

# COPYRIGHT, PREVENTION, AND RATIONAL GOVERNANCE: FILE-SHARING AND NAPSTER

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## 1. Introduction

*Directory-based file-sharing* entails software-enabled services that provide to web users the ability to find and download files from other computer hard drives by typing an appropriate title, word, or phrase. For example, a student interested in the Civil War may find and download material from other user hard drives by entering the phrase “Abraham Lincoln”. In addition to digital documents, software, and photographs, file-sharing can enable the transfer and unauthorized copying of copyrighted music, books, and movie files. The unauthorized reproduction of any copyrighted material may displace original sales and therefore presents concerns for copyright owners.

File-sharing technologies are based on peer-to-peer networking technologies (e.g., file transfer protocol (FTP) and hypertext transfer protocol (HTTP)) that enable nodal computers to directly transmit files to one another without storage on a centralized server. File-sharing is one of the oldest concepts in distributed computing, dating back to the Defense Department’s ARPANET, the immediate precursor to today’s Internet. When directory-based, file-sharing entails two alternative topologies. Providers such as

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Napster, Macster, Scour, and Spinfrenzy provide software to users who route file requests through a directory of file donors that is located on a network server. At present, Napster provides only music transfer capability, while Scour and Spinfrenzy more generally include movies, software, photos, and documents.<sup>2</sup> Considerably less user-friendly, web services such as Gnutella, Freenet, Jungle Monkey, Hotline, and iMesh provide open-source software that enables users to download material directly from other hard drives without routing requests through a server.<sup>3</sup> Napster, the most popular of the services and focus of our discussion below, may have attracted over 32 million registrants to date.<sup>4</sup>

Napster attracted a headline lawsuit in the year 2000. On behalf of the label affiliates of the five major record companies that distribute 85 percent of sound recordings in the U.S. (Sony Music, Universal Music, Warner Music Group, EMI, and BMG), the Recording Industry Association of America (RIAA) initiated a damages suit against Napster in December, 1999. The suit claimed that Napster violated both federal and state laws through contributory and vicarious copyright infringement. Complainants filed a motion in June, 2000 for a preliminary injunction to enjoin further operation. District Court Judge Marilyn Hall Patel issued an injunction on July 26, which the Ninth U.S. Circuit Court of Appeals vacated a day later.<sup>5</sup> The Circuit Court began hearings on

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<sup>2</sup> A complementary program, known as Wrapster, can be used to deploy the Napster software for more general applications. America Online has made available a restricted file-sharing technology named Aimster, which operates between users in a limited user group.

<sup>3</sup> Curiously, Gnutella was invited by two programmers at America Online who had invented the Winamp program for playing MP3 files. After drawing immediate cries of alarm, the company dropped service two days later. The software was, however, out of the bag by then and fell into the open source community.

<sup>4</sup> <http://www.sltribune.com/2000/oct/10102000/business/31884.htm> (visited October 16, 2000).

<sup>5</sup> *A & M Records, Inc. et al. v. Napster Inc.*, Case Number C 99-5183 MHP (ADR), United States District Court, Northern District of California, San Francisco (July 26, 2000). At [http://www.riaa.com/napster\\_legal.cfm](http://www.riaa.com/napster_legal.cfm) (visited November 9, 2000).

the injunction on October 2. While Napster and one record company, BMG, reached a settlement of a sort, the lawsuit is expected to continue at full steam nonetheless (with BMG remarkably as a continuing plaintiff).<sup>6</sup>

From an economic perspective (admittedly constrained by institutional practicality), we consider four possible resolutions of the matter. First, the Court may *choose a winner* by evaluating the legal consistency of each position based on statutory or legal precedent. This outcome would subsume opposite subcases where Napster is either enjoined or granted “fair use” protection from any copyright liability. As a second option, the Court may enforce a *property right* on behalf of one party, believing in a Coasian sense that affected players market will resolve outstanding inefficiencies through negotiation.<sup>7</sup> Third, the Court more aware of transactions costs may invoke a *general liability rule* that make copyright infringers generally liable for all actual damages.<sup>8</sup> Fourth, the Court may impose *specific safeguards* upon the contending parties that would require and disallow designated practices.<sup>9</sup>

In choosing among alternative governance procedures, there are four realities that must be acknowledged. First, the potential for file-sharing as a knowledge-enhancing

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<sup>6</sup> See <http://news.cnet.com/n...8061.html?tag=st.ne.ni.rnbot.rn.ni> (visited November 4, 2000). Under the deal, Napster users would pay for downloads of BMG content and BMG would buy 58 percent of Napster. It is not clear under such a payments regime whether record owners would so willingly donate their files to Napster, or whether BMG customers would continue to use Napster rather than migrate to other services. Finally, there is no easy accommodation for remaining labels, who have made no indication that they are willing to drop their action.

<sup>7</sup> R.H.Coase, *The Problem of Social Costs*, 3 Journal of Law and Economics 1 (1960).

<sup>8</sup> G. Calabresi and D. Melamed, *Property Rights, Liability Rules, and Inalienability: One View of the Cathedral*, 85 Harvard Law Review 1089 (1972).

<sup>9</sup> G. Calabresi, *THE COSTS OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS*, ch. 8, Yale University Press, New Haven, Connecticut (1970).

technology is compelling. Second, the Internet is an open-ended game where relevant information for policy-making is slowly revealed in the play. Third, national borders can be irrelevant to cyber-producers and their ability to provide services. Fourth, the music industry may come to profit directly from file-sharing if it can find a different business model that can deploy new capabilities in a competitive fashion.

With so open-ended a market, the information needed for an efficient administrative resolution of the dispute now is unobtainable and the possibility of error is considerable. In instances such as this, incrementalist tactics based on limited knowledge and narrow policy goals are practical ways of advancing, with modifications possible as more knowledge becomes available.<sup>10</sup> In such a context, specific safeguards appear to have the greatest capability of economizing on information costs and leaving the market open to new factors that may emerge. Courts and administrators act most rationally when they stop trying to behave with full Rationality. Instead of imagining that all relevant information is immediately available and attempting to identify the most appropriate equilibrium outcome, they should reject an overdrawn legal centralism in favor of a “satisficing” procedure that sustains order and permits evolution.<sup>11</sup>

The paper is organized as follows. Section 2 overviews key legal issues regarding copyright, infringement, and fair use. Section 3 discusses new digital technologies and the market threats that they pose to rights holders, while Section 4 considers piracy in the "black market". Section 5 analyses the Napster case in the traditional legal framework of

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<sup>10</sup> C. E. Lindblom, *THE POLICY-MAKING PROCESS*, Prentice-Hall, Englewood Cliffs, New Jersey (1993).

