



# ENT WHITE PAPER

GLOBAL ENTERTAINMENT PLATFORM BASED ON  
BLOCKCHAIN TECHNOLOGY

**Ent Labs Foundtion**

Version: V1.2.5 2017/11/28

## 目录

<b>1. Introduction</b> .....	<b>2</b>
1.1 <a href="#">Blockchain: The Fourth Industrial Revolution</a> .....	2
1.2 <a href="#">Features of Blockchain</a> .....	3
1.2.3 <a href="#">Distribution (P2P)</a> .....	4
1.3 <a href="#">Disruption to the Entertainment Industry</a> .....	5
<b>2. ENT: Global Entertainment Based on Blockchain</b> .....	<b>6</b>
2.1 <a href="#">What is ENT?</a> .....	6
2.2 <a href="#">ENT Ecosystem</a> .....	7
<b>3. ENT Token Model</b> .....	<b>8</b>
3.1 <a href="#">ENT Cash</a> .....	8
3.2 <a href="#">Idol Token</a> .....	11
3.3 <a href="#">Close Loop of Idol Token Circulation</a> .....	14
<b>4. Blockchain Technology behind ENT</b> .....	<b>15</b>
4.1 <a href="#">Daap model</a> .....	16
4.2 <a href="#">Payment, Tokens and Open Data API</a> .....	16
4.3 <a href="#">Business and Technology Architecture</a> .....	17
4.4 <a href="#">ENT Support to Scalability And Cross-chain Protocol</a> .....	21
<b>5. Leadership</b> .....	<b>27</b>
5.1 <a href="#">Core team members</a> .....	27
5.2 <a href="#">Advisors</a> .....	28
5.3 <a href="#">Partners</a> .....	30
<b>6. ENT Foundation</b> .....	<b>31</b>
6.1 <a href="#">Introduction</a> .....	31
6.2 <a href="#">Governance Principles</a> .....	31
6.3 <a href="#">Foundation Organization</a> .....	31
6.4 <a href="#">Funding Distribution</a> .....	33
6.5 <a href="#">Legal, Compliance and Audit</a> .....	34
6.6 <a href="#">Reporting</a> .....	34
<b>7. Road Map</b> .....	<b>35</b>
7.1 <a href="#">Current Status</a> .....	35
7.2 <a href="#">Future Development</a> .....	35
<b>8. Disclaim and Risk Management</b> .....	<b>35</b>
8.1 <a href="#">Disclaimers</a> .....	35
8.1 <a href="#">Risk Statements</a> .....	36

# 1. Introduction

## 1.1 Blockchain: The Fourth Industrial Revolution

(Schwab, 2017) The steam engine, electricity and computer technology once made prominent landmarks in technology revolution in the human history. Today, a batch of disruptive innovations, such as blockchain, artificial intelligence, cloud computing, machine learning, big data, 3D printing, VR/AR and gene engineering, will bring the fourth industrial revolution. This new wave of technology promises to profoundly alter every aspect of our life, significantly improve efficiency in every industry and elevate the capacity of mankind to a point that has never been reached before. At the very heart of the fourth revolution is the blockchain. This wondrous technology leverages the pervasive power of innovation and has been transforming people's habits, needs and their way of thinking.

On January 3<sup>rd</sup> 2009, the first 50 bitcoins were mined by Satoshi Nakamoto, thus establishing the genesis block<sup>1</sup>. In the following four years, the development of blockchain, such as transactions and mining facilities, had been revolving all around the bitcoin. In late 2013, Vitalik Buterin proposed to establish 1) Ethereum<sup>2</sup>, an open-source, public, blockchain-based distributed computing platform that features smart contract (scripting) functionality, which facilitates online contractual agreements; 2) the Ethereum virtual machine (EVM), which can execute scripts using an international network of public nodes. With these two evolutionary developments, we have entered entered blockchain 2.0. This new phase of development is all about smart contracts and how the entire slate of economic, market, and financial applications can make use of blockchain.

But what about blockchain 3.0?

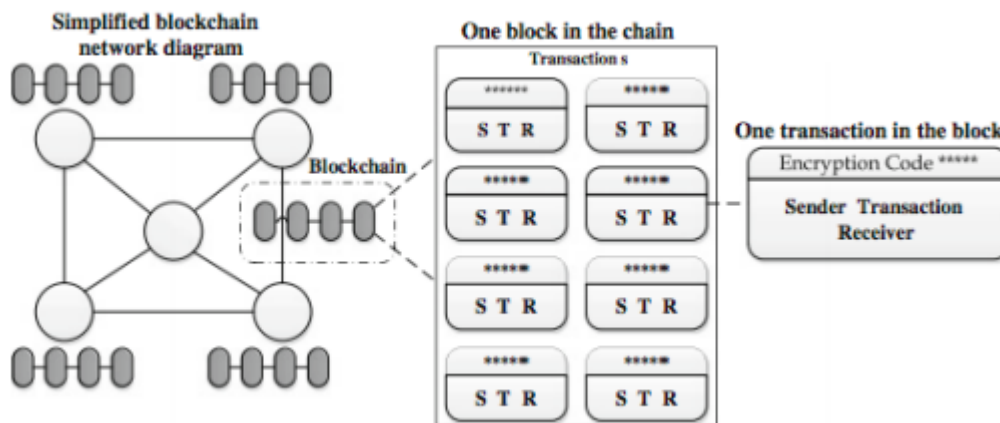
---

<sup>1</sup> <http://historyofbitcoin.org/>

<sup>2</sup> <https://en.wikipedia.org/wiki/Ethereum>

(Vitalik, 2016) “Crypto 3.0— at least in my mind— consists of approaches that move beyond this limitation, in one of various ways to create systems that break through this limitation and actually achieve the scale needed to support mainstream adoption”

To have a comprehensive picture of blockchain 3.0, we can look at it from the following two aspects. Firstly, blockchain 3.0 is about blockchain applications beyond currency, finance and markets. It expands application scenarios all the way to areas such as government, health, science, literacy, culture, and art. Secondly, blockchain 3.0 is about large-scale application to benefit a much broader population—well beyond the crypto-enthusiasts.



*Basic components of blockchain<sup>3</sup>*

## 1.2 Features of Blockchain

Blockchain has great potential to revolutionize a full range of traditional industries. It has the following features:

### *1.2.1 Transparency*

All information is stored in the peer-to-peer network and available to all the participants of the network. Since the identity of each participant is projected by hash algorithm, each ID in

<sup>3</sup> blockchain value system--springer

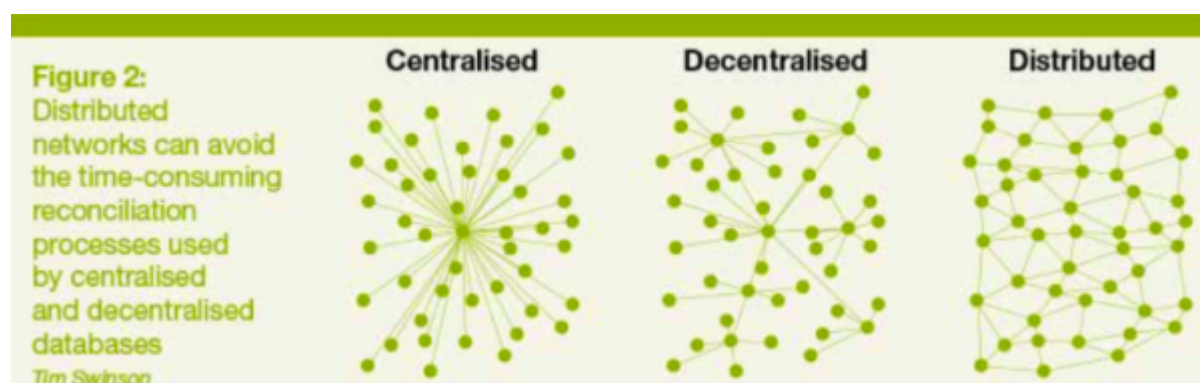
the network is displayed as a series of hash codes. The actual identity is therefore securely camouflaged and protected. The verification process can ensure the intended transaction between two parties are recorded without disclosing the actual identify of either party.

### *1.2.2 Immutability*

All the blocks are recorded with a hash code stating the previous block. If any change occurs in one block, the subsequent blocks are affected. Unless all the affected blocks are modified at the same time, the change in one block cannot be verified, and therefore the change cannot be recorded. Given the on-going process of new transactions, it is virtually impossible to alter any of the existing blocks. This feature also enhances the traceability of all the historical transactions.

### *1.2.3 Distribution (P2P)*

This is perhaps the most attractive feature of the blockchain technology. Under the traditional centralized environment, sharing of asset ownership often cannot entail full trust. There has been a strong demand and need for democratization of information, technology and services, as well as micro ownership. In a blockchain network, like the shared economy, all the participants share the computational power and information (transactions), and they rely on the same consensus agreement.



*Source: Distributed Ledger Technology: beyond block chain, P36*

## 1.3 Disruption to the Entertainment Industry

The fan economy refers to the marketing behavior based on a framework established on fans and the people who capture the fans' attention. This mode of economic operation is conducted by improving the binding of users and advertisement via words of mouth to generate economic benefit and social benefit. This forms the major part of the commercial behavior in the media industry.

