
UNIT 10 P2P NETWORKING

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10.1 INTRODUCTION

Peer-to-peer (P2P) technology, with which users can use the Internet to exchange files with each other directly or through a mediating server, is seen as a threat to copyright industry. Recently, P2P networks such as Napster, Gnutella and Kazaa have led to massive reproduction and distribution of copyrighted works. Armed with digital and communication technologies, ordinary people have the competence to set up huge distribution networks of digital products in which everything is available for free and the producer gets nothing.

On the information superhighway this loss of control over their own digital products has sent the digital product industry into shock and panic. In recent times the industry has supplied figures of piracy that, if believed, are massive by any standards. This trend, if continues, has the potential of disrupting the traditional balance in the copyright regime and also alter the business models of our society. If taken to extreme, the P2P networks could land us in a situation where there are no working artists or programmers.

10.2 OBJECTIVES

After reading this unit, you should be able to:

- explain the concept of peer to peer network and the different kind of P2P networks along with their legal implications;
- describe the damage cause by P2P networks and the reaction of copyright industry; and
- explain the nexus or relationship between Copyright law and Digital technology, and the growing need for the balance of the two.

10.3 WHAT IS PEER-TO-PEER NETWORK?

Peer-to-peer (P2P) is defined as two or more computers connected by software which enables the connected computers to transit files or data to other connected computers. In recent usage, P2P has come to describe applications in which users can use the Internet to exchange files with each other directly. The P2P connection means that it's a direct link, the file is being directly transferred from one computer to the other, it is not going through any mediating server.

A P2P network does not have the notion of clients or servers, but only equal *peer* nodes that simultaneously function as both “clients” and “servers” to the other nodes on the network. This model of network arrangement differs from the client-server model where communication is usually to and from a central server. Napster, Gnutella and Kazaa are popular examples of this kind of P2P software.

Please answer the following Self Assessment Question.

Self Assessment Question 1

Spend 3 Min.

What are P2P networks?

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10.4 VARIOUS P2P NETWORKS AND THEIR LEGAL IMPLICATIONS

10.4.1 Napster

Napster was created by 19-year-old Shawn Fanning in 1999 and it quickly became popular around the world and pioneered the concept of P2P file sharing. With Napster, individual people stored files that they wanted to share (typically mp3 music files) on their hard disks and shared them directly with other people.

In order to download a free music file first of all one had to become a member of Napster service by downloading the Napster software on one's computer. The Napster software was available for free at the Napster's Web site 'www.napster.com'. After implementing the Napster software the computer became a small server able to make files available to other Napster users. Then the computer connected to Napster's central servers. The Napster software that a member downloaded on his computer automatically told Napster central servers that these were the music files on his computer. So, the Napster central servers had a complete list of every shared song available on every hard disk connected to Napster at that time. A Napster user could send a request to the Napster server for a particular piece(s) of music. Now, the Napster server did not contain any music on its own server but had a list of all the music that was available on the Napster members' computers. The list was dynamic in nature as the music files available depended on

which member was online at a particular time. The entire user community could be searched for artists or titles in seconds. One could simply type in the name of an artist or song, receive a list of what was available, and then downloaded the music from another user’s hard drive.

Napster grew to having 57 million users of its service with a consistent 1.6 million using the system at any given time. Napster became so popular so quickly because it offered a unique product – free music that anybody could obtain nearly effortlessly from a gigantic database. You no longer had to go to the music store to get music. You no longer had to pay for it. You no longer had to worry about cuing up a CD and finding a cassette to record it onto. And nearly every song in the universe was available. At its peak, Napster was perhaps the most popular Web site ever created.

