

# HOW ADVERTISING AND PEER TO PEER ARE TRANSFORMING MEDIA AND COPYRIGHT

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## 1. INTRODUCTION

In 2004, I wrote an article for the *Journal of the Copyright Society* entitled “Digitization and its Discontents: Digital Rights Management, Access Protection, and Free Markets,” in which I argued that free market forces would resolve many of the difficulties that DMCA opponents had identified. I shall now revisit the interaction of the market and copyright some two years later from a different vantage point. The issue now before us is the ongoing evolution of the Internet to an interconnected platform for social relationships, advertising, and distributed computing. This will have profound implications for content owners, consumers, and copyright law.

From a litigation standpoint, the past two years were quite successful for content owners. The Supreme Court handed down its *Grokster* decision in 2005, reversing an earlier judgment in 2004 from the Ninth Circuit that upheld the file-sharing services of *Grokster*, *KaZaa* and *Morpheus*. Since that decision, the content industries have settled litigation with *iMesh*, *Grokster*, *Sharman* (distributor of *KaZaa*), *Streamcast* (distributor of *Morpheus*), and *MetaMachine* (distributor of *eDonkey*). At this moment, the content industries continue to litigate against *Limewire*.<sup>1</sup>

Yet the number of illegal acts of file-sharing have shown no signs of diminishing since the Supreme Court decision of 2005. The NPD Group reported that five billion music files were illegally downloaded in 2006, up 47% from 2005; Big Champagne now contends that the more accurate figure is 12-15 billion worldwide.<sup>2</sup> By contrast, authorized music downloads (e.g., such as Apple’s *iTunes*) in 2006 totaled a much smaller 795 million worldwide and 582 million in the U.S. alone<sup>3</sup> In the “bricks and mortars” world, CD sales actually fell 20% in the first quarter of 2007 from the corresponding period in 2006.<sup>4</sup>

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<sup>1</sup>Greg Sandoval, Music industry sues P2P firm Lime Wire, CNETNews.com, August 4, 2006, at <http://news.com.com/Music+industry+sues+P2P+firm+Limewire/2100->

<sup>2</sup> Report from CEO Marty Lafferty, September 3, 2007, DCIA Newsletter, at <http://www.dcia.info>

<sup>3</sup> Emily Burg, Legal Music Downloads Rise, But P2P Sharing Still A Threat Marketing Daily, March 19, 2007, [http://publications.mediapost.com/index.cfm?fuseaction=Articles.showArticle&art\\_aid=57257](http://publications.mediapost.com/index.cfm?fuseaction=Articles.showArticle&art_aid=57257)

<sup>4</sup> Numbers are from Nielsen Soundscan, U.S. CD Sales Plunge as Music Shift Accelerates, Wall Street Journal, March 21, 2007, at [http://online.wsj.com/article\\_email/SB117444575607043728-IMyQjAxMDE3NzI0MTQyNDE1Wj.html](http://online.wsj.com/article_email/SB117444575607043728-IMyQjAxMDE3NzI0MTQyNDE1Wj.html).

As reported by the peer-to-peer monitor Big Champagne, the number of simultaneous worldwide users grew from 3.3 million to 9.4 million in 2003–06;<sup>5</sup> an additional number of BitTorrent users moved from 817 thousand to 1.35 million in 2005–2006.<sup>6</sup> The leading software for music infringement, LimeWire, now appears on some 18.3 percent of all desktops;<sup>7</sup> the average Limewire user now owns 309 songs on the desktop.<sup>8</sup> Of 32 million Americans who had downloaded a movie in the year 2006, some 80% did so through an illegal file-sharing network.<sup>9</sup> Considerable amounts of uncounted copyright infringement may also appear among stream-rippers, darknet users, and off-network friends and dorm residents who lend one another CDs. For this reason, NPD estimates the total number of unauthorized copyists to be close to 15 million.<sup>10</sup>

In an arena that combines lawbreaking and high innovation, content owners themselves have come to consider and deploy many of the same technologies that aid copyright infringement. Particularly, the “data swarming” technologies of some P2P systems (such as BitTorrent) now save between 70 and 90% of related storage costs and thus enable studios to economize on dedicated capacity use. Indeed, Fritz Attaway of the Motion Picture Association of America — certainly not a copyright minimalist — would come in July, 2006 to term the joining of Hollywood and peer-to-peer networking as a “marriage made in heaven.”<sup>11</sup> His colleague Dean Garfield aptly made the point; “the challenge with p2p is not the technology, but the business model of those who have chosen to use the concepts ... for their own illicit purposes.”<sup>12</sup>

New synergies will then continue to emerge as new technologies evolve and different players plumb their dimensions. Market advances will test new business models and market institutions that augment traditional online retailing with social networking, advertising, and information exchange that can be described as distributed sense-making. This paper describes the most important considerations in the present arena.

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<sup>5</sup> Thomas Mennecke, P2P Population Continues Climb, June 14, 2006, SLYCK, <http://www.slyck.com/news.php?story=1220>; Alex Veiga, P2P Still Thrives After Ruling, ABCNEWS.COM, June 20, 2006, <http://abcnews.go.com/Technology/wireStory?id=2139833>.

<sup>6</sup> Eric Bangeman, P2P Traffic Shifts Toward Movies, July 5, 2007, at <http://arstechnica.com/news.ars/post/20070705-p2p-traffic-shifts-away-from-music-towards-movies.html>.

<sup>7</sup> LimeWire Legal Battle Could Get Ugly., March 22, 2007, Digital Music News, at <http://www.digitalmusicnews.com>

<sup>8</sup> Web and P2P Music Downloads Rise, April 2, 2007, at [www.p2p-weblog.com/50226711/going\\_up\\_movie\\_tv\\_and\\_music\\_downloads.php](http://www.p2p-weblog.com/50226711/going_up_movie_tv_and_music_downloads.php) - 123k -.

<sup>9</sup> Movie File Sharing on Rise Among Americans. January 24, 2007, at [www.dmwmedia.com/tags/file-sharing](http://www.dmwmedia.com/tags/file-sharing)

<sup>10</sup> Nate Anderson, Music Industry Overstates Threat, May 31, 2007, at <http://arstechnica.com/news.ars/post/20070531-studies-music-industry-overstating-threat-of-p2p-piracy.html>

<sup>11</sup> Confusion from 'Grokster,' Other Suits Slows Legitimate P2P Deals, Players Say, WARREN'S WASH. INTERNET DAILY, June 23, 2006, <http://diariaa.com/article-warrens-legal-confusion.htm>.

<sup>12</sup> Letter from Dean Garfield, Vice-President and Director of Legal Affairs, World Wide Anti-Piracy, Motion Picture Association of America, Inc. to Deborah Platt Majoras et al., FTC Commissioners (Nov. 18, 2004) (Public Comments, Peer-To-Peer File-Sharing Technology: Consumer Protection and Competition Issues: Announcement of Public Workshop and Request for Public Comment and Participation, FTC File No. P03 4577), available at <http://www.ftc.gov/os/comments/p2pfileshare/OL-100030.pdf>.

## II. THE RETURN OF ONLINE ADVERTISING

The media investment bank Veronis Suhler Stevenson projected at the beginning of 2007 that ad spending on pure-play Internet sites will increase from \$15.1 billion in 2006 to \$34.8 billion in 2011; ad-spending on media-based sites will increase from \$8.6b to \$27.2 billion in the same period.<sup>13</sup> In a turnaround of earlier years, Internet advertising is expected to grow at a faster pace than any other category of advertising.

