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P2P Networks: Online Piracy of Music, Films and Computer Software

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With the aid of P2P technology, the vast and ever growing cyber populace has the competence of unauthorized sharing of digitized copyrighted works such as music, films and computer software without bothering to pay for them. This unauthorized sharing of copyrighted works, which is termed as online piracy, has led to massive distribution and exchange of valuable stuff, which was hitherto unknown on such a scale and magnitude. When such piracy takes place at the instance of ordinary people, copyright law is once again challenged by the latest in the series of technological innovations, i.e., digital and communications technology. In an environment where the producer-middleman-consumer chain has reached a fragile point, it becomes imperative to find a legal solution to promote creative activity in an organized manner, which secures the interests of both producers and consumers. Towards this end, this paper focuses on the sharing of works through various P2P networks such as Napster, Gnutella and Kazaa and tries to explore their social, economic and legal implications.

Keywords: P2P networking, MP3 movement, Napster, Internet, Gnutella, Kazaa, online piracy, copyright industries, audiovisual industry, fair use, copyright law

Peer-to-Peer (P2P) network is defined as two or more computers connected by software, which enables the connected computers to transmit files or data to other connected computers. It describes applications in which users can use the Internet to exchange files with each other directly or through a mediating server. Thus, it is a type of transient Internet network that allows a group of computer users with the same networking program to connect with each other and directly access files from one another's hard drives. This connection means that it is a direct link, the file is being directly transferred from one computer to the other and is not going through any mediating server. Napster and Gnutella are examples of this kind of P2P software.

P2P is a communications model in which each party has the same capabilities and either party can initiate a communication session. Other models with which it might be contrasted include the client/server model and the master/slave model. In some cases, P2P communications is implemented by giving each communication node both server and client capabilities[1]. This model essentially comes in three distinct modes:

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the file download functions which gained recent notoriety with the music downloads offered via Napster, the underground extension of this capability found in such sites as Gnutella, and the instant messaging capabilities exemplified by such applications as Microsoft's Instant Messaging. Each has its own characteristics[2]. P2P is bleeding-edge technology, and its capabilities are so attractive that it is being adopted very rapidly for a wide number of uses. The recent notoriety of Napster, Gnutella, Morpheus and similar sites, the increasing use of broadband[3] technologies to deliver real-time audio to the desktop and the utilization of video streaming techniques, all reflect the popularity and rapid implementation of P2P communications protocols.

P2P technology was not originally created to facilitate copyright infringement. It was in fact envisioned as a means to avoid the 'bottlenecks' that occur when many users try to access a server at the same time. However, P2P technology did not become popular until Napster used it to facilitate file sharing[4]. And with the emergence of new P2P networks like Gnutella and Kazaa, P2P technology itself is being blamed for piracy. Actually, it is not the technology but its use, which could be blamed.

MP3 Movement

The MP3 movement is one of the most amazing phenomena that the music industry has ever seen. Unlike other movements - for example, the introduction of the cassette tape or the CD - the MP3 movement started not with the industry itself, but with a huge audience of music lovers on the Internet. The MP3 format for digital music has had, and will continue to have, a huge impact on how people collect, listen to and distribute music[5].

MP3 was developed in Germany in 1987 at the Fraunhofer Institut Integrierte Schaltugen and was named EUREKA project EU147. Professor Dieter Seitzer of the University of Erlangen aided in development and it eventually became known as ISO-MPEG Audio Layer-3 standard. MPEG stands for Moving Pictures Experts Group, a subcommittee which helped develop the MP3[6].

MP3 is a technology and format for compressing[7] a sound sequence into a very small file while preserving the original level of sound quality when it is played. The compression is achieved by the systematic removal of sound waves outside the human audible range so that there is no noticeable change in the quality of sound. To create an MP3 file, a program called ripper is used to get a selection from a CD onto the hard disk and another program called an encoder is used to convert the selection to an MP3 file. Most people, however, simply download MP3 files from someone and play them. MP3 files (identified with the file name suffix of .mp3) are available for downloading from a number of web sites. Many Windows 98 users have a player built into their operating system. Otherwise, one can download a player from one of several popular MP3 sites.

MP3 files are usually download-and-play files rather than streaming sound files that are used to link-and-listen-to

with RealPlayer and similar products. However, streaming MP3 is possible. One can download MP3 files from the Internet and play them on one's computer, listen to them on a portable MP3 player or even burn one's own CDs. The advantage of the MP3 format is that it makes song files small, one-twelfth the size of the original file, to move around on the Internet in a reasonable amount of time.