But for the music industry Napster was a big, automated way to illegally copy copyrighted material. The music industry was against Napster because people could get music for free instead of paying for a CD and any music downloaded was considered a loss of business opportunity. The industry sued Napster under a claim of copyright infringement. Napster’s defence was that it contained no copyrighted music files on its servers. It just had a list of what was available on Napster’s users’ computers. So, if at all any one is liable for copyright infringement it is the person who downloads the copyrighted product or the person who makes it available and not Napster itself. But the court had sufficient reasons to injunct Napster for copyright infringement. The court said that putting the list on the Web site was akin to running a huge distribution network. Napster’s key weakness lay in its architecture – the way that the creators designed the system. The central database for song titles was Napster’s Achilles’ heel. The court [*A&M Records v. Napster, Inc.*, 239 F.3d 1004 (9th Cir. 2001)] ordered Napster to stop listing the music files which were under copyright protection and there was no means with Napster to segregate copyrighted music files from those that were in public domain. The only option with Napster was to shut down the database and the absence of a central database killed the entire Napster network.

Please answer the following Self Assessment Question.

Self Assessment Question 2	<i>Spend 3 Min.</i>
Who was the creator of Napster and when was it invented?	
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10.4.2 Post Napster P2P Networks

With Napster gone, what the world had at that point was something like 100 million people around the globe hungry to share more and more files. It was only a matter of time before another system came along to fill the gap. One distinguishing feature of the P2P services that came after Napster was that they had no central server

maintaining direct file listings of all the files. The other distinction was that Napster was related to music files and that too specifically mp3 files. But most of these new softwares, Gnutella, Kazaa, etc., allow any type of files to be transmitted and downloaded.

Gnutella is an underground variant of Napster whose popularity has risen dramatically in the wake of the litigation in which Napster had been embroiled. Gnutella has dozens of clients available. Some of the popular Gnutella clients include: BearShare, Gnucleus, LimeWire, Morpheus, WinMX and XoloX. Given that there is no central server to store the names and locations of all the available files first, one has to install a version of Gnutella on one's computer and type in the name of the song/film or any other file one wants to find. The machine knows of at least one other Gnutella machine somewhere on the network because it has been told the location of the machine by typing in the IP address, or because the software has an IP address for a Gnutella host pre-programmed in. The machine sends the file name typed in to the Gnutella machine(s) it knows about. These machines search to see if the requested file is on the local hard disk. If so, they send back the file name (and machine IP address) to the requester. At the same time, all of these machines send out the same request to the machines they are connected to, and the process repeats. After getting all of the search results the machine directly contacts the computer that has the desired file. It is an extremely simple and clever way of distributing a query to thousands of machines very quickly.

Kazaa is the latest version in the P2P technology which is spreading like a wildfire. Kazaa was originally established in the Netherlands. Kazaa network is built on a technology called the Fast-track technology. This is different from Gnutella in the manner that this software actually converts certain good quality computers in a particular network into supernodes which perform the listing function. The P2P searches occur through users with these supernodes. A supernode contains a list of some of the files available and where they are located. The Kazaa software first searches the nearest supernode to a user and then refers his search to other supernodes and so on. This process is designed to make searching as fast as possible and means that searching will take place only through the files that have been indexed by the supernodes.

In *Buma & Stemra v. Kazaa* [Buma & Stemra v. Kazaa, Cause list number KG 01/2264 OdC (Judgement passed by the President of the Amsterdam District Court on November 29, 2001)], an action for copyright infringement was brought against Kazaa by Buma & Stemra in a Dutch court. The plaintiffs, Buma & Stemra, a Dutch copyright licensing group, sued Kazaa for the distribution of software which allowed users to make unauthorized copies of copyrighted works. In November 2001, the district court of Amsterdam ruled in favour of the copyright industry and ordered Kazaa to remove its website. Kazaa, thereupon, filed an appeal vide matter *Kazaa v. Buma & Stemra* [Kazaa v. Buma & Stemra, Judgement delivered by the Amsterdam Court of Appeal on March 28, 2002.] in the Amsterdam court of appeal. The court of appeal decided in Kazaa's favour and reversed the findings of the district court stating that the Kazaa technology has many other substantial and legitimate uses such as trading jokes and personal photographs apart from the fact that it could be used for copyright violations.