The recent history of two digital companies — Google and America Online — should tell us how the market is viewing things. Google is a leading search engine that now derives some 98% of its annual revenues from the sale of advertising to online sponsors. Since its initial public offering in 2004, the company has seen a nearly fivefold increase in its equity price, and a sextupling of net earnings per share.<sup>14</sup> There is one key reason; Google's advertising revenues have more than quadrupled during this time, and more growth is expected. The company is now worth more than Disney, News Corporation, and Viacom combined.<sup>15</sup>

While Google capitalized on advertising, AOL — once the bellwether company of the Internet — recently rethought its entire subscription model. Although the company earned in fiscal 2005 a total of \$7 billion in subscription revenues, and \$1 billion in online advertising, the company experienced in 2006 a fall in the former and increase in the latter.<sup>16</sup> As a consequence, AOL in September, 2006 made its search engine and accompanying software freely available to all broadband users.<sup>17</sup> The company expects that the lost subscription fees will be compensated by the gain in advertising dollars that will hopefully arise from its reach to a larger viewing audience.

The new trends in online advertising will continue as the demand for broadband increases and the Internet increasingly delivers rich content and advertising to a wider base of users worldwide. Though Internet advertising now accounts for less than 10% of total U.S. advertising, a 2006 survey found that advertising on search engines will increase in the present year (2006) by an expected 26%, while total online, print, and TV/Radio will notch corresponding levels of 19%, 3.3%, and 2.4%.<sup>18</sup> Indeed, the Internet is now the second most popular medium in every daypart (behind television), according to the

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<sup>13</sup> Laurie Peterson, Internet Ad Spending Set To Overtake All Other Media By 2011: VSS, August 7, 2007, <http://publications.mediapost.com/index.cfm?fuseaction=Articles.san&s=65282&Nid=33013&p=352811>

<sup>14</sup> Google, Form 10-K Annual Report, Consolidated Statements of Income, Mar. 16, 2006, available at <http://www.sec.gov/Archives/edgar/data/1288776/000119312506056598/0001193125-06-056598-index.htm>.

<sup>15</sup> Id.

<sup>16</sup> Subscriptions in fiscal 2006 had fallen some 15%, down 3.1 million from 20.8 in June, 2005. At the same time, ad revenues increased \$333 million increase in 2005, while subscription revenues declined \$722 million. In the first half of 2006, ad revenues were up \$210 million, while subscription revenues declined \$383 million.

<sup>17</sup> Electronic mail, security software, instant messaging, social networking, and parental controls.

<sup>18</sup> Online Adopted by 80 Percent of Advertisers, CENTER FOR MEDIA RESEARCH RESEARCH BRIEF, Oct. 26, 2006, [http://www.centerformediaresearch.com/cfmr\\_brief.cfm?fnl=060308](http://www.centerformediaresearch.com/cfmr_brief.cfm?fnl=060308).

Center for Media Design at Ball State University, which tracked the media usage of 350 people at fifteen-second intervals.<sup>19</sup>

By combining capacities for tracking, targeting, interactivity, transaction, distribution, and affiliate marketing, the Internet provides a powerful integrated mechanism for advertisers, retailers, and content producers. With more build-out of broadband, these same capabilities will develop beyond the texts and graphics of banner ads and pop-ups to include feature-rich advertising that would include spoken words, music, fixed artwork and photographs, and moving visual images. Here, the growing networking and affiliation of user interests can accommodate information exchange among user communities based on actual personal tastes and interests rather than imagined demographic correspondences of present marketing strategies.

Compared with the traditional advertising, online advertising can generally be targeted more exactly to a customer's actual behavior and revealed tastes. Indeed, the Online Publishers Association (OPA) found in 2006 that 31% of respondents to an online ad eventually came to visit the advertiser's Web site, and 8% actually made purchases.<sup>20</sup> Nor does advertising appear to be intrusive upon the average viewer; some 71% of consumers prefer free video content to paid viewing at \$1.99 per unit, and are then willing to put up with advertising to accommodate their preferences.<sup>21</sup>

The connection between advertising and music is considerable, as Yahoo came to understand. With 25 million monthly visitors,<sup>22</sup> Yahoo!Music now includes a network of over 200 online radio stations that serve nineteen different genres of music,<sup>23</sup> Musicmatch (a provider of music management software and a-la-carte song downloads), and a competitive monthly subscription service that provides unlimited streaming access to more than 1.5 million songs.<sup>24</sup> Most of this is monetized by the sale of advertising, although Yahoo also earns money from online sales through its music service.

Music-based advertising has the potential to benefit record labels and artists greatly. At present, no amount of total \$20 billion spent in broadcast radio advertising is diverted to record labels and performing artists (other than the songwriters).<sup>25</sup> At present, the four major record companies (which may account for 75–80% of the industry total) now earn annual revenues of some \$10 billion per year for sale of label product.<sup>26</sup> Assuming a very

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<sup>19</sup> Diego Vasquez, How the Web Now Dominates Our Lives, MEDIA LIFE, June 6, 2006, <http://www.medialife.com>.

<sup>20</sup> Sponsored Video for Three-Fourths of Users, excerpted from CENTER FOR MEDIA RES. REP., DCINFO WKLY. NEWSL., Sept. 25, 2006, [http://dcia.info/News/newsletter\\_2006-09-25.htm](http://dcia.info/News/newsletter_2006-09-25.htm).

<sup>21</sup> Id.

<sup>22</sup> Saul Hansell, It's Not for TV, It's Yahoo: An Ex-ABC Impresario Aims to Build the Studio of the Future, N.Y. TIMES, Sept. 24, 2005, at C1.

<sup>23</sup> Launchcast, <http://launch.yahoo.com/launchcast/stations> (retrieved Mar. 30, 2006).

<sup>24</sup> Insight, Yahoo Music Engine Really Rather Good, May 19, 2005.

<sup>25</sup> See VSS News, [http://www.vss.com/articles/articles\\_2006/article\\_091206.htm](http://www.vss.com/articles/articles_2006/article_091206.htm) (retrieved Nov. 7, 2006).

<sup>26</sup> RIAA 2005 Year-End Statistics, available at <http://www.riaa.com/news/newsletter/pdf/2005yrEndStats.pdf>.

generous profit rate of 5%,<sup>27</sup> profit levels for these labels now amount to some \$500 million in profits, or 2.5% of the radio advertising total. Label profits could then double if as little as 2.5% of broadcast radio advertising could be diverted, presumably through the shift of listeners to advertising based services,

Moreover, a 2006 report from In-Stat indicated that the potential worldwide market for online video content will grow to 131 million households in 2010.<sup>28</sup> The key driver behind this growth is the widespread adoption of broadband; In-stat predicts that by 2010 there will be 413 million broadband households worldwide, up from 194 million in 2005.<sup>29</sup>

### III. SOCIAL NETWORKING

An emerging theme in media technology is the evolution of social networks — such as Myspace, YouTube, LiveJournal, Friendster, and Facebook — that will allow people with common interests some additional opportunity to share information, to collaborate on communal works, and to generate a collective memory of archived information. In 2007, some 86% of respondents indicated that they visited a social networking sight, up from 74% in 2006.<sup>30</sup>

As the signal event in the past two years, News Corporation acquired Intermix Media., which owns the popular Web site, MySpace. As the world's largest social network, Myspace attracts daily over 250,000 new users; the network now counts 114 million subscribers, up from 66 million one year ago.<sup>31</sup> Myspace users engage one another by exchanging blogs, instant messages, music downloads, photos, classifieds, events, groups, chatrooms, user forums, and other items of personal interest. Myspace is now the fifth most popular web domain (behind Google, Yahoo, MSN, and AOL) in total number of individual page views and now serves 8% of all ads on the Internet.<sup>32</sup>

Myspace does not charge for use or subscription. Rather, Myspace monetizes costs through advertising and e-commerce. Most prominently, users may exchange electronic greeting cards and newsletters that make advertising space available to commercial sponsors, who refer people to their Web sites. Intermix itself also markets product to all Myspace members through its own marketing company, Alena.

