus hash, then you will be required to go to a node with the correct hash in a block and request the new block information, store it locally and update to the current state.
D. If there is no hash above a set threshold for a block then consensus process is restarted until the condition is met.

At this point, the consensus process of one block ends and the next round follows.

Consistency in RPCA is ensured by the connectivity of sub-networks to other sub-networks. To ensure that the blockchain is not forked each sub-network must maintain connectivity with at least 20% of the entire network node.

While achieving 20% connectivity forking the blockchain is impossible;

For Instance, if the consensus block hash obtained in a sub-network is inconsistent with that of the entire network, 80% of the consensus requirements cannot be reached.

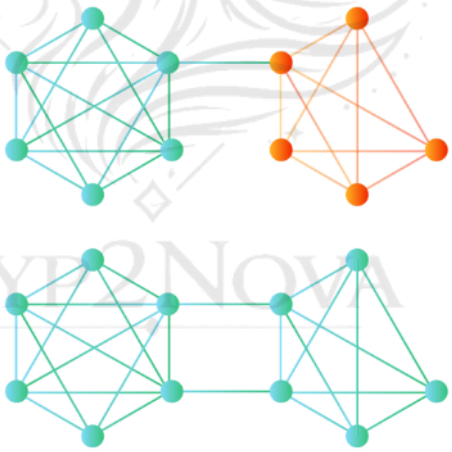


Figure 3-2: RPCA sub-networks must maintain at least 20% connectivity

During each round of voting, the node will collect the response time of each node in its UNL (Unique Node List), and the nodes with regular slow response times will be eliminated, so UNL can maintain a high communication efficiency. Under the condition of effective communication, the RPCA (Robust Principal Component Analysis) algorithm can guarantee to generate a block every 3 seconds. The test TPS is around 1500 which will cover most use cases.

3.1.3 Elliptic Curve Cryptography [6]

UChain uses ECC (Elliptic Curve Cryptography) to sign digital assets to ensure the security of every transaction. The public key can be calculated from a known private key. ECC is widely regarded as the most powerful asymmetric algorithm given the key length, which has been fully exercised in the bitcoin network.

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ECC: Secp256k1 [7]

Elliptic-curve cryptography (ECC) is an approach to public-key cryptography based on the algebraic structure of elliptic curves over finite fields. ECC requires smaller keys compared to non-ECC cryptography (based on plain Galois fields) to provide equivalent security.

Elliptic curves are applicable for key agreements, digital signatures, pseudo-random generators and other tasks. Indirectly, they can be used for encryption by combining the key agreement with a symmetric encryption scheme.

The elliptic curve refers to a homogeneous equation:

$$Y^2 + a1xy + a3y = x^3 + a2x^2 + a4x + a6$$

The combination of numbers and shapes, determined by the plain curve, where the coefficient $a^i\ (i = 1, 2, 3, \ldots 6)$ is defined in a domain, is a number field which can be rational, irrational or complex. Which one is used in the ECC cryptosystem is defined in the finite field $gf(p^r)$.

A special point called the infinity point and all the points on the ellipse form a set together with a defined addition operation to form an Abel group

Each point on the curve must be non-singular. So-called “non-singular” or “smooth” in mathematics means that there is a tangent at any point on the curve.

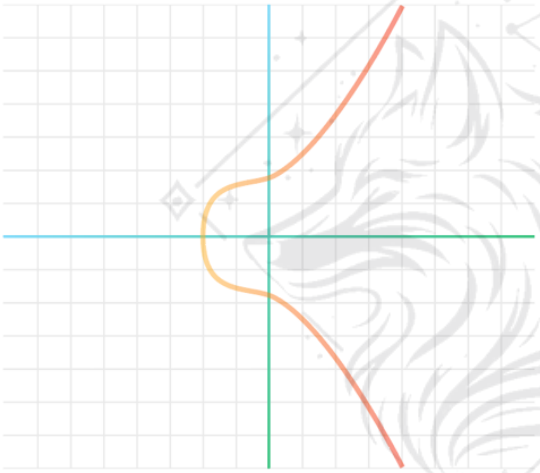


Figure 3-3: secp256k1's elliptic curve

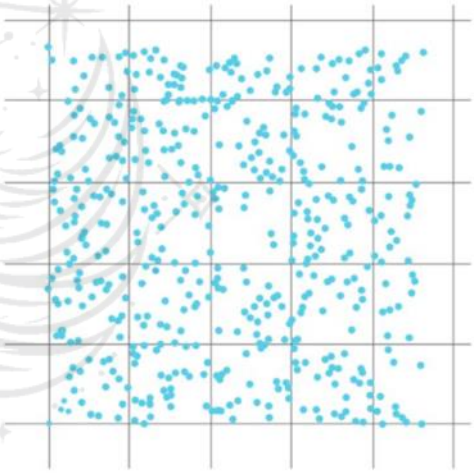


Figure 3-4: secp256k1 random scattered points graph

This is a graph of secp256k1's elliptic curve $y^2 = x^3 + 7$ over the real numbers. Note that because secp256k1 is actually defined over the field $\mathbb{Z}_p$, its graph will in reality look like random scattered points, as seen on Figure 6-3.

Secp256k1 refers to the parameters of the ECDSA curve, and is defined in Standards for Efficient Cryptography (SEC)

Secp256k1 was almost never used before Bitcoin became popular, but it is now gaining in popularity. Most commonly-used curves have a random structure, but secp256k1 was constructed in a special non-random way which allows for especially efficient computation. As a result, it is often more than 30% faster than other curves if the implementation is sufficiently optimized. Unlike the popular NIST curves, secp256k1's constants were selected in a predictable way, which significantly reduces the possibility that the curve's creator inserted any sort of backdoor into the curve.

Technical details

As excerpted from Standards for Efficient Cryptography 2 (SEC 2): [7]

The elliptic curve domain parameters over $\mathbb{F}_p$ associated with a Koblitz curve secp256k1 are specified by the sextuple$T = (p, a, b, G, n, h)$ where the finite field $\mathbb{F}_p$ is defined by:

$$\begin{aligned} p &= FFFFFFFF\ FFFFFFFF\ FFFFFFFF\ FFFFFFFF\ FFFFFFFF\ FFFFFFFF\ FFFFFFFE\ FFFFFC2F \\ &= 2^{256} - 2^{32} - 2^9 - 2^8 - 2^7 - 2^6 - 2^4 - 1 \end{aligned}$$

The curve E: $y^2 = x^3 + ax + b$ over $\mathbb{F}_p$ is defined by:

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$$a = 00000000\ 00000000\ 00000000\ 00000000\ 00000000\ 00000000\ 00000000\ 00000000$$

$$b = 00000000\ 00000000\ 00000000\ 00000000\ 00000000\ 00000000\ 00000000\ 00000007$$

The base point G in compressed form is:

$$G = 02\ 79BE667E\ F9DCBBAC\ 55A06295\ CE870B07\ 029BFCDB\ 2DCE28D9\ 59F2815B\ 16F81798$$

And in uncompressed form:

$$G = 04\ 79BE667E\ F9DCBBAC\ 55A06295\ CE870B07\ 029BFCDB\ 2DCE28D9\ 59F2815B\ 16F81798$$
$$483ADA77\ 26A3C465\ 5DA4FBFC\ 0E1108A8\ FD17B448\ A6855419\ 9C47D08F\ FB10D4B8$$

Finally the order n of G and the cofactor are:

$$n = FFFFFFFF\ FFFFFFFF\ FFFFFFFF\ FFFFFFFE\ BAAEDCE6\ AF48A03B\ BFD25E8C\ D0364141$$

$$h = 01$$

Properties

Secp256k1 has characteristic p, it is defined over the prime field $\mathbb{Z}_p$. Some other curves in common use have characteristic 2, and are defined over a binary Galois field $gf(2^n)$, however secp256k1 is not one of them.

As the a constant is zero, the ax term in the curve equation is always zero, hence the curve equation becomes $y^2 = x^3 + 7$.

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3.2 SDK/API Layer

3.2.1 Smart Contract Systems

UChain's smart contracts include transaction processing and storage mechanisms, as well as a complete state machine for accepting and processing various smart contracts, transaction storage and state processing are done on the blockchain. Transactions mainly contain data that needs to be sent and the descriptions of said data are referred to as events. After the transaction and event information is passed to the smart contract, the resource status in the contract resource set will be updated, triggering the smart contract to perform state machine judgment. If the trigger condition of one or more actions in the automatic state machine is satisfied, the contract is automatically executed by the state machine according to the preset information.