<sup>11</sup> The general approach to “order without law” is outlined in R. Ellickson, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES*, Harvard University Press, Cambridge, Mass., 123-84 (1991).

statute and case precedence, while Section 6 considers two Coasian frameworks familiar in the academic literature on law and economics. Section 7 argues that specific safeguards provide the preferred means of governance. Section 8 suggests a number of opening moves to resolve the problem. Section 9 concludes the paper.

## **2. The Nature of Copyright**

This section discusses legal issues regarding copyright, infringement, and fair use in American jurisprudence.

### Infringement

The stated constitutional purpose for patents and copyrights is to “promote the progress of science and the useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries”.<sup>12</sup> In enacting the Copyright Act of 1909, the House of Representatives concurred that copyright protection exists not “primarily for the benefit of the author, but primarily for the benefit of the public.”<sup>13</sup> The Supreme Court affirmed that the broad exercise of copyright in the U.S. must then be weighted in an “equitable rule of reason” that balances contending positions of user and producer.<sup>14</sup>

Copyright is now federally protected by the Copyright Act of 1976, which became fully effective on January 1, 1978.<sup>15</sup> Per Section 106, music copyright primarily

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<sup>12</sup> U.S. Constitution, Article 1, Section 8.

<sup>13</sup> H.R. Rep. No. 2222, 60th Congress, 2d Session, p. 7

<sup>14</sup> *Sony Corporation v. Universal City Studios*, 194 S. Ct. 774, 795, 464 U.S. 417 (1984).

<sup>15</sup> Copyright Act, H.R. Rep. No. 94-1476, reprinted in 1976 U.S. Code Cong. and Admin. News 5659, 5680.

implicates four distinct rights. The owner of the words and music in the *musical composition*, generally its publisher, has the right to license *mechanical reproduction/distribution* and *public performance* of the underlying words and music. The owner of the *sound recording*, generally the record label, has the corresponding right to authorize reproductions in actual recordings and, for certain *digital audio transmissions*, performances.<sup>16</sup> Unauthorized reproduction or performance of copyrighted music generally represents direct infringement and is punishable under penalties established in Section 501.

Though not specified explicitly in the Copyright Act, a party may be liable for *contributory* and/or *vicarious infringement* even if she has not directly reproduced or performed the work. A contributory infringer is “one who, with knowledge of the infringing activity, induces, causes, or materially contributes to the infringing conduct of another.”<sup>17</sup> Liability can be incurred if the defendant either knew of or was willfully blind to any form of infringing activity.<sup>18</sup> Even without knowledge,<sup>19</sup> a party may be guilty of vicarious infringement if he “has the right and ability to supervise the infringing

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<sup>16</sup>The Digital Performance Rights in Sound Recordings Act of 1995 added a performance right in sound recordings used in digital audio transmissions, such as digital subscription services, Internet delivery, and satellite digital audio radio.

<sup>17</sup> *Gershwin Publishing Corp. v. Columbia Artists Management, Inc.* 443 F. 2d 1159, 1162 (2d Cir. 1971); *Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F. 3d 259, 264 (9<sup>th</sup> Cir. 1996).

<sup>18</sup> *Cable/Home Communication Corp. v. Network Productions*, 902 F. 2d 829, 846 (11<sup>th</sup> Cir. 1990); *Sega Enter, Ltd. V. MAPHIA*, 948 F. Supp. 923, 933 (N.D.Cal 1996).

<sup>19</sup> *Shapiro, Bernstein and Co. v. H.L.Green Co.*, 316 F. 2d, 304, 307 (2d Cir. 1963). See also earlier “dance hall” cases: *Buck v. Jewell-LaSalle Realty Co.*, 283 U.S. 191 (1931); *Dreamland Ball Room, Inc. v. Shapiro, Bernstein and Co.*, 36 F. 2d 354 (7<sup>th</sup> Cir. 1929); *M. Witmark and Sons v. Tremont Society and Athletic Club*, 188 F. Supp. 787 (D. Mass. 1960); *Renmick Music Corp. v. Interstate Hotel Co.*, 58 F. Supp. 523 (D. Neb. 1944), *aff’d*, 157 F. 2d 744 (8<sup>th</sup> Cir. 1946).

activity and also has a direct financial interest in such activities.<sup>20</sup> Whether or not a company is immediately profiting from the infringement is not dispositive of the presence of a direct financial interest.<sup>21</sup>

Charges of contributory and vicarious infringement have often arisen in cases involving music copying. Due to subsequent acts of direct infringement, courts ruled against a store selling blank tapes for use with an on-the-premises “Make-A-Tape” machine,<sup>22</sup> a retail copy service operating a cassette copying machine to reproduce sound recordings,<sup>23</sup> an operator of a swap meet that rented space to bootleggers,<sup>24</sup> a trade show operator that used music to cultivate interest and attendance,<sup>25</sup> a bar owner who permitted unauthorized public performances of songs,<sup>26</sup> and a seller of blank audiotapes and taping equipment to known counterfeiters.<sup>27</sup> Courts have not allowed the defense that infringing uses may have stimulated sales in some instances.<sup>28</sup> To measure harm, courts have

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<sup>20</sup> *Gershwin*, supra at note 17.

<sup>21</sup> *Major Bob Music v. Stubbs*, 851 F. Supp. 475 (S.D. Ga. 1994); *Walden Music, Inc. v. C.H.W., Inc.*, 1996 WL 254654, at \*5 (D. Kan. 1996); *Broadcast Music, Inc. v. Hobi, Inc.* 1993 WL 404152 at \*3 (M.D. La. 1993).

<sup>22</sup> *Electra Records Co. v. Gem Electronic Distributors, Inc.* 360 F. Supp. 821 (E.D.N.Y. 1973).

<sup>23</sup> *RCA Records v. All-Fast Systems, Inc.*, 594 F. Supp. 335 (S.D.N.Y. 1984).

<sup>24</sup> *Fonovisa*, supra at note 17.

<sup>25</sup> *Polygram International Publishing, Inc. v. Nevada/TIG, Inc.*, 855 F. Supp. 1314 (D. Mass. 1994).

<sup>26</sup> *Major Bob Music*, supra at note 21.

<sup>27</sup> *A&M Records, Inc. v. Abdallah*, 948 F. Supp. 1449 (C.D. Cal 1996).