The initial MP3 craze was fuelled by sites like mp3.com. On these sites, anyone can upload a song. However, the sites cannot legally store or distribute copyrighted material - that would be copyright infringement, which is illegal. All the songs available on mp3.com (and sites like it) are either public domain songs, songs uploaded by artists who are trying to get exposure, or songs released by record companies trying to build interest in a CD. So the format becomes a powerful tool for distributing music on the Internet. But the 'limitation' is that such sites can upload and distribute the music, which is either in public domain or with the consent of the copyright holder.

Since it is relatively easy to create MP3 files from CD selections and make them available on web sites for downloading, companies and sites that promote the MP3 format are sometimes accused of encouraging copyright violations. On the other hand, MP3 enthusiasts claim that what CD publishers are afraid of is any kind of non-CD distribution. While there are several proposals for discouraging such piracy, there is currently no secure distribution and copyright management standard that publishers and other parties agree upon. Several web sites are promoting MP3 as both a high-quality audio format and as a way in which self-publishers can gain ready access to an audience. However, not much mainstream copyrighted material is available except as an illegal download. MP3 is not illegal in itself, but the same can be and has been used illegally or for distributing illegal material.

People with a computer, a CD-ROM drive, and audio CDs were capable of creating their own MP3 collection. MP3 software is available free on the Internet and is easy to download and operate. The small size of the MP3 files made it easy to store lots of CDs on hard drives or blank media. The growth of MP3 required a system to transfer the files over the Internet, which led to the birth of Napster[8].

Napster

Napster, created by 19-year-old Shawn Fanning in 1999, quickly became popular around the world pioneering the concept of P2P file sharing. With Napster, individual people stored files that they wanted to share (typically MP3music files) on their hard disks and shared them directly with other people.

The Napster model functioned by having users contact a central server that brokered their searches and established direct sessions between connecting peers. Napster users had to register to a server when they came online.

In Napster, MP3 files are distributed differently. Instead of storing the song files on a central computer, the songs were stored on user's machines. When a

song is to be downloaded using Napster, it is downloaded from another person's machine, and that person could be the next-door neighbour or someone halfway around the world.

The creator of Napster had a couple of reasons for this approach: (i) he expected Napster to have billions of songs. A central server will not have enough disk space to hold all these songs, or enough bandwidth to handle all the requests, (ii) Napster was trying to take advantage of a loophole in the US copyright law that allowed friends to share music with friends. The legal concept behind Napster was that all these people are sharing the songs on their hard disks with their friends. The courts did not agree with this logic, but it gave Napster enough time to prove the concept and grow to massive size.

Individuals tend to be less concerned about copyright laws than businesses like mp3.com have to be, so individuals make all sorts of copyrighted songs available to the world from their personal machines. This means that anyone can download, for free, any song that someone has taken the time to encode in the MP3 format.

This approach that Napster adopted worked very well and made fantastic use of the Internet's architecture. By spreading the load for file downloading across millions of machines, Napster accomplished what would have been impossible any other way[9]. Napster became so popular so quickly because it offered a unique product - free music that anybody could obtain nearly effortlessly from a gigantic database. There is neither a need to go to the music store to get music nor pay for it. Further, it is no longer necessary 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. Napster grew to having 57 million users of its service in less than a year with a consistent 1.6 million using the system at any given time[10].

The fall of Napster

The problem with Napster was that it was a big, automated way to copy copyrighted material in an unauthorized manner. 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 major events in the downfall of Napster are:

In July 2000, US Judge, Marilyn Hall Patel, issued an injunction against Napster, ordering the company not to allow the trading of copyrighted material on its system. The injunction is stayed by the 9th US Circuit Court of Appeals allowing Napster to continue to operate. The record labels appealed to the 9th US Circuit Court of Appeals to re-instate the injunction in October 2000. Napster claimed it was just the industry trying to keep total control of music distribution.

Bertelsman AG, a record company involved in the Napster lawsuit, formed a partnership with Napster to start a fee-based music downloading service in the same year. The fee service was to start in summer 2001.

In February 2001, the 9th Circuit Court of Appeals ruled Napster knew its members were trading copyrighted music. The Court found Napster was involved in 'contributory and vicarious infringement,' and had full knowledge its members were infringing on copyright laws. Napster had knowledge of the activity because Recording Industry Association of America (RIAA) had provided a list of 12,000 infringing files to Napster, which made no efforts to remove them. Napster even had well-known song titles in some promotional screen shots. A document authored by Napster co-founder, Sean Parker, mentioned 'the need to remain ignorant of users' real names and IP addresses since they were exchanging pirated music[11]. Napster executives had experience in the record industry and had enforced intellectual property rights before. Napster executives had themselves downloaded copyrighted songs from the Internet.

Napster proposed a US $ 1 billion settlement with the five major record labels as well as independent labels and stated that they could serve as a subscription based service in February 2001. The offer was rejected. In June 2001**,** Napster was taken off-line by Judge Patel for copyright infringement. All copyrighted material was removed from its network. The sale of Napster was blocked in September 2002 ending its chances of returning as a file-swapping service.

