

FAIR CIRCUMVENTION: A JUDICIAL ANALYSIS FOR THE DIGITAL MILLENNIUM COPYRIGHT ACT USING THE PLAYSTATION 3 AS A CASE STUDY

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I. INTRODUCTION

Currently, a split among the circuit courts regarding the interpretation of the Digital Millennium Copyright Act's ("DMCA") anti-circumvention provision is causing uncertainty about the extent of legal enforceability of technical protection measures¹ for software. The Ninth Circuit recently held that this provision gives copyright owners an entirely new right,² while the Federal Circuit held that this provision merely introduces a new form of liability and that any circumventor must also violate a copyright to be liable.³ Meanwhile, Fifth⁴ and Sixth Circuit⁵ decisions show how loopholes in the provision cause further uncertainty in enforceability. Among all of this confusion, consumers generally expect that they can use the products they purchase however they choose. This expectation causes problems in the context of videogames because videogame consoles are physical machines that heavily rely on copyrighted material.

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1. "Technical protection measures" is the term used by the DMCA for any sort of technology that effectively blocks access to a protected work. *See* 17 U.S.C. § 1201(a)(3)(B) (2006).

2. *MDY Indus., LLC v. Blizzard Entm't Inc.*, 629 F.3d 929 (9th Cir. 2010).

3. *Chamberlain Grp., Inc. v. Skylink Tech., Inc.*, 381 F.3d 1178 (Fed. Cir. 2004).

4. *MGE UPS Sys. Inc. v. GE Consumer and Indus. Inc.*, 622 F.3d 361 (5th Cir. 2010).

5. *Lexmark Int'l v. Static Control Components, Inc.*, (Lexmark II) 387 F.3d 522 (6th Cir. 2004).

In January 2011, George Hotz uncovered the me1dr key⁶ (widely called the root keys) for Sony's PlayStation 3 ("PS3"), published them on his website, and used them to create and distribute software that allows owners of PS3s to install their own homebrew⁷ applications⁸ on their consoles.⁹ With this software, consumers can enhance the functionality of their PS3s beyond Sony's closed platform.¹⁰ However, the underlying technology of the software also enables piracy. Though Sony claimed it could undo these actions with a firmware¹¹ update, publication of the keys have made this difficult.¹² Thus, Sony sued Hotz in U.S. district court to enjoin distribution of the keys and the software and for alleged violations of the anti-circumvention provision of the DMCA.¹³

6. The key is a series of characters that the PS3 uses to authenticate software. Jonathan Fildes, *iPhone Hacker Publishes Secret Sony PlayStation 3 Key*, BBC NEWS TECHNOLOGY, Jan. 6, 2011, <http://www.bbc.co.uk/news/technology-12116051>. Any software trying to run on the console sends a copy of the key through an encrypted channel to the console that, in turn, decrypts and compares the software's copy to its own and only allows the software to run if the keys match. *Id.*

7. Homebrew is a term for software applications created by consumers rather than licensed developers. See Mike Musgrove, *Routine Upgrades are the Bane of 'Homebrew' Enthusiasts*, WASH. POST, July 6, 2006, at D04.

8. Shohag, *George Hotz Releases Playstation 3 Root Keys*, TECH J., Jan. 4, 2011, <http://thetechjournal.com/electronics/gaming-electronics/george-hotz-releases-playstation-3-root-keys.xhtml>.

9. Console, as used in this Note, refers to video game hardware, such as PlayStation 3, Xbox 360, Nintendo Wii, or even an iPhone, iPad, or iPod.

10. Platform, as used in this Note, refers to the closed or semi-closed network of compatible software applications. A platform can accommodate multiple consoles; for example, Apple's iOS platform is a network of compatible applications that runs on the iPhone, iPad, and iPod. See *iOS*, APPLE, <http://www.apple.com/iphone/ios> (last visited Mar. 29, 2012).

11. Firmware is a basic level of software controlling the functions of the console and the authentication of more advanced programs. *What is Firmware?* APPLE, <http://support.apple.com/kb/HT1471> (last visited Mar. 29, 2012). What Hotz distributed is widely called custom firmware. See Keith Stuart, *PlayStation Network Hack: Industry Reactions and Theories*, GUARDIAN, Apr. 29, 2011, <http://www.guardian.co.uk/technology/gamesblog/2011/apr/29/psn-hack-industry-reactions?INTCMP=SRCH>.