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<sup>27</sup> The assumed amount is indeed generous. For independent estimates of related costs and royalties, see WILLIAM W. FISHER III, PROMISES TO KEEP 261-64 (2004).

<sup>28</sup> Kenradio, [http://www.kenradio.com/index.php?option=com\\_content&task=view&id=276&Itemid=1](http://www.kenradio.com/index.php?option=com_content&task=view&id=276&Itemid=1) (retrieved Oct. 20, 2006).

<sup>29</sup> Id.

<sup>30</sup> Ben Bland, Illegal music downloads hit record high, July 31, 2007, at <http://www.telegraph.co.uk/money/main.jhtml?xml=/money/2007/07/30/bcnmusic130.xml>

<sup>31</sup> Yinka Adegoke, MySpace to Sell Music from Nearly 3 Million Bands, YAHOO! NEWS, Sept. 3, 2006, [http://news.yahoo.com/s/nm/20060903/tc\\_nm/media\\_myspace\\_songs\\_dc.](http://news.yahoo.com/s/nm/20060903/tc_nm/media_myspace_songs_dc.); Dan Smith, Online Social Networks & Communities are Here to Stay, September 22, 2006, at [http://www.knowmoremedia.com/2006/09/online\\_social\\_networks\\_communi.html](http://www.knowmoremedia.com/2006/09/online_social_networks_communi.html)

<sup>32</sup> Id.

The market now expects a considerable advertising yield from MySpace. Google agreed to pay News Corp. some \$900 million over the next three years to be the exclusive provider of text advertising for the site.<sup>33</sup> The investment can prove worthy if MySpace can establish a “virtuous cycle” between larger audience bases and content sources — attractive considerations for an advertising platform.

As a key facilitating strategy to grow its younger audience, MySpace in September, 2006 entered into an important music connection. The company then announced that it would soon allow over three million bands to use its platform to sell music directly to over 100 million network members.<sup>34</sup> Depending on whether it can broker a deal with major labels, News Corp., a multinational corporation that owns no record labels or radio stations, may come to emerge as a strong challenger to traditional radio platforms, which have in the past six years lost listening audiences in the U.S. in all age groups, with the worst percentage drop among teenagers (12–17) and young adults (18–24) who are generally more enthusiastic about new music.<sup>35</sup>

The other major move in social networking came from online communities that accommodate HTTP-based file-sharing of videos posted by users. With a 37% share of 140 million viewers of online video in the U.S.<sup>36</sup> YouTube was launched in February, 2005 with an initial investment of \$12.5 million, and bought out by Google in October, 2006 for \$1.65 billion.<sup>37</sup> Users of YouTube technology may upload homemade videos to the network using any format or software; the site automatically converts uploaded files into Flash movies that any network user may come to view. Visitors now watch more than 100 million videos per day on YouTube, which adds 60,000 new videos daily.<sup>38</sup>

While complaining of copyright infringement on YouTube, three major record companies — Sony BMG, Warner Music Group, and Universal Music Group — negotiated for shares in the company hours before the recent Google buyout.<sup>39</sup> The movie industry is

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<sup>33</sup> Greg Sandoval, Sony Gets Into Video Sharing With Grouper Hug, CNET NEWS.COM, Aug. 22, 2006, [http://news.com.com/Sony+gets+into+video+sharing+with+Grouper+hug/2100-1026\\_3-6108508.html](http://news.com.com/Sony+gets+into+video+sharing+with+Grouper+hug/2100-1026_3-6108508.html).

<sup>34</sup> Yinka Adegoke, MySpace to Sell Music from Nearly 3 Million Bands, YAHOO! NEWS, Sept. 3, 2006, [http://news.yahoo.com/s/nm/20060903/tc\\_nm/media\\_myspace\\_songs\\_dc.](http://news.yahoo.com/s/nm/20060903/tc_nm/media_myspace_songs_dc.); Jeremy Kirk, MySpace Enters Crowded Music Download Market, PLAYLIST, <http://playlistmag.com/news/2006/09/04/myspace/index.php> (retrieved Oct. 26, 2006).

<sup>35</sup> Arbitron, Persons Using Radio Report, <http://wargod.arbitron.com/scripts/ndb/ndbradio2.asp> (cited elsewhere) (retrieved Mar. 30, 2006).

<sup>36</sup> Veoh: Different Approach, Same Goal, August 28, 2007, <http://blog.ipdev.net/2007/08/veoh-different-approach-same-goal.html>, Respective shares at Yahoo and AOL are each at 11 percent.

<sup>37</sup> Andrew Ross Sorkin & Jeff Leeds, Music Companies Grab a Share of the YouTube Sale, N.Y. TIMES, Oct. 19, 2006, at C1.

<sup>38</sup> John C. Dvorak, Missing the Point About YouTube Commentary: Pent Up Demand and Ease of Use Add Up to Explosive Growth, MARKETWATCH, Aug. 10, 2005, <http://www.marketwatch.com/News/Story/kx41F17ZJwXRG8Lm0R8nK9>.

<sup>39</sup> Id. For example, Doug Morris, head of Universal Music, called both YouTube and MySpace “copyright infringers” and said that the sites “owe us tens of millions of dollars.” Universal has already sued two smaller video-sharing sites, Bolt and Grouper.

less accommodative, as Viacom actually sued Google in March, 2007 for \$1.8 billion.<sup>40</sup> Nonetheless, the contrast with Napster is noteworthy; comparable talks in 2001 between the record industry and Napster broke down,<sup>41</sup> with a later lawsuit filed on BMG and Hummer Winblad for taking a share in the network.<sup>42</sup> As explained below, Viacom has an investment in a competing video service.

Owners or not, major content providers will increasingly come to post material to reach the wider viewer bases of the social networks, and advertisers will follow the entrance with more material and technology. In July, 2006, YouTube and NBC announced a strategic partnership to promote NBC's fall television lineup.<sup>43</sup> In the same month, Disney Online contracted to run rich media banner ads on every view page to promote *Pirates of the Caribbean: Dead Man's Chest*.<sup>44</sup> Besides NBC, YouTube announced a second major deal for sharing advertising revenues in an integrated distribution with Warner Music.<sup>45</sup>

On the technology side, YouTube now accommodates the insertion of rich media banner ads from, inter alia, AOL's Advertising.com and Tacoda.<sup>46</sup> The company also developed the capacity to offer branded channels that will allow content owners and advertisers to promote materials through customized presentations on proprietary platforms.<sup>47</sup>

New business models on other competitive social networks can now be expected to emerge in order to attract eyeballs, content, and advertising dollars. For example, video network Lulu.tv will collect from users monthly account fees in order to pay creators for posting popular videos to its Web site. By contrast, Revver.com will share 50% of its advertising revenue with those who post popular videos there.<sup>48</sup> These networks and others present the opportunity for virtuous cycles (see below) in which content attracts eyeballs, eyeballs attract advertisers, and advertisers finance content.

#### IV. RECOMMENDATION TECHNOLOGY

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<sup>40</sup>Peter Cashmore, [Viacom Sues YouTube for \\$1 Billion...The End of the Tube?](http://mashable.com/2007/03/13/viacom-youtube/) March 13, 2007, at <http://mashable.com/2007/03/13/viacom-youtube/>

<sup>41</sup>Id.