<sup>28</sup> *DC Comics, Inc. v. Reel Fantasy, Inc.*, 696 F. 2d 24, 28 (2d Cir. 1982); *Ringgold v. Black Entertainment Television*, 126 F. 3d 70, 81 n. 16 (2d Cir. 1997).

considered whether the defendant's use diminishes or prejudices potential sales,<sup>29</sup> interferes with marketability,<sup>30</sup> or fulfills the demand for the original.<sup>31</sup>

### Fair Use and *Sony*

Section 107 codified a preexisting judicial doctrine regarding fair use, which is a “privilege in other than the owner of the copyright to use the copyrighted material in a reasonable manner without his consent, notwithstanding the monopoly granted to the owner by the copyright.”<sup>32</sup> Codified factors to be considered in determining whether the use of a work is “fair” include the purpose and character of the use (duplicative vs. transformative; commercial vs. nonprofit), the nature of the original work (factual vs. creative), the amount and substantiality of the use (partial vs. complete copy), and the effect of the use upon the potential market or value of the work. The latter is of principle concern to economists and often regarded to be most important.<sup>33</sup>

A landmark case involving the limits of copyright (as it particularly affected contributory negligence) was the 1984 Supreme Court decision, *Sony Corp. v. Universal City Studios Inc.*, which considered the legality of home video taping of broadcast

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<sup>29</sup> *Meeropol v. Nizer*, 560 F. 2d at 1070; *Marvin Worth Productions v. Superior Films Corp.* 319 F. Supp. 1269, 1274 (S.D.N.Y. 1970).

<sup>30</sup> *Elsmere Music, Inc. v. National Broadcasting Co.*, 482 F. Supp. at 747.

<sup>31</sup> *Wainwright Securities Inc. v. Wall Street Transcript Corp.* 558 F. 2d 91, 96 (2d Cir. 1977), *cert. denied*, 434 U.S. 1014, 98 S. Ct. 730, 54 L. Ed. 2d 759 (1978); *Berlin v. E.C. Publications*, 329 F. 2d at 545.

<sup>32</sup> *Rosemont Enterprises, Inc. v. Random House, Inc.*, 366 F. 2d 303, 306 (2d. Cir. 1966), *cert. denied*, 385 U.S. 1009, 87 S. Ct. 714, 17 L. Ed. 2d 546 (1967).

<sup>33</sup> The Supreme Court had characterized the market effect as “undoubtedly the single most important element of fair use”, *Harper and Row Publishers v. Nation Enterprises*, 105 S.Ct. 2218, 2233; 471 U.S. 539, 85 L. Ed. 2d, 558, but one subsequent Supreme Court decision explored the four together

television material.<sup>34</sup> In a five-to-four decision, the Court ruled that one potential use of the videorecorder -- noncommercial time-shifting in the home -- sufficiently qualified as a commercially “significant noninfringing use” that legitimated a defense against contributory infringement. Regarding empirical evidence, the Court ruled that a plaintiff must prove “by a preponderance of evidence that some meaningful likelihood of *future harm* exists. [emphasis mine]”<sup>35</sup>

The importance of the “significant noninfringing use” was reestablished in a 1988 case, *Vault v. Quaid*.<sup>36</sup> A Circuit Court here upheld a lower court decision that held that a seller of software purposely designed to defeat an anticopying shield was not guilty of contributory negligence. The shield was intended to stop users from making copies of programs that were recorded on protected cassettes. While Quaid's software evidently could be used to make unauthorized copies, the Court find that the program also enabled a user to make archival reproductions, which the Court found to be a significant, noninfringing use.

### 3. Digital Technologies

We shall now review the digital technologies that are transforming the Internet to an open-ended system for sharing music files among users in a distributed network. MP3 is a compression technology that enables users to upload, compress, and store

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and not in isolation. *Campbell v. Acuff Rose Music, Inc.* 510 U.S. 569, 576, 114 S. Ct. 1164, 127 L. Ed. 2d 500.

<sup>34</sup> *Sony*, supra at note 14.

<sup>35</sup> *Sony*, at 452.

<sup>36</sup> *Vault v. Quaid*, 847 F. 2d 255 (5<sup>th</sup> Cir. 1988).

music files on PC hard drives. Napster and file-sharing technologies enable users to find and download a particular file from the hard drives of donor users. Related to the distribution of either are advances in digital protection that restrict the use of unauthorized copying.

### MP3

Unauthorized copying of sound recordings is made possible when music files are formatted in an audio file compression standard known as MP3 (Motion Picture Expert Group 1, Audio Layer 3), which the Motion Picture Experts Group adopted in 1987. With MP3 compression, a user may compress a digital music file by a factor of 12 from an uncompressed 40-60 MB per song. With commonly available technology, music on CDs can now be uploaded (“ripped”), compressed, and stored on PC hard drives for legitimate uses, such as home listening. However, as the MP3 format does not include encryption or copyright protection as part of its standard protocol, MP3 music can be freely transmitted or copied between PCs as well. But for required download time and storage space on a hard drive, copying is costless, although compression does degrade quality somewhat.<sup>37</sup>

Music that is copied on a personal hard drive can be used as background music for office or schoolwork, particularly when usage entails simultaneous computer applications. In this respect, computer music may displace CDs now used for the same purpose, as well “over-the-air” and webcast radio. Uses are popular on college campuses, where background music can be an appreciated accompaniment to study. However, hard-drive MP3 music at its current bit rate (128 kbits/sec) is inferior for

audiophiles or music-centered relaxing. It may also be less substitutable in family uses where recreational listening and computer use often occur in different parts of the house.

However, an increasing number of users are now acquiring the ability to use MP3 music on other listening devices. Music files on hard drives can be transferred to flash memories that are used principally for foot or automobile travel,<sup>38</sup> routed through digital audio receivers to home stereo systems, or “burned” on blank CDs using CD-recordable equipment. The latter is particularly significant, since it can displace a CD purchase that may otherwise result. While the base of “burners” is now relatively small, 40% of the new personal computers bought this year had “burning” capabilities, marking a substantial increase from 1.7% in 1999;<sup>39</sup> furthermore, the number of blank CDs sold in world markets rose about fifty percent, while North American volume exceeded sixty.<sup>40</sup> This growth and the imagined dangers that it poses can be overstated nonetheless, as new secure DVD-Audio technology is now becoming available that is expected to erode CD sales in 2002.<sup>41</sup>

New and some less conventional established artists (such as Courtney Love and Chuck D) view the MP3 technology favorably, as they can promote themselves on-line and allow their fans to pass on material to new listeners. However, major record labels uniformly perceive unprotected MP3's as an economic threat, and many major artists (such as Metallica) strongly concur. Accordingly, they now make digital music available

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<sup>37</sup> <http://www.hi-fiworld.co.uk/caw/cawreviews4.html>, (visited July 26, 2000).

