

# SCREENING THE SCREENERS

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“The general public wants digital information to be free, but those who create it are less sure.”<sup>1</sup>

## I. INTRODUCTION

Piracy of movie content has been described by the Motion Picture Association of America (MPAA) as “a malignant fungus on the face of the industry.”<sup>2</sup> Research has determined that industry insiders are the source of most pirated content.<sup>3</sup> It turns out that much of the higher quality content pirated by these insiders originates from promotional “screeners.”<sup>4</sup> In an attempt to stop this source of pirated content, the MPAA banned the release of screeners during the fall of 2003.<sup>5</sup> Discontent from within the movie

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<sup>1</sup> Joan Van Tassel, *The Hack Factor*, 370 *Hollywood Rep.—Intl. Ed.* 34 (Oct. 2001) (discussing content security in the digital cinema industry).

<sup>2</sup> *Antidote Intl. Films v. Mot. Picture Assn. of Am.*, No. 03CV9373, slip op. at 261 (S.D.N.Y. Dec. 5, 2003) (quoting Jack Valenti, president of the MPAA).

<sup>3</sup> Simon Byers, Lorrie Cranor, Eric Cronin, Dave Kormann & Patrick McDaniel, *Analysis of Security Vulnerabilities in the Movie Production and Distribution Process*, <http://lorrie.cranor.org/pubs/drm03-tr.pdf> (Sept. 13, 2003) (presented at The 31st Research Conference on Communication, Information and Internet Policy, Sept. 19-21, 2003 in Arlington, VA).

<sup>4</sup> John Schwartz, *In Chasing Movie Pirates, Hollywood Treads Lightly*, *N.Y. Times* C1 (Dec. 25, 2003) (noting that “screener” discs, source of the freshest content found on the Internet, are distributed during the awards season).

<sup>5</sup> MPAA: Jack Valenti Press Releases, *Film Studios Announce End to Award Screeners: Measure Taken to Combat Piracy*, [http://mpaa.org/jack/2003/2003\\_09\\_30a.htm](http://mpaa.org/jack/2003/2003_09_30a.htm) (Sept. 30, 2003) (banning screeners is one of the efforts being taken by the MPAA to combat piracy).

industry against the ban led to a new decision by the MPAA to allow the release of “watermarked” screeners on VHS tapes to members of the Academy of Motion Picture Arts and Sciences (the Academy).<sup>6</sup> Finally, a District Court judge lifted the ban altogether.<sup>7</sup> However, most of the studios followed the MPAA decision.<sup>8</sup> When several screeners showed up on the Internet, the studios were able to use watermarks to determine the source of the pirated screeners.<sup>9</sup>

This paper looks at watermarking from a legal perspective as a means of protecting copyrighted movie content. Sections II and III of this paper discuss the content piracy problem and the technological measure of watermarking content. Sections IV to IX of this paper look at how the combination of watermarking and the legal system can be an effective tool to protect digital movie content such as screeners. Finally, Section X introduces the concept of a temporally threaded watermark designed to provide copyright owners with yet another stick to help them in their battle to protect digital copyrighted content.

## II. THE MOVIE PIRACY PROBLEM

The movie industry is big business.<sup>10</sup> Core copyright industries generate five percent of the United States (U.S.) Gross Domestic Product.<sup>11</sup>

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<sup>6</sup> See MPAA: Jack Valenti Press Releases, *MPAA, Academy Announce Plan to Reinstitute Awards Screeners*, [http://mpaa.org/jack/2003/2003\\_10\\_23.htm](http://mpaa.org/jack/2003/2003_10_23.htm) (Oct. 23, 2003) (characterizing this plan as a “one-year experiment”) [hereinafter *Reinstitute Awards*].

<sup>7</sup> *The Year in Review: DVD Report's Top 10 Stories*, 9 DCD Business Report 1, <http://www.pbimedia.com/cgi/catalog/sample?DVD> (Jan. 5, 2004) (citing a New York district judge’s ruling “that, as a trade association, the MPAA had no business dictating the competitive decisions that its members could or couldn’t make”).

<sup>8</sup> Sharon Waxman, *While They Can, Studios Rush to Send Videos to Oscar Voters*, N.Y. Times E1 (Dec. 9, 2003) (discussing that partially because of a lack of time, the major studios did not send out extra screeners even though the New York district judge’s decision allowed them to).

<sup>9</sup> See Patrick Day, *Oscar Copy Found on eBay*, L.A. Times C2 (Jan. 15, 2004) (identifying the source of the screener using “[s]ecurity features on the tape”).

<sup>10</sup> See National Association of Theater Owners, *Encyclopedia of Exhibition* 240-56 (Jim Kozak ed., 2002) (citing numerous statistics derived from the Census Bureau, the United Drive-in Owners Association and the Bureau of Labor Statistics showing how large the theater industry is).

<sup>11</sup> MPAA: Jack Valenti Press Releases, *Oh, to Have the Visionary Gifts of Ninon de Lenclos!*, [http://www.mpaa.org/jack/2002/2002\\_09\\_25.htm](http://www.mpaa.org/jack/2002/2002_09_25.htm) (Sept. 25, 2002) (Jack

In 2001, American consumers spent \$8.4 billion to watch over 480 new releases on over 35,000 screens.<sup>12</sup> Outside the U.S., theatrical movie performances brought in over \$11 billion.<sup>13</sup> Approximately 4,000 titles have been released so far on the digital DVD format.<sup>14</sup> On average, each of these movies cost over \$80 million to create and market.<sup>15</sup>

The movie studios have said repeatedly that “[i]f you cannot protect what you own, you don’t own anything.”<sup>16</sup> The industry feels besieged by content piracy, which is the unauthorized use or reproduction of analog or digital copyrighted material.<sup>17</sup> The movie studios allege that over \$3.5 billion a year is lost to piracy of movie content on physical media such as VCR

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Valenti’s address to the Merrill Lynch Business Conference, making a point of how important the copyright business is to the U.S. economy).

<sup>12</sup> See National Association of Theater Owners, *supra* n. 10, at 258-59 (reciting statistics for the years 1987 to 2001 relevant to theater owners collected from a multitude of sources including: the Motion Picture Association of America, the Census Bureau, the United Drive-in Owners Association and private research firms).

<sup>13</sup> See *id.* at 264 (derived from a table of box office sales for fifty-eight individual countries created by Dodona Research).

<sup>14</sup> *321 Studios v. Metro-Goldwyn-Mayer Studios, Inc.*, No. CV-02-01955, Ans. to 1st Amend. Compl. & Counterclaim at 13 (N.D. Cal. filed Apr. 22, 2002) (making a case that over one million DVDs are sold daily making the possible harm to the movie industry due to pirated DVD titles very large) [hereinafter *321 Answer*]; see Jim Taylor, *DVD Demystified 2* (McGraw Hill 1997) (defining DVD as either “digital video disc” or “digital versatile disc . . . depending on whom you ask.”).

<sup>15</sup> MPAA, *Anti-Piracy*, <http://mpaa.org/anti%2Dpiracy/content.htm> (accessed Feb. 15, 2005) (summarizing the economics of the film industry as part of a discussion on losses to the film industry due to piracy) [hereinafter *MPAA Anti-Piracy*].

<sup>16</sup> MPAA: Jack Valenti Press Releases, *If You Cannot Protect What You Own, You Don’t Own Anything!*, [http://mpaa.org/jack/2002/2002\\_02\\_28b.htm](http://mpaa.org/jack/2002/2002_02_28b.htm) (Feb. 28, 2002) (reporting to the Senate Committee on Commerce, Science and Transportation about the film industry’s piracy problem).

