

Digital Rights Management and the Music Services

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1. INTRODUCTION

Digital rights management and access protection entails the operation of software or hardware control that can monitor, regulate, and price uses of digital files that contain protected content or software. Electronic monitoring of a protected file is generally administered now through attached rendering software or containment that ensures access only to authorized users. Depending on the price that a user pays, protective owners may also limit use by number of plays, duration of access, temporary or partial uses, lending rights, and the number of devices on which the file may be accessed. Containment can also be complemented with watermarks or flags that signal whether the work is copy-protected. Finally, hardware programming can reduce the risks of tampering with vulnerable software by placing detection capabilities in the chip or processor rather than in the enabling software itself.

Digital rights management and related access control are protections in software or hardware code that are legally different from copyright, which entails the *legal* protection of underlying works from unauthorized reproduction, distribution, derivation, public performance, or display.¹ Copyright protection is principally limited by term duration,² fair use,³ the first sale doctrine,⁴ the idea-expression dichotomy,⁵ and exemptions for libraries,⁶ classrooms and distance learning,⁷ and the blind and the handicapped.⁸ In contrast, access protection entails technological protections that shield a copyrighted work from the attempt to copy, while DRM may limit or permit later use of an accessed work.⁹ Both DRM and access protection then are technology protections that are akin to measures that disallow “black boxes” to decode scrambled cable signals or devices that circumvent the Serial Copy Management System. As such, access protection might not be subject to the same legal limitations and user rights now established in traditional copyright.

This article examines access protection and digital rights management from an economic perspective oriented around actual experience in free market behavior. In the paradigm of Schumpeterian economics (i.e., technological competition),¹⁰ market processes enable the cadences of ‘creative destruction’ – new ideas, products, processes, and organizational modes. In an environment that is imperfectly understood but learnable, economic efficiency is here gauged more by its capacity to create, order, and resolve, rather than by static welfare measures common elsewhere in the economics

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profession. In integrating the institutions of law with a foundational base in economics and technology, we are then engaged as participants in a ‘science of the artificial’¹¹ – the attentive design of a process to accommodate system complexity when intelligence is widely distributed and information open-ended.

Examined as market facilitators, access protection and DRM may reduce the dangers of unauthorized reproduction and distribution of copyrighted works, and therefore provide greater incentive for digital presentation of new content and software. However, there is a positive side for economic consideration as well. By eliminating arbitration, DRM may also enhance the range of producer offerings, deepen service versions, and enable more market combinations and organizational modes. In particular academic and library uses, agents can then be expected to come to accommodative licensing arrangements and institutions that enhance transaction efficiency yet further. The upshot is that a free market may drive digital techniques toward beneficial ends in manner that the harshest critics might have not appreciated.

The general economic case for DRM should not be confounded with other matters related to copyright protection, such as duration and scope. With regard to term duration, the Berkman Center at Harvard challenged the Copyright Term Extension Act of 1998, which extended the duration of copyright an additional twenty years in a manner that had a contested economic justification.¹² Moreover, three Brace Lecturers (David Lange, Alex Kozinski and Pierre Leval) suggest that the scope of copyright be limited; i.e., Lange would extend fair use to a greater number of derivative works, while Kozinski and Leval would implement liability rules to accommodate easier access for secondary users.¹³ As evidenced in the positions of self-described “copyright enthusiast” Jane Ginsburg,¹⁴ these reservations regarding the extent of copyright are not inherently antithetical to support for DRM, which implicates only usage rights regarding digital media that are controlled during the proper range of protection.

2. CONSUMER CHOICE AND VERSIONING

A strong case for access protection and DRM was set forth initially by the Clinton Administration’s White Paper, *Intellectual Property and the National Information Infrastructure*, which argued for laws that would outlaw technologies that might circumvent it.¹⁵ The White Paper was a key influence behind the subsequent Digital Millennium Copyright Act of 1998 (DMCA),¹⁶ which Congress enacted to “facilitate the robust development and worldwide expansion of electronic commerce, communication, research, development and education” by “making digital networks safe places to disseminate and exploit copyrighted materials.”¹⁷ In passing the DMCA, the U.S. more than met its treaty commitments that had been established under Article 11 of the WIPO Copyright Treaty, and Article 18 of the WIPO Performances and Phonograms Treaty, which specified that parties must provide “adequate legal protection and effective legal remedies against the circumvention of effective technological measures” used by authors, performers, or producers of phonograms “in connection with the exercise of their rights.”¹⁸

