Music File Sharing - Its Effect on Copyright Law

And Business Models in the Early 21st Century

Introduction:

In 2001, copyright law is undergoing the early stages of the most significant transformation in its history. As technological developments are facilitating new ways of creating intellectual property, they are also creating new ways of transferring intellectual property, new ways of using it, new meaning for owning it. Suddenly, many of the assumptions used for centuries in defining and protecting intellectual property are losing their validity. Many of the core doctrines of copyright law are inapplicable to the emerging digital world, at least in forms with which the law is familiar. Venerable copyright concepts like "tangible means of expression," "transfer," and even "copy" itself are being redefined by technology, and the law is only slowly beginning to change its definitions and strategies to match.

The shapers of copyright law in 2001 are faced with the need to decide how copyright law will develop, and their decisions will have far-reaching influence on the nature, not only of
intellectual property law, but of intellectual property itself. This article uses music as an example of a form of property whose nature and use will undergo drastic change in the next decades regardless of the direction the law takes.

This article is divided into three sections. Section I consists of a history of how file-sharing technology has arrived at its current state of development, ending with some predictions for its development in the near future. This section focuses less on the technical minutiae involved in the evolution of music copying than on the practical influence of each innovation on the public's ability to reproduce and transfer intellectual property. Enough technical information is included to give meaning to the legal theories discussed, but hopefully the level of detail will be palatable to the non-technically inclined.

Section II is a survey of copyright law as it stands in the first part of 2001, focusing on technologically-motivated changes in the past three decades, but providing enough history to give the uninitiated a sense of the theoretical and doctrinal underpinnings of recent developments. A primary function of this section is to illustrate the inconsistencies and inequities which typify the current state of digital intellectual property law.

Section III proposes a model for the development both of copyright law and of the business of creating and protecting content. This proposal is intended to ensure copyright holders fair compensation for their content while allowing technology to develop and the Internet to retain its character as an open marketplace of ideas. This article takes the position that if the law becomes more restrictive than the current scheme, owners of copyrights may be placated in the short term, only to be much more severely injured as developers of technology are motivated to circumvent enforcement of the new scheme. If it becomes less restrictive, the rights of copyright holders, although limited at their periphery, may become much more valuable through the availability of widespread distribution, effective enforcement, and reliable compensation.
This article posits that, if they are to survive, the intellectual property industry in general and the music industry in particular must make realistic and principled decisions regarding the scope of copyright law and the nature of its enforcement. Necessarily, to insure its continued relevance and viability, the music industry must adapt its business model on a fundamental level, instead of simply trying to impose the existing rules upon the new paradigm. Section III operates on the assumption that neither legal nor marketplace changes alone will suffice to effect a principled, workable balance between the rights of copyright holders and those of the public. Rather, the industry must implement a business model much different from that under which it has long prospered. At the same time, the law must recognize not only the changing nature of intellectual property but the inherent limitations on enforcement that will be occasioned by the law's inability (and hopefully its unwillingness) to turn the Internet into a virtual police state.

SECTION I

TECHNOLOGICAL DEVELOPMENTS IN THE REPRODUCTION AND DISTRIBUTION OF COPYRIGHTED MATERIAL

Technology has always influenced the ways in which information has been created, reproduced, and distributed.¹ The progression of technology that has resulted in today's Internet can obviously be traced back well before Gutenberg's printing press. So, too, can the evolution of the law of information technology, which developed alongside that technology, albeit usually a bit behind. This section contains a brief survey of technologies which have affected the ways

¹ For a historical view of technology's effect on copyright law from a non-American perspective, see RAPHAEL DARIUS, Can Copyright Cope With Information Technology? at http://www.jura.uni-sb.de/urheberrecht/web-dok/1999014.html (12/99).
in which citizens have been able to copy and disseminate intellectual property in general and
music in particular. Legal responses to selected technological developments will be addressed in
Section II.

Technological developments for reproduction and distribution of intellectual property
have consistently aroused the protective instincts of the creative industries whose output was
affected. Printed sheet music and piano rolls are comparatively early examples of technological
advances for the dissemination of commercially produced music. In the face of technological
advances, music publishers have fought bitterly, at the very least to regulate the new
technologies tightly, and often to abolish their use altogether. Of course many of these
technologies flourished, as did the music publishers, who adapted their business practices to
accommodate and benefit from the newly available tools.

The fact that the music industry has continued to thrive despite all previous technological
advances has never seemed to dull its fervor in combating each invention as it appeared.
Phonographs, radio, audiocassettes and Digital Audio Tape are more modern examples of
technologies which have prompted vehement opposition from the publishing sector, each being
characterized as threatening the demise of the professional musician and the industry dependent
on her creations.

CONSUMER AUDIO RECORDING FORMATS — SOUND REPRODUCTION FOR INDIVIDUALS

The audiocassette is a good example of a fairly recent invention which sparked outcry in
the music industry. Never before had a technology promised the likelihood of such widespread

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3 See id.
copying of musical works in a form to which most music consumers would be attracted. The audiocassette offered greater convenience and lower cost than the reel-to-reel recorder, its most similar predecessor technology. Furthermore, unlike reel-to-reel technology, cassettes promised industry-wide standardization of format. Audiocassettes offered greater convenience than 8-track cartridges, too, and unlike that format were designed to be recordable. This combination of convenience, low cost and recordability proved magical, as audiocassettes quickly surpassed reel-to-reel and 8-track tapes in popularity, overtaking sales of the LP record by the end of 1982.5

What may be termed the “modern era” of music copying began with the advent in the 1980s of the Digital Audio Tape (DAT) recorder. Similar in concept to the audiocassette, DAT was fundamentally different in several technical ways, resulting in a crucial difference to copyright holders: DAT was capable of producing an endless progression of copies made from copies.6

Unlike DAT, audiocassette recorders make imperfect copies of original source material. They are capable of making good-sounding, if slightly flawed, reproductions of original input (“first-generation” copies) which the average listener will find quite acceptable in most listening situations. But since each reproduction introduces further degradation of the output quality, copies of copies become progressively more adulterated at each generation, and are audibly inferior to either originals or “first-generation” copies.

Where the music industry’s reaction to audiocassettes was unequivocally negative, its reaction to DAT could more accurately be termed apoplectic.7 DAT made real the possibility of

exponential creation of perfect copies of a recording, even from a single original source. Consumer A could buy a compact disc and make copies for friends B and C, who could each make two copies, giving them to D, E, F and G, and so on. Even with consumers making this modest number of copies at each stage (each consumer could make an unlimited number of perfect reproductions) it would take very little time for this budding network of friends to produce thousands, millions - theoretically limitless numbers of tapes functionally indistinguishable from the single original. Due to high cost and a failure to win devotees outside the ranks of audiophiles, DAT never caught on with the consumer mass-market.8 By the late 1980s, though, as DAT reached the peak of its modest success, a technology had developed which, although few realized it, promised to make the volume of copying possible with DAT insignificant by comparison.

THE INTERNET – DIGITAL COPYING ON A GLOBAL SCALE

In the mid-1990s, a technology that far predated Digital Audio Tape began in earnest its preemption of that format, and all other technologies, as the Next Big Thing in consumer audio. The Internet’s development is usually traced back to ARPANET, the computer network conceived in the 1960s by the American military to assure the availability of computing power in the event that vital computing installations were disabled by nuclear attack. This cold-war network was only available for military or national-security purposes, and most citizens were unaware of its existence.9

The Internet itself grew out of this early network, as civilian computers, mostly at universities, were interconnected for the purpose of facilitating research.\textsuperscript{10} It was during the early days of the Internet that seminal data transfer technologies such as File Transfer Protocol (FTP) and electronic mail (e-mail) emerged.\textsuperscript{11}

Just as e-mail was the first widely used technology to facilitate the transfer of messages among computers, FTP was the first widespread means of readily transferring files electronically. FTP was therefore the first technology with which it was practical to transfer significant amounts of intellectual property over the Internet.\textsuperscript{12}

In the early days of the Internet, FTP was popular for transferring text and computer code, but it was not widely used to trade music. High quality music files were vastly larger than storage devices of the time were able to accommodate, and transfer rates were not fast enough to make transfers of such large files practicable.\textsuperscript{13} As will be discussed, these problems were solved one by one, and FTP proved itself a viable means of transferring all manner of computer data. FTP is still widely used today, due not only to its speed and compatibility with a wide range of operating systems, but also to the fact that FTP transactions are comparatively difficult to detect. The computer on which files are transmitted via FTP is called the server, and an FTP transaction is difficult or impossible to trace without knowledge of the server’s unique identifying number (the “IP address”). Every machine on the Internet has an IP address, without which other machines (and law enforcement) cannot locate it. When IP addresses are traded secretly on the Internet, FTP transfers can be very difficult to stop with any reliability.\textsuperscript{14}

\textsuperscript{10} id.
\textsuperscript{11} See LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE, 102 (1999).
\textsuperscript{12} See MINAR AND HEDLUND at 4.
\textsuperscript{13} 300-baud modems were once the norm on the Internet, running at a speed less than 1/17 that of today’s 56Kb/s modems. For a good, brief history of bandwidth on the Internet, see Comparing Data-Transfer Speeds at http://www.catii.com/hightech/hightech021.html (visited 5/01).
\textsuperscript{14} The author has personal experience with private FTP servers whose IP addresses are not published. These servers
Following FTP, the next major development to facilitate the electronic transfer of intellectual property was the World Wide Web.\textsuperscript{15} The Web, as it is colloquially called, was developed in 1991 by Tim Berners Lee.\textsuperscript{16} The Web was not a new system in competition with the Internet, but rather a set of rules (comprising a "protocol") for sending information over the Internet. One major innovation of the Web was its addition of visual elements to what had previously been a world of monochromatic text and directories. With the invention of the "Web page," electronically transferred content took on colored text, images, variable typefaces (or fonts) and even simple music. Additionally, the Web introduced the concept of the hyperlink — text on a screen which, when "clicked" with a pointing device controlling an on-screen cursor, would make another Internet document appear.\textsuperscript{17} The Web made the Internet more usable, more easily navigable, and generally more attractive to the non-computer-savvy consumer and may fairly be credited with a large part of the Internet's subsequent popularity.

