

INFORMATION NOTE

Peer-to-Peer File Sharing and Copyright Infringement

1. Background

1.1 The aim of this information note is to provide the Panel on Commerce and Industry of the Legislative Council with information on matters relating to illegal file sharing of copyrighted materials over peer-to-peer (commonly known as P2P) networks. These matters include:

- (a) general features of P2P file-sharing systems;
- (b) operational features of BitTorrent (BT);
- (c) problems of illegal file sharing;
- (d) civil liability for illegal file sharing; and
- (e) criminal liability for illegal file sharing.

1.2 Items (c) to (e) are discussed with reference to the experience of the United States of America (US). The US is chosen because the place has witnessed immense popularity of P2P file sharing in recent years, owing to the significant growth of file compression technology and broadband web access. It is estimated that over 50 million Americans have downloaded or shared files via P2P networks, of which about five million are engaging in such a practice on any given day.¹ Moreover, the problems of P2P file sharing have aroused considerable concerns from Congress.

2. General features of peer-to-peer file-sharing systems

2.1 P2P file-sharing systems are commonly characterized as network-based applications in which the peers (i.e. the participating computers) use the Internet to exchange files with each other directly or through a central server.²

¹ See Malcolm (2003) p.2.

² For more detailed description of P2P file-sharing systems, please go to the website of the US Copyright Office at <http://www.copyright.gov/help/faq/faq-definitions.html> [Accessed 28 May 2004].

2.2 When this kind of system was first popularized by Napster³ in 1999, its mode of operation was centralized. This means that all file-sharing activities by the peers on a P2P network had to be run through a central server maintained by a system developer. However, nowadays, the file-sharing functions of most P2P systems have been decentralized. This means that the directory of files and the uploads and downloads of files are all compiled and done without the use of a central server, resulting in a disconnection between the system developer and the peers. The present P2P systems allow the peers to connect to each other and directly access files from one another's hard drives. It is not necessary to have a central server to control, co-ordinate or facilitate the exchange of files among the peers. In addition, the peers are both senders and receivers of information. This communication mode is different from that of the World Wide Web where users are primarily receivers of information, i.e. visiting an individual's or an organization's website to passively obtain information about that individual or organization.

3. Operational features of BitTorrent

3.1 A number of free P2P file-sharing applications are available on the Internet, and the most popular ones⁴ include Kazaa Media Desktop (Kazaa)⁵, Blubster⁶, Morpheus 4.0 (Morpheus)⁷ and BitTorrent (BT).

³ Napster was previously one of the best-known P2P systems. It had 70 million registered users and 1.57 million simultaneous users at peak times. When it was launched in 1999, its file-sharing system enabled users to freely share digital copies of songs from its central file server without royalties. This service was ruled illegal in the US in 2000, and Napster was closed in 2001. Napster was relaunched as a legitimate online music provider last year. For more information, see <http://www.webopedia.com/Term/N/Napster.html> and http://www.napster.com/what_is_napster.html [Accessed 28 May 2004].

⁴ See *Lime, Kazaa or Blubster* (2004) and *Review of Morpheus* (2004).

⁵ Kazaa is regarded as the world's most downloaded P2P application. It can download a file from various sources at the same time to speed up the transfer rate. The website of Kazaa says that since 23 May 2003, Kazaa has overtaken the previous record-holder, ICQ, by reaching more than 230 million worldwide downloads, and it is estimated that at least four million Kazaa users are online at any one time, see <http://www.Kazaa.com> [Accessed 28 May 2004].

⁶ Blubster can search a P2P network for all available sources for a file transfer, and automatically select the fastest source to download. See *Lime, Kazaa or Blubster* (2004).

⁷ Instead of searching just one P2P network, Morpheus can search all the major networks at the same time to increase the peer's chance of finding a file. See *Review of Morpheus* (2004).