<sup>38</sup> Larger units can accommodate home entertainment uses.

<sup>39</sup> <http://news.cnet.com/news/0-1005-200-2402494.html>, (visited July 31, 2000).

<sup>40</sup> [http://www.recordingmedia.org/statistics/stat-cd-r\\_demand.html](http://www.recordingmedia.org/statistics/stat-cd-r_demand.html), (visited October 25, 2000)

<sup>41</sup> <http://www.recordingmedia.org/speechtechman2000.html>, (visited October 25, 2000)

only through alternative technologies that are secure against copying. They fear that copying problems enabled by MP3 will compound further with broadband buildout that will gradually reduce download times.

### Napster and File Sharing

Napster and other file-sharing software provides a client browser interface that enables users to locate unprotected MP3s on other hard drives by typing the name of a desired song. Napster does not physically store music on its centralized servers. Rather, the program communicates the names and locations of all unprotected files of any donor to server directories controlled by Napster. The server accommodates search requests for music files by looking through compiled directory data. If a corresponding match for a search request is found, an entry appears on the user's screen, including name, file size, bit rate, and transmission speed. Defense witness J.D.Tygar provided evidence that Napster sometimes cannot distinguish copyright protection, check authorizations, or determine whether any particular use of its system is infringing.<sup>42</sup>

Napster's opponents contended in Court that file-sharing displaces the sales of authorized copies and that no means of copy prevention is sufficiently secure.<sup>43</sup> With the possibility of reduced sales, the financial incentives to record producers may diminish, thereby reducing the production of music entertainment in the long-run.<sup>44</sup> Napster

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<sup>42</sup> J.D. Tygar, Expert Report Pursuant to Federal Rule of Civil Procedure 26(a)(2)(B), *A & M Records, Inc. et al. v. Napster Inc.*, Case Number C 99-5183 MHP (ADR), United States District Court, Northern District of California, San Francisco, July 26, 2000, pp. 7-8. At <http://www.napster.com/pressroom/legal.html> (visited November 9, 2000).

<sup>43</sup>E. D. Jay, Testimony, *supra* at note 42; M. Fine, Testimony, *supra* at note 42; at [http://www.riaa.com/napster\\_legal.cfm](http://www.riaa.com/napster_legal.cfm) (visited November 9, 2000).

proponents contend that file-sharing may actually stimulate sales by enabling prospective customers to sample individual tracks, exchange complementary information, and develop a base of users and network infrastructure.<sup>45</sup> Judge Patel was particularly taken with the statistics presented by Dr. Deborah Jay that purported to show how Napster displaced authorized sales.<sup>46</sup> Dr. Jay's statistical analysis is critiqued elsewhere.<sup>47</sup>

#### 4. Piracy

From an economic perspective, the market supply of unauthorized copies can be viewed as a production function that may be more or less efficient than the original.<sup>48</sup> To gauge the economic effects of copying, we must consider the nature of piracy, the possible effect of file-sharing upon the market, and the capacity for technological prevention. We must answer two implicit questions: what is the incremental effect of Napster upon label revenues and to what degree can this increment be altered? This section addresses the first question.

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<sup>44</sup> D. J. Teece, Testimony, *supra* at note 42; at [http://www.riaa.com/napster\\_legal.cfm](http://www.riaa.com/napster_legal.cfm) (visited November 9, 2000).

<sup>45</sup> R. E. Hall, Testimony, *supra* at note 42; P. S. Fader, *supra* at note 42; at <http://www.napster.com/pressroom/legal.html> (visited November 9, 2000).

<sup>46</sup> M. H. Patel, Opinion, *supra* at note 5, 21-22

<sup>47</sup> M. A. Einhorn, *Napster, Copyright, and Markets*, Twenty Eighth Annual Telecommunications Policy Research Conference, Alexandria, Virginia, unpublished paper (September 24, 2000).

<sup>48</sup> S. M. Besen, *Private Copying, Reproduction Costs, and the Supply of Intellectual Property*, 2 Information Economics and Policy 5 (1986); S. M. Besen and S. N. Kirby, *Private Copying, Appropriability, and Optimal Copying Royalties*, 32 Journal of Law and Economics 255 (1989).

Compared with global music sales in 1998 of \$38.5 billion, global piracy of music was worth an estimated \$4.5 billion.<sup>49</sup> Of 5.8 billion units sold in that year, roughly one third were illegal. Eighty percent of the illegal traffic was cassettes, but unauthorized CD units were on a rapid increase.

While cassette operations have always been largely localized networks contained within national borders, illegal CD distribution is often international and enabled by organized gangs. CD piracy had been based primarily in illegal factory orders in countries with surplus capacity and lax copyright enforcement (particularly Asia and Eastern Europe). Illegal piracy operations have from time to time attracted the attention of international negotiations at the highest level, as in June, 2000 between President Clinton and President Kuchma of Ukraine.<sup>50</sup>

Professional copying is now also made possible in "home-grown" operations due to the ready availability of "burning" equipment. Pirates in this line of work, which requires a substantial investment in physical equipment, would not reasonably provide copied material to Napster, where file donors do not profit.<sup>51</sup> Nor will copied music be uploaded elsewhere to web-sites for user visitation and download, as the RIAA has perfected automatic search robots that can locate unauthorized web music and has

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<sup>49</sup> Data in the ensuing two paragraphs were pulled from [http://www.ifpi.org/antipiracy/presentation\\_01.html](http://www.ifpi.org/antipiracy/presentation_01.html) and <http://www.ifpi.org/statistics/worldsales.html>, (visited October 25, 2000).

<sup>50</sup> [http://www.riaa.org/News\\_Story.cmf?id=281](http://www.riaa.org/News_Story.cmf?id=281), (visited October 25, 2000).

<sup>51</sup> A representative police raid on a New York piracy operation grabbed two CD-R towers (with eight-speed burners), three separate computer systems, a thermal imprinter, 15,000 counterfeit labels, 10,000 blank CDs, and 2200 pirated CDs. At [http://www.riaa.com/PR\\_story.cfm?id=342](http://www.riaa.com/PR_story.cfm?id=342), (visited October 25, 2000)

successfully challenged offending operators. However, Napster conceivably can assist pirates by making certain tracks available through direct digital transmission.