**THE CONSUMER COMPUTER BOOM OF THE MID-1990S — THE WORLD GOES ONLINE**

The development of the Web took place at roughly the same time as computer hardware was becoming cheap and powerful enough to have real appeal for use by large numbers of ordinary people. Amid the growing acceptance of computers, the availability of the Internet and the Web, with what seemed like limitless possibilities (and still do, to many) spurred the pace of computer sales from brisk to frantic.\textsuperscript{18}

\textsuperscript{15} See LESSIG, supra, at 103.
\textsuperscript{16} \textit{id.}
\textsuperscript{17} \textit{id.}
\textsuperscript{18} A typically dramatic illustration of this increase appears in a 1997 Deutsche Morgan Greenfell study available at: http://www.yardeni.com/public/a_970421.pdf fig.14.
Four categories of technological advancement characterize the rapid pace of the Internet's growth in functionality as a means of transferring music during this period. These can roughly be characterized as (1) processor speed and memory, (2) transfer rate, (3) storage space, and (4) file compression. These will be discussed individually below:

1. Processor speed and memory

Prior to the mid-1990s, the average personal computer sold in the United States possessed performance prohibitive of what we now call multimedia. In 1993, for example, an average Apple Macintosh had a 30 Mhz processor, ample for that year's common word-processing applications. At that level of performance, a computer would have difficulty performing enough calculations quickly enough to play a high-quality audio file smoothly, especially while "multitasking," or performing multiple functions at once. Beginning with Intel's Pentium series, though, mass-market processors in the mid-1990s began functioning at speeds of 66 MHz and up, enough to enable the user to play high-quality audio while, say, working in a word-processing program. As the 1990s progressed, processor speeds increased rapidly, quickly surpassing the 75, 100 and, by 1997, the 300MHz barriers. At this level of performance, users would notice no significant degradation in performance by adding a music-playback application to the processes most likely already being performed.

Memory was another matter, however. Random Access Memory, or RAM, is the

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19 KEVIN ISBISTER provides an entertaining account of the growth of computer power in the early 1990s in his article Speed Thrills: The World Wide Web Gets Faster, at http://members.spree.com/immediate/MEDIA/internet5.html.
20 See id.
21 Intel introduced the 66Mhz processor in 1992, but prices remained high for several years, keeping down the average speed of the American PC processor. See http://www.review-zone.com/hardwareprocessors/the_pentium-III_450_500mhz/Page1.html (2/99) for an informal history.

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workhorse temporary storage in modern computers which operating systems use to store data actually in use by the processor (as opposed to files and programs stored on the hard drive, but not being accessed at the moment). RAM is much faster for the processor to access than the hard drive, and therefore greatly speeds up a computer’s operations. In 1997, the most common operating system on American personal computers was Microsoft’s Windows 95. This operating system was optimized to use as little as 8 megabytes (8 million bytes of data, or 8MB), or up to 32MB of RAM. Whereas 32MB was ample for most applications, it was paltry for music files. The average high-quality song file in “wav” format was larger than 32MB, which obviously overran the average computer’s available RAM, forcing it to use the much slower hard drive for access by the processor. RAM was expensive, too, and there was not much performance to be gained by adding more. Only in the late 1990s did users commonly begin using more than 32MB RAM in their home computers, a further possible explanation why the widespread transfer of music had not occurred prior to that time.

2. Storage space

During the 1980s, computers began using hard disk drives (HDDs or hard drives) instead

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22 The author spent an embarrassing amount of money in late 1997 on a computer with a then-state-of-the-art Pentium II processor at 300Mhz. To give credit where due, the now-obsolete machine has served admirably in the preparation of this article.

23 PC MAGAZINE ONLINE provides a digestible primer on RAM at http://www.zdnet.com/pcmag/ptech/content/16/18/41618.001.html (10/97).

24 It was in 1997 that the Justice Department sued Microsoft for contempt of an order barring anticompetitive trade practices, an action growing in part out of Windows 95’s market dominance. See Justice Sues Microsoft for Contempt, http://www.zdnet.com/zdnn/content/inwo/1020/163457.html (10/97).

25 Microsoft recommended the 8MB minimum. See Choosing a Workstation OS: Windows 95/Windows NT Workstation, http://support.microsoft.com/support/kb/articles/Q1327/48.asp (12/00), and some sources at the time referred to 16MB as “optimum,” such as Hardware and Windows 95, http://it.ucdavis.edu/Solutions/archive/Windows95.html (8/95). 32MB was considered opulent if not excessive, and most publications did not even mention going beyond that point.

of floppy disk drives for their primary information storage. Hard drives had many advantages over floppy drives. They did not require the user to load manually all the information to be processed, each time a computer was turned on. They remained inside the computer, free from the many environmental hazards to which data on floppy disks were susceptible, such as dust, magnetic fields and physical abuse. Most importantly for file-sharing, though, they could hold a great deal more information. Hard drive capacity grew steadily throughout the 1980s, as did the most useful measure of cost, that of dollar-per-storage-unit. Still, even by the end of the 1980s, the average consumer could not afford a hard drive that would hold more than one or two high-quality sound recordings in “wav” format, especially alongside the necessary software to play them and to perform the other functions for which home computers were typically purchased. By the mid-1990s, though, all that was changing, as average hard drives began to be measured in gigabytes, or billions of bytes, instead of megabytes.

3. Transfer rate

The mid-1990s witnessed a dramatic increase in the speed with which the average user could transfer data with a personal computer. In the early 1990s, most personal computers capable of going online could only do so at 14.4 kbps. At that rate, it could potentially take days for a computer to transfer a single song. The mid-'90s saw the introduction, first, of the 28.8 kbps modem, then of modems capable of transferring data at 33.6 kbps. By 1997, modems

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28 id.
29 Modem speeds are measured by the amount of data (bytes, kilobytes, megabytes, etc.) that can be transferred per second. Dialup modem speeds are typically measured in kilobytes per second, expressed as kbps. For a history of modem technology throughout the 1980s and 1990s, see GARY KESSLER AND WALTER GORALSKI, An Overview of 56-kbps Modem Technology, at
were widely available which could transfer, or easily be upgraded to transfer, at better than 50 kbps, using residential phone lines. Suddenly the time it took to transfer a given file was cut by over a third, and the term “download” began to creep into the popular vocabulary. Even still, though, these transfer rates were generally prohibitive of transferring entire songs of high sound quality, let alone complete albums. The World Wide Web did gradually begin offering sound files, but these were typically only snippets of songs in high quality, or longer pieces with easily discernible aural shortcomings.

In addition to the rapid developments undergone by telephone-line modem technology, the mid-to-late 1990s saw the development of technologies such as cable modems and Digital Subscriber Line (DSL) services capable of delivering files to home computers at speeds dozens to hundreds of times faster than dial-up modems. Although still gaining widespread acceptance due to higher cost and complex installation, these so-called “broadband” technologies reduce download times from hours to seconds, from days to minutes. Also, increasing numbers of corporations and educational institutions are acquiring service over commercial Internet connections capable of matching or exceeding the performance of cable modems or DSL. As a result, a steadily rising number of consumers are gaining access either at work or at home to transfer rates which dwarf the once-impressive standard modem. Combined with recent increases in processor speed, hard drive storage and memory, broadband connections have made large files immeasurably more accessible to large numbers of people than was the case in the early-to-mid 1990s.

30 See id.
33 See id.
4. File compression

Impressive as were the advances in modem and broadband technology, the one development which would prove most essential to the widespread transfer of music over the Internet was to be a new audio file format, the invention of which had actually taken place in the late 1980s. MP3, developed by Fraunhofer Institut Integrierte Schaltungen (Fraunhofer IIS-A), cut the average size of music files to one tenth of those in the previously dominant format, WAV (and the comparable AIFF format on the Apple Macintosh). Although WAV files are capable of sparkling CD-quality sound, they are uncompressed. That is, the format is not designed to reduce file size, but rather keeps digital information in a raw form which consumes considerably more storage space than compressed files. MP3 files, by comparison, are highly compressed. Creating (or “encoding”) an MP3 involves the removal of many pieces of extraneous computer data from the file, such as those pieces of information denoting silence or inaudible sounds. MP3s can be created with a wide range of quality settings, the file size of each being commensurate with its sound quality. The most common setting for MP3s on the Internet renders a near-CD-quality song file at approximately 1/10th the size of the WAV file from which it is made.