Napster was distributing an illegal product and its key weakness lay in its architecture - the absence of a central database for song titles. The court ordered Napster to stop the distribution of copyrighted music and shut down its site as it was promoting copyright infringement.

The recording industry sued Napster under a claim of copyright infringement. Napster argued that none of the music files were on Napster's site and hence no copies had been created at that end. If at all anyone was liable for infringing the copyright, it was the person who had downloaded the music or the person who had offered his music to be downloaded. The user who had requested the music was ultimately the one who was downloading it and making a copy and the other person was making it available. The US Copyright Act says that every copyright owner has the exclusive right to copy, to distribute, and to make it available to the public. When a user downloads the Napster software, he, with the aid of that software, is telling Napster about what music is available on his computer and thereby making it available for other Napster users to download it because then anyone who is a Napster user can access the site and get it from his computer. So he is committing an infringement because he is making it available or he is communicating that particular music file to the public. The person who thus obtains the music file is infringing because he has downloaded the copy, and has made a copy on his computer. So, Napster said that both the types of users are the real infringers but not Napster itself.

Reflecting the intention, the court said that Napster is a secondary infringer because the Copyright Act punishes not

only those who copy, distribute, download, or make available, but also the person who enables copying, download or communication with the public. Without Napster, the individuals could not have done this. Putting the list on the web site was akin to running a huge distribution network. Napster got more users thronging its web site and hence got more advertisements. The Napster court found the benefit can be gained by having the infringing material, which attracts more customers, which in turn will make the company more attractive to investors.

Napster invoked the Internet Service Provider (ISP) safe harbour provisions under Section 512(a) of the DCMA[12], that basically provides that an ISP shall not be liable in XYZ circumstances only if it has no knowledge of the infringement taking place through its facilities. The court did not allow this defence as RIAA had given notice to Napster regarding 12000 infringing files and Napster had made no attempts to take them out of its database. The averment of fair use was also rejected because the defendant ate into the plaintiff's market, especially digital market, as the plaintiffs showed that CD sales had fallen. Besides, it was different from lending a CD to a friend - if you provide a CD to a friend it is fair use under US laws- but in case of Napster, all were anonymous requesters. You could have people sitting anywhere in the world and getting access to your files. So it is almost like you are running a distribution network. Napster also had the ability to control and monitor, because, if Napster did not give the listing on its computer, the file could never be located or the file could never be downloaded. The Napster court found that the ability to terminate user accounts or block user access to the system was enough to constitute control. Napster was an excellent technology, but had to be stopped because it violated the law at some point.

Gnutella

The fact that Napster promoted copyright violations did not matter to its users and so most of them turned to the new file sharing architecture, Gnutella[13].

P2P services that came after Napster have no central server maintaining direct file listings of all these music files and this made enforcement very tough. Another distinction is that, while Napster relates to music files and specifically MP3 files, most of the new softwares like Morpheus, Kazaa, etc., allow all types of files (audio, video and html) to be transmitted and downloaded.

The two main similarities between Gnutella and Napster are: (i) users place the files they want to share on their hard disks and make them available to everyone else for downloading in P2P fashion and (ii) users run a piece of Gnutella software to connect to the Gnutella network.

The two big differences between Gnutella and Napster are: (i) there is no central server that knows all of the files available on the Gnutella network. Instead, all the machines on the network tell each other about available files using a distributed query approach and (ii) there are many different client applications available to access the Gnutella network. Napster had one piece of 'client

software'-the software that users implemented on their computers to access the Napster servers. Gnutella has dozens of clients available. Some of the popular Gnutella clients include: BearShare, Gnucleus, LimeWire, Morpheus, WinMX, XoloX.

Working of Gnutella

As there is no central server to store the names and locations of all the available files, how does the Gnutella software find an audiovisual work on someone else's machine? The process goes like this:

Install one of the versions of Gnutella on the user computer (node), which then becomes both a client[14] and a server[15]. Type in the name of the song/film or any other file required. The computer finds another Gnutella user and establishes connection with that computer. The user 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 these machines send out the same request to the machines they are connected to, and the process repeats. When all the search results are obtained and the found file that is to be downloaded, the user peer directly contacts the computer that has the required file with an http request, the kind used by browsers to request web pages. This is why Gnutella networks are so hard to shut down; their file transfers look just like regular web traffic. In a large community (in this instance, thousands of peers and millions of shared files), the daisy-chain process creates an enormous cascade of messages and responses across the entire online community[16]. A request has a time to live (TTL) limit placed on it. A request may go out six or seven levels deep before it stops propagating. If each machine on the Gnutella network knows of just four others, then a request from one machine might reach 8,000 or so other machines on the Gnutella network if it propagates seven levels deep.