The latest in the series of legal battles against the P2P file sharing softwares is *MGM Studios, Inc. v. Grokster, Ltd.* [545 U. S. , 125 S. Ct. 2764 (2005)] which is a

United States Supreme Court case in which the Court unanimously held that defendant P2P file sharing companies Grokster and Streamcast could be sued for inducing copyright infringement for acts taken in the course of marketing file sharing software. The plaintiffs were a consortium of 28 of the largest entertainment companies (led by Metro-Goldwyn-Mayer studios). The case has been called the most important intellectual property case in decades.

Grokster came before the Supreme Court having already won in two previous courts. The United States District Court for the Central District of California originally dismissed the case in 2003, citing the Betamax decision. Then a higher court, the Ninth Circuit Court of Appeals, upheld the lower court’s decision after acknowledging that P2P software has legitimate and legal uses. Finally the Supreme Court stated, “We hold that one who distributes a device with the object of promoting its use to infringe copyright, as shown by clear expression or other affirmative steps taken to foster infringement, is liable for the resulting acts of infringement by third parties.” The Court unanimously concurred that Grokster could be liable for inducing copyright infringement. The principle laid down by the court is that it has to be shown that the distributors of the file sharing program have advertised and/or otherwise induced its use for copyright infringement; if this intent can be shown, additional contributory aspects may be relevant.

The decision has been hailed by many as striking a fair balance between the need to respect the intellectual property rights of artists, and the benefits of allowing and promoting technological innovation. Indeed, the decision does seem to leave sufficient leeway for developers in creating new products, as it establishes guidelines to compliance with existing copyright law, and holds liable the distributors rather than developers for copyright infringement. Conversely, others have criticized the new test for its apparent vagueness.

Please answer the following Self Assessment Questions.

Self Assessment Question 3	<i>Spend 3 Min.</i>
1. Name some popular Gnutella clients?	
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2. is the latest version in the P2P technology?	

10.5 DAMAGE BY P2P NETWORKS AND REACTION OF COPYRIGHT INDUSTRY

Millions of people around the world have downloaded various P2P software and are increasingly using them to exchange music, movie and software files. The copyright industry has been giving figures that go to show the decline in the sales of copyrighted products and they cite the reason as Internet piracy. The stakes as reported by the Industry are definitely high. The Industry points the finger directly at the Internet.

But these figures have all been brought out by the Industry. Moreover, it can't be said with unflinching certainty that how much of this loss is due to online piracy. So, on the question of the impact this activity is having on entertainment company profits, one has to be agnostic: other factors, such as the state of the economy, and the easy availability of CD's and DVD's, in the form and containing the tracks that users want, will also have a bearing on the sales of pre-recorded music, films and software. There is also a tendency by the entertainment industries to argue that every copy made through the medium of file-sharing is a lost sale and missed business opportunity. That begs the question as to whether the person who made the copy would have actually paid to acquire a legitimate copy had the alternative not been available.

For the audiovisual industry, Napster was a loud wake-up call. The online file-sharing service demonstrated that people using readily available equipment could easily download and distribute digital music and movies en masse, regardless of copyright. Not surprisingly, that sent the audiovisual industry into a panic. After all, one theory goes, if you can get digital files for free, why would you ever pay for a movie ticket or a CD? The industry argues that online piracy eliminates the economic incentives for a business to invest millions in the production of movies, software, video games, CD's, etc. A business will no longer get a return on its investment if a consumer can just get it for free online. In that manner Internet piracy would hinder the growth of creativity.

Shocked and dismayed, the industry in the last couple of years has been fighting this menace of 'piracy' on all possible fronts, that include, lobbying, litigation, legislation and technological measures. The industry is starting to prosecute not only companies like Napster but also individuals who download copyrighted content and the persons who make it possible namely the Internet service providers.

In the past, there has been pressure from the industry for stronger protection of their rights in the digital context. In 1996, two treaties were concluded at WIPO: the WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT) (commonly referred to as the "Internet treaties"). These treaties address the issues of the definition and scope of rights in the digital environment, and some of the challenges of online enforcement and licensing. As a continuation of this process, in many countries laws have emerged in this direction.