Aided by increased hard drive capacity and bandwidth, the MP3 revolutionized the transfer of music on the Internet. Unlike the many-hour ordeal of transferring a WAV file over a 14.4 kbps modem, transferring an MP3 file over a >50 kbps connection takes minutes. An entire

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34 “MP3” is a truncation of the format’s official title, MPEG Audio Layer III. See SCOTT MORGAN, MP3 and Beyond, http://www.zdnet.com/devhead/stories/articles/0,4413,2633650,00.html (9/00).
36 See MORGAN, supra.
album can be transferred in this way in much less time than a single song would have taken to transfer in the early 1990s, and the sound quality is virtually indistinguishable to the untrained ear.\textsuperscript{38} To those with broadband connections, the few seconds required to download an MP3 are all but inconsequential. Furthermore, the combination of increased hard drive space and reduced file size means that average users can now comfortably store dozens or hundreds (in some cases thousands) of songs in MP3 format\textsuperscript{39}, and transfer them to other users with comparative ease.

Starting in the mid-1990s, Internet users began to be offered alternatives to downloading song files. Technologies like RealAudio became available, allowing listeners to hear music as it arrived in the computer (called “streaming”) instead of having to wait for entire songs to finish loading first.\textsuperscript{40} The upside for listeners was that they did not have to wait to hear music they requested. The downside was that the music did not remain on the user’s hard drive. If she wanted to hear a streamed song again, the user had to connect to the Internet again and return to the web page that hosted the song. Also, because file sizes had to remain small in order to play continuously, the sound quality of streamed audio suffered greatly in comparison to downloaded MP3s.\textsuperscript{41}

If streaming was a mixed blessing for music consumers, it was an unequivocal boon both to copyright holders and Web entrepreneurs. Both stood to benefit from the fact that streamed audio would not remain on users’ hard drives – copyright holders because this controlled consumers’ access to songs, and Web entrepreneurs because multiple trips to a Web page meant

\textsuperscript{37} See id.
\textsuperscript{38} See id.
\textsuperscript{39} Assuming an average file size of 5MB, 1000 MP3s would consume 5GB of storage, not at all unreasonable at a time when 25GB and larger hard drives are common.
\textsuperscript{40} There are many RealAudio tutorials on the Internet, most of which offer lucid explanations of the technology. An example is MARK BISHOP, \textit{RealAudio}, at http://kitap.ankara.edu.tr/1575211173/ch36.htm#HowDoTheyDoThat (visited 5/01).
\textsuperscript{41} See id.
more exposure for that page's advertising and therefore higher revenues. Streaming audio grew rapidly in popularity, both for supplying individual audio clips for evaluation or entertainment, and for "webcasting," the practice of playing programmed music in much the same format as radio stations. Online music retailers were attracted to streaming samples, which were unlikely to serve as substitutes for purchased CDs, while thousands of individuals discovered that they enjoyed being their own disk jockeys by webcasting.

PUTTING THE TOOLS TOGETHER — THE INTERNET BECOMES THE WORLD’S JUKEBOX

Along with the migration of the Internet from a clubby, members-only world of the technically savvy to a mass-market phenomenon requiring comparatively little technical expertise came a flood of sensational Internet-related publicity. Therefore it is not surprising that it was during this period that the American public first became widely aware of the Internet’s ability to facilitate the transfer of intellectual property in general, and music in particular. Ironically, the music industry’s public rancor toward music file sharing did much to publicize the possibilities of the technology to America and the world, spurring rapid increase in demand for MP3s among technical non-sophisticates. The Internet community was quick to

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42 This fact was part of the basis for a suit by RealNetworks, the makers of RealAudio, against Streambox, a company which made available a program to download RealAudio files instead of streaming them. RealNetworks, Inc. v. Streambox, Inc., 2000 U.S. Dist. LEXIS 1889, *7.
44 There are at least three reasons this is the case: Samples are usually incomplete songs, audio quality is inferior, and the files are difficult or impossible for most users to save.
45 Live365, one of the leading portals for webcasters, claims over 33,000 users on its system, and offers an extensive listing of user programs that illustrates the breadth and exuberance of this segment of the online community. See http://www.live365.com/home/index.live (updated regularly).
46 A 1996 survey, for example, showed that Americans ranked computer literacy as the second-most common change people would make in their lives if given the opportunity to start anew. This fact has been attributed to the Internet publicity boom which swept the nation in the first half of the 1990s. See Update on the Perceived need for Computer Literacy, at http://www.wiley.co.uk/college/busin/icmis/oakman/instres/new/new.htm (visited 5/01).
respond, and by 1998 the record industry had its hands full attempting to shut down an increasingly relentless tide of illegal MP3 web sites.47

By virtue of its popularity, and typical of most facets of the Internet in the 1990s, music distribution began to attract the attention of big money. Venture capitalists, entrepreneurs and financiers reasoned that anything as popular as digital music must have the ability to make money, and began investing millions in schemes to deliver music and other content over the Internet.48 These met with varying degrees of success, both in the market and in the courtroom, but no innovation of the 1990s would have nearly the impact of one 19-year-old college student’s answer to the question why MP3s should be so difficult to find.

Napster was the brainchild of Shawn Fanning, a freshman studying computer science at Northeastern University who became convinced that it was possible to create a vast network of computers capable of unfettered worldwide sharing of MP3s.49 Fanning set about to develop his idea, and soon had dropped out of college to pursue the project full-time.50 Fanning’s concept relied on the “peer to peer” (P2P) model of networking, where each user’s computer would connect directly with those of other users, as opposed to transferring data through a central server, or “hub.”51 This model promised not only optimum performance and flexibility, but also a degree of legal deniability. Fanning reasoned that, since the infringing MP3 files would reside on the hard drives of individual users, his organization could not itself be said to be copying or distributing the files. The Napster server would contain only the names of songs in users’ shared directories; surely not infringing even in the eyes of the most protectionist music industry

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49 See JANELLE BROWN, MP3 Free-For-All, at http://www.salon.com/tech/feature/2000/02/03/napster/ (2/00).
50 See id.
Despite the number of well-financed attempts to capture the lion's share of the online music market, it was Napster that soon dominated the market for online music, amassing as many as 20 million users within a year.\(^5\) Napster made headlines across the country, and people rushed to join the song-swapping community. If the music industry had been concerned about MP3 files before, Napster redoubled those concerns, panicking the industry and polarizing musicians.\(^5\) The Napster phenomenon led to unprecedented public interest in intellectual property, as millions of online Americans began to understand the impact the legal system could have on their access to digital music. Napster's highly-publicized fate in the courtroom will be discussed in Section II, but suffice it to say that the law disagreed with Fanning's conception of infringement. Anticipating this result, technologies soon began to appear that promised users much greater anonymity, and left the music industry with no clear legal target.\(^5\)

Probably the best-known technological answer to Napster's type of legal vulnerability is Gnutella.\(^5\) Developed by Nullsoft, a small company that had been swallowed by America Online, Gnutella was conceived as a lawsuit-proof file-sharing application.\(^5\) Napster was legally vulnerable because of its active participation in the process of file sharing - making its servers available to index users' filenames and initiate transfers. Gnutella eschews a commercial central server in favor of a free program which automatically distributes file locations among computers running it (the "distributed" model).\(^5\) Each computer, then, is a server, and there is

\(^5\) See id.
\(^5\) See id.
\(^5\) See DAN KENNEDY, Steal This Download, http://www.numag.neu.edu/0009/napster.html (9/00).
\(^5\) The principal Gnutella website is at http://gnutella.wego.com/ (updated regularly).
\(^5\) See id.
no company involved in the transfer. Therefore, if a copyright holder wishes to enjoin the transfer of its files over Gnutella, it must litigate against each user separately – obviously a daunting task even for the music industry’s legal machine.

Other, similar technologies have arisen in recent years as well. Freenet promises the benefits of Gnutella’s distributed indexing, while adding much-improved anonymity and an important practical feature: The system is designed to take advantage of the fact that, as files spread on the network, they tend to become available on faster servers. Central to Freenet’s approach is this migration of material to higher-bandwidth locations; users will automatically download files from the fastest available connection.\(^{59}\) As with Gnutella, Freenet is a non-corporate technology; the software is made available to developers free of charge, and most development has been done by individuals seeking challenge and recognition, not stock options.\(^{60}\) Although in its infancy, Freenet stands poised to grab a vast share of the online music market once its user-base reaches the “critical mass” at which the technology offers enough files to attract the average consumer.

It is this “critical mass” that separates the headline-grabbers from the technological footnotes, and the greatest obstacle for each of these emerging technologies, therefore, is the existence of the others. The attraction of a file-sharing technology lies primarily in its ability to offer a wide variety of files. A search on the Gnutella network will not reveal files being shared only on Freenet. A search on Napster will not reveal what is shared only on Gnutella. Therefore, the consumer will only have maximum access to shared files either if one technology is dominant, or if a program appears which is able to search on multiple networks. When either of these happens, and it is foolish to assume that neither will, the music industry’s stranglehold

\(^{59}\) Freenet is not purely a search-and-transfer technology, but rather a model for an entire secure network – more analogous to the World Wide Web itself than to a program like Gnutella. There is a wealth of Freenet information at http://www.freenetproject.org/index.php?page=faq (visited 5/01).
on distribution will face a greater threat than Napster ever posed. Furthermore, it will have no
effective means of enforcing its hard-won precedents against the new crop of infringers.

