image.one

Public BlockChain for Digital Image Copyright Management

WhitePaper V1.15

image.one International Foundation

1st Mar,2018

Project Overview

Image.one is the first to use block chain technology to serve the digital image assets industry and reconstruct an image copyright management market of nearly 100 billion worldwide every year, through decentralized architecture and advanced and sophisticated invisible image encryption technology.

Image.one is a new generation of image fog management technology platform, deeply integrated with “Block Chain Technology”, “Image Invisible Encryption and Signature Technology” and “Intelligent Distributed Fog Computing Technology”, which can completely solve the problems in the Internet domain, such as image copyright registration, management, transaction and online storage, search and etc., through a unified solution.

By building a technology-driven underlying infrastructure, image.one enables image copyrights management and transaction in all image sites, SNS and APP, allowing images to be transacted in all places to maximize the value of the image creator. It can really change the industry of image.

Image.one consists of the following four parts:

Image Rights Registry - Encrypted Image Copyrights Management Block Chain

Invisible Image Encryption - DCT domain gray level image invisible signature algorithm with chaotic encryption

Distributed Image Storage and Computing Services - DHT-based asymmetric and distributed fog storage technology

Image Search - Hash Based Image Search and Distributed Crawler Technology

Concept of image.one

Protect the rights of every image creator through image encryption technology; make creators the core value of the image market through centralized and disinter mediated copyright transactions; establish a sound market system with mutual trust by using the block chain technology and electronic communication card system deeply catering for image copyright in the image market.

2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1
Image Encryption Service Copyright Registration in Block Chain Partnership Community	API 1.0 service Development of the main chain	Accessible for a number of copyright transaction platform Distributed Storage Service 1.0	Distributed Search Service 1.0	Construction of whole-industry payment system

Distribution program

The total number of ImageCoin to be issued is 21 billion, and the distribution ratios are as follows:

Team	Cornerstone private placement	Foundation	Community rewards	Ecological construction
10%	30%	15%	25%	20%

Financing plan

The total amount issued by Cornerstone and institutional tokens account for 30% of the total amount of tokens, or 6.3 billion.
Collection start date: February 1, 2018

	Cornerstone Investment Round	Early Institutional Investment Round	Late Institutional Investment Round
Pricing	1ETH=200,000	1ETH=180,000	1ETH=150,000
Limit amount	200ETH/share	600ETH/share	1000ETH/share

Contact

Email: investor@image.one

Cornerstone investors and consultants

Wang Dongfeng Forgame Chairman and CEO

Tang Ling InkChain founder, Ziggurat founder

Jin Hongwei The largest shareholder of SIPA, famous Chinese photographer and collector

Wan Lin, Director of Ya Chang Cultural Group, general manager of Ya Chang images
Jiang Wenyi, founder and CEO of Philm, co-founder of Friends of Umeng

Liu Chun, CEO of Zhongnan films, former chief executive of Phoenix Satellite TV, chief editor of Sohu, and a part-time professor of Communication University of China and Guangxi University.

Bao Lihui Member of Chinese Photographers Association Committee, Director of Images Copyright Society of China, Deputy Secretary-General of The Photojournalist Society of China, Chairman of Dali International Film Conference

Xia Chenan President of Beijing Culture, Former Deputy Chief Editor of Zhejiang Radio and Television Group, “Godfather of Chinese Variety Show,” Creator of “Running Man” and “The Voice of China”.

Institutional investment

LONGLINK Fund

China Creation Ventures

Collinstar Capital

Table of Contents

Table of Contents

Chapter I: Market analysis and background introduction

The global population of pan-photographer is up to 500 million, and the size of image copyright transaction market is nearly 100 billion Yuan. In the world, image copyright transaction has already been a relatively mature market. With the digitization of images and the transformation of Internet media, the demand for images is increasing, which will drive the continuous growth of the image copyright transaction market.

However, with the diversification of the image transmission channels in the Internet era and the ripple effect caused by the embezzlement of images by many individuals and institutions, the copyright protection of images has become more and more serious. The traditional copyright registration process requires a series of cumbersome processes such as copyright verification. Copyright management is ineffective after copyright authentication and free transaction of use right, which only benefit a handful of works and image copyright authors. For the majority of authors, protection of rights and interests achieves little effect. For example, the photography piracy phenomenon stays rampant after being banned repeatedly on the Internet. The vast majority of photographers are having difficulty in safeguarding their rights, even if they succeed in safeguarding their rights, the profits are nearly negligible.

1.1 Image copyright

Image copyright is contrary to the concept of image piracy. Usually it refers to the image of the copyright holder, usually the author of the image or the agency, authorizes the use of images for commercial, publishing, exhibitions and other purposes. For these images, the images' copyright holder can be eventually traced and the users can obtain the usage license. To use this type of images, the users often should pay the copyright holder certain authorization fees.

There are a variety of ways to define the authorization form of copyright images. The most common forms in the world are RM and RF:

RM authorization is an abbreviation of Right Management, which refers copyright management and means the copyright holder submits his image to an image brokerage institution. According to the client's use scope, the number of issues and the authorization time, etc., the image brokerage institution determines the specific authorization price of the image through negotiation with the license holder. In China, the main representatives that use this kind of authorization of the copyright image library are the traditional image organizations, such as Getty Images and Panoramic Vision. The biggest advantage of this model is to save the non-creative work of original copyright owners for copyright management, copyright sales. However, its core drawbacks are that the centralized delegation mechanism and the opaque copyright pricing rule often create huge wealth for the image agencies only; at the same time, the specific authorization needs to be based on the use of images. In the process, the original copyright owner did not actually participate in the copyright management and therefore could not guarantee his own benefits to the maximum.

RF authorization is the abbreviation of Royalty Free, which is the most popular way of authorization in the world. The direct translation into Chinese is "royalty-free". "Royalty-free" refers to the "non-exclusive" license of a consumer to pay for a small royalty at a time for the purchase of images of a particular resolution, which in the future can be used for a wide range of purposes, regardless of time, territory and number of publications, nor will it be linked to the revenue you get from using the image, i.e you will not be required to pay any additional "royalties" to the author in proportion to the way, the number of times and how much you earn from using the image.

1.1.2 Status of Internet digital copyright

According to the "2017 China Internet Copyright Industry Development Report", the industry size of China's core Internet copyright industry in 2016 exceeded 500 billion Yuan. Among them, at present, the copyright payment model is developing rapidly, mainly for literature, video and music in the Chinese copyright market. However, the size of the copyright transaction market for online images is almost negligible. In contrast, in infringement and piracy, among all online infringement cases of 2016, the number of online images infringement ranked second, accounting for 24%. Take the Haidian Court as an example: In 2015, there were 1000 image infringement cases, 2000 in 2016 and 4000 in 2017. Another report shows that: At present, the domestic flow of legitimate image transaction websites only accounts for about 10% of the total traffic in the industry.

There are two main reasons for the current serious copyright infringement:

First, compared with other forms of media, the public awareness of the copyright in the images is weaker, from WeChat public accounts to advertisements and corporate catalogs.

Second, the high costs of image rights safeguard, the current infringement litigation are mostly institutions and well-known photographers. For more "long tail" image authors, especially the author of a single image, the lawsuit filed is rare. Although it is easy to win the lawsuit, but compared with meager compensation, the cost of rights protection, including time, is still very high.

Of course, coins always have two sides, as what had happened in the literature, music and video markets, and the image copyright market is bound to become more formalized to make up the last important piece of the content copyright market. This also means that the image is likely to be the next new blue ocean market that has set off copyright storms. As the most important image search channels of the public, Baidu also becomes the first giant in BAT to enter the image industry.

As an entrance to hundreds of millions of users daily for image retrieval, they are trying to empower copyright agencies and content producers in a variety of ways. They have launched Baidu's "source" programs for content producers and copyright-oriented platform for photo agencies. Recently, on this basis, they have launched Baidu Copyright Guardians to help co-photographers and photo agencies further crack down piracy and continue to consolidate the fundamentals of copyright in the image market.

1.1.3 Pain points of photographers, designers and other image creators

All creators and Internet users include but not limited to photographers, designers, Key Opinion Leader (KOL), ordinary social network users, etc., as long as the user has a behavior of image uploading, he will face the potential risk of being infringed. A large number of images, V-logs are infringed, and even the personal self-portraits have also been illegally misappropriated. Therefore, the copyright protection of the circulating images in cyberspace is the pain point of the industry needed to be solved urgently.

