Introduction of Detok

Wang Gyu, Suh

wang1@hanyang.ac.kr

After the development of information and communication technology, the damage caused by the illegal distribution of copyrighted works is increasing as they can be used in many countries. Accordingly, copyright protection agencies and copyright holders or those with neighboring rights are striving to protect copyrighted works through preventive measures (upload filters, etc.) and monitoring by people or technology. However, as the availability of works expands from a single country to a large number of countries, it is difficult to handle the flood of illegal distributions, and the cost of damage to domestic multimedia alone amounts to about 29.2 billion dollars a year.

Now that copyrighted works can be used beyond a single country, there is a situation in which foreign language speakers are wanted in the monitoring job postings. But, the current detection model, which relies on the employment of monitoring personnel, has the following limitations:

1) Cost per Efficiency

- When monitored by a state agency or association, efficiency decreases because too many works are monitored by one organization, and that results in additional costs in the form of hiring personnel for monitoring.

2) Expandability

- The size of monitoring cannot be easily increased or decreased depending on the category in which multimedia is used. For example, to monitor local language sites, one must hire a local language speaker. However, the countries in which each copyright holder or neighboring right holder primarily wants to be protected may be different, and the point at which their works become popular is also not uniform. The current system has no expandability to respond to this issue.

3) Flexibility

- It is difficult for a creator of a small work, or a person with a neighboring right who wants the work not to be illegally distributed, to employ personnel for monitoring other countries.

4) Sustainability

- Since the current monitoring system prioritizes protecting recent creations, there is a risk that copyrighted works will not be continuously protected.

5) Rapidity

- Damage costs from illegal distribution can be minimized when it is quickly detected, but such a response is almost impossible if the current monitoring system is expanded to various countries.

Thus, under the current circumstances in which copyrighted works are illegally circulated, how can copyright holders or those with neighboring rights overcome the above limitations and obtain monitoring personnel of various nationalities who are enthusiastic and expandable at the lowest cost?

We can pinpoint monitoring personnel with corresponding characteristics.

Viewers who want to watch copyrighted works even through illegal

distributions

How do we get these viewers to report illegally circulated works? It is easy to think of a reward as the answer to this question. But giving rewards in legal currency to reporters of various nationalities is complex and impractical, and cannot satisfy both those with neighboring rights and those who report in terms of amount. Furthermore, such rewards inevitably lead to false reports, which eventually require someone to monitor them.

To solve this problem, two discussions will be held as follows:

First, there will be discussions to rule out false reports. Detok has verifiers to filter out the false reports. The verifiers determine whether the reports fall into the copyright protection category, and share part of the compensation in proportion to the verifier's rating. A detailed flow chart of report processing can be found in the appendix of this document.

Second, there will be discussions about what rewards, if not legal currency, can persuade viewers of illegally circulated works to become verifier and reporters.

Those with neighboring rights provide services to those who report.

For example, if Netflix receives a report on a work it wants to be protected and deducts monthly payment fees when the report is valid, Netflix can enjoy the same effect as hiring enthusiastic monitoring personnel from various nationalities. Reporters can also view works they want to find through illegal distribution in a better environment. These viewers seek to identify illegal distribution channels and make efforts to explore multimedia, so they may be fully willing to report them if the reporting process is simple and the desired multimedia is provided. In addition, the cost-effectiveness is maximized because it is not costly for those with neighboring rights to provide free services to reporters watching through

illegal distribution channels.

If the reporting modules are implemented individually in the services of those with neighboring rights, they will be inefficient and ineffective because the reporters will have to find the service providers each time to sign up for the application or go through the procedures. Therefore, there must be an integrated platform to operate this. The process of rewarding reporters and the purchase of services provided by those with neighboring rights are implemented through tokens on the block chain. In other words, the platform will be built with decentralized application to provide rewards as tokens, and through those tokens, services provided by those with neighboring rights can be purchased again. Let me introduce three main premises underlying Detok's design in building this platform.

<Premise 1> Service users are uncomfortable with cryptocurrency.

It is not easy for ordinary service users to understand how cryptocurrency is used today. Therefore, users must learn how to use tokens while using the application and recognize that they are like cash money in a simple game or web service. The important thing is not to create a cycle in which users have to convert them into legal currency through the exchange.

<Premise 2> Users want to understand the network only as much as the application service benefits them.

Those who own copyrights or adjacent rights and copyright protection agencies may tolerate the complexity of blockchains and applications for the protection of copyrights. However, this should not be required for general users. Under the slogan "If you find illegal distribution of copyrighted works and report their

domains, you will be rewarded," the service should be made available to the user nodes.

<Premise 3> There is no place that accepts cryptocurrency as a good without any reason. The reason for receiving tokens as goods should be clear in the token cycle

Premise 3 will be explained in detail using an example.

