

# Research on Copyright Protection Obligations of Online Disk Service Providers

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**Abstract:** *The boundaries of the copyright protection obligations of online disc service providers are vague, and this article clarifies them according to the process of infringement. Before the infringement occurs, the provider of online disc service has to fulfil the obligation of not committing direct infringement, the obligation of reasonable care and the obligation of reviewing the right of first uploading of some works; during the infringement occurs, the provider of online disc service has the obligation of complying with the "notification and deletion rule" and the obligation of providing the means of contacting the uploader; after the infringement occurs, the provider of online disc service has the obligation of assisting in the investigation and the obligation of contacting the uploader. After the infringement, the service provider has the obligation to assist in the investigation and the obligation to monitor the abnormal accounts. However, the development of network technology will inevitably lead to changes in the regulatory capacity of network service providers, and the popularity of blockchain technology in the era of web3.0 may realise the distributed storage, at which time the obligation of copyright protection of NDN service providers has to be redefined.*

**Keywords:** Online disc service provider, Network service provider, Copyright protection obligation, Intellectual property rights.

## 1. INTRODUCTION

With the development and popularisation of cloud technology, cloud storage service brings users great storage space and convenience, while copyright infringement cases related to online discs occur frequently, which is contradictory, acute and urgent. On the one hand, as a new thing, the development of cloud technology is in the ascendant and needs to be promoted and safeguarded; on the other hand, the rights and interests of relevant copyright holders are lawful and legitimate, and are protected by law. At the same time, the relevant network legislation lacks top-level design, showing a low level of legislation, fragmentation, missing or poor provisions, or simply copying the existing norms to the network field [1]. The boundaries of the copyright protection obligations of online disc service providers in respect of works, performances and audio-visual recordings in their storage space are blurred, and there is no clear standard in the legislation as to whether they have any copyright protection obligations, and to what extent, and there are also controversies in the academia, so the author has written this article to clarify the situation.

In this paper, the study of copyright protection obligations of online disc service providers, in fact, is the study of "legal obligations" as the basic issue of jurisprudence. As the object of jurisprudence, obligation is stipulated by law or included in the logic of legal norms or at least presumed from the spirit of law and principles of law, which corresponds to "right", saying that a person enjoys or possesses certain interests, claims, qualifications, powers or freedoms, which means other people are obliged not to encroach upon and not to impede the enjoyment and possession of the things they have [2]. The two are two sides of the same coin. Therefore, the study of "obligations" can not be separated from the discussion of "rights", and "rights" can not be separated from the study of "infringement". Therefore, the study of "obligations" cannot be separated from the study of "rights", which in turn cannot be separated from the study of "violations".

The so-called duty to protect includes both negative and positive aspects. The former seeks to identify what should not be done, i.e., what constitutes a violation of rights, and the key lies in the identification of the violation. Tortious behaviour violates the first nature of the obligation, so the second nature of the obligation, i.e. responsibility, including negative obligations and contribute to the two aspects of the obligation, but the responsibility is not equal to the obligation; the latter aims to clarify how to act, in fact, is the scope of the obligation to undertake as a duty to define. Therefore, the author starts the research on the copyright protection obligations of online service providers from the three dimensions of "infringement", "obligation" and "responsibility", and starts the research from the copyright infringement committed by online service providers. From the copyright infringement act committed by the online service provider, we dig deeper into the constituent elements of its copyright infringement liability, and explore the boundaries of its copyright protection obligation.

For the convenience of expression and unity of terminology, the term "work" in this paper refers to works in a broad sense, including works, performances, audio and video recordings; the term "copyright" refers to copyright in a broad sense, including copyright and neighbouring rights.

## **2. THE BASIC CONNOTATION OF ONLINE DISC SERVICE PROVIDERS**

Net disk, also known as net disk, network hard disk, is a product under the development of cloud computing technology, cloud storage and cloud services as a whole, with online storage, online transfer, online reading, file management and other functions, with massive storage, high-speed and fast features [3], can easily achieve resource sharing, but also for the infringer with the help of the net disk to carry out infringing acts to provide great convenience. At present, the well-known domestic and foreign online discs are Baidu.com, 360.com, 115.com, Sina.com, DropboxHotfile, Megaupload and so on.

Internet Service Provider (ISP), also known as network service provider, refers to the main body that engages in a variety of services related to the provision of information for the ultimate purpose of users' access to information [4]. According to the different roles they play in the provision of information, the current academic community roughly divided into two categories, one is network technology service providers, the other is network content service providers. The former provides pure technical services, including automatic network access service, automatic transmission service, automatic storage service, information storage space service, searching or linking service according to Articles 20 to 23 of the Regulations on the Protection of the Right to Dissemination of Information Networks, and does not take the initiative to participate in the editing, screening and provision of information content during the process of information dissemination, but only makes use of its technical conditions and hardware facilities to receive or transmit information under the instruction of the service recipients. It only uses its technical conditions and hardware facilities to accept or transmit information under the instruction of the service object, which is essentially the main body providing intermediary services; the latter engages in information content provision services, i.e., adopts information uploading or other means to present the information in the network server and provides the service providers to the network users [5].

