LikeCoin: Reinventing the Like

Rewarding Contents by Proof of Creativity

White Paper v0.9.2

LikeCoin Foundation Limited
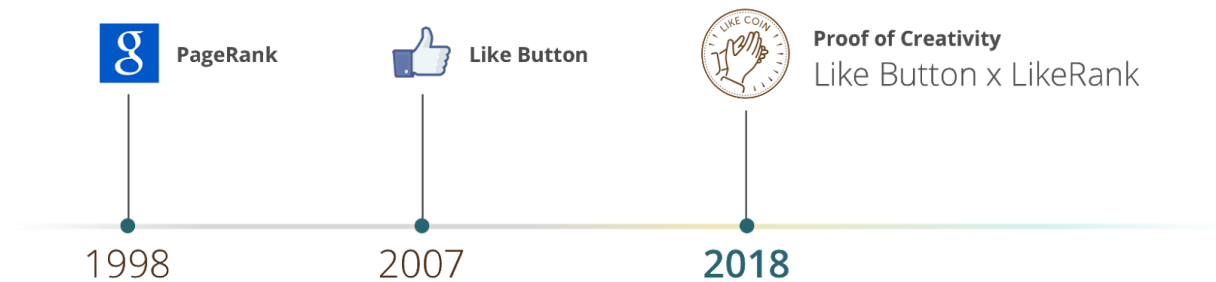
2018.03.06

Table of Contents

Value Proposition

LikeCoin aims to reinvent the *Like* by realigning creativity and reward. We enable attribution and cross-application collaboration on creative contents. With a **reinvented Like button** and our unique **LikeRank** algorithm, we trace content footprint and reward content creators by **Proof of Creativity** mechanism.


Realigning rewards and creativity

In the Internet, rewards and creativity have been decoupled for long. This is especially true for independent content creators and freelancers. In the early days of the Internet, indies made money by selling their works online. All technical aspects of the Internet are now dramatically improved, yet the revenue model is not. In fact, it is worse. Content creators are not getting incomes but *Likes*. While some can take freelance projects and advertising jobs, such model is rather indirect. LikeCoin protocol is thus designed to monetise creative contents directly, so that creators can focus on creating great contents rather than selling or looking for business models.

As technology evolves, everyone with a smartphone is a content creator of some sort. In particular, some photos taken by smartphones may have quality and resolution as high as single-lens reflex cameras. The crowds of freelance content creators and citizen journalists are huge and the market demand is extremely high. Once rewards and creativity are realigned, an explosive potential will be unlocked.

Elements in the LikeCoin Ecosystem

An ecosystem of collaborated content creation involves various elements and stakeholders. Their roles in the LikeCoin ecosystem are defined with the following example, where *Alice* takes *A.jpg* and upload to *Apple.io*, *Bob* writes *B.txt* on *Banana.com*, *Carol* adopts their work to become *C.doc* on *Cherry.net*; and finally, *David* shares *A.jpg* on *Durian.org*.
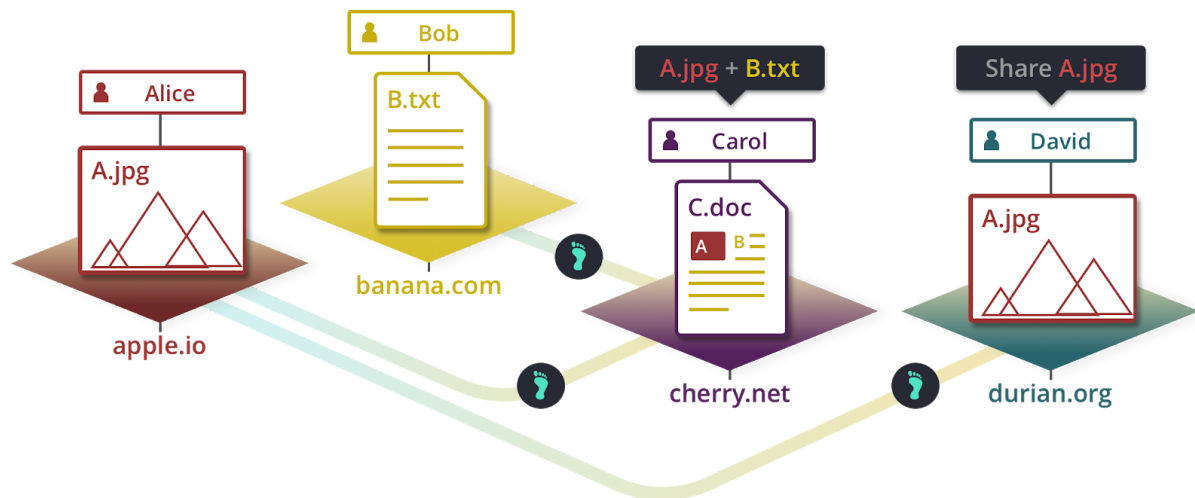
Creative content

A digital photo, illustration, article, footage or sound clip. In contrast to private data, a **creative content** allows consumption by other people under certain copyright terms, such as Creative Commons. Each **creative content** is represented by a unique content fingerprint in the LikeCoin ecosystem. In our example, *A.jpg*, *B.txt* and *C.doc* are **creative contents**.

Content creator

A person who produces a **creative content**. *Alice*, *Bob* and *Carol* are all **content creators**.

Service provider

A web or native application supporting LikeCoin, by incorporating the **LikeCoin attribution protocol** and/or the **reinvented Like button**. In our example, *Apple.io*, *Banana.com*, *Cherry.net* and *Durian.org* are all **service providers** of LikeCoin. Some real life examples are **oice.com**, **puttyimages.com** and **blogchain.md**.

Derivative work

Adopt one or more **creative contents** produced by oneself or other **content creators**, on the same or another **service provider**, to generate a new **creative content**. *C.doc* is a **derivative work**.

Content adopter

The **creator** by whom and the **service provider** on which a **derivative work** is produced. *Carol* is a **content adopter**.

Content source

The **creative content** on which a **derivative work** is adopted from. A **content source** itself may have its own **content source**. *A.jpg* and *B.txt* are **content sources** of *C.doc*.

Content origin

A **creative content** without a **content source**. In other words, a **creative content** which is not a **derivative work**. *A.jpg* and *B.txt* are **content origin**.

Original creator

The **content creator** by whom and the **service provider** on which a **content origin** is produced. *Alice* and *Bob* are **original creator**.

Distributed Content

Without modification, use a **creative content** produced by another **creator** in the same or another **service provider**. *Image A* on *Durian.org* is a **distributed content**.

Content distributor

The **content creator** by whom and the **service provider** on which a **distributed content** is used. *David* and *Durian.org* are **content distributors**.

In the LikeCoin ecosystem, **original creators** and **content adopters** receive LikeCoin through Proof of Creativity from the Creators' Pool or out of audiences' own wallets; from **content adopters**; and from **content distributors**.

This profit sharing mechanism is the key to incentivise **content creators** and **service providers** to adopt LikeCoin protocol.

