



GUTEN谷腾

A Blockchain-based Digital Content Ecosystem

Promoting the Renaissance in the Digital Era

Summary

There are two engines combined driving the progress of human's spiritual civilization: one engine is the production of contents, and the other is the dissemination of contents. The contents cover all aspects of human creations, including science, technology, literature and art, ideas and so on. It is exactly through continuous creation and dissemination of these contents that human civilization has grown from its infancy to a more mature stage, and keeps moving forward.

Of all the technological revolutions that took place in the last millennium, the most far-reaching has occurred in the middle of the millennium. In a very long period of human history, due to the scarcity of carriers for content dissemination, usually only the upper social classes, such as aristocrats and priests, had the privileges to read and write. This situation has greatly hindered the dissemination of knowledge and also inhibited innovation. In 1455, Johannes Gutenberg, a German goldsmith, succeeded in creating Gutenberg typography for large-scale production of printed matter. His pioneering work laid the foundation for the Renaissance and has brought the rapid development of civilization, whose influence extends until

today. It is fair to say that from Gutenberg to today's Internet age, the technical problems of content communication have been solved quite well.

At the same time, the other engine (the production of contents) is far from realizing its full potential. These factors objectively obstruct the production of contents and innovation. The reason for this status quo lies in the fact that the protection and incentive mechanisms for content producers have lagged behind.

Fundamentally, the traditional incentives for innovators rely heavily on third-party intermediaries who divide the returns that should have belonged to the creators, and this model has never stopped piracy. In the age of the Internet, the defects of such protection and incentive mechanisms are greatly amplified by the high-speed flow of information. It's time to upgrade the engine to fuel content production, the driving force of civilization and progress, as content producers deserve more efficient protection and adequate incentives.

The dissemination of contents involves mainly technical issues, while the incentives for content production involve mainly economic issues. Technical problems are in

the process to be thoroughly solved through the Internet, and solutions to economic problems depend on changes in collaboration models. Blockchain is just the solution to this problem.

The brand new incentive mechanism based on blockchain will give more direct and sufficient incentives to content producers, thus greatly enhancing the enthusiasm and the proportion of human beings engaged in creative work. This change will liberate human's creativity once more, just like Gutenberg in the digital age, which would push the human civilization into the next era. This is why we named our project "Guten (谷腾)".

Guten is a blockchain-based digital content distribution and dissemination platform. Based on the blockchain technology, Guten will bring a more direct, more convenient, more flexible and low-cost copyright protection mechanism. Decentralized storage system will effectively avoid external interference to digital contents; Guten's content distribution and dissemination system combines content creation with economic incentives, which leads to highly efficient and direct incentives to producers and creates new models of

dissemination. In the future, people will also be able to create various related DAPPs (decentralized applications) in Guten, interact with Guten and grow together to form a rich ecosystem of content production and dissemination.

Guten is a decentralized collaborative system that provides the infrastructure for content production. It will redefine existing content creation and distribution systems, and it will spawn many functions and patterns that are not currently foreseen.

Guten's vision is to facilitate the human Renaissance in the digital age.



Introduction: The mission of Guten

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2.1 The information Internet has brought about the disorderly spread of contents

It's the best of times, and it's the worst of times. With the birth and development of the Internet, the threshold for the creation and distribution of contents in the human society has been greatly reduced, and the production of contents has exploded. For example, in China, there has been a thriving online literature creation community with a large readership, which has resulted in the formation of a number of well-known IPs that have been radiated into the fields of film and television production. At the same time, there are many phenomena such as infringement, plagiarism and so on. For content creators, a large number of stakeholders and middlemen who are related to the channels lie in the wrong places and cut off the rights and interests of creators. With the further development of the social networks, anyone can instantly post texts, photos, videos and other contents. On the one hand, people get the convenience of the content distribution, while on the other hand, they have been exposed to wild places, like jungles of ghosts and beasts, where their rights to original contents are not well protected.

Literature and art are just the tip of the ice-

berg of the problems. Actually the content production in all fields faces the similar situation. On the one hand, the Internet has brought about the efficient and disordered dissemination of contents. On the other hand, traditional mechanisms for protecting the rights and interests of innovators such as copyrights and patents are repeatedly hit in the Internet era and are hard to parry.