According to the trigger condition contained in the event description information, the smart contract system automatically sends out preset data resources and events including trigger conditions from the smart contract when the trigger condition is satisfied. The core of the entire smart contract system is that all the transactions and events handled by the smart contract are still exported as transactions and events. The smart contract is just a system of transaction modules and state machines. It does not generate smart contracts, nor does it modify smart contracts, it only exists to a set of complex digital promises with triggering conditions that can be properly implemented according to the participants' will.

Smart contract construction and execution

1) Multiple users participate in formulating a smart contract.
2) The contract is spread through the P2P network and stored on the blockchain.
3) Smart contracts embedded within the blockchain are automatically executed.

The following steps describe in detail the process of phase 1 “Multi-User Participation in Formulating a Smart Contract”:

A. The user must first register on the blockchain. The blockchain returns a pair of public and private keys to the user, the public key is used as the account’s address within the blockchain, and the private key is the only way to manage the account.

B. Two or more parties, based on need, agree on a contract that includes the rights and obligations of both parties, these rights and obligations are programmed in machine language. The contract is signed by both parties with their private key to ensure the validity of the contract.

C. The signed smart contract will be transmitted to the blockchain network along with its content.

The following steps describe in detail the process of phase 2 "Contracts are transmitted through the UChain network and stored on the blockchain":

A. The contract transmits across the entire blockchain network through p2p communication. Each node receives a copy. The verification node in the blockchain first saves the received contract into memory and waits for a new round of consensus to trigger and process the contract.

B. When consensus arrives, the verification node will pack all the contracts saved in the most recent period together into a set, calculate the Hash value of the contract set, and finally assemble the Hash values of the contract set into a block structure, spreading to the entire network. Other verification nodes will receive the hash of the contained contract collection and compare it with their own saved contract set. Sending a self-approved contract set to other verification nodes, through this multiple rounds of transmission and comparison, all verification nodes eventually agree on the latest set of contracts within a specified time.

C. The latest contract set will be transmitted to the entire network in the structure of blocks. As shown in the following figure, each block contains the following information:
- Hash value of the current block
- Hash value of the previous block
- The timestamp when consensus was reached
- Other descriptive information.

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The most important piece of information in the blockchain is a set of contracts that have reached consensus. The node that receives the contract set will verify each contract and its participants' signature and the verified contract will be written on the blockchain.

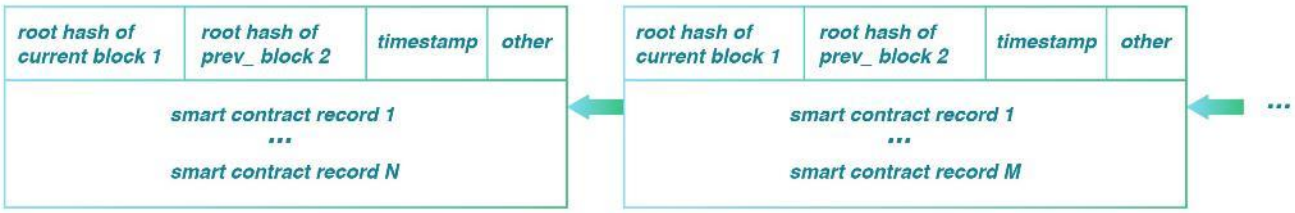


Figure 3-5: Schematic diagram of smart contracts within blockchain blocks

The following steps describe the process of phase 3, "Built-in Blockchain Smart Contracts Auto-execute"

A. The smart contract periodically traverses the state machines and checks their current status, transactions, and trigger conditions contained in each contract one by one. The conditionally satisfied transaction is then pushed into the queue to be verified and awaits consensus, transactions that do not satisfy the trigger condition will remain on the blockchain.

B. The events in the most recent verification process will be transmitted to each verification node. Like common blockchain events or transactions, the verification node first performs signature verification to ensure the validity of the events. Verified events will enter the pending consensus set to wait for the majority of verification nodes to reach consensus. Once reached, the events will be successfully executed and notify the user.

C. After the event is successfully executed, the state machine of the smart contract will determine its status. After all the events included in the contract are sequentially executed, the state machine marks the status of the contract as completed and removes it from the latest block. It will otherwise be marked as "in progress" and continue to be saved in the latest block for the next round of processing until it is marked as completed. The entire event and its status are processed and completed by the smart contract system built into the blockchain core. It is fully transparent and tamper-proof.

To achieve a more transparent ecosystem our platform will adopt a variety of methods to support the sharing economy service providers in developing DApps and smart contracts including;

- Blockchain virtual machines that support C++ and Solidity languages programming.
- Convenient SQL commands within our smart contract storage system, due to our blockchain database storage features.

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3.2.2 Modules

Basic service management module

The basic service is deployed on all blockchain nodes to verify the validity of the service request and record a valid request after reaching consensus. For a new service request, the basic service adapts and analyzes the interface first and then performs authentication processing. After the transaction or contract is signed and encrypted, it is added to the block and broadcasted to achieve consensus between nodes. If consensus is achieved, it will be added to the next block.

User Management module

Our user management module is responsible for managing the identity information of all blockchain participants, including maintenance of public and private key generation, key storage management, and maintenance of the relationship between user's real identity and their blockchain address. With authorization, it also supervises and audits certain transactions.

Smart contract management module

Our smart contract module is responsible for the registering of contracts and managing the trigger conditions and execution. After the user programs the contract and broadcasts it within the blockchain, the contract signed by both parties will be executed if the conditions written within, are met.

Transaction mechanism

A transaction is the activity of changing rights of assets or contracts. UChain has designed several types of transactions and all of them contain an input list, output list, signature list and transaction type related data.

To create a new user issued asset, the user can define the type, name, total amount and the administrator account for specific assets. Creating assets requires consumption of a certain number of tokens as additional service charge.

- Contract transaction: specifies all participated transactions and can determine whether they are required to confirm acceptance according to asset type of each transaction. The counterparty may choose to accept (sign) or reject (ignore).
- Agency transaction: not specifying counterparty, but appointing an agent. This agent is responsible for matching the counterparty of each transaction. The "superconducting transaction" is achieved through this transaction type.

The data structure of the superconducting transaction is as follows:

```
public class Order // order ticket
    {
        public UInt256 AssetId;           // Asset
        public UInt256 ValueAssetId;      // price unit
        public UInt160 Agent;             // agent
        public Fixed8 Amount;             // total transaction volume
        public Fixed8 Price;              // transaction price
        public UInt160 Client;            // client
        public TransactionInput[] Inputs; // transaction input
        public byte[][] Scripts;          // signature list
    }
```


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Credit Rating System

What is a traditional credit rating model?

In the case of FICO [8], credit scores are dependent on five dimensions: Payment history, number of accounts, length of credit card usage, type of credits, and number of new accounts.
Enterprise Credit Report Systems are alike, they all contain information such as bank credit reports, tax reports etc. The data based on credit rating models share one common flaw, reliability of the rating depends on the reliability of its model. Credit information is not direct but indirect data.

How do we perform credit rating through blockchain; User consensus + Coin Days Destroyed [9]

All we need is raw transaction data because blockchain transactions deal with the direction of time, so the marginal cost of repeated consumption is no longer zero, it's proportional to coin days destroyed. Coin Days Destroyed is a very important concept in blockchain. For any given transaction it is calculated by taking the number of coins in a transaction and multiplying it by the number of days since those coins were spent. If someone has 10 coins they received 100 days ago and they spend it today, then 1000 coin days have been destroyed.

Using coin days destroyed as the weighting factor for credit evaluation can prevent cheaters to repeatedly transfer tokens between two accounts to increase credit. This can also prevent intentional negative reviews since higher coin days destroyed means higher weight of a transaction in the credit evaluation.

When a cheater with two trading accounts tries to give himself a high credit score by transferring coins between accounts repeatedly within a day, only the first transaction will count, as the total weight of coin days destroyed for all transactions the cheater performed almost equals to the amount of the first transaction in the final credit evaluation. This will also be the same for the users that have malicious intent and try to use small value transactions to purposely create bad ratings. It will have little to no effect on the user's credit.