Although there is no clear definition of "network disc service provider" in the current legislation, based on the above conceptual interpretation of "network disc" and "network service provider", the author is interested in A basic definition of "network disc service provider": network disc service provider refers to the user to obtain information for the purpose of the Internet to provide users with online storage, online transfer, online viewing, file management and other cloud services, civil and commercial subjects. As for the network disc service provider is a network technology service provider or network content service provider, must be combined with its specific behaviour in specific cases comprehensive judgement: if the network disc service provider is only engaged in space storage, search links and other pure technical services, and did not take the initiative to participate in the editing, screening and provision of information content, it should be identified as a network technology service provider; on the other hand, to participate in the editing, screening and provision of information content, it should be identified as a network content service provider. On the contrary, if it participates in the editing, screening and provision of information content, it shall be recognised as a network content service provider. Legally, the status, rights and obligations of network content service providers and network technology service providers are not the same, so it is necessary to distinguish between the two. It is generally believed that the basic business of online storage service providers is to provide spatial storage services, and thus they are mostly regarded as network technology service providers, and only in a few cases are they regarded as network content service providers based on their specific behaviours.

## **3. COPYRIGHT INFRINGEMENT AND PRINCIPLES OF LIABILITY FOR NETBOOK SERVICE PROVIDERS**

### **3.1 Direct and Indirect Torts**

According to the traditional infringement theory on the type of infringement, infringement includes direct infringement and indirect infringement. Therefore, the act of infringing the copyright of the right holder committed by the online service provider includes direct copyright infringement and indirect copyright infringement.

The former refers to the unauthorised use of the network to provide the copyrighted works of the right holders in order to infringe the right holders' personal and property rights, such as the right to disseminate the information

network, the right of distribution, the right of income, etc. The former is usually manifested in the form of editing or transmission of infringing information by the provider of the network drive service. As the Latin proverb says, "the right to property should be exercised in a manner not detrimental to others", and in a society governed by the rule of law, this is true for the right to property, as well as other rights, unless there are reasonable and justifiable reasons, such as self-defence and emergency exemptions in the criminal law. In this case, the copyright protection obligations of the provider of the online disc service are clearer, with a negative obligation of non-infringement, i.e. not to perform acts controlled by copyright without permission.

The latter is manifested in the case that when the user uses the network disc to commit the act of infringing the copyright of others, although the network disc service provider is not directly involved in the implementation of the infringing act, but in the process of providing network services for the infringer, it fails to exercise reasonable care or take reasonable measures to cause the infringement to occur or the damage to expand, i.e., it is at fault, and there is a causal relationship between this kind of fault and the occurrence of the damage results. Usually, it is manifested in the content of the network disc operated by the network disc service provider which obviously infringes the copyright of others, or fails to disconnect the link in time after receiving the notice of infringement from the right holder, and so on. In this case, the copyright protection obligation of the provider of online disc service is relatively vague, and the author will discuss it in detail later.

### **3.2 Claims Based on Intellectual Property Rights: The Principle of No-fault Liability Shall Apply**

The principle of no-fault liability shall apply to non-damage claims based on intellectual property rights. In general, the network service provider can be held liable for the infringement of copyright under the provisions of Articles 1195 to 1197 of the Civil Code of the People's Republic of China. However, due to the copyright infringement of online service providers, the infringement of the type of special rights, intellectual property rights, can not be mechanically applied to the principle of fault liability. The reason is: copyright is a typical intellectual property rights, with absolute nature. When the infringer carries out the acts controlled by the copyright, the copyright owner can claim intellectual property rights to request the infringer to bear the responsibility of stopping the infringement, eliminating the influence, restoring reputation and other non-damage liability, which is not premised on the actual property losses suffered by the copyright owner, and also does not depend on the infringer's subjective fault as a prerequisite, and is a no-fault liability.

In this case, the judgement of copyright infringement by the online service provider only takes into account the objective factors, and the infringement is established on the condition that the online service provider has actually carried out the acts controlled by the copyright and has no exemption from liability. For example, uploading works, performances, audio and video recordings of a right holder to a web server for public dissemination without permission and without a defence.

### **3.3 Claims Based on the Right to Claim Damages: The Principle of Fault-based Liability Shall be Applied**

The principle of fault-based liability shall apply to claims for damages based on the right to claim damages. There are three types of foreign legislation on the question of what principle of attribution should be applied to an action for damages based on the right to claim damages:

First, the principle of no-fault liability applies, known as strict liability in common law. For example, the US 1995 "Intellectual Property Rights and the National Information Infrastructure: Report of the Working Group on Intellectual Property Rights" held that: automatic, temporary reproduction and transmission in the system or network of a network service provider based on its transformation of the intermediary service necessary for the reproduction belongs to the reproduction of the copyright law, and network service providers are strictly liable for it [6]; secondly, it is the application of the principle of attribution of fault liability. The US Digital Millennium Copyright Act of 1998 (DMCA), the EU E-Commerce Directive of 2000, and the Japanese Law on Limitation of Liability for Damages of Specific Electrical Communication Providers and Disclosure of Information by Senders of Letters of 2001 have all adopted this principle of attribution of liability; and thirdly, the principle of attribution of liability for presumption of fault. In recent years, some scholars in China believe that copyright holders retain their rights by default, and that if they act without permission, they are at fault, so the perpetrator needs to prove that his/her act has been permitted. Therefore, strictly speaking, the presumption of fault applies [7]. Early decisions by German courts have also adopted this principle of attribution, holding that ISPs are obliged to ensure that any infringement does not take place on their servers and that they are liable for any unlawful content stored on their storage systems. If the ISP objectively becomes an instrument of infringement, it is presumed to have failed in

its duty of reasonable care [8].