2.2 The root cause of disorderly spread of contents in Information age

In the case of copyright protection, the problems originate from the difficult acclimatization of the traditional copyright protection mechanism in the Internet age. On the one hand, the core purpose of the Internet is to solve the problem of information transmission and delivery, and there is no endogenous confirmation and protection mechanism for information ownership. This is an inherent deficiency of copyright protection in the Internet era. On the other hand, the existing copyright protection system also has exposed some shortcomings in the Internet era:

From the perspective of space, the effective scope of copyright protection is often divided into different regions. Different countries and regions have different methods and procedures for copyright registration and

acquisition, and the validity of copyright also varies. Regardless of the specific form, the rules of copyright protection tend to be more rigid and inflexible, and it is unlikely to make flexible and targeted changes to specific situations.

From the perspective of time, since the Internet Era, the forms, quantity and speed of content production have enjoyed explosive growth. However, the traditional copyright protection cannot provide instantaneous and adequate content confirmation and protection of rights and interests.

All these are caused by the difficult acclimatization of the traditional practices of copyright protection mechanisms in the digital era.

In short, the existing Internet does not have an endogenous mechanism for protecting the rights to the content. The scope and efficiency of the traditional methods of confirming rights and existing evidence are far from satisfying the requirements of the digital age. This is the root cause of various problems.

2.3 In the digital age, incentives for content producers is the core driving force for civilization development

If we look at the problems from the perspective of history, we will find that the human civilization keeps moving forward along with the production and dissemination of contents. In this process, two engines are

crucial: one is the efficiency of dissemination and communication, and the other is the incentive to the producer.

2.3.1 Before the industrial revolution, communication efficiency was the first constraint on civilization development

The invention of writing is the first milestone in the history of knowledge dissemination, from which the reliable transmission and inheritance of knowledge and civilization is possible. For a long time after the invention of writing, in both China and Europe, writing and knowledge were the privilege of the upper class, and the books were copied by handwriting and very costly. The invention of the Gutenberg typography is another milestone in the history of knowledge dissemination, since then the cost of knowledge transmission was once again reduced greatly, and the great popularity of knowledge led to religious reform, the Renaissance and the Enlightenment. It can be said that Gutenberg's typography was the starting point of civilization development highway, where the human society embarked on, and went all the way up to now. At present, the full penetration of the Internet has reduced the transmission cost of knowledge to almost zero. It can be said that the continuous reduction of knowledge transmission costs from very expensive to approaching zero paints a track of the development of human civilization, and before the industrial revolution, the communication efficiency was the primary constraint on the development of civilization.

2.3.2 In the digital age, the incentive to the content producer is the core driving force for civilization development

At the same time, there is another trajectory, which is the incentive for creators. Before the industrial revolution, there were no complete and systematic incentive mechanisms for innovators, both in literature, art and engineering. After the industrial revolution, various countries adopted protection and incentive mechanisms, such as intellectual property rights, copyrights and patents. These systems also greatly stimulated people's motivation to engage in creative work and promoted economic and social development.

After entering the digital age, the advancement of technology brought about information explosion. The influx of information owners and the disorderly spread of contents brought great challenges to the existing content protection and incentive systems.

In the digital era, when the issue of communication efficiency is solved, the transformation of the incentive system will be the core driving force for the development of civilization.

2.4 The ideas and vision of Guten

At present, the incentive mechanisms for content producers that match the progress of the digital age still have much to be desired. When contents are fully protected and

innovators are adequately rewarded, predictably, we will usher in unprecedented innovation in human history. The birth of blockchain technologies brought about the path to such protection and incentive mechanisms.

Guten is a content distribution and dissemination platform based on blockchain. It aims to become the soil and infrastructure for the content production in the Internet of value era. Guten will focus on using blockchain technology to maximize the interests of content producers and promote another Renaissance of the digital age.

Guten ecological logics

The image features a dark grey background. On the left side, there are several thick, curved lines in a brownish-gold color that sweep upwards and to the right. On the right side, there is a large, stylized number '3' in a dark grey color, which is partially obscured by the brown lines. The text 'Guten ecological logics' is centered in the upper left quadrant in a white, sans-serif font.

