With the rapid development of information and Internet technologies, how to protect intellectual property (IP) rights in the Internet era became a new frontier for IP practitioners and scholars internationally. This article highlights some important IP protection issues related to copyright, patent, trademark, and domain names, as well as the impact of technological advances on IP protection in the Internet era. The author believes that in order to solve these new emerging issues, the most important principle is keeping the balance between different sides with stakes in the IP right. Finally, international cooperation must be enhanced with more technical assistance to be offered by the developed countries to the developing countries in order to make the world more harmonious and balanced in terms of IP protection in this Internet era.
INTELLECTUAL PROPERTY RIGHTS IN THE INTERNET ERA: THE NEW FRONTIER

DR. LULIN GAO*

Following in the wake of technological development, a series of international treaties on IP protection were concluded, many of which could even be considered milestones. During the first industrial revolution, numerous mechanical machines and gadgets were invented and protected internationally. To this end, the Paris Convention 1 and the Berne Convention 2 were concluded in 1883 and 1886 respectively. Likewise, during the electronic revolution, treaties more focused on protection of electronics were needed. As such a number of international IP treaties were concluded, including the 1971 Geneva Recordings Convention 3 and the 1974 Brussels Satellite Convention. 4 During the evolution of IP protection, the TRIPS Agreement 5 eventually came into being, and the creation of this most important treaty was a milestone in the history of international IP development.

The TRIPS Agreement is important for a number of reasons. First, for the first time in the history of IP protection, standards conferring the availability, scope, and use of trademark, copyright, patent, and other IP rights were set out in one treaty. This is something that had never happened in any previous international IP treaty.

* Dr. Gao is the founder and Chairman of the IP law firm East IP, in Beijing. He is also currently the President of the All-China Patent Agents Association, Vice Chairman of the China Internet Society and a member of the Steering Committee of the China Internet Network Information Center. This article is based on his presentation given on May 25, 2006, at The John Marshall Center for Intellectual Property Law’s Special 65th Anniversary Conference on The Role of the United States in World Intellectual Property Law. Dr. Gao worked for many years in public office in the field of IP in China, and headed numerous delegations for the Chinese government at international forums and diplomatic conferences on IP. He has also held the Chair of the Paris Union Assembly and the WIPO General Assembly. In 1995, he was given the Grand Star Cross by the German government for his remarkable contributions to the field of IP protection and international cooperation. In the same year, the European Patent Office awarded him the International Cooperation Medal for his contributions to the IP field. Dr. Gao is also a Fellow at the Russian International Academy of Engineering.

Second, mandatory obligations for every signatory nation, including the developing nations, were detailed in the TRIPS Agreement. In addition, the treaty provided a transitional period, by which the same standard could eventually be reached by all signatory nations. Third, the provisions of enforcement, including civil and administrative procedures, remedies, provisional measures, special requirements relating to border measures, and criminal procedures are mentioned in the TRIPS Agreement. Notably, no similar provisions focusing on enforcement issues exist in the Paris Convention, the Berne Convention or any other international treaties. The reason for this was that prior to TRIPS, enforcement issues were generally deemed issues that should be decided by the sovereign state itself.

Then came the Internet, which is one of the most important inventions of the last century and promises to continue booming in this century. There are, however, no regulations on the Internet and/or Internet related IP right protection mentioned in the TRIPS Agreement. As a remedy to the problem, the World Intellectual Property Organization ("WIPO") Copyright Treaty ("WCT") and WIPO Performances and Recordings Treaty ("WPPT") were adopted by the WIPO Diplomatic Conference in Geneva in December 1996 in order to supplement the omissions in the TRIPS Agreement. These treaties attempted to consider both the influence of development and the exchange of information along with the impact of communication technologies on the creation and exploitation of works, performances, and recordings. These treaties attempted to balance the rights and benefits of authors, performers, and producers with the public interests. This article concentrates on this new frontier. Particularly, this article focuses on issues of IP protection on the Internet.

A. Internet and Copyright Protection

The Berne Convention is one of the most important copyright protection conventions related to international copyright protection in conventional circumstances. When the Internet era dawned, the WCT and WPPT were adopted to deal with the new issues that were created by this new medium. I am of the view that there are four main principles contained in the WCT and WPPT. First, as prescribed by Article 9 of the Berne Convention, the authors of a work, performers, and producers of a sound or video recording shall be granted the right to make and store their works in digital form, much the same as they enjoy the right of reproduction for conventional works. Second, the copyright owners mentioned above shall possess the right to disseminate digital works to the public so that the digital works can be accessed easily on the Internet. Third, as digitalized work can be easily copied, effective legal remedies against the circumvention of effective technological

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9 Berne Convention, supra note 2.
10 Berne Convention, supra note 2, art. 9.
measures shall be provided. Finally, the protection of electronic management information shall be provided.