The weighted model refers to the credit evaluation score obtained by the user multiplied by the coin days destroyed of the transaction to get the user's final credit score. The model is as follows:

$$R_n = \sum_{i-1}^{i-n} R_i * W_i$$

$$W_i = C_i * D_i$$

$$R_i \in \{-1,0,1\}$$

$$i, W_i, C_i, D_i \in (0, +\infty)$$

R_n = a user's final credit score.
R_i = the credit score a user obtains when the i^{th} transaction is done.
W_i = coin days destroyed of i^{th} transaction.
C_i = the value of $i's$ transaction
D_i = the period of time between i^{th} transaction and the last transaction before it.

In addition, UChain also introduces credit data from third-party credit rating agencies as part of the "user credit pass" ecosystem. It is responsible for providing a reliable AI algorithm to get the user information from UChain's DApps to obtain a reliable data analysis result thus achieving a reliable credit output and UCN as a reward.

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3.3 Service Layer

Account Management Module

Our account management module is responsible for the identity authentication of the user's account, including the registration, login, and logout process, along with irrelevant private key processing of the account. When the account is registered, the identity information such as the username and password used by the original user is mapped to the UChain blockchain address. After the account is logged in, blockchain-related service requests can be sent. For situations with a high degree of transaction confidentiality, the user may choose irrelevant processing with the blockchain address, so that different transactions of the same user are not repeatedly recorded in the block, thereby, improving user security and transaction confidentiality.

Policy Management Module

Our policy management module includes "policy configuration", "data security", "access control" and “regulation and audit”, which are responsible for permission control and management of user data, private key system, nodes joining and exiting, and data access. It also includes audit permission, account delegation permission, node consensus permission and data access permission. The audit permission is to provide the auditing function for the supervisory authority with control over data scope and access permission, linking users who are not relevant to transactions on the shared ledger. The account delegation permission is used to control the access to the user account through delegation. Consensus permission manages the access permission of newly joining nodes. Access permissions are used to manage the client's data query from the blockchain.

System Management Module

In order for the sharing service provider to be able to quickly migrate its existing service on UChain, UChain provides a complete, express, and visualized operation monitoring system. It mainly includes system configuration, monitoring, alarm, release, and service analysis functions. Operation scenarios such as the initial deployment of the system, upgrade of running programs, and node expansion during operation can be supported by the releasing module. The releasing module guarantees the consistency of executable programs such as interfaces, consensus algorithms, and other important modules.

Smart Contract Management Module

UChain smart contract can be categorized into two types: standard contracts and custom contracts. Standard contracts include relatively simple logic, such as asset consistency check, automatic deal closure, multi-party mutual confirmation transfer, and automatic maturity settlement. User customized smart contracts support customized configuration and added business logic to existing contract templates, which also support complex programmed contracts that run in a separate environment.

Smart contracts are processed in four procedures;

1) Contract registration:
   The contract, along with its contents signed by participating parties will be broadcasted through the UChain network and stored on our blockchain after consensus is reached.

2) Contract trigger:
   After the contract is registered, the contract execution can be triggered by an external condition being reached, such as timing, event, transaction, etc.

3) Contract Execution:
   Contract execution refers to the complete process of running the contract code in a separate environment, including building a mirror environment for the contract, where code is executed, and consensus is reached after the state changes and consensus exception is handled.

4) Contract termination:
   The contract will be terminated or cleaned up if it has been executed, expired or business logic change is made. The process of cleaning up requires a multi-node consensus before it can be completed.

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3.4 Application Layer

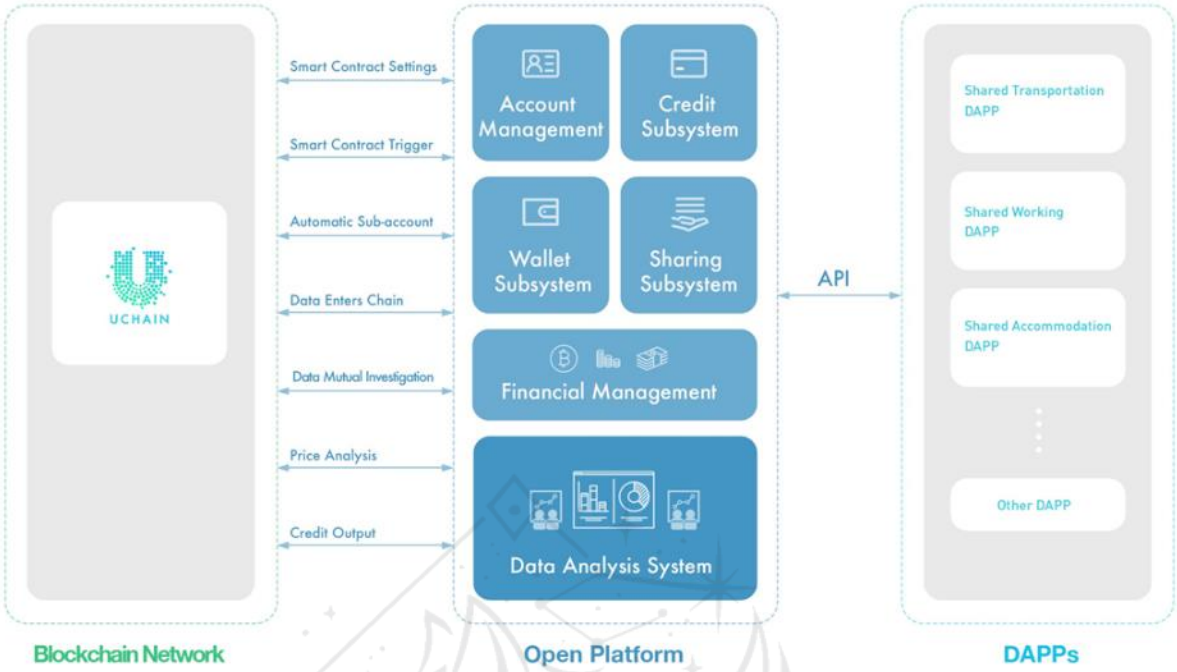


Figure 3-6: UChain open platform structure

Open platform for enterprise level providers

Through API or SDK on UChain's open platform, enterprises in the sharing economy can build DApps or simply migrate their existing app onto UChain. After completing registration as a third-party operator they will receive value-added services which include the ability to obtain new customers and tokens.

Our open platform will provide services that include the use of smart contracts, automatic split payments, key data on chain inquiry, UIP, user credit ratings and a series of marketing functions.

Through UChain's data analysis system we can achieve the following goals;

- Sharing companies can access the platform, integrate resources across the platform, and cooperate with others to achieve win-win results, thus developing a more competitive and valuable ecosystem.
- Companies can update their company database, uploading user data and delivering valuable contents.
- Integrate company's online software and offline hardware to grow into a complete ecosystem.
- Through data analysis, breach penalty, information encryption and enterprise alliance sub-systems, it supports various business scenarios, expanding UChain ecosystem and increasing users' engagement.
- Transparent accounting and data management systems and improving the company's credibility by publishing and executing necessary actions such as data analysis, automatic split payment, incentive schemes, key data inquiry and UCN token transfers.
- Improved data collection capabilities as well as more accurate data analysis to produce user reports including; daily application, application environment, personal data models.
- Better data evaluation, structural improvements and a reduction of operating costs.
- Through UChain's wallet sub-system: Provide companies and users with improved account information management for a better utilization of their UCN tokens.
- With gateway access to smart hardware/shared products censors, it integrates user's data along with big data analysis thus improving the user experience.