With the continuous development of the internet, fan economy has been progressively breaking various limits in time and space and been broadly used in the creative industry, product merchandising, service provision and many other areas. Some common applications are: consumption behaviour such as purchasing of concert tickets, movie tickets and albums by the fans; advertisement behaviour such as purchasing of products endorsed or liked by celebrities; derivative consumption behaviour such as purchasing of products related to celebrities such as clothing, food, travel and residence; intangible asset derived from fan support, such as titled sponsorship; professional fan groups or companies; related websites and others.

As the entertainment industry continues developing, it has become critically important to use the right commercial and technology approach to effectively integrate fan economy, improve the affinity between fans and celebrities and maximize the benefit for fans, celebrities and management companies.

### *1.3.1 Lack of Safe and Reliable Trading System*

Artists often need to attend performance and commercial activities abroad. Under the traditional model, in order to successfully complete ticket promotion, reservation and sales, they need to cooperate closely with the local partners. There is no easy way for them to directly make use of the high efficiency and convenience of the internet to achieve the same effect as working physically and verbally with the partners. This give rise to high redundancy cost such as translation, communication, exchange rate volatility, agency platform commission, etc. At the same time, the fans cannot have close interaction or feedback with the celebrity, creating another level of barrier.

### *1.3.2 Difficulty in Converting Celebrity IP to Liquid Asset*

Celebrities regularly attend activities that are cross-nation or cross-industry in nature. Such activities often entail multiple cooperation among the parties involved. One of the most daunting problem is how the parties can reach an agreement and build trust. Under the traditional model, the process of converting IP to value relies primarily on converting the attention of fans into advertisement income sharing, except for ticket, concert, Broadway show and a few other minor approaches. The channel for deriving income is therefore highly limited.

## 2. ENT: Global Entertainment Based on Blockchain

### 2.1 What is ENT?

ENT is initiated by AIMHIGH Global (043580.kr), whose main shareholders are AIMHIGH Global, KINGNET (002517) and Culture Investment Holdings (600715). ENT, a platform based on blockchain technology, provides an integrated solution to the global distributed entertainment community.

The ENT decentralized platform has the ability to select people with talent to be a legendary agent or the next big-bang celebrity. It also works as a content distribution/live streaming platform, providing trustworthy interactions between content providers and consumers. ENT can also function as a payment system, providing low-cost transactions and promoting business. It can achieve comprehensive marketization of IP as consumption and promote customized generation of IP.

Through the ENT platform, fans can support celebrities, and celebrities can use ENT to give direct feedback to fans. ENT creates a direct, diverse and stable interaction relationship between fans and celebrities. In addition, the ENT platform can secure ownership and transactions of intellectual property between artists and agents, ensuring the total integrity of the artist's brand image.

## 2.2 ENT Ecosphere

ENT is a safe and reliable trading system. It is in fact a system derived through a combination of blockchain, ENT and the entertainment industry. It is the very first blockchain application in Korea that provides a payment method for the entertainment industry. ENT dedicates to establishing a basic internet of value for the entertainment industry. At the same time, with ENT at the core of the entertainment industry, the platform will span across payment, we media, social media and others. It will integrate payment platform, smart contract platform and social platform into one entity.

### *2.2.1 Unified Digital Payment Solution (ENT Cash)*

With each celebrity as a unit, ENT Cash supports purchasing of products related to the entertainment industry, celebrity concert, reservation of celebrity's time, etc.

Appearance Fee: TV/ Ad Spokesman/ performance fee

Rewarding celebrity: T-social network, livestream broadcast

Purchasing products: Tickets, Peripheral Products

Crowdfunding Projects: Movies, TV series, MTVs

### *2.2.2 Unified Smart Contract Platform*

Issuance of exclusive tokens based on ENT to support celebrity

Issuance Token: Issue exclusive Idol tokens with the ENT smart contract platform

Token Economy: Idol tokens will be used as an exclusive method of payment for the celebrity's commercial activities



### *2.2.3 Unified Social Network Platform*

Information on the ENT platform is completely traceable. No intermediate agency will be involved. An integrated payment system will be provided for effective communication and social works.

The entire network is traceable, ensuing a high level of transparency

Trustworthy, decentralized social network

Effective embedded payment system

## 3. ENT Token Model

### 3.1 ENT Cash

#### *3.1.1 Definition of ENT Cash*

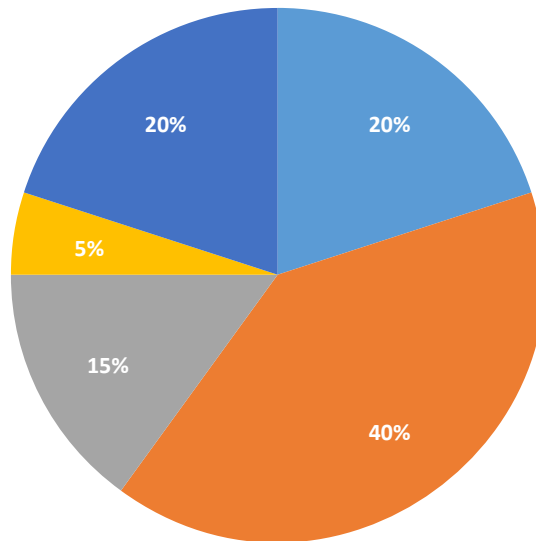
ENT Cash will be used as an asset equivalent and fuel in Dapp and ENT. It is a unit that must be used for payment and settlement. It is also used to pay for various functions in the system and processing fees (creation, deletion, trading of exclusive Idol tokens). In addition, ENT Cash will also be used as collateral and “frozen” in the system in order to issue a proportional amount of exclusive Idol tokens.

### 3.1.2 Distribution of ENT Cash

ENT issued a total of 1.6 billion tokens, of which 20% are mining. The founding team considers the entertainment chain as a project focuses on vertically segmented entertainment, with a huge market size and significant application values. With more entertainment programs and entertainers adopt the entertainment chain, the more services users can use on the entertainment chain, and the more possibilities that a single currency can increase the value. So that we can enhance the token sales rapidly and increase the benefits of our token supporters.

#### ENTCASH TOKEN DISTRIBUTION

■ POS ■ AIRDROP ■ FOUNDATION ■ DEV TEAM ■ BUSINESS CORPORATION



用途	比例	数量	备注
有条件或特定对象空投	40%	6.41ZENT	避免各国法规对于数字货币的私募或ICO的冲突
娱乐链基金会与生态系统	15%	2.41ZENT	上交易市场后第一年解锁10%，剩余每年解锁10%，总共锁定10年。
商业合作	20%	3.21ZENT	面向有影响的专业投资人或娱乐影视公司众售娱乐链生态服务使用权。
娱乐链团队	5%	0.81ZENT	上交易市场后其中10%锁定1个月，剩余每年解锁10%，总共锁定10年。
挖矿生成	20%	3.21ZENT	有待于ENT所基于的主链相关设施开发完善。

There are different discount rates in different crowd sale periods, and the official version shall prevail when it is announced at the time of officially launching the tokens sale. ENT funding is mainly divided into three stages, the first stage by raising HSR to issue 213 million ENT, the exchange ratio is 1HSR: 500ENT; the second stage by raising ETH to issue 213 million ENT, the exchange ratio is 1ETH: 4000ENT; In the third stage, ENT tokens were issued through raising QTUM and INK, with exchange rates of 1 QTUM: 150ENT and 1INK: 2ENT respectively. There were 213 million ENTs distributed totally. minimum amount is about 640 million ENTs; total account is 500 million ENTs.

We will calculate the exchange ratio around 2 weeks after the completion of the crowd sale of tokens and allocate the corresponding number of ENTs based on the current stage of the participants. After the distribution is completed, it is estimated to spend about 2 weeks on withdrawing from the wallet to the third-party exchange. The exact time shall prevail based on the founding team's disclosure. The number of pre-sale tokens in each phase is as follows: (The quantity will be adjusted according to the mainstream currency market price).

募集周期	第一阶段	第二阶段	第三阶段
比例	1 HSR: 500 ENT	1 ETH: 4000 ENT	1QTUM: 150ENT 1INK: 2ENT
约合对价	0.46	0.5	0.6

## 3.2 Idol Token

### *3.2.1 Idol Token Definition*

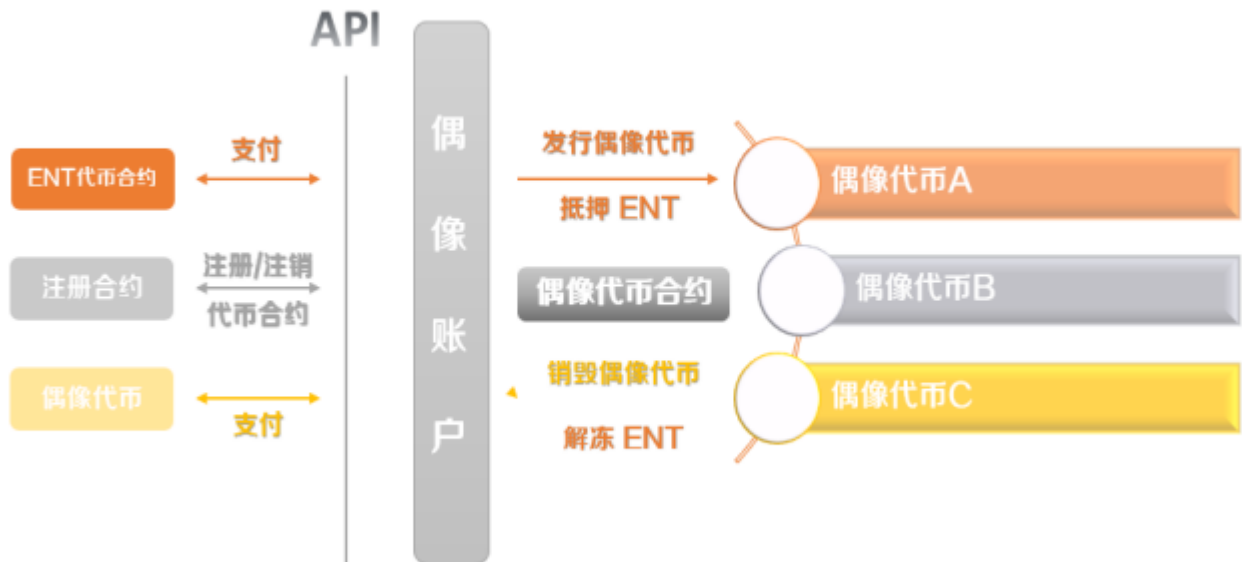
In the ENT system, celebrities can create their own Idol tokens. The Idol tokens have the following features and rules:

1. When an Idol<sup>4</sup> creates the Idol token, the creator must define a number of parameters, including token name, symbol, accuracy, etc. Different from normal token models, when the creator creates the Idol token, he must also provide a special parameter, which is the exchange rate between this Idol token and ENT. When the Idol issue or destroy tokens, he must follow this exchange rate. The supply of Idol tokens is constant and correlates to the total amount of ENT held in collateral.
2. Only the Idol Account has the authority and access for issuance and destruction of tokens. Other accounts are not authorized to perform these actions.
3. When Idol tokens are issued, the issuer must upload and freeze relevant amount of ENT to the system. The issuance and freezing process are regulated by the blockchain smart contract. Third parties will not be able to interfere with this process.
4. When a certain amount of Idol tokens is destroyed, these tokens must belong to the Idol's own account. The system will release corresponding amount of ENT to the Idol after the Idol tokens are destroyed. Therefore, every Idol token is created by placing a proportional amount of ENT in the collateral.
5. The Idol Account can choose to perform issuance or destruction at any time. If the fame of an Idol and the fan base increases significantly, the demand for his or her own Idol tokens will also increase drastically. The benefit of this increase in demand will be passed to the Idol and the agency firm. New supplies can therefore be created.

---

<sup>4</sup> The "Idol" here (thereafter referred to as Idol) in general encompass the host for unique IP, such as celebrity, artist group, branding company, reality show, etc.

The opposite can be true as well. Therefore, the amount of ENT held in collateral can, to some extent, reflect the popularity and IP value of a celebrity.



*Idol Token Model*

### 3.2.2 Fixed Exchange Rate

The design of fixed exchange rate has several advantages:

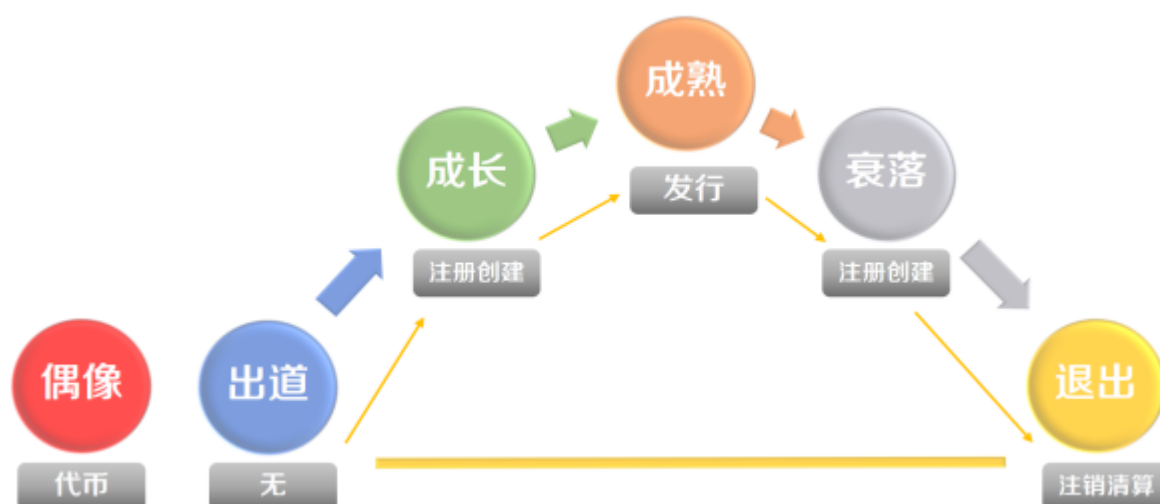
1. It keeps a fixed and stable exchange rate between ENT and Idol tokens.
2. Idol token is a tool of payment and support for fan economy of Idol IP. It has no financial rights attached. It can therefore protect irrational fan groups.
3. This design ensures the issuance and inflation model of Idol tokens and avoid the trap of secondary offering, which may upset system balance.
4. It uses issuance amount, instead of price, to value the total size of fan economy. This will maintain the smooth operation of the system

5. The issuer of Idol tokens has exclusive right for issuance and destruction of the tokens. This offers a channel for celebrities to benefit. It also encourages them to actively participate in the ENT system and realize the network effects. When the price of the Idol tokens in the exchange is far above the exchange rate, the Idol can use the low-priced ENT to buy more Idol tokens in the market to benefit from the price differential. On the other hand, when the price of Idol tokens is far lower than the exchange rate, the Idol creator can borrow ENT at low cost and buy the Idol tokens from the exchange at a low price. The Idol can then destroy these Idol tokens in the system and obtain the released ENT. Again the Idol can benefit from the price differential.
6. A normal fan can obtain Idol tokens in many ways. For example, they can buy them directly from the Idols, or they can buy them from the exchange. Assuming the Idol creators are rational, the price of the Idol tokens will fluctuate around the exchange rate. The Idol creator can benefit from the fluctuation. But after sometime, the space for profit will flatten out to a balance point with the arbitrage activities. This balance point will be correlated with the level of activity of the fans.

The ENT smart contract can support more general Idol IP types and is not limited to individuals. For example, groups of celebrities can use multi-signature smart contracts to realize group management and issuance of Idol tokens.

### *3.2.3 Idol Token Lifecycle*

Idols have their career cycles. Idol token has its life cycle as well. The fixed ratio collateral issuance model provides a guarantee for the Idol token to develop and exit. It enables the tokens to transit in different phases smoothly.



*Idol and Idol Token Development Cycle*

### 3.3 Close Loop of Idol Token Circulation

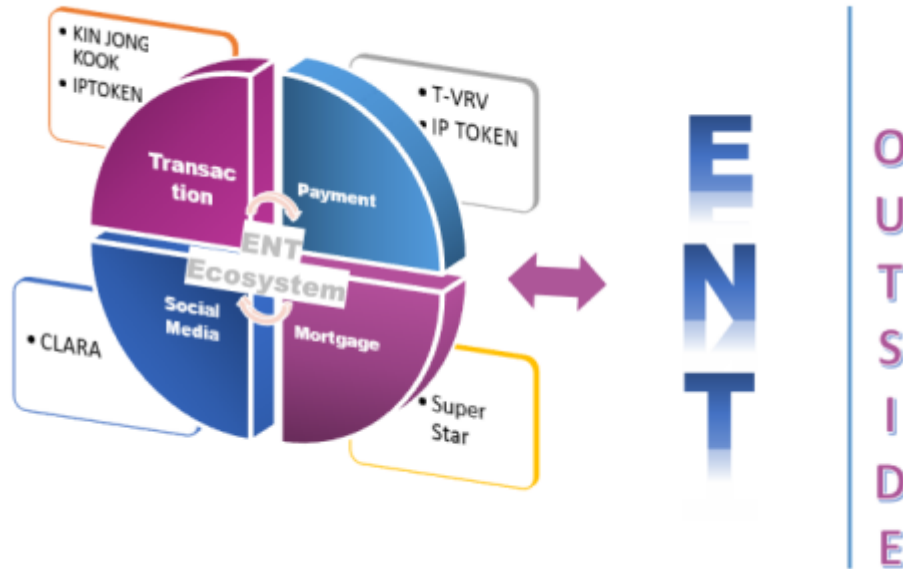
From issuance to recycling to reuse, the Idol tokens must reach a close loop in order for the tokens to represent and reflect the economic activities in the eco-system. ENT Cash is the universal token in the ENT eco-system. The tokens have the following features after they are issued.

1. They will serve as the intermediate token between Idol tokens and other assets. They support trading functions.
2. They will be a value equivalent in the ENT ecosystem and represent the value of the entire ecosystem.
3. They can be used to buy tickets for activities by the idols, IP products, etc
4. They can be used as collateral for idols to issue their exclusive Idol tokens.

The ENT ecosystem normally have the following participating parties: Idols, advertising companies, platforms, fans, investors, etc. ENT Cash will circulate among these parties in the form of processing fee, transactions, payments, collaterals, etc. It also represents the entrance and exit point for Idol tokens, and can be traded with other assets outside the ENT ecosystem.

The Idol token, on the other hand, is different in terms of its coverage and functions. It places more emphasis on the economy related to the Idol's IP and it is mainly circulated among the idols, agency companies, advertising agents, IP merchants and fans. It forms a smaller loop

than ENT Cash does.