Pirated cassettes and CDs are sold primarily on city streets and tend to be confined to music that appeals to urban tastes. These CDs are also of lower audio quality than secure music that will increasingly be distributed online. Pirated CDs are less conveniently obtained, entail material and labor costs that online services entirely avoid, and disallow the direct purchase of individual tracks -- a distinct advantage of online distribution. If more music becomes digitally available at reasonable prices, the appeal of piracy may diminish somewhat.

Available data now confirm that reproductions enabled by file-sharing now account for a small fraction of industry losses to piracy. Current market estimates suggest that as much as one billion infringing music files are downloaded in a year.<sup>52</sup> Taking a market price of \$1.75 per track<sup>53</sup> and a 97 percent discard rate,<sup>54</sup> a rough estimate for dollars lost from present displacement is \$52.5 million, which is 1.17 percent of the \$4.5 billion total.

This estimate may be widely offmark for a number of offsetting reasons. Tending to reduce harm, consumer sampling may at times actually stimulate music sales on higher quality media. Alternatively, the original files at higher prices might not have been

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<sup>52</sup> [http://www.ifpi.org/antipiracy/presentation\\_01.html](http://www.ifpi.org/antipiracy/presentation_01.html), (visited October 26, 2000).

<sup>53</sup> This is the highest price per single download at <http://www.towerrecords.com>, (visited October 26, 2000).

<sup>54</sup> Webnoize Research, *Napster University: From File Swapping to the Future of Entertainment Commerce*, Spring 2000, in R.E. Hall, *supra* at note 45, Exhibit 9.

otherwise purchased and are not then displaced.<sup>55</sup> On the other hand, file-sharing also detracts from the opportunity of labels to engage in alternative forms of licensing, such as one week rates, that would profitably enable their own forms of sampling.

Recording labels are reasonably concerned that the magnitude will grow in size, particularly as more individuals obtain access to broadband technologies that enable faster downloads.

## **5. Injunctions and Fair Uses**

We now consider four different means for resolving the matter. Following statute or legal precedent, the Court may choose to award unconditionally a permanent injunction to the label or a “fair use” right to Napster. Second, the Court may indifferently award a property right to one party, trusting the affected parties to negotiate all economically efficient transfers. Third, the Court may devise a liability rule by which Napster may compensate copyright owners. Fourth, the Court may fix specific behavioral rules that protect against infringement. This chapter discusses the first item.

Record labels have asked for injunctions in a number of cases involving digital technology that can be used to make unauthorized copies of music. For their part, Napster defendants counter that the *Sony* decision provides standards for noncommercial copying that implicates “fair use” protection. A Court that awards either faces the reality that relevant information is now missing and that the outcome might not be reversible.

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<sup>55</sup>Courts have generally allowed recovery only for sales that would have been made at the higher price. *Manufacturers Technologies, Inc. v. CAMS, Inc.*, 728 F. Supp. 15, 15 U.S. P. Q 2d 1623 (D. Conn. 1989); *Regents of the University of Minnesota v. Applied Innovations*, 685 F. Supp. 698, 5 U.S.P.Q. 2d 689 (D. Minn. 1987).

The information needed here to determine ex ante an efficient outcome here seem prohibitive. On the one hand, peer-to-peer file-sharing methods may generally help disseminate knowledge and enable further technical advances (e.g., automated suggestions, voice recognition searches, and mechanized searches based on personalized information). By so advancing knowledge and technology, peer-to-peer file sharing may understandably claim a defense as a “significant, noninfringing use”.

There are five problems in extending this general protection to Napster. First, it is quite possible for a device or service with “significant, noninfringing” uses to be inefficient or socially harmful nonetheless. Even if an unambiguous definition of the phrase were possible, other infringing applications can evidently outnumber the beneficial use and offset its expected gain. Economists who routinely balance costs and benefits in standard welfare economics would then question this particular market test as a comprehensive measure of social benefit.

Second, the Supreme Court in *Sony* decision did not need to face the implications of preventive technologies that could have been used to reduce damages in some fashion. These technologies can be readily considered in general copyright cases. What would the Court have said if television networks were able to scramble signals? How might the decision have changed if the cooperation of VCR manufacturers were necessary to enable scrambling? What if there were a realistic way for Sony or its users to indemnify plaintiffs for actual damages? The analogization between Napster and *Sony* may then be entirely inappropriate because the new media implicates different technologies for prevention.

Third, the Sony decision did not face the possibility that Sony was displacing or otherwise affecting the market for licenses of other time-shifting uses. How might the Court have ruled if television stations were making time-shifted content available to users through alternative services that could be licensed in another profitable venue? How might this decision have changed if alternative licensing technology were not immediately present, but rather a reasonable entrant?

Fourth, the *Sony* decision did not need to consider the possibility that enjoined functions could be provided costlessly through the use of another technology. However, providers of open source software, such as Gnutella, may now make file-sharing services available online to U.S. customers with reduced, possibly minimal, concern for extant American laws. Now difficult to use, open-source file-sharing could pose graver risks to record labels than centralized services.

Finally, an unconditional ruling may reduce the incentives of existing parties to develop innovative business models or market mechanisms that would facilitate a more efficient resolution of the matter.<sup>56</sup> In so doing, an injunction may close off the market to new information and unforeseen technical changes. If implemented, it would ignore Hayek's insight that a free market efficiently processes new information by providing powerful incentives among widely distributed nodes of buyers and sellers.<sup>57</sup>

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<sup>56</sup> W. M. Landes and R. A. Posner, *An Economic Analysis of Copyright Law*, 18 Journal of Legal Studies 325, 358 (1989).

<sup>57</sup> F. A. Hayek, *Coping with Ignorance*, in KNOWLEDGE, EVOLUTION, AND SOCIETY, Adam Smith Institute, London (1983); see also A. I. Ogus, *Law and Spontaneous Order: Hayek's Contribution to Legal Theory*, 16 Journal of Law and Society 393 (1989).

The analogy between Sony and Napster is quite strained.<sup>58</sup> That is, the Internet is a multinodal network based around a commonly shared resource. As such, it provides means for endogenous evolution that may support or confound regulation. By contrast, videocopying is fundamentally a static technology that could passively absorb a Supreme Court ruling with little room to move.

With limited information about the efficacy of future prevention, it also would be inappropriate to institute rashly an injunction under the law of trespass that could eliminate the market presence of a new technology for sharing music.<sup>59</sup> Without reasonable foreknowledge, such an injunction would largely reflect present fears of potential harm to existing vintages of unprotected CDs that are now in circulation. This perspective may be unduly heedless both of new protection technologies as well as real transactional difficulties that would hinder efficient resolution at any time.