LikeCoin Attribution Protocol

LikeCoin creates unique fingerprints for creative contents and traces footprints of all derivative works along with content creator and service provider of them. Further than that, LikeCoin incentivises attribution and cross-application collaboration with Proof of Creativity mechanism.

	oice Visual Novel	puttyimages	blogchain.md
Service Providers			
LikeCoin Services	**Like Button**	**LikeCoin Store**	**LikeCoin Token**
Ethereum Blockchain	Smart Contracts	Fingerprints	Metadata Hash
IPFS Node	oice Node	puttyimages Node	blogchain Node

LikeCoin protocol stack
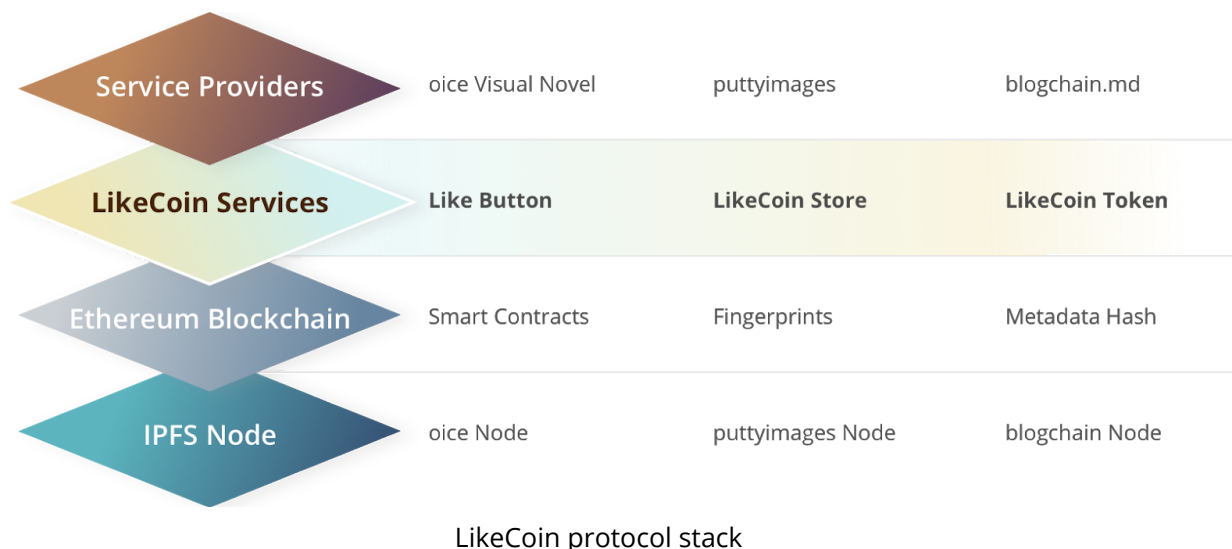
Decentralised creative content library

The cornerstone of LikeCoin protocol is a global, decentralised and resilient creative content library on IPFS[1].

A LikeCoin service provider plays one or more roles among original creator, content adopter and content distributor. Original creators curate creative contents and record the data on blockchain for other content creators to use. The content creator and the service provider both get LikeCoin as an incentive when a content is *Liked* or *Super-liked* (see **LikeCoin Mining Protocol**). Two major original creators funded by LikeCoin Foundation will be **puttyimages**, an open stock image DApp (decentralized application) and **blogchain.md**, a blogging DApp which records each post on a LikeCoin smart contract. An example of content adopter is **oice**, an asset remixing storytelling editor, also funded by LikeCoin Foundation.

A content distributor, on the other hand, displays or plays the creative contents in the LikeCoin ecosystem. Some examples include Famisu, Lifehack.org, The Initium and The Stand News, etc.

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[1] Juan Benet, IPFS White Paper,
https://ipfs.io/ipfs/QmR7GSQM93Cx5eAg6a6yRzNde1FQv7uL6X1o4k7zrJa3LX/ipfs.draft3.pdf

Each original creator and content adopter runs her own IPFS node and is responsible for *pinning* all the files she curates from content creators so they are not removed. Since worldwide IPFS nodes help one another distribute the contents, such decentralised creative content library also serves as a content distribution network, speeding up access from locations unreachable by Internet backbone. Service providers do not have to be concerned about from which IPFS node users will retrieve the content.

In the library, each creative content is addressable by a cryptographic hash rather than a URL. Any changes in the application layer such as domain name, IP and directory structure induce no change to the content address since the hash depends only on the content content itself. The content address is thus decoupled from the application where it was created on and where it is used, making it consistent and future-proof. This prevents creative contents from being locked up by specific applications such as Facebook and Instagram. Such cryptographic hash is called **content fingerprint** in the LikeCoin protocol.

As an example, let's say content creator *Alice* has painted *Image A* on service provider *Apple.io*, and content creator *Bob* has uploaded his photo *Image B* on service provider *Banana.com*:
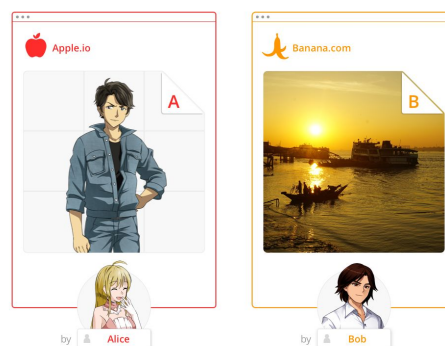
Apple.io and *Banana.com* are service provider for content creation and run their IPFS nodes. Now, *Image A* and *Image B* are stored and pinned on IPFS, with Fingerprints -
`0x825622a44f13fdb776d72570458ae0dc664efbe8b231735b3d838c3739acce34`
and
`0xf71ce651a525fd4e746b6bed8d8e1db4052912d88313a93d076e27540a8ecd4f`
respectively, and can be accessed through the IPFS gateway with their corresponding IPFS address QmXWs1nKHbfAHgMjSgB1d6EVCbrpskFvrq1px7rfAsJ9dK and QmPs3LyZFEuMscttMnkNM2GweTUc2JkdJgWVheF6aEMu7h.
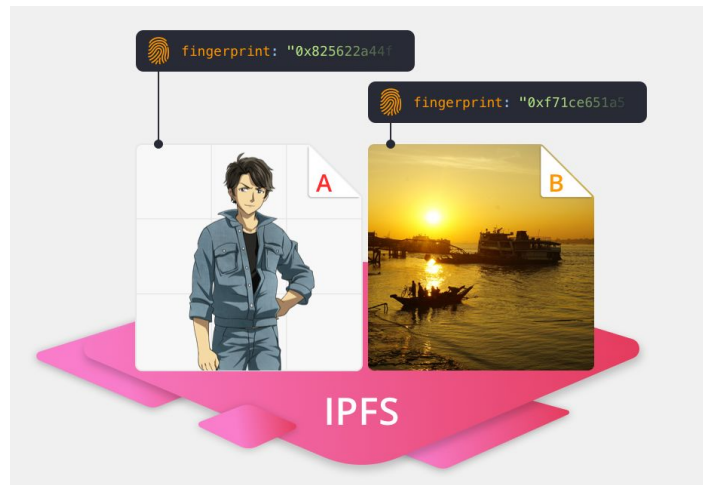
Fingerprint and metadata hash

At the same time when *Image A* and *Image B* are stored on IPFS, a unique, one-to-one **content fingerprint** of each file is generated by the SHA-256 hash function. Metadata of the images are stored off-chain as an [IPLD](#) object (see section **Metadata Objects** below) on IPFS. Only the **metadata hash** and the **content fingerprint** are written to the Ethereum blockchain with the private keys of the service providers through a LikeCoin smart contract. Such two-tier architecture maximises speed and flexibility while minimising the gas needed to write to Ethereum.

Continuing with our example, the **content fingerprints** and **metadata hash** of *Image A* and *Image B* are written to Ethereum through the LikeCoin smart contract by *Apple.io* and *Banana.com* respectively. The gas needed is borned by the service providers.
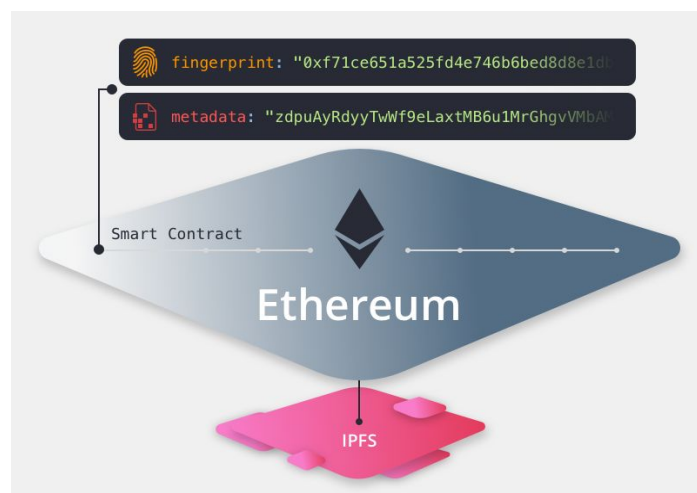
Metadata Objects

Metadata are stored as [IPLD](#) objects, which are linked objects that can contain reference hash of other IPLD objects and build a path across them. Since IPLD objects are stored

on IPFS, they are represented by 1-to-1 hashes as well. Such feature is used to build **content footprint** of every creative content, to be discussed in the next section.