*The ENT Ecosystem*

## 4. Blockchain Technology behind ENT

ENT has three major technological features: traceability of information in the entire network, social media with no agency, and integrated systems. These features can counter the main pain point in the current entertainment industry, e.g. over-centralization of key resources, small IP not getting support, IP infringement, asymmetry of fan groups, individual needs of fans not being fulfilled, etc. ENT endeavor to create an internet of value. By making use of smart contract, lightning network and other technology, ENT will create digital payment and Idol token platform for the entertainment industry and provide smart contract configuration, smart contract invoking, auto ledger and other functions. With these features, fans can have much better customer experience. Idols can realize their true values and agency companies will also enjoy greater branding effect and investment returns.



## 4.1 Daap model

ENT is a decentralized application based on the quantum chain platform, supporting ENT Cash tokens and idolatry tokens, it mainly including the following modules and contracts:

1. ERC-20/233 ENT Cash tokens.

The QRC-20 token standard describes methods and events that quantum chain token contract must implement and follow, and standardization helps facilitate the sharing of infrastructures of different functions and components. ENT Token, whose symbol is ENT, the precision is set to 8 bits according to Qtum system's recommended setting.

ENTCash will be used as general equivalent and fuel in Dapp and ENT systems for both payment and liquidation. It can also be used to pay fees (registration, issuance, destruction and cancellation of idol tokens) for some systematic functions. In addition, ENT token will also be used as a pledge, which was frozen in the system to issue idol tokens at a fixed exchange ratio.

2. Smart contracts related to Idol tokens, including token creation, ENT mortgage, distribution and destruction. Idol token itself is a type of smart contract that supports transfer and is freely convertible.

3. The redemption contract designed by fans to buy ENT Cash tokens can be done either through an external exchange or some pre-set exchange contract.

4. Idol tokens are not necessarily for the individuals, they can also be used for groups, reality shows, brokerage firms, etc. Therefore, it is important to support flexible management of cryptocurrency accounts, such as multiple signature, account locking, escrow accounts, etc.

5. The ledger account of digital payment network can facilitate direct access to various roles, such as different Apps, platforms, agent channels, issuers, artists, agency firms and others. It enables these roles to directly access shared revenue ledger and reduce intermediate processes and redundancy.

## 4.2 Payment, Tokens and Open Data API

ENT encourages ecosystems and communities to build ENT-based tools and applications, including but not limited to:

Contract and account browser. They enable easy browsing of the status of issuance of each Idol token, holders of Idol tokens and supporters of the Idol tokens.

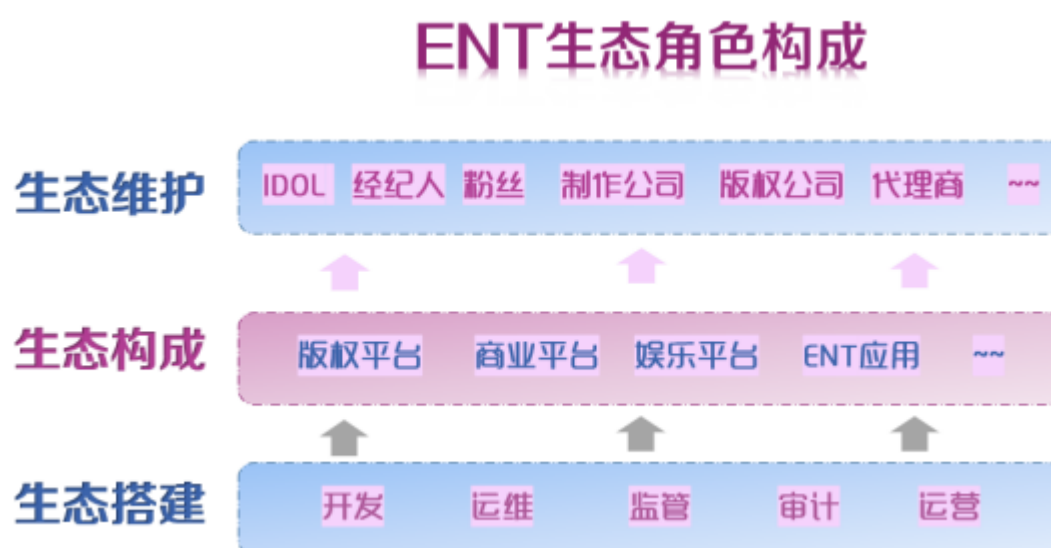
Payment API and Idol token management. The API and management system will enable convenient payment and subsequent management of the Idol tokens under the account.

Idol Token Management API. The Idol Token Management API enables account holder to view and manage the Idol tokens under the account with a user-friendly interface.

Social and Data API. The social and data API collects data from the system and arrange them in a rational manner for further analysis.

ENT Index and AI Analytics. Through big data and AI analysis, the system can easily generate accurate reports on the level of fans, Idol IP value and fan activity value. This will increase the accuracy of business activity and planning of idols. It will also improve user experience and solve the pain points for celebrities and agency firms in the entertainment industry.

## 4.3 Business and Technology Architecture



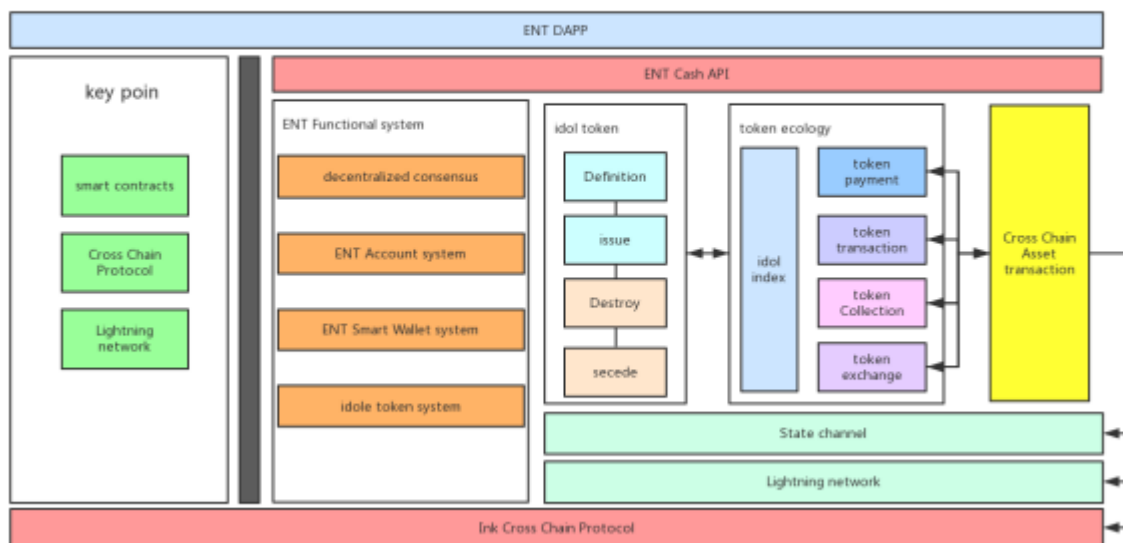
### *Role Composition*

The entire ENT ecosystem is composed of three types of roles:

1. The ecological construction part composed of developers, operation and maintenance personnel, regulatory agencies, auditing departments and operation departments;
2. The ecological constitution part composed of copyright ownership platform, commercial cashing converting platform, entertainment application platform and other ENT cooperation application platforms;
3. The ecological maintenance part composed of idols, agents, fan groups, production companies, agencies and so on.

The three kinds of roles form the complete ecological close loop of ENT. Based on the ENT underlying structure completed by constructors, constitutors have to continue perfecting each Dapp building in the ENT ecology. At the same time the maintainers performs activities in each Dapp building. So that new demands will be fed back to constructors and constitutors, so that when the entire ENT ecology close loop is formed, we can expand its own ecosystem, to improve the idol economy and lead new IP operations in the blockchain era.

## ENT 技术架构

*Technological Framework*

ENT's technical architecture follows Ink's design specifications and standards, extends some of its technical boundaries with its own characteristics while maintaining high performance and stability. And at the same time, ENT has conducted a series of self innovations and enhanced developments targeting at typical application scenarios, such as the entertainment industry. Through pluggable modules and flexible configuration of smart contracts, we can ensure network compatibility and operability. It also supports multi-protocols, compatible BIP protocol and POS smart contract platform, and there is compatibility among different protocols, including consensus mechanisms, purview management, accounting management, data structures and so on.

ENT also uses the industry-recommended digital certificate mechanism for identity authentication and permission control. The CA node realizes PKI service, and can issue the identity certificate in advance and send it to the corresponding member entity to control the entity's access to network resources. At the same time, various data operation permissions can be managed through permission policy to solve the problem of "who is allowed to take an operation in a certain scenario".