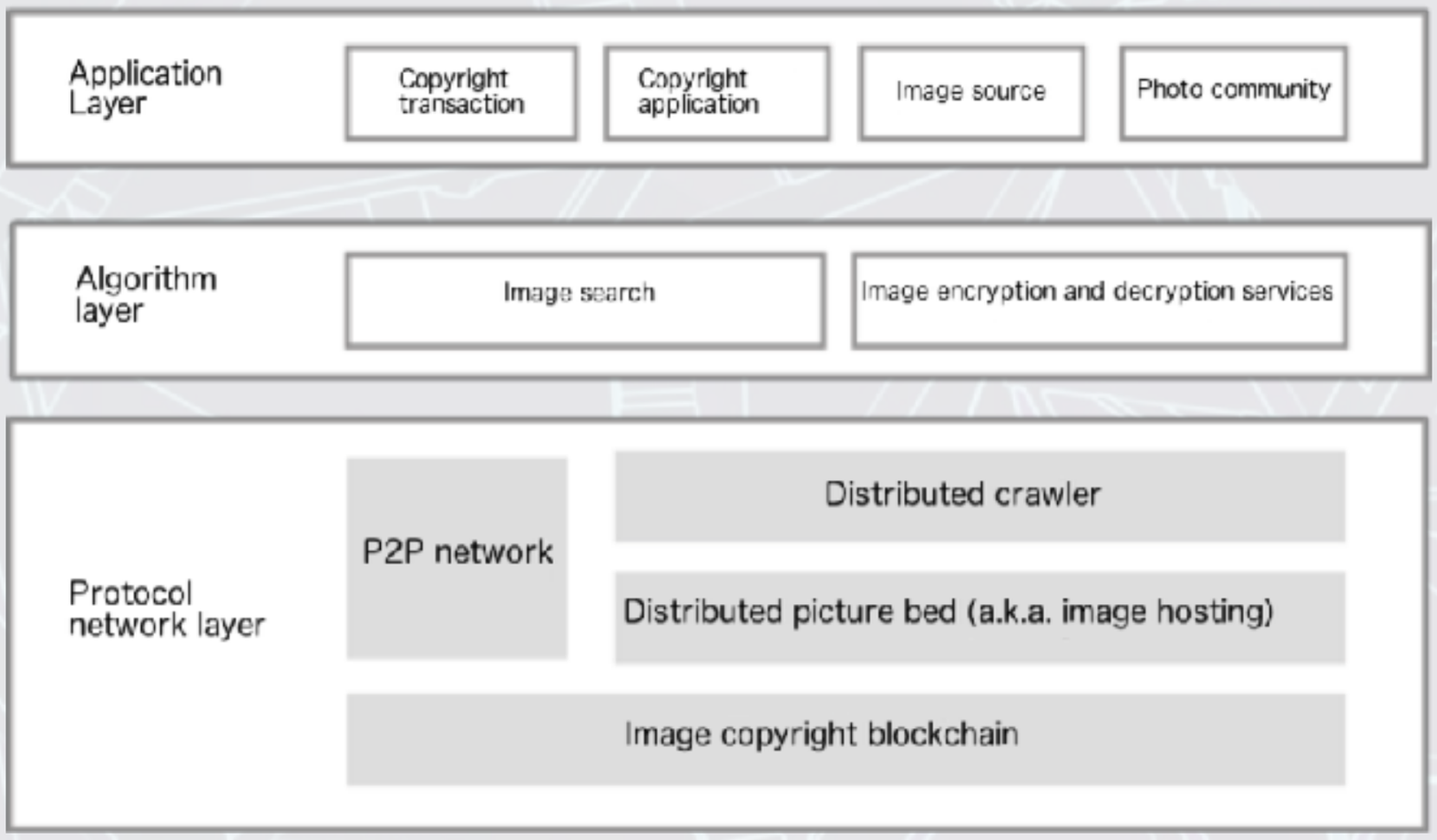
1.1.4 Market gaps and opportunities

As of January 2017, the global population was 7.395 billion, with 3.419 billion Internet users, 2.307 billion active social media users, 3.79 billion mobile phone users, and 1.968 billion active social media users on the mobile terminals. As of 2017, the total number of online images in the world reached 4.9 trillion. For more than 60% of the pages, there will be images as contents; therefore, we can see a huge image copyright market.

Chapter 2：Introduction to Architecture and Application of image.one

The goal of image.one is to build an image blockchain ecosystem that integrates image steganography, blockchain image copyright registration, distributed storage services, and distributed image search engine.

The system architecture is as follows:



The whole system of image.one is based on blockchain. It uses blockchain's strong source tracing technology and its inalterability characteristics as the underlying support for the entire image copyright protecting architecture. On this basis, content storage and copyright traceability are organically combined with the introduction of distributed storage image bed (a.k.a. image hosting) service.

At the same time, image copyright protection and copyright tracking capabilities are further enhanced through image steganography signature technology and distributed crawler technology in the algorithm layer. And then in the top layer, a variety of image copyright related applications and services, including but not limited to image copyright certification, copyright transaction, search and so on, are supported. A brand new image ecosystem in the blockchain era is thus created through a three-tier, multi-level architecture.

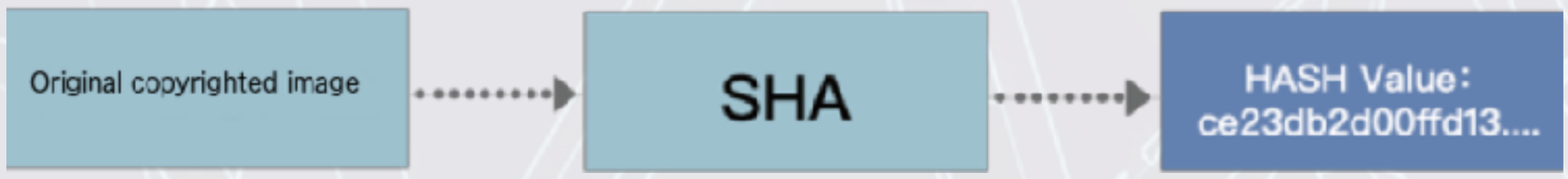
2.1 image.one Algorithm layer

2.1.1.1Image Copyright Information Blockchain

Digital image information, usually used to identify the uniqueness of an image, is obtained as a fixed length value using a hash algorithm that hashes the file. MD5 (Message Digest Algorithm) is often used to determine the uniqueness and thus identify files on the Internet. This article, however, uses SHA to store image digital information.

SHA (Secure Hash Algorithm) is a series of cryptographic hash functions designed by the National Security Agency (NSA) and released by the National Institute of Standards and Technology (NIST)，including variants such as SHA-1, SHA-224, SHA-256, SHA-384 and SHA-512。It is mainly applied to the Digital Signature Algorithm DSA defined in Digital SignatureStandard DSS. This article chooses SHA-256 as the image information encryption algorithm.

The workflow is:



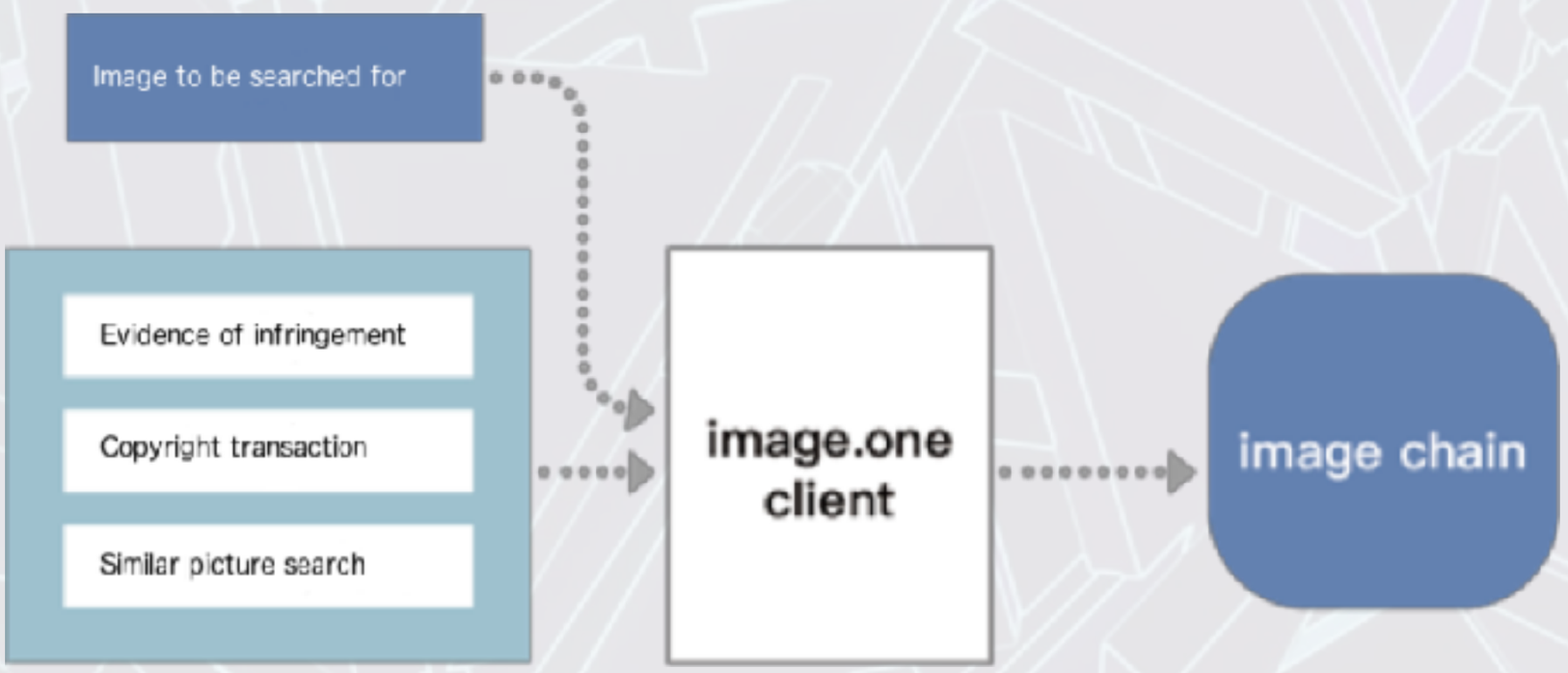
The output hash value is equivalent to the fingerprint of a photo, and thus can identify the uniqueness of the image.

