INTRODUCTION

In August of 2000, "Napster" was a household word in the United States. Millions of Americans were using the Internet-based file-sharing system of that name to exchange "MP3" versions of copyrighted sound recordings. The major record companies had brought suit against Napster, arguing that, by enabling and encouraging this behavior, Napster had itself violated copyright law. In July, the federal judge before whom the case was tried had agreed with the record companies and ordered Napster to stop "facilitating" the illegal copying and distribution of musical compositions and recordings. An appellate court had temporarily suspended the trial judge's order, but most commentators in the United States expected that the original decision would eventually be upheld. Napster thus continued to operate, but a cloud hung over the company and its subscribers.

In the midst of this controversy, I was asked to give a lecture in Rio de Janeiro on the subject of the impact of the Internet on the law of intellectual property. The audience consisted of approximately 350 Brazilian lawyers, 150 judges, and 200 law students. Midway through my presentation, I began to discuss the Napster case and its likely outcome. Uncertain how many of the attendees would already be familiar with the way in which the system operated, I decided to ask: "How many of you have used Napster?" Approximately half raised their hands.

The response to my question illustrates several aspects of the crisis currently afflicting the music industry – in the United States and elsewhere. The most obvious lesson of the story is that the business model upon which all record

companies and many musicians depend is being threatened by new, Internet-based technologies. For many years, the primary way in which recorded music has been distributed throughout the world is through sales of objects ("singles," long-play vinyl albums, cassette tapes, and, most recently, compact discs) containing sound recordings. If large numbers of consumers can easily obtain sound recordings for free over the Internet, demand for those objects sooner or later will decline. The extent to which the use of file-sharing systems has *already* corroded sales of recordings is a complex question we will address later in this book. But eventually, if use of those systems is as widespread as the Brazilians' response suggests, the market for authorized sound recordings is bound to deteriorate.

A somewhat less obvious lesson is the fact that the technologies that the record companies justifiably fear also have considerable social and economic benefits. The Brazilian lawyers and judges (as some explained to me after the lecture) were able by using Napster to obtain sound recordings much more cheaply, easily, and quickly than they could by purchasing compact discs. That the music obtained over the Internet is cheap is not necessarily socially beneficial. After all, its low cost reflects in large part the fact that the musicians and intermediaries who created it are not being compensated – which both seems unfair and threatens to reduce their incentives to produce more music in the future. But the speed and convenience of the Internet-based distribution system are surely socially beneficial. As we will see, those advantages represent only the tip of an iceberg of cultural and economic benefits that full deployment of currently available technologies could make possible. If, in hopes of protecting the record companies' traditional business model, the law suppressed those technologies, much would be lost.

A third set of lessons pertains to the character of the audience for the lecture. These were not teenagers and were not Americans. That half of them had used a music-distribution system first deployed in the United States less than a year before is testimony to the speed with which such technologies spread, virally, throughout the world. Even more significantly, the audience was composed almost exclusively of lawyers, judges, and post-graduate law students hoping to become judges. Even before my lecture, most of them knew that an American court had declared the mode of copying and distributing sound recordings that Napster made possible to be copyright infringement. Brazilian copyright law is similar, in relevant respects, to American copyright law. There was thus a good chance that use of the Internet to share copyrighted musical files was also illegal in Brazil. Yet half of these legal sophisticates had engaged in that behavior and did not hesitate to acknowledge as much in public. How do we account for that behavior?

One possibility is that they had read the trial judge's opinion, found it unpersuasive, and expected it to be overturned by the Court of Appeals. This is conceivable, I suppose. As we will see, the logic of the judge's treatment of Napster is far from airtight. An expert in copyright law might well conclude that it was inconsistent with the more tolerant way in which the United States Supreme Court had previously responded to the manufacture and marketing of video cassette recorders. But my conversations with members of the audience after the lecture suggested that few if any of them had explored the issue to this depth.