The music industry is aware of this situation, and is struggling to find a combination of
technology and business model that will allow it to profit from the delivery of music online. A
consortium of music and electronics industry players has been working on a program dubbed the
Secure Digital Music Initiative (SDMI), a bid to establish a new industry-wide audio format. Wary of the inherently insecure MP3 format, SDMI members are exploring new secure formats
that, among other characteristics, will not allow unlimited copying. These technologies may
also include restrictions on use such as a limit to the number of times a song file can be played
before it stops working or erases itself altogether. SDMI signatories are also interested in
making sure copyright and other information travels with song files, and would therefore like to
see identifying technologies such as digital watermarking implemented in the new format.
Digital watermarking allows identifying information to be added indelibly to computer files, and
would aid in the enforcement of copyright law, removing any doubt as to a given file’s origin or
copyright status.

Encryption, another technology just coming into its own, will likely form a crucial part of
the SDMI’s emerging standards for online audio. Encryption technology renders computer
files useless to users who do not possess a “key,” the software equivalent of the “decoder ring”

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60 See id.
61 See POLLACK, supra, at 2472.
62 See id.
63 See id.
64 See id.
65 See id.
66 See DAVID BALABAN, Music in the Digital Millennium: The Effects of the Digital Millennium
Copyright Act of 1998, 7 UCLA Ent. L. Rev. 311, 321.
67 See DAVID A. HEPLER, Comment: Dropping Slugs in the Celestial Jukebox: Congressional Enabling of Digital
Music Piracy Short-Changes Copyright Holders, 37 San Diego L. Rev. 1165, 1193.
used by generations of children to transfer messages in code. Record companies could make music files freely available, and generate revenue by selling or licensing the keys. Alternatively, they could sell or license files and keys together, or make different keys available granting different levels of access to a company’s catalogue. Whatever its eventual implementation, encryption is almost certain to be used in some form by digital content providers in the coming years.

An even more effective solution than encryption alone may be emerging in the form of the digital “poison pill,” a piece of software that travels with a file and controls access, copying ability, duration of viability, and retransmission. The nickname “poison pill” stems from the fact that, if a user attempts to disable the various restrictions, the software destroys itself and renders the copyrighted work inaccessible. Developed for military security, the “poison pill” could provide the solution to the music industry’s concerns about infringement. Public acceptance could be difficult for the industry to win, though; the technology’s “secret agent” connotations might seem to some as though the music industry were going to ridiculous extremes to thwart the desires of its consumers. Also, “poison pill” technology requires that a piece of software be installed in the receiver’s computer and run at the most basic levels of operations instead of the “application space” where software typically operates. Experienced computer users are understandably wary of software with the potential to affect almost every operation of their computers. Still, most consumers know little of “application space,” and there is entirely too much potential in the “poison pill” approach for the technology simply to die.

For the moment, the proliferation of security technologies is good for consumers. The breadth of choices available to the music industry is translating into a long wait while standards

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68 See LESSIG, supra, at 35.
70 id.
are discussed. Industry-wide adoption of a single format appears to be years away, and if one is rushed to market it will likely either be comparatively easy for users to circumvent or so secure as to pose inconveniences for consumers. The best-case scenario for consumers, of course, would be an indefinite continuation of the status quo. Even once a new secure format does emerge, there is little to keep consumers from simply continuing to use MP3 as their format of choice, and downloading encrypted and watermarked record-label sound files only as a last resort. In that case, all the music industry's efforts would be for naught, and the labels would continue to grapple with unabated MP3-swapping. By concentrating on ever-stricter lock-down measures, then, the record companies may only be writing themselves out of online music distribution altogether, unable to effect a coup d'état and losing all control instead.

SECTION II

LEGAL RESPONSES TO TECHNOLOGICAL DEVELOPMENTS IN THE REPRODUCTION AND DISTRIBUTION OF COPYRIGHTED MATERIAL

Copyright law has a long history of playing catch-up with technology, a situation which has become much more pronounced as technology for reproducing copyrighted material has become more affordable and easier to use. With computers, CD burners and the Internet, consumers can make and distribute endless numbers of perfect copies, the 1000th generation of

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71 See id.
72 For a discussion of music-industry indecision and infighting surrounding the SDMI specification, see Litman, supra, at 155.
73 See id.
74 In its next-generation operating system, Microsoft is said to be planning a nearly-impenetrable lockout of insecure multimedia formats, a move which will ingratiate the company to the music industry and possibly spur development of open-source alternatives to the Windows platform. See Microsoft wins new friends as anti-piracy superhero,
which sounds far better than a store-bought original album on cassette tape. Needless to say, the law is having to adapt rapidly to account for such radically changed conditions. Few seriously attempt to argue that drafters of pre-'90s copyright law foresaw and accounted for the then-impending explosion in home copying. Copyright statutes are only part-way through their transformation, and as a whole evince the quality of a work in progress. Similarly, the common law of copyright is characterized by seeming inconsistencies and razor-thin distinctions, as though it, too, were trying to find its footing. The next few decades, it seems, will necessarily involve almost constant change in both statutory and judge-made copyright law.

Copyright law arises directly from Article I, Section 8 of the Constitution, which states in pertinent part that “Congress shall have power ... [t]o promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.” A survey of recent, technologically-influenced developments in copyright law illuminates the backdrop before which it will stage its next acts, and may afford some insight into how those acts might play out.

THE SOUND RECORDING ACT OF 1971 - A RIGHT IN RECORDINGS

The invention and public acceptance of the audiocassette worried the recording industry. Never before had a technology so squarely threatened the wholesale reproduction of sound recordings. The music industry envisioned a world in which copies of original recordings would supplant the market for the originals, thereby threatening the industry’s prosperity, or even its


75 See Litman, supra, at 22.
76 See Pollack, supra, at 2461.
77 See Hepler, supra, at 1174.
After some agitation, the industry succeeded in securing a right which had never before existed: The Sound Recording Act created a protected right in sound recordings themselves, as well as explicitly recognizing a right in underlying musical compositions and lyrics. Until the Sound Recording Act, no copyright existed in sound recordings themselves. The creation of this new right reflected an important change in the nature of copyrightable works—technology was enabling new uses of music, and the law was forced to change accordingly. The audiocassette itself turned out to be no threat to the success of the recording industry, but the right its invention helped secure would prove very valuable indeed to the recording industry in the next decades.

The 1976 Copyright Act gave protection to "original works of authorship fixed in any tangible medium of expression." This was an extension of the Sound Recording Act's practice of expanding the definition of what kinds of works could be copyrighted. Under the 1976 Act, registration was no longer required in order for an author to secure a copyright in a creation, although it did make additional protections available. The Act also codified the judicial doctrine of "fair use," a broad exception to the author's exclusive rights, designed to safeguard the rights of individuals to use copyrighted works in "a reasonable manner," generally for such purposes as criticism, without the author's consent. Fair use is determined by applying four

82 id.
83 id.
84 See id.
factors set out in the Act. To determine if a given use falls within the exception, courts construing the Act weigh: a. the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes; b. the nature of the copyrighted work; c. the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and d. the effect of the use upon the potential market for or value of the copyrighted work. For example, the doctrine would shield from liability an individual who used a small part of a copyrighted work for educational purposes if the use posed little threat of damaging the market for purchases of the work. It would not shield a commercial operation profiting from large-scale reproduction of entire works. Naturally, the bulk of fair use litigation takes place between these extremes, and the doctrine has proven to remain viable in the face of advancing technology.

The Fair Use Doctrine as codified has been used in a variety of ways in copyright litigation, and some important decisions have shaped its application to new technologies. Probably the most-cited of these cases is *Sony Corp. of America v. Universal City Studios, Inc.*85 One of the foremost cases involving the intersection of technology and copyright infringement, *Sony* involved the successful use of the fair use doctrine as a defense to a copyright infringement claim made, not by the music industry, but by the film industry. Moviemakers were concerned about the fact that consumers could purchase videocassette recorders (VCRs, or VTRs — videotape recorders, as they were known at the time) and make their own reproductions of the studios’ copyrighted works.87 These concerns resembled those expressed by the music industry prior to the adoption of the Sound Recording Act of 1971, but Congressional action was not forthcoming. Instead, the studios sued the manufacturer of the most popular VCR, the Sony

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85 17 USCS § 107 (2001).
87 POLLACK, supra, at 2459.
Betamax, for damages and equitable accounting of profits, as well as for an injunction against
the machines' manufacture.\textsuperscript{88} The U.S. Supreme Court held that there was no infringement,
applying the 4-part test from the 1976 Copyright Act. Rather, the Court found that "time
shifting," the practice of temporarily recording broadcasts for later viewing, actually increased
the size of the viewing audience, and therefore could not be said to diminish the market for the
studios' products.\textsuperscript{89}

While \textit{Sony} remains the leading decision on Fair Use relating to new technology, the
doctrine has been applied in the online realm as well. \textit{UMG Recordings, Inc. v. MP3.com, Inc.}\textsuperscript{90}
saw the use of the fair use defense in a case involving digital music copying. The defendant
operated a website which legitimately offered MP3 files to the public for free download, mostly
from unknown or independently-produced bands.\textsuperscript{91} In January, 2000, MP3.com began offering a
new service to the public. Called "My.MP3.com," the purpose of the service was to allow
consumers to listen to commercial, copyrighted music over the Internet, but only after offering
proof that they had legitimately-purchased compact discs of the music.\textsuperscript{92} A consumer could
verify a purchase either by inserting an original CD into the CD drive of a computer, or by
purchasing a CD at an online retailer affiliated with the defendant.\textsuperscript{93} Thereafter, that consumer
could listen to a CD online, regardless of the location of the original disc. 10 record companies
sued MP3.com, who responded with the fair use defense.\textsuperscript{94}