Guten ecological logics

In the Guten ecosystem, contents are provided by producers. Contents are stored in a decentralized file storage network. Guten pay costs and provide incentives via system coins and tokens. Guten is an open system. Based on Guten, participants can develop decentralized applications, for scenarios such as content search and dissemination, etc. All participants work together to enrich Guten ecology.

3.1 Economic system

Guten has both coins and tokens at the same time. GU is the basic currency of the Guten system. GU serves as the common value scale and circulation method of the Guten system. TEN is the token issued by content producers. TEN is not a single token, but a kind of tokens. The quantity and usage of each TEN can be defined by content producers. Each kind of TEN represents the value of the corresponding content.

3.2 Content production

Guten is the soil and infrastructure for content production. Content production is done by the content producers who join the Guten system. The content production of different disciplines, fields and genres varies, and the content carriers of different

categories such as text, audio and video are different. Content producers can issue separate Ten for their ideas and contents, and set their own usage and dissemination methods and prices. The value of the content is ultimately determined by the market instead of Guten.

3.3 Content storage and distribution

The Guten system contains a decentralized content storage network, which is highly flexible. Users and providers can use the Guten smart contract system to customize relevant details.

The system does not restrict and instead encourages the dissemination and distribution of contents. In the process of content consumption, content creators can directly obtain incentives. Guten system does not preset a fixed income model. The initial creators can use Guten smart contract system to set up their own incentive models for content distribution and dissemination, and to realize the value of their innovation through the market mechanisms.

3.4 Incentive mechanism

Guten incentive system mainly consists of two parts and the first one is the Consensus

incentive. The system infrastructure maintainers (including consensus, storage, dissemination, etc.) can all be encouraged accordingly by gains, in the form of system tokens — GU. Second is the content production incentive. In Guten system, any published content, brings about new TEN. TEN is a token issued by content producers, representing the rights to the content.

3.5 Ecosystem construction

The goal of Guten is to build the infrastructure for content production in the digital era. The ecological richness and maturity will naturally grow on the infrastructure, without relying on the prior arrangement of Guten. With the expansion of the users, more and more stakeholders will use new technologies and develop new decentralized applications in the future. Guten will grow with its users.

Guten technical solution



Guten technical solution

4.1 Principles of Design

Guten is devoted to the distribution and dissemination of digital contents, and the transaction of a large amount of content assets is an inherent requirement for the system. Therefore, Guten has made many innovations in the distribution, trading and circulation of content assets.