3.2 BT is one of the newest decentralized P2P file-sharing applications. Compared with Kazaa, Blubster and Morpheus, BT is considered less popular.⁸ However, according to its developer, it has faster and stronger file-sharing functions in at least two aspects:⁹

- (a) The main aim of BT is to relieve traffic jams on a central server distributing a file. With BT, a peer can download a file from peers which possess that file or which are in the process of downloading that file. As soon as a peer finishes downloading a part of a file, BT uploads it for other peers to download. The main concept is that the more peers are downloading the same file, the faster every peer's download gets, due to the sharing of the downloading of a file by the peers involved. BT is therefore regarded as particularly efficient in distributing large files that are in high demand. Although some decentralized P2P systems, notably Kazaa, also allow a peer to download a file from multiple sources, they are not capable of allowing a file to be downloaded and uploaded concurrently; and
- (b) With BT, a peer can "seed" a file to others. A seed means a peer that has the complete copy of a file. Seeding can be done by leaving a peer open for some time after it has downloaded a complete file, in order for the file to be available for other peers. In a BT network, it is considered good manners to continue seeding a file to help out others, after a peer has finished downloading.

4. Problems of illegal file sharing in the United States of America

4.1 In the US, illegal file sharing of copyrighted materials, many of which are music and movie files, has been regarded by the Federal Bureau of Investigation (FBI) as the most significant crime involving P2P networks.¹⁰ It is estimated that about two-thirds of those who downloaded music and movies and one-half of those who uploaded music and movies do not care about the fact that the materials they are copying and distributing are copyrighted, and that they have not paid for them.¹¹ The engagement in illegal sharing of music files has been so serious among university students that it has drawn particular attention from Congress where an oversight hearing on "peer-to-peer piracy on university campuses" was held in 2003.

⁸ See *Pew Internet & American Life Project*, available from: <http://www.pewinternet.org/> [Accessed 28 May 2004].

⁹ See *Brian's BitTorrent FAQ and Guide* and Cohen (2003) p.1.

¹⁰ See the testimony by Jana D. Monroe, Assistant Director, Cyber Division, FBI, before the Subcommittee on Courts, the Internet and Intellectual Property of the Judiciary Committee of the House of Representatives, 17 July 2003.

¹¹ The information is from the US Department of Justice, see Malcolm (2003) p.2.

4.2 The entertainment industry has blamed illegal P2P file sharing for the decline in compact disc (CD) sales. According to the Recording Industry Association of America (RIAA),¹² over the past several years, shipments and sales of recorded music have been “plummeting”, and “the downward trend shows no sign abating”.¹³ For instance, music CD sales dropped from US\$13.2 billion (HK\$103 billion) in 2000 to US\$11.2 billion (HK\$87 billion) in 2003. Meanwhile, the International Federation of Phonographic Industries (IFPI)¹⁴ reported a 7% decline in global music sales in 2003. IFPI also reported a 20% total sales drop for the past three years, and it attributed the major cause to illegal file sharing.¹⁵

4.3 RIAA points out that the growth rate of music piracy on the Internet is “astronomical” because a recording file can be illegally copied and distributed through various P2P networks in an unlimited number of times, without any degradation in sound quality.

4.4 However, whether illegal file sharing has negative impact on music sales is still questionable. Some argue that multiple factors may contribute to the decline, such as fewer releases, higher prices and a struggling economy. A recent study,¹⁶ which accessed data directly from file-sharing servers and observed 1.75 million downloads, argued that sharing digital music files had no measurable effect on music sales. The study found that although illegal file sharing might aggravate the sales for the least popular albums, it could increase CD sales for hot albums¹⁷: for every 150 downloads of a song from those hot albums, sales increased by a copy.

¹² RIAA is the trade group that represents the US recording industry. Its members create, manufacture and/or distribute about 90% of all legitimate sound recordings produced and sold in the US.

¹³ The information is available from: http://www.riaa.com/news/newsletter/062503_b.asp [Accessed 28 May 2004].