A more plausible explanation is that, although the attendees were (as yet) unaware of the details of copyright law, they did not regard file-sharing as improper and assumed that the courts would eventually render a decision consistent with their moral intuitions. Two circumstances lend credence to this hypothesis. First,

polls conducted in the United States during the summer of 2000 revealed that somewhere between 40% and 55% of all respondents (and higher percentages of Internet users) believed that it was not immoral to download music from the Internet. It would not be surprising if Brazilians felt the same. Second, most people in the United States and elsewhere assume that the law by and large tracks their sense of justice. It would thus be natural for the Brazilian listeners to assume that the courts shared their view that file-sharing is benign and would eventually embody that view in judicial decrees.[1]

If this was indeed the reason that the attendees acted as they did, it's cause for concern. The widespread faith, just described, that the law by and large tracks our sense of morality is socially and economically very important. Enormous amounts of time and energy would be wasted if people lost that faith and felt obliged, before making any major decision, to either look up the relevant laws themselves or consult with lawyers. When, ultimately, the courts defied the audience's moral intuitions and declared that the use of Napster constituted copyright infringement, the result may have been to corrode their willingness to trust their intuitions in analogous situations in the future.[2]

Yet another possible explanation is that the members of the audience knew that file-sharing was illegal and did not expect the Brazilian courts to conclude otherwise, but were willing to engage in the activity anyway. This is perhaps both the most likely and the most troubling of the explanations. As Jonathan Zittrain has observed, one of the most remarkable features of the new technologies is that it has made it easy, natural, for large numbers of people to violate the law. To be sure, popular law-breaking is by no means new. Speed limits and prohibitions on the use of certain drugs are violated regularly. But the scale of the illegal behavior enabled by Napster and the brazenness with which it is acknowledged are striking. After all, the audience consisted almost exclusively of people upon

whom we rely to interpret and enforce the law. Something is dangerously out of whack if half of them knowingly violate the law and, moreover, have no compunctions about admitting as much.

A final aspect of this vignette, though not new, is also troubling. It would have been possible for the members of the audience to have used the Napster system to share recordings of Brazilian music. But conversations after the lecture suggested that that was not the case. Rather, they were primarily interested in gaining quick access to American popular music. To some observers, that phenomenon is puzzling and worrisome. After all, the population of Brazil is two thirds that of the United States, speaks Portugese, not English, and has a rich musical heritage. Against this backdrop, it's at least odd that they should be such avid consumers of American musical products. As we will see, Napster and other recent technological innovations are by no means the only source of the global power of American popular culture, but, at least as they have been deployed to date, have reinforced that power.

In the end, the Court of Appeals did indeed uphold the crucial portions of the trial judge's ruling. After a few months of procedural maneuvering, Napster was forced to shut down. The result was to halt file-sharing by Napster's 70 million subscribers – including, of course, subscribers in my audience. Had this been the end of the tale, there would have been no need for this book.

But Napster was not the last or the largest of the technological waves to wash over the music industry. (Nor, for that matter, was it the first.) It was followed, in short order, by the deployment of several new file-sharing systems, which were both legally differentiable from Napster and, perhaps more importantly, much less vulnerable to closure through judicial decree; by the widespread distribution of "CD burners" and a rapid increase in their use to copy sound recordings; and

by the extraordinary proliferation of "webcasters" – the Internet equivalent of small radio stations. Nor have the waves ceased; the next set, as we'll see, is on the horizon.

Thus far, the record companies have been less successful in meeting the challenges presented by the more recent technologies than they were in fighting off Napster. Legal proceedings against the innovators are unfolding more slowly and generating less consistent results. Partly as a result, the encroachments upon the traditional business models of the music industry are increasing. In 2001, over 5 billion sound recordings were exchanged over the Internet. At the same time, sales of blank compact discs – almost all of which are used to produce duplicates of commercial sound recordings – rose rapidly. Indeed, in the United States, sales of blank discs exceeded sales of prerecorded discs. Not surprisingly, the number of CDs sold in the United States declined by 6.4%. In 2002, these trends accelerated. The use of peer-to-peer copyright systems increased further. (For example, KaZaA became the sixth most heavily used Internet application among Americans, attracting roughly 30 million active users per month.) Blank CDs again outsold prerecorded discs. And commercial CD sales fell 8.9% -- from 882 million to 803 million.[3]