2.1.1.2 Registration and maintenance of image copyright information

Image.one adds the original image data, combined with the author's original copyright information, to the blockchain, so that the uniqueness of the data is ensured and at the same, copyright information is stored together with the chain.

2.1.2 Image copyright verification mechanism and image search algorithm

2.1.2.1 Image copyright verification mechanism



The output hash value is equivalent to the fingerprint of a photo, and thus can identify the uniqueness of the image.

2.1.2.2 Image Search Algorithm - Fuzzy Search and Exact Matching

Image.one currently uses the "Perceptual hash algorithm" algorithm to search for images. Its purpose is to generate a "fingerprint" string for each image and then compare fingerprints of different images. The closer the result is, the more similar the pictures are.

The perceptual hash we use is pHash. Discrete Cosine Transform (DCT) is used to obtain the low-frequency components of the picture.

Discrete Cosine Transform (DCT) is an image compression algorithm that transforms an image from a pixel domain to a frequency domain. There are many redundancies and correlations in images. Therefore, only a few of the coefficients of the frequency components are non-zero after conversion to the frequency domain, and most of the coefficients are 0 (or close to 0).

The figure on the right below is a matrix of coefficients obtained by discrete cosine transform (DCT) of the Lena photo. From the upper left corner to the lower right corner, the frequency goes higher and higher. As can be seen from the figure, the value of the upper left corner is relatively large, and the value of the lower right corner is very small. In other words, almost all the energy of the image is concentrated on the low frequency coefficients of the upper left corner.

The output hash value is equivalent to the fingerprint of a photo, and thus can identify the uniqueness of the image.

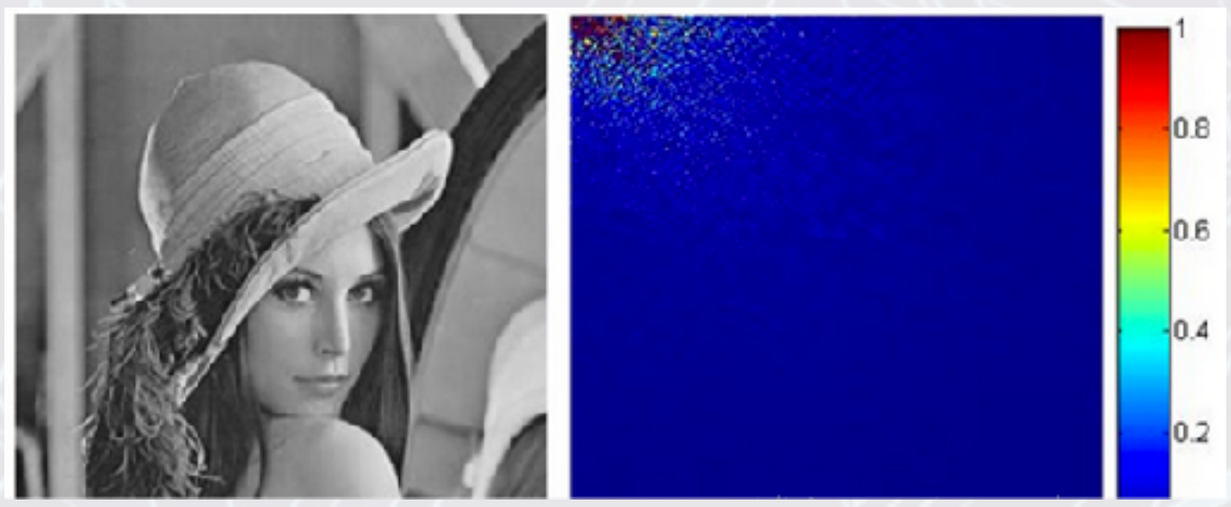
2.1.2.2 Image Search Algorithm - Fuzzy Search and Exact Matching

Image.one currently uses the "Perceptual hash algorithm" algorithm to search for images. Its purpose is to generate a "fingerprint" string for each image and then compare fingerprints of different images. The closer the result is, the more similar the pictures are.

The perceptual hash we use is pHash. Discrete Cosine Transform (DCT) is used to obtain the low-frequency components of the picture.

Discrete Cosine Transform (DCT) is an image compression algorithm that transforms an image from a pixel domain to a frequency domain. There are many redundancies and correlations in images. Therefore, only a few of the coefficients of the frequency components are non-zero after conversion to the frequency domain, and most of the coefficients are 0 (or close to 0).

The figure on the right below is a matrix of coefficients obtained by discrete cosine transform (DCT) of the Lena photo. From the upper left corner to the lower right corner, the frequency goes higher and higher. As can be seen from the figure, the value of the upper left corner is relatively large, and the value of the lower right corner is very small. In other words, almost all the energy of the image is concentrated on the low frequency coefficients of the upper left corner.



The work flow of pHash is as follows:

(1) Reduce Size: pHash starts with a small picture. But pictures larger than 8 * 8, 32 * 32 are the best. The purpose of this is to simplify the DCT calculation, not to reduce the frequency.

(2) Simplify color: Convert images to grayscale images to further simplify calculations.

(3) Calculate DCT: Calculate DCT transform of the picture, get 32 * 32 DCT coefficient matrix.

(4) Reduce DCT: Although the result of DCT is a matrix of 32 * 32 by size, we only need to keep the 8 * 8 matrix in the upper left corner, this part presents the lowest frequency in the picture。

(5) Calculate the mean: As with the mean hash, calculate the mean DCT.

(6) Calculate the hash value: This is the most important step. Set 0 or 1 for the 64-bit hash value according to the 8 * 8 DCT matrix. Values greater than or equal to the DCT mean are set to "1". Values less than DCT mean are set to "0". Together, they form a 64-bit integer, which is the fingerprint of this picture.

Exact match

Exact match is achieved mainly with image.one’s specific steganography technology. The specific implementation will be described in detail in the cryptographic process below. Exact matching not only supports image ownership confirmation, but also has very high anti-modification robustness.

2.1.2.3 Image copyright ownership update mechanism

Using an image without watermarks, we search for similar images. If there are no similar images, we register the copyright. If there is a similar image, we update the copyright according to the update logic.

After a new image enters into the verification mechanism, the copyright ownership is automatically updated. If the newly uploaded image has a higher actual resolution than the same image recorded in the book, then the registration is performed. If the image is in raw format and the resolution is greater than or equal to the highest registered resolution, the copyright is transferred to the image uploader.

2.1.3 Image digital copyright invisible signature technology

As an effective complement to traditional cryptography, digital watermarking technology is considered as an important means to solve the copyright protection of digital works in the digital age and becomes a hot spot in the field of information security. Most watermarks of early research embed a meaningless one-dimensional or two-dimensional pseudo-random sequence, and then gradually developed to embed a visible watermark image. The amount of data embedded is higher through a binary watermark image or grayscale watermark image. And since the human eyes are more intuitively sensitive to images, one-dimensional or two-dimensional pseudo-random sequences are apparently less recognizable than binary watermarks or grayscale watermarks. In addition, compared with binary watermarking, grayscale watermarking embeds larger amount of data, which not only makes embedding more difficult, but also makes it difficult to do blind extraction. While improving the robustness of watermark embedding, it also reduces the transparency. Therefore, many scholars pretreat grayscale watermarks to reduce the amount of data embedded.