Under the guidance of these four principles and the specific provisions of the WCT and WPPT, many signatory nations to these two treaties have established relevant laws or regulations to protect IP on the Internet. As late as 1998, an important act called the Digital Millennium Copyright Act ("DMCA")\(^{11}\) was formulated in the U.S., setting out many new rules for the protection of IP on the Internet. One of the objectives of regulations governing IP right laws is to seek a balance between the rights and benefits of IP right owners and the public interest. In this light, the DMCA managed to deal with issues of how to protect the rights of authors, while at the same time promoting the development of the Internet and guaranteeing the right of access to information for the general public. This, however, created other issues, and a safe harbor provision was created wherein Internet service providers ("ISPs") are excluded from infringement liability under certain conditions. Several of the conditions that delineate Safe Harbor protection include:

a. The ISP has no knowledge of, or financial benefit from, the infringing activity;

b. The information provider has the right and ability to control the infringing activity and must take appropriate measures expeditiously;

c. The ISP has provided proper notification of its policies to its subscribers;

d. An agent registered with the Copyright Office is set up to deal with copyright complaints.

Three of the four principles of the WCT and WPPT have been incorporated into the most recent version of the Copyright Law of the People's Republic of China. However, it is notable that the first principle, which guarantees right owners the right to digitalize the works, is not expressly embodied. Meanwhile, according to the provisions of the 2001 Chinese Supreme People's Court interpretation on Internet copyright, which was amended in 2003, the digitalization of work of another infringes upon the copyright of the right owners. Therefore, the basic provisions of Chinese laws and regulations actually conform to all the principles of the WCT and WPPT. It has even been predicted that China is going to accede to these two treaties. In fact, the Chinese government has already formulated a schedule for the accession.

China's State Council, the highest executive authority in China, promulgated the Regulations on the Protection of the Right of Communication Through Information Networks (the "Network Regulations"),\(^{12}\) which became effective on July 1, 2006. The Network Regulations cover the aforementioned four principles, as well as a system of notification/counter notification in order to provide a Safe Harbor for


ISP's.

The obligations concerning technical measures are stipulated in Article 4 of the Network Regulations. Article 4 provides that the right holder may employ technical measures, and no organization or individual is allowed to circumvent or destroy said technical measures; nor shall any one be allowed to intentionally make, import, or offer to the public apparatus or components that may allow for the circumvention or destruction of said technical measures; nor shall any one be allowed to offer services to circumvent or destroy said technical measures.

Pursuant to Article 5 of the Network Regulations, without express permission from the right holder, no organization or individual will be permitted to intentionally delete or alter the electronic copyright management information of a work, performance, or recording offered to the public via an information network.

According to the provisions of Articles 14 and 15, an ISP shall, upon the receipt of written notice of infringement from the copyright owner, immediately eliminate the relevant content or disconnect the link, and send a notice of its action to the party that provides the work, performance, or recording. The notice from the right owner includes: the name or title, the contact information, and the address of the right holder; the name and web address of the work; and the performance or recording to be removed or for which the link is to be disconnected. In addition, preliminary evidence of infringement shall be contained in the right holder's notification.

A defense for an Internet content providing user is also provided for in these regulations, wherein the user may serve the ISP and right holder a counter notification of non-infringement, and may require the ISP to reinstate the previously removed “alleged infringing content” or reconnect the former “alleged infringing link.”

Because of the implementation of the principles of the WCT and WPPT, the right holder is well protected. Additionally, by adopting the “Safe Harbor” provision, the Network Regulations effectively help ISPs out of the plight of being targets of copyright infringement complaints when the ISPs themselves become targets because it is difficult for the right holders to find the actual on-line infringers. At the same time, the regulations also prevent Internet content providing users from abusing their IP rights.

B. Internet and Patent Protection

Generally speaking, the principles of patent protection on the Internet are the same as for conventional protection. However, the Internet still brings with it a certain number of unique issues, among which are software related inventions and business method patents.

Business methods can be patent protected in the United States. For example, a
company named PriceLine.com has patented software that can help a person automatically manage his travel plans reasonably. The company can assist in arranging a trip to Miami with a cruise around the Caribbean, sleeping in a four-star hotel, and staying on the ship for three nights, all for just $3000. If a travel agency has applied to patent this method and the patent is granted, then any other company providing travel services using the same method or selling software that can help provide the same service would be considered as infringing on the patent right. In this regard, it was reported that PriceLine.com has sued the Microsoft Expedia Travel Service for infringement of its business method patent.  

According to current Chinese patent policies, pure business methods are excluded from patentability. However, a software-related invention that solves a technical problem, employs a technical means, and achieves a technical effect can constitute a technical solution and may be patentable.

Furthermore, whether information published over the Internet is prior art is an interesting issue. In fact, information published on the Internet can be easily changed even without being tracked, although some companies like Cisco, Microsoft, and IBM keep all messages and data, and store them in a facsimile form that is not erasable. If one day all companies are able to handle information like the above-mentioned companies, it may be possible that information on the Internet could serve as a prior art. At present, however, if information and materials are to be used for legal evidence in courtroom procedures, notarization is required for their authenticity. (According to Chinese laws, evidence from outside China may need notarization as well as legalization).