Three kinds of [IPLD](#) objects are defined in the LikeCoin protocol following schema.org's ImageObject schema. They are **content metadata object**, **service provider object** and **content creator object**, three of which are all interconnected through hashes of the objects.

Content metadata IPLD object

```
{
  "creator",
  "dateCreated",
  "description",
  "license",
  "likeFingerprint",
  "likeFootprint",
  "likeIpfs",
  "likePreviousVersion",
  "likeProviderShare",
  "provider",
  "type",
  "uploadDate"
}
```

Content creator IPLD object

```
{
  "description",
  "email",
  "likeAddress",
  "likeKeybase",
  "likeUport",
  "name",
  "type"
}
```

Service provider IPLD object

```
{
  "description",
  "likeAddress",
  "name",
  "type",
  "url"
}
```

In our example, the metadata of *Image A* and *Image B* are both stored in IPFS as **content metadata objects**, which further refers to the corresponding **content creator objects** and **service provider objects**. The IPFS addresses of the **content metadata objects** are [zdpuB1JCLTPNYA7TmedHVR4Py6s2HcXXXZvvg9tNWX3yKayMp](#) and [zdpuAyRdyyTwWf9eLaxtMB6u1MrGhgvVMbAMdYvREWO11bO7G](#), respectively.
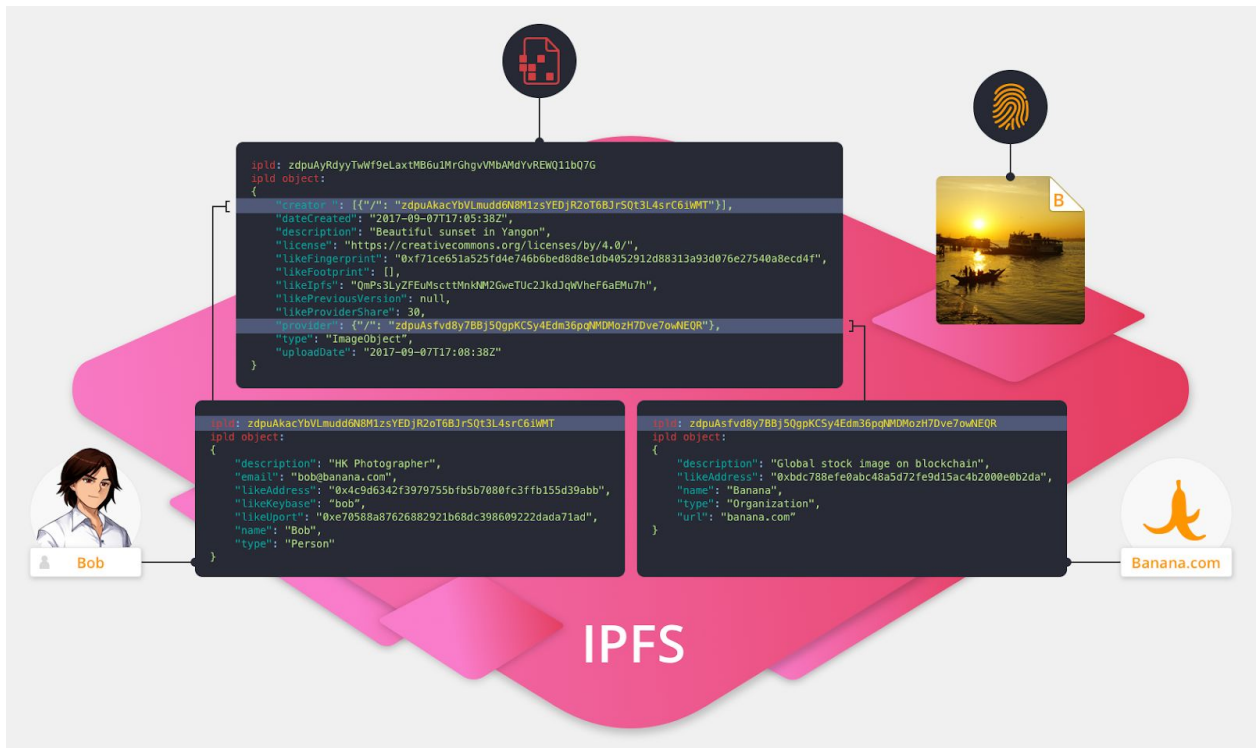
Content metadata object, **content creator object** and **service provider object**
of *Image B* by *Bob* on *Banana.com*

Content Footprint

Content fingerprint is like the DNA of a creative content, while **content footprint** is like the family tree of it.

For every derivative work in LikeCoin protocol, IPLD references of the content sources are recorded in a **footprint array** in the metadata object. In our example, when *Carol* uses *Cherry.net* to apply a filter on *Image B* to generate *Image C*:
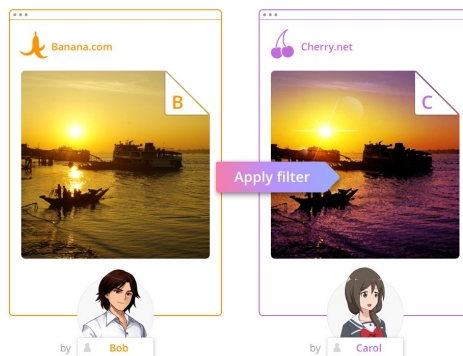
In this case, content metadata object of *Image C* will include an IPLD reference to point to *Image B*, *Bob* and *Banana.com*. By appending /likeFootprint/0/link in IPLD URL of *Image C*, IPLD of *Image B* can be retrived. This is how **content footprint** of a creative content can be traced, so that derivative works are pointed to their content source(s).

ipld: zdpuAteDi59JtyDGtdG9vmkRS1o4hYHoHsqijbt1tsEcLRCxo
ipld object:
{
    "creator ": [{"/": "zdpuAq9GgkiaPMbR3aCwJFM31gGXcr3n2Fd4mn6FVMd4skKQv"}],
    "dateCreated": "2017-09-18T01:12:10Z",
    "description": "Cartoonize sunset photo",
    "license": "https://creativecommons.org/licenses/by/4.0/",
   "likeFingerprint": "0xd40b9e1f0ebb31b142de367d5457aab9b7d416cd7d8681282a26b8c54e21d1af",
    "likeFootprint": [{"share": 50, "link": {"/": "zdpuAyRdyyTvWf9eLaxtMB6u1MrGhgvVMbAMdYvREWQ11bQ7G"}}],
    "likeIpfs": "QmWcKueTMNLaRbf8xnv53vioNJ1ZUkNy1pE1jtQ4RT4BdP",
    "likePreviousVersion": null,
    "likeProviderShare": 30,
    "provider": {"/": "zdpuApjXAMr6jmbgCGBT39SLgZPMm8PkHe2jqJCAgakrHCz8n"},
    "type": "ImageObject",
    "uploadDate": "2017-09-18T01:20:10Z"
}

ipld: zdpuAq9GgkiaPMbR3aCwJFM31gGXcr3n2Fd4mn6FVMd4skKQv
ipld object:
{
    "description": "PS Technician",
    "email": "carol@cherry.net",
    "likeAddress": "0x4eb2c3ad90e3484a095c823ca7a7b44d1cd2481d",
    "likeKeybase": "carol",
    "likeUport": "0x07f2b6a6ab97de3f0b341c32ea1e76de6af21fb8",
    "name": "Carol",
    "type": "Person"
}

ipld: zdpuApjXAMr6jmbgCGBT39SLgZPMm8PkHe2jqJCAgakrHCz8n
ipld object:
{
    "description": "Photo retouching on the web",
    "likeAddress": "0xaCeeEeadF01F29cDE994aB570B607EA67220bc1e",
    "name": "Cherry",
    "type": "Organization",
    "url": "cherry.net"
}

Content footprint of a new creative content can only reference existing content fingerprints, so that the content footprint relations form a directed acyclic graph similar to a citation graph. This structure allows easy analysis of inheritance tree of a particular creative content. It also prevents the existence of any reference loop in the profit sharing process.