<sup>17</sup> John Fithian, *The Great Movie Piracy Conundrum*, 2 In Focus, <http://www.infocusmag.com/02November/prezdesk.htm> (Nov. 2002) (pointing out that the MPAA “has dedicated more of its financial and human resources to combat piracy than to address any other policy issue”). With regard to the definition of piracy, see *Merriam-Webster’s Collegiate Dictionary* 885 (10th ed., Merriam-Webster, Inc. 1995) (defining piracy as “the unauthorized use of another’s production, invention, or conception esp. in infringement of a copyright”); see also *Black’s Law Dictionary* 482 (Bryan A. Garner ed., pocket ed., West 1996) (defining piracy as “[t]he unauthorized and illegal reproduction or distribution of materials protected by copyright, patent, or trademark law”).

tapes and DVDs.<sup>18</sup>

Before electronic home recording capabilities were available, hard distribution on physical media represented the largest source of pirated content.<sup>19</sup> The “old fashioned copyright pirate[s]” who performed this type of piracy were easy to locate and prosecute because of the large-scale facilities they required.<sup>20</sup> In addition, making copies of older analog content was time-consuming and often suffered from copy degradation.<sup>21</sup> Today, “modern pirate[s]” are much harder to catch because they can easily and inexpensively copy digital content thousands of times without any degradation of quality using smaller relocatable devices.<sup>22</sup>

Peer-to-peer networking over broadband is currently causing an even larger problem for content owners.<sup>23</sup> Digital content may now be distributed around the world in minutes using broadband connections.<sup>24</sup> The government wants to promote broadband in the economic interest of the country.<sup>25</sup>

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<sup>18</sup> MPAA: Jack Valenti Press Releases, *Thoughts on the Digital Future of Movies, The Threat of Piracy, The Hope of Redemption* (available at <http://www.mpaa.org/jack> (accessed Mar. 31, 2005)) (explaining to the Permanent Subcommittee on Investigations Senate Committee on Governmental Affairs the scope of piracy’s effect on the economics of the movie industry).

<sup>19</sup> James Lardner, *Fast Forward: A Machine and the Commotion It Caused* 114 (rev. ed., Pierce Law 2002) (describing how technology has enabled the modern pirate to more easily copy and distribute copyrighted materials).

<sup>20</sup> *Id.* (pointing out that the “old fashioned copyright pirate” needed large facilities in which to base his/her copyright infringement activities).

<sup>21</sup> *Id.*

<sup>22</sup> *Id.*; see 321 Answer, *supra* n. 14, at 16 (explaining that the modern pirate uses current equipment such as recorders, computers, and copiers).

<sup>23</sup> U.S. Dept. of Commerce, Technology Administration, *Understanding Broadband Demand Digital Rights Management Workshop*, [http://www.technology.gov/reports/TechPolicy/p\\_DRM-020717.htm](http://www.technology.gov/reports/TechPolicy/p_DRM-020717.htm) (July 17, 2002) (arguing that eight to fifteen thousand motion picture titles being downloaded on the Internet makes a good case for broadband digital rights management (DRM)).

<sup>24</sup> MPAA: Jack Valenti Press Releases, *Valenti Testifies to Studios’ Desire to Distribute Movies Online To Consumers* (available at <http://www.mpaa.org> (accessed Mar. 31, 2005)) (explaining the difficulties a legitimate business has operating in a lawless environment) [hereinafter *Valenti Testifies*]; see also *eBay Blocking Items for Sale That Infringe on Copyrights*, *Newsday* A54 (Mar. 1, 2001) (enumerating content as including movie, music, software and other copyrighted materials).

<sup>25</sup> U.S. Dept. of Commerce, Office of Technology Policy, *Understanding Broadband Demand*, [http://www.technology.gov/reports/TechPolicy/Broadband\\_020921.pdf](http://www.technology.gov/reports/TechPolicy/Broadband_020921.pdf) (Sept. 23, 2002) (seeing broadband as “the next phase in the evolution of the Internet” because

However, peer-to-peer networks using broadband connections enable computer users to quickly and efficiently search thousands of other computers for content to download illegally.<sup>26</sup> It is estimated that in 2002, this kind of illegal downloading of movies in the digital format occurred 400,000 to 600,000 times a day.<sup>27</sup>

Consequently, the studios are concerned that inexpensive pirated content will drive out the legitimate market for movie content.<sup>28</sup> To make things worse, high profits due to the decreased costs of blank optical discs are now attracting violent criminals into the piracy business.<sup>29</sup>

The closely related audio entertainment industry has already suffered great business losses after failing to define and implement a secure digital audio format.<sup>30</sup> Creating new technologies to reverse this trend has proven extremely difficult.<sup>31</sup> Unlike the audio entertainment industry, however, the video entertainment industry is still developing their next generation high-definition video content and digital distribution standards.<sup>32</sup> In order to

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of facts such as “President Bush has instructed his Administration to be aggressive about the deployment of broadband”).

<sup>26</sup> Will Knight, *Rewiring File Sharing Networks May Stop Attacks*, <http://www.newscientist.com/article.ns?id=dn3037> (Nov. 2, 2002) (explaining that peer-to-peer networks may need to be redesigned to protect against attacks from copyright owners intent upon disrupting networks used for piracy).

<sup>27</sup> See Andrew C. Frank, *The Copyright Crusade II 2*, [http://www.viant.com/pages2/downloads/innovation\\_copyright\\_2.pdf](http://www.viant.com/pages2/downloads/innovation_copyright_2.pdf) (last modified May 30, 2002) (presenting highly quoted original research into the potential impact of Internet file sharing capabilities on the business models of copyright owners and holders) (in author’s file).

<sup>28</sup> See *Valenti Testifies*, *supra* n. 24 (describing how time is not on the side of the movie industry to stop consumer copying when movie download times are expected to decrease to only forty-five seconds in the next generation of broadband).

<sup>29</sup> See The Associated Press, *CD Counterfeiters Now Target of Violent Robbers*, *Chattanooga Times Free Press* C5 (Nov. 23, 2002) (describing a recent incident where two people were shot in New York City at a bootleg video business).

<sup>30</sup> See Fithian, *supra* n. 17 (discussing the music recording industry’s losing battle against piracy using only legal and legislative tools to fight piracy); see also Jessica Litman, *Digital Copyright* 155-56 (Prometheus Books 2001) (discussing how the recording industry was unsuccessful in even defining a secure audio standard through their Secure Digital Music Initiative (SDMI) consortium).

<sup>31</sup> See MSNBC, *High-Definition Music Has Arrived*, <http://www.msnbc.msn.com/id/3078321> (Sept. 20, 2003) (reviewing several new audio optical disc formats that have not yet been accepted by the consuming public).

<sup>32</sup> See *Movie Studios Join Forces to Develop Digital Cinema*, *The Orange County Register*, OC Region (Apr. 3, 2002) (describing how the major studios are forming a new joint venture to set new standards for digital content that will protect films from piracy).