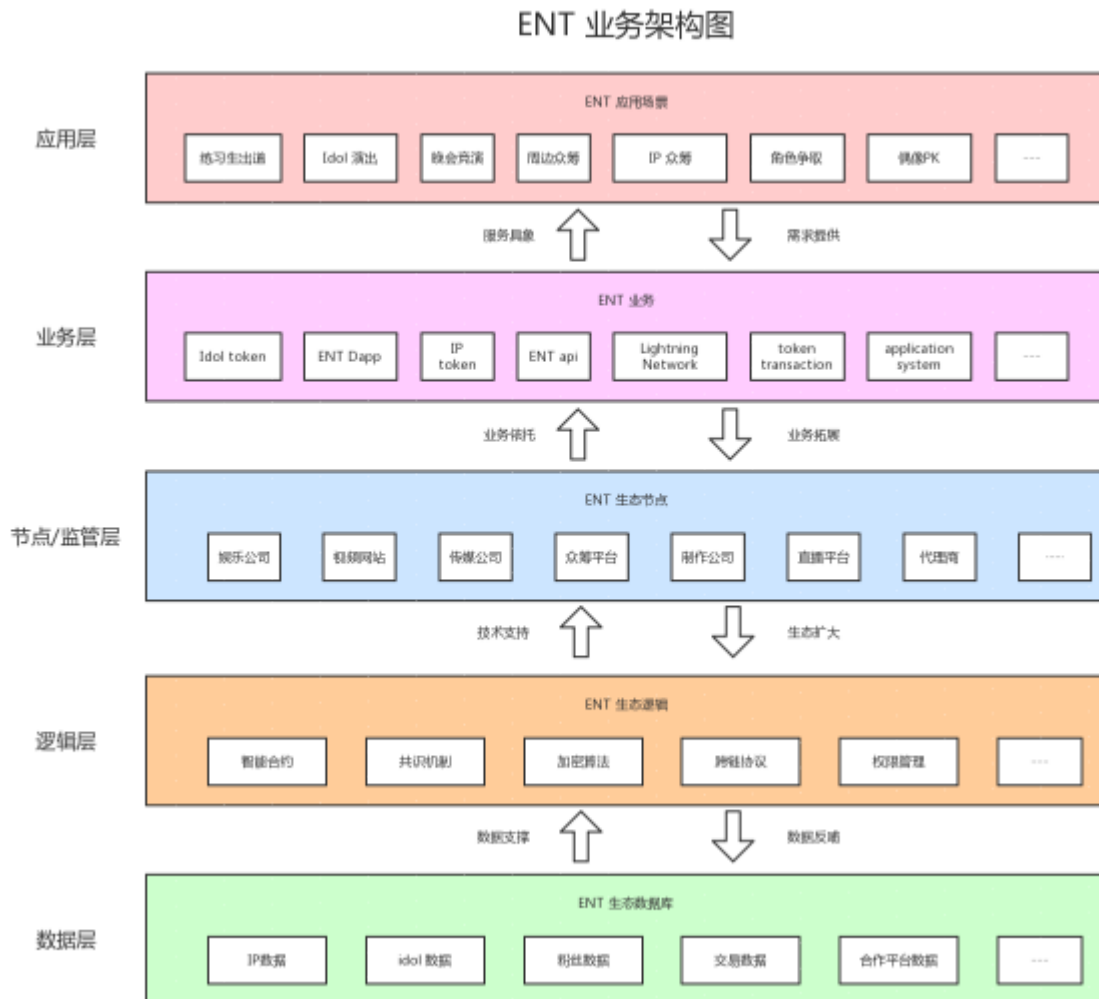
The different entertaining ecosystems ENT facing are complex and need to deal with different legal and policy issues. There are two core requirements, security and privacy, regulation and the special needs of the scene. Therefore, under the premise of ensuring high availability of data, ENT provides authentication services of data acquisition and distribution, as well as encryption and fingerprint indexing of transactions to ensure data security.

On the above basic capabilities, ENT targets a large number of trading users who, under given authority, can initiate a particular transaction on behalf of the account (as a transfer or as a call to a chain code). The settings for the account are pluggable. Different originators can choose whether to open a trading account or not and which account algorithm to use (eg, corresponding to Bitcoin or Ethereum). At the same time, ENT follows the Ink Consortium chain and adds Asset System Chaincode (ASCC) to manage the token assets on the chain.

ENT is a full-function token. The account will be matched to the public key, the account information will be recorded in the world state of the ENT account book, and the digital digest of all account information will be recorded in the block. Through the book structure and the smart contract of core channel, ENT ensures its related technical characteristics, such as scalability and fault tolerance. ENT network nodes can check the transaction independently, each transaction must have certain conditions endorsement so as to be considered legitimate. Coordination of nodes ensure a consensus on the transaction in the network, decoupling the functions of different nodes, and significantly improving the network processing performance, in order to maintain the balance and stability of ENT network and application ecology.



In addition, ENT is oriented to the entertainment industry application. With its policy access to DAPP on the mobile terminal, ENT can adapt to more diverse application scenarios and bring the technical advantages of blockchain to the adopters of entertainment assets and the general internet users.



*ENT Business Close Loop*

## 4.4 ENT Support to Scalability And Cross-chain Protocol

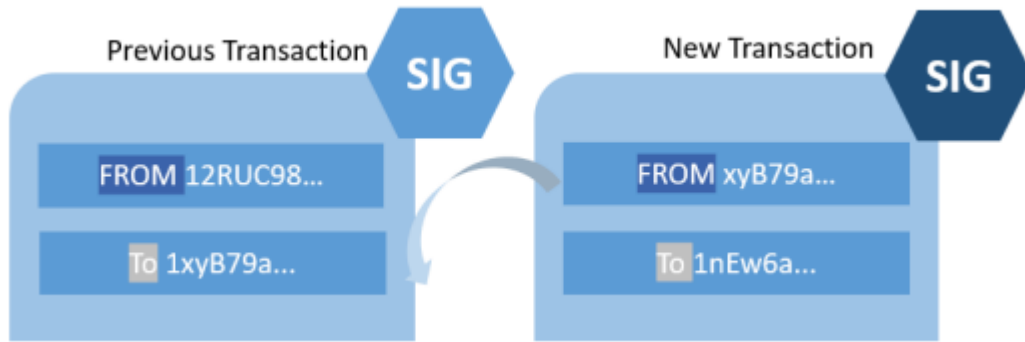
### 4.4.1 Principles of State-channels and Lightning network

The concept of state-channel was first proposed by bitcoin's lightning network. Its purpose is simply to take the overwhelming majority of transactions off the blockchain without sacrificing verifiability and security. Payments are made off-chain, while settlements are made on the blockchain. State-channels can allow the creation of "micro-payment channels" in addition to initiating transactions off the channel. Multiple transactions can safely proceed without having to interact with the blockchain itself. Counterparty risk is also eliminated: The channel can be closed if either party ceases to cooperate, or if it does not respond within the agreed timeframe.



Taking the lightning network on bitcoin as an example. A bitcoin transaction covers several parts. Here is a brief description:

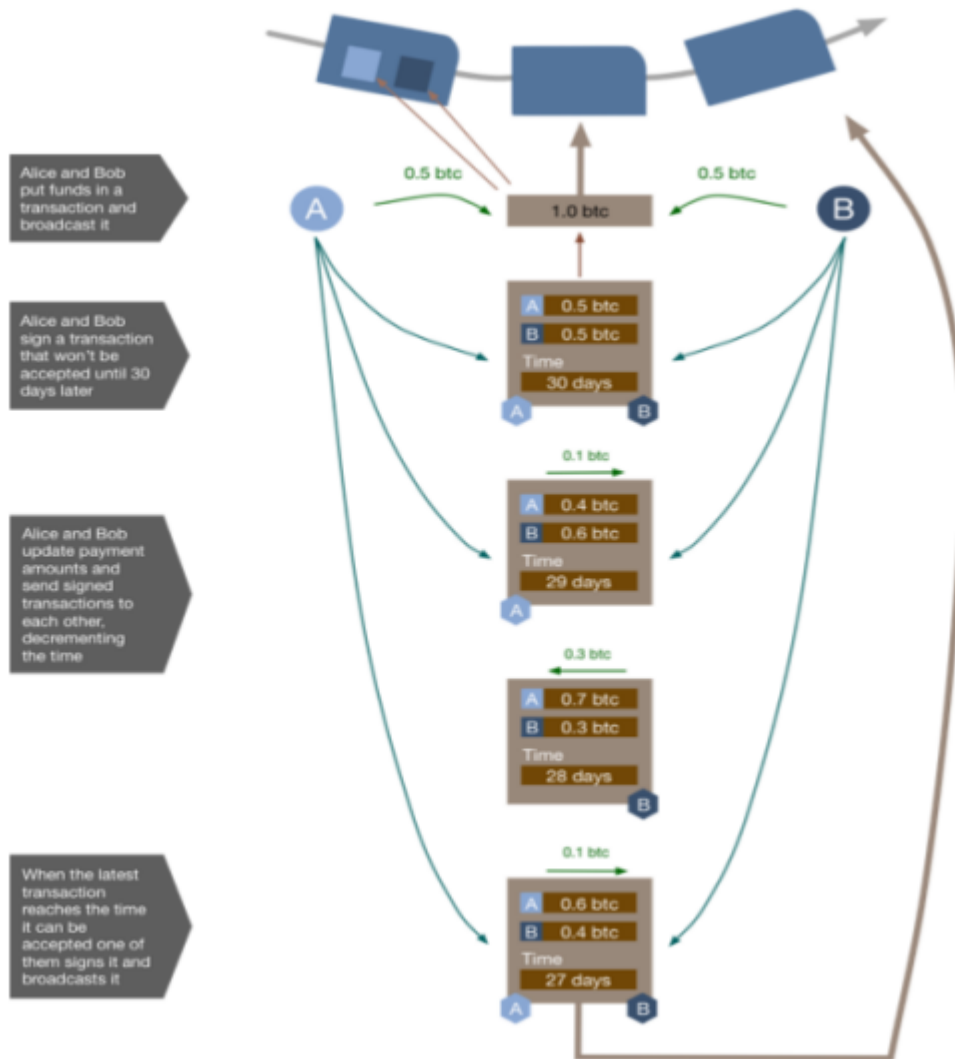
1. Point to a previous transaction that someone sent you bitcoins (you own the address that corresponds to the private key)
2. The bitcoin addresses you sent to (actually a lock script)



3. Encrypted signature to prove that you already "own" the bitcoin that was spent and that you created the transaction.

Sending the signed transaction directly to the recipient instead of broadcasting is just as easy as (traditional) the payment itself. The only problem is that as long as the transaction is not on the blockchain, you have the option of sending the bitcoin to someone else. Bitcoin trading is extremely flexible. Two people can decide to combine their bitcoins into a single transaction, and the transaction can be sent out only if it is encrypted and signed by both persons at the same time. This is called multi-signature or pay-to-script-hash. It is also the basis for setting up payment channels.