Now *David*, a content creator on *Durian.org*, designs a poster [Image D](#) by adopting *Image A* and *Image C*, which is itself a derivative work of *Image B*:
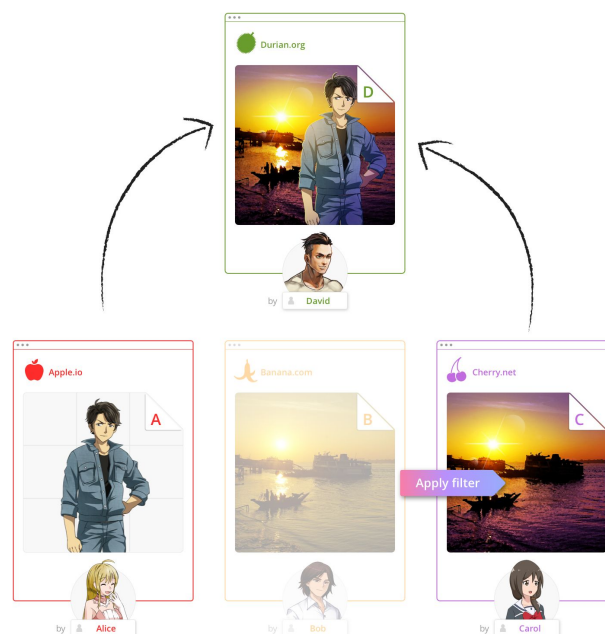
Similar to the previous case, IPLD references of the content sources, in this case *Image A* and *Image C*, are written to the metadata [metadata object](#) of *Image D*. And since *Image C* has its content source written to *Image B*, *Image B* can also be traced as the level 2 content source of *Image D*.

While there are various blockchain projects such as po.et[2] and KODAKCoin[3] which use technology similar to content fingerprint to keep track of photo copyright, LikeCoin traces the derivative works of a content with this unique **content footprint** technology.

Content fingerprint is static and tells who owns the content; while content footprint is dynamic and traces how contents flow, from a content creator to another, from a service provider to another. Content fingerprint is about ownership; while content footprint is about collaboration.

We do think protecting content creators copyright is a noble task, but the mission of LikeCoin is instead to help maximise creativity with reasonable rewards under a permissive license such as Creative Commons. **Content footprint** forms the fundamental of the LikeCoin mining mechanism, to be discussed in the next section.

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[2] Po.et whitepaper, https://po.et/whitepaper.pdf

[3] KODAKOne and KODAKCoin, https://www.kodak.com/kodakone/default.htm

LikeCoin Mining Protocol

LikeRank

20 years ago, Larry Page and his classmates at Stanford published the now famous paper "The PageRank Citation Ranking: Bringing Order to the Web"[4] which became the fundamental technology of Google search.

Inspired by citation of research paper, PageRank was revolutionary. As the title of the paper says, it brings order to the web. Prior than PageRank, web searches almost always resulted in web pages which did include the keyword, yet irrelevant.

However, PageRank can only cover web pages but not creative contents such as images, footage and music. We know the *importance* of a web page which often includes various creative contents, but not the *importance* of a particular creative content. LikeRank is designed to address that.

Based on content footprint tracing in the LikeCoin protocol, **LikeRank** measures the importance, or **creativity** as we define it in this context, of a creative content. In general, the more derivative works a creative content generates, the more *creative* the creative content is, and thus the higher LikeRank of the content. LikeRank is the quantifier of the creativity of contents.
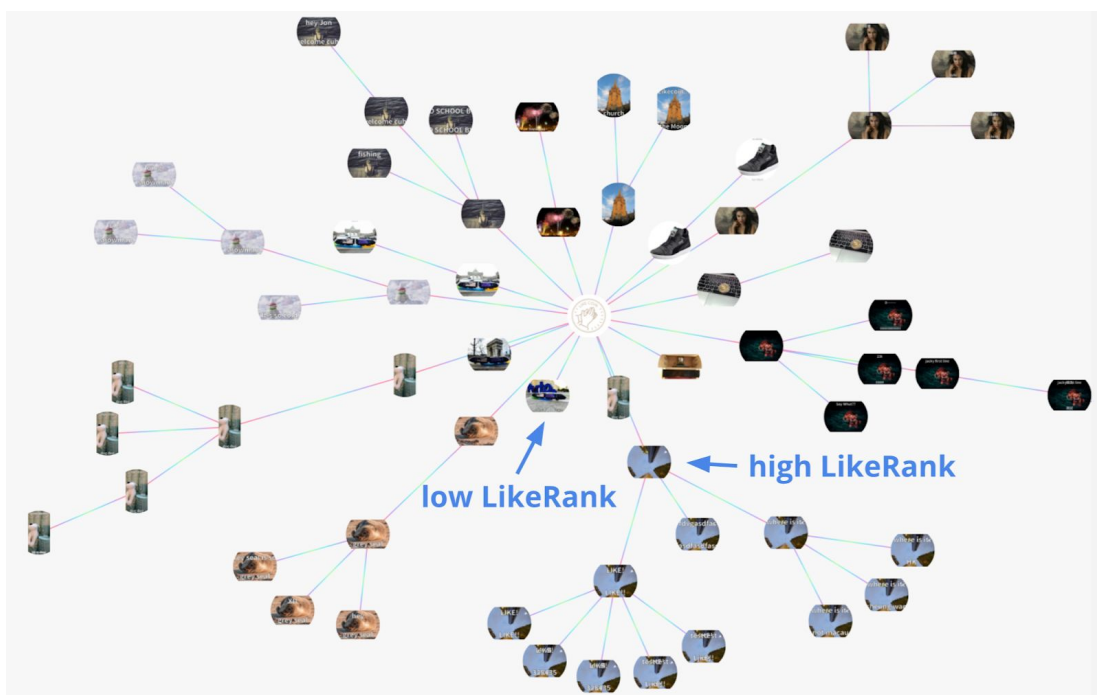
LikeRank proof of concept

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[4] Page, Lawrence and Brin, Sergey and Motwani, Rajeev and Winograd, Terry (1999) *The PageRank Citation Ranking: Bringing Order to the Web*

As one may easily see, such definition of *creativity* is to encourage sharing and favour contents with more permissive, open license terms. For example, other conditions being equal, contents licensed under cc0 enjoys a higher LikeRank than those licensed in CC BY-NC-ND. In contrast, a more restrictive license such as all rights reserved copyright lowers LikeRank. Also, with a permissive license, more derivative works will be generated, which helps boost LikeRank.

LikeRank is also used to incentivise proper attribution through LikeCoin protocol. A properly attributed creative content enjoys a LikeRank bonus, while a derivative work without following the attribution protocol will not receive LikeCoin, since the derivative work does not have content fingerprint and outside of the LikeCoin ecosystem all together.

That is to say, LikeCoin is to promote permissive license while at the same time tailor make a business model for it. Contradictory to the traditional wisdom, the more open is the license term of a content, the more likely it is for the content to earn LikeCoin because of the higher LikeRank and also the increased number of derivative works.

Like Button reinvented

While PageRank is 20 years old, Like button is 10. The Like button was launched on Oct 30 2007 by Friendfeed, which was acquired by Facebook.

Like button was revolutionary, but over the years it deteriorates. Getting thousands of Likes hardly means anything anymore. And from the very beginning till now, it has never meant any income for content creators - no matter how many Likes a content receives, the content creator gets nothing. LikeCoin is to change that.