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4 The UChain Ecosystem

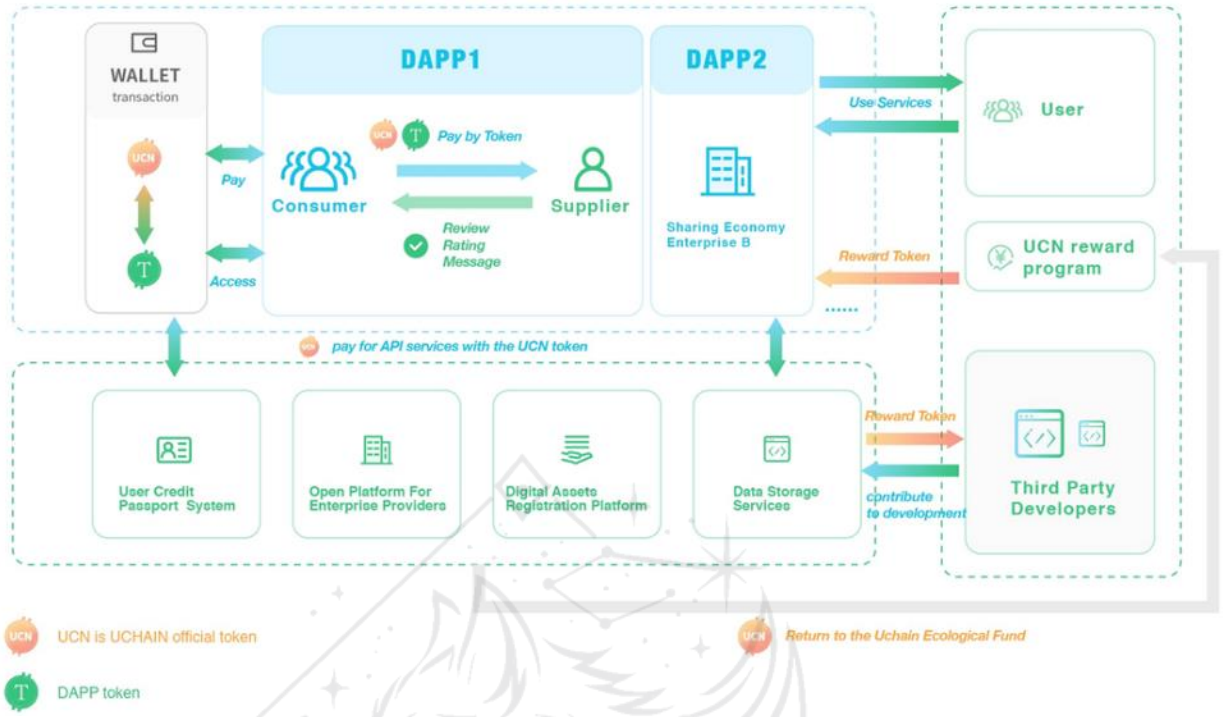


Figure 4-1: The UChain ecosystem mechanics

4.1 Roles in the UChain Ecosystem

There are two major roles that drive the ecosystem, users and developers. Users can be categorized in service users, independent service providers, and enterprise service providers. Independent developers or UChain foundation developers create and maintain the infrastructure. They interact with each other, establishing their distinct values to make UChain a better ecosystem.

Users

Users are the foundation of the whole ecosystem. Service users can pay UCN for any interesting service provided on the DApps based on UChain or simply make transactions on UChain's P2P transaction platform. Independent service providers can acquire UCN either by contributing their idle resources or properties through the DApps.

Enterprises

Enterprise service providers can develop specialized DApps with UChain infrastructure to provide services. They will be paid with a matching amount of UCN by the automatic payment functionality implemented in smart-contracts, after user's use of the DApp along with the incentive UCN provided by the ecosystem. Enterprises can also pay UCN for UChain's infrastructure services and UChain will purchase UCN back depending on the development of the whole ecosystem.

All enterprises that join the UChain ecosystem not only acquire additional user resources but also enhance their values by cooperating and participating in the development of the UChain sharing economy network.

Independent Developers

Developers are the diversified and formidable force in the UChain ecosystem. UChain is an open ecology from day one. We aspire to develop an open and trustworthy platform with the employment of blockchain technology. Capable individuals or organizations can participate in the development of UChain infrastructure or DApps.

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4.2 Modules

UCN reward program

UChain will launch an ecosystem reward program with UCN. The network rewards distinguished contributors, individuals or organizations, by PoA (Proof of Activity) algorithm. [10]

This program will update the reward token pool by dynamic elasticity and recalculate the incentive at fixed intervals to distribute corresponding tokens to the wallets.

URC-1 Standard

UChain provides sharing service providers with the ability to issue and manage their own tokens. Sharing service providers (individuals or organizations) are free to distribute digital assets according to the URC-1 standard. Users can invest in these digital assets to gain from their development.

URC-1 Standard: The URC-1 standard is an interface standard for token issuance on UChain. It is a markup API that allows tags to be implemented in smart contracts. The standard provides basic functions for transferring tokens and allows the token to be approved so that it can be used by the third party. The standard interface allows any token on UChain to be reused by other applications from wallets to decentralized exchanges. API documents and example code will also be provided.

Digital asset registration platform

Our digital asset registration platform is the entrance for asset holders to contribute to UChain. Users need to register their assets before they put them into the sharing services offered. This is also one of the important basic services that the sharing enterprise needs to create DApps. When building a sharing economy DApp, the enterprise integrates the asset registration process through the built-in APIs and SDKs provided by the registration platform.

User credit passport system

UChain will create an intelligent passport (UIP) for every user, this passport is used as a password key for users to pass through different blockchains. It is designed based on user's unique identification and through decentralized user authentication (KYC), UChain will connect fragments left by users in different applications to create their credit centers and store them in a decentralized way. We will then look to use encryption technology to segregate the data for privacy and safety purposes. No one can access user information and its original credit data.

UChain will implement AI to obtain user data from various platforms then perform analysis based on said data. AI will analyze user's behavior data and study it to obtain users digital image. As more data is gathered, this digital image will grow to match users' real-life characteristics. User data will be layered by credit, defining user's credit level and this will be reflected in applications built on UChain so that both sides of the transaction will be able to access it, solving the problem of trust.

General P2P transaction platform module

UChain will create a general P2P transaction platform module with integrations of several basic features such as map, payment gateway, and account management so that enterprises can easily build their own marketplace on top of it. It has the following characteristics:

- P2P Data Liberation:
  by implementing a DHT (Distributed hash table) [11] for storage and distribution we will provide a free and reliable upload, storage, transmitting and publishing platform.
- Fast transaction:
  Our "Superconducting transactions" can facilitate safe and high-speed business grade transactions on a millisecond level by incorporating push technology.
- Enabling product:
  Through blockchain technology, we can stimulate personal contributions to expand the ecosystem, by facilitating production, distribution, and transmission of shared properties.

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Digital Wallet

UChain will provide digital wallet services for all participants in the UChain ecosystem. They can store UCN and any other URC-1 tokens in their wallets. UChain will also integrate a decentralized exchange (DEX) in the wallet to realize the exchange of different tokens in each sub-ecological ecosystem in UChain to meet the demands of all participants, building UChain as a healthier and more dynamic ecosystem.

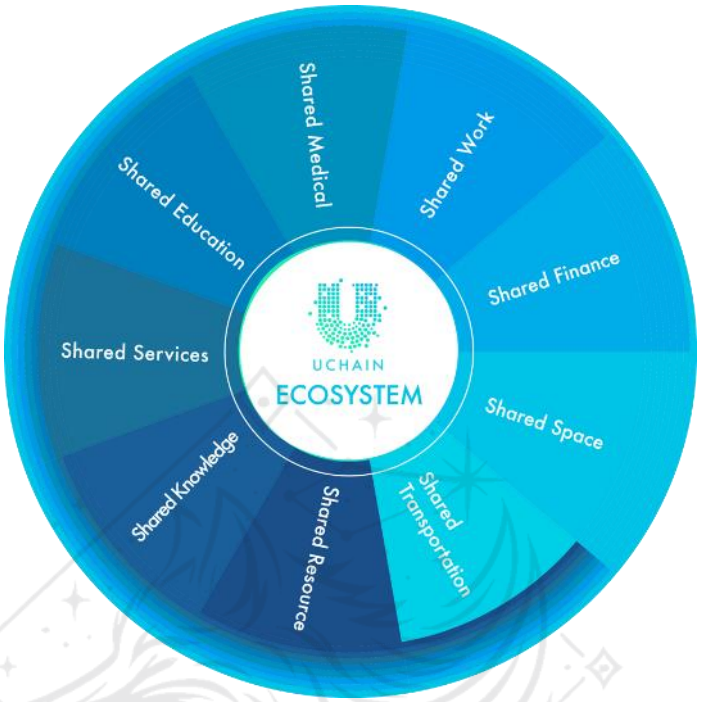


Figure 4-2: UChain and related sharing economy sectors

4.3 Strategic Partnerships

U.B. Group Holding is the world's leading Internet organization that focuses on shared travel. The company is registered in the Cayman Islands and has undergone and completed successful four rounds of raising. Company shareholders include several public companies and tier 1 international investment firms.