“avoid the fate of the music industry,” the video entertainment industry is currently taking the initiative to develop new anti-piracy technologies (such as watermarking) that can still be incorporated into multimedia standards before the video piracy problem becomes irreversible.<sup>33</sup>

Many consumers have an expectation of immediate and free access to information, including creative works.<sup>34</sup> Over the past several years, consumers have become quite comfortable with downloading and sharing audio files.<sup>35</sup> It is natural for them to expect that they can also make personal copies of movies in the same way.<sup>36</sup> In fact, many consumers are now building large libraries of video content for personal use.<sup>37</sup>

Recent illegal copying activity demonstrates the desire of consumers for access to inexpensive digital content.<sup>38</sup> Nevertheless, content owners want to receive reasonable compensation for their creative efforts.<sup>39</sup> To this

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<sup>33</sup> Ellen McCarthy, *Reston Firm Sees Future in Fighting Movie Piracy*, The Washington Post E1 (Sept. 25, 2003) (quoting Ronald C. Wheeler, senior vice president of content protection for Fox Entertainment Group, discussing why Dolby Labs' acquisition of cinema security firm CINEA will be good for the film industry); see *No Agreement on Control of Digital Content*, Screen Digest 163 (David Fisher ed., June 2002) (noting the work being done among content providers, studios, and technology companies to select technologies to protect digitally broadcast content).

<sup>34</sup> See generally Tassel, *supra* n. 1, at W-20 (relating the expectations between consumers and providers of content in the digital age).

<sup>35</sup> See Brad Stone, *Singing a New Tune?*, Newsweek 9 (Sept. 23, 2002) (writing that the Justice Department estimates that seventy million Internet users have downloaded copyrighted songs off peer-to-peer networks); see also Kevin Washington, *LOCKDOWN! Digital Content: The Entertainment Industry's Efforts to Prevent Copying and Sharing Music and Video Online Has Some Worried About Infringement of Consumers' Rights*, Baltimore Sun 11C (Sept. 12, 2002) (noting that “millions of users are now accustomed to online music-sharing—most of which is illegal”).

<sup>36</sup> See Pamela Samuelson, *Digital Media and the Law*, 34 Commun. of the ACM 23 (Oct. 1991) (remarking on the widespread perception after the Sony Betamax case that making copies for personal use is lawful).

<sup>37</sup> Wilson Rothman, *I Don't Rent. I Own.*, N.Y. Times G1 (Feb. 26, 2004) (presenting examples of consumers who are actively developing very large video libraries and new 300- and 400-disc DVD changers on the market to support these consumers).

<sup>38</sup> See *Consumer Broadband and Digital Television Promotion Act*, Sen. 2048, 107th Cong. § 2(6) (Mar. 21, 2002) (including findings to support a case for government mandated copy protection measures).

<sup>39</sup> See Rep. Richard Boucher, Speech, *Congressman Boucher's New American Foundation Speech On Fair Use Rights* (May 10, 2002), <http://www.house.gov/boucher/docs/fairusespeech.htm> (accessed Feb. 28, 2004) (stating “as an incentive for the future creation of original works . . . I am a strong defender of . . . individuals who have created

end, the movie studios use carefully scheduled “distribution windows” to help them obtain this compensation.<sup>40</sup> Controlling pirated copies of their digital content assist the studios in enforcing these “distribution windows” and maximizing their profitability.<sup>41</sup> In spite of their current efforts to control their digital content, most pirated copies are now reaching the black market within days of the theatrical release.<sup>42</sup> With the help of insiders, some of these pirated copies are even making it to the black market before the theatrical release.<sup>43</sup>

The movie industry is committed to the continued pursuit of a multilateral approach to protect their content, including the use of judicial, legislative, educational and technological measures.<sup>44</sup> The studios have tried multiple solutions to control their content with little success so far.<sup>45</sup> Now the movie industry is working on new solutions that use watermarks in

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that work to receive fair compensation . . . for the creativity that they have demonstrated”).

<sup>40</sup> Stanford L. Levin, John B. Meisel & Timothy S. Sullivan, *The Impact of the Internet on the Law and Economics of the United States Motion Picture Industry* 2-6, <http://www.siue.edu/BUSINESS/econfin/papers/Internet%20paper%20on%20Motion%20Picture%20Industry.doc> (Jan. 30, 2003) (explaining release windows allow the studios to price discriminate); MPAA Anti-Piracy, *supra* n. 15 (explaining that studios try to recoup their costs in the theater before releasing content to the home viewing market).

<sup>41</sup> See World Airline Ent. Assn., *WAEA Specification 0598 DVD Delivery for In-Flight Entertainment Ver. 1.0* 11, [http://www.waea.org/tech/techspecs/WAEA\\_Spec0598v10.doc](http://www.waea.org/tech/techspecs/WAEA_Spec0598v10.doc) (Oct. 24, 2000) (defining early window content as feature films “released in limited markets . . . deemed by content owners as requiring a high level of protection”).

<sup>42</sup> Andrew Tilghman, *DVD Black Marketers Grow Bolder, Police Say*, *The Houston Chronicle* A37 (Dec. 26, 2003) (relating that undercover officers in Houston are now making arrests of persons selling bootleg movies while they are playing in local theaters).

<sup>43</sup> See Jon Healey, *Secret Movie Moguls*, *L.A. Times* A1 (Jan. 7, 2004) (explaining how “ripping” or “release” groups use insiders in a race to get the best version of an unreleased movie posted on the Internet. The groups are explicitly uninterested in selling their pirated content and instead they are “in favor of giving free access to anything and everything).

<sup>44</sup> See Tassel, *supra* n. 1 (stating that if content is not provided for free, then it must be protected using both legal and technological actions); see also Fithian, *supra* n. 17, at 13 (enumerating the many legal actions taken by content owners against those it suspects of dealing in pirated movie signals and bills proposed in Congress to stem piracy).

<sup>45</sup> *Valenti Testifies*, *supra* n. 24 (reciting three fronts used in protecting digital content including the courts, “promoting legitimate alternatives” to piracy, and using technological protective measures); Samuelson, *supra* n. 36, at 25 (noting that early control, such as shrink wrap licenses, were mostly ignored by consumers and other copy control methods interfered with legitimate use).

combination with copyright law to deter the theft of their screeners.<sup>46</sup>

### III. COPYRIGHT LAWS PROTECT MOVIE CONTENT

Piracy of authored works is not new and was noted as early as 1695 in England after a grant of an economic monopoly over printed materials to the Stationers Company lapsed.<sup>47</sup> In response to this piracy problem, the English parliament passed the Statute of Anne.<sup>48</sup> The founding fathers of the U.S., aware of this problem, gave Congress the power “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”<sup>49</sup> In 1790, Congress, using the English Statute of Anne as a model, gave authors the right to control their own writings with the passage of the first U.S. copyright law.<sup>50</sup>

Copyright laws have been adapted several times since 1790 to protect creative works from copying due to advances in technology.<sup>51</sup> In 1912, Congress expanded copyright protection to “motion pictures” because Congress determined that “the money invested therein is so great and the property rights so valuable.”<sup>52</sup> These laws now give the owners of movie content exclusive rights over their works.<sup>53</sup>

In 1998, Congress gave the movie industry new tools to fight piracy when it enacted the Digital Millennium Copyright Act (“DMCA”).<sup>54</sup> The

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<sup>46</sup> See Ben Fritz, *Studios Sleuths Hot On Pic Pirates' Trail*, Variety 9 (Mar. 22, 2004) (describing how the studios use watermarks to collect data that is then used by law enforcement to prosecute pirates for copyright infringement).

<sup>47</sup> Lardner, *supra* n. 19, at 108 (noting the effect of the stationer’s loss of control over “all the literature of England”).

<sup>48</sup> *Id.* at 109 (providing authors for the first time significant control over their writings).