## 6. Coase Theorems

We shall now turn to Coasian approaches to the matter. Coasian analysis broadly subsumes *property rules* that directly award rights in anticipation of Pareto-improving negotiations that will enhance efficiency and *liability rules* that directly award damages to make the infringer compensate the injured party for actual costs imposed. Both kinds of rules are found to be inappropriate for the Napster case due to their unrealistic assumptions or excessive information requirements.

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<sup>58</sup> This terminology appears in R. Reilly, *Mapping Legal Metaphors in Cyberspace: Evolving the Underlying Paradigm*, 16 John Marshall Journal of Computer and Information Law 586 (1998).

<sup>59</sup> Merrill makes the point that injunctions based on the law of trespass are best employed when transactions costs are low and negotiation to more efficient solutions can be expected. Plaintiffs are compelled under the law of nuisance to demonstrate proactively market harm. T. Merrill, *Trespass, Nuisance, and the Cost of Determining Property Rights*, 14 Journal of Legal Studies 13 (1985).

Property Rules: A Court that applies the strong Coase Theorem will indifferently award a property right to one party secure in the knowledge that negotiation would eventually resolve the matter in a Pareto-improving manner.<sup>60</sup> However, the efficient application of the Theorem depends on at least three conditions: no excluded “third parties” who would be affected by the outcome, no market power in the pricing of records, and no transactions costs in the negotiations between Napster and its complainants. .

The application is inappropriate in each respect. Regarding “third party” effects, consumers, nonrecorded artists, independent labels, and new digital entrants -- each of whom may reasonably be expected to benefit from file-sharing -- would not be parties to the negotiation between the record labels and Napster. Second, record companies now enjoy secure market power both as contracting agents that sign deals with new artists, as well as bottleneck marketers, distributors, and promoters of the music these artists record.<sup>61</sup> Significantly, digital technologies, which will open industry bottlenecks, are regarded as potential threats. Third, negotiations would necessarily involve the defendant, the record labels, and a number of independent music publishers who control the copyright to musical compositions. To reduce transactions costs to a manageable level, groups of related parties would have to appoint negotiating agents to internalize

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<sup>60</sup> From the Coase Theorem, the presence of absence of an injunction is irrelevant to the final outcome if the contending parties may negotiate a mutually agreeable result without transactions cost. For if the injunction were instituted for the inefficient position, the loser could induce the winner to lift the injunction by appropriate compensation that would improve social welfare and leave both parties better off. No such deal could displace an efficient position.

<sup>61</sup> Discussed in B.M. Compaine and D. Gomery, WHO OWNS THE MEDIA?: COMPETITION AND CONCENTRATION IN THE MASS MEDIA INDUSTRY, Lawrence Erlbaum Press, Mahwah, New Jersey, 327 (2000).

and balance the claims of each member and negotiate a fully accommodative solution. This possibility is arguable, particularly in view of the Bertelsmann deal (see footnote 6).

Liability Rules: Alternatively, courts may apply a weak Coase Theorem to establish directly a liability rule to award direct compensation to the harmed parties.<sup>62</sup> Such an approach would consider copyright violations as market events that impose identifiable harms upon content producers. Infringers will efficiently internalize these costs if damages can be assessed and affixed in a manner that reflects true usage costs. This would establish the correct market signals for the infringer to limit all forms of contributing activity where efficient, and is therefore *generally deterrent*.<sup>63</sup> However, damage payments should be based on estimates of actual harm and would neither be punitive nor confiscatory to any greater degree.

To protect symmetrically against all factors that contribute to infringement, economists tend to prefer general deterrence to specific rules that enjoin or penalize particular actions, possibly ignoring others.<sup>64</sup> However, the information requirements for general deterrence seem prohibitive. Assuming that a fair estimate of the number of downloads is possible, there is no one-to-one relationship between downloads and label profits. Napster users many users sample or transfer music that they would not otherwise buy, while others actually come to buy CDs heard first through Napster. Still others will use Napster service instead of a short-run lending service that labels may eventually make available. Over time, the user base and penetration of CD burners and home

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<sup>62</sup> Calabresi and Melamed, *supra* at note 8.

<sup>63</sup> Calabresi, *supra* at note 9, ch. 5

<sup>64</sup> Shavell, S., *Strict Liability versus Negligence*, 9 Journal of Legal Studies 1 (1980), THE ECONOMIC ANALYSIS OF ACCIDENT LAW (1987); R.A. Epstein, *The Temporal Dimension in Tort Law*, 53 University of Chicago Law Review 1175 (1986).

networks may change dramatically, CDs may be displaced by secure audio DVDs and online music distribution; each of these events will affect the both the overall importance of the CD market and the capacity of shared files to displace CDs within that market. Measurement problems will compound as other file-sharing services come into existence, and digital rights management services arise to protect content.<sup>65</sup>

Like bold injunctions or "fair uses" that would alternatively knock out Napster or give it *carte blanche*, these Coasian rules are legally centralistic<sup>66</sup> and require unrealistic amounts of information. The general difficulty here is well-characterized by Richard Nelson's remark:

In almost all normal economic theory, property rights and contractual obligations are assumed to be costlessly delineated in unambiguous terms and enforcement of the civil and criminal law is costless. By virtue of the combined force of this assumptions of clarity, perfection, and costlessness, the problem of proving the basic institutional underpinnings of a system of voluntary exchange is assumed away.<sup>67</sup>

## 7. Specific Deterrence

Finally, we examine specific restraints (embedded in subsidiary rules) that might capably reduce damages by establishing limits on particular behavior. As one example, the court may affix liability upon that provider with the low-cost prevention technology

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<sup>65</sup> Digital rights management strategies will include protective envelopes that communicate with home bases, hardware devices that meter usage, one-time downloadable executables, server-based executables, digital certificates that signify permission status, clearinghouses with licensing authority, and advanced watermarks bearing the name of the copyright holder(s) and original buyer. Eric Schlachter, *The Intellectual Property Renaissance in Cyberspace: Why Copyright Law Could be Unimportant on the Internet*, 12 Berkeley Technology Law Journal (1997)

<sup>66</sup> O.E. Williamson, *Credible Commitments: Using Hostages to Support Exchange*, 73 American Economic Review 519 (1983).

