

Term Paper

**Where Commerce, Culture and
the First Amendment Collide**

**Questions on Ethics in Software Engineering
Raised by the Napster Case**

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Table of Contents

Table of Contents	2
Abstract	2
The Development of Napster	3
The Legal Debate	4
Conclusion: The Future of Peer-to-Peer File Sharing.....	7
Bibliography	8

Abstract

This paper describes the development of the Napster real-time music search engine, a centralized directory that facilitates peer-to-peer sharing of digital audio files. The discussion focuses on the legal and ethical questions raised in the Napster vs. RIAA lawsuit, namely if noncommercial file sharing constitutes a copyright infringement, if Napster can be held responsible for infringements performed by its users, and which actions the company can and must take against offending users. The paper also discusses First Amendment implications and the impact Napster has on the emerging online entertainment market, as well as on the content providing industry as a whole.

The Development of Napster

In the beginning of the 90's, most people had only two ways of obtaining music they liked – either by buying Digital Audio Compact Discs (CD-DA or CD for short) of their favorite artists, or by copying CDs or radio broadcasts on tape. The latter, however, was a cumbersome process which took a lot of patience, and the quality of the recordings was poor compared to the original. In the mid-90's, falling prices for Recordable Compact Discs (CD-R), burners and hard-disk drives opened up a new way of copying music: People could make digital copies of CD-DA tracks and store them on their hard drives or CD-R media. Since the digital copies were second originals, there was no loss in quality; however, the files were huge with an average size of 40 MB per track. Another quantum leap occurred in the late 90's when people discovered the ISO MPEG Audio Layer 3 (MP3) standard, an audio format developed by the German Fraunhofer IIS institute in 1987 to achieve high compression of digital audio files. Since the MP3 format compresses audio files to about a tenth of their original size with practically no audible loss in quality, it is ideally suited for storing and exchanging audio files. Soon, songs in MP3 format were available for download on hundreds of web sites all over the Internet. However, finding the song you were looking for on obscure sites or outdated search engines was still a tedious process that more often than not lead to dead ends.

In 1998, 18-year-old Shawn Fanning, a freshman at Northeastern University in Boston, Massachusetts had an idea for a software system that would solve these problems: Instead of searching for MP3 files posted on web sites, he envisioned users sharing the files they had stored on their own PC's hard drives: "My idea was to have users list the files they were willing to share on a computer that they all could access. That list would then be updated each time a person logged on to and off of that computer", he describes his system. "A user searching the index would see all the files shared by users on the network and available to others on the network at that moment. In contrast to traditional search engines, the system I envisioned would be affirmatively powered by the users, who would select what information they wanted to list on the index." [SF00]

Fanning first drafted a design for his project. The real-time music search engine, later to be named Napster after his college nickname, employs a client/server architecture: A central server holds the index of all files currently made available by online users. Every user runs a client application that sends a list of their currently shared files to the server. Since the clients keep the central index up-to-date as long as they are online and their records drop from the

database as soon as they go offline, the index is indeed a real-time list of all the files available at any given moment. However, Napster does not index files based on their content – the database only contains the names of the files and some information on the user's connection such as bandwidth and IP address. The latter is used to actually exchange files: If a user finds a song she likes in the index, she can download it directly from the remote computer – Napster itself does not serve MP3 files, it only provides the directory for so-called peer-to-peer transfers between clients. Initially, Fanning's goal was to build just a "proof of concept", to see if he could actually make the system work. Not only was he challenged by learning the technical basics (for example, he ordered a book on Windows programming from amazon.com), but also by several conceptual unknowns: "The design required a networking infrastructure of servers and bandwidth in order to maintain large numbers of user connections. I didn't know if enough users had access to sufficient bandwidth. Other people were skeptical about whether users would be willing to share their files." [SF00] Fanning sent a prototype of his system to friends, who sent it to other friends. Their supportive and enthusiastic feedback encouraged him to build out the system.

Napster, Inc. was incorporated in May 1999, and a beta version Fanning released in summer spread quickly by "word of mouse". The user community has grown ever since, up to the rate of one million new users each week in the past four months, and now totals at over thirty-two million. According to Fanning, consistently over 800,000 people are using the system simultaneously, limited only by Napster's own network resources. Copying music has become as easy as logging on, selecting songs for download and playing them – for many computer-literate people, a much faster and more convenient way than buying CDs at online or brick-and-mortar-stores.

The Legal Debate

When Shawn Fanning created Napster, he did not think about the ethical or legal implications of his work. He just wanted to build a system that provides easy access to MP3 files. However, the simplicity and scale of the system soon let the music industry frown heavily upon him. The Recording Industry Association of America (RIAA) sued Napster for tributary copyright infringement, i.e. facilitating other people's infringement of copyright.

Napster's attorney David Boies argues that the users are not really infringing any copyrights because all the copying is noncommercial since users don't charge each other for downloads: "[...] this kind of noncommercial consumer copying is recognized as fair use under common-law theories and doctrines [...]. And second, [...] the Audio Home

Recording Act directly says that noncommercial copying by consumers is lawful." [JH00] However, the RIAA holds that there is a difference between a consumer making a copy for his personal use (e.g. a compilation of favorite songs to play in the car), and making it available on the Internet where it can be freely downloaded by anyone. The Audio Home Recording Act (AHRA) [AHRA92] cited by Boies gives manufacturers of digital music recording devices some protection from contributory copyright infringement claims – but only if they register with the Copyright Office, pay a statutory royalty on each device and medium sold, and implement serial copy management technologies¹. However, multipurpose devices, such as general computers or CD-ROM drives, are not covered by the AHRA, as the RIAA points out. While this means that their manufacturers don't have to pay royalties, they are also not immune from suits for copyright infringement. Additionally, the RIAA argues that it is not relevant that Napster's users act noncommercially. They cite the No Electronic Theft (NET) Act [NET97] which criminalizes electronic copyright infringements if there is a possibility of financial loss to the copyright holder or financial gain to the infringer. Since the NET Act defines "financial gain" as the receipt of anything of value, including the receipt of other copyrighted works, it would constitute a copyright infringement for users to make their files available through Napster and expect to receive files from other users in return.