<sup>49</sup> U.S. Const. art. I, § 8, cl. 8; see Peter Coffee, *Copyright Is Only a ‘Right’ for a Reason*, EWeek 45, [http://www.eweek.com/print\\_article2/0,2533,a=36559,00.asp](http://www.eweek.com/print_article2/0,2533,a=36559,00.asp) (Feb. 3, 2003) (noting that this is the only clause in the constitution that states a reason for the power it grants).

<sup>50</sup> Lardner, *supra* n. 19, at 108 (describing the history of copyright law in the U.S.).

<sup>51</sup> *Id.* at 112 (reciting advances in technology that made copying of content easier such as: the printing press, lithography, photography, player pianos, phonographs and movies).

<sup>52</sup> *Id.* at 113 (explaining this copyright protection was a deliberate attempt to balance an incentive to produce content versus the benefit to the public to have the content).

<sup>53</sup> 17 U.S.C. § 102(a)(6) (2000) (listing “motion pictures and other audiovisual works” as an enumerated category of copyright subject matter).

<sup>54</sup> H.R. 2281, 105th Cong. (Oct. 28, 1998) (enacted).

DMCA may be used against pirates who interfere with watermarks.<sup>55</sup> This Act was passed in part to implement the World Intellectual Property Organization (WIPO) Copyright Treaty [hereinafter WIPO Treaty].<sup>56</sup> The WIPO Treaty recognizes “the fact that in the digital age, authors must employ protective technologies in order to prevent their works from being unlawfully copied or exploited.”<sup>57</sup> The purpose of the WIPO Treaty was to introduce new international copyright rules to address issues “raised by new economic, social, cultural and technological developments.”<sup>58</sup> Article 11 of the WIPO Treaty recognizes the right of the movie industry to use technology to protect their content by requiring contracting members to provide legal protections and remedies against circumvention of copy protection measures (such as watermarks) used by content owners.<sup>59</sup>

The DMCA was highly supported by “most large copyright holders”<sup>60</sup> but opposed by many academics and open-source advocates.<sup>61</sup> Hollywood successfully lobbied for very broad anti-circumvention

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<sup>55</sup> See 17 U.S.C. § 1201 (protecting against the “[c]ircumvention of copyright protection systems”); *id.* at § 1202 (protecting the “[i]ntegrity of copyright management information”).

<sup>56</sup> *Universal City Studios, Inc. v. Corley*, 273 F.3d 429, 440 (2d Cir. 2001) (reviewing the influence of the WIPO Treaty on the creation of the DMCA) [hereinafter *Corley*]; see Litman, *supra* n. 30, at 128-29 (detailing how adoption of the WIPO Treaty was the result of Patent Commissioner Bruce Lehman presenting a draft treaty to WIPO that mirrored copyright legislation that he could not get the U.S. Congress to pass).

<sup>57</sup> *U.S. v. Elcom Ltd.*, 203 F. Supp. 2d 1111, 1119 (N.D. Cal. 2002).

<sup>58</sup> *WIPO Copyright Treaty, adopted by the Diplomatic Conference on Certain Copyright and Neighboring Rights Questions on Dec. 20, 1996*, preamble (Dec. 23, 1996) (available at <http://www.wipo.int/documents/en/diplconf/distrib/94dc.htm> (accessed Mar. 31, 2005)).

<sup>59</sup> *Id.* at art. 11. Article 11 provides:

Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.

<sup>60</sup> Declan McCullagh, *Congress to Take on Spam, Copyright*, [http://news.com.com/2102-1023\\_3-979623.html](http://news.com.com/2102-1023_3-979623.html) (Jan. 8, 2003) (commenting on how the DMCA has galvanized groups both in support and against it).

<sup>61</sup> See Pamela Samuelson, *Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulations Need to Be Revised*, 14 Berkeley Tech. L.J. 519, 522 (1999) (contending that the Congressional battle over the anti-circumvention provision of the DMCA was fought “between Hollywood and Silicon Valley”).

legislation subject to specific exceptions lobbied for by Silicon Valley technology firms.<sup>62</sup>

#### IV. FORENSICALLY WATERMARKED SCREENERS

"Screeners" are copies of movies used to promote films.<sup>63</sup> These screeners enable members of the film industry to view movies without having to go to a theater.<sup>64</sup> There are two types of screeners: "promotional screeners" and "award screeners."<sup>65</sup> Promotional screeners promote retail releases of films to retailers and news organizations.<sup>66</sup> "Award screeners" promote films to members of film award organizations.<sup>67</sup> The Studios believe that screeners are a major source of the high quality pirated content made available before and during a movie's early release window.<sup>68</sup>

In the past, content owners have threatened to withhold new content from new technologies they believe pose a piracy threat to their content unless methods of copy protection directed towards the new technology are developed and deployed.<sup>69</sup> Because new technologies were making it too

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<sup>62</sup> *Id.* at 522-24 (discussing the legislative battle in Congress surrounding the implementation of the WIPO Copyright Treaty. The Silicon Valley firms supported outlawing circumvention "for the purpose of infringing copyrights" but were concerned that the DMCA would affect their ability to perform vital tasks such as reverse engineering, security testing, and encryption research.).

<sup>63</sup> *Antidote Intl. Films*, No. 03CV9373, Pl.'s Compl. at 19 (defining "screeners" as "promotional copies, in DVD or videotape format, of movies that are sent out by distributors for a variety of marketing purposes").

<sup>64</sup> Tom Long, *Award Shows Go Separate Ways; Oscars and Golden Globes Usually Mirror Each Other—But Not This Year*, *The Det. News* 1D (Jan. 24, 2004) (stating that independent films which are not "readily available in theaters" use screeners to develop an audience).

<sup>65</sup> *Antidote Intl. Films*, No. 03CV9373, slip op. at 235-36 (distinguishing the different common practices regarding the use of screeners).

<sup>66</sup> *Id.* at 236 (sending screeners as marketing tools to retail purchasing agents and media movie critics for review in advance of release increases movie sales).

<sup>67</sup> *Id.* (sending screeners to members of various motion picture industry award groups prior to annual awards increases a movies chances of winning an award).

<sup>68</sup> See Claude Brodesser, *Many Piracy Problems Start on the Inside*, *Variety* 13 (Dec. 8, 2003) (quoting a major studio executive: "Last year we'd see award screeners go out, and literally four days later we'd see pristine copies coming back from Southeast Asia.").

<sup>69</sup> See *Consumer Broadband and Digital Television Promotion Act*, Sen. 2048, 107th Cong. at § 2 (finding by Congress that there is a "lack of high quality digital content" for

easy for pirates to copy and distribute screeners, many of the studios cut back on the use of “promotional screeners.”<sup>70</sup> However, the industry seemed unwilling to stop using “awards screeners” since they were too important to the success of a film.<sup>71</sup> When the MPAA tried to ban screeners in the fall of 2003, a group of independent filmmakers successfully fought off the ban.<sup>72</sup> During the struggle with the independent filmmakers over the ban, the MPAA admitted that because of the importance of screeners to the success of a film, it is likely that its own members would have eventually broken the ban.<sup>73</sup>

On October 23, 2003, the MPAA announced that they would reinstitute awards screeners.<sup>74</sup> The awards screeners, however, were only released to members of the Academy in the low-resolution non-digital videocassette format.<sup>75</sup> Each Academy member was required to sign a contract stating they would take full responsibility for screeners they received.<sup>76</sup> According to the screener contracts, the punishment for allowing a screener to be pirated included “immediate expulsion” from the Academy.<sup>77</sup> These contract law restrictions were combined with technological measures

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broadband and that content owners are reluctant to release content without a mandatory deployment of copy protection technology).