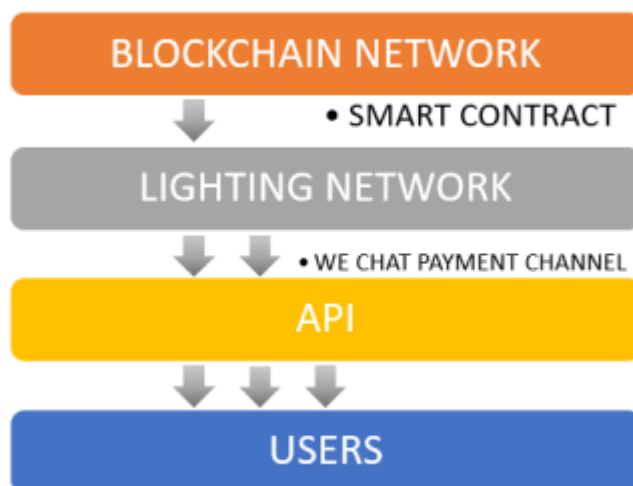


[状态通道的创立和形成过程]

#### 4.4.2 Lightning Network

For the platform with smart contracts, the realization of the micro-payment channel technology can be more flexible and direct. The lightning network make use of smart contract to enable micro-payment. ENT will leverage lightning network technology for high-frequency and low-cost blockchain applications. When a "hot" celebrity event or content of a highly compelling celebrity activity is released, it may lead a large number of fans (users) to visit the platform and and make purchase in a short period of time, resulting in congestion in ENT Cash or Idol tokens. Fans and users will not be able to complete purchase and consumption in time, and the user experience will not be good within the timeframe of the congestion. Lighting technology is based on the low-latency and low-cost token transfer

technology of Ethereum. Micro payment of ENT cash can be transacted off-chain to achieve high-frequency ENT cash transaction in a short time. More importantly, it can save a lot of transaction costs for both the platform and the



users.

#### *Lightning Network*

Lightning network draws on the principle of bitcoin lightning network. It realizes transfer technology based on ethereum network's characteristics of low latency and cost. By leveraging on the advantages of the off-chain payment channels, lightning network enables any number of tokens to be transferred between two participants for any number of transactions. This is especially useful for micro-transactions, and it can increase the main blockchain network scalability dramatically. Since micro-transactions are done off the chain, the speed of transaction can reach more than 1,000,000 per second, except for the last shutdown channel operation.

平台	事务处理系统
比特币网络	7
以太坊网络	20
闪电网络	1,000,000

#### 4.4.3 Comparisons of Scalability Solutions

There are many solutions for scalability, including sharding, sidechains, interactive authentication protocols, and state-channels. While all these solutions have the potential to increase transactional capacity, lightning network has some advantages in reducing cost and latency.

	Latency	Scalability	Cost	Privacy	Expressibility
Ethereum	Red	Red	Red	Red	Green
Raiden Network	Green	Green	Green	Yellow	Yellow
Ethereum w/ Sharding	Red	Yellow	Red	Red	Green
Plasma / Sidechains	Red	Green	Yellow	Yellow	Green

#### 4.4.4 Future Cross-chain Protocol Support

ENT, as a Dapp application on quantum chain, needs to utilize smart contract to achieve remote cross-chain call in the future. And here we list the main types of cross-chain technology and technology framework. ENT will combine the features of quantum chain smart contract platform, using cross-chain technology framework like Polkadot to achieve the value transfer and exchange, and Dapp's remote cross-chain call.

##### 4.4.4.1 Types of Cross-chain Technology

Centralized or multi-signature witness pattern notary (application level): The witness is the legal user of chain A, who is responsible for monitoring chain B events and states, and then turns to operate chain A.

Sidechain or relay mode (protocol level): The blockchain system itself can read chain B's events and states.

Hash-locking (protocol level): Interoperability trigger is set between chain A and B, usually a random hash value to be disclosed in the plaintext.

### **Polkadot**

Cross-chain transactions are very different from standard external signature transactions. In short, this means that verifiers on the relay chain manually shifts the transaction from the export queue of the source chain to the entry queue of the target chain. The verifiers verifies the state conversion by running the full node of a particular parallel chain. They are called to be "mortgaged" people, meaning they must deposit a certain account of security funds and be punished if they do wrong.

"Parallel chain" refers to the existing or future blockchain linking the Polkadot relay chain. "Finite State Machine" refers to the brain or CPU in any state (such as EVM for Ethereum). Finite State Machine handles broadcasting transactions over the network. You may have heard of "state conversion functions," essentially changing the old state of the chain to a new state, bringing updates, additions, and deletions to accounts. Through Polkadot relay chain, a parallel chain can send any information to another parallel chain. These messages can invoke the functions of smart contract, which can meet any arbitrary function needs in the parallel chain Finite State Machin.

### **Cosmos**

Cosmos is designed to interact with token chains based on the tendermint consensus. Its message protocol level is lower, depending on the immediate final deterministic model of tendermint.