It is an extremely simple and clever way of distributing a query to thousands of machines very quickly. This approach has one great advantage - Gnutella works all the time. As long as at least one other machine running Gnutella software is available, it is possible to query the network. But Gnutella has at least four disadvantages: (i) there is no guarantee that the desired file is on any of the 8,000 machines you can reach, (ii) queries for files can take some time to get a complete response, (iii) it may be a minute or more before all the responses, seven levels deep, come in. The user machine which is part of this network answers requests and passes them along, and in the process routes back responses as well thereby giving up some amount of the bandwidth to handle requests from all the other users and (iv) it does not know when the search is finished. Since computers that do not have the desired file do not respond to your computer, your computer can not tell if other computers simply do not have the file, or if they just have not responded to the request yet.

Apparently, these disadvantages are minor because people have downloaded

hundreds of millions of copies of Gnutella clients.

Gnutella itself is legal. There is no law against sharing public domain files and anybody is free to use Gnutella for sharing content that is in public domain. It is when people use it to distribute copyrighted music and films that its use becomes illegal.

There are several advantages of using Gnutella. Unlike Napster, the user does not rely on another server. Gnutella is decentralized so you can still find other files if a couple of computers are taken off the network. In this respect, there is no way to shut down the network. There are no central servers to shut down! Gnutella, therefore, is a far more advanced version of Napster and this is a service that has again challenged the legal system. Gnutella allows searching for information anonymously, and it allows searching for information in a setting that differs from traditional search engines like Yahoo! because unlike these search engines, the information is not controlled or fed.

Kazaa

Kazaa is the latest version in the P2P technology. It is one of the many file sharing networks, now facing a lawsuit in the United States by various companies in the music and movie industry. It was originally established in the Netherlands. The steps involved in downloading music, movie, or other types of files using Kazaa network are: (i) download the Kazaa program available free at a number of web sites, and implement the same, (ii) register by entering a username, password and e-mail address as prompted by the wizard, (iii) put the files for sharing in the 'My Shared Files' folder, (iv) after registration, log in, go to the 'Tools' menu and select 'Options.' Select the directories to which download will be made and from which users will be allowed to upload, (v) click on audio, video, software, documents or images, and type something into the search box..... When ready to start swapping, click the 'Search' button at the top of the screen and wait till the appearance of a bunch of files, double click on one of them for downloading, (vi) when clicked on the 'Traffic' button at the top of the screen, another screen will open from which the status of transfers in both directions can be monitored.

Kazaa network is built on a technology called the fast-track technology where the software detects and converts five or ten of the good quality computers from the available 100 computers into supernodes[17], which perform the listing function. With Kazaa, users trade files through thousands of anonymous 'supernodes.' There is no plug to pull.

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. In the course of the search, the Kazaa Media Desktop (KMD) first searches the nearest supernode to the user, and then sends him immediate results. This first supernode then refers the search to other supernodes and so on. This process is designed to make searching as fast as possible and hence, the computer will never search through all the files made available by

KMD, but only through the files that have been indexed by the supernodes that the user is connected to. A computer becomes a supernode automatically, but, if a user does not want his computer to become a supernode, he has to go to 'options', choose the advanced tab and check the 'do not function as a supernode' box.

Kazaa is much more reliable than Napster and even Gnutella. Kazaa provides extra benefits such as downloading images, documents, software and videos. The main benefit is the download technology. When searching for a song, Kazaa groups songs with exactly the same file information from as many users as possible. It then downloads the song from every user with that file, in small chunks, and the user never comes to know this because it doesn't slow anything down. It means that downloads run much faster, and are highly reliable. Kazaa allows the user to even pause downloads and resume them later on.

Efforts on to Stop Kazaa

In *Buma & Stemra* v *Kazaa*[18] 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*[19] 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. Further, after release Kazaa.com is not monitoring the way it is being used and is not in a position to control it.

However, in the meantime, Kazaa had already left Holland; Sharman Networks purchased the rights to distribute the software from its Dutch owners, and Kazaa is now managed from Australia, but incorporated in Vanuatu, a South Pacific island. In the USA on 2 October 2001, the weight of the global entertainment industry came crashing down on Niklas Zennström, co-founder of Kazaa. Every major American music label and movie studio filed suit against his company. Their goal was to shutter the service and shut down the tens of millions of people sharing billions of copyrighted music, video, and software files. In January 2002, three months after the suit was filed, Amsterdam-based Kazaa.com went dark and Zennström vanished. Days later, the company was reborn with a structure as decentralized as Kazaa's P2P service itself. Zennström, a Swedish citizen, transferred control of the software's code to Blastoise, a strangely crafted company with operations off the coast of Britain - on a remote island renowned as a tax haven - and in Estonia, a notorious safe harbour for intellectual property pirates. Ownership of the Kazaa

interface went to Sharman Networks, a business formed days earlier in the South Pacific island nation of Vanuatu, another tax haven. Sharman, which runs its servers in Denmark, obtained a licence for Zennström's technology, FastTrack. The Kazaa.com domain, on the other hand, was registered to an Australian firm called LEF Interactive. All this exercise was just to confuse the copyright cops and to drown all efforts to nail Kazaa in the jurisdictional quagmire. This strategy could well be described as an international business model for the post-Napster era.