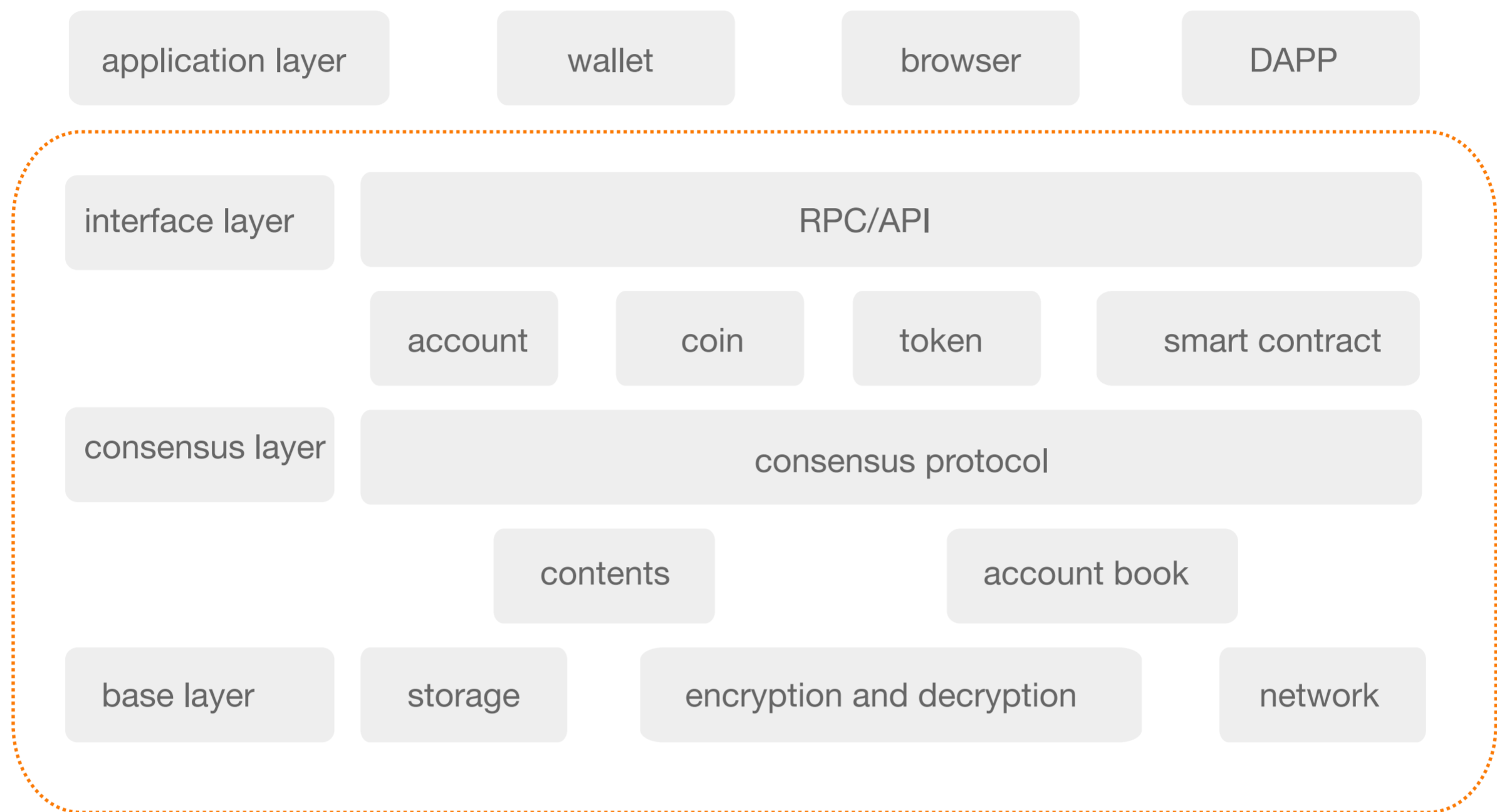
Unlike Bitcoin or Ethereum, Distribution of content assets and trading of content assets is the foundation of Guten. It allows users to issue their own tokens, which allows users to trade their contents by tokens in the system. Different from others, in Guten system, user accounts, tokens and smart contracts are at the same level. The user issued Tokens can be separated from smart contracts for trading and circulation.

At the same time, Guten also provides a decentralized storage, distribution and certification solution, which provide reliable security guarantee for various innovative contents including literature, music, film and television, etc.

In addition, Guten also provides a convenient interface for the third party users to develop various decentralized applications (DAPPs) with different functions required by the users in the Guten market, to enrich content trading and circulation, and to participate in the construction of the Guten ecosystem.

Guten has improved the way the system tokens (GU) are distributed. Instead of mainly through mining by miners, GU can be obtained through a combination of mining and eco-incentive. This scheme can motivate more participants to join and contribute to the Guten system.

4.2 System architecture



4.3 Account

In Bitcoin, the account (address) is not stored explicitly, and the balance only exists in the transaction. In Ethereum, the account (address) is stored explicitly, and the balance represents the asset.

In Guten, the user's basic account (address) combines the characteristics of both Bitcoin and Ethereum. The user's account is also generated by the public key. The user account is stored explicitly, including the number of CTU and the number of each type of Tokens. In addition, the specific attributes of relevant coins and tokens are reflected in each transaction.

With this design, it is very easy to find out all the assets of the user. It also provides a flexible trading method and efficient rights management for each asset including coins and tokens. Guten also provides complete asset information, transfer records, etc., to provide better and more easy-to-use traceability.

4.4 Trading system

One of the core tenets of Guten is a decentralized content trading platform. Guten designed the unique GUO (Guten Oracle) mechanism. At the heart of it are the copyright of content information and the anchoring of the corresponding tokens. Content producers can upload content information,

issue the corresponding token of the content, and at the same time, the content storage and the token can be anchored. In order to ensure that the content information and the token can be transferred simultaneously, the GUO-based Anchored Transaction transfers the content information to the payer while completing the token transaction and completes the new anchoring. In other words, Guten not only supports token transactions (value segmentation and transfer), but also supports the anchored transactions between token and content information.