<sup>42</sup> Sandeep Junnarkar, [Lawsuit Targets Bertelsmann over Napster](http://news.com.com/Lawsuit+targets+Bertelsmann+over+Napster/2100-1023_3-985285.html?tag=nl), CNET NEWS.COM, Feb. 20, 2003, [http://news.com.com/Lawsuit+targets+Bertelsmann+over+Napster/2100-1023\\_3-985285.html?tag=nl](http://news.com.com/Lawsuit+targets+Bertelsmann+over+Napster/2100-1023_3-985285.html?tag=nl).

<sup>43</sup> Jennifer LeClaire, [NBC Partners with YouTube in Content Deal](http://www.technewsworld.com/story/hTLX1a0ZhgpDv6/NBC-Partners-With-YouTube-in-Content-Deal.xhtml), TECH WORLD, June 28, 2006, <http://www.technewsworld.com/story/hTLX1a0ZhgpDv6/NBC-Partners-With-YouTube-in-Content-Deal.xhtml>.

<sup>44</sup> Erik Sass, 'Pirates' Seizes YouTube, July 7, 2006, ONLINE MEDIA DAILY, <http://publications.mediapost.com/index.cfm?fuseaction=Articles.san&s=45305&Nid=21543&p=204029>.

<sup>45</sup> Coming Attraction: YouTube's Business Model, KNOWLEDGE@WHARTON, Oct. 4, 2006, <http://knowledge.wharton.upenn.edu/article.cfm?articleid=1568&CFID=2377525&CFTOKEN=35567264>.

<sup>46</sup> Erik Sass, [YouTube Partners with Ad Networks](http://publications.mediapost.com/index.cfm?fuseaction=Articles.san&s=46629&Nid=22401&p=204029), Aug. 10, 2006, ONLINE MEDIA DAILY, <http://publications.mediapost.com/index.cfm?fuseaction=Articles.san&s=46629&Nid=22401&p=204029>.

<sup>47</sup> Rhys Blakely, [YouTube Offers 'Branded Channels' Alongside the Home-Made Videos](http://business.timesonline.co.uk/article/0,,13129-2324870,00.html), TIMES ONLINE, Aug. 23, 2006, <http://business.timesonline.co.uk/article/0,,13129-2324870,00.html>.

<sup>48</sup> Peter Wayner, [Site Tempts Video Makers by Offering to Pay Them](http://www.nytimes.com/2006/07/03/03tech/03wayner.html), N.Y. TIMES, July 3, 2006, at C3.

With technical abilities to enable audience interaction, networks can allow fans to communicate with one another through various types of recommendation technology. Recommendations can be deployed through a number of different hierarchies, and can be raw or filtered.

Music researchers at Upto11 use proprietary mathematical algorithms to identify common listening tastes found in over 250,000 music folders found in various file-sharing networks;<sup>49</sup> Subscribers may receive recommendations of other tracks based on the particular music they are observed to download. At competitor Gracenote, recommendations to users are based on a correspondence between a chosen song or artist and the results of a classification grid conceived by musicologists who identified 1,600 music genres related to style, region, era, artist type, etc. The advanced search engine Discover generates recommendations based on three different types of integrated analysis: music expert editorial, community-based preferences, and shared audio attributes derived from digital signal processing.<sup>50</sup>

Recommendation technology can rely also upon more “bottoms-up” information from audiences or bands, which can be generated without editing or any hierarchical layering by third-party intermediaries. Popular with alternative newsweeklies that advertise local entertainment events, Cornerband provides to users the names of local bands corresponding to certain key words; e.g., a user who enters “Celine Dion” and “Chicago” will learn of Web sites, downloadable content, and possible appearances of any similar performer who may be performing in the city’s metropolitan area.<sup>51</sup> After protecting works with digital rights management, the Jun Group directly seeds ad-supported material in file-sharing networks and ensure that their files appear in strategic positions on the Internet.<sup>52</sup>

As a third option, fans may actually be compensated for promoting works through emails, blogs, and Web sites, inter alia. With content deals with the four major record companies., each user on Peer Impact now collects 10% for recommending a sale, and up to 5% for owning a track that is later purchased by another user.<sup>53</sup> Users at competitor PassAlong are encouraged to recommend tracks to friends in exchange for merchandise

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<sup>49</sup> Upto11.net, <http://www.upto11.net> (retrievec Oct. 6, 2005).

<sup>50</sup> Gracenote, Gracenote Introduces Discover, Industry’s First Global Multi-Method Music Recommendation Engine, Jan. 5, 2006, <http://www.gracenote.com/corporate/press/article.html/date=2006010501>.

<sup>51</sup> Cornerband.com, <http://www.cornerband.com/html/about/about.asp> (retrievec Oct. 5, 2005).

<sup>52</sup> Sue Zeidler, Entertainment Firms Quietly Using Piracy Networks, BOSTON.COM, Nov. 3, 2003, [http://www.boston.com/business/technology/articles/2003/11/03/entertainment\\_firms\\_quietly\\_using\\_piracy\\_networks?mode=PF](http://www.boston.com/business/technology/articles/2003/11/03/entertainment_firms_quietly_using_piracy_networks?mode=PF)[http://www.boston.com/business/technology/articles/2003/11/03/entertainment\\_firms\\_quietly\\_using\\_piracy\\_networks?mode=PF](http://www.boston.com/business/technology/articles/2003/11/03/entertainment_firms_quietly_using_piracy_networks?mode=PF).

<sup>53</sup> Wurldmedia.com, <http://www.wurldmedia.com> (retrievec Oct. 5, 2005).



credits that can be used later on.<sup>54</sup> Following yet a third model, Weedshare paid up to 35% of sales revenues to listeners who recommended songs to others.<sup>55</sup>

Finally, the music services themselves now allow fans to compose and exchange playlists that can be amended with free samples. . This advertising-based improvisation complements the message boards and news materials that elsewhere populate the online stores. However, these offerings are also aimed to delude subscribers to the unlimited streaming and download services that the service also may provide.<sup>56</sup> Thus, advertising is an attractive way to finance an introductory offer that can lead to the eventual purchase of more sophisticated service versions that do away with advertising entirely.

## V. DATA SWARMING AND DIGITAL VIDEO

A P2P technology, “data swarming” works by splitting large content files into smaller elements that are stored in a distributed fashion across compliant host computers that are interconnected to one another by software distributed in the network. With the accompanying software, a requesting user of a particular content file may reconstitute the distributed elements into a whole file for immediate stream or download. Data swarming improves efficiency because it uses idle distributed computer capacity located nearer to the user and thus avoids the need for centralized storage.

With data swarming technology, transport networks also are readily scalable and can be ramped up to higher levels of processing power in a matter of seconds. This is quite useful for the transmission of live events (e.g., concerts, sports, award ceremonies) and other programs where bandwidth needs may increase rapidly. Finally, the distributed use of capacity also increases the resiliency of the network to failures.

Some comparative numbers may illustrate the potential economic efficiencies of data swarming. A software publisher hired P2P provider Red Swoosh (recently merged with Akamai) to deliver a 200 MB software package to 500,000 viewers. After pricing the costs of traditional technology at \$150,000, Red Swoosh offered combined storage and transport service at \$15,000.<sup>57</sup> When the publisher later added a five-minute video to the campaign, the estimated cost for traditional networks rose to \$225,000. Red Swoosh still charged \$15,000. Similar tenfold savings on television signals have recently been

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<sup>54</sup> Anand Parthasarathy, Indian solution helps ‘pass along’ music, April 19, 2005, at <http://www.hindu.com/2005/04/19/stories/2005041903150700.htm>

<sup>55</sup> Weedshare.com, <http://www.weedshare.com> (retrieved Oct. 5, 2005).