Let's assume a block chain project where people are hired to do short-term work and tokens are given. The designer of the project argues that the token ecosystem will be created because the recipient of the token can use it to make other people do short-term work. The fallacy in this case is that people who do short-term work generally do not hire others to do it. Therefore, tokens move only in one direction, from employer to employee, and there is no cycle. In the end, employees with short-term jobs can only earn real profits by selling tokens they received to their employers and obtaining legal currency. Short-term workers have no reason to accept tokens instead of legal currency. As shown in the above example, the ecosystem requiring conversion to legal currency is simply more complex than the ecosystem made up of purely legal currency. For this reason, the core structure of the token ecosystem should be designed so that no conversion to legal currency is necessary.

Now let's verify the cycle of Detok's tokens in accordance with this principle.
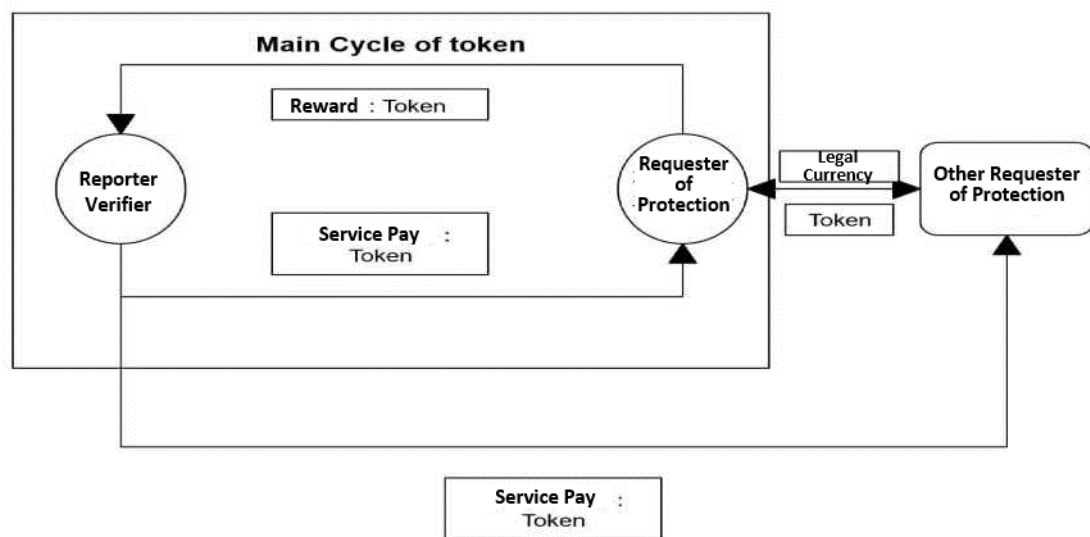
The core structure of the Detok token is as follows.

[1] The purpose of reporters and verifiers is to watch or purchase copyrighted works.

   - It is logically established that the purpose of the reporters who watch illegally circulated works lies in the use of the works. Therefore, if reporters and verifiers can use tokens to pay for the service, they are willing to accept those tokens as rewards.

[2] Requesters of copyright protection continually produce a variety of works.

   - Therefore, they are willing to accept tokens in exchange for their services, as they must hold them to protect their future works.

[3] Other requesters of copyright protection (those with neighboring rights or copyright protection agencies that do not have tokens)

   - Other requesters of copyright protection buy tokens to protect their works.

   - For the same reason, other requesters of copyright protection accept tokens in return for providing services.

   In short, the Detok token has the following characteristics:

Reclaim of tokens: Requesters of copyright protection can receive tokens from reporters and verifiers in return for using requesters' services and use them as rewards for the protection of

their other works. This shows that the cost of the Detok service is efficient if there is sufficient demand for the services provided by the requesters of copyright protection.

To sum up, Detok is a project that solves the difficulties of the "detection" (monitoring) part in dealing with the illegal distribution of copyrighted works in three stages—reporting, verification and judgment—through public participation. It is implemented by adding rewards to the existing reporting system and using smart contracts of the block chain. Through this, Detok provides a service model such as hiring enthusiastic monitoring personnel from various countries at low cost to copyright holders and those with neighboring rights.

Appendix. Flow chart

Report

1. Allowed Report? — No / Yes

Reporter Verifier Token Reward
Reporter Fee Reward
Approved Verifier Fee Reward
Rejected Verifier Rating Down
Approved Verifier Rating Up
Work Rating Up

Receive Report: Wait Verification

5. Report Approved? — Yes / No

Rejected Verifier Fee Reward
Rejected Verifier Rating Up
Approved Verifier Rating Down
Work Rating Down

Process finish

2. Protection Violated? Verification — Yes

Wait Judgment

Untreated Report ≥ m — Yes

Work Rating Down

Unregistering Work

3. Verification Number — > n / No

4. Verification Approved? — Yes / No

Work Rating Below Standard? — Yes

Rejected Verifier Fee Reward
Rejected Verifier Rating Up
Approved Verifier Rating Down