- Over 100 million users combined
- Operational in 4 continents, 8 countries, 200+ cities.
- Over 100 million application downloads
- Over 1 million daily transactions
- Over 30 million monthly active users

U-Bicycle has engaged business operations in areas such as Canada, USA, China and South East Asia along with plans to launch in Germany, Britain and other countries. U-Bicycle's business areas include Bike Sharing, E-bike Sharing, Car Sharing and Smart Parking Lots.

U.B. Group Holding currently owns:

- U-bicycle (Fourth largest bike sharing platform in the world.)
- X-Bike (also known as Campus Bike, frontier brand for sharing bicycles in Chinese Colleges)
- LocalKing (The Taiwanese transport sharing market leader)
- GrabCycle (holds shares in Grab's Southeast Asia bike sharing brand)
- U-park (Pioneering brand for Smart parking services)
- U-car (Innovations brand for Car sharing services.)

The company has independent research, development and design teams, supply chains, logistics distribution groups, operations and maintenance teams, big data services, marketing and other travel industry chain services of bicycles, electric cars, and automobiles, parking lots electronic equipment and intelligent equipment for smart parking lots.

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500000+
Bicycles
Expanding to over 500 thousand shared bicyles.

5
Countries
Including China, Canada,America, Singapore,Malaysia,Thailand and Europe

40
Cities
40 cities in 2 years

300+
Employees
More than 300 employees around the world

180million
Rides
180 Million Rides per Year

30million
Users
The choice of 30 million users

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U.B.Group Holding's headquarters are located in Vancouver alongside other main offices in Shanghai and Singapore with more operational offices around the world.

The bicycle sharing service, U-bicycle has over 30 million registered users currently located in East Asia, South East Asia, North America, etc.

U-bicycle focuses on the sharing economy, derived explicitly from the global issues of urban mobility, tackling the fight against difficult transportation and parking methods. We aim to alleviate these issues through our smart and innovative services, consisting of departments of bicycles, smart devices, R&D, supply chain logistics, maintenance and operations, and big data services.

U.B. Group Holding

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Independent operation in North America

NA U-bicycle

Grab Cycle

Joined Southeast Asia leading transport sharing enterprise Grab in founding Grab Cycle.

Pioneering brand for Smart Parking

U-Park

U-bicycle

LOCALKING

LOCALKING the Taiwanese trans-port sharing leader.

Innovations brand for Sharing cars

U-Car

X-Bike

Frontier brand for sharing bicycles in Chinese Colleges.

UCHAIN

U.B. Group Holding

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5 U-Bicycle DApp

5.1 Sharing bicycle app service

U-Bicycle will launch its sharing bicycle application on UChain, which will also be the first sharing service platform based on the blockchain. The U-Bicycle APP is already developed on iOS and can be easily migrated to UChain after its Mainnet launch.

Users can either rent bicycles on the platform or contribute their idle bicycles in exchange for rewards. All user and transaction data from the U-bicycle DApp will be stored on the UChain blockchain. Through UChain's technical solution for the sharing economy enterprise and its tokenized community management, U-Bicycle will achieve faster growth, increased user engagement and higher operation efficiency.