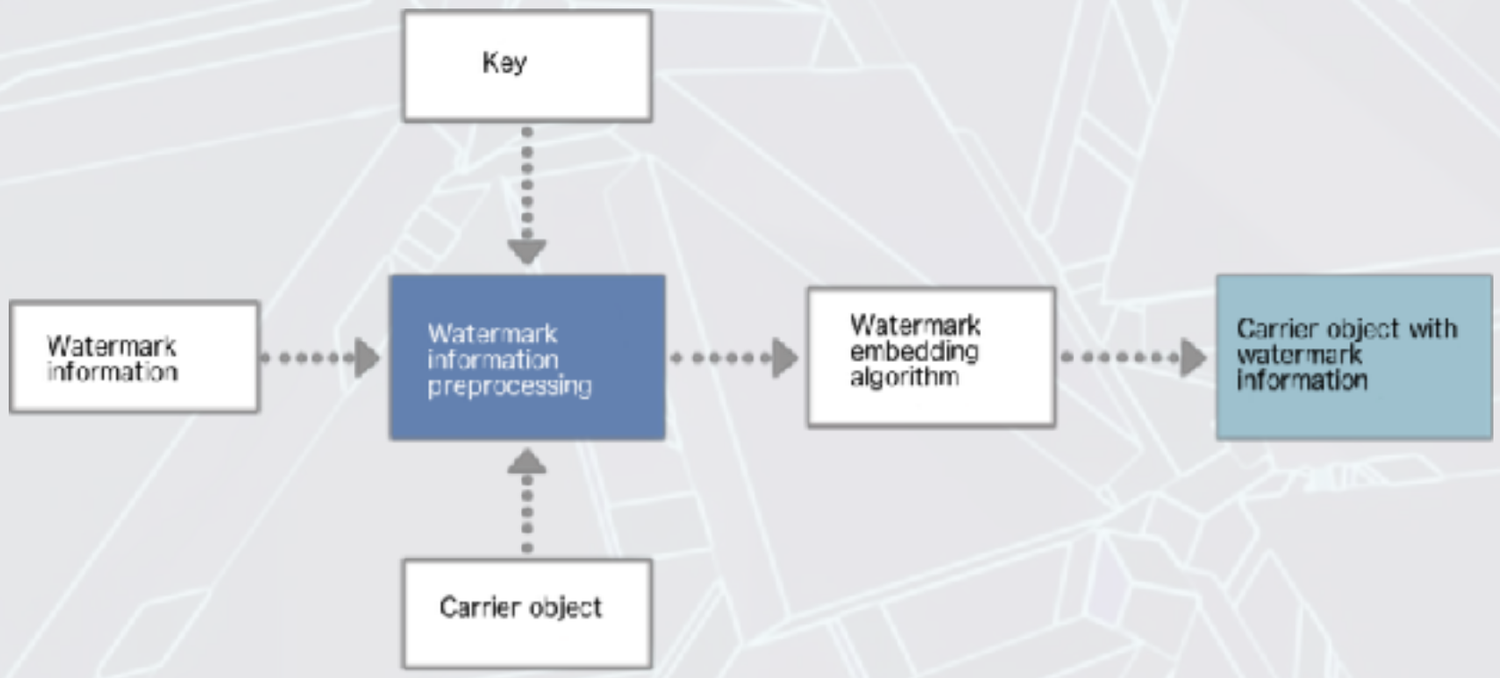
2.1.3.1 Invisible Watermarking Algorithm Based on Chaotic Encryption in Gray Level of DCT Domain

This algorithm uses 80-bit external keys and two chaotic sequences to encrypt the watermark image. To guarantee the security of the watermark image, the initial conditions of the two chaotic maps are provided by the external key through grouping and mathematical transformation and change dynamically. The encrypted watermark image is then embedded in the digital image after being processed by the gray level. Simulation results show that the proposed algorithm is robust to image signal processing and geometric distortion and can be applied to copyright protection and multimedia data authentication in the network environment.

Watermark Encryption Based on Chaos Mapping

Chaos is a stochastic kinetic process that occurs in nonlinear systems. It has the properties of initial sensitivity, aperiodicity, continuous broadband spectrum and noise-like properties that make it inherently concealed. Chaotic sequences have the statistical properties of autocorrelation functions and zero cross-correlation functions close to δ functions. Its ergodic statistical property is similar to white noise. So, they can be used in digital communications, multimedia data security and watermarking to enhance the security of information and watermarks. Watermarking is the use of an external key to encrypt the key by key grouping and mathematical transformation to determine the initial conditions of chaotic mapping X0, Y0, resulting in two chaotic sequences X, Y. The first sequence is used to scramble the watermark image (8 b each time) by XORing the watermark image, and the second sequence is used to decide which bit in the R, G, B (both 8 b) of the pixel will do bitwise operation with the first chaos sequence. The scrambled watermark image is then gray-scale processed and then embedded in the image document.

2.1.3.1.2 The basic flow of digital encryption technology



We use the word TEST as digital watermark, as a test content added to the carrier image. Encrypted results are shown below.

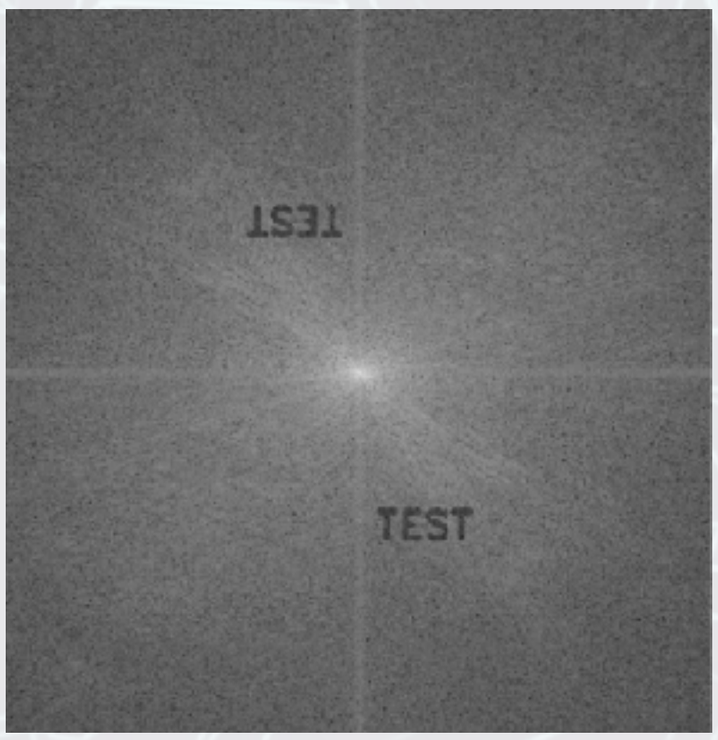
before

after

Digital signature decoding process

This algorithm ensures the invisibility of the watermark and also has a very strong encryption robustness. Even after being attacked by an image editor (for example, tailoring, modifying, compressing, adjusting, etc.), the encryption watermark extracted from the image using the decryption algorithm can still be well recognized and has good robustness against common image processing operations. Its resistance to piracy is very strong.

decode info



DCT domain gray level blind watermarking algorithm

Gray level watermark preprocessing

The encrypted watermark image file generated after 1 is set as W and the size is M × N. For each pixel value of W (i, j), i = 1, 2, ... M, j = 1, 2, ... N, the bits are decomposed into binary bits to obtain a one-dimensional binary watermark embedding sequence with a length of MxNx8.

Watermark Embedding

The original grayscale image is divided into 8 × 8 blocks and then DCT transformed. In order to better meet the robustness and invisibility of the watermark, we choose to embed the watermark into DCT intermediate frequency coefficients.

The detailed steps are as follows：

(1) Let W be the original image data matrix of 192 × 192; divide W into blocks of 8 × 8; each block size is 24 × 24. Each block is DCT transformed, i.e. I '= DCT 2 (I)。

(2) The pixel values of W are embedded into 24 8 × 8 blocks, and according to the principle of additive, they are embedded in the intermediate frequency position. For each block, watermark information is embedded into the

(x, y) coefficient, that is I'd

(x, y) = k × W (i, j), k is the embedding strength.

(3) After the watermark is embedded, we do inverse discrete cosine transform against the image, i.e. I '= IDCT (I'd). Thus, we get the watermarked image.