The U.S. Federal District Court dispensed quickly with the four fair use factors, finding

\begin{footnotesize}
\textsuperscript{88} 464 U.S. 417, 420.
\textsuperscript{89} \textit{id.} at 424.
\textsuperscript{90} 92 F. Supp. 2d 349; 2000 U.S. Dist. LEXIS 5761.
\textsuperscript{91} WILLIAM SLOAN COATS, VICKIE L. FEEMAN, JOHN G. GIVEN AND HEATHER D. RAFTER,
\textit{Symposium: Legal and Business Issues in the Digital Distribution of Music: Streaming Into the
\textsuperscript{92} \textit{id.}
\textsuperscript{93} \textit{id.}
\textsuperscript{94} 92 F.Supp. 2d 349, 350.
\end{footnotesize}
that MP3.com’s copying of the plaintiffs’ works was not entitled to the defense. In finding the first factor against MP3.com, the court stressed the commercial nature of the defendants’ enterprise. To support its finding against the defendant on the fourth factor, the court touted the supposed effect the My.MP3.com service would have on the “plaintiffs’ statutory right to license their copyrighted sound recordings to others for reproduction,” despite the fact that the plaintiffs had shown no inclination whatsoever to exploit that right. The second and third factors, relating to the nature of the works at issue and the amount copied were not substantially in the defendants’ favor to begin with.

The court was also not receptive to the defendant’s attempt to analogize its situation to that of the defendant in Sony. MP3.com claimed that since “time shifting” was permitted as fair use, My.MP3.com should be permitted as well. The service, MP3.com reasoned, was merely “space shifting” the works of the plaintiffs, and incidentally creating new interpretations of the works in the process, a point which would go to the first fair use prong. The court was curtly dismissive of this argument, characterizing it as “simply another way of saying that the unauthorized copies are being retransmitted in another medium – an insufficient basis for any legitimate claim of transformation.”

The MP3.com holding was a fairly predictable outcome, considering the naivete of MP3.com’s assumption that the music industry would appreciate MyMP3.com’s attempts to assure legitimate CD sales. The case is instructive, though, in that the court gave very little consideration to the defendants’ claim that their actions stood ultimately to benefit the recording industry. This would tend to indicate that a website offering, for example, high-quality songs for

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95 See id. at 352.
96 See id. at 351.
97 See id. at 352.
98 See id. at 351-52.
99 id. at 351.
streaming or download, in order directly to promote sales of CDs, would be found to have
infringed, despite its ultimate purpose of selling the labels’ music.

THE AUDIO HOME RECORDING ACT OF 1992 - THE LAW GOES DIGITAL

By the mid-1980s, the recording industry was deep in the process of converting its
operations from analog recordings such as LP records to the digital Compact Disc (CD). At
the same time, audio equipment manufacturers were busily exploring other digital technologies,
and had introduced DAT to the market. As discussed above, DAT allowed perfect multi-
generation reproductions of input signals, and when used to duplicate CDs, produced
reproductions of extremely high quality. The music industry, fearing that the protections
afforded it by the Sound Recording Act and the Copyright Act would be insufficient to protect its
interests against the feared onslaught of digital copying, pressed Congress for legislation to
curtail DAT’s potential for mass-infringement.

The result was the AHRA, a single piece of legislation with a dual purpose: it mandated
that manufacturers disable the ability of digital recording devices to make second-generation
copies, and established a royalty fund to compensate copyright holders. The royalty fund
established that a capped percentage be levied on all devices affected by the Act, funds from
which would be divided among copyright holders. The technological measure used to prevent

101 See Funk & Wagnall’s Multimedia Encyclopedia, Compact Disc, at
102 The Digital Revolution: Digital Audio Recording Formats Compared, at
103 See Litman, supra, at 59-60.
104 Hepler, supra, at 1176.
105 Id. at 1179.
users from making copies of copies was called Serial Copy Management System, or SCMS.\textsuperscript{106} The Act required that all devices whose primary function was the making of digital music recordings utilize SCMS.\textsuperscript{107} The "primary function" language seemed rational at the time, since no multifunction machines were widely available that could create copies of digital music. Interestingly, though, it appears as though the "primary function" provision was included at the behest of the Consumer Electronics Manufacturers Association, who represented computer manufacturers, and to whose products the AHRA was thereby inapplicable.\textsuperscript{108} The CEMA successfully championed another provision that would serve to exempt computers from the AHRA's reach: The Act's definition of a "digital music recording" is "a material object... in which are fixed, in a digital recording format, only sounds, and material, statements, or instructions incidental to those fixed sounds."\textsuperscript{109} In other words, an MP3 file stored on the hard drive of a computer, whatever its fidelity or utility, does not qualify under the AHRA as a "digital music recording."

Despite the AHRA's inapplicability to computers themselves, it was nonetheless used in an attack on MP3s. \textit{RIAA v. Diamond Multimedia Systems, Inc.}\textsuperscript{110} involved the defendant's "Rio" portable MP3 player – a new by-product of MP3's popularity. The Rio was a Walkman-like device which the user would attach to a computer, and download MP3s into its memory. The user could then play the MP3s anywhere, as she would use any portable audio device.\textsuperscript{111}

The Recording Industry Association of America sued under the AHRA, claiming that the Rio fell within that Act's purview and was thus required to implement SCMS technology.\textsuperscript{112} The

\begin{footnotes}
\item[106] id. at 1180.
\item[107] id. at 1181.
\item[108] See LITMAN, supra, at 60.
\item[110] 180 F.3d 1072; 1999 U.S. App. LEXIS 13131.
\item[111] id. at 1074.
\item[112] id. at 1075.
\end{footnotes}
RIAA claimed that the Rio's primary function was copying digital music. The court, however, focused on the AHRA's definition of "digital music," in pertinent part:

"a material object-

(i) in which are fixed, in a digital recording format, only sounds, and material, statements, or instructions incidental to those fixed sounds, if any" (emphasis in original).

Thus, while the Rio's function may indeed have been to create, or at least to contain, song files, those files could not be said to be "digital music" under the AHRA, since they would necessarily have been stored in a "material object" (a computer's hard drive) containing much more than merely music and incidental materials (liner notes, lyrics, etc.) The court reversed the lower court on the claim that the AHRA's legislative history indicated that Congress only unintentionally included the provisions excepting computers from the Act's ambit, pointing to the clear language of the statute. Thus, the Diamond Multimedia case stands for the proposition that a digitally recorded song can be "laundered" of its AHRA-regulated status by copying it to a computer, regardless of the use to which it is subsequently put. Much as this conclusion seems like an exception at great risk of swallowing the rule, the Diamond Multimedia court could not escape the conclusion that Congress intended exactly that result.

**THE DIGITAL PERFORMANCE RIGHTS IN SOUND RECORDINGS ACT OF 1995 - WEBCASTERS ARE NOT LIKE RADIO STATIONS**

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113 id.
114 id. at 1076.
115 id. at 1078.
116 See HEPLER, supra, at 1190.
Music copyrights have traditionally existed in compositions, as would be expressed in sheet music. These rights allowed control over public live performances of works, mechanical reproductions, and the use of a composition by others who perform or record it. The Audio Home Recording Act of 1971 added sound recordings to the protected properties, but that right was limited. Copyright holders were granted a right in recordings, but not in the performance of the recordings to public audiences, such as a radio station's playing a song. Then in 1995, Congress adopted the Digital Performance Right in Sound Recordings Act (DPRSRA), an amendment to the Copyright Act intended to allow record companies to profit from the online "performance" of their recordings. This meant that webcasters were no longer universally entitled to the protections afforded radio stations, and could be subject to a compulsory license for transmitting copyrighted recordings.

The right is a comparatively narrow one in the context of available Internet offerings. It applies only to webcasts made "interactively" or on a subscription basis, not to streaming audio delivered in a format that eschews preannouncements of its programming. The rationale behind this distinction is that if consumers do not know in advance what songs will be played, they will be less likely to make lasting copies of songs they receive. Conversely, consumers who request specific songs or subscribe to services which publish playlists in advance are more likely to make lasting records of those works, and therefore it is reasonable to expect purveyors of such services to pay license fees.

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118 For a discussion of the practical meanings of these rights, see BALABAN, supra, at 313.
119 See id.
120 See id.
121 id. at 315.
122 See POLLACK, supra, at 2454.
By the mid-1990s, it had become clear that the MP3 was more than just a passing fad. Moreover, its popularity was due in large part to a phenomenon that took many by surprise: The combination of the Internet and MP3s allowed widespread sharing of music. This not-for-profit mass-philanthropy was something never before encountered in copyright law. Before, copyright holders had primarily been interested in putting a stop to infringement-for-profit. But the Internet made it easy for music fans to share music with others with minimal effort, and receive little or nothing in return. Therefore, Congress enacted the No Electronic Theft Act (NETA, or NET Act). The NETA did two things: It added a definition of “financial gain” to the Copyright Act to account for those who exchange copyrighted works for other intangible property, and it instituted criminal penalties for willful violators who copy intellectual property on a large scale. Thus, the NETA does not affect the behavior of many Internet users who simply upload a few songs for others to download, unless they receive music files or other consideration in return. There has been very little judicial action involving the NETA, and in fact it was nearly two years after its enactment that it was first tested in a courtroom. There is less than total clarity regarding the reach of some of the NETA’s provisions, such as whether its expansion of “financial gain” will include the de-facto reciprocity of file-sharing communities such as Napster. Still, there is every indication that it may prove a useful tool in prosecuting large-scale copiers of music who make copyrighted works available for barter.