The nation's four national academies (National Academy of Sciences, National Academy of Engineering, Institute of Medicine, National Research Council) sounded a more cautionary note with their joint publication of *The Digital Dilemma: Intellectual Property in the Information Age*.¹⁹ The report expressed concerns that access protection and DRM would create a 'pay-per-use' society, eliminate fair use of copyrighted works, and put into place a regime of superdistribution where copyright owners would attach fees to each subsequent copy of any original download.²⁰ Digital protection could also lead to loss of historic records, the deliberate non-sharing of content, constraints on audience activities and access times, and general difficulties that may result as digital presentation of information came to replace offline production.²¹ Pamela Samuelson likened the outcome to fascism,²² and Lawrence Lessig compared content owners to dinosaurs.²³

Moving from polemics to economics, the technical ability to protect access and monitor use of software and content files may actually benefit consumers. While suppliers of content conceivably may attempt to use DRM to encumber desirable uses otherwise protected by "fair use" or "first sale",²⁴ content providers who hinder user control necessarily reduce the value of their own product. Consequently, producers who institute restrictive rules or technologies, or otherwise fail to appreciate the importance of customer ease, actually reduce market demand and prices..

Moreover, DRM provides to content suppliers the ability to market different versions of digital product. For example, the right to download, copy, and lend a legally accessed movie or sound recording may be priced differently than the right simply to download content without making further transmissions or reproductions. Accordingly, a digital rights system presents different versions and optional rights²⁵ allows the rights owners to price individual components and extract varying payments from different kinds of users.²⁶ Overall, DRM then enables *versioning* – the offering of granular or more personalized options to individual users.²⁷

The concept of versioning is not new in market economies. Magazine publishers make content available for both subscription and single copy, and studios make film available in first-run theaters, video stores, and television and cable channel specials.²⁸ With merchandise versioning, occasional readers can enjoy a magazine on a "pay per use" basis, while devoted buyers may become subscribers; intense movie fans run to first release theaters, while couch potatoes rent videos. Versioning then allows consumers the choice of a number of service options rather than the confinement of any one. This is scarcely fascism.

However, resale or arbitrage between low- and high-end markets cannot be permitted if versioning is to operate effectively. By stopping resale or redistribution of content from one market segment to another, access protection and DRM then enable producers to develop more versions. Besides stopping viral reproduction, access protection and DRM then may widen product diversity and consumer choice. Presenting the economic concept, William Fisher of Harvard University would write in 1988,

“judges should watch for situations in which unauthorized use of copyrighted material undermines price discrimination schemes [i.e., versioning] and should be chary of holding such uses fair.”²⁹

Versioning is profitable because producers can monitor varying customer demands differently. In so doing, discriminating producers who can extract greater revenue from across the user spectrum will have more incentive to produce and release more content and present more features. The prospective use of differing versions and prices is particularly defensible in content industries, where vast production costs are sunk upfront, but incremental production and distribution costs are modest.

The effect of versioning upon individual users is bifurcated. Economists would tend to agree that smaller users will assuredly gain. This is because producers may actually lower prices for “no frills” services to basic customers without worrying about losing revenues from high-end users, who can be expected to choose a different version. Content owners may also use personalization techniques to identify prospective first customers and extend to them free previews, time-limited rentals, and low-price introductory offers.

At the other end of the consumer spectrum, the most intense users of any product can be expected actually to pay more under versioning than otherwise.³⁰ This is because discriminating producers may extract incremental consumer value by charging higher prices for deluxe services, without worrying about attrition among less intense users. Despite the higher prices, the large customers may yet be better off, as suppliers also have greater incentives to innovate and present more deluxe features if they can be additionally compensated for their effort.

With the capabilities of digital technology, “an information goods producer can almost costlessly package these goods in a wide variety of configurations, opening the possibility for more complex product and pricing configurations.”³¹ Moreover, version experiments provide new loads of undiscovered user information and technical process that can be refined in the market crucible.

3. THE MUSIC SERVICES

Nowhere are the potentialities of DRM made more evident than in the evolving market for music services. In the past year, a number of events have reordered the constellation of suppliers and services considerably, as new entrants pushed early leaders for customers and long-term market position. While buildout may be disappointing and some may wish to view the market as a failure, it is essential rather to introduce more nuances to the view.