Compared with the above three types of legislation, the author believes that the principle of fault-based liability should be adopted. The reasons for this are: firstly, the principle of no-fault liability is conducive to the protection of the copyright of the right holder, but this principle of liability only adopts the standard of objectivism, which only requires the existence of infringement behaviour to bear the responsibility of damages without asking the subjective state of the network service provider, which is prone to result in unfairness. This standard is no longer adopted in the legislation of various countries, and it is not appropriate for China to adopt it. Secondly, the principle of presumption of liability unreasonably increases the burden of proof on the network service provider, which undoubtedly imposes excessive requirements on the network service provider and fails to fully recognise the complexity of the governance of cyberspace, which is unfavourable to the development of the Internet industry, and is also prone to cause the over-expansion of the power of copyright. In practice, the number of works stored in the network disc is large, the uploaders are mostly users, and it is difficult to judge the infringement status, coupled with the bottleneck of technological development, it is difficult for the network disc service provider to prove that the act of making a certain work available to the public in the storage space has been authorised by the copyright owner, and it is not economical and operational, so it is not appropriate to adopt it; thirdly, the principle of fault liability adopts an objective evaluation standard, and adopts a combination of the following criteria Thirdly, the principle of fault liability adopts the evaluation standard of objectivism and subjectivism, which takes into account both the determination of objective facts and the subjective fault pattern of the network service provider, which is more fair, reasonable and scientific and should be adopted.

China's legal practice, in fact, also adopted the principle of attribution of fault. "In the case of Dispute over Infringement of the Right of Information Network Dissemination of Works by Beijing Baidu Netcom Technology Co. The second point of contention was whether Baidu was at fault for the infringement in question, and whether it had contributed to the infringement, which was in fact a judgement of fault as a prerequisite for assuming responsibility for the infringement.

#### **4. BOUNDARY ANALYSIS OF THE OBLIGATION OF COPYRIGHT PROTECTION FOR ONLINE DISC SERVICE PROVIDERS**

"Obligations" and "rights" can be regarded as two aspects of the same problem. The exercise of rights has its own boundaries, beyond which acts may be legally defective or invalid, or even constitute civil infringement or criminal offences. Naturally, the fulfilment of obligations should also have its boundaries, no subject shall not be classified with endless obligations, because this destroys the unity of rights and obligations, undermines the balance of power between the two, and is not fair to the subject. Therefore, the obligation of online disc service providers to protect the copyright of right holders should have its own boundaries and shall not be expanded arbitrarily, and shall not unduly increase the burden of its responsibility. If its development is hindered or regressed, it will be unfavourable to the exercise of copyright of right holders. So, how big is the boundary of the obligation of copyright protection for online disc service providers? In the author's view, the following issues should be clarified.

##### **4.1 Whether the Provider of Online Disc Service has the Obligation to Protect Copyrights**

Undoubtedly, the provider of online disc service has the obligation to protect the copyright of the works in its storage space. Copyright is a worldwide right, others do not need to cooperate actively in the exercise of their rights, but they have the obligation not to obstruct, and they have to bear the responsibility of infringement if they carry out the acts controlled by copyright without any exemptions such as exhaustion of rights, fair use, legal permission, and so on. As far as the provider of online disc service is concerned, once a user registers or uses his/her online disc, he/she concludes a service contract with him/her and obtains the right to use part of the storage space in his/her server according to the contract, and accepts his/her supervision and management either by agreement or by default. Therefore, the provider of online storage space has the ability and responsibility to supervise the works in its storage space, and not only has the obligation not to impede the exercise of copyright by right holders, but also has the obligation to supervise and manage other users not to commit copyright infringement by using its online storage space, i.e., a certain degree of duty of care. Reflected in the legislation, including the Copyright Law of the People's Republic of China, the legislation does not explicitly indicate that the provider of online disc service has the obligation to protect the copyright of the works in the storage space, but this is expressly recognised in some laws and regulations, which can be found in some "notices" issued by the State Copyright Administration, the State Intellectual Property Office and the State Council, "regulations" issued by the State

Copyright Administration, the State Intellectual Property Office and the State Council. For example, Article 1 of the Notice on Regulating the Order of Copyright in Online Disk Services issued by the National Copyright Administration in 2015 clearly states that "Online disk service providers who provide users with network information storage space services should comply with copyright laws and regulations, use and disseminate works legally, and fulfil their obligations for copyright protection". It can be seen that the obligation of copyright protection for online disc service providers has become the mainstream understanding of legal practice, but unfortunately, the current relevant legislation is scattered and at a lower level. Further, the obligation of copyright protection for online disc service providers not only has the legality, but also has a strong rationality, reflected in the following three aspects:

Firstly, it is in line with the value concept of justice. The core of fairness lies in "own behaviour own responsibility", therefore, the net disk service providers have the obligation to supervise the user's behaviour, condoning its users to carry out the infringement of copyright infringement is not doing its duty to supervise, shall bear the responsibility of inaction. At the same time, the connivance of the user's infringing behaviour may lead to the "broken window effect", inducing more infringement.