123 See POLLACK, supra, at 2467.
125 POLLACK, supra, at 2467.
In 1998, Congress passed the Digital Millennium Copyright Act ("DMCA"). Arguably the most comprehensive and important piece of legislation aimed at regulating the transfer of music online, the DMCA contains two main provisions. Title I of the DMCA implements two treaties, the WIPO Copyright Treaty, and the WIPO Performances and Phonograms Treaty. To that end, the Act creates a prohibition on the circumvention of technological measures for controlling access to copyrighted digital works (it does not prevent the circumvention of anticopying measures).

Title II of the DMCA clarifies and encodes case law that limits the liability of Internet Service Providers ("ISPs") who follow certain procedures. This so-called "safe harbor" from ISP liability operates under any of four circumstances: (1) ISPs are not liable when infringing data merely passes through their servers en route to other Internet destinations. (2) Liability does not arise from automatic "system caching," where ISPs temporarily store information locally to facilitate user access. (3) ISPs are not responsible for data stored on their systems by users unless the ISPs know or should know the nature of infringing material. (4) ISPs are not liable for infringing material accessible through search engines or hyperlinks to external sources.

Title II is probably the more far-reaching of the DMCA's provisions, and does much to clear up a conflicting series of court decisions. Prior to the DMCA's enactment, ISPs were at risk of liability for innocent activities which were unavoidable incidents of their being part of the
The DMCA asks comparatively little of ISPs, and offers strong protections in return. Liability in most circumstances is laid squarely at the feet of infringing users, freeing ISPs to fulfill their vital function as the “on-ramps” of the Information Superhighway.

Probably the most publicized chapter of the music industry’s battle with Internet file sharing, A&M Records, Inc. v. Napster is among the leading decisions construing the DMCA. The RIAA sued the file-sharing service in late 1999 for contributory and vicarious infringement of its many copyrights, and the case immediately commandeered America’s headlines. Finally, in February, 2001, the U.S. Court of Appeals for the Ninth Circuit handed down a decision squarely in the RIAA’s favor.

This case is particularly instructive on the topic of the legality of online file-sharing, because it presents many of the legal doctrines and statutes discussed above. Fair use, the AHRA, the NETA and the DMCA all appeared in the Ninth Circuit’s opinion and the briefs and arguments of the parties. Each will be discussed in turn below.

In order for the RIAA to establish contributory infringement on the part of Napster, it had to establish that Napster’s clients engaged in direct infringement (since one obviously cannot contribute to a practice which does not take place). Napster made much of the fair use doctrine in this regard, in an attempt to establish that its users were not infringing. Napster alleged three ways in which its users’ transactions were protected by the fair use doctrine: (1) Sampling, (2) space-shifting, and (3) permissive distribution of recordings.

The “sampling” argument turned on the proposition that users were not downloading MP3 files as substitutes for purchasing CDs, but were rather using the sound files only for the

132 See BALABAN, supra, at 312.
133 239 F.3d 1004 (2001).
134 See id. at 1028-29.
135 See id. at 1013 n.2.
136 id. at 1014-16.
purpose of deciding what CDs they would purchase. The court determined that, even if this were true (and the court plainly doubted that it was), that fact would afford Napster’s users no fair use defense. The court followed the lower court’s four-step fair use analysis, finding each test in the RIAA’s favor.

On the first prong, concerning the purpose and character of the allegedly infringing use, the court endorsed the lower court’s findings against Napster. The court determined that, first, sending a file to an anonymous requester “cannot be...personal use,” and second, Napster users “get for free something they would ordinarily have to buy.”

The court agreed with the District court that the works at issue are creative, tilting the second prong against Napster. The third prong, the portion used, went in favor of the record labels because Napster users copy entire songs. The court characterized this as “wholesale copying.”

The court made a brief survey of the studies used in the District court to determine Napster’s impact on the CD market. The court approved of the lower court’s practice of discounting Napster’s studies and embracing those offered by the record companies, calling the practice a “proper exercise of discretion.” The fourth prong went against Napster, then, the court citing the lower court’s “sound findings” about the “irreparable harm” suffered by the music industry at the hands of Napster.

Napster cited the Audio Home Recording Act in support of its contention that its users were engaging in “noncommercial use” as explicitly protected in the AHRA. It further attempted to use as a shield the determination in the Diamond Multimedia case that song files

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137 id. at 1014.
138 239 F.3d 1004,1018.
139 id. at 1015.
140 id. at 1016.
141 id. at 1017.
could be “laundered” through a computer’s hard drive and thereby rendered immune to action under the AHRA. The court, however, followed the district court in observing that the RIAA had not sued under the AHRA, and it was therefore irrelevant to the case. The court further endorsed the lower court’s observation that the AHRA was irrelevant because it “does not cover” MP3 files.

The court referred to the No Electronic Theft Act by way of establishing that Napster’s users could be held to have benefited financially by using the system. It referred in passing to that Act’s modification of the Copyright Act’s definition of “financial gain,” although it did not perform any detailed analysis of whether Napster’s users actually bartered song files, or whether their participation in the community constituted a sort of de facto barter.

One of Napster’s strongest arguments was that Title II of the DMCA shielded it from liability as an “Internet Service Provider.” The court declined to analyze the problem in any depth, concluding instead that the RIAA had raised “serious questions” about the applicability of the Act to Napster’s argument. The court did at least detail some of these questions, which dealt with Napster’s status as an ISP and under what level of notice an ISP is required to block access to infringing material on its system.

On remand, the district court failed to shield Napster from liability, instead prescribing that the service block access to all known infringing material on its system.

Record labels immediately sent lists of copyrighted songs to Napster, who was charged under the

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142 id. at 1024.
143 See id.
144 id.
145 See id. at 1015 n.4.
146 Had the court performed this analysis, it would have given great assistance to the utility of the NETA’s “financial gain” definition.
147 id. at 1025.
148 id.
149 id.
ruling with removing links to each from its servers. The service remains open as of this writing, and users have attempted numerous schemes to circumvent Napster's removal practices. Still, the ruling dealt what may prove to have been a fatal blow; traffic on the company's service has dwindled since the decision, and numerous attempts by Napster to settle with the record industry have been unequivocally rebuffed.

SECTION III

A PROPOSED BUSINESS AND LEGAL MODEL FOR THE JOINT SURVIVAL OF FILE SHARING AND THE MUSIC INDUSTRY

Copyright law has already undergone irrevocable change as a result of the Internet and its ancillary phenomena such as MP3 and file sharing. This article takes the position, though, that the change that has taken place thus far is grossly insufficient to ensure the twin ideals of the Internet's vitality and the music industry's survival. Both goals are underserved by the current system.

The legal regime as it stands poses several threats to the openness and ultimate utility of the Internet. Inconsistent legislation, such as the rift in definitions of "digital music" between the AHRA and the Napster decision, leaves entities on the Internet with little clear guidance as to what conduct is permissible. Judicial refusal to adapt the fair use doctrine to a world where information is immeasurably freer than the world of 1976 threatens dramatic expansion of the mass resistance to copyright law already taking place on the Internet. This situation would carry

the possibility of harsh legislative measures restricting the flow of digital information, very likely mandating a crippling change to the computer code underlying the Internet.\[154\]

Similarly, the current system poses threats to the music industry. Whereas statutes like the DPRSRA and the NETA, and recent decisions such as Napster, seem to secure copyright holders a broad spectrum of rights, those rights may well prove illusory in practice. Draconian crackdowns may serve, not to force the public into obedience, but to foster the growth of circumvention technology and engender a culture that considers infringement a morally legitimate response to an unfair rule. A right is only as good as its enforcement, and the technologically savvy are far ahead of the law in their ability, not only to circumvent technological measures, but also to remain anonymous in their activities.\[155\] The DMCA itself, with its tacit approval of the circumvention of anticopying measures poses a significant potential threat to enforcement of future regulations. While it is true, as argued above, that these situations could be at least partially remedied by legislative and technological restriction, such change would surely meet with considerable resistance, and would therefore likely be long in coming, and ultimately unsatisfying to all sides. Additionally, the music industry stands to lose its initiative in adapting to the digital age if it is shielded from competition and allowed to operate in a new medium under old rules. In short, this article maintains that the music industry’s desire to retain the status quo is shortsighted and counterproductive, and if allowed to continue, will do it more harm than good.

As a result, the current unsettled state of music and Internet law will need to be remedied by efforts on both the legal and business fronts. Music publishers will need to compete directly in the digital marketplace, sinking or swimming on their own merits. At the same time, the law

\[154\] See LESSIG, supra, pp.30-42.
\[155\] See id. at 194-196.
will need to adapt to the realities of a world where information cannot effectively be chained.

This section does not argue that copyright protections should be weakened in any substantial way. Rather, it relies on the contention that there is sufficient room in cyberspace for both free information and music-for-profit. What follows is a proposed framework under which that contention could come to fruition.