2.1.3.2 Process of the image copyright signature application

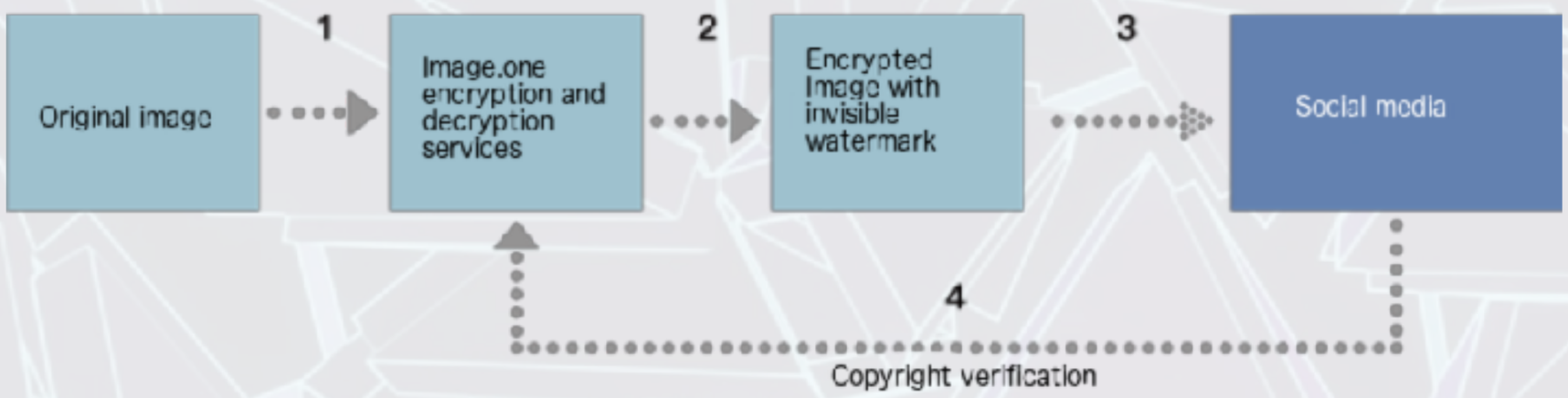
1. Images are transported into image.one encryption services through various protocols;

2. Extract the image hash value and register it in the copyright chain;

3. Based on the image hash value, images with signature are generated by the encryption algorithm (to enhance the robustness of encryption, we generate the commonly used resolutions of the encrypted images at this level);

4. Export the signed image files with invisible signatures to the distributed image bed (a.k.a. image hosting) and spread the image to social media via the application layer and end user personal actions;

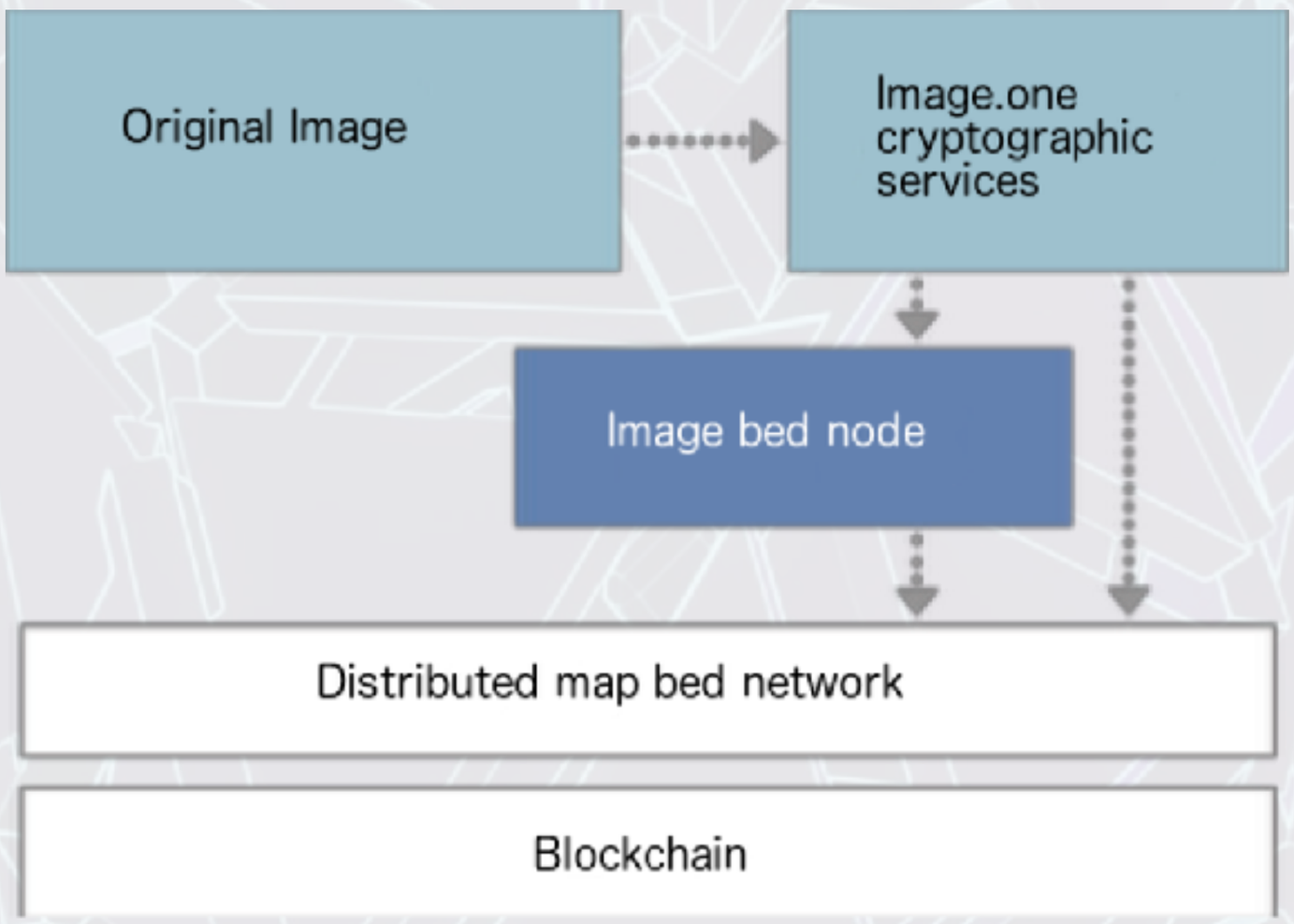
5. When photo piracy occurs, we go back to blockchain to verify the source of the image.



2.2 image.one Protocol Layer

Image.one innovatively put image bed technology and blockchain technology together to achieve a perfect combination of distributed image bed business and copyright certification blockchain.

Image bed is the basis for spreading images across the Internet. Usually it is a centralized image storage service bundled with an image copyright vendor or a third-party service. Image.one proposes a distributed image bed architecture. It uses blockchain addressing technology to solve the traditional image bed service based on URL routing technology. In this way, copyright can be decentralized and the copyright image bed can be decentralized at the same time. After the image is encrypted, the copyright information will be added to the blockchain. But the image information itself will be placed in a local image bed node. Afterwards, during trading image verification, we reverse look up the image information of the current node through blockchain routing technology.



2.2.1 image.one Terminal Components

In the form of terminal PC terminal, image.one includes the following components：

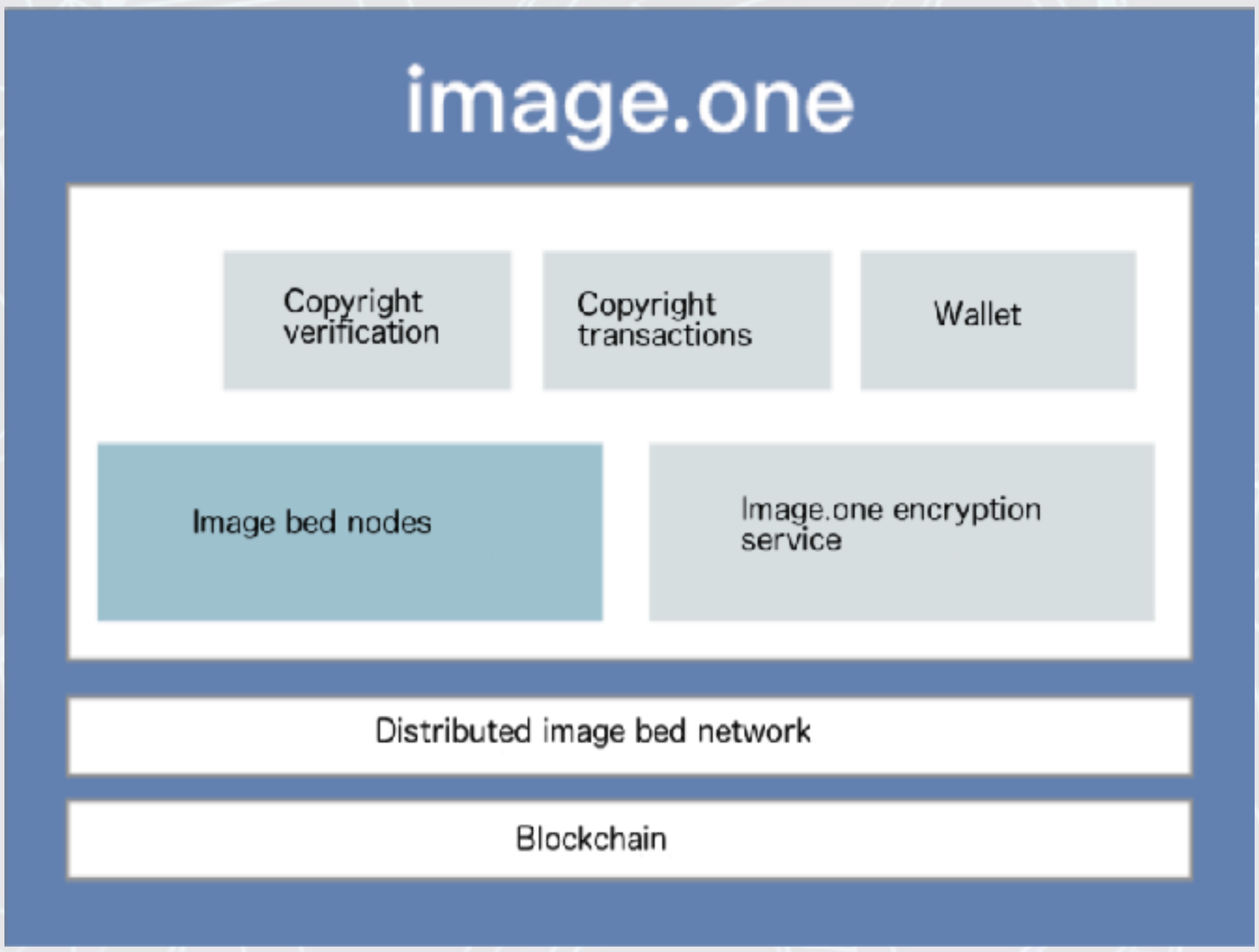
1. **Image encryption and decryption services**
2. **distributed image bed nodes**
3. **Application layer businesses**