<sup>56</sup> Mary Crane, New Napster.com May Offer Upside In 2006, FORBES.COM, May 8, 2006, <http://www.forbes.com/markets/2006/05/01/napster-0501markets11.html>.

<sup>57</sup> Reinventing the Boob Tube, excerpted from CNN/Money Report, DCINFO WKLY. NEWSL., Mar. 6, 2006, [http://www.dcia.info/News/newsletter\\_2006-03-06.htm](http://www.dcia.info/News/newsletter_2006-03-06.htm).

reported by Zattoo, a commercial, DRM secure IPTV service developed by researchers at the University of Michigan.<sup>58</sup>

Legitimate distribution services are now beta testing a number of alternative video technologies that incorporate data swarming. The original developer and distributor of file-sharing software, BitTorrent now allows its users to download some 3,000 movies, 1,000 games, and 1,000 movie videos made available from 34 content owners including Warner Bros., Paramount, Fox, MGM, and Lionsgate.<sup>59</sup> Rental prices at BitTorrent range from \$1.99 per TV show, to \$2.99 for older movies, to \$3.99 for first runs.<sup>60</sup> Protected content is played back on Microsoft's Windows Media Player and protected by Windows Media DRM, which "returns" the video after a 24 hour period. BitTorrent also plans launches of an authorized ad-supported channel free of DRM protection. As BitTorrent is an open source protocol, other applications include Azureus, uTorrent, and BitComet which respectively offer user-friendly, schedulable, and extra feature versions of BitTorrent's basic service capability.<sup>61</sup>

Instead of a rental download model, competitor Joost is now beta testing a system with 150 ad-supported streaming channels, including Warner Music Group, CBS, and Viacom.<sup>62</sup> A streamed video-on-demand service, Joost also provides to users additional capabilities for interpersonal communication and frame freezing. Advertising content will be targeted to specific user tastes observed online.<sup>63</sup> Advertising partners include Coca-Cola, Hewlett Packard, Intel, IBM, Motorola, and Nike.<sup>64</sup>

There are other interesting models in somewhat earlier stages of development that may come to compete for audience eyeballs. Babelgum offers a similar technology to Joost that is expectedly based on more niche-content that owners may upload at will.<sup>65</sup> VeohTV launched a powerful beta that allows users to search off-channel for all legitimate content.<sup>66</sup> VeohTV is backed by Michael Eisner and has inked deals with Fox,

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<sup>58</sup> Redswosh, [http://www.redswosh.com/home\\_what\\_we\\_can\\_do\\_for\\_you.php](http://www.redswosh.com/home_what_we_can_do_for_you.php) (retrieved Oct. 5, 2005).

<sup>59</sup> Copyright Holders Welcome New Generation of P2P Services, February 26, 2007, at <http://www.computerbuyer.co.uk/buyer/news/105981/copyright-holders-welcome-new-generation-of-p2p-services.html>

<sup>60</sup> BitTorrent Entertainment Network to be unveiled tomorrow, Engaged, Feb 25th 2007

<sup>61</sup> Shelly Palmer, MTV's New Web Strategy, Media 3.0 Report, at [http://advancedmediacommittee.typepad.com/emmyadvancedmedia/2007/03/mtvs\\_new\\_web\\_st.html](http://advancedmediacommittee.typepad.com/emmyadvancedmedia/2007/03/mtvs_new_web_st.html)

<sup>62</sup> <http://en.wikipedia.org/wiki/Joost>

<sup>63</sup> Id.

<sup>64</sup> Joost Attracts Blue chip Advertisers. DCIA Newsletter, April 30, 2007, at [http://www.dcia.info/news/newsletter\\_2007-04-30.htm#Joost](http://www.dcia.info/news/newsletter_2007-04-30.htm#Joost)

<sup>65</sup> Babelgum: A Joost Competitor from Italy, at , [http://blogs.business2.com/business2blog/2007/05/babelgum\\_a\\_joos.html](http://blogs.business2.com/business2blog/2007/05/babelgum_a_joos.html)

<sup>66</sup> Steve West, Veoh TV Sets Sights on Joost., June 21, 2007, at <http://www.cinemablend.com/technology/VeohTV-Sets-Its-Sights-On-Joost-4839.html>

NBC, CBS, and ABC.<sup>67</sup> Zattoo<sup>68</sup> and Skinkers<sup>69</sup> (a Microsoft participated company) are developing software to allow TV stations to stream spontaneously live television broadcasts -- e.g., sports, concerts, and news. With deals with every studio except Sony, Vudu will stream thousands of movies directly to the TV, independent of mailed DVDs, PC's, cable or satellite.<sup>70</sup>

P2P video services may challenge Apple's dominant iTunes video service, which can now be hooked directly into an iPod or a home TV through the company's new set top box. At present, Apple now accounts for 90% of movie videos sold over the Internet through paid downloads made available to DRM-protected players.<sup>71</sup> However, Apple must pay for storage, downloads are subject to transport delay, and content is only DRM-compatible with Apple devices.

As the new P2P services develop, P2P video itself will become an increasingly important component of total traffic. The bandwidth demands of video are capacious; a minute of video can consumer ten times the bandwidth of audio.<sup>72</sup> A half hour television show consumes as much as 70,000 emails and a high definition movie equates to 35,000 web pages.<sup>73</sup>

The use of data swarming technology could put considerable strain on the delivery channels of the ISPs, which must now provide enabling capacity and bandwidth to allow networked computers to broadcast metadata to help locate chunks of interrelated content distributed among users.<sup>74</sup> These ISPs now can practically recoup the costs of the additional bandwidth only from flat monthly fees imposed on subscribers rather than service providers that can more readily monetize them. As a consequence, a number of ISPs -- including Time Warner Cable, British Telecom, Tiscali and Comcast, have taken steps to limit network use by P2P downloaders.<sup>75</sup>

This presents the data swarming technologies with a critical challenge. The new service providers must come to develop economizing P2P technologies of companies like Pando, RawFlow, Oversi, Akamai, and Verisign in order to optimize performance, ease traffic pressure, and save on bandwidth to enable delivery to the home. It may also be

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<sup>67</sup> Investors Tune into P2PTV. DCIA Newsletter, July 23, 2007, at [http://www.dcia.info/news/newsletter\\_2007-07-23.htm#Investor](http://www.dcia.info/news/newsletter_2007-07-23.htm#Investor)

<sup>68</sup> Duncan Riley, Zattoo Is The Best Live P2P Television Platform Available Today, July 18, 2007, at <http://www.techcrunch.com/2007/07/18/zattoo-is-the-best-live-p2p-television-platform-available-today/>

<sup>69</sup>at <http://www.skinkers.com/microsoft/>

<sup>70</sup> <http://www.vudulabs.com/>

<sup>71</sup>Louis Hau, Porn Still Dominates Video Downloads December 19, 2006, at [http://www.forbes.com/2006/12/19/video-download-npd-marktes-equity-cx\\_lh\\_1219markets06.html?partner=yahootix](http://www.forbes.com/2006/12/19/video-download-npd-marktes-equity-cx_lh_1219markets06.html?partner=yahootix)

<sup>72</sup> Kevin J. Delaney and Bobby White, Video Surge Divides Web Watchers, Wall Street Journal, Online, at <http://online.wsj.com/article/SB118705221439696600.html>

<sup>73</sup> Id.

<sup>74</sup> Peering Into Video's Future, op. cit..

