

Sharing is Caring

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"The government cannot turn a blind eye to the record industry slump, but we should not leave Internet users in constant fear of violating the law," Premier Frank Hsieh, head of the Government Information Office (GIO), in Taiwan

SUMMARY:

File sharing is defined by Microsoft as the act of making files on one computer accessible to others on a network. This makes files available to other users for download over the Internet and other smaller networks. It has been one of the hottest topics in the Internet world for years. This peer-to-peer (P2P) file sharing system allows for small files such as MP3's to be downloaded very easily. File sharing is a legal



technology with legal uses; however, the great majority of users use it to download copyrighted materials without permission. In 1999, Napster became the first major centralized program for file sharing.

People were able to download MP3 files with their high-speed Internet connections at impressive rates. The music industry immediately took interest in file sharing, because they were not being compensated for the music that was being shared to millions of users throughout the world. The music industry was lead by many high profile performers such as Dr. Dre, Metallica, Limp Bizkit, and Dave Matthews. Many other artists were also fighting for their music to being taken off of the server. Eventually, the music industry won the legal battle with Napster, and in July of 2001 Napster was forced to shut down. Once Napster was shut down, a new decentralized network, called Gnutella, was formed. The new decentralized server prevented any single broken link from compromising the

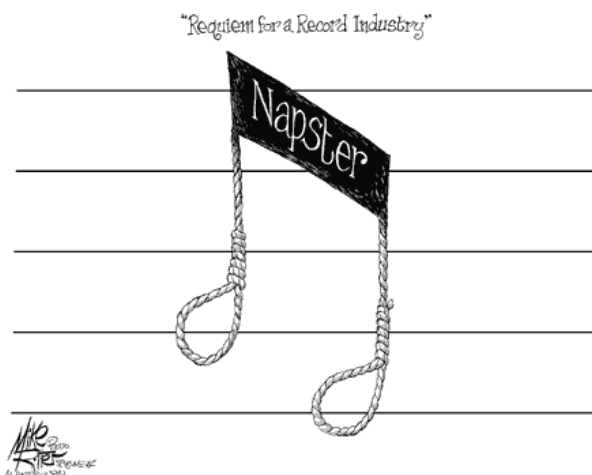
entire network. This meant that even if one or more people were shut down, the entire network was still able to function.

There are many file sharing networks for people to use to download files. As soon as a network is shut down, people find other places to get the songs that they want for free. In many cases, the network is forced to take certain songs off the server, or completely corrupt the file. This means the file will be able to be downloaded, but is unable to be used. In most cases the file will make the screeching sound, instead of playing the music. For instance, if you downloaded a corrupt song, it would not play on your computer. In some programs such as KazAa, a study was shown that even when a user did not want to share certain files, they were still being shared. Good and Keckelbery (2003) led a study that found when a user tries to share certain songs on their C: drive, the entire computers files are accessible. This is an error in the programming of KazAa, and does not fully make the user aware that files they are sharing are being shared to a much larger community.

Today Napster runs as an affiliate of the music industry. Copyrighted materials are still available from Napster, however there is a fee that goes to the artist. This is much like Apple's iTunes, which charges 99 cents for a single download and various prices for an entire album. Today many free download sites are still operating such as LimeWire, BearShare, and WinMX.

EDUCATIONAL IMPORTANCE:

Why do you need to know about file sharing? File sharing is an



important area for people to understand because without due compensation, it is illegal. Many of the networks are finding loopholes and remain operating. KaZzA, for example, changed its Internet location so that it was based out of another country. This makes it harder for the music industry in the United States to easily attack the company. Either way you look at it someone is being wronged. The music industry claims they are losing money and the networks such as LimeWire feel they are only providing a service of sharing, just as if a person would let a neighbor borrow a CD or DVD. Most college students spend their free time on the Internet, and much of that time is downloading songs. The government is trying to catch those whom are doing so. People have been caught for file sharing and they have been fined large amounts of money. It is important to know which programs swap files legally and serve as alternatives to “stealing” music.



MY OPIONION:

In my opinion, unlimited file sharing should be allowed. I feel that if I go out and buy a CD, I should be able to let others make a copy. This is also true for downloading online. I have downloaded many individual songs and then based on

my preferences for the song decided to go out and buy the entire album.