LikeCoin's Like button is designed to combine two user experiences into one. By tapping/clicking the Like button for 1 to 5 times, or long press/hover then drag to 1-5, a user shows his/her appreciation and helps the content creator to *mine* LikeCoin from Creators Pool. If the user really appreciates, s/he may go directly to "Super Like" to pay the content creator certain amount of LikeCoin from his/her own wallet.
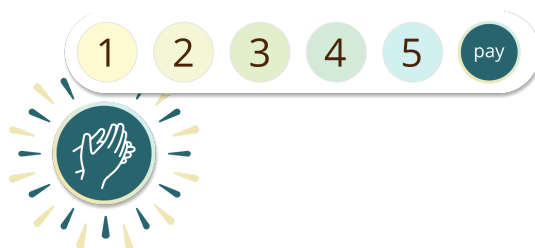
We combine the two user experience not only for simplicity, but also to cultivate user behavior over time. Most Internet users are used to showing appreciation to contents at no cost, only a small fraction of them pay content creators out of their own pockets. We believe creative contents have intrinsic value and content consumers are receiving

value. To supplement the advertising model, we make possible a new ecosystem where content consumers pay content creators directly according to their level of appreciation.

Proof of Creativity

While blockchain miners usually understand mining as solving a mathematical problem, it does not have to be the case. Say for example, proof of stake (PoS) mechanism does not involve hash power and thus has little impact on environment.

With a focus on rewarding content creators, LikeCoin measures the importance of creative contents, i.e. *creativity*, and allows content creators to *mine* LikeCoin with their creative contents. We call the mechanism **proof of creativity**, or **PoC**.

PoC defines creativity in two dimensions:

1. The higher the LikeRank of a creative content is, the more creative it is.
2. The more Likes a creative content receives, the more creative it is.

A creators pool of 1bil, which accounts for 50% of total number of LikeCoin tokens in the long run, is reserved as the *mining pool*. At each day *t*, *x* LikeCoin will be minted from creators pool for distribution to content creators, according to the formula:

$$x = \frac{N}{1+e^{-\frac{t-730}{120}}} \; when \; t = 0 \; to \; 1460$$

$$x = \frac{N}{1+e^{-\frac{0.4(1461-t)+730}{120}}} \; when \; t > 1460$$

$$N = 391132.253127$$

LikeCoin Creators Pool Mint Value over Time
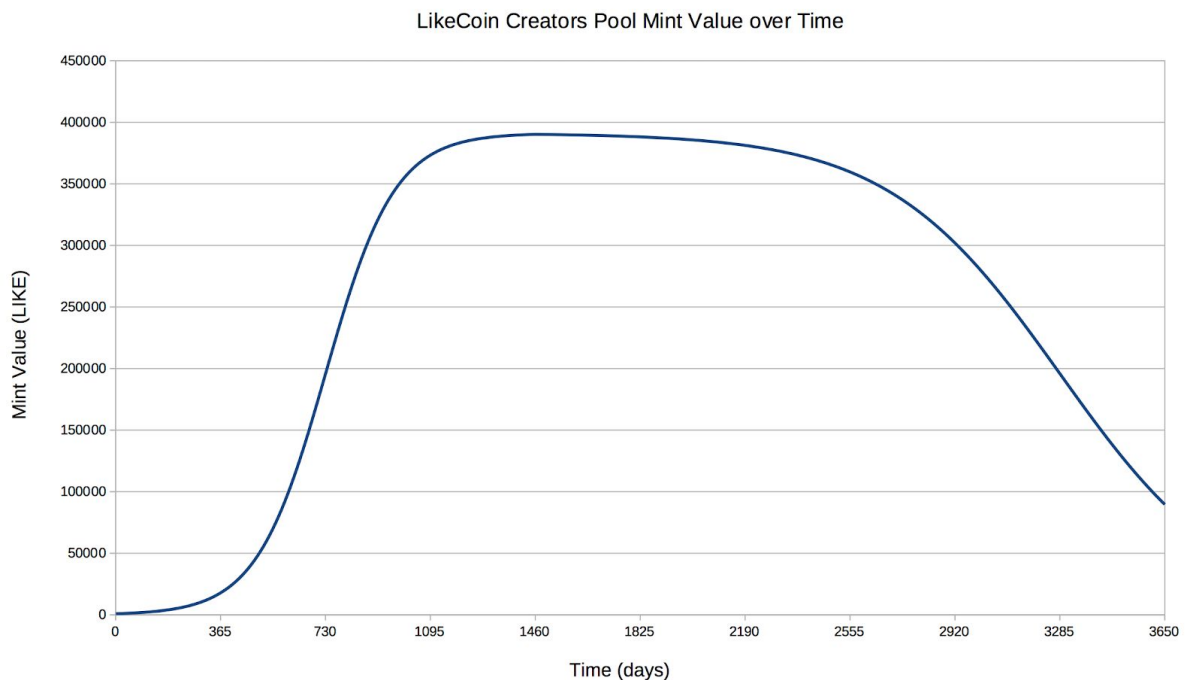
The minting formula is designed based on the following principles and assumptions:

1. Majority (90%+) of the creators pool should take 10 years to mint. We believe consumers receive value by high quality creative contents, and encourage them to pay voluntarily. But attitude cultivation is a long process so we allocate 10 years for consumers to convert. Ultimately, we target to have tipping model coexist with advertising model.
2. The minting should smooth out after 10 year period with a very long tail, in our formulae, 28 years. This gives the community time to adopt.
3. The minting should have a slow start. It allows time for content creators and service providers to join the LikeCoin ecosystem and avoid early birds to be overly beneficial.
4. After one year, however, it is assumed that number of creative contents increases quickly.
5. It is assumed that the conversion rate of LikeCoin with respect to fiat currency goes up gradually LikeCoin's value begins to realise.
6. The factor *difficulty* will be set every day so that the total number of LikeCoin distributed to content creators equals the total number of LikeCoin minted.

Take day 365 as an example. $x = \dfrac{391132.253127}{1+e^{-\frac{t-730}{120}}}$ = 17,827 LikeCoin are minted. At the same day, 10,000 creative contents have received a total of 1,000,000 Likes across all the service providers. At end of day 365 GMT, LikeCoin will be distributed to the 10,000 creative contents according to the number of Likes they received as well as their LikeRank. When a derivative work receives Like, the original content(s) receive a cut of LikeCoin as well. The service provider of the creative content also receive a portion. The factor *difficulty* is calculated so that all of the above added up to be exactly 17,827.
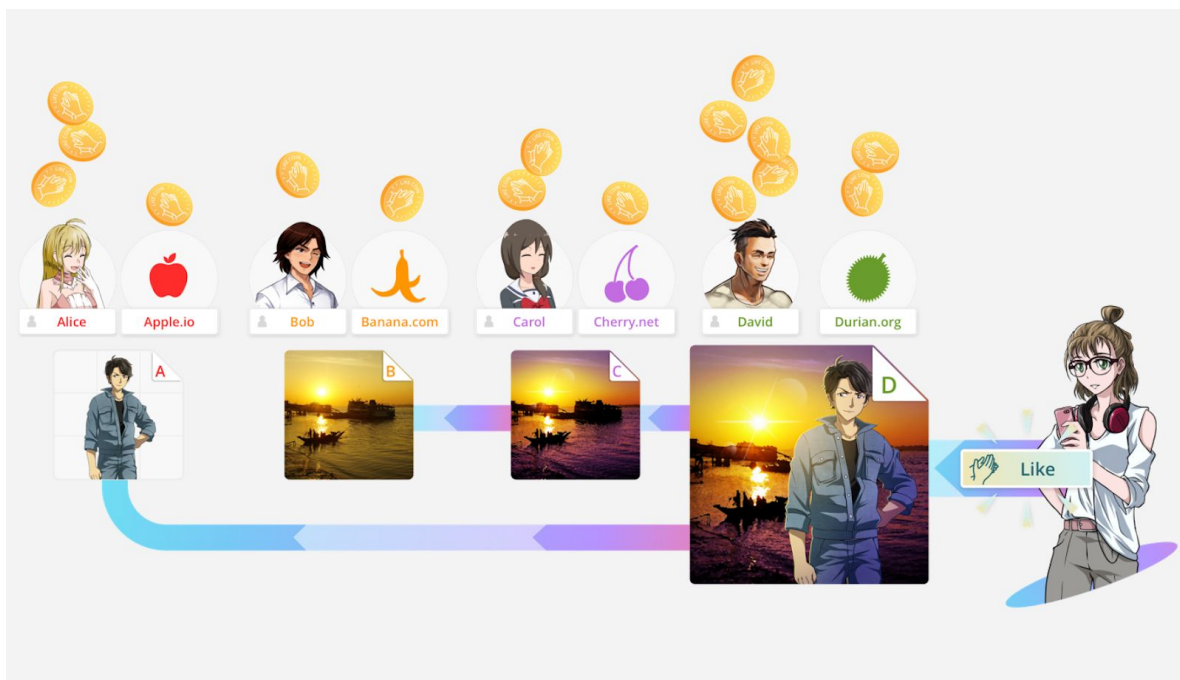
Smart settlement through Proof of Creativity