<sup>70</sup> See Jennifer Netherby, *Universal Tightens Up Screener Policy; No More Advance DVDs to Retailers, Media in Latest Anti-Piracy Measure*, Video Bus. 1 (Nov. 10, 2003) (announcing that retailers will no longer receive screeners prior to a movie’s home release date).

<sup>71</sup> See Jake Brooks, *The Man Who Beat Valenti*, N.Y. Observer 1 (Dec. 22, 2003) (discussing how screeners give films the “Oscar potential” they need to get funding).

<sup>72</sup> *Antidote Intl. Films*, No. 03CV9373, slip op. at 261-62 (holding that the MPAA cannot enforce the screener ban on anti-trust grounds); see Chris Vognar, *New Skirmish, Old Battle: MPAA Case Puts Light on Filmmaker Feud*, The Dallas Morning News Ent. News (Dec. 16, 2003) (titling the screener ban “Screenergate”).

<sup>73</sup> See Brooks, *supra* n. 71, at 1 (reasoning by Jack Valenti, president of the MPAA, that because “these companies are hotly competitive against each other” they will use screeners to promote their films).

<sup>74</sup> *Reinstitute Awards*, *supra* n. 6 (announcing a “one-year experiment” allowing controlled release of screeners).

<sup>75</sup> *Id.*; see *Antidote Intl. Films*, No. 03CV9373, slip op. at 266-67 (stating “VHS tape . . . provides a less satisfactory medium for pirates”).

<sup>76</sup> *Reinstitute Awards*, *supra* n. 6 (agreeing that the member would “not allow the videocassette screeners out of the home—will not pass along the screeners to relatives and friends”).

<sup>77</sup> *Id.* (stating that this is “a severe penalty and provides a level of comfort regarding custody of these tapes, which is unique to members of the Academy”).

to provide the studios greater flexibility in controlling the distributed screener content.<sup>78</sup>

Individualized forensic watermarks were one of the technological measures used in many of the released screeners.<sup>79</sup> Watermarks are imperceptible data embedded in content.<sup>80</sup> A good watermark cannot be removed from a copy of the content without significantly degrading the quality of that copy and destroying its economic value.<sup>81</sup> With forensic watermarks, the imperceptible data contains information that can be used to trace back to the source of unauthorized copying of the content.<sup>82</sup> In the case of the forensic watermarks used in the screeners, the imperceptible data identified the intended recipients of each screener.<sup>83</sup>

Forensically watermarking the screeners worked. In January of 2004, pirated screeners started showing up on the Internet.<sup>84</sup> With the help of

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<sup>78</sup> See Julie E. Cohen, *Intellectual Property and the Information Economy*, in *Cyber Policy and Economics In an Internet Age* 94-112 (William Lehr & Lorenzo Pupillo eds., Kluwer Academic Publishers 2002) (available at <http://www.law.georgetown.edu/faculty/jec/ipandinfoeconomy.pdf> (accessed Feb. 16, 2005)) (explaining that contracts provide a framework whereby content owners can prohibit activities normally allowed by copyright law).

<sup>79</sup> Paul Sweeting, *Seeds Planted to Prevent More Piracy: Universal Puts First Digital Watermarks in Place*, Video Bus. 1 (Oct. 20, 2003) (reporting that Universal Studios was planning to mark content with audio watermarks “to trace pirated copies of movies to their source”).

<sup>80</sup> Comm. on Intell. Prop. Rights & the Emerging Info. Infrastructure, *The Digital Dilemma: Intellectual Property in the Information Age* 155 (Natl. Acad. Press 2000) (“Watermarking embeds information [that] . . . can help owners track copying and distribution of digital works.”); Fred Mintzer, Gordon W. Braudaway & Alan E. Bell, *Opportunities for Watermarking Standards*, 41 Comm. ACM 57, 64 (1998) (noting that watermarking may be used to protect the value of video content).

<sup>81</sup> Digimarc Corp., *Digimarc Comments to USPTO Regarding Technological Protection Systems for Digitized Copyrighted Works* (Jan. 14, 2003) (available at <http://www.uspto.gov/web/offices/dcom/olia/teachcomments/digimarc.pdf> (accessed Feb. 16, 2005)) (commenting on the effects of the Technology, Education, and Copyright Harmonization (TEACH) Act of 2002).

<sup>82</sup> U.S. Pat. No. 6,285,774 (issued Sept. 4, 2001) (disclosing a “System and Methodology for Tracing to a Source of Unauthorized Copying of Pre-recorded Proprietary Material, such as Movies”).

<sup>83</sup> See Peter Howell, *Godfather Actor Fingered: It's a Lesson*, The Toronto Star D2 (Feb. 1, 2004) (calling digital watermarks “the 21st-century equivalent of fresh fingerprints left on a smoking gun”).

<sup>84</sup> Day, *supra* n. 9, at C2 (reporting that copies of screeners from two members of the Academy were found online).

the forensic watermarks, the sources of several pirated copies were determined.<sup>85</sup> As a result, authorities have now charged several pirates criminally and at least one Academy member has been expelled.<sup>86</sup> In addition, some of the studios have filed civil lawsuits against the pirates.<sup>87</sup>

Consumers are likely to accept forensic watermarks because watermarks are a simple-to-use technology capable of providing unobtrusive copyright protection.<sup>88</sup> Watermarks do not create additional burdens on content users such as having to buy new compliant equipment to utilize the content.<sup>89</sup> In addition, forensic watermarks are likely to have a large deterrent effect when implemented with an active program of public criminal and civil prosecution of pirates located using these watermarks.<sup>90</sup>

## V. WATERMARKS AND FAIR USE

The VCR was one of the first consumer products developed by the technology industry that enabled consumers to copy and share movie content.<sup>91</sup> Concerned about the piracy of movie content that this new technology would lead to, owners of movie content sued VCR manufacturer Sony Corporation for copyright infringement.<sup>92</sup> The studios were concerned

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<sup>85</sup> Howell, *supra* n. 83, at D2 (noting that an illegal copy of a screener was “traced back to him by digital watermarks”).

<sup>86</sup> Ben Fritz, *Piracy Charges Strike Lightning Trio*, Daily Variety 36 (Feb. 13, 2004) (noting members of the academy who were criminally charged and expelled from the academy for his part in the release of pirated screeners).

<sup>87</sup> See Timothy M. Gray & Dave McNary, *WB, Sony File Civil Suit in Oscar Screener Case*, Daily Variety 2 (Jan. 29, 2004) (asking the Court for a minimum of \$150,000 plus statutory damages and profits for each of four films pirated from Academy screeners).

<sup>88</sup> Schwartz, *supra* n. 4, at C1 (stating that a successful protection technology acceptable to consumers will be “hard-to-design but simple-to-use”).

<sup>89</sup> See Michael Arnold, *Computer Science: Digital Data Provide Invisible Proof of Copyright*, Science Letter 19 (Mar. 31, 2003) (noting that “[d]igital watermarks do not prevent the production of pirate copies, but they can make it more difficult to commercially distribute illegal copies of music”).

<sup>90</sup> See John Healey, *Firms Push Envelope to Deter Oscar Film Piracy; Tech Companies’ Ideas For ‘Screeners’ Include DVDs That Self-Destruct or Can Be Tracked. The Studios Are Pessimistic.*, L.A. Times C1 (Oct. 3, 2003) (claiming that with forensically trackable discs “the threat of being identified and penalized for aiding piracy may prompt Oscar voters to keep screeners under tighter wraps.”).