12. *Mathieulh Jailbreaks 3.60*, PSX-SCENE, Mar. 15, 2011, <http://psx-scene.com/forums/f6/mathieulh-jailbreaks-3-60-a-83423>.

13. Complaint at 1, *Sony Computer Entm't Am. LLC v. Hotz*, No. 3:11CV0167, 2011 WL 147657 (N.D. Cal. Jan. 11, 2011).

The PS3 is the last of the three major consoles to be circumvented, following Microsoft's Xbox 360 in 2006¹⁴ and Nintendo's Wii in 2007.¹⁵ With video game sales reaching \$60.6 billion at the end of 2010, closing in on the movie industry at \$77.1 billion,¹⁶ and because 67 percent of homes (and nearly 100 percent of homes with a child under eighteen years old) now own at least one video game console,¹⁷ piracy could have a significant impact on consumers' entertainment. Anti-circumvention measures can interfere with the legitimate activities of programmers—such as creating new games and increasing the functionality of the consoles—which benefit consumers, but they also protect the status quo of this industry.

This Note proposes a fair circumvention analysis for circumvention cases when software is the protected content and uses *Sony v. Hotz* as an illustrative case study. The goal of this analysis is to follow the intent of Congress in enacting the DMCA and to create a more consistent balance between the interests of circumventors, consumers, and copyright holders. Section II contains a brief history of the PS3 and the specific facts of *Hotz*, as well as a basic overview of the anti-circumvention provision and how the text and legislative history invite the proposed analysis. Section III examines four representative decisions from the Ninth, Federal, Fifth, and Sixth circuits. This examination includes textual and legislative support, policy implications on the video game industry, and how *Hotz* could have been decided under each rule. Section IV proposes a new analysis with an application to the facts of *Hotz*. Last, Section V addresses some future concerns in the video game industry.

14. Sean Hollister, *New Xbox 360 Hacked to Play 'Backup' Discs, Public Release Underway?*, ENGADGET, Aug. 15, 2010, <http://www.engadget.com/2010/08/15/new-xbox-360-hacked-to-play-backup-discs-public-release-under>.

15. *The Wii, Officially "Hacked"?*, NINTENDO FUSE, Dec. 27, 2007, <http://www.wiintendo.net/2007/12/28/the-wii-officially-hacked>. See also Jason Fitzpatrick, *Hack Your Wii for Homebrew with the SmashStack*, LIFEHACKER (Oct. 6, 2010, 12:00 PM), <http://lifehacker.com/#!5657081/hack-your-wii-for-homebrew-with-the-smashstack> (providing a guide about how to hack the Wii).

16. It should be noted that the \$60.6 billion figure includes hardware and accessory sales, whereas the \$77.1 billion is purely movie sales, so a better comparison would be to either exclude hardware and console or include sales of movie projectors. *Games v. Movies: The Numbers*, GAMEPOLITICS.COM, Dec. 28, 2010, <http://www.gamepolitics.com/2010/12/28/games-v-movies-numbers>. However, it is a valid comparison as direct-to-consumer sales from the two industries. *Id.*

17. ENTERTAINMENT SOFTWARE ASSOCIATION, 2010 SALES AND DEMOGRAPHIC USAGE DATA: ESSENTIAL FACTS ABOUT THE COMPUTER AND VIDEO GAME INDUSTRY 4 (2010); Kraig Baker, Conference, *Scripts, Lies and Video Games: The 8th Annual Entertainment and Media Law Conference*, SOUTHWESTERN LAW SCHOOL & MEDIA LAW RESOURCE CENTER (Jan. 20, 2011).