CDs are overpriced and are becoming too much of a hassle for people to carry around. Studies have shown that it is false to think that CD sales have gone down since music downloading has become popular. Many people are purchasing CDs on iTunes and

Napster, and those sales are not usually taken into consideration. How can a person find out if they like a particular artist unless they are able to preview it first? I know many people that go out and buy CDs even after they download the songs online. Even if they do outlaw servers like LimeWire, people will find ways to get what they want for free. A person can spilt buying a CD with their friends, load it on to each of their computers, and then sell the CD at a lower price to someone else. The new owner of the CD can do the exact same thing. If anything, regulating what is legal and illegal is only making things worse. The artists that are taking a stand are losing money from fans that believe they are out of line. If the artists are complaining about money so much, they should tour more often, because their fans will come out to support them. Like I mentioned before, I do download music, and when I find an artist that I enjoy listening to, I will more times than not go out and purchase the CD. For artists that I already like, I automatically buy the CD, and do not even waste my time downloading them, because I know they put out a great product.

Today almost everyone has a portable MP3 player. These Apple iPods are receiving much of the blame for this downloading craze. The iPod makes it easy to carry around thousands of music files at the same time, and the best part is that they are all in your pocket. If more and more servers are shut down the demand for iPods would decline because music would not be easily accessible. Apple is making millions of dollars from everyone that is downloading music illegally on the Internet. Yes, Apple does offer a service where people can download a song for 99cents, but they do not have all of the songs that a person can find if he chooses to download from LimeWire. Any way you look at it, iPods and other types of MP3 players affect the downloading predicament.

Whichever side wins, allowing downloading, or ending downloading will have a large affect on Apple's sales.

Today it is very easy to purchase a CD, and then save it to a personal computer. Retailers are offering to buy back used CDs at a lower price and then resell them. This instance alone proves that people are continuing to buy CDs or else stores would not invest in buying them back from consumers to resell. Is this considered to be sharing? Or are the stores making quick money on previously purchased merchandise?

COLD HARD FACTS:

A specific recent case, in which a file-downloading server was taken to court, was the case of MGM v. Grokster (<http://money.cnn.com/2005/06/27/technology/grokster/2005>). The Supreme Court found that the software companies can be liable for allowing users to download copyrighted materials. The court also overruled the previous ruling that barred Hollywood from suing Internet companies for copyright infringement. Although the entertainment companies won this battle, it is expected that people will be able to continue to download copyrighted files. This is the case because the entertainment industry did not get them(the Supreme Court), to say that the tools used for downloading copyrighted materials without permission are illegal. Eric Garland, the CEO of file-sharing tracker BigChampagne who has followed the *Grokster* case closely, said Hollywood & Co. was looking to the Supreme Court to rule that peer-to-peer technology is illegal because it's used mostly for illegitimate purposes. "The entertainment industry really needed this to be about the technology. What they didn't get was a decision that said 'tools that allow people to exchange files freely on the Internet, without permission,

are illegal," said Garland. The battle will continue!

(<http://money.cnn.com/2005/06/27/technology/grokster/>)

Another study was performed in June 2005, by a group of five professors from four universities. D. Dumitriu and W. Zwaenepoel of EPFL in Lausanne, Switzerland, E. Knightly from Rice University in Houston, Texas, A. Kuzmanovic from Northwestern University in Evanston, Illinois, and I. Stoica from University of California at Berkeley. Their idea was to see if they could attack a file like a regular Internet targeted attack and see what would happen if they tried to attack a p2p-network. A single file attack is very difficult to be beneficial because it is dependent on the behavior of the downloader. The article states, "For the attacks to succeed over the long term, clients must be unwilling to share files, slow in removing corrupted files from their machines, and quick to give up downloading when the system is under attack." This means by attacking one file, the rate



of return is lower than if an entire network is attacked. In network-targeted attacks, the attackers respond to queries for any file with erroneous information. Any file that has erroneous information will be attacked, rather than just one particular file that is attacked in a single file attack. These files are what are known as DoS, or denial of service files. This means the files are corrupted and unable to be used. In many cases users are downloading music and not

using them immediately so they are unaware if the file works, and it just sits in their library waiting for someone else to download it. This technique works in certain instances, but many p2p users are greedy and do not share their files. This means the DoS file is not shared to other users. The professor in the study took much time to come up with certain equations to figure out which types of files are being downloaded and the rate of success. They found that many users do not sit around and wait for a file to be downloaded, and if it is corrupted they waste little time to find another song version of the file. Also, they found that many users do not even attempt to download new music because of the higher chances that the file has been attacked. The professors' conclusion shows how difficult file sharing is to stop. The article states, "We produced an extensive set of analytical models and simulations, and our findings are as follows. (i) File-targeted (pollution) attacks applied in today's p2p networks are largely ineffective in cooperative p2p environments due to scalability limitations; the main reasons for their current success are that clients do not share files, do not remove corrupted files, or quickly give up when the system is under attack.¹" They also concluded that false information is not the only way to stop sharing, that it also takes the investment of their own infrastructures to exploit the software. They also found that randomizing attacks is ineffective because it severely hinders the performance when no attackers are present.