The details of the calculations are as follows:

$$Like(x,\ n) = \sum_{y \in Children(x)} Weight(y,\ x) \times Like(y,\ n-1) \tag{1}$$

$$EffectiveLike(x) = \sum_{n=0}^{\infty} Like(x,\ n) \times \left(1 - \sum_{y \in Parent(x)} Weight(x, y)\right) \tag{2}$$

$$LikeCoin(x) = Mint \times \frac{EffectiveLike(x) \times LikeRank(x)}{\sum_{y \in Content} EffectiveLike(y) \times LikeRank(y)} \tag{3}$$

where,

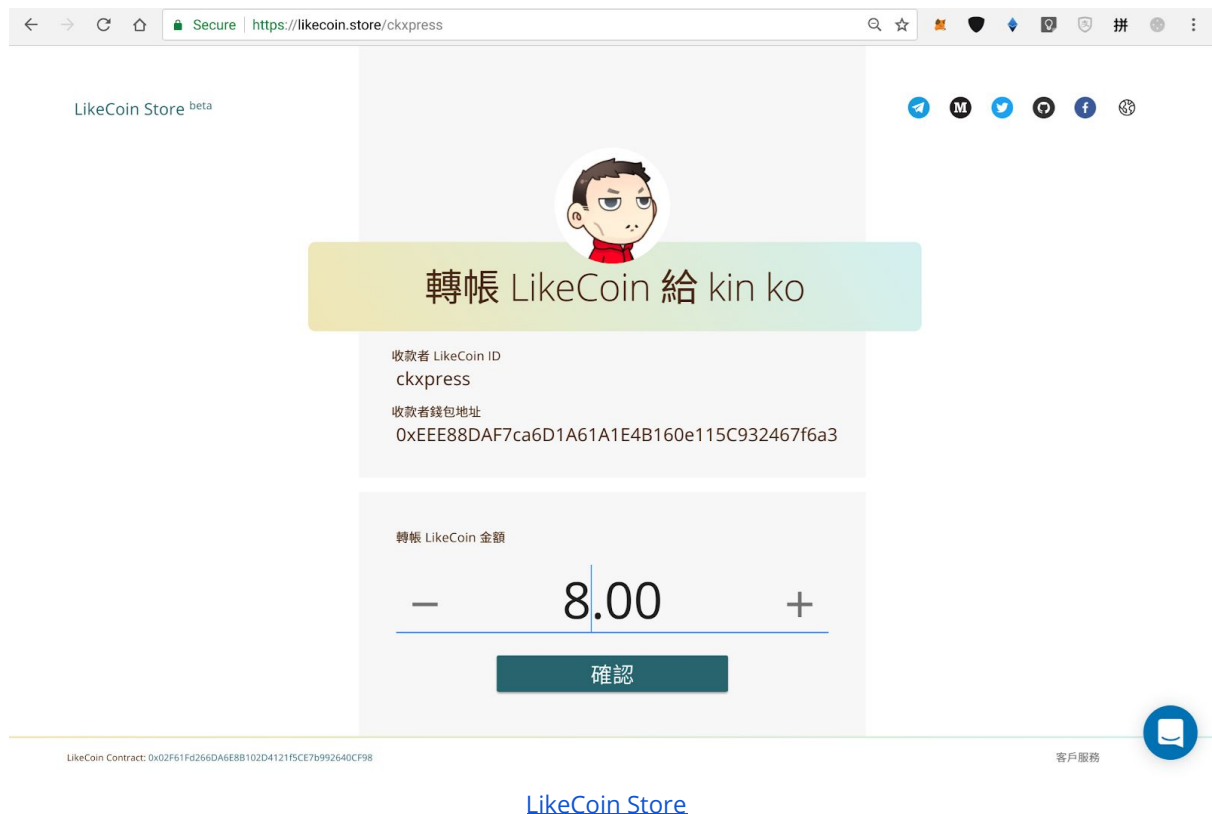|	
Children(x) =	the set of direct children (derivative work) of content x
Parent(x) =	the set of direct parents (content source) of content x
Weight(x, y) =	weight of content y as the direct parent of content x
Weight(x, y) =	weight of content y as the direct parent of content x
Like(x, 0) =	Likes got by content x from viewers directly, adjusted to preserve fairness
Like(x, n) where n > 0 =	Likes got by content x as the n-th ancestor of other contents
EffectiveLike(x) =	final number of Likes content x got after distributing Likes to parents and receiving Likes from children
LikeRank(x) =	Like Rank of content x, calculated by the license and the descendant trees
Mint =	number of LikeCoin minted from creators pool at the end of the given day
LikeCoin(x) =	number of LikeCoin distributed to the wallet address of content x

LikeCoin Store

In order for the public to browse the LikeCoin smart contract conveniently and to stay transparent, a mining section will be set up in LikeCoin Store to disclose detailed analytics of token distribution of the Creators Pool, including but not limited to:

1. How much LikeCoin was minted the day before, and historically since day 1.
2. How many contents received LikeCoin, and the average.
3. What content receive what amount of LikeCoin.
4. The latest PoC *difficulty*.

Content creators can access their own creative contents easily on LikeCoin Store, and receive detailed analytics of them.

LikeCoin Store will also be served as a peer-to-peer payment site. Each content creator has his/her LikeCoin ID similar to a Twitter account. Users may transfer LikeCoin by a user-friendly web interface without owning ETH for gas. This is realized by the delegation function in LikeCoin smart contract, where LikeCoin Foundation serves as a proxy for transfer of LikeCoin token between users for Super Like and other peer-to-peer transfers.
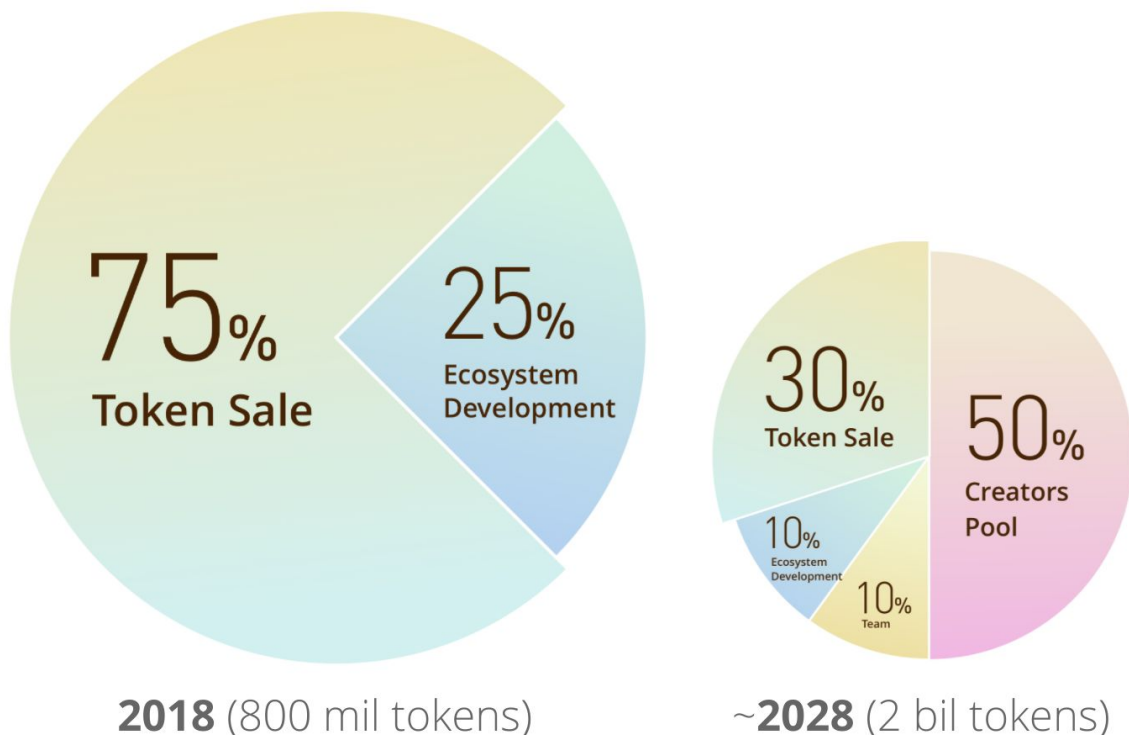

LikeCoin Store

LikeCoin Token

LikeCoin token is a utility token based on Ethereum and is ERC-20 compliant.