Secondly, it is in line with the principle of maximising benefits. Net disc service providers than the user has obvious technical advantages, can use the original equipment and technical conditions to find and stop the infringement, the technical measures can be taken to prevent and stop several infringement, and thus compared with the user's single rights, the social cost is low, efficient, and conducive to the saving of social resources.

Thirdly, it is conducive to the promotion of healthy competition in the Internet industry. The Internet industry is in a period of vigorous development, its regulatory mechanism has not yet been fully established, the means of regulation is not yet mature, there are some network service providers in order to win a larger user traffic, user scale at all costs to condone the infringement of the situation, easy to lead to "bad money to expel the good money," the results, or will not be conducive to benign competition in the Internet industry.

## 4.2 What are the Copyright Protection Obligations of Online Disc Service Providers

Clarify the net disc service providers have what copyright protection obligations, can follow the whole process of copyright infringement of the net disc service providers to explore the difference, including infringement before the occurrence of infringement, infringement occurs in the infringement occurs after the occurrence of the three phases, each phase of the net disc service providers different copyright protection obligations.

### 4.2.1 Before Infringement

At this stage, the copyright protection obligations of online disc service providers are reflected in three aspects. First, the obligation not to commit direct infringement. In practice, the main body of direct copyright infringement is mostly users, and online service providers often bear indirect infringement liability for users' behaviours, and they are seldom directly involved in the implementation of copyright infringement, but the possibility of implementation is not excluded. On the issue of rights protection, non-infringement is a kind of protection; second, a certain duty of care. Net disk service provider for its storage space of unlawful acts occurring in the supervision and management responsibilities, so the storage space of copyright infringement occurs in the prevention, stopping the obligation as a good rational manager, i.e., the general duty of care. According to the provisions of the relevant judicial interpretation, if the net disc service provider from the user to provide the work of direct economic benefits, shall be the work of the infringement of the state of the higher duty of care. The so-called higher duty of care, the legislation is not clear, the author believes that this is a relative concept, can be understood in two ways: First, the higher duty of care requires that the netbook service provider of copyright infringement of the relevant works to take the initiative to strictly examine the state, and the higher duty of care requires that copyright infringement occurs after the netbook service provider of the state of knowledge should be presumed to be aware of the state of knowledge or should be aware of. Generally speaking, the online disc service provider does not need to take the initiative to conduct strict examination of the copyright infringement status of the works in the storage space, and thus it can invoke the "notice and deletion rule" as a safe harbour on the ground that it does not know or should not know that the infringement exists and it has already taken corresponding measures in a timely manner; however, the higher duty of care requires that the online disc service provider take the initiative to conduct strict examination to determine the infringement status of the works in question. However, the higher duty of care requires the online service provider to take the initiative to conduct strict examination and judgement on the infringement status of the relevant works, and once the copyright infringement occurs, it is presumed that the online service provider knows



or should have known about it, so it cannot invoke the "notice to remove rule" as a safe harbour, and should be subject to the regulation of the "Red Flag Rule" instead; thirdly, the first time uploading of works to the Internet is not subject to the "red flag rule". Third, the obligation to review the rights information of the first upload of some works. In practice, the types of works involved in copyright infringement cases in the storage space of online discs include film, television and music, which have become the hardest hit by online copyright infringement because of their strong value, artistry and enjoyment. However, another commonality of these three types of works is that their creation cost is high, their influence is wide, infringement is easy to occur and their right holders are relatively clear, while their number is relatively limited compared to the works created by ordinary users. Therefore, the author believes that, for the first upload of such works, the provider of online disc services should require the uploader to provide proof of copyright ownership information and manual audit, and after passing the audit, the work should be backed up completely or sampled to the copyright database established by the provider of online disc services, but any user uploading the work must be compared with the copyright database, and if the test shows that it is the same or highly similar to be prohibited from uploading it.

It is generally believed that NDN service providers have no obligation to review the copyright of the works uploaded by users, and only filter the contents that are prohibited by law from being disseminated. As a matter of fact, it is not only too harsh for NDN service providers to review all works uploaded by users for copyright infringement, but also not in line with the reality: there are many kinds of works in the storage space of NDN, the quantity is huge, and the identification of copyright infringement is a legal problem in itself, which requires legal practitioners to make judgement with the help of expertise in intellectual property rights law. Therefore, when copyright infringement occurs, right holders should be encouraged to resolve disputes through judicial channels or negotiation. The first upload of some of the works of the ownership of the review can be considered an exception, although the Internet disk service providers need to organise a certain number of personnel to carry out a manual review, but will not cause too high a burden of responsibility, after all, such works compared to the individual user-created works in a limited number and the ownership of the state of the work is clear, the manual review of the difficulty of less. On the contrary, this move may enable the online disc service providers to get rid of the dilemma of being frequently sued for indirect copyright infringement. At the same time, genuine rights holders will actively cooperate with the censorship work of online disc service providers in order to protect their copyrights from infringement.