3.1. Image encryption;

3.2. Image copyright verification;

3.3. Copyright transactions;

3.4. Wallets service



2.2.2 Asymmetric Distributed Fog Storage Technology Based on DHT Optimization

image.one includes a network of distributed image beds and a blockchain network that combine image copyright with image storage. It also solves image storage and verification issues in the encryption and decryption mechanism. We store, encrypt and verify images with asymmetric encryption.

Image.one distributed image bed is also based on P2P network, using distributed network of DHT structure based on Kademlia protocol.

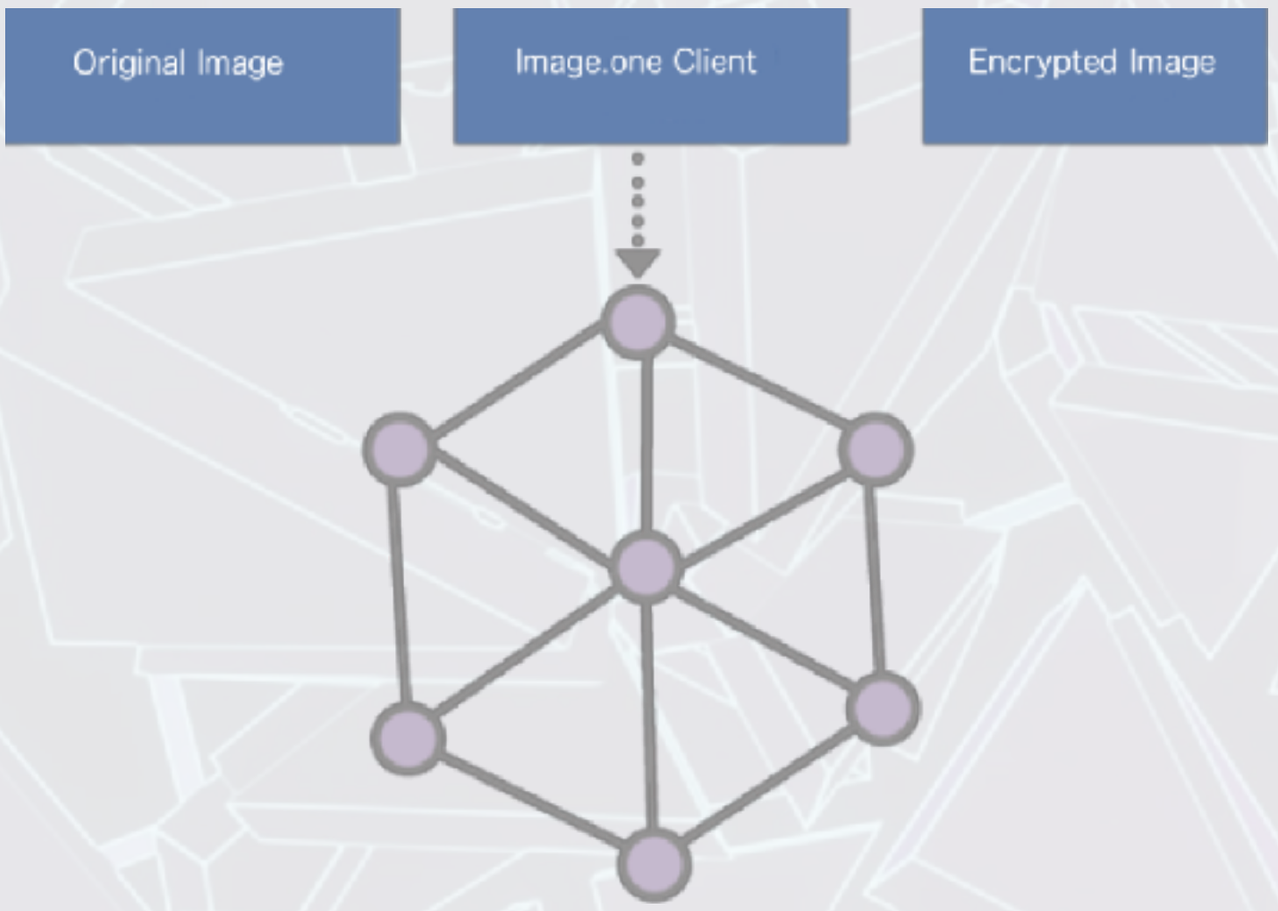


Image.one Distributed Image Bed

One of the most important features of Kademlia technology is the ability to provide a fast node finding mechanism and to adjust the search speed through parameters. Based on decentralized map bed, it provides a quick picture search and verification infrastructure for image copyright verification. At the same time, it can significantly enhance the ability to resist denial of service attacks. Even if a complete set of nodes in the network is flooding attached, it will not have a significant impact on the availability of the network. network availability can be restored through rewiring the network by bypassing the vulnerabilities (the nodes being attacked).

2.2.3 distributed crawler

Objectives of Distributed Crawler

Image.one lets each individual node become an independent crawler, using their own SNS network as a starting point to dig toward each other and crawl for picture information, using the same fuzzy search within the network. It is mainly used to support large-scale image retrieval. Utilizing the scale effect of distributed network, search engines larger than centralized crawlers is achieved, closing to the effect of monitoring the use of images across the whole network。

Image.one uses a client-based crawler, which itself is a crawler in stand-alone mode and uses the Partial PageRank strategy model to search for a crawling algorithm.

Partial PageRank algorithm draws on the idea of PageRank algorithm: For pages that have been downloaded, together with the URLs in the URL queue to be crawled, a set of web pages is formed, and the PageRank value of each page is calculated. After calculation, The URLs in the to-be-crawled URL queue are sorted by the PageRank value, and the pages are crawled in that order.

If you recalculate PageRank values one page at a time, one compromise is to recalculate the PageRank value once every K pages are fetched. However, there is a problem in this situation: there is no PageRank value temporarily for the links extracted from the downloaded page, that is, the unknown web page part we mentioned before. In order to solve this problem, these pages will be given a temporary PageRank value: We aggregate PageRank values passed in by all the incoming links of the page, thus forming the PageRank value of the unknown page, and thus for it to participate in the sorting.

The advantage of distributed crawlers is their ability to reach the performance of a centralized cluster crawler through its scale effect while avoiding IP blocking due to high-frequency access.

The disadvantage is that distributed crawlers may cause repeated crawling due to task assignment problems, resulting in a waste of performance. Therefore, later designs of crawlers need to do regional coordination for task allocation and scheduling.