A Market for Services

In April, 2003, Apple Computer launched an innovative Internet music store, iTunes, that was to become the market leader in legitimate downloads by the end of the year.³² Encoded with Advanced Audio Coding, individual songs at iTunes cost 99 cents apiece.³³ The key innovation of Apple was its light-handed but elegant rights management system, called Fairplay, that allowed buyers to transfer tunes to Apple iPod players, burn unlimited numbers of CDs, and transfer downloaded songs to up to three other hard drives.³⁴ The new service differed at its inception in April from earlier subscription services, such as label-owned MusicNet, which had at one time stopped transfer to MP3 players, clocked out access after subscription ended, and disallowed downloading altogether.³⁵

A competitive *a la carte* download service with some additional attractive features is Musicmatch, which provides downloads in order to complement its popular music management jukebox, which is now installed on 37 million PCs.³⁶ With free jukebox software, basic users of Musicmatch may buy a 99 cent download; deluxe users can choose an upgraded service at \$19.99 per month that has faster burn speeds and avoids upgrade ads. With considerable jukebox functionalities, Musicmatch also offers a personalization service (which Apple lacks) that tracks an individual's downloads to make personalized recommendations, and two radio services that track user preferences to compose interactive "radio stations" with personal content.

In legitimate relaunch since October, 2003, Napster offers a different combination of downloading and streaming services.³⁷ For 99 cents a track, Napster users may choose individual songs for download (and burn). Users may also purchase (for \$9.95/month) an optional service that enables streaming and tethered downloading of tunes supplied by 40 interactive radio stations.³⁸ Free services for all Napster users include music videos, thirty second samples, online articles, Billboard charts, inter-user email, and browsing of playlists and recommendations; there is no digital personalization.

At the moment, Real Networks' Rhapsody offers the leading alternative model to downloads *a la carte*.³⁹ The key competitive feature of Rhapsody is "all you can eat" interactive streaming, which is made available for \$9.95 per month; individual burns at Rhapsody are available at 79 cents apiece. The Rhapsody service also offers access to 50 commercial free stations. As another primary attractive feature, the software (Real Audio 10) now accommodates music purchased from all formats, including iTunes.⁴⁰

Reflecting the Schumpeterian importance of new technology and organizational mode, the market has moved some distance from the original business models of the two music services – MusicNet and Pressplay – controlled by the major labels. Jointly owned by a number of labels, MusicNet (Warner, EMI, BMG) and Pressplay (Universal, Sony) largely rented music; i.e., they originally allowed full sampling through streams and downloads, but ended access to all previously downloaded music at termination of service. The label services attempted to version the market by price discrimination based

on intensity of use (i.e., purchase volume), although Pressplay permitted a limited number of burns for an additional fee.⁴¹

4. MARKET ECONOMICS

There are seven general points to be made regarding competition in the market for music services. First, the spectrum of services is now quite wide; focused shoppers locate favored songs through a la carte downloads, listeners-at-large are attracted to non-interactive streaming, and the most dedicated browsers can insist upon the full browsing capabilities of interactive streaming. Differentiated versions may combine services and features regarding ownership rights, service length, pricing, personalization, and complementary components. With no abiding market certainty of where buyer tastes reside, rival providers will come to “learn by doing” the particular services and features that consumers want most. Under such conditions, new ideas can come to market and continue to challenge and possibly displace existing business models.

Second, actual market experience proves that the use of digital rights management is indeed responsive to consumer tastes. At their outset, MusicNet, Pressplay, and Rhapsody were all-streaming services that did not permit downloading and burning. As subscriptions trailed and illegal file-trading continued, the importance of music ownership and related portability became evident to all, particularly Steve Jobs (i.e., Apple). In the same respect, CD tracks, once batted down with strict anti-copying protections, now accommodate (through Microsoft’s Windows Media Audio Format) limited burning, temporary sharing, and additional “second session” content that provides a pleasant listener experience on the PC.⁴² Under the influence of ongoing feedback from the market, DRM is improperly conceived as an operation that locks up content in a manner unfriendly to consumers.

Third, both sampling and personalization are essential if a digital market is to be the truly empowering “celestial jukebox” that Paul Goldstein conceptualized.⁴³ While a number of download services (including iTunes) now enable 30 second clips, only interactive streaming at Rhapsody enables full track sampling. For \$10 per month, an iTunes user can own 10 songs; for the same monthly amount, a Rhapsody user can listen to thousands. The potential for streaming is illustrated further by recent research at Listen.com, where the average user listens to about 200 different songs per month, but only 13 percent opted for even one burn.⁴⁴ As 2 percent of industry releases now account for 80 percent of industry sales and broadcast radio holds a marketing bottleneck, interactive streaming with playlist sharing and recommendation may support the development of new acts heretofore deterred by the bottleneck of promotional radio.⁴⁵ The market for streaming will expand greatly with the availability of home entertainment and wireless telephone equipment that will enable remote access inside the home and portability beyond it.