THE MUSIC INDUSTRY – SELLING NEW WINE IN OLD BOTTLES

The music industry has been tremendously profitable for a very long time, and has repeatedly capitalized on technological innovations to build upon its success. From sheet music to piano rolls to compact discs, each major consumer innovation for the delivery of music has resulted in significant growth for the music business. It is ironic, then, that the music industry has fought technology at each step of the way. But perhaps this irony is illusive. The music industry’s resistance to technology has often resulted in legislation favorable to its interests, repeatedly creating a climate within which the industry could adapt to technology and flourish. In that light, recent developments like the NETA and the Napster ruling are merely the fruits of the latest in a long series of agitations by the music industry to secure new rights when faced with abandoning old practices.

With no more information, this situation does not immediately smack of bad policy. However, other developments within the industry indicate that the music industry’s love-hate affair with technology has not always proceeded in the best interests of the public. A good recent example is the compact disc. When CDs came on the market, they were priced close to
double the going rate of vinyl LP records.\textsuperscript{156} The music industry justified the increase largely by pointing to higher production costs for CDs, which stemmed in large part from unreliable manufacturing technology and a high failure rate.\textsuperscript{157} However, those problems were quickly resolved. The production cost of CDs plummeted throughout the ‘80s and ‘90s, yet prices steadfastly resisted a similar downward trend. Consumers are now paying more per dollar spent on music production than ever before, and the music industry is seeing record sales, so to speak, at the same time.\textsuperscript{158}

A large part of the upturn in CD sales has come during the era of free online distribution of MP3s. The \textit{Napster} court was dismissive of the effect of “sampling” on the market for prerecorded CDs.\textsuperscript{159} The court’s narrow reasoning relied on the contention that, \textit{even if true}, Napster’s evidence of MP3’s helping sell CDs was legally irrelevant.\textsuperscript{160} Perhaps the court’s reasoning was legally correct. But it underscores a failure to comprehend the synergies developing between the Internet-empowered music consumer and the brick-and-mortar retail music industry. Many consumers report that MP3s have indeed enabled them to make more-informed music purchases, resulting in greater satisfaction and an increase in money spent on prerecorded music.\textsuperscript{161}

The recording industry makes much of a study indicating that music sales fell at college-area music stores during Napster’s ascendancy.\textsuperscript{162} But overall, music revenues rose steadily
during the same period. Surprisingly, few have attacked the music industry’s conclusory and largely-unsupported contention that, since sales fell near universities, and college students comprise a large portion of Napster’s usership, Napster must have been the culprit. Equally supportable may be the contention that Napster (or more realistically, the Internet as a whole) introduced music consumers to a wider range of music than was available at small neighborhood music stores. If that were the case, sales would have risen during the same period at online retailers and large music superstores, which in fact they did.

The upshot of all this is that it appears as though the music industry may indeed have profited by the proliferation of music available online for free, but its profits may not have come in the areas it would have chosen. Since the online community is not targeted by media traditionally monopolized by the music industry, such as radio, it is far less susceptible to pressure from the record labels to buy CDs of the labels’ choosing. Rather, consumers are enjoying the benefits of a system which affords them near-infinite choices. It is understandable that the labels might want to curtail the options available to consumers, but that may no longer be an option. Never again will consumers rely solely on easily-controlled radio to inform them of what musical options are available. Instead of fighting the inevitable, then, the industry must adapt.

The music industry could use the Internet in much the same way as it has used prior technologies – to increase sales and profitability. In order to do so, however, it must do a few key things: The music industry must make digital files of its music available online, either free or for nominal “micropayments.” It must add value to the purchased product, and it must work with the online community instead of remaining its adversary. If it takes these three actions, the

\[163\] FADER Report, 5.
\[164\] See id. at 7.
music industry will co-opt the public attention lavished on such players as Napster, facilitate
direct or third-party sales to consumers, and build much-needed sympathy in the Internet
community. Each of these steps is discussed below.

**Making Digital Song Files Freely Available**

Many music consumers use MP3s as means to determine which CDs they wish to
purchase, and will not easily be persuaded to buy an album they have not had the opportunity to
 audition first. These consumers regard MP3s as inferior substitutes for the “real thing,” and
usually delete them if/when they buy the corresponding CDs.

In this way, MP3s serve much the same function that radio has long served, but with an
important difference: the consumer, not the music industry, decides which music is played and
which CDs are therefore more likely to be purchased. Radio functions as advertising for the
record label’s recorded product. So, too, does the Internet, but in a much less centralized way.

Consumers have begun to be accustomed to a world in which they can sample music
before purchasing it. Technologies like Freenet and even the venerable FTP promise consumers
continued access to digital music, in one form or another, regardless of the music industry’s
wishes. Therefore, it only makes sense that the music industry itself should control the free
distribution of online music. If consumers’ easiest means of accessing free music files is from
the record labels, that is where they will go for music, and the labels can exert a degree of control
over the consumers’ downloading experience. Offering free files on their own servers, the labels
would gain access to important demographic information on customers as well as being able to
expose consumers to music and other products. Online sales of CDs and local retailer tie-ins are
only incidental benefits available to record companies attracting customers with usable digital
music. If labels continue only to offer brief clips of songs in poor audio quality, however, consumers will continue to go elsewhere, and the labels will have lost an important opportunity to connect with customers.

**ADDING VALUE TO THE PURCHASED PRODUCT**

When it sells a CD, a record label does not just sell music. It sells the packaging the music comes in, with art, liner notes and lyrics. In addition, it “sells” the idea that a consumer’s money has gone to an often-beloved artist. When a consumer downloads an MP3 file from Napster, she is not getting the whole product that the record label offers, but only its core component, and a less-than-perfect copy of that.

Record companies are in a position to capitalize on the availability of the Internet to communicate and transact business with consumers. To make the most of this opportunity, however, they must realize that they cannot continue to operate according to the rules of the pre-digital world. Record labels used to be able to set their prices with relative freedom, because they (through their distributors) were the exclusive source from which consumers could obtain music. This monopoly no longer exists as to the music itself. The audio portion of commercial music recordings can now be obtained over the Internet, albeit in attenuated quality and with some difficulty. Still, the music is now available through other than official channels.

Where record labels still have monopoly control is in the area of enhancements to the purchased product that cannot easily be digitally transmitted. These can include detailed liner notes, lyric sheets, and extra artwork, to say nothing of promotional trinkets such as keychains, bottle openers, contest game pieces or the chance to get signed band photos in randomly selected
packages. These are just the sorts of additions which would allow record labels to continue charging high profit margins on prerecorded music, while offering consumers the incentive to purchase recordings of music they have sampled online.

Should they choose to add value to purchased CDs, the record labels stand to spark renewed public interest in purchasing packaged music, either online or in local stores. Alternatively, they can continue to act as adversaries of consumers, implementing tighter and tighter control over digital distribution and offering consumers few alternatives to downloading music without payment. An added reason for the record labels to adopt this approach is that, as information becomes ever more freely available online, consumers are learning more about the machinations of the music industry, and are acquiring more and more moral justification for bypassing payment to the labels. 166 It is time for the music industry to foster goodwill among consumers, and that can be accomplished without cutting prices. If the labels choose the value-added option, everyone will win. If they do not, the labels will lose.

COOPERATING WITH THE ONLINE COMMUNITY

The record labels are engaged in what looks very much like a battle of wills with online consumers and distributors of digital music. The labels appear to be using simple force in an effort to gain control of a world they do not fully understand, waging a campaign of enmity with the Internet instead of embracing it as the key to their future.

Internet users are subtly different from the consumers with which the record labels are accustomed to dealing. Internet-savvy customers have more options, more information and more

165 See NEGATIVELAND Article, supra.
166 A lively public discussion on this issue is archived at: http://slashdot.org/articles/00/07/04/0041256.shtml [hereinafter Slashdot Discussion].
diverse influences than radio-bred music listeners, and are more likely to know the details of the record industry’s legal activities. Many users of the Internet view the music industry’s battle with MP3 as an attack on freedom of information and the Internet itself. The result is that many people who download song files justify the practice by pointing to what they perceive as the greed of the music industry. Artists such as rock singer Courtney Love have come forward with much-publicized accounts of the record industry’s contracting practices, and Internet users are paying attention. Gone is the impression among music lovers that most of the money paid for a CD goes directly to the artist. That fantasy has been replaced by an impression that buying a commercial CD serves first and foremost to finance a corrupt enterprise bent on the relentless and uncompensated exploitation of recording artists. Given that impression, it is not surprising that many Internet users feel justified in downloading music without payment.

If the music industry wishes to reverse this increasing vilification, it must do so in a way that gives Internet users some credit. It cannot fight back with “just say no” campaigns and no rebuttal of the hard figures cited by commentators like Love. Rather, the music industry needs to remake itself as an artist-friendly, and Internet-friendly entity if it wishes to keep the business of the ever-growing online market. To do this, it must stop fighting the Internet in the press and the courtroom, and begin to generate some positive public relations. Only by coexisting peacefully with the Internet and its users can the music industry begin to rebuild its shattered credibility among online consumers and reverse the feeling of moral justification in downloading music for free.

THE LAW: ACQUIESCING TO THE MUSIC INDUSTRY AGAINST ITS BEST INTERESTS

167 The widespread availability of articles such as those from NEGATIVLAND and COURTNEY LOVE is offering consumers unprecedented access to the recording artists’ side of the digital-music story.