So far, the film industry has not been hit as hard as the music industry. Indeed, box office receipts rose during both 2001 and 2002. This is partly because video files are much larger than musical files and thus harder to exchange over the Internet and store on one's computer. It's also partly attributable to the different ways in which movies and music conventionally have been consumed. Listening to a "pirated" MP3 file on a good home stereo is a nearly perfect substitute for listening to a commercial CD, but watching a "pirated" DivX file of a film on a home computer screen is far from a perfect substitute for seeing the film in a theatre. Recently, however, the executives of the major film studios have

justifiably expressed growing anxiety concerning the viability of their traditional business models in the rapidly changing technological environment. Several converging developments have them deeply worried: the increasing availability of "broadband" Internet access; the increasing size of hard drives; the emergence of digital television; rising sales of personal video recorders; and proliferation of the hardware and software necessary to "burn" DVDs. In 2001, approximately 500,000 video files were exchanged over the Internet. With the new technologies, that number is likely to increase exponentially – with predictable adverse effects on the numbers of consumers who pay for access to films.[4]

None of the principal proposals currently in public circulation for addressing the intensifying crisis in the music industry and the looming crisis in the film industry seems terribly promising. Suggestions that we simply enforce the existing rules of copyright law more aggressively seem especially ill-advised. As we will see, over the course of the past dozen years, the owners of the copyrights in audio and video recordings have tried to do exactly that. Their campaign has only partially stemmed the tide of illicit trade – and has had considerable secondary costs.

Other observers suggest that we address the root of the problem by developing educational programs designed to change popular attitudes toward the legitimacy of file-sharing and other forms of Internet distribution of entertainment. This does not seem realistic. Copyright rules are abstruse and often counterintuitive – difficult to explain even to law students. Teenagers are notoriously resistant to hectoring of all sorts. And the occasional suggestions that we focus our educational efforts on younger children are more amusing than helpful. As Jamie Boyle asks, are kindergarten teachers really supposed to instruct their charges that, while "sharing" toys is commendable, "sharing" music and movies is immoral?

Still others propose that we fight technology with technology. Encrypt digital entertainment products, and consumers will not be able to copy or redistribute them even if they want to. Perhaps attractive in theory, this strategy has thus far failed in practice. All of the encryption systems used to protect digital media – from the CSS system that protects DVDs, to the "watermarks" developed by the Secure Digital Music Initiative in hopes of providing a common platform for the protection of musical files, to the copy-protection switches in the RealMedia streaming technology – have been "cracked" quickly. Most computer experts think all future efforts will fail as well.[5]

If technological protections of creative material, by themselves, are insufficient, perhaps technological protections reinforced by law would do the trick. In the late 1990s, thinking of this sort helped secure the adoption, in the United States and several other countries, of statutes criminalizing both the "circumvention" of encryption systems and "trafficking" in devices that made such circumvention possible. Those statutes have had considerable bite, but have by no means halted "hacking." Go further, some spokesmen for the record and film industries are now urging. Reform the law so as to require the manufacturers of all "digital media devices" (from hard drives to portable players) to wire their products so that they will recognize and respect "flags" embedded in digital files indicating how they may and may not be used. In short, compel the machines to obey copyright owners' instructions. Pursuit of this strategy, though perhaps more effective than the others, would have at least two disadvantages. First, it would hamper innovation and flexibility in the design of electronic equipment. Second, it would be difficult to persuade consumers to buy such machines. Recent polls indicate that 80% of Americans either would refuse or would be disinclined to purchase an electronic device that disabled them from copying downloaded digital media. The general-purpose microcomputers and players now in wide circulation will continue to function for many years. Until their collapse or

obsolescence forces consumers to abandon them, the availability of newer, "smarter" devices will do the music and film industries little good.[6]

Recently, the debates over the sources of the crisis and possible solutions to it have become increasingly acrimonious. Representatives of the record companies and movie studios refer to the developers and users of the new technologies as "thieves." Consumers and their advocates increasingly describe the companies and studios as "greedy monopolists" and celebrate their impending extinction as a form of "creative destruction." Some musicians, actors, and directors associate themselves with the companies, others with consumers.