Fourth, neither downloading nor streaming by themselves will prove particularly profitable. Download services now pay an estimated 79 cents per song for publisher and

label royalties, and an additional 5 cents for credit card processing.⁴⁶ Once operating costs are added, it is not clear what their profit margin will be; competition from Listen.com (79 cents) and Walmart (88 cents) does not bode well. With per song royalties of about one cent, streaming services enabled through upfront subscription fees of \$10 per month may now have wider profit margins. Nonetheless, price competition should winnow down profit margins to competitive levels.

Accordingly, in order to profit, each online provider will need to distinguish its particular services, attract a base market segment, and successfully innovate further to widen its appeal. Joint ventures are of crucial importance in enabling market explorations in each of these respects.⁴⁷ In discourage competitive switching, service providers may attempt to lock in customers by providing loyalty programs, proprietary technology, or volume discounts.

With the potential for more innovative business models, some players may transform the market yet again in 2004. Sony will market a competitive download service, called Connect, along with its leading entertainment products.⁴⁸ Walmart, a competitive nemesis in the 1990s that used music as a loss leader to attract people into retail stores, now offers downloads at 88 cents apiece at its online site.⁴⁹ A third major entrant, Microsoft, aims to provide a music service to win customers back from iTunes.⁵⁰ Finally, Amazon and Yahoo are purportedly working up music services to accommodate their respective platform users.⁵¹

Fifth, a market lock may indeed evolve if producers do not work out standards to enable “mix and match” compatibility between different service providers and player devices. Leonardo Chiariglione, who recently created a new international group to establish standards, came to the point: “Unless users can access content without all the hassle of dealing with different digital rights management systems, DRM is a nonstarter. The alternative is a digital media stalemate, where nothing moves.”⁵² Chiariglione’s failed effort with the Secure Digital Music Initiative proves that standardization may yet be quite difficult to achieve; however, de facto standards may yet evolve through Microsoft and efforts in trusted computing.⁵³

Sixth, unauthorized downloading can continue to harm the market and reduce the chances of success of interesting service applications. While iTunes sold 30 million tracks in eight months of operation in 2003, estimated pirate takings exceed 5 billion tracks per day.⁵⁴ A point recognized in the Napster case, music piracy harms business models and market evolution in a more profound manner than the simple displacement of legitimate purchases and immediate licensing opportunities.⁵⁵ A number of recent legal developments do not indicate an easy end to the problem.⁵⁶

5. LEVIES AND DOWNLOADS

Finally, a number of governments have implemented levies on equipment ranging from MP3 players and blank disks to personal computers and peripheral equipment as a means

of enabling free downloading and compensating artists. For its part, the Copyright Board of Canada in 2003 found downloads (but not uploads) to be legal, but also imposed a levy on the sale of digital audio recorders with non-removable memory, such as the Apple iPod.⁵⁷ Fearing harm to general consumers, the Copyright Board declined requests to impose levies on blank CDs and DVDs, removable memory cards, blank audio tapes, and MiniDiscs. More impressed with the wisdom of government, Germany appears to be ready to impose a compensatory levy of a 16 percent value added tax per new computer sold; it is not clear whether unauthorized downloads would even be legal here.⁵⁸ Similar outcomes are possible in Austria, Switzerland, Belgium, Finland, Norway, Sweden, Luxembourg and France.⁵⁹ Some academics in the U.S. (such as Stanford's Lawrence Lessig) have advocated a copyright levy placed on internet service providers in order to permit file-trading⁶⁰

While focused levies on dedicated playback equipment (e.g., MP3 players) may provide some supplemental royalty income, general levying on computer equipment and broadband connection to support downloads presents a cheap variation of industrial policy by subsidizing the download and suspending its economic relation to market forces. By eliminating the need for litigation that is now in place, levies then present appealing gains in the short run. However, if a levy action were to permit free downloading (as is commonly envisioned), it would simultaneously preempt space from other business models – involving, *inter alia*, streaming, personalization, joint venture, and organizational restructure – that may otherwise be imaginatively conceived, combined, and readopted. A levy system would then deeply weaken the opportunities and incentives for innovators to produce new technologies and adapt to developing tastes; it may preserve the very same “dinosaur” technologies that a market should otherwise supersede.⁶¹

In a rapidly changing market environment, the levy system would rather place government in top command with authority to set royalty fees, adjust them in response to changing use patterns, and allocate the collection pot to contending rights owners. If levy amounts were not adjusted to keep up with growth in usage (for any number of political reasons related broadly to consumer protection), the resulting administrative “lock in” would necessarily compensate musical works at decreasing unit rates.⁶² Moreover, such levies would present the additional inequity of burdening that part of the population that has no interest in downloading music, and thereby delaying the buildout of infrastructure.⁶³ Indeed, the Germany recording industry acknowledged that nearly half of the blank CDs sold in the country were used for entirely licit purposes.⁶⁴