The industry is continuously looking towards a solution through the courts. Napster was of course a success for the industry. But in future litigations the results have not been very encouraging for the industry. They are now proceeding against the individuals who share the copyrighted works through these P2P networks and also the Internet service providers¹ who make all these downloads possible.

A pragmatic answer to these problems was provided by the technology itself and the audiovisual industry is currently looking at technological solutions to prevent unauthorized access to or use of copyrighted material, or illicit dissemination of protected works. Technological protections could take many forms and serve many related purposes. Some of these protections are scrambling signals, encryption, passwords, electronic watermark, digital code and the like. By these the product can be locked behind technological barriers (or 'walls' or 'fences') – requiring authorization and payment through electronic means before they could be opened up or set aside. The idea is to stop copying in the first place rather than fighting back after it has been done. No matter how sophisticated the technological protections employed, none are invulnerable, and surely smart people will increasingly make it their business to

hack through encryption, pick digital locks, steam open electronic envelopes, or obliterate digital watermarks. Since every kind of technical protection provokes circumvention, technical identification and control mechanisms have been backed by accompanying legal protection. In order to protect against the circumvention of technological protections applied to copyrighted products in the digital environment, provisions have been incorporated in the WCT and WPPT making it obligatory for member states to provide legal protection against the circumvention of technological measures that are used by authors in connection with the exercise of their rights.

10.6 INDIAN LEGAL LANDSCAPE VIS-À-VIS P2P NETWORKS

Let us examine a network like Napster functioning in India which allows people to share and distribute music, films and computer software. Section 51 of the Copyright Act, 1957 says that in case anyone does anything the exclusive right to do which is by this Act conferred upon the owner of the copyright, his act amounts to infringement of copyright. Section 14 of the Copyright Act which governs the domain of exclusive rights granted to copyright owners says that making copies of any work by using whatever medium, communicating the work to the public or issuing copies of the work to public fall within the domain of exclusive rights of a copyright owner. So, if any person is running a network like Napster in India he could be liable for encroaching upon the exclusive rights of the copyrights owner as he is essentially facilitating the communication of the work to the public.

Further section 51(a)(ii) says that in case a person *permits for profit any place to be used for the communication of the work to the public where such communication constitutes an infringement*, he shall be liable for infringement of copyright. The expression ‘any place’ could well be construed to mean virtual place as well.

As for the persons who actually make available and download copyrighted works, the law is very clear. Section 14 says that issuing copies of work or communicating the same to public amounts to infringement. So, a person who downloads a software like Napster and implements the same on his machine is making the copyrighted work available to any member of the public who has the corresponding software installed on his machine. The person who actually downloads the file containing copyrighted work is reproducing the work without the consent of the copyright owner, so is guilty of copyright violation as well. Section 51(b)(ii) says anyone who distributes either for the purpose of trade or *to such an extent as to affect prejudicially the owner of the copyright he shall be deemed to have infringed the copyright in a work*. Any person making available copyrighted works over P2P network may not be trading in the same but he is nevertheless distributing such work which when combined amount to gigantic proportions affecting prejudicially the interests of copyright owner.

Now for networks akin to Gnutella or Kazaa, where there is no central server brokering the requests of people, it is rather hard to stop the system in one go. There is no one person or entity that is managing the affairs. The entire thing is managed by a software and that is already out and lakhs of people have made copies of the same. You can't really outlaw the installation and use of that software as it could legally be used for sharing files which are not protected by copyright. But

individuals who use such software for sharing copyrighted works remain guilty under the above stated provisions of Copyright Act. Catching them is rather difficult. But, potential liability is made easier to document by the fact that P2P applications create long user sessions that present adequate opportunity to trace users back to a point of origin.