#### 4.2.2 When Infringement is Occurring

At this stage, the copyright protection obligations of providers of online disc services are reflected in two aspects. First, the obligation to comply with the "notification and deletion rule". The existence of network infringement is very covert, and the governance of cyberspace is relatively complex, so as a good and rational administrator of the Internet disk service providers can not know the infringement status of all the works in its storage space, especially for ordinary users to upload and disseminate the works created by individuals, whose works are many types, huge number of works and ownership of the definition of the great difficulties. As a result, the resolution of copyright infringement of such works mainly relies on the right holder to notify the provider of the online disc service to take the necessary measures after discovering the infringement. Upon receipt of a notice from the "right holder", the provider is obliged to remove the "infringing" work in a timely manner; upon receipt of a "counter-notice", the provider is obliged to restore the "infringing" work in a timely manner. The "infringing" work is restored upon receipt of a "counter-notice". The judgement of "infringement" and "timely" has been analysed in detail, so we will not repeat it here; second, the obligation to provide a way to contact the uploader. In reality, when a right holder finds that an infringer has infringed his copyright by using the storage space of an online disc, there are two solutions: one is to notify the provider of the online disc service to remove the work immediately, and the other is to directly notify the uploader to remove the work. The "Notice to Remove Rule" gives the right holder a way to seek the first remedy, but it should be noted that the second remedy is also a good choice: the right holder directly sends a notice of infringement to the infringer and states that the interest may be more deterrent to the infringer's continued infringing behaviour, which is to a certain extent conducive to the recurrence of repeated infringement. According to the author's observation, at present, almost all domestic and foreign network disk service providers to provide users with the first way of redress, that is, set up a "one-click report" function module, but the second way of redress has not been fully utilised. In the author's view, there is no excuse for not providing the uploader's contact information or protecting the privacy of the uploader, which is legally justified. However, in order to facilitate the right holders to defend their rights, it is suggested that the providers of online disc services should provide on-site messages or on-site instant messaging modules, which are not only conducive to the protection of the copyright of the right holders, but also take into account the privacy of the uploaders, with no technical difficulties and at a lower cost.

#### 4.2.3 After the Infringement Occurs

At this stage, the copyright protection obligations of online disc service providers are reflected in two aspects. First, the obligation to assist in investigation. As an intermediary of information dissemination, the online service provider objectively creates conditions for users to commit copyright infringement, and thus, after the occurrence of copyright infringement, the online service provider shall assist the right holder and the administrative organ to conduct investigation and evidence collection. Article 13 of the Regulations on the Protection of the Right to Network Dissemination of Information stipulates the obligation of network service providers to assist the administrative authorities in the investigation, but it does not explain whether the network service providers have the obligation to assist the right holders in the investigation, and the relevant legislation has not been involved in the investigation, which results in the right holders hoping to get the assistance and cooperation from the online service providers in the process of defending their rights, but there is no clear legal basis, and they can only ask for the cooperation and investigation of the online service providers in a moral sense. The only way is to morally require the provider to cooperate with the investigation, which makes it difficult to defend the rights. Therefore, the future legislation should improve the obligation to assist in the investigation; Second, the obligation to monitor abnormal accounts. Generally speaking, if users use the Internet for personal study, research and enjoyment, it will not lead to frequent abnormal account login and large-scale traffic anomalies, i.e., abnormal account situation. After monitoring the account anomaly, the ND service provider can preliminarily deduce that the user may be carrying out infringing behaviours, and should take targeted measures at this time, such as issuing warnings of suspected infringement or forcibly logging out of the user's logged-in account, or proactively intervening to conduct manual audits. In the process of the user's use of the account of the Internet disk, the Internet disk service provider can easily grasp the user's IP address, login location, network operators and other login status and download, upload and transfer the process of traffic changes, technically feasible. In addition, the obligation to monitor abnormal accounts will not impose an excessive cost burden on the provider.

### **5. DETERMINATION OF LIABILITY FOR INDIRECT COPYRIGHT INFRINGEMENT OF ONLINE DISK SERVICE PROVIDERS**

The liability of copyright infringement of NDN service provider refers to the legal liability of NDN service provider for infringing the copyright enjoyed by others in the process of providing information network services such as space storage, access, file management, etc., including the liability for direct infringement and the liability for indirect infringement. The basic connotation of copyright infringement of network service providers has been elaborated in the previous section, and it should be noted that infringement is not equal to liability for infringement, and infringement is only the cause of liability for infringement.

Theoretically, the type of indirect tort liability of network service providers are induced tort liability and help tort liability. In the case of copyright infringement in which the infringing subject is the network service provider, the liability for induced infringement refers to the legal responsibility of the network service provider for abetting and inducing the third party to engage in the act of infringement because of knowing that the act is infringing, e.g., inducing and encouraging the user to implement the act of infringing the right of information network transmission by means of points rewards, privilege upgrading, and recommending technical support, etc. The liability for assisting in infringing the right of infringement refers to the liability for inducing and encouraging the user to implement the act of infringing the right of information network transmission. The liability for helping infringement refers to the legal responsibility of an online service provider who knows or should know that a third party has engaged in an infringing act and provides substantial help, for example, an online service provider who knows that a user's act of uploading a work is likely to infringe the copyright of another person, but still provides the user with services such as sharing, transferring, and online playback. In practice, when an ISP fails to take the necessary measures in time after receiving a notice of compliance with the requirements, and fails to take the necessary measures when it knows that a user has used its network service to commit acts of copyright infringement, it also constitutes indirect infringement and is jointly and severally liable with the user.