Divisions among the various industries that formerly had collaborated in the distribution of entertainment products have further complicated this debate. The record companies and film studios, for example, have accused such seemingly respectable enterprises as Intel, Apple Computers, and Gateway of deliberately designing equipment optimized for stealing and then encouraging consumers to use them to "rip, mix, burn" copyrighted recordings. The accused companies respond that they (like firearms manufacturers) are not responsible for the illegal use of their products and should not be forced to "police" the behavior of their customers. (Very recently, the record companies and the leading hardware manufacturers agreed at least temporarily to bury the hatchet, but the Motion Picture Association of America pointedly refused to join the truce.) On a separate axis, the efforts by the record companies to develop copy-protected compact discs have angered Philips, the Dutch electronics giant that helped developed CD technology, which argues that the new discs don't meet the "Red Book" audio CD standard. In short, the companies that together have supplied us with recorded entertainment are not only fighting with consumers; increasingly, they are fighting among themselves.[7]

How did we get into this mess? And how are we to get out of it? The aspiration of this book is to answer those questions. The inquiry proceeds as follows:

Chapter 1 describes the technologies that are currently transforming the entertainment industry, and then assesses their social and economic implications. A seemingly technical change – from analog to digital format – in the manner in which entertainment products are stored and replayed, combined with the "communication revolution" associated with the Internet, has created an extraordinary array of new ways in which music and movies can be created and distributed. As we will see, both the creators and the consumers of entertainment products stand to benefit enormously from those new systems. If available technologies were exploited fully, the costs of recordings would drop sharply, the incomes of artists would rise, many more artists could reach global audiences, the variety of music and films popularly available would increase sharply, and listeners and viewers would be able much more easily to participate actively in the (re)shaping of the entertainment they receive. We will see, however, that the new technologies also pose serious risks. A well-known danger is that they will corrode the traditional ways in which artists have made money from their creations. Less notorious but also worrisome are the threats they pose to the interests of artists in the "integrity" of their works and the interest of the general public in the stability of our cultural environment.

Plainly, it would be best if the entertainment industry and the legal system could be shaped to assist us in reaping the large potential benefits of the new technologies, while minimizing the concomitant problems. Chapters 2 and 3 explain why, unfortunately, we have thus far failed to strike that balance. Chapter 2 lays the groundwork for the explanation by describing how sound recordings and movies were made and marketed in 1990, just before the storm of technological innovations broke. We will examine how, in the music industry, a

combination of legal rules and industry customs structured the complex relationships among composers, publishers, recording artists, record companies, radio stations, and various financial intermediaries. We will pay particularly close attention to who won and who lost when the interests of these players conflicted. Turning to the movie industry, we will study the ways in which law and custom made it possible to aggregate the creative energies of all of the people who participate in the making of a film – producers, screenwriters, directors, actors, musicians, cinematographers, editors, etc. – and how their collective products were traditionally marketed. Finally, we will consider the strengths and weaknesses of the systems in place in the two industries. In many respects, they were remarkably effective – as evidenced by the extraordinary outpouring, under their auspices, of commercial audio and video recordings and by the increasing power of American companies in foreign markets. However, the systems also had three flaws: they were unnecessarily expensive; they produced highly skewed income distributions among artists; and the range of the products they placed in mass circulation was disturbingly narrow.

Chapter 3 then examines what happened in the two industries between 1990 and the present. The narrative line resembles that of a country song. Each verse begins optimistically, with the introduction of a new service or device that, by exploiting in some way the new technologies, offers consumers significant benefits. Quickly, however, things go awry. Typically, companies that stand to lose from the innovation invoke either the law or technological countermeasures to curtail or eliminate it. Services and devices that have met (or are about to meet) this fate include: digital audio tape recorders; "music lockers"; interactive and non-interactive webcasting; encryption circumvention; centralized file-sharing; decentralized file-sharing; CD burning; and enhanced personal video recorders. In seeking to block these innovations, the companies that dominate the music and film industries have not been malicious; at worst they have been

short-sighted in their efforts to protect their existing business models. But the net effect has been highly unfortunate. We have forfeited most of the potential benefits of the new technologies, while alienating consumers and incurring enormous legal costs.