<sup>75</sup> Michael Calore, P2P-2-ISP Peace Pipe Could Ease Bandwidth Crunch, August 30, 2007, at <http://www.wired.com/software/webservices/news/2007/08/p2p/>

economically efficient to adopt variable pricing technology from Riner Networks that monetizes uses of consumers with different demand priorities.<sup>76</sup> Data swarming may then provide an efficient distribution system only if new technologies and pricing mechanisms emerge to handle bottleneck problems.

## VI. WINDOWING

Related to social networking and advertising, the internet will accommodate the sequential release of content and related material – commonly known as *windowing*. Content owners can generally use windowing to extend the shelf life of movies, programs, and other video releases through several stages of presentation. In addition to widening the tenure of overall audience exposure, windowing allows content owners to institute variable prices for consumers depending on differences in the personal urgency of viewing a particular work. Windowing is particularly appropriate for content industries, where sunk production costs must necessarily be recovered through imaginative marketing of the final product over a sequence of asynchronous platforms.

As the best recent example of windowing on television, the British Broadcasting Company — which is now partially owned (37.5%) by News Corporation — permits its eight million customers to view and exchange files of a show for one entire month after an over-the-air broadcast of the work.<sup>77</sup> For its part, the BBC has opened up 1.2 million hours of historic film now contained in its video archive.<sup>78</sup> The player technology for the BBC is provided by Verisign with a P2P broadband delivery system provided by the recently merged, Kontiki.<sup>79</sup> If the strategy can be extended by other content owners, windowing can facilitate the design of a common video archive that can be financed largely by advertising and other third-party sponsorships, much like first run and syndicated programming now.

In the U.S., NBC and Universal Studios announced plans in November 2005 to make movie and TV content available to file-sharing customers on the Peer Impact network for a twenty-four hour viewing period after primary network view.<sup>80</sup> At AOL Time Warner, a new service, In2TV, now offers a back catalog of popular Warner television shows such as *Welcome Back Kotter*, *Beetlejuice*, *Lois & Clark*, *La Femme Nikita*, and *Growing Pains*.<sup>81</sup> Disney also has implemented a rerun system that combines direct streaming and advertising. In connection with world events, CBSNews.com in July, 2005, introduced

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<sup>76</sup>Peering Into Video's Future, op. cit..

<sup>77</sup>John Borland, BBC's Model for Broadcast, CNET NEWS.COM, Apr. 13, 2005, [http://news.com/Me+TV+NASCAR+pulls+away+in+content/2009-1041\\_3-5646080-2.html](http://news.com/Me+TV+NASCAR+pulls+away+in+content/2009-1041_3-5646080-2.html).

<sup>78</sup> Katya Hoffman, BBC Archive Goes Online, DAILY VARIETY REP., Aug. 14, 2006, <http://www.variety.com>.

<sup>79</sup>Jake Ward, BBC Set To (Finally) Launch iPlayer, July 17, 2007, at <http://www.streamingmedia.com/article.asp?id=9651>

<sup>80</sup>Must P2P TV, NBC File Sharing, DCINFO WKLY. NEWSL., Nov. 21, 2005.

<sup>81</sup> Ed Oswald, AOL Plans P2P Download Service, excerpted from BETANEWS, Mar. 13, 2006, DCINFO WKLY. NEWSL., <http://www.dcia.info>.

The Eyebox, a video window that adds advertising material to on-demand news clips from the CBS television network.<sup>82</sup>

On the music side, the service equivalent to windowing is versioning – the simultaneous offer of different services to people with different tastes. For example, Qtrax now appears to offer the most potentially advanced ad-supported system for introductory fans. The company protects tracks with DRM and allows free plays up to five times. Qtrax has signed distribution deals with all record labels and music publishers, counts a catalog of 20-30 million songs, and plans a launch in October, 2007.<sup>83</sup> Advertising revenue will be split fifty-fifty between Qtrax and the rights owners. As part of the versioning strategy, each listener at Qtrax will have the additional option to purchase songs or subscribe to a premium service that has no advertising. Qtrax's ad-supported music service now joins a competitive service from We7, which provides tracks with targeted advertising and no DRM, along with a paid service for advertising-free upgrade.<sup>84</sup>

## VII. CASUAL GAMES AND ADVERTISING

Another key instrument for rich media advertising is the casual video game, which can now be delivered over digital channels to enable two or more simultaneously connected players to engage one another in interactive play. Topping revenues of \$240 million in 2005, casual games are expected to break \$1 billion of sales revenues by the end of 2008.<sup>85</sup>

Casual video games came to center stage in September, 2005, when News Corporation spent \$650 million to acquire the game properties of IGN Entertainment, which included (i.e., Game Spy, File Planet, Team Xbox, 3D Gamers, Direct2Drive, and GameStats.com).<sup>86</sup> Some 28 million unique users (mostly young men) now view IGN every month, and over 100 million page views are served monthly.<sup>87</sup>

Besides enabling the standard message-based advertising that accompanies the service, video games are particularly powerful instruments for product placement advertising. With placement technology from New York-based Massive, Inc., product developers may create within the game's designated message areas — e.g., billboards, character clothing, dialogue — that can be remotely programmed for any number of days, and

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<sup>82</sup> Rebecca Lieb, CBSNews.com Launches Far-Reaching Ad Network, CLICKZ NEWS, July 12, 2005, <http://www.clickz.com/experts/brand/buzz/article.php/3519471>.

<sup>83</sup> Peter Lauria, TOP MUSIC LABELS BACK QTRAX SWAP SERVICE, New York Post, June 25, 2007, at <http://www.qtrax.com/press/NYPost/FILE-SHARING%20BY%20PETER%20LAURIA%20Business%20News%20Financial%20Business%20and%20Money.htm>

<sup>84</sup> <http://www.we7.com/welcome>

<sup>85</sup> EMI Music Publishing Licenses Qtrax, DCINFO WKLY.NEWSL., Aug. 14, 2006, [http://www.dcia.info/News/newsletter\\_2006-08-14.htm#EMI](http://www.dcia.info/News/newsletter_2006-08-14.htm#EMI).

<sup>86</sup> PlayFirst Partners with Wild Tangent, DCINFO WKLY.NEWSL., Sept. 8, 2005, <http://www.dcia.info>.

<sup>87</sup> News Corporation to Acquire IGN Entertainment, Inc, Sept. 8, 2005, [http://www.newscorp.com/news/news\\_259.html](http://www.newscorp.com/news/news_259.html).

changed from time to time.<sup>88</sup> Messages then may vary by geographic region, season of year, etc.<sup>89</sup> Massive signed contracts in 2005 with the top ten game publishers and major advertisers such as Coca-Cola, Comcast, Dunkin' Donuts, Honda, Intel, Paramount Pictures, T-Mobile, Universal Music Group and Verizon.

The advertising capabilities of online networks will advance yet further in the development of massive multi-player distributed games (or virtual worlds), such as Second Life.<sup>90</sup> Operated by software residing on interconnected servers in California, Second Life now offers to some one million users the potential for virtual engagements that combine problem-solving, cooperation, and competition in gamed situations. In virtual space, users can create second selves called avatars, which can visit, make friends, build homes, buy virtual and real items, and run businesses in online universes. With an intriguing appeal to advertisers, Second Life has sold in-game advertising space and storefronts to some thirty corporate marketers including Sony BMG, Sun Microsystems, Nissan, Adidas, Toyota, and Starwood Hotels., which can sell virtual and real world versions of their products in an electronic shopping mall.<sup>91</sup>

## VIII. VIRTUOUS CYCLES

As the new networks and delivery systems build out, digital technologies will increasingly implicate more interactions among audiences, content producers, equipment manufacturers, and advertisers. The engaged interaction among these parties will produce virtuous cycles of buyer use, equipment purchase, and producer investment. For example, the willingness of any user to access or use capacity on an online network, or to upgrade equipment or service, depends on the anticipated availability of useful content made available by others. This depends on ability of content owners to get paid either directly by users, or through the sale of advertisements and sponsorships.