<sup>91</sup> See Lardner, *supra* n. 19, at 5-6.

<sup>92</sup> See generally *Universal City Studios, Inc. v. Sony Corp. of Am.*, 480 F. Supp. 429 (C.D. Cal. 1979).

that this technology would enable millions of users to copy their content, causing them great harm.<sup>93</sup> The Supreme Court, however, in a 5-4 decision, held that the VCR's main use, home-use recording, is not a copyright infringement.<sup>94</sup> A key factor in the Sony decision was the consumer's right to "fair use" of content.<sup>95</sup>

Fair use is an important judicial doctrine that limits the exclusive right of copyright owners.<sup>96</sup> This doctrine is a defense that may be raised by an individual accused of copyright infringement and has been codified in the copyright act.<sup>97</sup> Examples of fair use include using copyrighted material for the purposes of "criticism, comment, news reporting, teaching, . . . scholarship, or research."<sup>98</sup>

Forensic watermarks do not impede fair use because forensic watermarks only mark content.<sup>99</sup> They are not themselves used by playback equipment to limit access to the content.<sup>100</sup> There is another type of watermark, however, that the film industry may want to use in its battle against piracy that could affect fair use by limiting the ability of an individual who could have a valid fair use defense to even gain access to the content at all.<sup>101</sup> This other type of watermark is referred to in this paper as a control watermark. Control watermarks contain information that may be used with compliant hardware to prevent access to (or copying of) content

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<sup>93</sup> *Id.* at 440 (presenting expert testimony at trial that Betamax would decrease the value of copyrights by enabling consumers to make copies of copyrighted materials).

<sup>94</sup> *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 456 (1984) (holding that the studios "failed to demonstrate that time-shifting would cause any likelihood of nonminimal harm to the potential market for, or value of, their copyrighted works").

<sup>95</sup> *See Universal City Studios*, 480 F. Supp. at 442 (stating that "[t]his finding rests on statutory interpretations of both the Old and the New Acts, the legislative history of the New Act, and the doctrine of fair use.").

<sup>96</sup> *See generally* H.R. Rpt. 94-1476 at 65 (Sept. 3, 1976) (providing background on the doctrine of fair use).

<sup>97</sup> *See* 17 U.S.C. § 107 (declaring that "the fair use of a copyrighted work . . . is not an infringement of copyright.").

<sup>98</sup> *Id.*

<sup>99</sup> *See Benefit Authors Without Limiting Advancement or Net Consumer Expectations (BALANCE) Act of 2003*, H.R. 1066, 108th Cong. § 2(7) (Mar. 4, 2003) (finding that "the lawful consumer cannot legally circumvent technological restrictions, even if he or she is simply trying to exercise a fair use or to utilize the work on a different digital media device.").

<sup>100</sup> *Id.*

<sup>101</sup> *Id.*

without the permission of the right holder.<sup>102</sup> For the remainder of this paper, control watermarks that are used to control access are referred to as access control watermarks and control watermarks that are used to prevent copying are referred to as copy control watermarks. Because control watermarks are only effective when used in conjunction with compliant playback products capable of reading and enforcing the control information, an act of Congress would probably be required to force acceptance of them within industry and among the public.<sup>103</sup>

## VI. CIRCUMVENTION OF CONTROL WATERMARKS

Pure “forensic” watermarks simply provide a technical mechanism to determine where a copy of a screener originated from and do not include a technical mechanism for limiting access to the screener content.<sup>104</sup> Legal protections afforded by the anti-circumvention clause of the DMCA could be brought into play if these “forensic” watermarks were made into control watermarks. This could be done by adding a legitimate control function to the watermarks for the purpose of protecting pre-release movie content.<sup>105</sup> The movie industry has already been experimenting with limited access systems to protect distribution of daily shootings during movie production.<sup>106</sup> A single watermark that contains both forensic and copy-control functions could be implemented to support these limited access systems for the legitimate purpose of tracing and limiting access to content from daily shootings and throughout all of the pre-release production process. This same watermark could also be used as a forensic watermark to trace copies of content once the content has entered distribution channels. As long as these watermarks are only used for forensic purposes after distribution, they would not affect later fair uses of the content.

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<sup>102</sup> See U.S. Pat. No. 6,374,036 (issued Apr. 16, 2002) (describing a copy control watermarking system) (disclosing a “Method and Apparatus for Copy-Once Watermark For Video Recording”).

<sup>103</sup> See *Consumer Broadband and Digital Television Promotion Act*, Sen. 2048, 107th Cong. (finding that governmental action would be required to implement a copy protection scheme quickly and efficiently).

<sup>104</sup> See Daniel Frankel, *To Serve and Protect: Screeners Still Risky Business as Pirates Stay Ahead of Tech Curve*, *Daily Variety* A8 (Oct. 29, 2003) (explaining that forensic watermarks are used after a copy is made to identify the source of a copy).

<sup>105</sup> See 17 U.S.C. § 1201(a)(2)(A).

<sup>106</sup> *Editor’s View: Hulk’s Early Arrival Means Studios Must Think Smarter About Digital Media*, 8 DVD Report 13 (June 23, 2003) (suggesting that filmmakers make more use of secure formats when distributing their daily workprints).

Circumventing control watermarks is actionable under 17 U.S.C. § 1201 of the DMCA, which addresses circumvention of technological copy protection measures.<sup>107</sup> This anti-circumvention clause provides that "no person shall circumvent a technological measure that effectively controls access to a work protected under [Title 17]."<sup>108</sup> Circumventing a technological measure includes avoiding, bypassing, removing, deactivating, or otherwise impairing a technological measure "without the authority of the copyright owner."<sup>109</sup> This clause also makes trafficking in products that circumvent technological copy protection measures illegal.<sup>110</sup> Even though these anti-circumvention prohibitions were enacted "[a]s part of the balance Congress sought to strike in protecting the rights of copyright owners while preserving fair use,"<sup>111</sup> they are broader than the WIPO Treaty requires.<sup>112</sup>

17 U.S.C. § 1201 is written to enforce the right of a copyright holder to protect his or her content using technologies such as control watermarks in several ways.<sup>113</sup> Firstly, anyone who enables a pirate by providing them with tools to defeat control watermarks would violate Subsections 1201(a)(2) and 1201(b)(1).<sup>114</sup> Specifically, Subsection 1201(a)(2) applies to access control

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<sup>107</sup> 17 U.S.C. § 1201.

<sup>108</sup> *Id.* at § 1201(a)(1)(A).

<sup>109</sup> *Id.* at § 1201(a)(3)(A).

<sup>110</sup> *Id.* at §§ 1201(b)(1)(A)-(C). Providing that:

[N]o person shall manufacture, import, offer to the public, provide or otherwise traffic in any technology, product, service, device, component, or part thereof, that—(A) is primarily designed or produced for the purpose of circumventing a technological measure that effectively controls access to a work protected under this title; (B) has only limited commercially significant purpose or use other than to circumvent a technological measure that effectively controls access to a work protected under this title; or (C) is marketed by that person or another acting in concert with that person with that person's knowledge for use in circumventing a technological measure that effectively controls access to a work protected under this title.

<sup>111</sup> *Elcom*, 203 F. Supp. 2d 1111 at 1119.