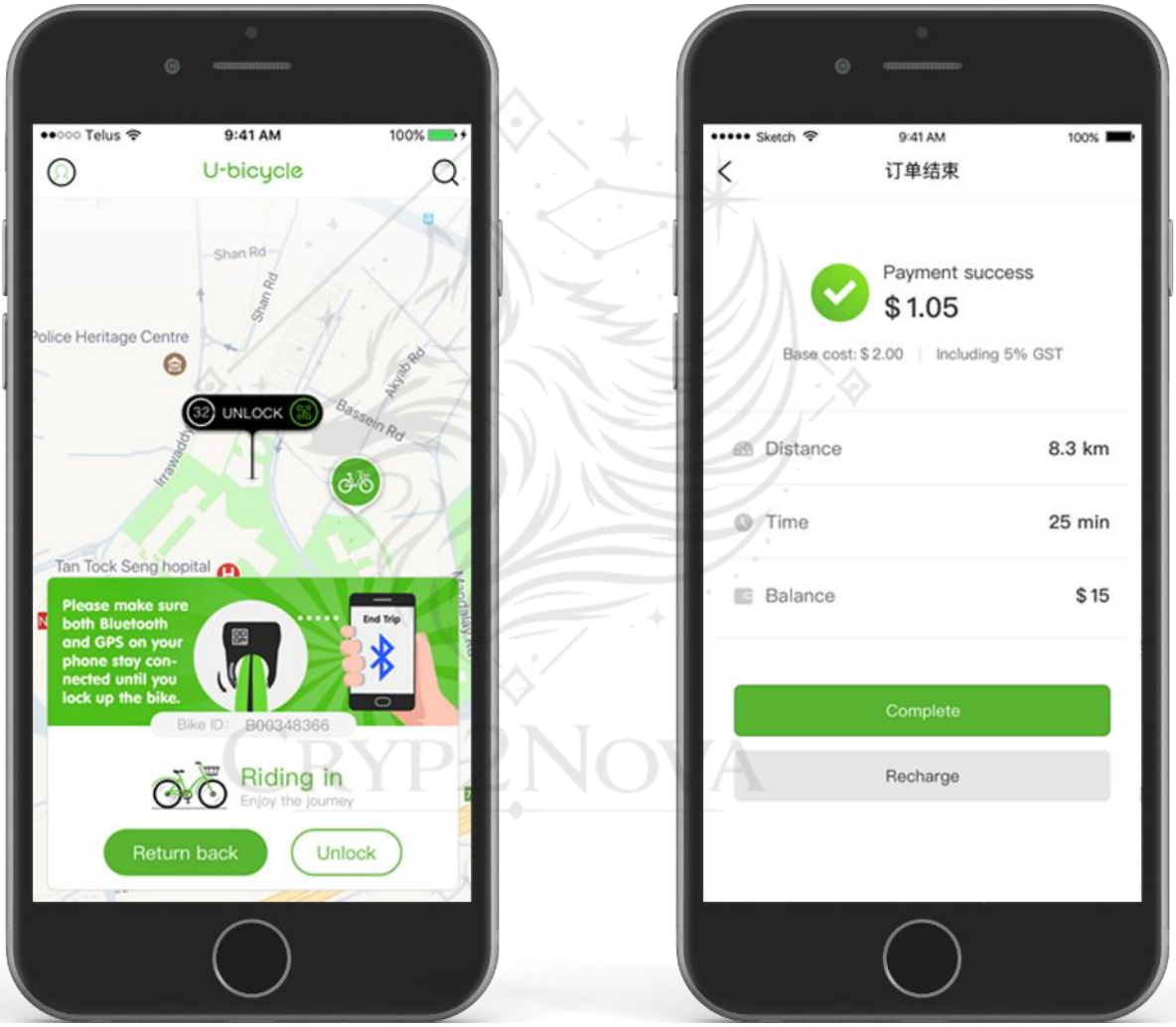


Figure 5-1: The U-Bicycle APP

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5.2 Functionality Breakdown

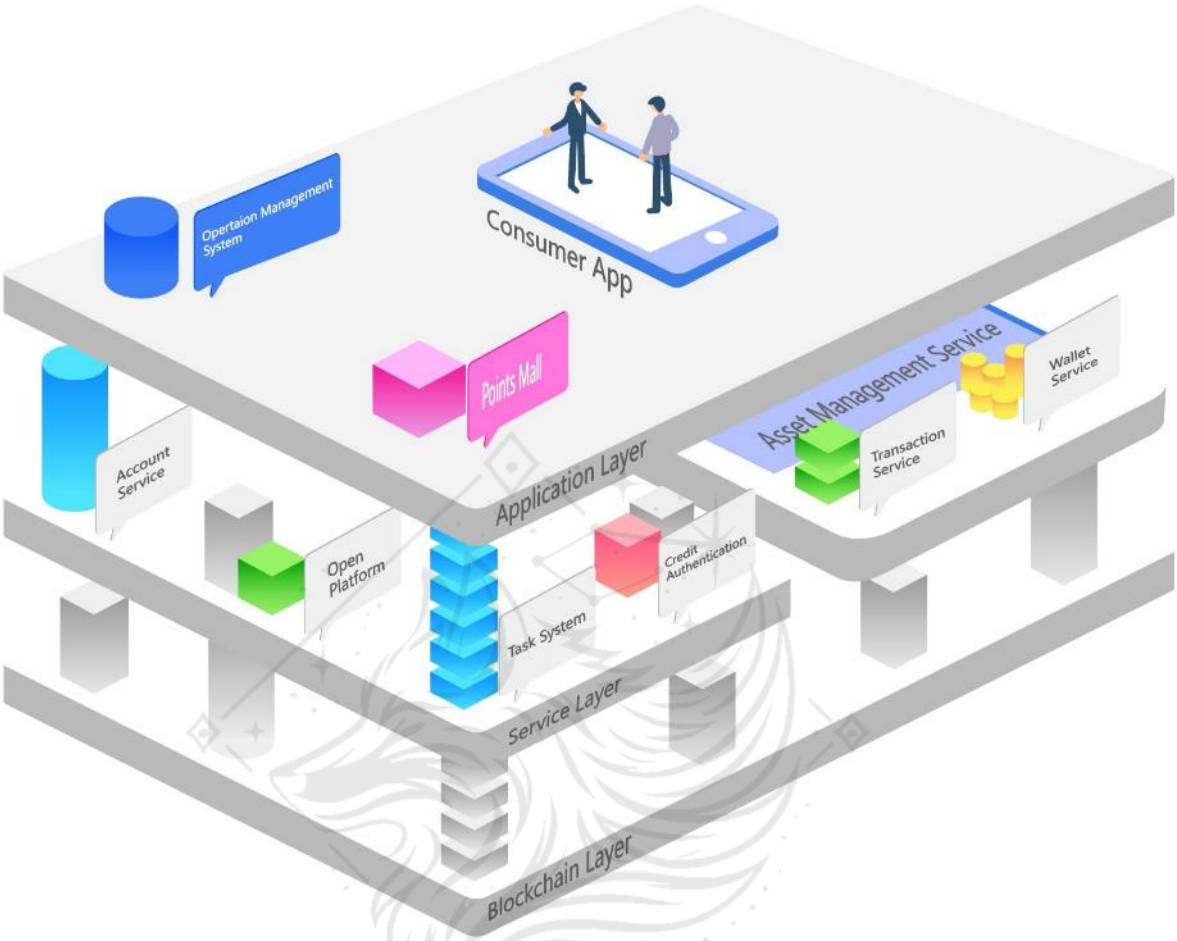


Figure 5-2: U-Bicycle APP functionality breakdown

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Application layer

The U-Bicycle DApp provides following functions:

- Search function for nearby bicycles based on real-time location
- Map function with straight vacant bicycles illustration
- Unlocking function with an easy QR code scan
- Payment function
- Monthly bicycle service subscription
- Reviews and suggestions
- Red Envelope rewards

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Service layer

- **Red Envelope Reward**
  In order to increase the use efficiency of the bicycles, U-Bicycle will implement smart contracts, that when the use of a bicycle is below a certain threshold, it will be identified as a red envelope bicycle on the DApp. Once the user rides a red envelope bicycle, a certain number of tokens will be rewarded depending on its previous degree of use, along with the total distance the user rides.

- **Account management service**
  Users will register a new account with their phone number or email address, with each user being assigned a unique digital identity that is linked to their account. The user can link also link their digital wallet to the DApp for easier access. All the transaction and user behavior will be recorded and associated with their digital identity on the blockchain.

- **Credit Authentication**
  After successful registration, the user will be required to finish credit authentication before they can use the sharing service. U-Bicycle DApp will retrieve the User Credit Passport based on the personal information the user provides. The User Credit Passport is unique for every user and is universal across all applications built on UChain. If the user's credit score passes a set level they can rent the bicycle without paying a token deposit, if however, the user does not meet the required credit score they will be required to pay a deposit, which will be returned as soon as they finish using the bicycle, with everything being executed via smart contract.

- **Transaction Service**
  All transactions taking place on the U-Bicycle DApp will be dealt in UCN. The transaction itself along with its payment information will be passed to and stored on the UChain blockchain. It will also be used as the data source for updating User Credit Passport.

- **Wallet Service**
  U-Bicycle will also use and connect its DApp to the wallet service provided by UChain. After the UChain digital wallet is successfully associated with user's account, the user can directly use all the wallet services such as payment and token transfer inside the DApp.

- **Task System**
  The U-Bicycle will also have a system that distributes operational tasks with a token reward. It will publish the location-based tasks according to the real situation, such as moving a certain number of bicycles from location A to location B, due to the number of bikes being disproportionate. All users in location A will be able to view and accept the task and once the bicycle is transported to location B, the task is considered complete and users will be rewarded with tokens, which will be displayed prior to accepting to the task.

- **Open platform**
  U-bicycle DApp also provides APIs for other enterprises and DApps that would like to exercise the sharing bicycle services provided by U-Bicycle. They can register for the use of APIs including the map service and payment gateway.

- **Asset Management Service**
  U-Bicycle provides users who have bicycle resources with the opportunity to digitize their heavy assets to earn tokens. Besides the 100,000 bicycles owned by U-Bicycle, users can also contribute their idle bicycles to the platform after they register them within the UChain Digital Asset Registration Platform, renting them to other users, and earning tokens with ease.

Blockchain layer

- **Data storage on the blockchain**
  User and transaction data from U-Bicycle DApp will be packaged and sent through the consensus mechanism to be recorded on the blockchain after it has been signed and encrypted. In addition, assets such as bicycles from the U-Bicycle platform will be registered with the asset registration module and stored on the blockchain along with its location information, service history and maintenance record that are all tamperproof and traceable.

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6 Token Economics

6.1 Official Token (UCN)

UCN is the basic unit on UChain. The value of all other tokens is derived from UCN. Those who wish to join or leave UChain ecosystem must buy or sell UCN.



Figure 6-1: UCN use cases

6.2 Staked UCN (UCP)

Users can get UCP by locking their UCN. UCP is just UCN with voting power, and as such gives the holder higher ecological access.

Staking: UChain will incentivize holders who keep UCP for a long time by granting them UCN, the distributing rate will be dynamic so people who hold and lock UCN for a long time will get extra bonuses.

UCP is not exchangeable nor tradable.

By investing in long-term value, the whole ecology can achieve its ideal vision besides making short-term gains. At the same time, token holders will enjoy vitality from the development of our ecosystem. Long-term holding by community members will be the backbone of UChain's ecology. In the world of cryptocurrency, we see short-term investors continuously looking for cryptocurrencies with higher potential value. UChain aspires to build an autonomous ecology full of people with shared values.

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6.3 Value of UCN

As the official digital currency of UChain, UCN has huge potential in market value, this value is quantifiable. As mentioned previously, by 2018 the market scale of the global shared economy will reach 520 billion dollars. Within it, centralized platforms as the matchmaker stand to make about 30% of the profit. As the business grows, more applications are implemented and more data is collected. Credit evaluation and technology services will become more valuable in the market. UCN is not only a digital currency but also a base currency for all of the derivatives on UChain.

- **Transaction value:**
  UCN is circulated in all DApps built on top of UChain as payment for all kinds of transactions.
- **Supply chain vouchers:**
  UCN can be used as vouchers for the purchase of assets from suppliers (sharing bicycles, smart devices, etc.).
- **Data contribution rewards:**
  Users will be rewarded with UCN if they decide to contribute their data to the development of the ecosystem.
- **Value-added services:**
  UCN can be used for payment of API services provided by UChain.
- **Community rewards:**
  UCN will be rewarded to the community contributors such as third-party developers and community operators.
- **User incentives:**
  UCN can be earned by improving your community activity such as on-boarding more users and creating valuable content.
- **Fees:**
  All fees will be denominated in UCN such as transaction fee from Sharing services and DEX.
- **Ad delivery:**
  UCN can also be paid for advertisements deliver through the UChain advertising system.

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7 The team behind UChain

7.1 UChain Team

UChain is a global team with many years of experience specifically in the technological field. In September 2017 the head-office was set up in Canada and since then UChain has been recruiting developers, community operators, and team members who are interested in the sharing economy. At the same time, the team has been looking for partners around the world and has reached strategic cooperation with some outstanding enterprises in the sharing economy field. We are striving to utilize UChain as soon as possible.