The deepening synergies between advertising, content, and network build-out bring to mind our previous experience from early television, which found its way in stages to a viable commercial model of free broadcast content supported by advertising. In the first phase of modern television, programming was dominated by live acts — such as Milton Berle's comedy show, professional wrestling, and the children's programs such as *Howdy Dowdy*. Star appeal here was related to the ability to provide unscripted impromptu entertainment. There was here little demand for investment in screenplays, studio sets, and good actors, which no one had the financial ability to provide.

Program screenplays came to the screen as marketers came to sponsor entire programs; soap e.g., manufacturers sponsored soap operas. In the first phase of advertising, Borax famously sponsored *Death Valley Days* and its genial host Ronald Reagan. Nonetheless, programming quality was limited by the amount of money that the show sponsor was

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<sup>88</sup> Id.

<sup>89</sup> Massive.com, <http://www.massive.com> (retrieved Oct. 5, 2005).

<sup>90</sup> Visionary Strategies, <http://www.visionarymms.com> (retrieved Oct. 5, 2005).

<sup>91</sup> Richard Siklos, A Virtual World But Real Money, N.Y. TIMES, Oct. 19, 2006, at C1.

willing to invest in order to put across the entire show.

The modern model for free broadcast television finally emerged in a later phase when advertising agencies enabled television networks to sell off ad spots in the same program to different buyers – an ad for Chevrolet could immediately follow an ad for Borax. With a secure and diversified advertising market, networks then came to invest their resources for better programming, and highly popular shows such as *I Love Lucy*, *The Honeymooners*, and *The Twilight Zone* came into production. Once “in the can”, the most popular first-run series were re-licensed to local stations in syndication markets, where additional advertising dollars were generated. The depth of the content industry then benefited from changes in the advertising technology and marketing institutions. Consumer interest followed the cycle.

Once every household had at least one television, additional channels of financial support became profitable through cable. Content providers were now able to collect both advertising revenues and licensing fees that could be charged to local cable operators, which collected them from subscribers. Other cable providers (e.g. HBO) offered premium service without advertising, while others (Starz) offered pay-per-use related to individual views. These cable channels attracted fewer eyeballs but did generally appeal more directly to niche audiences based on demographics (e.g. MTV for teenagers) and interests (e.g., ESPN for sports fans). Through the creative interaction of institutions, technology, and financing arrangements, television then grew to a highly diversified forum for presentation of low-brow entertainment that is so attractive to the tastes of the American public, and so befuddling to its critics.

In those instances where advertising and networking serve to monetize the production and distribution of media content, it is yet necessary to protect rights of attribution, to bind metadata and advertising messages that must remain fixed with underlying content, and to ensure generally that content is not traded without the appropriate messages provided by the sponsor. This would be true even if the content were funded alone by advertising, and doubly true where material is made available through subscription or pay-per-use. For to do otherwise would vacate the incentives to put content and advertising together, and thus eviscerate the financial support for a growing sector of freely available information.

In these critical respects, digital rights management and related content protection remain as useful aids to prevent against copyright infringement and to maintain alternative business models. With adequate control of access rights to online property, rights owners can enforce *versioning* — the creation of competing service alternatives where protected files can be traded for a unit fee, made available to paying subscribers, temporarily loaned to an introductory user, or streamed free of charge. In addition to content protection, rights owners can use DRM to maintain advertising channels, record consumer information, manage ongoing relationships, and build out networks. Each of these potential uses has the ability to widen revenue streams for particular types of works.

As legitimate rights owners, content owners may then freely choose to relax or enforce different controls with DRM. However, without legal protection for their choices, there is then a very real potential for market harm. This is a different market harm than the presumably measurable displacement of unit sales commonly found in academic literature and legal briefs. Rather, entire business models can be distorted or eliminated if windows and versions are not defended from unauthorized modification or free taking.

## **IX. DRM AND INTEROPERABILITY**

As noted in the introduction, illegal downloads of music tracks continue to dwarf the sales units of the new download and subscription services, such as iTunes, Napster, and Rhapsody. While the market for online services itself is vigorously price-competitive, the slow growth of these legitimate music services now frustrates the recording industry, which has failed to recover considerable amounts of business lost in the past five years to unauthorized file-sharing.

While competing with free is difficult, part of the problem admittedly results from the specific manner in which DRM has been applied in the particular market. In the design of its iPod player, market-dominant Apple now accommodates all unprotected mp3 tracks, as well as DRM-protected songs sold through the company's online iTunes service. However, Apple's iPod device is not now compatible with DRM-protected songs made available from other online music stores, nor can iTunes tracks be used on any other device.

For the foreseeable future, there is no indication that Apple will relax its present restrictions on DRM-compatibility with either iTunes or the iPod, although the company has called upon record label to abandon DRM altogether.<sup>92</sup> Each potential buyer of a download then faces the future possibility that DRM-protected tracks purchased for use with one player will become useless if another player becomes preferred, or the first becomes obsolete.<sup>93</sup> Sales of legitimate tracks from any music store, including the market-leading iTunes, may then be flagging as a consequence.

The evidence seems to confirm this. A study from Jupiter Research also shows that the average iPod owner has stored about 20 tracks (i.e., 5% of total) purchased from iTunes; the rest are from previously owned CDs or file-sharing networks.<sup>94</sup> Indeed, Steve Jobs

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<sup>92</sup>Steve Jobs, Thoughts on Music, February 6, 2007, at <http://www.apple.com/hotnews/thoughtsonmusic/> (retrieved August 28, 2007)

<sup>93</sup>What Steve Jobs's DRM announcement means, February 22, 2007, at [http://www.boingboing.net/2007/02/22/what\\_steve\\_jobss\\_drm.html](http://www.boingboing.net/2007/02/22/what_steve_jobss_drm.html) (retrieved August 28, 2007) . Jupiter Research recently found again that listeners would buy more music without DRM. David Card | Universal Music's DRM-free Experiment Won't Solve Industry Woes, August 13, 2007, at <http://weblogs.jupiterresearch.com/analysts/card>. Finally, Forrester Research found that monthly revenue per iTunes customer fell 65% in 2006. iTunes sales collapsing, at [http://www.theregister.co.uk/2006/12/11/digital\\_downloads\\_flatline/](http://www.theregister.co.uk/2006/12/11/digital_downloads_flatline/)

<sup>94</sup>"iPod fans 'shunning iTunes store', September, 16, 2006, at <http://news.bbc.co.uk/2/hi/technology/5350258.stm>.



himself concurs that the average iPod has only 22 tracks sold from iTunes.<sup>95</sup> Moreover, a full 83% of iPod owners do not purchase digital music regularly,<sup>96</sup> and record label executives themselves have recently come to question the efficacy of DRM.<sup>97</sup>

Two major record companies have offered in 2007 limited access to DRM-free tracks in some apparent effort to jumpstart sales. In April, 2007, EMI began to offer to iTunes customers unprotected tracks with music encoded in higher resolution AAC; the company priced the tracks at \$1.29 per unit, some 30 cents higher than DRM-protected Tunes<sup>98</sup> In August, 2007, the market-leading Universal Music Group began experimental sales of unprotected MP3 tracks priced at 99 cents per unit to users at Amazon, Wal-Mart, Rhapsody, Google, Best Buy, Trans World Entertainment, PassAlong Networks, and Puretracks. MP3 tracks from UMG are playable on any device compatible with the MP3 format, including iPods.<sup>99</sup>