4.5 Smart contracts

Guten's smart contract GVM is different from the EVM in the Ethereum. The issue of token does not require complex smart contracts. In Guten's system, issuing token and GVM is divided into two independent modules. Issuing token is the endogenous basic function. GVM was designed to provide better service for digital assets to make token programmable. In GVM design, through Turing complete smart contract, one can design many different ways to manage and trade token, write DAPP for token, and truly create a Tokenized intelligent economic system. With the development of ecology, Guten will provide many endogenous safe and mature smart contract templates. It will become easier and easier to use GVM. In the future, Guten will

realize the visual programming of smart contracts and greatly reduce the development threshold of DAPPs.

4.6 Consensus mechanism

Along with the development of blockchain technology, the consensus mechanism is also evolving. The original POW mechanism solves the problem of debiting the digital currency system, but has brought a lot of resource consumption. POS, DPOS and BFT algorithms try to solve the resource consumption problems, but bring the issue of fairness.

Guten's consensus algorithm is not only responsible for bookkeeping, but also involves the issue of Decentralized Autonomous Organization. We have seen that the disagreement in the Bitcoin community regarding capacity expansion and technology upgrades, due to the concentration of bitcoin's computing power and the concentration of core developers' rights, has led to the emergence of fork currency and caused the fragmentation of the community. In view of the exploration experience of these predecessors, we proposed the GCP (Guten Consensus Protocol) consensus mechanism.

GCP is a hybrid consensus mechanism composed of proof of work (POW) + Proof of Stake (POS) + Proof of Portable Storage (PODS). Guten upgrades and expands the

system through GIP. Miners are divided into POW miners and POS miners, who can initiate a vote on GIP in addition to their bookkeeping. Each vote corresponds to one or more GIP agreements. POW and POS voting ratio is divided into different weights (GW, GIP Weight), together determining whether the GIP upgrade or not. In addition to the GIP upgrade governance, the rules generated by the POW in each new block should be consistent with the rules generated by the POS voting, and then the new blocks are certified to be valid. In a valid new block, the POW miners and the POS miners earn rewards based on weights ratio. PODS is primarily a consensus mechanism for content storage. In the Guten content storage network, storing other people's content information or providing downloads and rebroadcasting services can be rewarded through PODS certification. POS can suppress the excessive resource consumption of POW, and can avoid GIP upgrade failures caused by the dictatorship of the computing power, thus realizing the self-governance of Guten system.

4.7 Contents

In addition to the account book data, Guten also needs to store content information. Content data is stored in a distributed file storage system. Data is encrypted and compressed into a number of blocks by TwoFish encryption algorithm. Each block

uses error correction code Erasure Codes (EC) technology, to store data into network nodes. Encryption guarantees the privacy of data, the block ensures the data to be stored in decentralized storage, and the EC technology ensures the disaster recovery of distributed data. Nodes that provide content storage services can obtain corresponding benefits through PODS consensus. Due to decentralized storage and the incentive mechanism based on PODS, Guten can implement a decentralized content storage and distribution network.

Development plan



Development plan

Date	Jobs
2018Q3	Publishing technology and business white paper;
2019Q1	Minimizing the operation of the system;
2019Q2	Smart contract completion;
2019Q4	Decentralized storage function is completed, and the test network goes online;
2020Q1	Main network is officially launched.

Issue and utilization of tokens

The background features a dark grey gradient. On the left side, there are several curved, overlapping lines in a brownish-gold color that sweep upwards and to the right. On the right side, there is a large, stylized, light grey shape that resembles a letter 'B' or a similar abstract form, composed of several concentric, rounded shapes.