C. The Internet and Trademark Protection

As the industry of the Internet grows, more and more commercial activities have been conducted on the Internet or with the assistance of Internet. As trademarks are important to indicate the source of the good/service providers, it is necessary for us to look into some special issues the Internet has brought to trademark protection. I would like to discuss these issues concerning trademark protection in the Internet environment.

First, the use of trademarks on the Internet has brought some challenges to the trademark system, especially the well-known mark system. According to Chinese Trademark law, a well-known trademark in China is recognized mainly based on its fame and publicity in China, although China may provide protection of a well-known mark whether it is registered in China or not. Some trademarks used in the countries or regions outside China on the Internet could be accessed by users in China, and may also be known by users in China. In such cases, it may be difficult to deem the use of such a mark as the use of the mark in China. It is even more difficult for Chinese authority to recognize such a mark as a well-known mark, because it has no actual presence in China. In my understanding, on one hand well-known trademarks shall enjoy specific protection, but on the other hand there are no

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common rules or criteria for the recognition of well-known trademarks. It is even more complicated, because the Internet has connected nearly all countries, but the global features of the Internet conflict with territorial principles of trademark laws.

Second, what is the relationship between well-known trademarks and domain names? WIPO suggests in its final report that the registration of a domain name identical to a well-known mark in any new gTLD shall be automatically blocked. However, there is no common understanding among countries. The American trademark right holders have successfully used the Lanham Act to protect their well-known marks. However, there are no commonly adopted criteria for recognition of well-known marks, and consequently different countries have different approaches and attitudes toward this issue. The WIPO suggestion is not adopted by Uniform Dispute Resolution Policy ("UDRP").

Third, China has a policy for Internet and trademark dispute resolution, namely the China Internet Network Information Center ("CNNIC") Dispute Resolution Policy ("CNDRP"). This policy is similar to the UDRP adopted by the International Corporation for the Assignment of Names and Numbers ("ICANN"). An interesting amendment in the latest version of the CNNIC, which went into force on March 17, 2006, states that if a domain name registration exceeds two years, no one can file a CNNIC procedure against such a domain name. In such a case, if one still wants to file a complaint against this domain name registration, one may file a lawsuit with a competent court. However, the court procedure is more complicated as well as time consuming and costly. In my view, a number of problems may be potentially created by this new CNNIC rule.

D. IP Protection and Technological Innovation

Different products have arisen during different stages of technological progress and development. For example, the modern copy machine created certain problems with copyright; the invention of the VCR tape recorder then created a whole new set of problems and disputes about whether infringement occurred. In the 1980s, the very famous Sony Betamax\textsuperscript{20} case aroused great discussion in the United States. In the end, the Supreme Court of the United States decided that the Betamax recorder was of essential good use and did not of itself constitute infringement, despite the fact that it could be used for unlawful copying. Following this case, we have in succession seen the advent of similar issues surrounding the CD, the DVD and later Napster\textsuperscript{21}, peer-to-peer ("P2P") and the first generation P2P cases, some of which resulted in a judgment of indirect infringement (contributory infringement).\textsuperscript{22} Even more recently we have the Grokster P2P case.\textsuperscript{23} Many people have relied on the precedent set by the Sony case and believed that their actions may not constitute


\textsuperscript{20} Sony Corp. of Am. v. Universal City Studios, 464 U.S. 417 (1984).

\textsuperscript{21} A & M Records, Inc. v. Napster, Inc., 239 F.3d 1004 (9th Cir. 2001).

\textsuperscript{22} See generally Beth A. Thomas, Internet & Technology: Solutions are on Track: Digital File Sharing Spun in a Positive Light, 6 VAND. J. ENT. L. & PRAC. 129 (2003).

\textsuperscript{23} MGM Studios v. Grokster, 545 U.S. 913 (2005).
infringement for the same reasons. This has been proven not to be so. When handing down the decision in the Sony case, the nine justices of the U.S. Supreme Court voted five to four, no infringement; in the Grokster case, however, it was a nine to zero decision confirming infringement. So it seems that the criteria for such infringement are not completely consistent. This is partly because the technology develops so fast. Too many new issues arise, and thus, it is difficult to establish stable criteria for such infringement. Meanwhile, the Internet has recently begun its development, and many more issues will arise in the future. Therefore, it is necessary for all of us to carefully study all these issues and to render the appropriate IP protections.

CONCLUSION

Rapid development of IP and the Internet present a challenge to the current legal system of IP protection in all aspects, including copyright and related rights, patents, software, and trademark protection. Compared with international trends in IP protection, and under conditions now provided by the Internet, many issues need further study not only for China, but also for the United States and for the worldwide IP community.

In order to meet the needs for further developing the Internet, four points should be considered. First, one must consider the balance between IP protection and technological development. Second, both the benefits of the IP rights owners and the public interests should be afforded equal attention. Any slanting in one direction or the other may damage the interests of its opposite. Third, the interests of both developing and developed countries should be considered equally. The fourth point is that all these issues should be resolved at the international level, as the Internet already connects the whole world as one community. International cooperation must be considered when solving these issues, and more technical assistance should be offered by the developed countries to support the developing countries in order to make the world more harmonious and balanced in terms of IP protection in the Internet era.