The remainder of the book sets forth three alternative ways in which, through legal and institutional reform, the music and film industries could be remade. Each offers a way of reaping at least some of the potential advantages of the new technologies, while fairly compensating the creators of entertainment products.

The first of the proposals, examined in Chapter 4, takes seriously the long-standing claim of the record companies and movie studios that copyrights are property rights and should be treated as such. The right to control the use of a song or film, the companies argue, deserves the same scope and protection as the right to control the use of a piece of land. To test this proposition, we will first explore the legal principles that govern property rights in tangible objects and then consider what extension of those principles to musical compositions, sound recordings, and motion pictures would entail. For the most part, this exercise will point (as the companies have long insisted) toward significant strengthening of the rights of copyright owners. But it will also identify some less obvious ways in which those rights should be limited. The heart of the chapter then considers what would happen if we implemented this combination of reforms. Many good things, it suggests, would likely ensue. Effectively protected against unauthorized trafficking in digital files, the record and movie companies would rapidly deploy subscription or "a-la-carte" systems for distributing entertainment products over the Internet, collaborate in the creation of flexible private organizations that would enable them efficiently to license their products to various intermediaries, and develop sophisticated price-discrimination schemes that would both increase their revenues and enhance the availability of entertainment products.

Consumers, for their part, would gain legal access to music and films more easily and cheaply. Other effects, however, would be undesirable: increased concentration in the industries and associated price increases; impediments to the ability of consumers to reshape the entertainment products they receive; troublesome cultural repercussions of the price-discrimination schemes; and, perhaps most seriously, a brake on the pace and range of innovation in computer equipment and software. In short, though better than our current situation, the world generated by pursuit of this strategy would be seriously flawed.

Chapter 5 takes a different tack. It looks for guidance, not to the analogy between real property and intellectual property, but instead to the theory and practice of traditional regulated industries, such as telephone companies and railroads. Several aspects of the entertainment industry make this analogy apt – including its dominance by a few firms, the cultural importance of the commodity they control, their dependence on governmentally created monopolies, and the notorious inequality in bargaining power between, on one hand, the dominant firms and, on the other, creators and consumers. What would happen if we treated the entertainment industry like a public utility? Most importantly, we would require the record companies and movie studios to licenses their works to distributors, we would regulate the fees that they could charge, and we would prescribe the shares of those revenues that went to different groups of artists and intermediaries. Again, these and related reforms would have very considerable benefits – including a rapid increase in the Internet distribution of entertainment; greater diversity in the services available to the public; an increase in the incomes of creators and performers; and stabilization of the revenues of the record companies and studios. The drawbacks of this approach, however, would also be serious: high transaction costs; impediments to consumer creativity; and the risks and distortions always associated with tight governmental control of private

enterprise. Though not so serious as the disadvantages of the first approach, these drawbacks make this strategy less than ideal.

Chapter 6 outlines the best of the possible solutions to the crisis: an administrative compensation system that would provide an alternative to the increasingly creaky copyright regime. In brief, here's how such a system would work: The owner of the copyright in an audio or video recording who wished to be compensated when it was used by others would register it with the Copyright Office and would receive, in return, a unique file name, which then would be used to track its distribution, consumption, and modification. The government would raise the money necessary to compensate copyright owners through a tax – most likely, a tax on the devices and services that consumers use to gain access to digital entertainment. Using techniques pioneered by television rating services and performing rights organizations, a government agency would estimate the frequency with which each song and film was listened to or watched. The tax revenues would then be distributed to copyright owners in proportion to the rates with which their registered works were being consumed. Once this alternative regime were in place, copyright law would be reformed to eliminate most of the current prohibitions on the unauthorized reproduction and use of published recorded music and films. The social advantages of such a system, we will see, would be large: consumer convenience; radical expansion of the set of creators who could earn a livelihood from making their work available directly to the public; reduced transaction costs and associated cost savings; elimination of the economic inefficiency and social harms that result when intellectual products are priced above the costs of replicating them; reversal of the concentration of the entertainment industries; and a boost to consumer creativity caused by the abandonment of encryption. The system would certainly not be perfect. Some artists would try to manipulate it to their advantage, it would cause some distortions in consumer behavior, and the officials who administer it might abuse