According to Cnet.com, Kazaa software has been downloaded off their site over 120 million times[20]. In the last six months alone, PC users have downloaded more than 90 million copies. Kazaa has 60 million users around the world and 22 million in the US - an irresistible audience to marketers. Last year, Sharman raked in millions from US advertisers like Netflix and DirecTV, without spending a penny on content. The chase could have gone on forever.

Hollywood's disdain for file-sharing can be measured in the 10-foot stack of papers that make up *Metro Goldwyn Mayer Studios* v *Grokster et al.*, which sits on file in the Los Angeles federal courthouse. In the suit, a roster of entertainment conglomerates accuses FastTrack-enabled services Kazaa, Morpheus, and Grokster of profiting from a "21st-century piratical bazaar." Record labels and movie studios want the services closed and fined $150,000 for each illegally traded song or movie. Given the billions of files changing hands every week, the damages could be astronomical. With US operations, Grokster and Morpheus were easy to pin down.

The question before US District Court judge Stephen Wilson was simple: Does Sharman do enough business in the US to be lawfully included as part of the Morpheus-Grokster lawsuit? But the proceeding quickly became a referendum on the company's alleged sins.

In the United States litigation, Kazaa argued lack of jurisdiction because Kazaa spans worldwide, and any decision by a US court would impact the entire world. Oddly, Kazaa argued "because we are everywhere, we are nowhere;" a national ruling cannot be made because of its international effects[21].

Online Piracy: Extent of Damage by P2P Networks

According to the International Federation of the Phonographic Industry (IFPI) [22], an organization representing the recording industry worldwide, the worldwide record sales for the year 2001 were US $ 33.7 billion dollars. The availability of free music on the Internet was blamed for the 5% drop in global sales of compact discs[23]. In the year 2002, global sales were down 9.2%. Jay Berman, Chairman and CEO of IFPI states, the industry is in transition, with widespread CD-R, copying and Internet downloading continued to affect sales[24]. World sales of recorded music fell by 10.9% in value and by 10.7% in units in the first half of 2003. Unauthorized file-sharing and commercial piracy were major factors causing the decline. Interim

sales of all audio and music video formats were worth US $ 12.7 billion, compared to US $ 14.2 billion in the same period of 2002[25].

Internet piracy in particular affected the world's major markets in the first half of 2003. Germany, Japan, France and the US suffered significant decline in sales. The number of unauthorized downloads of tracks in some cases exceed the levels of legitimate track and CD album sales[26].

The RIAA puts the blame for 5.3 and 7% drop in the number of CDs sold in 2001 and 2002 respectively, partly on online file trading. According to the RIAA, the decline cost the industry US $ 284 million in lost sales.

In Morpheus, it was estimated that, at one point, 1.81 billion files were exchanged in a month. According to download.com[27], Kazaa was downloaded 2,804,056 times for the week of 12-8-2002 and Morpheus was downloaded 295,632 times. According to cnet.download.com, there are over 2.5 million downloads per week of the Kazaa Media Desktop Software. The same source mentions 230 million downloads of the Sharman software, and 111 million downloads of the Gnutella-based Morpheus software per week.

The Industry pointed the finger directly at the Internet as these figures have all been brought out by the Industry. Moreover, it cannot be said with unfailing certainty that how much of this loss is due to online piracy. So, the impact of this activity on entertainment company profits remains vague. Other factors like the state of the economy, and the easy availability of CDs and DVDs 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. The question is whether the person who made the copy would have actually paid or not to acquire a legitimate copy had the alternative not been available.

In India, the problem of infringement through the Internet has yet to reach the magnitude that it has in some developed countries - we have had no Napster-like problem as audio cassettes still remain the most common and most accessible form in which copies of sound recordings are stored, being much cheaper and more widespread than the digital alternatives. This situation would no doubt change.

Reaction of the Audiovisual Industry to Online Piracy

Law Reforms and Litigation

The invention of the MP3, compression of data into a small package without loosing sound quality and enabling easy sharing over the Internet, took the audiovisual industry by surprise. 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, CDs, 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.

The success in the *Napster* case was a big win for the audiovisual industry. As it was distributing an illegal product, Napster's key weakness lay in its architecture.