Token Distribution

The total number of LikeCoin token is capped at 2bil and is divided into 4 pools: **token sale** (600 mil), **ecosystem development** (200 mil), **team** (200 mil) and **creators** (1 bil).

2018 (800 mil tokens)   ~**2028** (2 bil tokens)

Before the token sale takes place, 200mil tokens in the the **ecosystem development pool** is minted to start building the LikeCoin ecosystem. Such tokens are used for sales and marketing, bounty program, rewarding content creators before Proof of Creativity mining officially starts, and anything that facilitates the development of the ecosystem.

Then, during the public **token sale**, up to 600mil tokens will be minted in proportion to the amount in ETH provided by the buyers (see the next section, **Token Sale**).

After the token sale, tokens in the **team pool** will be used for payroll. Up to 200 mil tokens are reserved for the team, advisors and potentially consultants, with a vesting period of at least 48 months. Most of the team members take LikeCoin as compensation.

Finally, certain number of tokens will be minted daily from the **creators pool**, according to a set formula for rewarding contents by *proof of creativity* (refer to the previous

section **LikeCoin Mining Protocol**). It will be a process of over 10 years, and the total number of tokens minted will be 1bil at the end of the period.
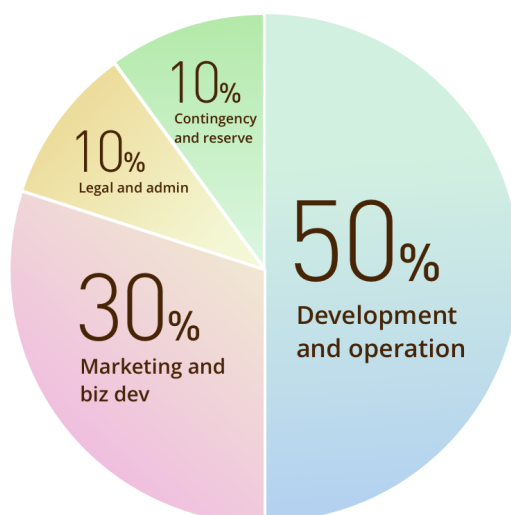
Token Sale

LikeCoin tokens are only exchangeable with ETH during token sale period. The standard rate is 1ETH to 40,000 LikeCoin, with optional bonus of lock up period of 6 months.

Tokens will be sold in 4 stages: **Early Believers** (50% bonus, i.e. 20,000 extra LikeCoin per ETH), **Institution** (50% bonus), **Early Bird** (25% bonus) and **Public Sale** (no bonus except referral bonus). Remaining token at the end of the token sale period, if any, will be transferred to the Ecosystem Development pool.

Round	ETH	Bonus*	LikeCoin	%
Early Believer	1,200	50%	72,000,000	12%
Institution	3,000	50%	180,000,000	30%
Early Bird	1,200	25%	60,000,000	10%
Public Sale	7,200	-	288,000,000	48%
Hard Cap:	**12,600**	**Total:**	**600,000,000**	**100%**

Token sale schedule (*bonus is subject to a 6 month lock up period)

Use of Proceeds

While LikeCoin tokens will be used for settlement of majority compensation of the team and part of the ecosystem development, proceeds from token sale will be used in ETH or converted fiat currency in other areas.

50% of the proceeds are budgeted for development and operation, especially hosting of the creative contents; 30% to marketing and development; 10% legal and administration and finally 10% for contingency and long-term reserve.

LikeCoin Foundation

All the LikeCoin tokens and proceeds from token sale are managed by LikeCoin Foundation Limited, which is a tax-exempt NGO under Section 88 of the Inland Revenue Ordinance of Hong Kong. The Directors of the Foundation are independent and are responsible for monitoring the issuance of tokens, payrolls or material contractors' compensation and use of proceeds in general. The financial reports of the Foundation were and will be released to public.

The LikeCoin team are employees of the Foundation or her subsidiaries, and will be managing LikeCoin protocol as an open source project under GPL 3.0 license. Contents created by the Foundation, including this whitepaper, will be licensed in Creative Commons.

Conclusion

With an aim to realign creativity and rewards, LikeCoin attribution and mining protocols incentivises using *open license* by offering *reasonable rewards*. The two elements reinforce each other, and maximise creativity of the content creators.

On the community side, LikeCoin is a movement to cultivate the habit and culture of tipping for high quality creative contents. By providing a large creators pool for mining by proof of creativity over 10+ years, the community may get used to tipping model gradually over a long period of time. If a paradigm shift happens in 10 years and indie content creators can make a living in the LikeCoin ecosystem, we regard LikeCoin as a success.

Appendix 1: roadmap

2017 Q1-Q3	2017 Q4	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019
Brainstorming, R&D	Early Believer sale	LikeCoin Token, Store and ID launched	Prototype of puttyimages and blogchain.md	Launch of puttyimages and blogchain.md	Like Button launch	LikeCoin ecosystem scale up

2017 Q1-Q3: brainstorming, R&D: the team developed oice, a visual novel editor which is the origin of LikeCoin. In oice, a director remixes art and music assets provided by other content creators to make interactive stories, next to which detailed credits are shown automatically.