<sup>112</sup> *See Samuelson*, *supra* n. 61, at 521 (observing Congressional testimony indicating that lawmakers understood that proposed DMCA legislation was beyond what was required to satisfy the WIPO Treaty); *see generally WIPO Copyright Treaty*, art. 11 (Dec. 20, 1996), 36 I.L.M. 65 (requiring that signatory states "provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights").

<sup>113</sup> *See* 17 U.S.C. §§ 1201(a)(1)-(2), (b)(1) (conveying the protection measures available to the copyright holder).

<sup>114</sup> *See Corley*, 273 F.3d at 441 (noting that "although both subsections [Section 1201(a)(2) and Section 1201(b)(1)] prohibit trafficking in a circumvention technology, the focus of

watermarks used to prevent access to copyrighted movie content.<sup>115</sup> An example of an access control watermark would be a control watermark that is used by a DVD player to give a compliant player permissions used by that compliant player to decrypt content on a DVD (thus allowing access to the content). Subsection 1201(b)(1) applies to copy control watermarks used to prevent copying of copyrighted movie content.<sup>116</sup> An example of a copy control watermark would be a control watermark which gives compliant recording equipment permissions used by that compliant equipment to allow or disallow copying. Civil and criminal penalties are provided for violating these anti-trafficking provisions.<sup>117</sup> In addition, when a pirate uses either of these technologies to circumvent control watermarks, he or she will be violating Subsection 1201(a)(1).<sup>118</sup>

## VII. COPY MANAGEMENT INFORMATION AND WATERMARKS

One of the advantages of the forensic watermarks used in the screeners is that they help pinpoint the pirates by including identifying information in the watermark that, when extracted from the pirated copy, help identify the source of the copy.<sup>119</sup> Section 1202 of the DMCA makes modifying Copyright Management Information (CMI) actionable.<sup>120</sup> Subsection 1202(b)(1) makes it illegal for a person “without the authority of the copyright owner or the law” to “intentionally remove or alter any copyright management information.”<sup>121</sup> In addition, Subsection 1202(b)(3) makes it illegal to distribute “copies of works . . . knowing that the copyright

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subsection 1201(a)(2) is circumvention of technologies designed to prevent access to a work, and the focus of subsection 1201(b)(1) is circumvention of technologies designed to permit access to a work but prevent copying of the work or some other act that infringes a copyright.”)

<sup>115</sup> 17 U.S.C. § 1201(a)(2); *Corley*, 273 F.3d at 441.

<sup>116</sup> *Id.*

<sup>117</sup> 17 U.S.C. § 1203 (creating civil remedies, including temporary and permanent injunctions); *see id.* at § 1204 (creating criminal remedies, including fines).

<sup>118</sup> *Corley*, 273 F.3d at 441 (explaining the various ways that § 1201 was drafted, in order to assure that anti-circumvention technologies would be illegal).

<sup>119</sup> *See Arnold*, *supra* n. 89, at 19.

<sup>120</sup> 17 U.S.C. § 1202.

<sup>121</sup> *Id.* at § 1202(b)(1).

management information has been removed or altered without authority of the copyright owner . . . .”<sup>122</sup>

A watermark must include some digital identifying information to qualify as a CMI under Section 1202.<sup>123</sup> The identifying information may include information about a work such as the title, author(s), owner(s), performer(s), writer(s), director(s), identifying number(s), or other identifying information.<sup>124</sup> This information may be included indirectly through a link to a web site that lists CMI information.<sup>125</sup> The CMI watermark may even include “[t]erms and conditions to use the work.”<sup>126</sup> These “terms and conditions” may include machine-readable signals (such as watermarks) that are not perceivable by humans and contractual information.<sup>127</sup> Alterations or removal of any of the CMI information, human readable or not, could be used for evidentiary purposes.<sup>128</sup>

Forensic watermarks as used in screeners may not qualify as CMI under Section 1202 because they include an identifier that links the screener to a specific user.<sup>129</sup> Because of privacy concerns, Congress never intended that a CMI include tracking or usage data.<sup>130</sup> CMI’s explicitly state that they may not include “any personally identifying information about a user of a work or of a copy . . . of a work.”<sup>131</sup> Arguably, it appears that the studios could not invoke Section 1202 to enforce the modification or removal of forensic watermarks containing tracking information in screeners.<sup>132</sup> The

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<sup>122</sup> *Id.* at § 1202(b)(3) (emphasis added).

<sup>123</sup> *See Kelly v. Arriba Soft Corp.*, 77 F. Supp. 2d 1116, 1122 (C.D. Cal. 1999) (holding that because information was not embedded in content itself, no CMI under 17 U.S.C. § 1202 existed), *aff’d in part and rev’d in part*, 280 F.3d 934 (9th Cir. 2002).

<sup>124</sup> 17 U.S.C. §§ 1202(c)(1)-(5), (7).

<sup>125</sup> *Id.* at § 1202(c)(7).

<sup>126</sup> *Id.* at § 1202(c)(6). This could support the use of the watermark for copy control applications.

<sup>127</sup> *See Severine Dusollier, Some Reflections on Copyright Management Information and Moral Rights*, 25 Colum. J.L. & Arts 377, 385 (2003) (providing an example of a CMI that consisted of a digital music signal detectable only by a compliant player).

<sup>128</sup> *See id.* (suggesting that such a signal could have been embedded in an image).

<sup>129</sup> *See* 17 U.S.C. § 1202(c).

<sup>130</sup> *WIPO Copyright Treaties Implementation and On-line Copyright Infringement Liability Limitation*, H.R. Rpt. 105-551(I) at 22 (May 22, 1998) (elaborating that “it would be . . . contrary to the protection of privacy to include tracking and usage information within the definition of CMI”) [hereinafter WIPO Implementation Report].

<sup>131</sup> 17 U.S.C. § 1202(c).

<sup>132</sup> *See generally* WIPO Implementation Report, *supra* n. 130, at 21-22.

studios could, however, use a separate CMI watermark that contains CMI information without any forensic tracking information.

Section 1202 only protects CMI watermarks for the information they contain, not the watermarking technique that contains the information.<sup>133</sup> If a content owner wants to use Section 1202 as a legal stick against a pirate, the content owner could embed a weak (easily removable) CMI watermark that a pirate would want to modify or remove. For example, a pirate might be inclined to remove a CMI watermark that periodically becomes visible with warnings against removal.

### VIII. LAYERING PROTECTION

There is no requirement that a watermark be exclusive to an individual piece of content.<sup>134</sup> One option that the studios could use to add teeth to their watermarking would be to embed several independent watermarks in their content.<sup>135</sup> A first hard-to-break forensic watermark could include tracing information, thus keeping it from qualifying as a CMI watermark under Section 1202. A second watermark could be an easy-to-break CMI watermark and a third watermark could be a control watermark. If a pirate were to modify or remove the CMI watermark, the pirate would be violating Section 1202.<sup>136</sup> If the pirate were to circumvent the control watermark, the pirate would be violating Section 1201.<sup>137</sup> The forensic watermark, however, which may not be actionable by either Sections 1201 or 1202, could be used independently to identify the source of the pirated content. To avoid the appearance that the watermarks are related, it may be important for each of these watermarks to be as technically distinct as possible. Although the forensic and CMI watermarks should not be combined (to prevent the forensic information from invalidating the CMI watermark), there is no good reason not to combine forensic and copy control watermarks.

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<sup>133</sup> See Dusollier, *supra* n. 127, at 386 (arguing that CMI watermarks could be vulnerable to the watermarking methodology used).

<sup>134</sup> See generally 17 U.S.C. §§ 1201-02.