The question then is if Napster can be held responsible if some (or even many) users engage in copyright infringement. Boies maintains that Napster services many users who don't infringe any copyrights – for example, by sharing songs from the 25,000 artists who have given permission to have their songs traded on Napster, by distributing music that is not copyrighted, whose copyright has expired or whose copyright owners don't object, or by using the service for "space-shifting", i.e. downloading songs they already own on CD to more portable media such as Diamond Multimedia Systems' Rio MP3 player. The RIAA argues that only a small percentage of Napster's users actually engage in non-infringing copying while most of them use the service for copyright violations. Boies counters with the 1984 Supreme Court's decision in the case of Sony vs. Universal Studios, which ruled that "even though [Sony's] VCRs were predominantly used to copy copyrighted materials, because there were substantial uses that did not infringe copyrights [...] you could not find that Sony was guilty of contributory or vicarious infringement." So, according to Boies, it is not relevant what the predominant use of a technology is, but only if it's capable of supporting substantial noninfringing uses – which Napster is.

¹ A technology that prevents users from making copies of copies. The Serial Copy Management System (SCMS) implemented in Digital Audio Tape recorders allows users to make one digital copy of an original tape, but no digital copies of that copy.

So, what about the users actually using Napster for copyright infringements? Boies feels Napster is covered by the Digital Millennium Copyright Act [DMCA98], which says that Internet Service Providers (ISPs) have to disable a user's account if they know that this user is using the account for illegal activities. However, the DMCA does not require ISPs to monitor the activities of each and every user, even if they know that some users are engaged in unlawful activities. Indeed, Napster disabled the accounts of about 350,000 users when the band Metallica alleged that those users were distributing their copyrighted songs. While the RIAA acknowledges that Napster complies with the DMCA today, it frets that "A few words cannot undo the harm caused by millions of Napster users unlawfully downloading tens of millions of infringing music files" [RIAA00].

Here it becomes clear that one of the pivotal points in the arguments of both Napster and the RIAA is scale: The RIAA holds that "there is a big difference between a consumer making a copy for his or her personal use, and that same consumer making the file available on Napster where it can be freely downloaded by millions of people. [...] At any single point in time, millions of users may be logged onto Napster trading millions of pirated sound recordings." [RIAA00] Boies tries to put those numbers into perspective by arguing that while the total amount of sharing is large, the number of copies made of any individual file is considerably smaller: "[...] if you have 25 million users, each with 10 files, that's 250 million files. If 250 million files are downloaded twice, that's 500 million downloads. But each user has shared a file only twice," he says, suggesting that this is not different from what people have been doing with their CDs for years. But while he maintains that Congress authorized digital copying in the AHRA, and the AHRA does not contain any restrictions on scale, he acknowledges that "the Internet could permit noncommercial consumer copying on a scale Congress did not contemplate." [JH00]

Boies is convinced that the RIAA's members – the big media companies and record labels – joined forces in order to shut Napster down and take over its technology, thereby not only misusing their copyrights for anticompetitive purposes, but also violating the First Amendment rights of Napster and its users: "Napster has the right to provide an index, a directory. [...] The courts have held that directory publishers enjoy free-speech rights." [JH00]. The RIAA, however, rejects this argument forcefully, saying that the First Amendment does not grant a right to infringe copyrighted works. The media companies also state that they have no intention of shutting Napster down or banning the MP3 format, but are only asking to stop the unauthorized distribution of music: "Our experts and theirs agree

that it's technically possible to create a file sharing system that only indexes or allows searches for artists or songs that have been authorized. But the burden is on Napster to figure out how to operate legally [...]" [RIAA00]

Conclusion: The Future of Peer-to-Peer File Sharing

The RIAA argues that Napster stands in the way of a legitimate digital music market developing on the Internet because as long as customers can get songs for free, they won't buy them from other companies on the same network: "Napster and other file trading services are setting standards and expectations from consumers that labels and artists can't reasonably meet. [...] The value of a copyright must prevail whether in the physical or digital realm." [RIAA00] David Boies counters that every time a new medium of content distribution – such as cable television or the VCR – was introduced, copyright owners first tried to stop it (unsuccessfully), only to discover later that it enriched them profoundly because of the increased demand for content.

A revolution in the way music is distributed is certainly underway – with the new digital channels, distribution is no longer limited to the constraints of physical media, forcing consumers to buy a CD with twelve songs by the same artist just because they like one track. Napster and related services made new, more consumer-friendly modes of distribution available, and the RIAA acknowledges that the best defense against those services may indeed be a good offense: If the industry offers convenient access to high-quality music and provides added value with it, consumers will probably favor the legitimate sites over search engines in the gray area.

At the same time, looking at the next generation of peer-to-peer file sharing software, Napster might ultimately be the lesser of two evils: Decentralized services like Gnutella or Freenet do not rely on a single database, but use a distributed index for which no one person or entity is really responsible – making them almost impossible to shut down. Boies points out that a centralized index like Napster has the potential to protect copyright holders rights more efficiently than an unmanaged and therefore uncontrollable system.

The Napster case is not only about copyright issues in the music industry. With bandwidth ever increasing, the same revolutions and paradigm shifts will occur in almost every sector of digital content distribution – be it photos, books, software or movies. The Napster case sets a precedent for laws, business models and the way we will use information in the future.

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