<sup>67</sup> R. R. Nelson, *Intellectual Property Protection for Cumulative Systems Technology*, 94 Columbia Law Review 2674, 2676 (1994).

that can most efficiently deter damage. Once an initial liability is established, the parties presumably could negotiate to a higher level of deterrence if efficient.<sup>68</sup>

The mandating of efficient restraints apparently found its way in 1997 to the Supreme Court, which examined provisions of the Communications Decency Act of 1996 that prohibited transmission of obscene or indecent communications to minors through Internet transmissions.<sup>69</sup> The Court ruled that user-based prevention was a more efficient means of preventing exposure and disallowed the statutory provisions.

However, there is no economic reason why Courts must initially limit liability to the “cheapest cost” avoider.<sup>70</sup> A multilateral resolution would be particularly compelling if self-help methods could complement one another or resolve different aspects of the problem.<sup>71</sup> Courts may then generally think of themselves as enabling, perhaps mandating, institutions of *complementary self-helps* that represent a cooperative solution to Prisoner’s Dilemma games.<sup>72</sup> Indeed, failure to impose symmetric restrictions invites

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<sup>68</sup>Regarding property rights, “it would be possible for the legal system to improve the allocation of resources by placing liability on that party who in the usual situation who in the usual situation could be expected to avoid the costly interaction most cheaply.” H. Demsetz, *When Does the Rule of Liability Matter?*, 1 *Journal of Legal Studies* 13, 27 (1972). For application to torts, see Calabresi, *supra* at note 9, 136-40; G. Calabresi and J.T. Hirschoff, *Toward a Test for Strict Liability in Torts*, 81 *Yale Law Journal* 1055, 1060 (1972); W.E. Landes and R. A. Posner, *ECONOMIC STRUCTURE OF TORT LAW*, Harvard University Press, Cambridge, Mass., Chapter 1 (1987).

<sup>69</sup> *Reno v. American Civil Liberties Union*, 117 S. Ct. 2329, 521 U.S. 844 (1997).

<sup>70</sup> See Demsetz, Calabresi and Hirschoff, *supra* at note 68; see also S.G.Gilles, *Negligence, Strict Liability, and the Cheapest Cost Avoider*, 78 *Virginia Law Review* 465 (1992)

<sup>71</sup> Bilateral care rules applied to property disputes were suggested first by M. White and D. Wittman, *Long Run versus Short Run Remedies for Spatial Externalities: Liability Rules, Pollution Rules, and Zoning*, in *ESSAYS ON THE LAW AND ECONOMICS OF LOCAL GOVERNMENTS*, D.Rubinfield, ed. Urban Institute, Washington, D.C. (1979).

<sup>72</sup> On the other hand, if a specialized labor solution is mandated where the resources of only one player are to be mobilized, courts may reasonable prescribe compensations that could make both parties better off. See Ellickson, *supra* at note 11, 162.

the moral hazard of underprotection, which may bring on more litigation as an inefficient means of resolving future conflicts.<sup>73</sup>

With proper technical assistance, the administrative costs of gaining relevant information regarding possible prevention methods do seem lower than the comparable information costs needed to estimate monetary damages or award unconditional “fair uses” or injunctions. However, relevant information about preventive technology is admittedly imperfect and will become available only over time. Therefore, a compelling case exists for policy-making that is purposely incrementalist and experimentalist -- restricting considerations, limiting information, foresaking measurement, and attempting to learn-by-doing --, implicating procedural rationality through a hybrid collection of instruments involving technology, markets, and limited rulemaking.<sup>74</sup> As a benefit, sequential decision-making leaves more options open and allows more information to come to the table in the end. It may be particularly unsatisfying to the theorist, but particularly relevant to policy-making that involves the open-ended and unknowable world of the Internet. More than tight strictures of legal centralism, specific deterrence would appear to enable technological incrementalism.

With regard to damage estimates in tort cases that consider “harmful” behavior, Stephen Gilles notes that the theoretical distinction in academic literature between negligence and general liability may be overdrawn, and draws conclusions related to our own:

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<sup>73</sup> S. Shavell, *The Fundamental Divergence between the Private and the Social Motive to Use the Legal System*, 26 Journal of Legal Studies, 575 (1997).

<sup>74</sup> Lindblom (supra at note 10) compares incrementalism favorably with rational comprehensive policy that is elegant but often impractical. Rational comprehensive policy tries to consider and weigh all factors, gather all relevant information, measure all relevant quantities, and willingly jump to discontinuous or even extreme positions if intellectually justified.

The theory is that determining optimal activity levels entails such high information costs that the courts are forced, in most contexts, to truncate the negligence inquiry by excluding choices about whether or to what extent to engage in such an activity. But once one focuses on the ways in which courts can develop low-cost rules to govern actors' choices – whether about care or about activities – this reasoning seems quite overbroad. The courts should be able to regulate many activity-level choices by developing rules concerning reasonableness or unreasonableness of particular activities as well as their optimal timing, place, and extent.<sup>75</sup>

## 8. Opening Moves

There seem to be four technically possible starting points for incrementalist policy involving Napster.

1. As a solution principally limiting Napster, the company may be ordered to accommodate a database of listed file names that correspond to copyrighted recordings that labels must provide. File requests for all transfers must be checked against the list. Such a system is admittedly imperfect, as certain files – used in space-shifting -- are often identified by idiosyncratic user mnemonics, and classical compositions can have any number of recordings that are not easily distinguished.<sup>76</sup>

However, it does seem quite conceivable that a good number of unauthorized *anonymous* requests – which would more often necessarily involve the standard song title -- can be blocked. With anonymous blocking in place, Napster devotees can still space-shift their own material and enable file transfer to their closest friends by artfully adopting mnemonics that might not be listed in the data base (e.g., “Pff th Mgc Drgn”). This imperfect solution may then eliminate a fair percentage of anonymous transfers, while preserving the abilities of friends to share songs over the Internet. Nicely

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<sup>75</sup> S.G. Gilles, *Rule-Based Negligence and the Regulation of Activity Levels*, 21 Journal of Legal Studies 319, 320 (June 1992).

<sup>76</sup>Tygar Report, *supra* at note 42, 29.

compromising, it seems quite cost-effective and reasonably limits copyright “violations” to self-use and transfers to friends.

2. As an alternative unilateral solution involving label investment, record labels can be obliged to install masking protections that would prevent direct ripping of CD music to hard drives. Based on a *masking technology* invented at Midbar, an Israeli corporation, the Cactus Data Shield can protect content on new CDs against direct reproduction on hard drives.<sup>77</sup> Record companies can continue allow users full on-line access to their music collections nonetheless by offering *virtual storage* services that provide to users who can demonstrate CD ownership on-line access to corresponding music files saved on centralized data bases.<sup>78</sup> Napster might be reasonably obligated to compensate the labels for some fraction of the costs incurred to deploy the Data Shield.