<sup>135</sup> Chris Marlowe, *USVO Hits Mart With MediaSentinel Update, Technology Allows for Multiple Tags*, The Hollywood Rpt. (Mar. 1, 2004) (describing a new movie content watermarking system that provides for multiple watermarks to be applied to a single creative work).

<sup>136</sup> See generally 17 U.S.C. § 1202.

<sup>137</sup> See generally *id.* at § 1201.

## IX. GIVING TEETH TO WATERMARKS

The No Electronic Theft (NET) Act provides for criminal remedies against consumers who trade economically valuable files (such as movie files) electronically.<sup>138</sup> Congress passed the NET Act after a federal court in Massachusetts held that an individual could not be prosecuted for posting copyrighted software on a publicly accessible computer bulletin board.<sup>139</sup> The intent of the NET Act is to make people who intentionally distribute copyrighted content (including pirated movie content), but do not profit from their distribution, criminally liable.<sup>140</sup>

At first glance, it appears that evidence collected using forensic watermarks would be useful to the movie studios in their copyright infringement battle to prosecute pirates using the NET Act.<sup>141</sup> The NET Act specifically states, however, “evidence of reproduction or distribution of a copyrighted work, by itself, shall not be sufficient to establish willful infringement.”<sup>142</sup> Therefore, it appears that although forensic watermarks may be capable of identifying the source of unauthorized reproduction and distribution of copyrighted materials, additional evidence will be required in a successful prosecution to prove that the unauthorized actions were willful.<sup>143</sup> Evidence that a craftily created CMI watermark was altered could provide this extra evidence.

Watermarks may also be effective to assist the goals of two bills introduced into the current Congress that would increase the penalties for piracy. The “Author, Consumer, and Computer Owner Protection and

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<sup>138</sup> See *No Electronic Theft (NET) Act*, Pub. L. No. 105-147, 111 Stat. 2678 (1997) (codified as amendments to 17 U.S.C. §§ 101, 506 and 18 U.S.C. § 2319) (amending 17 U.S.C. & 18 U.S.C. to add criminal penalties for people who intentionally distribute copyrighted content, but do not profit from their distribution, and providing for imprisonment of up to five years if the traded files have a retail value of over \$2,500, and up to a year if the traded files have a retail value between \$1,000 and \$2,500) [hereinafter NET Act].

<sup>139</sup> *U.S. v. Rothberg*, 222 F. Supp. 2d 1009, 1018 (N.D. Ill. 2002) (explaining that a federal court in *U.S. v. LaMacchia* prevented criminal prosecutions for infringement that was not covered by “laws governing criminal copyright infringement” thereby motivating Congress to pass the NET Act in December 1997); see U.S. Sentencing Commission, *No Electronic Theft Act, Policy Development Team Report* (Feb. 1999) (available at <http://www.uscc.gov/publicat/netrpt99.pdf> (accessed February 10, 2005)).

<sup>140</sup> See *Rothberg*, 222 F. Supp. 2d at 1018 (discussing the congressional motive for the passage of the NET Act).

<sup>141</sup> See generally NET Act, *supra* n. 138.

<sup>142</sup> 17 U.S.C. § 506(a)(2).

<sup>143</sup> See NET Act, *supra* n. 138.

Security (ACCOPS) Act of 2003” purports to increase domestic and international copyright enforcement for copyrighted material distributed over public computer networks.<sup>144</sup> The Artists' Rights and Theft Prevention Act of 2003 applies civil and criminal penalties specifically for unauthorized distribution of prerelease movie content such as screeners.<sup>145</sup> In both of these cases, watermarks can be useful in supporting these acts by enabling the collection of evidence regarding who is pirating screeners.

## X. CONCLUSION

The movie industry has a problem of pre-release movie content being pirated.<sup>146</sup> The effect of this piracy significantly impacts a large segment of the U.S. economy.<sup>147</sup> Watermarks, a technological solution to this problem, may be used in multiple ways to protect this movie content.<sup>148</sup> Most watermarks are either control watermarks or forensic watermarks. The main power behind forensic watermarks is deterrence.<sup>149</sup> Forensic watermarking focuses more on holding pirates accountable than restricting content usage by enabling copyright owners to identify illegal copies of their content once they reach publicly available forums such as the Internet.<sup>150</sup> Control watermarks can be consumer friendly when they are only used to prevent unauthorized access of content within the industry before distribution of the content into the home market.

The author would like to suggest the concept of a temporally threaded CMI watermark as another option to protect movie content. A temporally threaded CMI watermark spreads a watermark containing copy management information throughout a substantial section of digital movie

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<sup>144</sup> H.R. 2752, 108th Cong. (July 16, 2003).

<sup>145</sup> Sen. 1932, 108th Cong. (Nov. 22, 2003).

<sup>146</sup> See Byers, *supra* n. 3.

<sup>147</sup> *Artists' Rights and Theft Prevention Act of 2004*, Sen. 7524, 108th Cong. (June 25, 2004) (finding that “it is important to recognize that a significant level of economic harm can be reached by the distribution of so called ‘prerelease’ commercial works.”).

<sup>148</sup> See *supra* §§ III-IX.

<sup>149</sup> Daniel Frankel, *Screeners Still Risky Business as Pirates Stay Ahead of Tech Curve*, *Daily Variety* A8 (Oct. 29, 2003) (claiming that watermarks “provide the most hacker proof deterrent” to piracy).

<sup>150</sup> See Matt Jackson, *Using Technology to Circumvent the Law: The DMCA's Push to Privatize Copyright*, 23 *Hastings Commun. & Ent. L.J.* 607, 645 (2001) (noting that to “hold individuals responsible for their infringing behavior is less onerous than restricting the use of communication technology.”).

content temporally. The substantial section could involve a critical scene or a complete movie from beginning to end. As part of the watermark, the content should notify users that the watermark exists and that it is illegal to modify it. This could be achieved with a visual notice during a section of the watermarked content. Once the substantial section of the movie content is watermarked with a temporally threaded CMI watermark, it will be wrapped with Section 1202 copy protection. Then, whenever a pirate edits or compresses the substantial section of the movie, the temporally threaded CMI watermark will be knowingly altered making the pirate's actions in violation of Section 1202 of the DMCA.<sup>151</sup> This type of watermark is consumer friendly because it does not create a burden on the consumer or preemptively affect fair use of the content.

In addition to the concept of wrapping DMCA Section 1202 protection around a copyrighted work using a temporally threaded CMI watermark, this paper also suggested that control and forensic watermarks as well as control and CMI watermarks could be combined.<sup>152</sup> A powerful deterrent may be created by using these watermark combinations to identify and publicly admonish the sources of illegally copied pre-release movie content.<sup>153</sup> Collectively, these watermark technologies can provide digital content owners powerful legal and technological tools to protect many types of digital content against pirates without affecting fair use.

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<sup>151</sup> 17 U.S.C. § 1202.

<sup>152</sup> See *supra* § VIII.

<sup>153</sup> See Robert W. Welkos, *Swept Up In a Piracy Fight*, L.A. Times E1 (Mar. 6, 2004) (stating that "some members are so concerned about what to do with their screener tapes that 'they are backing over them in their driveways so that they're totally destroyed.'"); see also Christopher Jensen, *The More Things Change, the More They Stay the Same: Copyright, Digital Technology, and Social Norms*, 56 Stan. L. Rev. 531, 568 (2003) (noting that "music downloads decreased almost twenty-five percent in the summer of 2003, shortly after the recording industry began implementing its more aggressive copyright enforcement strategy against individual Internet users.").