While wide-ranging levies seem problematic, there is no reason to oppose individual contracts that could be negotiated between trade associations (such as the RIAA) and universities, where download activity evidently is more pronounced.⁶⁵ Moreover, if piracy indeed cannot be stopped, a market-based recourse would entail the label buyout of KaZaa, the peer-to-peer software leader that has enabled over 300 million downloads, for use as cheap promotional freeware to attract users to music services.⁶⁶ Such a combinatorial venture requires a substantial bit of entrepreneurial activity and organization, and is not a concern for the government.

ABOUT THE AUTHOR

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In the [technology](#) sector, Dr. Einhorn worked at Bell Laboratories and the U.S. Department of Justice (Antitrust Division) and consulted to General Electric, AT&T, Argonne Labs, Telcordia, Pacific Gas and Electric, and the Federal Energy Regulatory Commission. He has advised parties and supported litigation in matters involving [patent damages](#) and related valuations in semiconductors, medical technologies, search engines, e-commerce, wireless systems, and proprietary and open source [software](#).

Litigation support involving media economics and [copyright damages](#) has involved [music](#), movies, television, advertising, branding, apparel, architecture, fine arts, video games, and photography. Matters have involved Universal Music, BMG, Sony Music Holdings, Disney Music, NBCUniversal, Paramount Pictures, DreamWorks, Burnett Productions, Rascal Flatts, P. Diddy, Nelly Furtado, Usher, 50 Cent, Madonna, and U2.

Matters involving trademark damages have included the Kardashians/BOLDFACE Licensing, Oprah Winfrey/Harpo Productions, Madonna/Material Girl, CompUSA, Steve Madden Shoes, Kohl's Department Stores, *The New York Observer*, and Avon Cosmetics. Matters in publicity right damages have involved Zoey Deschanel, Arnold Schwarzenegger, Rosa Parks, Diane Keaton, Michelle Pfeiffer, Yogi Berra, Melina Kanakaredes, Woody Allen, and Sandra Bullock.

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¹17 U.S.C. § 106.

²For known works created after January 1, 1978, copyright endures for a term equal to 70 years after the death of the last surviving author. 17 U.S.C. §302(a)-(b). For anonymous works, pseudonymous works, and works made for hire, copyright endures for 95 years after first publication, or 120 years after creation, whichever expires first. 17 U.S.C. §302(c).

³Fair use is a complex subjective matter that requires consideration of four factors: the purpose and character of use, the nature of the copyrighted work, the amount and substantiality of the taking, and the effect of the use upon the potential market for or value of a copyrighted work. 17 U.S.C. § 107. The doctrine has been said to be “so flexible as virtually to defy definition.” *Time Inc. v. Bernard Geis Assoc.*, 293 F. Supp. 130, 144 (S.D.N.Y. 1968).

⁴The first sale doctrine extends to a lawful private owner the right to sell or otherwise dispose of a copyrighted work. This does not include the right to make reproductions. 17 U.S.C. § 109(a).

⁵Per full statutory wording, copyright protection does not extend to any “idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.” 17 U.S.C. § 102(b).

⁶Libraries may reproduce or distribute single copies of works to interested readers and libraries, and up to three copies (including digital) for preservation of unpublished works or legitimate replacement or reformatting of published ones (so long as a replacement cannot otherwise be obtained at a fair market price). Digital copies may not be distributed outside the premises of the library, although physical copies derived from them may. A format is considered obsolete if the machine or device needed for rendering is no longer commercially available. 17 U.S.C. § 108.

⁷Performances or displays of lawfully made works by instructors or pupils in the course of face-to-face teaching activities are copyright exempt, as are transmissions of non-dramatic literary or musical works. Performances of non-dramatic works are similarly exempt for religious services, non-profit establishments, small eating and drinking establishments, government organizations, record stores, or uses for the blind and handicapped. 17 U.S.C. § 110.

⁸17 U.S.C. § 121.

⁹see 47 U.S.C. § 553a and 17 U.S.C. § 1002(c). See also M. Jackson, “Technology and the Changing Nature of Copyright Enforcement”, unpublished paper, Telecommunications Policy Research Conference, Alexandria, Virginia, September 23-25, 2000.

¹⁰Joseph A.Schumpeter, *CAPITALISM, SOCIALISM, AND DEMOCRACY* (New York: Harper Collins, 1947).