The study took into consideration many aspects to file sharing and though many tests found that it is harder than anticipated to stop users from sharing. It becomes even

¹ Dumitriu, D and Knightly, E and Kuzmanovic, A and Stoica, I and Zwaenepoel, W (2005). "Denial-of-Service Resilience in Peer-to-Peer File Sharing Systems" *Communications of the ACM*. Volume 33, Issue 1 P 48-49.

harder to shut down the files that are being shared because users are greedy and do not share most of their files.

KEYWORDS:

Centralized: the activities of an organization, particularly those regarding decision-making, become concentrated within a particular location and/or group.

Copyright: The legal right granted to an author, composer, playwright, publisher, or distributor to exclusive publication, production, sale, or distribution of a literary, musical, dramatic, or artistic work.

Corrupt file: a file containing errors or alterations, as a text.

Decentralized: the activities of an organization, particularly those regarding decision-making, become less concentrated within a particular location. The purpose behind Decentralization is to prevent any single broken link from compromising the entire network.

Denial of Service: (DoS), When something attacks a file and malicious nodes respond to queries with erroneous responses.

File-sharing programs: are used to directly or indirectly transfer files from one computer to another over the Internet, over a smaller Intranet or across simple networks usually following the peer-to-peer (P2P) model.

Open Source: generally denotes that the source code of computer software is open source as to study, change, and improve its design through the availability of its source code under an open source license.

Peer-2-peer: Sending a file from one person to another, in the idea that it is sharing.

Piracy: The unauthorized use or reproduction of copyrighted or patented material.

RIAA: the Recording Industry Association of America, The umbrella organization that represents the interests of record labels and producers in the USA (but they have often acted to protect their interests beyond the US borders). They are famous for their legal action against music piracy, and as such given a somewhat unfair reputation.

Sharing: A part or portion belonging to, distributed to, contributed by, or owed by a person or group.

Source Code: program instructions written as an ASCII text file; must be translated by a compiler or interpreter or assembler into the object code for a particular computer before execution

HOT QUOTES:

“some credible rationale other than the promotion of illegal file sharing.” Ralph Oman, Sept 14, 2005, former U.S. Register of Copyrights and a Washington, D.C.-based intellectual-property lawyer at the law firm Dechert LLP talking about how the cases against file sharing companies are not open and close cases.

"It quite simply destroys the argument that peer-to-peer services bear no responsibility for illegal activities that take place on their networks." John Kennedy, head of the International Federation of the Phonographic Industry, February 6, 2005, in response to shutting down Grokster.

“There's a 5 percent decline in CD sales this year, but that's what you might expect in a recession. So we're still not seeing much. And what I'm beginning to suggest now is



that perhaps people aren't going to replace the purchase of CDs with these MP3s," Stan Liebowitz, June 2002, a professor of managerial economics at the University of Texas at Dallas, taking part in an interview with Damien Cave for Salon.com.

"The government cannot turn a blind eye to the record industry slump, but we should not leave Internet users in constant fear of violating the law,"_ Premier Frank Hsieh, head of the Government Information Office (GIO), in Taiwan, on the recent problems they are having with the United States, on the topic of piracy.

"Don't let your fear of these massive companies allow you to deny your belief in your own innocence. Paying these settlements is an admission of guilt. If you're not guilty of violating the law, don't pay," Patricia Santangelo, September, 2005, a single mother of 5 from New York, that was subpoenaed by the RIAA, for downloading music.

"The newly announced inducement theory of copyright liability will fuel a new generation of entertainment industry lawsuits against technology companies. Perhaps more important, the threat of legal costs may lead technology companies to modify their products to please Hollywood instead of consumers", said in a statement by Fred von Lohmann, June, 2005, a senior attorney with the Electronic Frontier Foundation, which represented the file-sharing firms, in their lawsuit.

"One who distributes a device with the object of promoting its use to infringe copyright . . . is liable for the resulting acts of infringement by third parties using the device, regardless of the device's lawful uses," said Justice David H. Souter in the Boston Globe, June 2005, who wrote the Supreme Court's main opinion on the matter of file sharing.

HOT ARTICLES:

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