7.2 Core Members



Ian Yu

Founder and CEO

- Founder and CEO of U-bicycle
- Founding team member of DianPing.Com (China's largest service e-commerce platform serving more than 320 million annual active buyers and more than four million annual active local merchants across 2800 cities in China, also known as the Chinese Yelp).
- Joined Dianping.com in 2005 Overseeing Dianping's Groupon and film departments.
- Former GM of DianPing Movie BU
- "Internet Weekly" Lead Product Entrepreneurs of the Year
- Winner of International Double Entrepreneurship New Waves
- "Entrepreneur China" CEO of the year
- Early bitcoin and mining facility investor



Grace Min

Co-founder

- CEO - U-Bicycle North America
- CEO - Dozenfresh International Trading
- Founder - Oval Town Properties
- Founder - SG International Travel LTD
- Bachelor of Arts in Sociology & Education from Simon Fraser University in Canada.
- Participating in the EMBA program at Fudan University (USA & China)
- Active crypto investor since 2014

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Will Zhou

Chief Technical Officer

- Bachelor of Science from Shanghai Jiaotong University
- Big data expert with vast experience in developing transaction systems capable of handling high tx/s throughput.

Previous Experience;

- Senior Engineer – Telenav (2009-2012)
- Director of technology – Dianping (2012 -2014)
- Technical Director - eBay (2014-2015)
- Technical partner – HiCTO (2015 -2016)
- CTO - U-Bicycle (2016-Present) - Managing the technical team and developing overall system architecture.



Chris Tao

Chief Strategy Officer

- Ten years research and practice experience in P2P network and Distributed Systems.
- Member of the Strategic Advisors at Vancouver Startup Incubators.
- MBA from Wharton Business School of the University of Pennsylvania.
- Received Microsoft top contributor award and Microsoft Circle of Excellence.
- Leading member with the creation of Office 2007, SharePoint 2007, Lync and Dynamics CRM 4.0 projects.

Previous Experience;

- Senior Enterprise Strategist – Microsoft (2005 – 2014)
- Business Intelligence Tech Lead - Microsoft (2005 - Present)
- Lecturer - University of British Columbia (2014 - Present)
- Founding Member & CSO – UChain (2017-Present)



Jason Wu

Senior Architect

- Proficient in Go language with three years of experience in Blockchain development such as on-chain off-chain data interaction.

Previous Experience;

- Senior Developing Engineer - IBM CHINA (2010-2012) Overseeing the development of Maximo system.
- System Architecture at – Dianping (2013-2015) In charge of system architecture design and development.
- Co-founder & Technical Expert – HiCTO (2015-2016) Providing technical consulting services for startups.
- Co-founder – HiCircle (2016-2017)
  HiCircle is a tech consulting firm specialized in providing Blockchain related consulting services and training services to enterprises and businesses with established clients such as Biwen (bitask.org Chinese Quora specialized in Blockchain space), GXS (gxs.gxb.io) and China Mobile.

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Benny Liao

Chief Product Officer

- Years of experience in research and development for smart devices.
- Specialist in IoT (Internet of Things) Blockchain technology to improve data transmission efficiency and security.
- Blockchain and Crypto enthusiast since 2014.

Former Product Director for;

- Alibaba's AutoNavi
- Gaode Map
- Meizu
- EMG
- IPC

Previous Experience;

- Senior Engineer - Panasonic (Taiwan) (2001-2017) Development of map and navigation services.
- General Product Manager - Yitong Map (2007-2011) Development of map and navigation services.
- General Product Manager - Autonav (acquired by Alibaba Group with a 1.5 billion USD valuation) (2011-2014)
- Manager (Online Business) - Meizu Inc. (2014-2016)
- Manager (Smart Device Department) - U-Bicycle (2016-present) Overseeing the development of smart devices such as smart bicycle and smart lock.



Mandy Chan

Chief Marketing Officer

- Bachelor of Arts in Communications from Simon Fraser University in Vancouver, Canada

Previous Experience;

- Brand Manager - Glaxo Smith Kline (2008-2010) Overseeing brand promotion and developing various marketing strategies.
- Global Marketing manager - Microsoft (2010-2017) Overseeing marketing and promotion of Microsoft products in the Asian and North America markets.
- CMO - U-Bicycle NA (2017-Present) in charge of U-bicycle's public relations and marketing in North America



Raviv Litman

Operation Director

- Graduated from University of Victoria with a bachelor of art degree in social science.
- Winner of Social Science and Humanities Research Council of Canada Scholarship and President Scholarship.

Previous Experience;

- Operation Director - Dozenfresh International Trading (2016-2017)
- City Operation Director - U-Bicycle NA (2017-Present) In charge of U-Bicycle's offline operation and business development in North America.

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7.3 Advisors



Jimmy Hu
Founder & CEO
APEX Network



Jonathan Ha
Founder & CEO
Red Pulse



Ding'an Fei
Managing Partner
Ledger Capital



Henry Wu
Venture Partner
Ledger Capital



Richard Wang
Partner
Draper Dragon



Kenneth Hsia
Partner
Badwater Capital



JC Xu
Partner, Badwater Capital



Aaron Choi
Vice President BTCC



Ray Valdes
CTO ConsenSys



Frank Zheng
Managing Director WBO



Shen Peng
CEO Water Drop



Kong Huawei
Chief Scientist ZJ Capital

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8 Partners

8.1 Exclusive partnerships

U.B. Group Holding is the world's leading Internet organization that focuses on shared travel. The company is registered in the Cayman Islands and has undergone and completed successful four rounds of raising. Company shareholders include several public companies and tier 1 international investment firms.

- Over 100 million users combined
- Operational in 4 continents, 8 countries, 200+ cities.
- Over 100 million application downloads
- Over 1 million daily transactions
- Over 30 million monthly active users

U-Bicycle has engaged business operations in areas such as Canada, USA, China and South East Asia along with plans to launch in Germany, Britain and other countries. U-Bicycle's business areas include Bike Sharing, E-bike Sharing, Car Sharing and Smart Parking Lot.

The company has independent research, development and design teams, supply chains, logistics distribution groups, operations and maintenance teams, big data services, marketing and other travel industry chain services of bicycles, electric cars, and automobiles, parking lots electronic equipment and intelligent equipment for smart parking lots.

U.B. Group Holding currently owns:

U-bicycle
Fourth largest bike sharing platform in the world.

X-Bike (also known as Campus Bike)
Frontier brand for sharing bicycles in Chinese Colleges.

LocalKing (also known as Leek-U-bicycle)
The Taiwanese transport sharing market leader.

GrabCycle
Joined Southeast Asia leading transport sharing enterprise Grab in founding Grab Cycle.

U-Park
Pioneering brand for Smart parking services. Studied

U-Car
Innovations brand for Car sharing services.

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8.2 Organizational partners

UChain aspires to enhance the value of its platform by expanding its ecosystem. UChain will work with global partners to build a sharing ecosystem together.

ALIPAY	Working closely with ALIPAY to promote UChain's sharing transport solutions more efficiently.	China unicom中国联通	Conducting manifold cooperation with China Unicom in IoT to provide sound solutions with supporting hardware.
Grab	Coordinating with Grab, the leading transportation network company in Southeast Asia to strategize a localized transport ecosystem.	dianping.com	Working with the local life service platform to provide better experiences and services.
TRANSLINK	Cooperating with the Canadian leading transport brand TransLink to facilitate our offline operations.		The World Blockchain Organization (WBO) an international advocacy organization