their power. But, on balance, it is the most promising solution of the three models. The chapter concludes with a brief discussion of how a variant of this approach might be implemented on a voluntary basis – as either a prelude to or as an alternative to its creation and management by the government.

In the course of our examination of these three models, we will take looks at several of the specific proposals for legislative change currently being debated inside and outside of Congress. Our focus will not be on the details of those bills, however. In the next few years, some will change, others will be cast aside, and some new ones undoubtedly will surface. The goal of this book is to provide a general framework for evaluating, not just the current slate of legislative options, but also the iterations and substitutes that will arise in the future.

As suggested by the anecdote with which we began, the current crisis in the entertainment industry is not limited to the United States; most countries are now undergoing similar convulsions. Nor, for that matter, is the crisis confined to the production of recorded music and films. The markets in television programs, books, photographs, and video games will soon be transformed by the same technological and cultural forces. One book cannot address all aspects of the problem; by necessity, our attention in the following pages will be confined, for the most part, to the American music and film industries. Without undue difficulty, however, the proposals offered in Chapters 4, 5, and 6 could be adapted to other media and jurisdictions.

Many people and organizations would have to cooperate in order to implement any one of those proposals. The intensifying strife during the past dozen years between consumers, record and movie companies, technology manufacturers, and artists might suggest that such cooperation is unlikely. One characteristic shared by all three models, however, provides the basis for optimism. Under

each one, almost everyone would fare better than under the current regime. If the representatives of each group of players could come to see that regimes beneficial to all parties are imaginable and feasible, we could work collectively to transform the world of recorded entertainment.

Notes

[1] See Amanda Lenhart and Susannah Fox, "Downloading Free Music: Internet Music Lovers Don't Think It's Stealing," *Pew Internet & American Life Project's Online Music Report* (Sept. 28, 2000), http://www.pewinternet.org/reports/pdfs/PIP_Online_Music_Report2.pdf, 6; "Poll Suggests that Home PC Users Favor Napster's Arguments," *Tech Law Journal*, July 27, 2000, http://www.techlawjournal.com/intelpro/20000727.asp. More recent polls suggest that, despite the subsequent decision of the Court of Appeals in the *Napster* case, these numbers remained high or even rose until the summer of 2003. See "Majority of Americans Agree that Downloading Free Music from the Internet Will Increase," February 22, 2001, available at http://www.intersearch.tnsofres.com/press/releases/violations.htm; P.J. McNealy, "Digital Consumers: Are They 'Fair Users' or Copyright Pirates?," Gartner/G2 Research, Oct. 14, 2002, http://www.gartnerg2.com/rpt/rpt-1002-0184.asp (password required). For a careful analysis of the poll data, see Lior Jacob Strahilevitz, "Charismatic Code, Social Norms, and the Emergence of Cooperation on the File-Sharing Networks," forthcoming in *Virginia Law Review* 89 (2003), draft available at http://papers.ssrn.com/sol3/delivery.cfm/SSRN_ID329700_code020925570.pdf?abstractid=329700, 28-31. Preliminary evidence suggests that the litigation campaign against individual file-sharers – an initiative launched during the summer of 2003 – has caused these numbers to decline sharply.

[2] This theme is explored in more detail in William Fisher, "The Significance of Public Perceptions of the Takings Doctrine," *Columbia Law Review* 88 (1988): 1774, 1780.