10.7 COPYRIGHT LAW AND DIGITAL TECHNOLOGY: NEED FOR BALANCE

Technology is copyright industry's best friend and worst enemy. The copyright industry is at crossroads once again in this digital age and faces yet again a challenge which is unprecedented in magnitude and consequence. This junction is, in many ways, a defining moment in the long and chequered history of copyright. There is a need for the industry to shun the traditional antagonism towards new technology and stop seeing it as a threat resulting in crisis. The industry should realise the great potential offered by the digital technologies and it might even turn out to be advantageous to the industry. Over 100 years, every single new technology that copyright owners have protested has turned out to make them more money, not less.

The USA can be said to be the birthplace of modern digital technologies and these technologies have had their greatest impact there; not surprisingly the USA has also taken lead in controversies over such issues. Most of the legislative and judicial exercise has also taken place there. This makes it a suitable bed for conducting legal experiments and social debates. But things are at their most confused there. There is an ongoing tussle and tension between industry, consumers, technology makers and access providers. There are many unsolved questions and unsettled controversies yet. No single section of the community is capable of solving these vexing issue and there is no single and straight answer. Answers to these questions will not arrive overnight; nor will they be delivered to us in a dream. We have to struggle to find answers ourselves. We have to participate in a debate and make sure that the debate is well informed and balanced and in which the needs and concerns of all relevant parties are heard.

P2P file trading is a global phenomenon. Although record companies have won considerable victories with the enactments like the Digital Millennium Copyright Act, Napster's bankruptcy, and tools enabling the encryption protection of CDs to prevent copying, they have progressively lost a substantial consumer base. Stronger and more uncontrollable P2P networks have emerged since the death of Napster, hackers have easily circumscribed copy protection technology, and consumers are fighting for the fair use rights. The continued growth and popularity of P2P networks is not likely to cease in the near future. It's hard to get the genie back in the bottle. The record industry has fought the war against music piracy with lobbying, litigation, copy protection technologies and self help measures. The industry cannot possibly win a war fought on all fronts and has to think in terms of change in its business model. Entrepreneurs will have to think about change in business models and reducing prices so as to be viable to the digital market. Public education and awareness about copyright is also important. Consumers will have to learn and be comfortable shopping at their computer than in stores.

Our challenge is to ensure that the laws of copyright adapt to the new technological environment in a way that feeds and encourages creative activity rather than in a way that inhibits or overwhelms it. The proprietary aspect of copyright law is only one

side of the matter, which is to be considered in close relation with its cultural-economic aspect. In other words: the right of copyright owners to equitable remuneration should always be balanced with the interests of society at large. The key is to balance which has always to be interpreted and reinterpreted considering varying interests from time to time along with the advancement of technology.

Let us now summarize the points covered in this unit.

10.8 SUMMARY

- P2P technology is seen as a great challenge to copyright industry.
- P2P is defined as two or more computers connected by software which enables the connected computers to transit files or data to other connected computers.
- Around the year 2000 Napster became very popular to download free music from the Internet but ultimately the site had to shut down under a court order for copyright violations.
- But newer P2P networks are very difficult to shut down, as they do not depend on a central server unlike Napster.
- Copyright industry is trying to stop the damage by P2P networks through law reform, litigation and technological measures.

10.9 TERMINAL QUESTIONS

1. How the P2P technology is a threat to the copyright industry?
2. What are the major litigations around the world that have taken place against the P2P technology? Also summarize the overall impact of these litigations.
3. Describe how the copyright industry will develop in future keeping in mind the growth and development of digital and information technology.

10.10 ANSWERS AND HINTS

Self Assessment Questions

1. P2P network is defined as two or more computers connected by software which enables the connected computer to transfer file or data to other connected computers.
2. Shawn Fanning in 1999
3. a) BearShare, Gnucleus, LimeWire, Morpheus, WinMX and XoloX.
b) Kazaa is the latest version in the P2P technology.

Terminal Questions

1. Refer to section 10.4 of the unit.
2. Refer to section 10.5 of the unit.
3. Refer to section 10.6 of the unit.