168 See Slashdot Discussion, supra.
The American legal system has a long history of capitulating to the demands of the music industry. Every statute discussed above was enacted at least in part for the purpose of meeting the music industry’s pleas for protection in the face of technological advances. Each time the law has acquiesced, the music industry has prospered. But even when Congress has not acted, the music industry has found ways to survive, adapt, and ultimately thrive, whether on its own initiative, or through the courts (as in the Napster case).

Where the Internet is concerned, though, the music industry is acting against its own long-term interests and those of the American public. By attempting to insulate itself from competition, the music business is creating a situation in which it will have ample incentive to stagnate, and little incentive to grow. Furthermore, the more protectionist measures the music industry succeeds in securing from Congress, the more incentive the online community will have to circumvent those measures. The music industry’s attempting to achieve market results purely by force of law cannot result in a favorable state of affairs for music consumers or the industry.

This article proceeds on the premise that a win-win situation is possible; that the law, in conjunction with the music industry, can secure a principled compromise between the music industry’s intellectual property rights and the consumer’s right to expect free flow of information from the Internet. To that end, this section posits that the law must do the following: (1) Codify a “digital fair use” exception to copyright holders’ exclusive rights, consistent with the rational expectations of consumers and a narrow reading of the NETA. (2) Extensively modify the AHRA to reflect a rational vision of digital music and the means for copying it, both to assure compensation of recording artists and to standardize the legislative scheme. (3) Facilitate adoption of such e-commerce models as necessary to assure that options like micropayment are

169 See id.
available to producers of content regardless of market power.

Digital Fair Use

Copyright has never been an unlimited privilege of the copyright owner. It has always consisted of a “bundle of rights” divided between the copyright owner and the public.\(^{170}\) Central to the integrity of that balance, the Fair Use Doctrine has long secured to the public a reasonable set of rights necessary to the full use and enjoyment of copyrighted works. Decisions like those in the *Mp3.com* and *Napster* cases, though, have begun to narrow the application of the Fair Use Doctrine where digital information is concerned. If this trend continues, or even if the situation is allowed to remain as it is, the public will suffer the irony of enjoying unprecedented access to information, only to have unprecedented restrictions on its use. The balance of power between the copyright owner and the public has shifted, and must be returned to its proper state.

This could be achieved in part through the enactment of a Digital Fair Use statute. Legislative recognition of Fair Use is not unprecedented, of course, the Copyright Act of 1976 being an example. The Digital Fair Use Act would make it clear that online users enjoy the same privileges as consumers of printed text, sheet music, and so on. The DFUA might include such provisions as an acknowledgment that transmitting music files over the Internet is a “private” use, contrary to the *Napster* decision’s finding on the subject, and a clarification that copying files on a computer or network is permitted to the same extent as, say, photocopying. There is rampant uncertainty in the online world regarding just what is and is not permitted, and the DFUA would go far toward clarifying the situation.
There would certainly be difficulties in enacting the DFUA. The music industry would lobby strenuously against the law, of course, and there would be much wrangling over its specific provisions. In addition, it is constitutionally risky for Congress to enact legislation effectively overturning decisions of the Judicial branch, although the Supreme Court has not yet heard a case like *Napster*. Still, even a less-than-ideal piece of legislation would be preferable to a void, and the DFUA would be a valuable addition to the legal universe surrounding the online one.

**Modifications to the AHRA**

The Audio Home Recording Act was a useful piece of legislation in 1992, but events have since demonstrated its inability to remain viable in the online era. The time has come for the AHRA to extend eligibility for its royalty fund to the devices most widely used for serial copying: computers. As discussed above, the AHRA was intentionally enacted with an explicit exemption for computers, codified as the “primary function” clause which limited the Act’s scope to those devices capable only of copying music. Whatever the reason for that exemption in 1992, its utility has come and gone, and we are now in a world where the majority of music copying takes place on devices with multiple functions. We are also in a world where music is transmitted across global networks instead of being passed from hand to hand, as was contemplated by the AHRA. The AHRA needs updating to acknowledge these facts, and secure to musicians the royalties which the Act has promised, and failed to deliver, for most of a decade.

The AHRA is a perfect vehicle for the establishment of online royalties. Since it is an

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*Pollack, supra, at 2453.*
existing, tested statute, amending it would not require the expenditure of time and effort needed to write a statute from scratch. Also, it does not purport to ban any activity of music consumers, and so would not risk the de facto irrelevance of an unenforceable law. All a royalty modification need do is acknowledge that computers are subject to the act, and would be assessed the one-time fee for the royalty fund. Modifying the AHRA would serve the twin goals of assuring compensation to artists and ending a law's longstanding inability to carry out its function.

More problematic is the AHRA's requirement of SCMS technology. Applying such a requirement to computers would be a technical challenge of almost insurmountable proportions given the need for computers to carry out their other functions efficiently. Any modification to computer hardware or software secure enough to withstand the circumvention efforts of hackers and other enterprising experts would almost certainly be cumbersome, intrusive and expensive. Therefore some modification to the AHRA's SCMS provisions would be in order. Perhaps the Act could be made to subject computers to the royalty provisions while exempting them from the SCMS requirement. Perhaps it could establish incremental royalty payments depending on a machine's capability for serial copying, exacting higher payments for machines with CD burners, for example, or high-speed Internet connections. Combined with the Digital Fair Use Act, though, the AHRA might no longer need directly to proscribe the copying of music, but would be enacted into a legislative scheme that acknowledges the malleability of digital information.

Whatever provisions might be added or modified, the AHRA could be made into a useful tool for assuring the fairness and viability of the Internet as a tool for the dissemination of music. Even if it did not achieve everything it could, modification of the Act could, at the outside, serve

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171 The author acknowledges the likelihood that, in the near future, virtually all computers will be sold with these features. With that in mind, any modification to the AHRA would need to be general enough to incorporate coming technologies while remaining specific enough to be understandable and enforceable.
to promote some improvement in the online-music world, to at least the partial satisfaction of parties on all sides of the issue.

**MAKING E-COMMERCE PRACTICAL ON A SMALL SCALE**

It has been discussed at some length above that MP3 files lack the full value of purchased CDs. This does not mean, however, that they are entirely without value. It is difficult to say just what the value of an MP3 is, since value is determined in the first instance by what people are willing to pay. Still, it is safe to assume that there is *some* price at which people would be willing to pay for a given song in MP3 format, and therefore there is some potential for pay-per-download music delivery over the Internet. One of the major stumbling blocks concerns how payment would be made.

One of the most significant barriers to fair and profitable online music distribution is the lack of a viable system under which consumers could pay the nominal fees that it would be reasonable for online music vendors to charge for music files. It is easy enough for a consumer to purchase a $15.00 CD online, but there is virtually no system in place for retailers' charging the few cents that an MP3 file might cost.

Payment of small amounts of money over the Internet is called "micropayment," and has been the topic of much recent discussion. There are many uses for micropayment in the online world, but music could be one of the most important. Suppose a record label were to charge 50 cents for an MP3 file of a popular song (or $0.25 for a digital picture of the artist). Visitors to the label's download site would be able to download the song upon receipt of payment, but how would that payment be transmitted? Technologies have been developed and marketed, but there is currently no system in place for the widespread, cost-effective dissemination of online
micropayments that would facilitate the record label’s selling the MP3 file.\textsuperscript{172}

Micropayment systems have existed for some time, but have failed to flourish.\textsuperscript{173} The question of why consumers have failed to embrace micropayment presents a chicken-and-egg conundrum. Do online vendors not offer content for micropayment because no customers use the technology, or do consumers shun the technology because they have not been enticed to adopt it by vendors’ offering alluring content? There is a stalemate, and neither side seems willing to blink first. The force poised most effectively to nudge the acceptance of micropayment into motion is the law. The music industry would be wise to lobby for the development of micropayment systems, through mechanisms such as tax incentives, regulatory lenience and even outright subsidy. The expenditure would be manageable, the rewards untold. The ability of vendors to charge as little as fractions of cents for online content would transform the Internet, creating revenue in countless ways, both novel and foreseen. The music industry stands to gain as much as any other as a result, having demonstrated a rapacious public appetite for its online content. All that is required is a legislative nudge in the right direction.

CONCLUSION

The distribution of music has developed into something more than a popular industry. It has become a social force, and the subject of a divisive philosophical debate. Driven by technologies used by everyone and understood by very few, this technology has dashed ahead of the law. Changes must be made to the legal framework in which we define what is and is not of value to us – the law in its current state is unequal to the task of fairly administering the digital world. If the Internet and its underlying technologies are allowed to continue evolving, the

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\textsuperscript{172} See JANE KAUFMAN WINN, Symposium: Clash of the Titans: Regulating the Competition between Established and Emerging Electronic Payment Systems, 14 Berkeley Tech. L.J. 675, 693.
\end{flushright}
potential gains are unimaginable. If the law capitulates to the fears of an industry long known for resisting change, the Internet could be damaged beyond full repair. It is up to those who shape the law of copyright to oversee the principled transition of copyright law from the era of Gutenberg to that of Gnutella.

Legislating is in a sense prognostication. Few areas are more difficult to predict than technology, and few people are less suited to the task than legislators. Nevertheless, the changes must be made. If Digital Fair Use, modifications to the AHRA and fostering micropayment are not the ideal solutions to the rising problems facing digital music distribution, they at least promise to ease somewhat the tensions between copyright holders and the public. An ideal system, if possible, is certainly many years away, but the measures proposed above form a plausible start to the process of achieving one.