The Data Shield is not perfect. Determined pirates and hackers admittedly may circumvent masking by playing the CD on offline players, capturing the analog signal from wires or sound speakers, and redigitizing it for resale or digital transmission. However, the recapture of audio signals, particularly from offline equipment, requires considerably more technical sophistication than an unprotected upbad and is not something the standard computer user can do.<sup>79</sup> With this said, some hackers (who will not monetarily profit) may indulge in the code-breaking for the simple joy of

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<sup>77</sup> <http://www.midbartech.com>, (visited August 19, 2000). Transparent to the user, protection is installed on CDs in an automatic one step process during the disk manufacturing process. Information regarding Midbar was made available to the Court in the expert brief filed by Stanford professor Lawrence Lessig.

<sup>78</sup> <http://www.musicbank.com/pr1.html> and <http://www.musicbank.com/pr4/html>, (visited October 2, 2000).

<sup>79</sup> B. Blesser, *Digitization of Audio: A Comprehensive Examination of Theory, Implementation, and Current Practice*, 26 Journal of Audio Engineering Society 739 (1978).

circumventing a protective technology, or some imagined sense of public service.

Upload of material may however be less likely, as circumvention of this type is now illegal under the terms of Section 1201(a) of the Copyright Act.<sup>80</sup>

3. If the Data Shield is not suitable, an element in the recording industry's Secure Digital Music Initiative provides yet a third means of hindering unauthorized copying.<sup>81</sup> Record labels may now encode on new CDs a nonaudible *robust watermark* that conveys across all media (including analog recapture) unless purposely hacked, which is difficult but apparently achievable. Robust watermarks are now usable and can be detected by software that Napster can install. Indeed, Napster witness J.D.Tygar claims that a viable protection system can be put in place with watermarks and software protection.<sup>82</sup> This solution appears similar to the course pursued by the Audio Home Recording Act of 1992, when Congress mandated the inclusion of copy-protection technology in new and newly repaired analog video recorders.<sup>83</sup>

4. As a final option, Napster can be ordered to deny access to any music file that a label can prove is copyright-protected. Now available to record labels is *audio recognition software*, which can create a unique "digital fingerprint" for any file by analyzing the first thirty seconds for data values related to 34 distinct audio

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<sup>80</sup> 17 U.S.C. 1201(a).

<sup>81</sup> <http://www.sdmi.org/FAQ.html>, (visited October 2, 2000).

<sup>82</sup> Tygar Report, *supra* at note 42, 44. "It is true that sophisticated attackers can remove or obscure watermarks ... But against ordinary users, watermarking technology is effective at keeping digital content safe." At 45-46.

<sup>83</sup> 17 U.S.C. 1201(k)

characteristics.<sup>84</sup> A label can then generate a library of identifiers associated with each song in its entire catalog of works. Once a particular song is data-based, labels may search the Napster system with “spiders” that can identify donor hard drives where similar content is made available to online visitors. The “spider” may automatically download the donor song and identify with it a unique MD5 checksum, which is a 128 bit string that is based on the characteristics of the underlying MP3 file. This unique identifier, which now also appears in the Napster directory, can be furnished to Napster as a copyrighted work that the organization may reasonably be required to block. Indeed, the MD5 checksum is the basis for a block that Napster *has agreed to perform* for Emusic.com, which can identify each of its MP3 files by this unique code.<sup>85</sup>

The four alternative protective strategies are not suggested here as final means for resolving the conflict. Rather, any can be a reasonable procedural opening that can allow more information to be drawn into the process. Additional information -- heretofore unavailable -- related to the matter would consider the efficacy of controls, not so much from a purely technical standpoint as from the degree to which unauthorized copying can be deterred or, preferably, the degree to economic harm to rights owners can be avoided. Should present technologies fail, a strong incentive will be established for new ones that may work considerably better.

If all reasonable protections fail, then a court at some point may need to make the ultimate decision regarding file-sharing and contributory infringement. Napster reasonably may continue to claim that it does not directly copy files, and arguably that it

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<sup>84</sup> <http://www.relatable.com/tech/trm.html> (visited November 30, 2000).

<sup>85</sup> <http://news.cnet.com/news/0-1005-200-3798543.html> (visited November 21, 2000). I am indebted to Brett A. Thomas for this discussion. (November 30, 2000)

actually stimulates sales and related business activity (e.g., subscriptions, concerts, clothing posters, software). These arguments are not dispositive of the issue however. In enabling file swaps without copyright authorization, unlicensed file-sharing services may now be denying to content owners the financial opportunity to enter into a number of profitable licensing arrangements that could involve direct reproduction and transmission of copyrighted material (including dot.com providers or other entrants that may deploy common peer-to-peer technology). In so neutering the potential of a competitive and profitable license market, Napster would have a difficult time proving that it presented to the recording labels no potential for market harm, the principal test for fair use.<sup>86</sup> However, a victory for the labels may be Pyrrhic if open source software, which labels cannot control at all, gains a market share that may conclusively decimate the potential for authorized entry.

## 9. Conclusion

Copyright protection exists not solely for the protection of producers, but rather for the advance of knowledge, and is correctly viewed as a future-facing institution necessary to social progress in so far as it promotes the acquisition of information. So facing the future, a proper policy for intellectual property must include an administrative structure designed not primarily to *guess winners* but rather to *provide groundrules* that enable needed information to come to the table. Indeed, a system in which facts only

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<sup>86</sup> A Circuit Court decision in 1994 found that a defendant's failure to deploy an existing licensing system weighed against claims of fairness in photocopying scientific articles. *American Geophysical Union v. Texaco, Inc.*, 60 F. 3d 913, 929 (2d Cir. 1994), *cert. dismissed*, 516 U.S. 1005 (1995). See also Brief for Amici, Alliance Entertainment Corp. et al., *A&M Records Inc. v. Napster, Inc.*, Appeal Nos. 00-16401 and 00-16403, U.S. Court of Appeals for the Ninth Circuit.

gradually unfold and where providers of content and search mechanisms complement one another cannot evolve if courts simply choose to enjoin immediately new businesses from existing, or impose punitive fines that basically achieve the same result. Nor will efficiency be served if “fair uses” are unconditionally enforced or general damages imposed.

The wise response to uncertainty is not false conviction. Rather, propriety demands limited restraints that solve problems incrementally and rely upon evolving markets to provide more information in the end. One hopes that the necessary information will arise to enable an appropriate solution before the Courts impose an injunction that may be entirely self-defeating.