¹⁴ IFPI is the organization representing the international recording industry. It comprises a membership of 1 500 record producers and distributors in 76 countries. See <http://www.ifpi.org/site-content/about/mission.html> [Accessed 28 May 2004].

¹⁵ *BBC News*, 7 April 2004, <http://newsbbc.co.uk> [Accessed 28 May 2004] and Bainwol (2003).

¹⁶ Released in March 2004, the study was jointly conducted by Felix Oberholzer-Gee of Harvard Business School and Koleman Strumpf of the University of North Carolina. The data of the study were obtained during a 17-week period in the second half of 2002. See Harvard University Gazette, <http://www.news.harvard.edu/gazette/2004/04.15/09-filessharing.html> [Accessed 28 May 2004].

¹⁷ Hot albums were those which had over 600 000 sales, see *ibid.*

5. Civil liability for illegal file sharing in the United States of America

5.1 In the US, the entertainment industry has stepped up its efforts to impose civil liability upon illegal file-sharing individuals and file-sharing system developers.

Against individuals who engage in illegal file sharing

5.2 The US federal law states that an individual who shares a copyrighted file over a P2P network without the copyright owner's permission is liable to be a direct infringer of copyright.¹⁸ A string of court decisions, especially those made in the past year, has affirmed the online copyright infringement liability of individuals. In May 2003, RIAA for the first time successfully claimed compensation from four college students who were accused of committing or aiding music piracy by running file-sharing networks on campus and offering hundreds of songs for sharing.¹⁹ In June 2003, also for the first time, RIAA successfully requested the courts to issue subpoenas to Internet service providers and universities to provide it with the identities and contact information of subscribers suspected of illegally sharing music and movie files.²⁰ Since early 2004, RIAA has sent four rounds of letters to identified individuals offering to settle with them before litigation continues any further.²¹ Up to the end of March 2004, RIAA has sued about 2 000 people who shared files illegally, and reached about 400 settlements worth thousands of US dollars each.

¹⁸ For example, federal copyright statutes and the No Electronic Theft Act have provided penalties for the unauthorized reproduction, distribution, rental or digital transmission of copyrighted sound recordings. According to the Copyright Office of the US government, "*copyright infringement occurs when a copyrighted work is reproduced, distributed, performed, publicly displayed, or made into a derivative work without the permission of the copyright owner,*" available from <http://www.copyright.gov/help/faq/faq-definitions.html> [Accessed 28 May 2004].

¹⁹ 4 pay steep price for free music, *Los Angeles Times*, 2 May 2003, <http://www.latimes.com> [Accessed 28 May 2004].

²⁰ Recording industry to sue Internet music swappers, *The New York Times*, 26 June 2003, and Subpoenas sent to file-sharers prompt anger and remorse, *The New York Times*, 28 July 2003, <http://nytimes.com> [Accessed 28 May 2004].

²¹ *New Wave of Illegal File Sharing Lawsuits Brought by RIAA*, 28 April 2004, and *RIAA Brings New Rounds of Cases Against Illegal File Sharers*, 23 March 2004, <http://www.riaa.com> [Accessed 28 May 2004].

5.3 It is reported that the threat of legal action has caused file sharing to drop. According to a national phone survey of adult Internet users conducted between 3 February and 1 March 2004 in the US,²² 14% of the respondents (the survey said that represented at least 17 million people) who used to download music files had abandoned the practice. The survey said that Kazaa appeared to be particularly badly hit, with its users dropped by more than 5 million between November 2003 and February 2004, while there was some growth in the usage of less well-known file-sharing systems such as BT.

Against file-sharing system developers

5.4 In the US, there are three major court cases addressing P2P file-sharing system developers and copyright infringement, namely the Napster case, the Aimster²³ case and the Grokster²⁴ case.²⁵

5.5 In the Napster case, although Napster itself had not made or distributed any copyrighted works, it was ruled illegal because it had had actual knowledge of its users' infringing activities, from which it could derive a financial benefit. Moreover, it did not exercise its right and ability to control them. In the Aimster case, Aimster was also ruled illegal because it had failed to introduce any evidence that its system had ever been used for anything other than infringing activities.