¹¹See generally, Herbert Simon, *THE SCIENCES OF THE ARTIFICIAL* (Cambridge, Mass.: MIT Press, 1996).

¹²Related opinions and pleadings can be viewed at <http://cyber.law.harvard.edu/openlaw/eldredvashcroft/> (retrieved January 26, 2004) For an amicus brief from a group of distinguished economists (including five Nobel Laureates) in support of the Berkman Center, see Brief for George A. Akerlof et al. as Amici Curaie, U.S. Court of Appeals for the D.C. Circuit, *Eric Eldred v. John D. Ashcroft*, May 20, 2002

¹³P.N. Leval, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105, 1132 (1990) (“there may be a strong public interest in the publication of the secondary work [and] the copyright owner’s interest may be adequately protected by an award of damages for whatever infringement is found.”); A. Kozinski and C. Newman, *What’s So Fair about Fair Use?*, J. COPYR. SOC’Y 513, 525 (2000). (“The best way to promote production of valuable intellectual works is to give authors and inventors the ability to demand and receive compensation for the values they create.... The best way to do this is to grant property rights that give their products exchange value.”)

¹⁴J. C. Ginsburg, “How Copyright Got a Bad Name for Itself”, COL. J. of LAW & ARTS, 26(1) (2002).

¹⁵Information Infrastructure Task Force, *Intellectual Property and the National Information Infrastructure: The Report of the Working Group on Intellectual Property Rights*, U.S. Department of Commerce, Washington, D.C. 177 (1995).

¹⁶Pub. L. No. 105-304, 112 Stat. 2860 (1998).

¹⁷S. Rep. No. 105-190, 2 (1998).

¹⁸World Intellectual Property Organization, *Copyright Treaty*, Article 11; *Performances and Phonograms Treaty*, Article 18; adopted December 20, 1996, Geneva, Switzerland.

¹⁹*The Digital Dilemma: Intellectual Property in the Information Age*, National Academy Press, Washington, D.C. (2000).

²⁰H.R. Rep. No. 105-551, pt 2, 26 (1998).

²¹Supra note 19, at 202-3.

²²“The entertainment industry, [Samuelson] says, thinks it ‘should control every single copy, wherever and whenever it’s played, and have a pay-for-use system so that no one can ever share anything again. ...I think that’s a fascist world. I wouldn’t want to live in it.” Quoted in E. Weise, *USA TODAY: TECH REPORT*, December 8, 2000, at <http://www.usatoday.com/life/cyber/tech/cti950.htm> (retrieved June 18, 2001).

²³Business Week Online, “Lawrence Lessig: The ‘Dinosaurs’ Are Taking Over”, May 13, 2002, at http://www.businessweek.com/magazine/content/02_19/b3782610.htm (retrieved January 14, 2004).

²⁴Initial Comments, M. M. Nisbet, American Library Association, et al., #162, *Triennial Review*, infra note 68, 6, 13, at <http://www.loc.gov/copyright/1201/comments> (visited May 19, 2001).

²⁵17 U.S.C. § 106(1)-(6).

²⁶W. Gordon, “Intellectual Property as Price Discrimination: Implications for Contract”, 73 CHI-KENT LAW REVIEW 1367.

²⁷C. Shapiro and H. R. Varian, *INFORMATION RULES*, (Boston: Harvard Business School Press, 1999), 53-82

²⁸B. M. Owen and S. S. Wildman, *VIDEO ECONOMICS* (Cambridge:Harvard University Press, 1992).

²⁹W. W. Fisher, “Reconstructing the Fair Use Doctrine”, 101 HARV. L. REV 1661, 1742 (1988).

³⁰A. M. Spence, “Optimal Nonuniform Price Schedules”, J. PUB. ECON. (1977). The resulting price schedule can usually be expected to be volume discounting. That is, producers will generally charge less money for each succeeding unit of production or day of storage.

³¹C. H. Brooks, R. Das, J. O. Kephart, J.K. MacKie-Mason, R. S. Gazzale, E. H. Durfee, “Information Bundling in a Dynamic Environment”, COMPUTING IN ECONOMICS AND FINANCE, Society for Computational Economics (2001).

³²J. Borland, “Apple Unveils Music Store”, Tech News, CNET.com, April 28, 2003; “iTunes Sells 1.5 Million Songs During Past Week: Five Times Napster’s First Week Downloads”, Yahoo!Finance, November 6, 2003. As of January, 2004, the MusicStore had a catalog of over 400,000 songs; the service sold more than 30 million songs in 1993 and obtained an 70 percent market share in legitimate downloads.