Issue and utilization of tokens

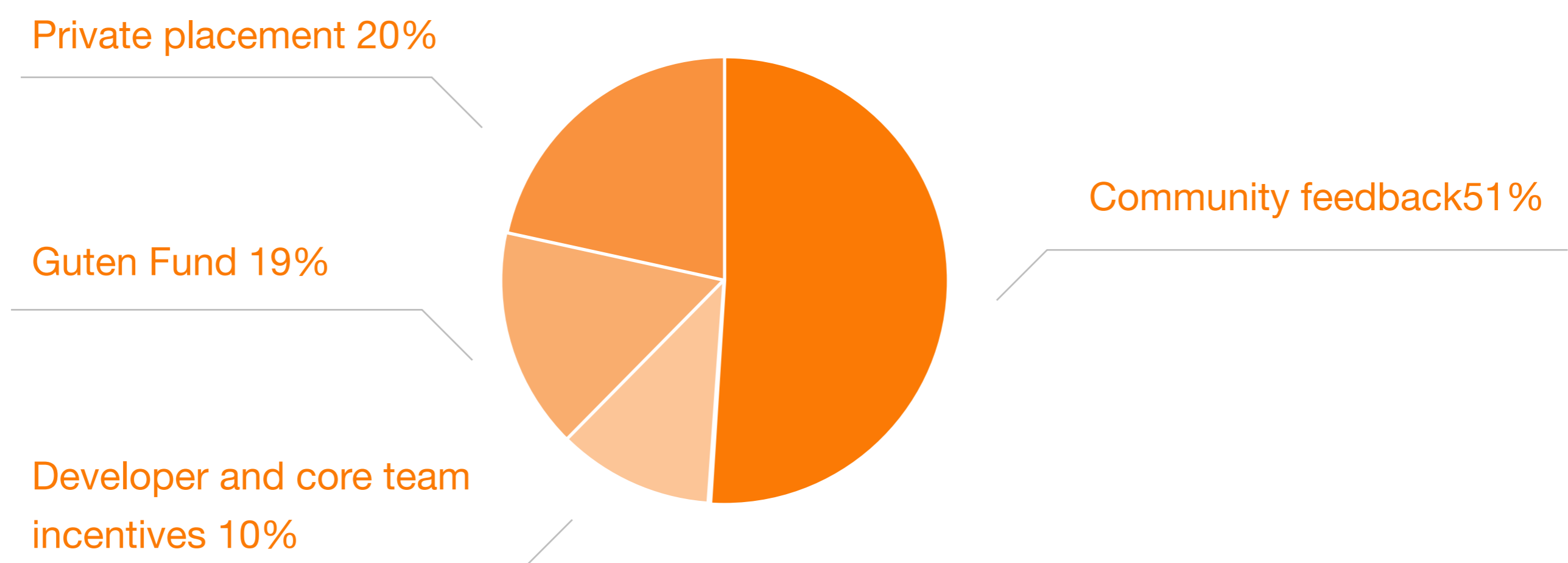
The total number of Guten basic token GU is 10 billion.

The distribution plan is as follows:

20% (2 billion) for the initial private placement, raising funds for the development of the Guten platform;

51% (5.1 billion) for consensus mining and community feedback, providing incentives for core community members such as system maintainers, content producers and communicators;

The remaining 29% (2.9 billion) is managed by the Guten Community Committee, of which 1 billion is for Guten developers and core team incentives, and the remaining 1.9 billion will set up Guten Fund, which is planned to be behind the main online line. To build a decentralized self-organization based on Guten and carry out the value investment of the Guten content ecosystem. The Guten Community Committee promised that 29% of its management (i.e. 2.9 billion GU) will be locked for three years, that is, all locks will be closed within three years from the date of this white paper (July 17, 2018). Level market for sale.



Guten Community Committee

The background features a series of curved, overlapping lines in shades of brown and grey, set against a dark, almost black, background. The lines are arranged in a way that suggests movement and depth, with some lines appearing to curve away from the viewer and others towards it. The overall effect is a modern, abstract design.

Community Committee Core Members



Mr. Zeng Nanshan: current Deputy Director of Microsoft Search Technology Center Asia. He has more than 20 years of R&D experience in Internet. At Microsoft, he has held critical key leadership positions in different groups, and most recently in Bing and AI, leading a large group of engineers and scientists working on cutting-edge technologies such as search, cloud computing, natural language processing, speech, and AI infrastructure and tools.