5.6 Nevertheless, in the Grokster case, the court ruled that two of the defendants, StreamCast (the developer of Morpheus) and Grokster, could not be held liable for illegal file sharing by their users because their applications were found capable of substantial non-infringing use such as distributing authorized materials. Moreover, unlike those of Napster and Aimster, the operational modes of Morpheus and Grokster were so decentralized that the two developers had no ability to control users' access to their networks and engagement in infringing activities. Although being appealed against by the entertainment industry, this ruling represents the first legal victory by file-sharing system developers.

²² The survey was jointly released by the Pew Internet & American Life Project (PIP) and comScore Media Metrix in April 2004. PIP said that this survey was a non-profit and non-partisan initiative and did not advocate for any policy outcomes.

²³ Similar to Napster, Aimster was a system developer of centralized P2P file-sharing applications. According to RIAA, Aimster could continuously monitor the activities of all of its users and was knowingly engaging in flagrant and massive copyright infringement.

²⁴ Grokster was also a system developer of decentralized P2P file-sharing applications. It claimed that its latest version of file-sharing applications could provide the fastest file searches, and track and remember up to 24 simultaneous searches, see <http://www.grokster.com/> [Accessed 28 May 2004].

²⁵ See von Lohmann (2003).

5.7 As the copyright law continues to evolve, whether decentralized file-sharing systems are legal remains debatable. RIAA argues that system developers should provide warnings to their users that the uploading or downloading of copyrighted recordings violates the law. Yet, this view is not shared by system developers. For example, the developer of BT asserts that while BT can be used to transfer illegal files, it is not illegal because it is purely a way of formatting and transmitting data among the peers.²⁶

6. Criminal liability for illegal file sharing in the United States of America

6.1 In the US, between July 2003 and March 2004, a number of bills were introduced in Congress, which bore directly or indirectly on the future of peer-to-peer technology and its continued availability to educators, business, individuals and researchers.²⁷ Among them, the *Piracy Deterrence and Education Act of 2004* (PDEA) has been regarded as one of the most significant legislative measures against illegal file sharing.

6.2 Unanimously approved by the Subcommittee on Courts, the Internet and Intellectual Property of the Committee on the Judiciary of the House of Representatives on 31 March 2004, PDEA mainly aims to criminalize illegal file sharing activities. If signed into law, it would be the first law to punish Internet users who illegally shared files with imprisonment. It is specifically targeted towards Internet users who knowingly and recklessly infringe copyright. Section 10 of PDEA states that any person who knowingly distributes, with reckless disregard of the risk of further infringement, any of the following amount of works through electronic means during any 180-day period is liable to a maximum of three years imprisonment:

- (a) 1 000 or more copies of copyrighted works;
- (b) one or more copies of copyrighted works with a total retail value of more than US\$10,000 (HK\$78,000); or
- (c) one or more copies of one copyrighted pre-release material.

²⁶ See the official website of BT at <http://bitconjurer.org/BitTorrent/protocol.html> [Accessed 28 May 2004].

²⁷ See Copyright Legislation, 108th Congress, <http://www.copyright.gov/legislation/index.html> [Accessed 28 May 2004]. These bills include Anti-counterfeiting Act of 2004, Fraudulent Online Identity Sanctions Act, Database and Collections of Information Misappropriation Act, and Protecting Intellectual Property Rights Against Theft and Expropriation Act of 2004.

- 6.3 To enhance law enforcement, PDEA proposes to:-
- (a) empower FBI to develop education programmes to discourage members of the public from committing acts of copyright infringement through the Internet;
 - (b) facilitate sharing of information concerning acts of copyright infringement among law enforcement agencies, Internet service providers, and copyright owners; and
 - (c) require the Department of Justice to formulate programmes to educate the public on copyright laws.

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