Like in the case of Napster, the Federal Appeals Court in Chicago upheld an injunction that shut down the file-sharing service Aimster to stop its users from illegally swapping copyrighted music recordings[28]. In *JASRAC* v *Y K MMO Japan*[29], the defendant MMO Japan provided an electronic music file-sharing service on Internet called "File Rogue" employing the P2P system that enabled registered clients to swap files in the form of MP3 among themselves on their personal computers through the defendant's server located in Canada so that individual clients could download music data. To receive the defendant's file-sharing service, each client must have special file-sharing software installed in his computer. The defendant offered such software to an indefinite number of users through its web site[30] providing information of the contents of MP3 files. JASRAC, after obtaining a provisional injunction, brought an action to recover damages from MMO Japan alleging that MMO Japan infringed JASRAC's right of making available for transmission and its automatic public transmission right. The court rendered an interim decision declaring the defendant's liability for damages caused by its file-sharing service[31].

In *Columbia Music Entertainment K K et al.* v *Y K MMO Japan*[32], after the Tokyo District Court issued a provisional injunction order against MMO Japan, 19 recording companies brought an action against MMO Japan for damages on the ground that the defendant infringed the plaintiffs' rights of making available for transmission of their phonograms under Article 96-2 of the Copyright Act. The Tokyo District Court rendered an interim decision declaring that the defendant was liable to the recording companies for infringement of the plaintiffs' public transmission right[33]. But the P2P networks that emerged after Napster are proving to be immune to legal insecticides. The industry is finding it more and more difficult to trap these networks legally.

Not getting their way, the industry is starting to move down the chain, prosecuting not only companies like Napster, but also individuals who download copyrighted content and the persons who make it possible, namely, the ISP.

The new strategy became evident in the year 2003 when the RIAA served Verizon, an ISP, with a subpoena demanding that the service provider disclose the identity of a user who uploaded more than 600 songs while connected to the company's Internet service. Verizon protested, but recently a US district court judge ruled in favour of

the RIAA and ordered Verizon to reveal the user's identity[34]. Verizon has asked for a stay of the judge's order. If the stay is denied, Verizon said it would seek a stay at the appeals court level.

Technological Measures

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. These can lock the product 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 smart people will 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 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[35].

A considerable amount of work is being done on 'copyright tagging' and developing 'unique identifiers' so that the owners of digital material will be able to identify their property wherever it is and however it has been modified or distorted. This will overcome many of the problems of identification. Moreover, this technology, together with the development of 'intelligent agents' or 'bots', which are capable of trolling around cyberspace identifying these tags, will help track the copyright material across the Internet wherever it may be. Legal recognition and protection to RMI have been provided in the WIPO Copyright Treaty (WCT) and WIPO Performances and Phonograms Treaty (WPPT) and have come up in a number of national legislations, which penalise anybody tampering with such, RMI employed.

To guard its content and avoid further losses, the audiovisual industry has hastened to employ copy protection technology. The industry is lobbying with hardware and software producers to implement copy protection on their devices. The idea is to install chips into each computer that will decode audio and video information only if it comes with an unlocking key; the computer will refuse to play content if it is not digitally signed by Microsoft or an authorized

party. Hard drives will no longer be able to record certain types of information[36]. The goal is for the system to quietly report to authorities any unauthorized content in the computer, and the system may be instructed to delete information from the owner's hard drive.

The duel between P2P file-sharing fans and their opponents who want to protect copyrighted materials is turning into a high-tech arms race as each side boosts the stakes with digital weaponry. Both fans and foes of P2P activity are turning to technological self-help deterrents. The industry is relying on such self-help countermeasures since other efforts to thwart P2P network operations are not working to give desired results.

One such self-help measure is spoofing. It means posting corrupt or misleading files to discredit P2P network files. File spoofing calls for flooding it with decoy downloads created with the approval of the copyright owner. It appears to be one of the most effective methods of preventing P2P sharing. Spoofing makes it hard to find real media in a P2P search because the decoys, which may be ads or low-quality media, can vastly outnumber the pirated versions. For the most part, file spoofing is being kept low profile[37]. Musicians typically do not admit that they are hiring techies to spoof. So it is hard to tell how widespread the practice is. Rap singer, Eminem, and the band 'The Bare Naked Ladies' are among those known to spoof[38].

For more than a year, the technical consulting firm, Overpeer, has distributed hundred of millions of files every month on the leading P2P networks, said Mark Morgenstern, chief executive officer. He said the company is very successful at intervening for their clients to protect copyrighted music, games, video, and software. He measured their success by how often users access Overpeer files when apparently seeking pirated content. Overpeer keeps a low profile; the company's web site[39] offers no information, but a street address in New York City and an e-mail address. Morgenstern emphasizes that Overpeer's clients are the copyright holders, and its work is protecting copyrighted material[40].

