

# Framechain: Introducing blockchain-based web browser

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**Abstract.** Framechain is a blockchain-based web browser. Its source code is public. Everyone can publish their own web pages without a server on Framechain. Each web page is saved in the P2P network of Framechain. Digital signatures can ensure that web pages are not tampered with by attackers, and the P2P network of Framechain allows web sites to be immune to most network attacks. Publishers only need to write code, and the system will automatically publicize the publisher's website. Users view pages and will be rewarded with tokens. When users get tokens, they can publish their own web pages, sponsor their favorite publishers, and sell their excess tokens; and the publishers can also get cash income.

**Introduction.** Now we only need to search keywords in search engines to access our favorite web pages. Browsers will link to a server based on the website we provide and download files from the server. Most of the site's profits are obtained through our viewing, while the other is obtained online by selling goods, but it still suffers from malware, attackers and fraud.

*First. The ways people know the website*

Most search engines and web site navigation only display websites that they want users to see. In most cases, the more money the website pays, the higher the

ranking. This leads to excellent websites being buried in "junk" websites, and it is hard for users to find websites that they really like.

### *Second.Malware*

A lot of malware will tamper with web page content and screen URLs to damage the interests of websites and users. Even some malware block the ads on the web page in the name of interception, and insert other advertisements in the original advertisement location.

### *Third.Attackers*

Under normal circumstances, web servers are attacked by hackers, which can cause web pages to be unable to access normally. Attackers will also spread rumors to make users lose trust in the website. Many attackers extorted the stationmaster through these ways.

### *Fourth.Malvertisements*

Nowadays, more and more websites are inserting a lot of disgusting advertisements on the page in order to get profits, which leads users to ignore these advertisements regularly. Worldwide, more than 600 million devices are running ad-blocking, and this number is growing. As a response, some webmasters automatically defraud advertising fees by advertising automatically. Last year, the malicious robot caused \$720 million in fraud.

Now we need a blockchain-based web browser called Framechain.Each web page will be written to the block, and even if there is no server, the web page can still

be accessed normally. The characteristics of the block chain itself and digital signature will ensure that the webpage will not be tampered. Users can customize the ranking rules to find the websites they like. Users view the web page normally (without adding, deleting, modifying the content of the web page) will be rewarded with tokens. Framechain encrypts the real identity of Web publishers through a special function to protect websites from rumors. In this paper, we will explain the working principle of Framechain in detail.

**Who gets what?** The first token is created by mining. The publisher paid the system for publishing a web page. The system will write the page information into the block. Users can get information from all web pages by reading blocks. So the web page will be publicized at the same time. Users can earn tokens simply by viewing the web page, and users will gain income by viewing advertisements and buying goods. Users can also publish their own web pages, sell tokens, and sponsor websites that they like after getting token money.

**Web page returns results.** Web pages return results refer to web page content summaries. The result of web page return proves whether the user has visited the web page. When the webmaster releases the web page, it must publish the hash value of the return of the web page, and pay 10% of the token award to the system as a deposit, because the hash value of the return result of the web page will change as long as the user does not view the web page normally. When a user sends a request, the system automatically deducts 10% of the token award from the user's account as a deposit, so when the user finds the content of the web

page is modified, the vast majority of the users will actively close those malware.

When the user returns the result of the web page, the system will automatically refund the deposit to all the users and the webmaster.

**Network encryption transmission.**Framechain adopts RSA asymmetric encryption method to digitally sign web pages. Here, the private key is used for signature, and the public key is used to verify the signature, so every website needs to publish its public key while the private key is kept by the webmaster. It is very difficult for attackers to calculate the private key through the public key. But they can never pretend to be a website publishing information, because the address of each web site in the Framechain is the hash value of its public key. Once each website is released, the original address of the new web page will be invalid. So even if an attacker uses a quantum computer, he can't pretend to be a website. Webmasters may send some of their tokens to the next address, and the other part will sponsor other websites. In this way, users can not determine whether any two web pages are released by the same publisher. The user's trust in a website depends on how much deposit the website pays.

**Web page release.** Each page can only be accessed once. If the publisher wants more people to view their web pages, they need to create a number of web pages that return to different results in order to prevent a user from viewing one of the web pages and getting a token award. Most users will give priority to viewing the most rewarding web pages. Assuming that A has issued a reward of 10 tokens, B has obtained 10 tokens for viewing the A page, and B has released its own web

page. Later C found the web pages of A and B. Since the tokens of A have been paid to B, there will be no reward for viewing the A web page.

In order to get the token, C will choose to view the B web page.

In order to prevent the website from releasing meaningless web pages, the webmaster must pay an extra 20 tokens to the system.

**Conclusion.** We propose a blockchain-based web browser. It protects website security through blockchain and encourages users to view web pages.

#### **References.**

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