The marketing difficulty for the record industry results because complementary rights are separately controlled by the record label and the service operator (e.g, UMG and Apple). We have then an example of a market equilibrium where the “invisible hand” fails to point private parties to pursue the most efficient market outcome. By acting as a brake upon consumer purchases of online music tracks, the DRM impasse has apparently delayed the uptake of a virtuous cycle between digital distribution and content production at the label. To no practical avail, major content owners and technology companies have tried to circumvent these problems by coming forth with a standards interface -- Coral -- that any service provider may use in a manner to accommodate compatibility among different DRMs.<sup>100</sup>

Besides device incompatibility, additional problems result in the music industry for two reasons. First, buyers of streaming services (such as Rhapsody and Yahoo) may fear that monthly payments at a subscription service will be lost if they drop a service for a rival; consumer acceptance of the streaming service is then deterred. This problem for the labels could be resolved if competing services would agree to standards to memorialize a subscriber’s history and thus provide to new providers converted playlists should a customer cross over.

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<sup>95</sup>Id.

<sup>96</sup>Id.

<sup>97</sup> Jupiter found in February, 2007 that 58% of large label executives and 73% of non-label executives felt that dropping DRM would boost record sales. Music execs criticise DRM systems, February 15, 2007, at <http://news.bbc.co.uk/1/hi/technology/6362069.stm>.

<sup>98</sup>Caroline McCarthy, EMI, Apple partner on DRM-free premium music, CNET News.com, April 2, 2007 1 at [http://news.com.com/EMI,+Apple+partner+on+DRM-free+premium+music/2100-1027\\_3-6172398.html](http://news.com.com/EMI,+Apple+partner+on+DRM-free+premium+music/2100-1027_3-6172398.html). (retrieved August 31, 2007)

<sup>999</sup>Jeff Leeds, Universal Music Will Sell Songs Without Copy Protection, New York Times, August 10, 2007, <http://www.nytimes.com/2007/08/10/business/10music.html?ex=1188878400&en=3e85a94edcee43c3&ei=5070> (retrieved August 31, 2007)

<sup>100</sup><http://www.coral-interop.org/>.

Finally, streaming services do not have rights to some material in publisher catalogs because labels and publishers are tied up on contracts and legal arguments for defining relevant rights. The limited catalog for streaming now contrasts with download services (e.g., iTunes), which were guaranteed access to all prerecorded works when Congress in 1995 established statutory royalties for the permanent download.<sup>101</sup> By the count of the Digital Media Association, subscription services are unable to stream some 50 percent of the compositions that its members now seek.<sup>102</sup> Indeed, senior executives of three online music services – RealNetworks, Napster and Sony Connect – agreed that licensing difficulties – not piracy – represented their single biggest business problem that limits the uptake of their subscription services.<sup>103</sup> The problem is then exacerbated by the present incapacity of the industry to move past the legal constructions of copyright, as enacted and extended in legislation aimed ironically to jumpstart the licensing process.

## X. CONCLUSION

Modern markets move forward by negotiations as much as the unit exchange of produced goods. There is then no reason to perceive an artificial choice between polar systems of property rights mediated by pay-per-use transactions and of centralized direction mediated by government rule-making. Market resolutions would include the development of accommodative procedures — such as blanket licenses, advertising revenues, service versions, and free goods — particularly when transaction costs of using bilateral exchange are prohibitive.

Related to this idea is the “new institutional economics,” which seeks to describe how private institutions form and evolve in the for-profit sector. Over time, economists — such as Ronald Coase, Oliver Williamson, and Andreas Papandrea — came to understand how different organizational modes may overcome informational limits to deal transaction, result monitoring, and rule enforcement. It is the related abilities of these institutions to adapt, and of the system to sort out the adapters, that completes the evolution of a complex economic system.

From an economic perspective, property rights in intellectual property are properly viewed as legal grants that enable the social governance of a controlled spectrum ranging from unalloyed markets to government control. Through a diverse collection of institutions and procedures, market agents along the spectrum may come to understand

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<sup>101</sup>DIGITAL PERFORMANCE RIGHT IN SOUND RECORDINGS ACT OF 1995, 109 STAT. 33]]  
Public Law 104-39, encoded at 17 U.S.C. ¶115 , <http://www.copyright.gov/legislation/pl104-39.html>

<sup>102</sup> J. Potter, Testimony, Oversight Hearing on "Digital Music Licensing and Section 115 of the Copyright Act." United States House of Representatives Subcommittee on Courts, the Internet and Intellectual Property, Committee on the Judiciary, March 8, 2005, <http://judiciary.house.gov/OversightTestimony.aspx?ID=300>

<sup>103</sup>Id.

the contours of the imperfectly known domain that they have come to share. With stepwise advance, agents can establish and reexamine objectives and balance and adjust to offsetting goals.

The wider array of decision points in an open market has more opportunities to collect and act on diffuse bits of specific information, more capabilities to test new positions, and more potential channels to receive feedback. Parties may also devise new market procedures and form limited collective oversight of pooled resources to accommodate adoptable operating and investment rules on an ongoing and “catch as catch can” basis.<sup>104</sup>

Nonetheless, there is no assurance that every market-based decision will lead to an optimal solution or a virtuous cycles. Market lock-in can occur when consumers anticipate that investment decisions will trap them. At this point, negotiations or standardizations are to be strongly encouraged. If such efforts fail, the market will have enough resilience to adapt in some manner, although not one that is necessarily ideal.

## ABOUT THE AUTHOR

**Michael A. Einhorn** ([mae@mediatechcopy.com](mailto:mae@mediatechcopy.com), <http://www.mediatechcopy.com>) is an economic consultant and expert witness active in the areas of intellectual property, media, [entertainment](#), damage valuation, licensing, antitrust, personal injury, and commercial losses. He received a Ph. D. in economics from Yale University. He is the author of the book *Media, Technology, and Copyright: Integrating Law and Economics* ([Edward Elgar Publishers](#)), a Senior Research Fellow at the [Columbia Institute for Tele-Information](#), and a former professor of economics and law at Rutgers University. He has published over seventy professional and academic articles and lectured in Great Britain, France, Holland, Germany, Italy, Sri Lanka, China, and Japan.

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](#).

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<sup>104</sup> See Charlotte Hess & Elinor Ostrom, Ideas, Artifacts, and Facilities: Information as a Common-Pool Resource, 66 LAW & CONTEMP. PROBS.111, available at <http://www.law.duke.edu/journals/lcp/articles/lcp66dWinterSpring2003p111.htm>; Siegfried V. Ciriacy-Wantrup & Richard C. Bishop, “Common Property” as a Concept in Natural Resource Policy, 15 NAT. RESOURCES J. 713, 715 (1975). This does not imply that all potential users of a common pooled resource have equal rights of access, usage, management, and withdrawal, nor that all such transactions involving such a resource are necessarily free. Common pooled resources should not then be confused with Lessig’s open access domains: “a part of our world, here and now, that we all get to enjoy without the permission of any.” LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE 134 (1999).

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 Zooey Deschanel, Arnold Schwarzenegger, Rosa Parks, Diane Keaton, Michelle Pfeiffer, Yogi Berra, Melina Kanakaredes, Woody Allen, and Sandra Bullock.

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*This biography is also available at <http://www.jurispro.com/MichaelEinhorn>*