It is appropriate to adopt the attribution principle of fault liability for indirect infringement liability of network service providers. As a kind of network service provider, the netbook service provider of course follows the applicable principle. Therefore, the judgement of fault becomes the basis of whether the online service provider should bear the indirect infringement liability for the copyright infringement directly committed by the user, and if there is a fault, then the liability, and vice versa, is exempted from liability. The so-called fault, including knowingly and ought to know two forms: generally speaking, if the evidence proves that the online service provider did know the existence of the user's infringing behaviour, or according to the situation at the time in the

same situation, the general cognitive ability of the third party can know the existence of the infringing fact, but did not take or did not take the necessary measures in a timely manner may be found to be at fault. Specifically, fault can be determined with the help of the "notice-to-delete rule" and the "red flag rule" established by the United States DMCA.

### 5.1 Specific Application of the "Notice-to-delete rule"

The "notice-to-delete rule" provides a "safe harbour" for ISPs, including online disc service providers, and can be regarded as a principle of exemption from liability, meaning that ISPs do not need to bear infringement liability when they strictly comply with this rule. Conversely, it can also be considered a principle of attribution. The core of the rule is that when an ISP receives a DMCA-compliant notice from a "right holder", it should take reasonable measures in a timely manner, or else it will be liable for indirect infringement if it fails to exercise reasonable care. The key to understanding this rule is to grasp several core concepts:

The content of the "notice" should include the basic information of the "right holder", the URL of the infringing information, and the preliminary proof of the fact of infringement;

The judgement of "timeliness" should take into account the nature and supervisory ability of the ISP, the type and obviousness of the infringing information, the form and accuracy of the effective notification, and the failure of timeliness should be regarded as a failure of the duty of reasonable care;

The determination of "reasonable measures" is to position the ISP as a rational and kind-hearted administrator, which shall take corresponding measures in time after receiving the infringement notice to stop the infringement from continuing and prevent the damage consequences from expanding;

The determination of the "duty of reasonable care" is based on a combination of the above three factors, and the 2012 Provisions of the Supreme People's Court on Several Issues Concerning the Application of Law in Trial Cases of Civil Disputes over Infringement of the Right to Disseminate Information Networks explicitly include the "direct receipt of economic benefits" as the basis for determining the "duty of reasonable care". The 2012 Provisions of the Supreme People's Court on Several Issues Concerning the Application of Law in Cases of Infringement of the Right of Information Network Dissemination explicitly include "direct financial gain" as a factor in measuring the "duty of reasonable care", and consider that an ISP has a higher duty of care if it has "directly gained a financial benefit" from the infringing behaviour. Such a provision is in fact borrowed from the common-law vicarious liability, i.e., the supervisor shall be liable for the supervisee's tortious acts or other actionable acts due to the existence of a certain relationship between the supervisor and the supervisee [9]. In this case, the network service provider is not required to be aware of the existence of the third party's direct infringement, but only requires that the network service provider has the right and ability to supervise the direct infringement and obtains direct economic benefits from the direct infringement, then it shall be legally liable for the direct infringement [10];

The determination of "indirect infringement" is generally considered to be premised on the establishment of direct infringement. On the question of whether the establishment of indirect infringement of the establishment of direct infringement as a prerequisite, the theory of "independent" and "subordinate". "Independent" that, indirect infringement and direct infringement of judgement should have independence, the establishment of the two are not a prerequisite for each other, which is conducive to the protection of the right holder; "subordinate" that, relative to the direct infringement, indirect infringement only play a supplementary role, so the Indirect infringement of the establishment of direct infringement should be established as a prerequisite, the two are relative concept, if there is no direct infringement of the existence of indirect infringement can be said. China's legal practice actually adopts the "subordination theory", which is confirmed in the judicial interpretation issued by the Beijing Municipal Higher People's Court in 2010. Article 15 of the Guiding Opinions on Several Issues Concerning the Trial of Cases Involving Copyright Disputes in the Online Environment (I) states: "The infringement of network service providers who provide services such as information storage space, searching, linking, and P2P (peer-to-peer) services shall be constituted on the premise that other people have committed direct infringement, i.e., a third party has made use of the information storage space, searching, linking, and P2P (peer-to-peer) services, P2P (peer-to-peer) services to disseminate works, performances, audio-visual recordings, etc. is an infringement of another person's right to disseminate information network". In addition, the United States, where the theory of indirect infringement originated, also takes the existence of direct infringement as a prerequisite for the establishment of liability for indirect infringement in its Patent Law, Chapter 35, Section 271 (b) and (c).