A second tactic of P2P foes, interdiction, targets the search process. It repeatedly requests media on a P2P network, starving out other searches by occupying the request line so others cannot access it. The method resembles a denial-of-service[41] attack, which involves bombarding a specific Web server with so many requests for information that it cannot keep up and crashes. Because P2P connections are created temporarily by whatever computers are logged in at any given time, experts fear that innocent bystanders could also be hurt through a denial-of-service attack.

Many of the self-help measures would strictly speaking be termed illegal when tested on the touchstone of laws like Computer Fraud and Abuse Act of the USA and the Information Technology Act, 2000 of India.

Confusion Confounded: the Ongoing Debate

Why do people do what they do?

An important question in this respect is why ordinary people who are generally

speaking law-abiding citizens engage in the online use of music and films that according to national and international law is unauthorized. The answers to this could be many.

One, people do not consider this use unauthorized. Ordinary people in their role of consumers tend to regard digital content as something that is out there in order to be shared by all. This is particularly so with popular music which is not perceived as the product of a creative music industry which has to invest vast sums in its promotion and distribution, but rather as a freely circulating part of culture[42].

Two, until very recently and despite the availability of appropriate technology, the audiovisual industry has failed to offer its customers the products they want. If consumers prefer to buy music by the track against reasonable prices, the music industry still offers only complete albums at high prices. If under these circumstances, the preferred product is available for free on the Internet; it should come as no surprise that people serve themselves[43].

Three, this is more so since the production and sale of music has over the last two decades concentrated in a few multimedia giants, which almost completely dominate the supply of music content. In view of how these giants like to present themselves in today's society, they should not be surprised when people do not seem to feel they are causing any substantial harm to the content industries or the artists and performers they represent. The argument repeatedly made by the music industry: 'we need to keep the prices high since our profit comes from a small number of bestsellers and is partly needed to explore, develop and subsidize new artist and performers', is not very convincing when offset against the complaint of many of them that they receive a rather modest portion of the revenues earned by an album[44].

Alex Alben, vice president of public policy for streaming media pioneer RealNetworks believes most users will opt for legitimate digital content if services offer a big, reasonably priced selection with sufficiently flexible distribution controls to make buying more convenient than illegal copying[45]. But few such services exist today, and some new ones have been scrapped. Though legitimate sites with major-release movies are scarce, several fee-based sites - MusicNet, Pressplay, and Listen.com - offer music. But these services have flopped commercially, hobbled by much smaller selections than those offered by P2P networks, and by restrictions on the number of songs users can download and whether users can burn them to a CD.

Viewing Consumers as Pirates

Consumers collectively, for their part, have so far hardly been able to articulate and express their views on the social and legal questions with regard to the online distribution of audiovisual products, other than by their actual conduct.

The industry harps on the doctrine of functional equivalence, which means whatever laws apply in the offline world should also apply in the online environment. If somebody goes to a store and steals a CD, he would be prosecuted and made liable for the theft. On a P2P

network, without leaving his house, a person could steal material worth thousands of CDs. Should there be a difference?

It seems inappropriate to incriminate consumers for piracy when they are file-sharing music or circumventing technological measures to get access to text. This is because, however unlawful such unauthorized file-sharing or circumvention may be under the circumstances, it is not an act of piracy in the proper sense of the word, which would require organized, systematic infringement of copyright law for commercial purposes by wholesale copying and reselling of illegitimate products[46].

Widespread action against consumers will no doubt put the music industry's relationship with the public under further strain. Consumer discomfort, however, is not only expressed with regard to the online distribution of music. In addition, the results of technological measures, limits on access and use of copyrights owned by publishers frequently frustrate customer preferences with regard to online content[47]. Few people would advocate rampant piracy, or dispute content owners' right to fair payment for their works. Still, "The industries that own content need to shift their perspective from viewing consumers as potential pirates to dealing with consumers as potential customers," said Alex Alben, vice president of public policy for streaming media pioneer, RealNetworks[48].

Impact on Fair Use

Copyright has never been a full property right or monopoly. Neither has copyright ever been about perfect control over copies of creative works[49]. Rather, there have always been a number of limitations and exceptions which evolved, not only to give the author sufficient incentive to produce new works to satisfy the public interest, but also to ensure that parts of existing creative works are available to build upon in the creation of new works. Unfortunately, the technological measures which are being increasingly adopted and implemented by the audiovisual and software industries do not affect only pirated distribution on P2P networks - it can prevent users from making any copies at all- even one that formerly would have qualified as fair use. With the possibilities of digital technology, the copyright industry is trying to extend their control over the products in a manner which is, in fact, tighter than what was possible before. With the possibilities of digital technology, what we're seeing is copyright owners taking the opportunity to try to extend their control, said Jessica Litman, professor of law at Wayne State University and author of the book *Digital Copyright*[50].