³³With one-click purchase and no subscription fee, the iTunes Music Store includes no general streaming service, but 30 second samples are available for free. With Apple’s networking technology, Rendezvous, several Mac users on a wireless network can share collections through streaming. Id.

³⁴J. Borland, “Apple’s Music: Evolution, not Revolution”, Tech News, CNET.com, April 29, 2003

³⁵E. Hansen and J. Hu, “RealNetworks Plugs in MusicNET”, Tech News, CNET.com, December 4, 2001; L. M. Bowman, “MusicNet, Pressplay Closing in on Labels”, Tech News, CNET.com, October 15, 2002.

³⁶Forrester Research, “Commentary: Facing the Music”, Tech News, CNET.com, October 20, 2003. Musicmatch 8.1”, Tech News, CNET Reviews.

³⁷J. Borland, “Napster Launches: Minus the Revolution”, Tech News, CNET.com, October 9, 2003

³⁸Id.

³⁹Real Networks purchased Rhapsody in 1993 from Listen.com, which originally conceived the service as an all-streaming subscription service (i.e. a “celestial jukebox”) with unlimited monthly use. Rhapsody eventually came to enter into licensing agreements to permit downloading and burning as well. With 350,000 paying subscribers, Rhapsody now offers a catalog with over 400,000 songs with licensing contracts with all five major record companies and 200 independents. Infra note 40.

⁴⁰J. Borland, “Real Offers New Tech, Song Store”, Tech News, CNET.com, January 7, 2004.

⁴¹For example, Pressplay users chose among Basic (\$9.95 for 300 streams and 30 downloads), Silver (\$14.95 for 500 streams, 50 downloads, and 10 burns), Gold (\$19.95 for 750 streams, 75 downloads, and 15 burns), and Platinum services (\$24.95 for 1000 streams, 100 downloads, and 20 burns).J. Borland, “Pressplay to Offer Unlimited Downloads”, Tech News, CNET.com, July 31, 2002. At MusicNet, service prices differed by provider. Basic listeners of MusicNet services purchased through Real Networks paid a monthly fee of \$4.95 to stream 100 songs and download 100 more, \$9.95 for a combined package with additional Net radio services, and \$19.95 for a Gold Pass subscription with sports, entertainment, and news programming. By contrast, AOL offered basic MusicNet service (20 streams, 20 downloads) for \$3.95 per month, unlimited streams and downloads for \$8.95, and 10 additional burns for \$17.95. J. Borland, “NetMusic Gets AOL Audition”, Tech News, CNET.com, February 26, 2003.

⁴²J. Borland, “Copy Protected CDs Take Step Forward”, Tech News, CNET.com, September 12, 2003.

⁴³Paul Goldstein, COPYRIGHT’S HIGHWAY: FROM GUTENBERG TO THE CELESTIAL JUKEBOX, Stanford, California: Stanford University Press, 2003,

⁴⁴J. Borland, Apple Unveils Music Store, Tech News, CNET.com, April 28, 2003.

⁴⁵E. Hansen, “Steve Jobs’ Half Note”, Tech News, CNET.com, May 21, 2003.

⁴⁶Knowledge@Wharton, “Online Music’s Winners and Losers”, Tech News, CNET.com, December 27, 2003.

⁴⁷Apple now has an attractive joint market venture with America Online, which features iTunes buttons prominently on its display area, and Pepsi, which will provide to buyers one free download per purchased bottle. Forrester Research, “Commentary : Facing the Music”, Tech News, CNET.com, October 20, 2003. MusicNow has distribution arrangements with Best Buy, Clear Channel Radio, and Microsoft’s WindowsMedia.com. “MusicNow Worrks With Top Digital Device Manufacturers and Best Buy for Launch of New Digital Music Store”, Yahoo!Finance, November 10, 2003. Rhapsody now teams with Comcast, , Intel, IBM, and Gateway in intriguing combinations to facilitate buildout of cable delivery, local area networks, online storefronts and electronic payments, and PC sales. (“Comcast to Deliver RealNetworks’ Rhapsody Digital Music Service to its Nearly Five Million Broadband Internet Customers”, Yahoo!Finance, November 10, 2003; “RealNetworks Teams with Intel to Bring Rhapsody Music Service to Consumers’ Home Stereos”, Yahoo!Finance, November 10, 2003; S. Olsen, “IBM, Real Forge Digital Media Deal”, Tech News, CNET.com, January 9, 2004. Napster has joint ventures with Samsung (music player), Gateway (personal computer), and Target Stores, which markets in its stores a one-stop shopping Napster Burnpak that includes pre-paid cards (from InComm), CD cases (from Case Logic), blank CDs and DVDs (from Imation), and burning software from Roxio). M. Hines, “Napster fills in the Blanks with CD Deals”, Tech News, CNET.com, January 7, 2004; “Napster Teams with Imation and Case Logic to Provide New Digital Music Experience for Consumers at Target Stores Nationwide and at Target.com”, Yahoo!Finance, January 7, 2004

⁴⁸R. Shim, “Sony Unveils Music Store: Gadgets at CES”, Tech News. CNET.com, January 7, 2004.