In summary, the accurate application of the "notice to remove rule" is the key to determine whether the online service provider should be liable for indirect copyright infringement. However, the process of applying this rule is complicated, and in practice, the judge must make a comprehensive judgement on the basis of the specific circumstances of the case combined with the free evidence. In addition, in practice, there may also be a "counter-notification" situation, which occurs when the "infringer" insists that the disseminated work does not infringe on the legitimate rights and interests of others, and then sends a notice of reinstatement to the provider of the network disc service. Upon receipt of the notice, the provider shall immediately restore the original allegedly infringing content, unless the provider is at fault for not doing so or for not doing so in a timely manner, and except in cases where restoration is not possible due to technical constraints. After the content of the dispute is restored, the "right holder" should take other legal ways to resolve the dispute with the "infringer", losing the legitimate reason to notify the provider again to remove the work in question, and at this time, the provider is not at fault for not removing the relevant content. To sum up, if the provider of the service promptly removes and restores the work in question after receiving the Notice and Counter-Notice, the provider is not at fault and does not need to bear the responsibility for the infringement of copyright.

## 5.2 Specific Application of the Red Flag Rule

The "Red Flag Rule" is an exception to the "Notice and Deletion Rule", which means that when a user's infringing behaviour is as obvious as a bright red flag, it can be presumed that the ISP, including the provider of the online disc service, knew or should have known of the existence of this infringing fact, and that it is at fault for failing to take measures to stop the infringement. If the provider fails to take measures to stop the infringement, it is at fault and is liable for indirect infringement. This rule in fact virtual and the network service provider in the same situation, the same industry, with the general level of technology and attention to the ability of a rational third party, if it can know the existence of the fact of infringement, it is presumed that the network service provider in question is aware of or out of inadvertence unknown, i.e., with the subjective fault. When the ISP in question is a provider of online disc services and the infringed rights are copyrights, theoretically, the core of this rule lies in the identification of "red flags" and the judgement of "stopping measures":

The determination of "red flags" needs to be considered in conjunction with the management capacity of the online disc service provider, the nature of the service provided and the likelihood of infringement, as well as the type of the work of the right holder, its popularity, social impact, the number of visits, and other factors affecting the degree of obviousness of the infringement. For example, if the work in question is a film work, especially a film work that is still in its hot screening period, then the copyright infringement is very obvious when the user uploads and disseminates such work by using NDN, because the right holder generally will not take the initiative to upload such work to NDN for free playback, download, sharing and forwarding to a third party. If the provider of an online disc service is aware of the existence of such works in its storage space and adopts an "ostrich policy", it is at fault and is liable for indirect infringement of copyright by third parties;

In addition to the requirements of "immediate deletion" and "immediate restoration" established by the "notice-to-delete rule", the judgement of "stopping measures" should also comply with the requirements of "immediate deletion" and "immediate restoration" established by the "notice-to-delete rule". In addition to the requirements of "immediate deletion" and "immediate restoration" established by the "notice to delete rule", the judgement should also determine whether the provider of the Internet disk service has taken reasonable measures in respect of the copyright infringement committed by the user, as well as whether it is possible to take preventive measures in accordance with the technological conditions and economic situation of the provider of the Internet disk service. In practice, in cases where the same user is suspected of infringing multiple times or multiple users are suspected of infringing the same work, the NDN service provider should strengthen its supervision and may take necessary enforcement measures, such as restricting the user from logging in, deleting the work in question, or disconnecting the link. For example, Article 8 of the Notice on Regulating the Order of Copyright in Online Disk Services issued by China's National Copyright Administration in 2015 clearly stipulates that online disk service providers should suspend or terminate the use of user accounts where there is a risk of infringement such as abnormal logins and abnormal changes in traffic. As for the preventive measures against infringement, the technical level and economic capacity of the NDN service provider should be taken into consideration. If a certain kind of infringement has been prevented by a more mature technology with lower economic cost and the NDN service provider fails to adopt such technology, it will be at fault and will be liable for indirect infringement of the copyright infringement committed by the user.

To sum up, the "notice to delete rule" and "red flag rule" provide ideas and paths for the determination of fault and

responsibility of the online service provider, but it should be noted that the two rules are only applicable to the online service provider acting as a network technology service provider. If the provider of the web hosting service is found to be a network content service provider in individual cases, then its infringement of the copyright of the right holder is a direct infringement of copyright and the two rules cannot be applied, let alone invoked as a safe harbour.