## **5. Leadership**

## 5.1 Core team members



### XUE WANG 王雪 首席执行官



原陌陌游戏总裁

现任AIMHIGH娱乐集团董事长

负责商务、市场、评测、项目管理等工作

有多年的游戏、娱乐和商务活动的运营管理经验



AIMHIGH集团是致力于全球娱乐事业的公司，

目前已在海外上市，业务内容涵盖游戏、影视、动漫等



### MOON 文仁植 首席运营官



现任AIMHIGH娱乐集团副社长

负责游戏、电影、电视剧、虚拟货币等事业开发

以及韩中日的国际IP交易事业



韩国区块链产业振兴协会国际合作委员会主席

曾在韩国网络技术院代表等知名韩国企业内任职管理职位



### LONGYI LI 李龙翼 首席技术官



陌陌技术总监

陌陌7号员工

毕业于天津理工大学



有多年的程序开发和系统架构经验

是国内知名的区块链行业资深专家

## 5.2 Advisors



### CHEN XU 徐琛 技术顾问



互联网行业资深从业者  
长期研究从事搜索、大数据、人工智能、区块链等  
领域产品技术发展应用领域



曾任阿凡达商业产品技术副总裁  
智能硬件初创公司联合创始人  
BAT资深研发和管理等工作



### TAYAN JU 具泰彦 原首尔检察院检察官



ENT项目法律顾问  
TEK&LAW律师事务所代表律师、代表兼理士



TEK&LAW律师事务所出身于ICT领域  
是韩国最知名的律师事务所之一



### Ryan 许子敬 新湃科银董事长



外号火星人  
澳大利亚科银资本创始人  
区块链行业著名投资人  
Hcash「超级现金」的项目负责人



**纸贵科技创始人  
&CEO唐凌 LINTANG**



Ink labs基金会主席 Jenga Blockchain Capital管理合伙人  
西安交通大学区块链技术与法律创新研究实验室发起人



APEC未来学院顾问委员会委员  
世界经济论坛杰出青年社区成员  
丝绸之路创新设计联盟专家组成员



**翼太源科技CTO  
王晓寅 WANGXIAOYIN**



翼太源科技联合创始人 比特股1.0核心开发者 EEA China代表  
现在主要从事以太坊状态通道和跨链相关研究



曾在多个区块链科技公司担任技术负责人  
南京大学数学系毕业



**IN, Hoh Peter 韩国  
区块链协会主席**



现任ENT项目首席顾问  
是韩国区块链行业的代表性人物



高丽大学区块链专家  
计算机科学工程部教授  
韩国区块链协会主席



## 5.3 Partners

合作机构	机构简介
	<p>新湃科银资本 (Newstyle-Collinstar Capital) 是由新湃资本与科银资本合资, 致力于全球区块链技术投资及数字资产运营的大型投资机构。拥有三大总部, 两家数字货币交易所, 分别是澳大利亚最大的交易所ACX和中国第二大交易所CHBTC, 拥有中国最大的比特币矿场、矿池业务。</p>
	<p>由EXX GROUP LIMITED公司运营, 面向全球提供比特币、以太坊、莱特币、以太坊经典等多种数字货币交易服务, 是安全可信赖的数字货币交易所。</p>
	<p>德丰杰 (Draper Fisher Jurvetson, 简称DFJ) 由Tim Draper作为第三代家族成员所创办, 总部设于硅谷, 是全球著名的大型风险投资公司, 旗下共管理着超过六十亿美元的资本。</p>
	<p>墨链 (InkChain) 是以“纸贵版权”团队为核心打造的, 面向大文化产业的自主区块链底层和文化资产交易平台, 以及由此构建的分布式经济生态。纸贵开发的版权资产管理平台 (基于以太坊区块链网络) 自2016年上线以来已经登记优质原创作品超过一万件, 为十余家内容机构提供版权管理 BaaS (Blockchain as a Service) 服务。</p>
	<p>Hcash(超级现金) 意图建立一个新的底层技术平台用以链接各种不同的区块链技术, 从而让基于信任的价值在不同的区块链系统中自由流通。</p>
	<p>ZB Technology Limited.是一家根据萨摩亚独立国 (The Independent State of Samoa) 相关法律在萨摩亚独立国注册成立的公司, 该公司运营网站<a href="https://www.zb.com">https://www.zb.com</a>, 是一个专门供用户进行数字资产交易和提供相关服务的平台。</p>
	<p>美国国际数据集团 (International Data Group) 是全世界最大的信息技术出版、研究、发展与风险投资公司。IDG公司2005年全球营业总收入达到26.81亿美元。IDG集团公司创建于1964年, 总部设在美国波士顿。</p>
	<p>Quantum Blockchain 量子链致力于开发比特币和以太坊之外的第三种区块链生态系统, 创新性的提出了价值传输协议的概念 (VTP协议: Value Transfer Protocol), 通过智能合约内嵌到协议层, 通过不同的用户地址权限和地址类型的管理, 以及结合万维网的标准, 来实现一种融合现有TCP/IP协议的区块链支付协议, 并且该支付协议将带来更多的智能和更多的商业可能性, 构建一个支持多个行业的 (金融、物联网、供应链、社交游戏等) 去中心化的应用开发平台 (DAPP Platform)。</p>



## 6. ENT Foundation

### 6.1 Introduction

ENT is setting up ENT Foundation (“ENTF”) as a non-profit organization with the goal of accelerating the adoption of blockchain technology and development of ENT ecosystem. The Foundation allows members to register. It accepts donations and operates in public interests relating to blockchain technology and ENT ecosystem.

ENT has been registered as a company limited by guarantee in Korea.

### 6.2 Governance Principles

The principles of ENTF is to support and coordinate the efforts of the blockchain community by helping to create greater awareness of the benefits of the blockchain technology and the development of the ENT project. This is done through concerted effort in education and awareness campaigns to promote the use of blockchain technology and related technologies for enthusiasts, developers, regulators, technologists, practitioners and users globally.

### 6.3 Foundation Organization

#### *6.3.1 ENTF Activities*

ENTF will undertake the following activities:

Directing and supervising the development and maintenance of the ENT Cash.

Promoting safety and harmony of the ENT blockchain ecosystem through the adoption of best practice governance principles.

Funding activities that will propel the development of the ENT ecosystem and any related projects.

#### *6.3.2 Advisory Committee*

The Advisory Committee will:

Comprising at least 5 persons including at least one member of ENTF and at least 2 independent advisors.

Meeting at least 4 times a year.

Advising on the governance of ENTF to the members of ENTF.

The initial term for the members of the committee will be a mix of 1 year and 2 years to ensure continuity. Thereafter, all advisors will have 2 years of appointment.

### 6.3.3 Management

The members of ENTF will be responsible for appointing or dismissing the management team of ENTF. ENTF intends to appoint one finance lead and one legal lead to form the initial management team for the operations of ENTF. The management team will be responsible for:

Legal and financial management.

Supervision of the grant management process covering application management, financial tracking and reporting, and operational delivery and reporting.

Publishing a report on the delivery of the objectives set out in the Token Sale every quarter. The audited annual financial statements will be lodged with ACRA

Providing reports on a regular basis to the Advisory Committee



*Organization Structure*

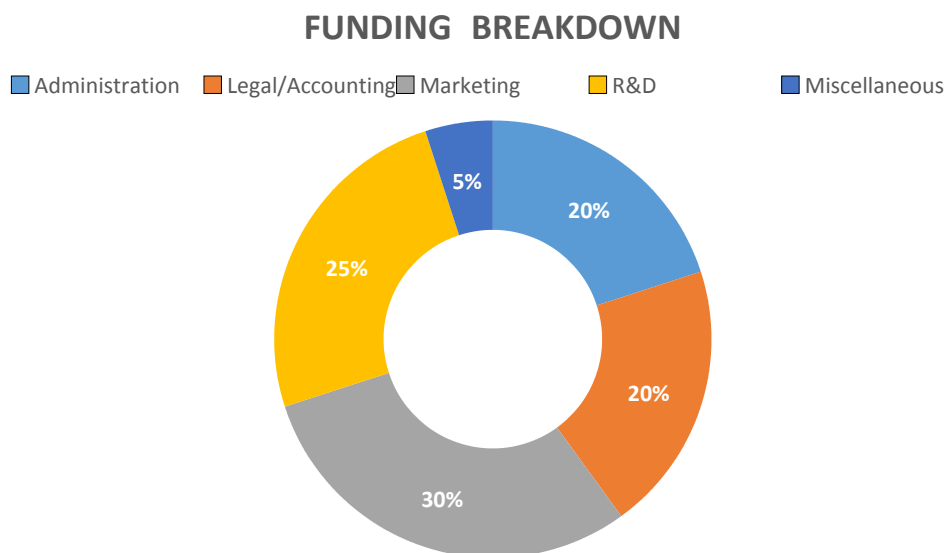
## 6.4 Funding Distribution

### 6.4.1 Funding Resource

The fund for ENT will be raised by strategic institutional investors and accredit investors under legislation. ENT only accepts fund from people who have gone through proper KYC process and adhere to strict AML rules.

### 6.4.2 Budget Planning

We are raising funds denominated in Hcash for our token launch. Fund usage will be split approximately evenly between platform development and application development.



*Split of Fund*

### 6.4.3 Restrictive clause

To the maximum extent permitted by the applicable laws, regulations and rules, ENT and/or the distributor shall not be liable for any indirect, special, incidental, consequential or other losses of any kind, in tort, contract or otherwise (including but not limited to loss of revenue, income or profits, and loss of use or data), arising out of or in connection with any acceptance of or reliance on this Whitepaper or any part thereof by you.

#### *6.4.4 Digital Asset Management*

All payments received for ENT tokens will be held in escrow in a multi-signature address, with a multi-key structure. The keys of this multi-signature account will stay with ENT Foundation Management Committee and ENT each project technological services department.

### **6.5 Legal, Compliance and Audit**

ENT is appointing a professional Australian law firm to provide legal advice on regulatory and compliance matters. This law firm will also be engaged by ENT Foundation to provide external legal advice. ENT Foundation is in the process of appointing an internationally recognized audit firm to provide auditing service as well. As soon as all appointments are finalized, the foundation will make an announcement on the ENT Foundation website.

### **6.6 Reporting**

#### *6.6.1 Project Plan*

ENT intends to produce a written update fortnightly on the progress towards the expansion goals. ENT will also make announcements when significant milestones are reached. This will be in the form of a blog on Medium to cover both technical and business issues.

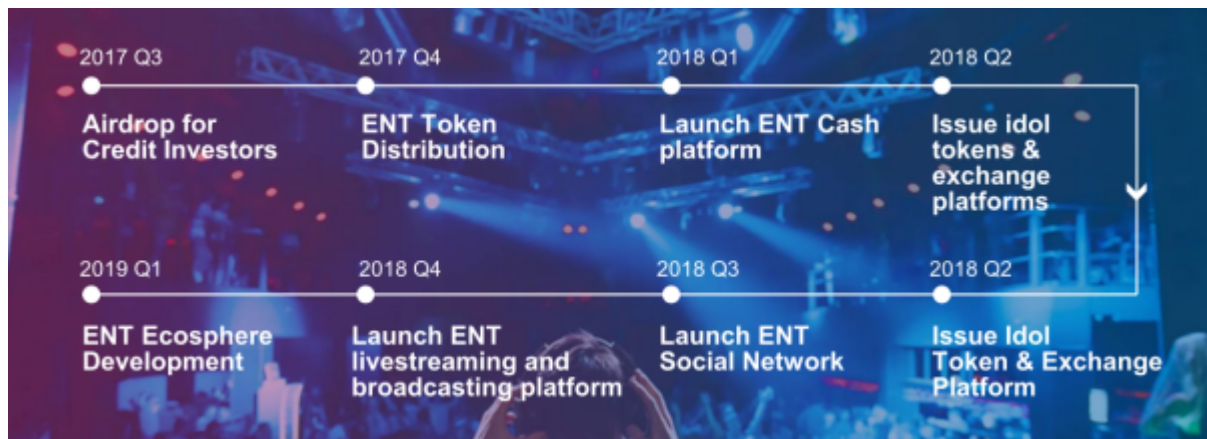
#### *6.6.2 Quarter/Annual reporting*

To ensure transparency in management and operation of ENT foundation, the foundation will release an update of the latest status each quarter and annum. The report will include major strategies and decisions made in the reporting period, the asset under management, and major investment activities and other important issues that will affect the development of ENT and ENT ecosystem.