Impact on Privacy

Even if legitimate digital media becomes available, the technology has a downside that worries some consumer advocates. It lets vendors track what is being watched and listened to. Copy protection technologies must be able to identify devices such as PCs and portable players that comply with its rules, and must ensure that the content purchased is not misused. This would definitely raise

privacy issues. Digital media's connected nature makes consumer tracking possible to a degree unmatched in the analogue world.

Self help measures also will have quite a huge impact on privacy. Self-help measures give media companies the means to take the law into their own hands. Everyone's right to privacy would be infringed not by the government, but by media companies. As many of the P2P traders are also paying customers, audiovisual industry would be placed in the strange position of hacking their own customers.

Moreover, because of legislations like DMCA and the *Verizon*[51] ruling, copyright holders get users' identities merely by alleging copyright infringement (a fairly easy standard to meet) - without review by a judge and without giving users any chance to protect themselves or their identities. All this is raising many an eyebrow on the consumer privacy front, a rather a sticky wicket.

Legitimacy of Copyright Law

The issue of the legitimacy of copyright law as a system of positive law may be looked at quite differently depending on whether it is approached from the perspective of a country with an established and expansive audiovisual industry or from that of a country, which depends on the import of foreign materials for its public. A country having large audiovisual, music and film industries will tend to regard copyright system in high regard and a country not having large industries of their own will do otherwise. It depends on which side you take. Seen in this context, the legitimacy issue touches upon the question of North-South relations.

Even in the Western world where arguments in favour of copyright and other IPR are vociferous the legitimacy of copyright law is being questioned, as is illustrated by the fact that the RIAA is allegedly preparing for legal action against millions of individual users of music file-sharing software.[52] The communication of online audiovisual products is in great disarray, as is evidenced by an ongoing societal and legal process of action and reaction between the established music industry, suppliers of file-sharing software, ISPs and individual users. In an environment where the audiovisual industry has put itself in conflict with its own consumers and other industries like that of technology producers and ISPs, questions are being raised about the legitimacy of copyright system in the digital landscape.

Indian Legal Landscape: Fighting Piracy through P2P Networks

According to Section 51 of the Copyright Act, 1957[53], in case any one does any thing 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 governs the domain of exclusive rights granted to copyright owners[54]. Making copies of any work by using whatever medium, communicating the work to the public or issue 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, according to Section 51(a)(ii)[55], 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.

In case he takes up an argument like Napster that "I am not making anything available, I just have a listing," even in then he could be held responsible under Section 63 of the Act[56].

In this case the person who runs such a system like Napster could be held guilty of abetting the infringement, as without such a network it would have been virtually impossible for people to share copyrighted works.

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 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 and so is guilty of copyright violation as well. Section 51(b)(ii) says that copyright is infringed if anyone distributes either for the purpose of trade or to such an extent as to affect prejudicially the owner of the copyright. Any person making available copyrighted works over P2P network may not be trading in the same, but he is, nevertheless, distributing such work which combined, could 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 software and that is already out and lakhs of people have made copies of the same. You cannot 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, though 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.

Conclusion

Technology is copyright industry's best friend and worst enemy. P2P technology poses more of a threat to copyright industry which includes audiovisual and software industries, than the invention of the cassette tape recorder, because the

quality of a digital recording on an MP3 player is almost as high as that of the actual CD (the difference in quality is not detectable by the human ear), and P2P technology enables massive reproduction and distribution that could not occur with a cassette tape recorder. The one guarantee of the Internet is new technology will always replace the old. Napster came and went and is not even missed because of the birth of better P2P networks. If P2P is defeated, some new technology will replace it. All sides should come together and work on a way to pay the royalties and embrace the current technology. The audiovisual industry, artists, ISPs, software firms, computer manufacturers, blank CD makers, and P2P networks need to find a middle ground and a way to pay royalties to their rightful owners.

We can benefit from the legal experiments that have been conducted in the USA and the spurt of passed and proposed legislations there. But actually every new piece of legislation has created more problems than it has solved. The legislations like Peer-to-Peer Piracy Prevention Act seek to validate some of the self help measures which would allow copyright holders to employ these measures in certain situations. Consumer and privacy advocates are up in arms against the passing of any such laws. They are already grouping themselves in alliances to wage a war against these legislations. Employing such self help measures could well land a person in trouble as in that case he would be violating the Information Technology Act, 2000.

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 a change in its business model.

Entrepreneurs will have to think about change in business models and reducing prices so as to be viable in 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, and until that community feels comfortable about the security of their financial transactions, the market is going to be 99% hype and 1% wish. In other words, until the psychology of the public changes, there would not be a digital market.

The 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 to be considered in close relation with its cultural-economic aspect[57]. 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.

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Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law

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