### 5.3 The Composition of Indirect Infringement from the First Chinese Standard Essential Patent Case

With the development of the theory of indirect infringement of intellectual property rights, the understanding that "the constitution of liability for indirect infringement presupposes the establishment of direct infringement" has been challenged in recent judicial practice, most notably in the so-called "China's first case of standard-essential patents" of The most famous case is the so-called "China's first standard-essential patent case", Xidian Jitong v. Sony China Mobile WAPI Patent Infringement Case. In March 2018, the Beijing Higher People's Court rendered a final judgement of the second instance in the case, which was numbered as Civil Judgement No. 454 (2017) of the Beijing Civil Final Judgement. The case involved a patent for "a method for secure access and confidential data communication of mobile devices over a wireless local area network". The Plaintiff, Xidian Jitong Company, claimed that the Defendant, Sony China Company, had committed acts falling within the scope of protection of its claims, arguing, among other things, that the Defendant's production of WAPI-enabled smartphones constituted contributory infringement. The Court of First Instance upheld this claim, holding that "generally speaking, liability for indirect infringement should be premised on the existence of direct infringement. However, this does not mean that the patentee should prove that there is another subject actually engaged in direct infringement, but only need to prove that there is a final subject in accordance with the allegedly infringing products will be used in a pre-determined way to fully cover the technical characteristics of the patent has met the conditions, as for the final subject to bear the responsibility for infringement, and the establishment of indirect infringement, not". This in fact that the indirect infringement of the establishment of the judgement should not be based on the establishment of direct infringement as a prerequisite, the adoption of the "independent" for adjudication. The court of second instance overturned the first instance judgement and held that the defendant's production of smartphones with WAPI function did not constitute contributory infringement, but the reason for this conclusion had nothing to do with the establishment or otherwise of direct infringement, but rather, it held that the patent in question belonged to the typical method patent of "multi-subjects implementation", and that the process of patent infringement required the joint participation of multiple subjects, whereas the defendant's smartphone produced by the defendant required the joint participation of multiple subjects. The smartphone produced by the defendant only provided the WAPI function module but not the access point AP and authentication server AS, and its provision of a single component was insufficient to constitute contributory infringement. At the same time, the court of second instance recognised the direct perpetrator does not constitute infringement, but should be "indirect infringer" to assume responsibility for the exception and put forward four elements, it can be seen that the establishment of indirect infringement can not require the establishment of direct infringement. Therefore, the author believes that the "indirect infringement" should be determined by the establishment of direct infringement or will be implemented as a prerequisite, that is: the establishment of direct infringement does not affect the establishment of indirect infringement.

Due to intellectual property infringement has the implementation of hidden, rapid, irreversible damage results and other characteristics, coupled with the network environment has a virtual, global and instantaneous, once the occurrence of intellectual property infringement, including copyright infringement, the right to the damage will be difficult to make up for, so the occurrence of indirect infringement of copyright infringement in the network environment of indirect infringement of copyright infringement can not be required to direct infringement has actually occurred, only must be able to prove that direct infringement Can be proved that direct infringement is about to be implemented. Coupled with the network copyright infringement is mostly ordinary users, its distribution is more dispersed, hidden, the rights of the right holder is relatively difficult to defend their rights, can be appropriate to relax the establishment of indirect infringement of the elements of liability, and appropriately aggravate the burden of responsibility as the "administrator" of the network service providers, in order to urge them to actively carry out the network supervision and governance of cyberspace.

## 6. CONCLUSION

For the copyright of the works in the storage space, ISPs should have the obligation not to commit direct infringement, the obligation to exercise reasonable care, the obligation to review the right of the first uploading of some works, the obligation to comply with the "notification and deletion rules", the obligation to provide a way to

contact the uploader, the obligation to assist in the investigation, and the obligation to monitor the abnormal accounts.

However, with the development of network technology, the ability of ISPs to regulate the behaviour of users and the information stored in the storage space may change, and the boundaries of their obligations may be expanded or narrowed accordingly. Nowadays, the society has realised the leap from web1.0 era to web2.0 era and quietly entered web3.0 era. Unlike the web2.0 era, the blockchain technology born in the web3.0 era will make the data no longer stored in a centralised database, but will realise distributed storage - the files uploaded by the user will be divided and stored in a number of small memory blocks, which in turn will be stored in a number of devices in the network, and when the user retrieves a file, the system will reorganise it globally according to the user's instructions. In this case, after uploading files, the files are not centrally stored in the servers of the NDN service provider, and the address of the storage server is difficult to be determined, which will lead to the failure of the "server standard" currently established for determining direct infringement by ISPs, and lead to the fall into the "user perception standard", "server standard", "server standard", and "user perception standard", "server standard", and "server standard". The "server standard", "user perception standard", "server standard", "substantial alternative standard", "legal standard" and other direct infringement determination standard discussion. At this point, the boundaries of the copyright protection obligations of online disc service providers may need to be redefined.

## REFERENCES

- [1] Zhou Hanhua, "On Internet Law", in Research on Network Information Law, Issue 1, 2017
- [2] Liu Zuoxiang and Chen Genfa, Jurisprudence, Social Science Literature Publishing House, 2005 edition, p. 196.
- [3] Tian Xianze and Tang Suqin, Study on the Rules for Determining Copyright Infringement of Online Disk Service Providers, in Electronic Intellectual Property, Issue 7, 2014
- [4] Li Yan and Du Xiaowei, Network Law, China University of Political Science and Law Press, 2017 edition, p.38.
- [5] Ma Yide, "Tort Liability for the Act of Providing Search Links by Network Service Providers" in Law Review, Issue 3, 2017.
- [6] Liu Deliang, "Problems of Civil Jurisprudence in the Age of Networks", in People's Court Publishing House, Issue 1, 2004.
- [7] Zhang Chu and Sun Zhanli, Tutorial on Information Network Law, Higher Education Press, 2017 edition, p. 113.
- [8] Wang Qian, Network Copyright Law, People's University of China Press, 2008 edition, p.136.
- [9] Liu Jiarui, "Study on Vicarious Liability in Copyright Law", in Intellectual Property, No. 3, 2011.
- [10] Zheng Chengsi, "Copyright Law", People's University of China Press, 1997 edition, p. 211.