8.3 Institutional investors

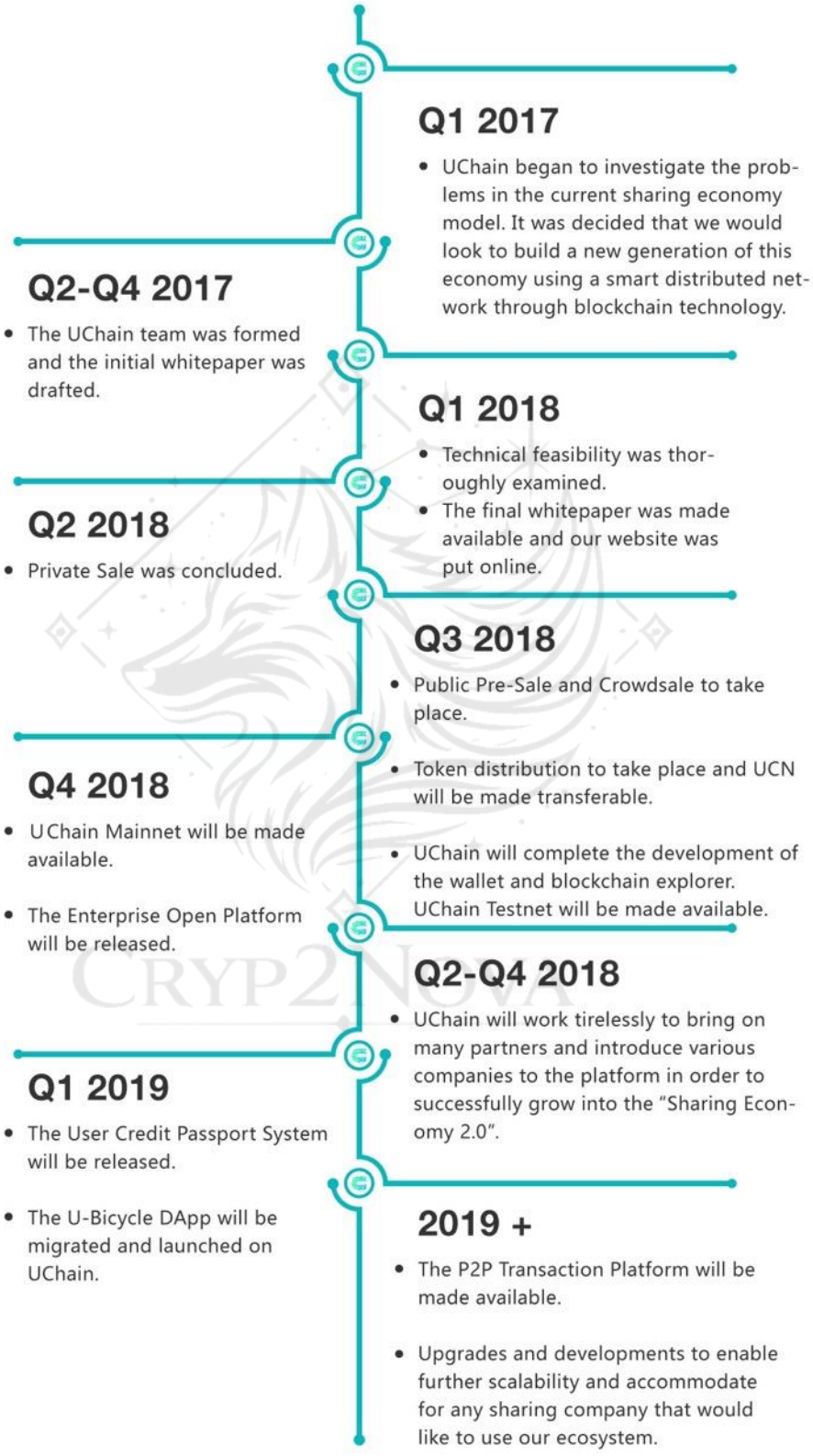
LEDGER CAPITAL | BADWATER CAPITAL | ChuXin | BLACK HOLE

MAX CAPITAL | V-Capital | EMPOWER INVESTMENT | ZHONGLU CAPITAL

Light-up Capital | alacrity FOUNDATION

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9 Roadmap

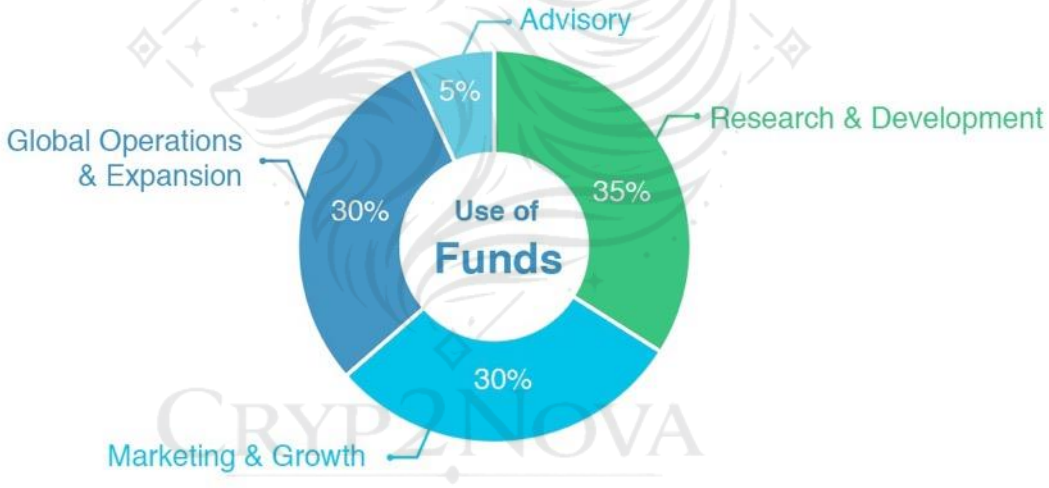


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10 Token Sale

The UCN total supply is to be determined at the conclusion of the ICO and will raise 35,000 Ethereum.
The Private Sale: 33,000 ETH with a 50% bonus, half the funds will be locked for 6 months.
The Public Presale: 2,000 ETH with a 15% bonus, the bonus portion will be locked for 3 months.







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11 Disclaimer and other Legal Statements

Disclaimer

1) For enthusiasts of UChain, please read the whitepaper and related instructions on our official website carefully. Please be sure that you understand blockchain technology and realize that there's potential risk in buying tokens on UChain. We would urge you to fully assess your financial situation before investing.

2) This project may fail due to its legitimacy, market demand, technical or other uncontrollable reasons out of our control. Please be prepared that any of these circumstances may cause all funds you invested in this project to become worthless.

3) There are risks associated with the buyer's credentials. If any third party obtains the purchaser's login credentials or private key they may be able to directly control the buyer's UCN. To minimize risks, the purchaser must protect his / her electronic devices against unauthorized access requests or access to the device contents.

4) Blockchain technology has become a target of supervision in all major countries in the world and UChain or UCN may be affected if the regulatory authorities act against it. If the state limits the use and sales of digital tokens, the UCN may be restricted, causing the project to be blocked or even terminate UChain's development.

5) Please be aware of some non UChain application risk that we may incur. With the development of the UCN platform, third-party based applications may appear. The official UChain platform may directly compete with these third-party applications, and may also have a negative impact on its value.

6) It is possible that UChain applications launch without being used by many individuals or organizations, implying that the public has no interest in developing these relevant distributed applications, which might have a negative impact on the value of UCN and UChain applications.

7) The general carelessness and laziness on the internet might prevent anyone from reading this part while you could have won 100 UCN being the first non UChain person to discover it. An optional personal hug is included.

8) Any malicious attempt by hackers, other organizations or countries to disrupt UChain applications or UCN functions, including server attacks, Sybil attacks, malware attacks, or consistent attacks could result in serious damages and value loss for the UChain platform and UCN token.

9) The UChain application includes a series of open source software. Third parties could intentionally or unintentionally push code with bugs which could be implemented into the UChain platform, therefore, damaging the core framework itself. This could result in a loss of UCN.

10) The rapid development of cryptography or science and technology such as the development of quantum computers brings the risk of cracking encryption or UChain’s monetary platform. This could lead to the loss of UCN.

11) As with other decentralized cryptosystems and cryptocurrency, the blockchain that we plan to develop for UChain applications is also vulnerable to mining attacks. This includes but not limited to, double spend attacks, high calculation force ratio attacks, "self-interest" mining attacks and excessive competitive attacks. Any successful attack is a risk to UChain's platform and UCN value. Although UChain's system security is very hard to crack, the mining attacks mentioned above are real.

12) Unlike bank accounts or other financial institutional accounts, there will not be UChain account insurance or any other blockchain insurance. In any case, there will be no open individual organization to cover your loss, however, companies such as the FDIC or private insurance companies might provide a guarantee for the buyer.

13) There is the possibility of UChain dissolution. This could occur due to various reasons, including the volatility of NEO, ETH, or UCN's own price, the development of the UChain application, the possibility of a disruption in the business relationships or the possibility of a claim of intellectual property. UChain is likely to be directly impacted in the event of a major attack or a direct dissolution.

14) If the UChain platform were to fail this could result in normal services that would normally run daily, to stop. This could lead to the loss of user’s UCN.

15) Crypto tokens are a new and untested technology. In addition to the risks referred to in this white paper, there are also some risks the UChain team may not have stated. Throughout this journey we may uncover various potential risks that could affect UChain, please be aware.

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