[3] The figures concerning declining CD sales have been derived from Recording Industry Association of America, "2002 Yearend Market Report on U.S. Recorded Music Shipments," http://www.riaa.com/news/marketingdata/pdf/year_end_2002.pdf; International Federation of the Phonographic Industry (IFPI), *The Recording Industry in Numbers*, 10th ed. (2003), 24. For the popularity of KaZaA, see "More than 72 Percent of the U.S. Online Population Uses Internet Applications," Nielsen/NetRatings (November 2002), available at http://www.nielsen-netratings.com/pr/pr_021218.pdf, Table 1. Other reports concerning the impact of unauthorized file-sharing on commercial CD sales include Larry Dignan, "Study: Kazaa, Morpheus Rave On," *CNET News.com*, August 14, 2002, available at http://news.com.com/2100-1023-949724.html; Lorraine Ali and Vanessa Juarez, "Hit or Miss" *Newsweek*, Jan. 20, 2003, at 73-75 or online at http://www.msnbc.com/news/857711.asp?0cv=KB10#BODY; "Special Report: CD-R Piracy," *IFPI Network* 8 (October 2001): 12; "Behind the Grammys, Revolt in the Industry", *New York Times*, February 24, 2002; Lynette Holloway, "Despite a Marketing Blitz, CD Sales Continue to Slide," *New York Times*, December 23, 2002.

[4] Estimates of U.S. box-office receipts during the past few years can be found in Motion Picture Association, Worldwide Market Research, "U.S. Entertainment Industry: 2002 MPA Market Statistics," http://www.mpaa.org/useconomicreview/2002/2002_Economic_Review.pdf, 3-4. The other figures set forth in this paragraph are derived from: "MPAA Snooping for Spies," *Wired News*, July 22, 2002, http://www.wired.com/news/politics/0,1283,54024,00.html; Ian Fried, "Apple adds DVD burner to PowerBook" *CNET News.com* (Aug. 28, 2002), http://news.com.com/2100-1040-964708.html); Bill Howard, "Burn DVDs on Your Notebook—Finally!," *PC Magazine* (Dec. 19, 2002), http://www.pcmag.com/article2/0,4149,794893,00.asp; Richard Shim, "Pioneer blazing trail for DVD burning" *CNET News.com* (Oct. 17, 2002), http://news.com.com/2100-1040-962457.html; "All-In-One DVD/CD Burner Doubles DVD Write Performance While Delivering Highest Compatibility, Verbatim Quality" *Yahoo Finance* (Jan. 9, 2003), http://biz.yahoo.com/bw/030109/90146_1.html; "How can I make copies of my DVD movies or games?" in "The DVD Recordable FAQ- Your Top-10 DVD Burning

Questions," http://americal.com/cgi-bin/smart_cart2.cgi?page=dvd-r-faq.html&cart_id=2084018_20145#faq_1; "DVDINSIDER: HP Introduces Its Fastest DVD Writers Ever, Making Video Editing Quick and Simple" *ZDNet BizTech Library* (Jan. 7, 2003), http://cma.zdnet.com/texis/techinfobase/techinfobase/+jwq_qoK_+699W+/cdisplay.html.

[5] Peter Biddle, Paul England, Marcus Peinado, and Bryan Willman, "The Darknet and the Future of Content Distribution," (2002), http://crypto.stanford.edu/DRM2002/darknet5.doc; section 3

[6] Gartner/G2 Surveys, Fall 2002, available at www.gartnerg2.com/rpt (password required).

[7] See, for example, Michelle Kessler, "Hollywood, high-tech cross swords over digital content," *USA Today*, June 25, 2002; Bob Keefe, "Download debate; PC makers support sharing of music, movies," *Atlanta Journal and Constitution*, April 18, 2002; "Time to Choose Sides or Get Left Behind," *Broadband Networking News*, Vol. 12, No. 4, February 10, 2002; "Technology and Record Company Policy Principles," http://www.bsa.org/usa/policyres/7_principles.pdf; Declan McCullagh, "Antipiracy détente announced," *CNET News.com* (Jan. 14, 2003), http://news.com.com/2100-1023-980633.html); Declan McCullagh, "Copyright truce excludes key voices," *CNET News.com* (Jan. 15, 2003), http://news.com.com/2100-1023-980671.html?tag=fd_lede2_hed; "Unexpected Harmony," *The Economist*, January 23, 2003.