2.3 image.one Application layer

2.3.1 image.one Client

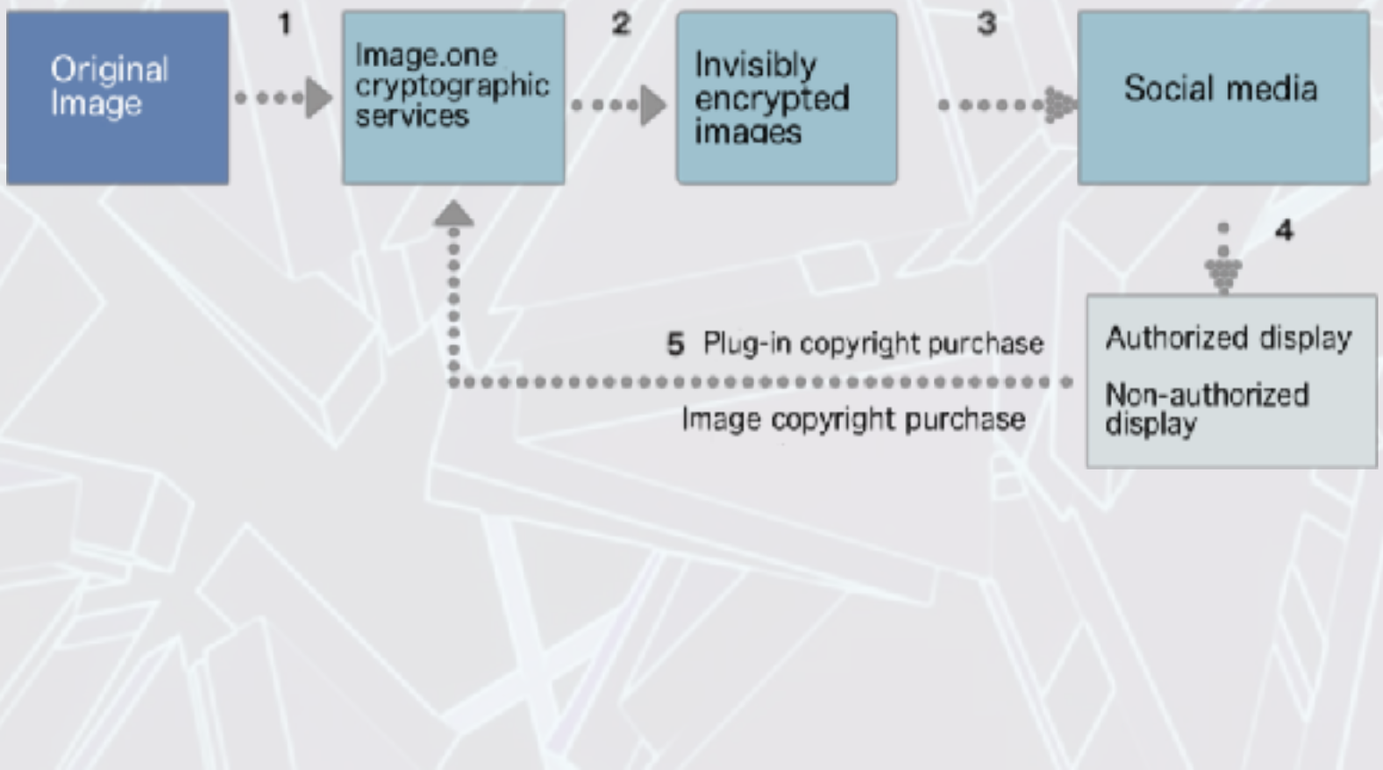
Client is in the form of PC and Mac client. It realizes the functions of image encryption, distributed storage and blockchain nodes.

2.3.2 image.one Browser Plug-in

The browser plug-in is compatible with all major browsers. After login and the image.one wallet is bound, you can start the browser plug-in. And then you can verify copyright of images. If the picture has been on the picture chain, then you can directly click on it to purchase the copyright.

2.3.3 image.one Industry API

Image.one opens its API for the image/video industry, allowing partner's APPs, image/video websites to use image.one's image copyright registration and verification services. The industry API includes interfaces for various application scenarios including image copyright verification, image purchase and other applications. Specific APIs will be gradually open to industry partners afterwards.



2.3.4 Real-time image copyrights and purchases

As a copyright consumer of the image, we all experienced the situation that usually a photo website has a suitable photo, but the image cannot be purchased directly when the copyright is required.

Using image.one plug-in tools, you can achieve real-time image purchases.

Right-click to identify if the picture is on the chain and photo authentication information, the block address, and purchase link will pop up.

By clicking on “Purchase”, you can directly use the blockchain certificate to obtain the authorization of this picture.

Chapter III: Business model of image.one

Image focuses on copyright, storage and licensing of digital content. It aims to create a new decentralized image ecosystem that integrates image copyright rights, image licensing and active image communities all over the world.

3.1 Image copyright ecological incentives

3.1.1 POD (Proof Of Data) mining incentive mechanism

In order to support and motivate community users, the system will establish a sound Token reward system. Reward each community user who uploads a photo/video in the distributed map bed with tokens. At the same time image will perform quality screening on uploaded media based on artificial intelligence video screening system, to avoid malicious upload activities for tokens.

3.1.2 Image authorization incentive mechanism

Images uploaded to the distributed map bed by users will directly benefit from token-based billing through online sales. Community users will be able to use tokens for image licensing and copyright sales. When an image uploaded by the user to the distributed map bed is authorized, the image owner can obtain the corresponding tokens directly through the image.one's block network.

3.2 Application scenarios

3.2.1 Image rights confirmation and authorization

image will rely on distributed map bed technology to create a distributed library community facing the world and connecting the world. Break the barriers between image creators and image content buyers. At the same time using ImageCoin as a means of payment, we can achieve a complete point-to-point sale between content creators and buyers, as an intermediary community (platform) without charging any fees.

To truly solve the poor liquidity, high intermediate commissions, the pain points of images market brought by traditional legal money currency market. To achieve truly global, royalty-free image copyright content transactions Let everyone's video works have corresponding value.

3.2.2 Community access

image.one will be used as the underlying technology to access to major imaging and social communities. To provide image-based comprehensive image rights protection for community users.

Within the community, multiple application spaces will be open for users; for example, interaction among community users such as image tutorial crowdfunding and image review. Let community users access to knowledge, sales of images and at the same time, achieve Token liquidity.

3.2.3 Construction of image alliance

When the infrastructure construction is complete, image team will be devoted to the development of the overall ecology. To support applications for the community from the capital and the ability, and strive to get through with the rest of the image community bridge between consumers, so as to build a complete imagechain-based image copyright licensing community system. This will be an important economic strategy that will promote the real prosperity of the imaging community.

3.3 Tokens recycling mechanism

3.3.1 Smart label consumption mechanism

In the context of image copyright consumption, image will provide smart image tag intelligent content identification to provide users with efficient and convenient tagging of video content while recovering and partially tokens from community users at a very low rate.

3.3.2 Fuel fee of image authorization

image will consume the fuel fee in the image licensing as the transaction fee in the image license. Thus it will recycle the consumption with a very low percentage of tokens.

Chapter IV: Offering tokens

Image.one will begin to receive cornerstone investor and institutional investment in February 2018.

4.1 image.one official token - imageCoin

Image.one official token is called imageCoin, and image will issue TokenIMG based on ETH's ERC-20 standard. As an important economic tool, IMG will be used in many scenarios. Such as the purchase of images and videos and copyright, distribution and consumption, creator of video community rewards content, etc. When IMG's main chain has been developed, the ERC-20-based IMG TOKEN will be recovered and destroyed in a 1: 1 ratio, thus gradually building a complete ecological system belonging to IMG.

4.2 Token allocation

imageCoin team accounts for 10%, the foundation accounts for 15%, and community rewards and ecological construction accounts for 45%, providing strong financial guarantee for imageCoin global operations, promotion, distribution.

Team 10%: assigned by image.one team internally

Publicly raise 30%: cornerstone investors and private investors and other investments

Foundation 15%: manage image.one foundation, supporting development

Community Rewards: up to 25% community rewards, primarily for users who reward active content on imageCoin, and investors who hold imageCoin for a long time.