## **7. Road Map**

### **7.1 Current Status**

## 7.2 Future Development



*Roadmap*

## 8. Disclaim and Risk Management

### 8.1 Disclaimers

The ENT platform does not make any representations or warranties with respect to ENT or ENT Cash token (especially for its merchantability and specific functionality), as expressly stated in this white paper. Any person who participates in ENT Cash token's public sale program and purchases ENT Cash token is based on his own knowledge of ENT and ENT Cash token and the information in this white paper. Subject to the generality of the foregoing, all participants will receive the ENT Cash token, regardless of their specifications, parameters, performance, or functionality, after the ENT project is launched.

ENT platform hereby clearly does not recognize and refuse to bear the following responsibilities:

- 1) Any person who purchases ENT Cash token violates any country's anti-money laundering, anti-terrorism financing or other regulatory requirements;
- 2) Any person who, at the time of purchase of the ENT Cash token, has violated any of the representations, warranties, obligations, commitments or other requirements, as well as the resulting non-payment or the inability to extract the ENT Cash token;
- 3) For any reason ENT Cash token's open sale plan was abandoned;

- 4) ENT development failed, postponed or postponed, and consequently failed to deliver ENT Cash token or delayed delivery;
- 5) Loops, errors, flaws, crashes, rollbacks, or hard bifurcations in ethereum or related block chain source code technical problems caused by platform failure;
- 6) The use of funds raised by public sale;
- 7) Any participant disclosing, losing or destroying the private key of the encrypted currency or tokens;
- 8) ENT Cash token sale of third-party platform for breach of contract, violation, infringement, collapse, paralysis, service termination or suspension, fraud, misuse, misconduct, failure, negligence, bankruptcy, liquidation, settlement scattered or closed;
- 9) Any person who deals or speculates on ENT Cash token;
- 10) ENT Cash token is traded or delisted on any exchange;
- 11) The ENT Cash token is classified by any government, competent authority or public body or deemed to be a currency vouchers, negotiable instruments, negotiable instruments, investment goods or other things, so as to receive prohibitions, legal restrictions;
- 12) Any risk factors disclosed in this white paper, as well as damages, losses, claims, liabilities, penalties, costs or other adverse effects that are relevant to or associated with such risk factors.

## 8.1 Risk Statements

ENT development and operations team believe that in the ENT development, maintenance and operation process exists numerous risks, many of which are beyond the ENT development and operation team's control. In addition to this white paper, each ENT Cash token purchaser should also read, understand and carefully consider the following risks before deciding whether to participate in this open sale plan.

The buyer of each ENT Cash token should pay special attention to the fact that although the ENT development and operations team is established in the Republic of Singapore, ENT and

ENT Cash token exist only in the network virtual space and do not have any tangible presence and therefore does not belong to or is involved in any particular country.

Participation in this open sale plan should be a deliberate decision-making action that would be deemed to have been fully known and agreed by the purchaser to the following risks:

1) Termination of the open sale plan

This ENT Cash token open sale plan may be terminated prematurely, and the purchaser may only partially refund the amount paid by the bidder because of the price volatility of BTC/ETH and the expense of the ENT development and operation team.

2) Insufficient information provided

As of this white paper release date, ENT is still in the development phase, and its philosophy, consensus mechanisms, algorithms, code and other technical details and parameters may be updated and changed frequently. Although this white paper contains the latest information on ENT, it is not absolutely complete and will be adjusted and updated from time to time by ENT development and operation teams for specific purposes. ENT development and operation teams have no capability and obligation to keep informed of every detail (including its progress and expected milestones, whether or not it is delayed) to the participants, and therefore does not necessarily give the purchaser a timely and full Access to ENT development from time to time generated information. Inadequate disclosure of information is unavoidable and clean.

3) regulatory measures

The encrypted tokens are being or may be supervised by the competent authorities of the different countries. The ENT development and operations team may from time to time receive inquiries, notices, warranties, orders or rulings from one or more of the administrations, and may even be ordered to suspend or terminate any information regarding this Open Sale Program, ENT Development or ENT Cash token action. ENT's development, marketing, publicity or other aspects and this open sale plan are likely to be seriously affected, hindered or end. As regulatory policies are subject to change at any time, any existing regulatory or tolerant permission for ENT or this open sale program may be temporary only. In all different countries, ENT Cash token may be defined as virtual goods,

digital assets or even securities or currencies at any time, so ENT Cash token may be prohibited from trading or holdings in certain countries.

#### 4) Cryptography

Cryptography is evolving and cannot guarantee absolute security at all times. Advances in cryptography (such as password cracking) or technological advances (such as the invention of quantum computers) can pose a risk to cryptographic-based systems (including ENT). This could cause any holding of the ENT Cash token to be stolen, stolen, disappeared, destroyed or devalued. To a reasonable extent, the ENT development and operations team will be prepared to take precautionary or remedial action to upgrade ENT's underlying agreement to respond to any progress in cryptography and, where appropriate, incorporate new and reasonable security measures. The future of cryptography and security innovation is unpredictable, and the ENT development and operations team will try to cater for the changing world of cryptography and security.

#### 5) Development failed or abandoned

ENT is still in the development stage, not ready to be released at any time. Due to the technical complexity of the ENT system, the ENT development and operations team may face unforeseen and / or insurmountable difficulties from time to time. Therefore, the development of ENT may for no reason fail at any time or give up (for example due to lack of funds). Failure of development or abandonment will result in the ENT Cash token being unable to deliver to any purchaser of this sale.

#### 6) The theft of all funds

There may be someone trying to steal the ENT platform received by the public sale of funds. Such theft or theft attempts may affect the ability of ENT to develop and operate the team to fund the development of ENT. Although the ENT development and operations team will take the most cutting-edge technology to protect the security of all funds, some network theft is still difficult to be completely blocked.

#### 7) Source code flaws

No one can guarantee that ENT's source code is completely flawless. The code may have some flaws, errors, defects, and vulnerabilities that could prevent users from using specific



features, exposing user information, or generating other problems. If such defects do exist, it will harm ENT's usability, stability or security, and thus adversely affect the value of ENT Cash token.

#### 8) Security weaknesses

The ENT block is based on open source software and is a distributed book without permission. While ENT's development and operations team is working to maintain ENT system security, anyone can intentionally or unintentionally bring weaknesses or vulnerabilities into the core infrastructure elements of ENT, and develop these vulnerabilities or deficiencies in ENT and the operations team cannot prevent or compensate for the safety measures adopted by it. This may eventually result in the loss of the participant's ENT Cash token or other digital tokens.

#### 9) "Distributed denial of service" attack

It is designed to be open and free of charge. As a result, the Ethereum may suffer from a "distributed denial of service" network attack from time to time. This attack will cause the ENT system to be adversely affected, stagnated or paralyzed, and thus cause the transaction written or recorded into Ethereum blockchain to be delayed, or even temporarily unable to execute.

#### 10) Lack of processing capacity

ENT's rapid development will be accompanied by a sharp increase in trading volume and demand for processing capacity. If the demand for processing capacity exceeds the load that can be provided by the nodes in the Ethereum blockchain network, the ENT network may be paralyzed or stagnated, and fraudulent or erroneous transactions such as "double expenses" may arise. In the worst case, anyone who holds the ENT Cash token may be lost, the ethereum block chain rollback or even hard fork may be triggered. The aftermath of these events will compromise ENT's usability, stability and security, and the value of ENT Cash token.

#### 11) Unauthorized claim for sale ENT Cash token

Any person who obtains the purchaser's registered email or account access by decrypting or cracking the ENT Cash token buyer's password will be able to maliciously acquire the ENT

Cash token purchased by the ENT Cash token purchaser. Accordingly, the ENT Cash token purchased by the purchaser may be sent incorrectly to any person who pleases the ENT Cash token through the purchaser's registered email or registered account, which is irrevocable and irreversible. Each ENT Cash token purchaser should take the following measures to properly maintain the security of its registered or registered account: (i) use a high security password; (ii) do not open or reply to any fraudulent mail; and (iii) strictly confidential its confidential or personal information.

#### 12) ENT Cash token wallet private key

The private key required to obtain the ENT Cash token is irreversible. The ENT Cash token can be manipulated only by having a unique public and private key via a local or online ENT Cash token wallet. Each buyer should keep his ENT Cash token wallet private key. If the private key of the ENT Cash token purchaser is lost, leaked, damaged or stolen, the ENT development and operation team or any other person cannot help the purchaser acquire or retrieve the relevant ENT Cash token.

#### 13) Popularity

The value of the ENT Cash token depends largely on the popularity of the ENT platform. ENT is not expected to be popular or widely used within a short time after release. In the worst case, ENT may even be marginalized for a long time, attracting only a small number of users. In contrast, a large number of ENT Cash token needs may be speculative. Lack of users may lead to ENT Cash token market price fluctuations and thus affect the long-term development of ENT. When this price fluctuates, the ENT development and operations team will not (and is not responsible) stabilize or affect the market price of ENT Cash token.

#### 14) Price fluctuations

If the transaction in the open market, encrypted tokens usually price fluctuations. Short-term price shocks often occur. The price may be denominated in BTC, ETH, USD or in other currencies. This volatility may be due to market forces (including speculative trading), regulatory policy changes, technological innovations, the availability of exchanges and other objective factors that also reflect changes in supply and demand balance. The ENT development and operations team is not responsible for ENT Cash token transactions in any secondary market, regardless of the presence of the ENT Cash token secondary market. As a

result, the ENT development and operation team has no obligation to stabilize the price fluctuations of the ENT Cash token. ENT traders should take their own risks related to transaction price of ENT Cash token.

**Contact us:**

Website: <http://entcash.com/>