⁴⁹At <http://musicdownloads.walmart.com> (retrieved January 13, 2004)

⁵⁰J. Borland, “Microsoft Music Stores to Open Next Year”, Tech News, CNET.com, November 17, 2003. Antitrust becomes a key consideration, as the company bundled its way to dominance in the MediaPlayer market by resting control from the once-dominant Real Networks, for which Real Networks recently initiated a U.S. antitrust action on the matter. E. Hansen and D. Becker, “Real Hits Microsoft with \$1 Billion Antitrust Suit”, Tech News, CNET.com, December 18, 2003. Any advantage for a music service will widen with the adoption of Microsoft’s Windows Media Center, which would allow a PC interface with home TVs and stereos. S. Musil, “Week in Review: That’s Entertainment”, Tech News, CNET.com, January 9, 2004

⁵¹Knowledge@Wharton, “What’s Holding Back Online Music?”, Tech News, CNET.com, July 12, 2003. e

⁵²J. Borland, “Stalemate on Digital Content”, Tech News, CNET.com, November 6, 2003.,

⁵³see Section 5.

⁵⁴Knowledge@Wharton, “Online Music’s Winners and Losers”, Tech News, CNET.com, December 27, 2003.

⁵⁵The potentially harmful effects upon future licensing appears to have been the focus of proprietary expert testimony submitted on behalf of the plaintiffs by Prof. David Teece, who confirmed the label plans to move in the digital market had been displaced by illegal file-sharing made possible through Napster.

⁵⁶In April, a California District Court distinguished peer-to-peer networks Grokster and Morpheus from the previous generation’s Napster; where Napster actually stored on its servers submitted information about site locations of infringing files, Grokster and Morpheus simply distributed software that was capable of both infringing and noninfringing uses. In December, a D.C. Circuit Court reversed an earlier District Court ruling that compelled internet service providers to provide names of infringing users in response to RIAA subpoenas. To bring illegal file-traders to justice in the future, the labels will now have to institute “John Doe” lawsuits, foregoing easier settlements and raising the costs of prosecution considerably. J. Borland, “Court: RIAA Lawsuit Strategy Illegal”, Tech News, CNET.com, December 19, 2003.

⁵⁷CBC News, “MP3 Players hit with Copyright Levy” . Fees are as follows: up to 1 gigabyte of memory: \$2; between 1 and 10 gigabytes: \$15; more than 10 gigabytes: \$25. at http://www.cbc.ca/stories/2003/12/12/musiclevy_031212 (retrieved January 18, 2004)

⁵⁸S. Vaknin, “Germany’s Copyright Levy”, at <http://samvak.tripod.com/busiweb37.html#levy> (retrieved January 20, 2004).

⁵⁹In an industry with thin operating margins, computer manufacturers claim that the levy will cost buyers some \$80 million in Germany.

⁶⁰Supra note 23.

⁶¹R. P. Merges, “Compulsory Licensing vs. the Three Golden Oldies: Property Rights, Contracts, and Markets”, 10, POLICY ANALYSIS (Cato Institute: Washington), January 15, 2004. Merges here conjures up “dinosaurs” from Lessig’s pejorative reference to the media companies who invest money in content and fail to agree with his vision of an open internet. Supra note 23

⁶²Id., 9.

⁶³In this respect, the Copyright Board of Canada turned down requests to impose levies on blank DVDs, removable memory cards, blank audio tapes and CDs, and MiniDiscs. "The evidence available at this time does not clearly demonstrate that these recording media are ordinarily used by individuals for the purpose of copying music". Supra note 57

⁶⁴Supra note 58.

⁶⁵“Universities, Legal Music Services, and Apple” MacRumors. Com, at <http://www.macrumors.com/pages/2003/08/20030803022032.shtml> (retrieved January 20, 2004)

⁶⁶S. Byrne, “KaZaa CEO uses an Ad Campaign in an Aim to Get Users to Fight Back” at <http://www.cdfreaks.com/news2.php?ID=8472>. (Posted November 18, 2003; retrieved January 19, 2004)