Zhou Zhonghua. Vice President of China Machine Press, Vice Chairman of China-pub, Co-Founder of Stream Angels, Co-Founder of Stream Reading Association, Previously Managing Director of Huazhang Company(an international publishing organization), and founder of Huazhang College. He has been engaged in book publishing, marketing and management for a long time and is an excellent publishing expert. Since 2005, Huazhang has been leading the publishing industry, with sales exceeding RMB 600 million. In 2010, he won the “China Books Industry Innovative People” award. In 2012, he was named “National Press and Publication Industry Leader” by the General administration of press and publication of China (GAPP) .



Zhang Jian: Founder of FCoin, a digital asset trading platform, a partner at singer capital, a leader in the practice of Token economics, and one of the early pioneers of the blockchain industry. He has rich entrepreneurial experience and industry resources. Zhang Jian is the author of China's blockchain enlightenment book, “Blockchain: Defining the Future of New Financial and Economic Patterns”, and co-author of the book “Financial Technology: Reconstructing the Future Financial Ecology”.



Guo Qingui: LLM of Peking University Law School and EMBA of School of Economics and Management of Tsinghua University, Harvard University Visiting Lawyer, Yale University EDP. Well-known FIT (new finance, Internet, new technology) lawyer, blockchain legal expert. He has authored more than 10 books including "Internet Finance Business Model and Framework", "Internet Finance Principles and Practice", "Financial Science and Technology Legal Risk Control" and "Token Economics".



Li Huajun: Graduated from Guanghua School of Management in Peking University and received a bachelor's degree in economics. He was later studied at the Tsinghua University School of Journalism and communication and obtained a postgraduate degree. He has more than 20 years of experience in content publishing. Has planned and managed to publish many most authoritative books: Internet Thinking, Crowdfunding, Wearable Devices, Internet +: Cross-border Integration, Blockchain: Defining Future Financial and Economic New Patterns, Blockchain + ,etc.

Community Committee Advisors



Dr. Daxin Jiang: Associate Director of STC Asia, Microsoft Partner. Development Manager of NLP for Microsoft Bing and Cortana. Ph.D. in Computer Science from the State University of New York at Buffalo. Years of experience in Research and Engineering in Machine Learning, Big Data Mining, Natural Language Understanding, and Bioinformatics. Tenure-track Assistant Professor in the Computer Science and Engineering School of Nanyang Technological University, Singapore (2005-2006), and Lead Researcher in Microsoft Research Asia (2007-2011). Inventor of multiple patents on Information Retrieval and Web Data Mining. Served as Program Committee member or Associate Editor of top class international conferences and journals.



Mr. Qi Yao: Most recently has been focusing on blockchain-based web content ecosystem. He has rich experience in Machine Learning, Natural Language Processing, web search and mobile technologies. He is currently a Microsoft Distinguished Engineer, leading Bing core relevance and AI team. Previously he was Deputy Director of Microsoft Search Technology Center, leading Xiaolce R&D team. He was also Executive Director of Mobile and Cloud Division at Baidu, responsible for Mobile App Store and Monetization.



Mr. Yutao Xie: graduated from University of Science and Technology of China Special Class for Gifted Young. Currently a partner director in Microsoft managing the Windows R&D Asia team. In his over 18 years' career at Microsoft, he has been playing critical roles in various product groups, including Office, Microsoft Search Technology Center Asia, Bing search team, and Window group. He has rich experience in operating system, search technologies, AI, applications and services, and deep insights in large scale software R&D and how to drive innovations.



Zhang Hongbo: He is currently the Director General and Legal Representative of the Chinese Character Copyright Association, the executive director of the China Copyright Association, the director of the China Intellectual Property Research Association, and the director of the China Publishing Promotion Association.



Mr. Liang He: currently the CEO of Tencent Penguin Children's Stories Company, and previously the general manager of Tencent IEG copyright division. He has more than 10 years of work experience in Internet and mobile Internet. Under his leadership, several brands such as "Kangaroo Jump" and "Baby Listening" have become show cases for Tencent Children Content Open Platform.

This document is only used to illustrate the Guten system and does not constitute any form of investment advice. Blockchain technology is still in the early stage of development. Investors should carefully assess the risk. Due to the complexity of the Guten system, the interpretation of business and technical details will be published in 2018 Q3's white paper on technology and business.



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