Other than credit, the team believes each content creator involved should receive a share when the story receives income. Lots of technologies and tools were evaluated but none could meet the requirements, until we finally landed on cryptocurrency. We then generalize the idea to serve broader use cases and LikeCoin protocol was born.
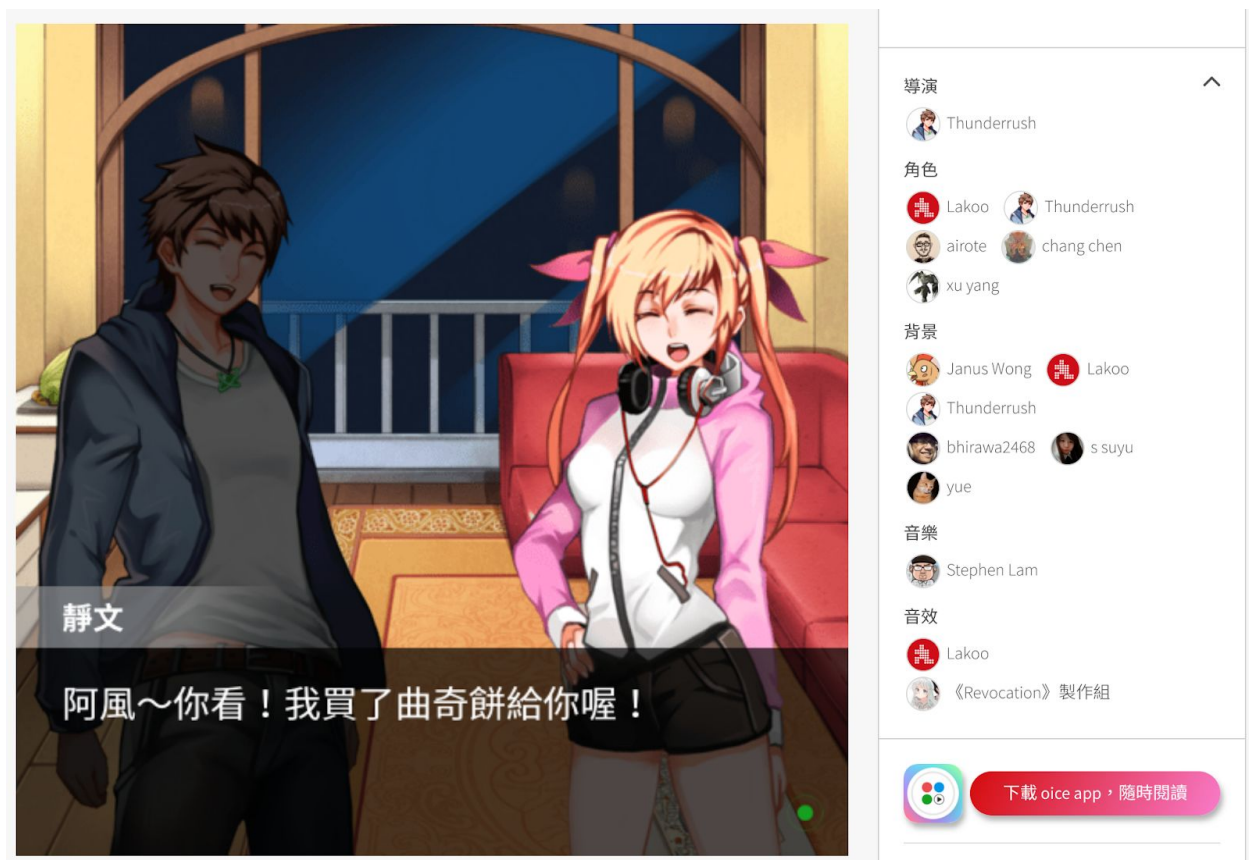
An oice visual novel, directed by Thunderrush

2017 Q4: Early Believer Sale: with a series of articles explaining the concept and design of LikeCoin protocol and proof of concept deployed to Rinkeby testnet, Early Believer private sale of LikeCoin token were done. 1,200ETH were raised for development of the protocol and marketing.

2018 Q1: LikeCoin Token, Store and ID launched: LikeCoin main smart contract deployed to mainnet for production. LikeCoin ID registration opened to public. LikeCoin token peer-to-peer transfer made possible on LikeCoin Store.

2018 Q2: prototype of puttyimages and blogchain.md: kickoff development of puttyimages and blogchain.md DApps with prototype deployed to test net. Simulated proof of creativity mining on oice. LikeCoin peer-to-peer payment features provided for content creators on early adopter websites. Public sale of LikeCoin token.

2018 Q3: launch of puttyimages and blogchain.md: puttyimages and blogchain.md DApps to launch on mainnet, with content creators beginning to upload creative contents.

2018 Q4: Like button launch: Like button SDK available for early adopters. puttyimages and blogchain.md to launch internationally in more languages. Proof of creativity mining starts at a small scale.

2019: LikeCoin ecosystem scale up: Like button WordPress plugin and other SDKs available for public. oice backend to merge with LikeCoin protocol.

Appendix 2: People

Independent Directors

Jacky Chu: early investor of BTC, ETH, IOTA, VEN and ARDR; venture investor in China; Founder of Pad for Hope Foundation; member of Chartered Institute of Management Accountants. Jacky previously worked in Transaction Services at KPMG and management consultant at IMS Health. Graduated from UBC EECE and HK CUMBA, Jacky is endeavoring to use data technology to transform the charity sector.

Bonita Wang: Founder of iDonate, the first charity rating site in Hong Kong which measures the operating efficiency and fund needs based on audited reports and public information of charities. Bonita has Big4 and private equity experiences. She holds a Master of Science in Investment Management from Hong Kong University of Science and Technology and a Bachelor of Science in Economics from Ohio State University.

Team

kin ko: Product Designer; Founder; Chief (when one is needed). kin is an Internet veteran who in 1999 founded game developer [Lakoo](), backed by Tencent and Sequoia Capital. He stepped down after 18 years of operation mostly in China and started LikeCoin Foundation in Hong Kong in 2017. kin's mixed background of Computer Engineering and Social Science reflected his strong belief that technology and humanity can and should never be divided.

Aludirk Wong: System Architect. In his 10+ years of experience as a software engineer, Aludirk has a specific focus on system design and software development methodologies. He was a core developer of a live dealer online casino system and has been in charge a massively multiplayer online game development. Aludirk is obsessed with blockchain and machine learning research in recent years.

Jacky Ko: CMO. Jacky was the founder of Octius Company Limited, the market leader in Hong Kong in retail merchandising services. With more than 16 years in merchandising services like visual display management, retail audit and POSM arrangement, Octius is the top player in the HK market with long term clients including Unilever, Mead Johnson, Abbott, Reckitt Benckiser, Frieslandfood, GSK, BAT, J&J, AMOY, Hawley & Hazel etc.

William Chong: Full Stack Developer. B.Sc in Computer Science, CUHK. Likes to try out edgy technologies and hack things together in his free time. Also likes to spend time on DevOp when he is procrastinating feature development.

Chung Wu: Blockchain Developer. Being called Satoshi in the team, Chung has strong passion on cryptography and is now focusing on blockchain technologies. He treats

reading whitepapers as entertainment in his spare time. Chung holds a M.Sc in Computer Science, Chinese University of Hong Kong.

Michael Cheung: Full Stack Developer. B.Sc in Computer Science, CUHK. Michael mainly supports data logging, searching and analytics of the team's application. On weekends, Michael likes playing Chinese chess and board games.

Edmond Yu: Operation Manager. Exited from Cloud Pillar, a web and mobile solution consultancy Edmond cofounded, he cofounded oice, a visual novel editor which turned into a LikeCoin service provider. Edmond is an entrepreneur with 20-year startup experience in IT and telecom field.

Simon But: Growth Hacker. Asking himself "what games are" all his life, SimonB founded firepillar2, an indie game development group, when he's studying in the Chinese University of Hong Kong. He strongly believes creative works make life better.

David Ng: Full Stack Developer. David is an engineer who understands design, with a passion on UX/UI and motion design. David is graduated from HKBU with a Bachelor Degree in Computer Science.

Miles Wong: Full Stack Developer. Miles is an enthusiastic software engineer in web and application development. He is familiar with both frontend and backend technologies. Miles holds a Bachelor of Engineering in Computer Science from HKUST.

Joshua Lo: UX Designer. Joshua is a *fullstack designer* with over 10-year experience. After his study in Hong Kong and Berlin, he founded Buliuming in 2012, a design consultancy specialized on infographic and UX/UI design. Clients include The Bank of East Asia, HAECO, Pico and YouGov.

Advisors

Alex Lau: Blockchain OpenSource Advisor of [CyberMiles](), [Webank]() and [TruBuzz](); R&D Engineering Consultant of SUSE Linux Enterprise Storage; establish [BCOS]() Community Non-Profile Chapter for WeBank.

Dr. Haggen So: Founder and President of [Hong Kong Creative Open Technology Association](); Project Manager of the [Creative Commons]() Hong Kong; active in global movements such as Creative Commons, One Laptop Per Child and GNOME.

Isaac Mao: Founder of [Musicoin](); Founder of CNBlogs.org; Project Lead of iCommons China, Creative Commons China Team.

Jon Phillips: an open source-developer, artist, designer, writer, lecturer, and has over 12 years experience in creating communities. Community director of [GNU social](); Founder of [Openclipart](); developer of [Inkscape](); Founder of Qi copyleft hardware.

Early supporters

Annie Zhang: Editor in Chief of [Initium Media](); Deputy Chief Editor at City Magazine; Executive Chief Editor of iSun Affairs.

Harry Xiao: Founder of [Meshbox](); Founder of [Downjoy]().

Heatherm Huang: Founder of [Measurable Token]() and [MailTime]().

Greg Sung: Founder of [OneSky](); Founder of [anobii]().