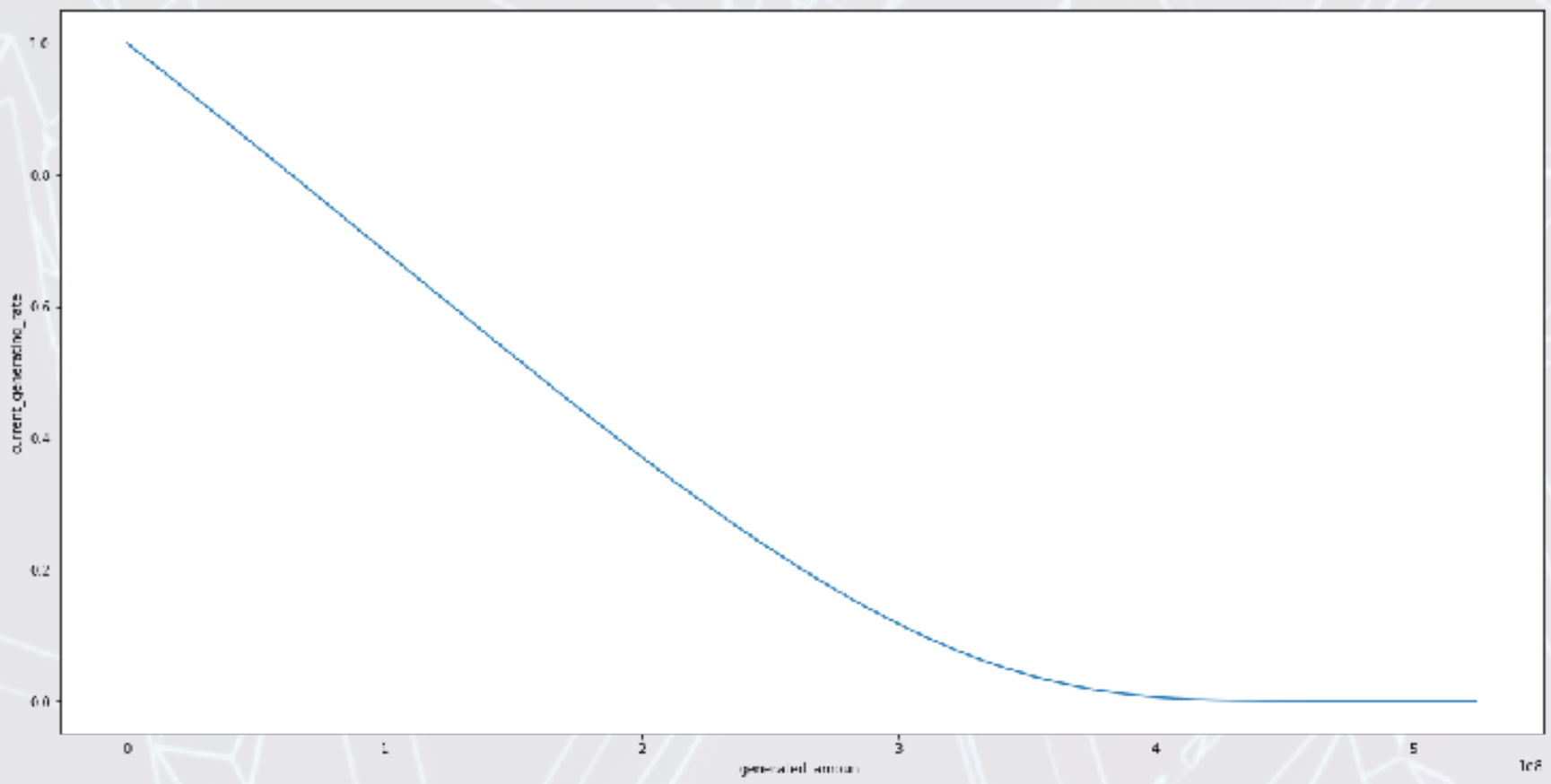
Ecological Construction: up to 20% of tokens will be used for ecological construction and access to various major imaging platforms, brand promotion and user promotion in the world.

4.3 Generation of tokens

After removing the portion of early investors and the team technical support lock, the main chain and supporting network development is completed, through POD, POW for token rewards. Perform soft mining through the image upload mode with POD earlier. Each user will receive token rewards after uploading a video file. In the second phase, users can get tokens reward using POW with crawl computing power and shared storage. For the incentive scheme, we will adopt a smooth-decay formula, with a total of 525,000,000 tokens that will approach zero as the community users continue to dig up.

The specific formula is as follows

$$current\_generating\_rate = constant \times \left(\frac{1}{constant}\right)^{\frac{525{,}000{,}000}{525{,}000{,}000 - generated\_amount}}$$



Chapter V: Teams and consultants

5.1 Initiator team

The startup team is a scientific company for innovative artificial intelligence technology co-founded by researchers at University College London, the University of Edinburgh and the Allen Turing Institute. The core team mainly consists of researchers from above university who are professors and doctors. The team members come from a number of research areas such as big data, artificial intelligence, machine learning, software engineering, block chain and quantitative finance. In terms of work experience, the team members worked for large financial institutions and technology companies, e.g., Morgan Stanley, Credit Suisse, BNP Paribas, Commerzbank, AMD and Microsoft. In addition, the team has received Microsoft funding for collaborative research in the direction of Microsoft cloud. The team has cooperated with many investment banks and participated in important transaction strategies and development and optimization of transaction systems. For the area of block chain, the team has partnered with some of the largest banks to establish a massive scalable internal block chain system. At the same time, the startup team also worked with Microsoft on the optimization of big data and block chain.

The advantages of the team in the block chain system and algorithmic transaction come from a wealth of experience. Collaboration with academics and a highly qualified talent pool enables the start-up team to effectively apply cutting-edge research in academia to real projects. The startup team has very close links with researchers from two world-renowned research institutes and successful companies. Some of the start-up team's academic partners (professors) are from Imperial College London, Essex University, University of Edinburgh, Shanghai Jiao Tong University, Nanjing University, Tsinghua University, Wuhan University, Sun Yat-sen University, National University of Singapore.

CEO Alex Spathulas

Mr. Alex Spathulas is the founder of image.one, with a long time devoted to the exploration of science and technology innovation. Mr. Alex Spathulas has a master's degree in computer science from the University of Edinburgh and is an expert in artificial intelligence and block chain. At the same time, Mr. Alex Spathulas also has a wealth of entrepreneurial experience. In 2010 he founded a network technology service platform in Greece, providing customized front-end and database services for businesses and individual users.

Alex Spathulas also focuses on image recognition and copyright certification. With the development of block chain technology, he realized the opportunity to combine the traditional image industry with the block chain. The formation of artificial intelligence and block chain team strengthened his confidence.

CTO Mike Basou

Mike Basou is a Ph.D. in Computer Science from the University College London, specializing in information security related to block chain and research related to optimization of underlying performance in the block chain. He holds a Master's Degree in Computer Science from the University of Edinburgh. He has led the development of block chain projects at a number of top investment banks. In addition, Dr. Mike was also in charge of collaborative R&D projects with leading technology companies such as IBM and other block chain companies. And just recently, he provided consulting services for the design and analysis of complex network systems in the MIOTA block chain.

With years' practice in database and underlying systems, Dr. Mike has accumulated a large number of technology development experiences. The experience of leading the development of the block chain team also helped Dr. Mike's achievements in the rhythm and technical direction of development.

Chapter VI: Legal affairs and risk disclosure

This statement does not deal with securities tendering, or assumes the risks associated with the image.one business, which does not involve any regulated product within the jurisdiction, and this document is a conceptual document describing the project.

[White Paper] does not aim to sell or solicit tendering against image.one's products, shares, securities of related companies, or other regulated products. According to this document, this cannot be used as a prospectus or any other form of standardized contract document and can not be intended as an advice or solicitation of advice or solicitation of securities or any other regulated product in any jurisdiction. This document cannot be used to make any sales, subscribe or invite others to purchase and subscribe for any securities, or sign any communication, contract or commitment based on this form. This White Paper has not been reviewed by any judicial regulators in any country.

Not as advice on investing: Any information or analysis presented in this document does not constitute any advice for participation in a token investment decision and no specific recommendation will be given. You're strongly recommended to ask for all necessary professional advice, such as tax and accounting related matters.

It can not constitute any statement or guarantee: This document is used to illustrate our proposed image.one platform, but the image.one foundation made it clear:

1) Make no representations or warranties regarding the accuracy or completeness of any of the content described in this document, or otherwise associated with the project;

2) Without any preconditions, it cannot make any forward-looking, conceptual statements of achievement or reasonable content to make any statement and guarantee;

3) Nothing in this document serves as a basis for any future promise or statement;

4) Any losses caused by related personnel or other aspects of the White Paper shall not be borne;

5) To the extent not covered by the law, only applicable to the maximum extent permitted by applicable law.

Not everyone can participate in the project: image.one's web-based systems and platforms are not accessible to anyone. Participants may need to complete a series of steps, including providing information and documentation that identifies them.

Unauthorized companies have nothing to do with the project: Except for the image.one Foundation, the use of any other company or agency name trademark does not imply that either party is affiliated or endorsed for illustrative purposes only.

IMG related notes:

"imageCoin" is a virtual cryptographic token for block chain networks.

imageCoin is not an investment product: no one can guarantee and there is no reason to believe that the imageCoin you hold will definitely appreciate, and there may even be the risk of devaluation.

imageCoin is not a proof of ownership or control: holding imageCoin is not a right of a owner of the website or image.one's shareholder, nor is it the right to grant direct control or to make any decision about the imageCoin network system.

IMG related notes:

"imageCoin" is a virtual cryptographic token for block chain networks.

imageCoin is not an investment product: no one can guarantee and there is no reason to believe that the imageCoin you hold will definitely appreciate, and there may even be the risk of devaluation.

imageCoin is not a proof of ownership or control: holding imageCoin is not a right of a owner of the website or image.one's shareholder, nor is it the right to grant direct control or to make any decision about the imageCoin network system.

image.one

THANKS!

image.one International Foundation

1st Mar,2018