II. HISTORY AND BACKGROUND

A. A BRIEF HISTORY THROUGH THE EVENTS OF HOTZ'S CASE

Today, video game consoles do much more than just play games. They play movies from DVDs and Blu-rays, stream content from servers inside and outside of our homes, let us browse the Internet, enable video chat, and much more.¹⁸ They are entertainment hubs that increasingly bring the functionality of personal computers to the comfort of our living rooms. Sony has been at the forefront of this expansion: in 1994, it released the first PlayStation, which allowed users to play music CDs,¹⁹ and in 2000, it released the PlayStation 2,²⁰ which allowed users to play DVDs and is credited as a major contributor to the market penetration of the DVD format.²¹ The PS3 has been Sony's most ambitious console yet. It is the first console with a Blu-ray drive, which also contributed to Sony winning the high definition format war;²² it streams content from other computers in a home or from services like Netflix, Walmart's Vudu, and Sony's own service; it has an internal hard drive for media storage; it is capable of playing three dimensional content; and, of course, it plays video games.²³

Along with the above features, the PS3 had an especially unique feature when it was initially released—it allowed users to install the Linux operating system.²⁴ Whereas the Xbox 360 and Wii remained entertainment machines, the PS3 could be used as a full-fledged personal computer able to operate a vast catalog of software through the Linux operating system.²⁵

18. See generally SONY, PLAYSTATION 3 INSTRUCTION MANUAL, available at http://www.playstation.com/manual/pdf/CECH-2501A-3.30_1.pdf.

19. Michel Marriott, *From Games to Gateways; Boxes that Would Deliver the Web*, N.Y. TIMES, Sept. 12, 2002, at G4; *Corporate Information: Business Development*, SONY COMPUTER INC., http://www.scei.co.jp/corporate/data/bizdatajpn_e.html (last visited Jan. 20, 2012); Michel Marriott, *From Games to Gateways; Boxes that Would Deliver the Web*, N.Y. TIMES, Sept. 12, 2002, at G4.

20. *Corporate Information: Business Development*, supra note 19.

21. BRENT RABOWSKY, INTERACTIVE ENTERTAINMENT: A VIDEOGAME INDUSTRY GUIDE 25 (2010); Daniel Terdiman, *How the Venerable PS2 Made It to 9 Years Old*, CNET NEWS, Oct. 28, 2009, http://news.cnet.com/8301-13772_3-10385526-52.html.

22. *The Blu-Ray vs. HD DVD Format War Is Over . . .*, BITBURNERS.COM, Jan. 15, 2008, <http://www.bitburners.com/articles/the-blu-ray-vs-hd-dvd-format-war-is-over/3936>.

23. See generally *PlayStation® 3 Features*, PLAYSTATION.COM, <http://us.playstation.com/ps3/features> (last visited Jan. 20, 2012).

24. Anthony Verducci, *How to Turn Your PlayStation 3 into a Linux Machine*, POPULAR MECHS., May 12, 2008, <http://www.popularmechanics.com/technology/how-to/build-pc/4263321> (the feature was called "OtherOS").

25. See *id.*

Researchers realized that the power of the PS3's unique Cell processor along with the open Linux platform could be used to create supercomputers: at North Carolina State University, Dr. Frank Mueller clustered eight of the consoles together for the faculty to use as a supercomputer;²⁶ at the University of Massachusetts, Dr. Gaurav Khanna spent \$4000 on a cluster of the consoles used to calculate the radiation emitted from black holes, a calculation for which he used to have to rent time on a NASA supercomputer at a rate of \$20,000 to \$30,000 every year.²⁷ Even the U.S. Air Force took advantage of the PS3's capabilities, calculating satellite, radar, and artificial intelligence by clustering 1760 consoles at an approximate cost of \$2 million dollars, which was merely 5 to 10 percent of what it would have cost them to build a system of equal power with standard computer parts.²⁸ Thus, the ability to install Linux on such a high-powered, comparatively inexpensive machine was a boon to researchers and to consumers in general.

While these large projects raised the profile of, and served as positive marketing for, the PS3, the use of the console as a clustered supercomputer was detrimental to Sony's profits. Unlike the Nintendo Wii, which creates a profit with every console sold,²⁹ Sony sold each console at an estimated loss of \$200 to \$300 per machine.³⁰ The system earns profit based on licensing fees paid to Sony by game publishers.³¹ Using the Air Force

26. *NC State Engineer Creates First Academic Playstation 3 Computing Cluster*, N.C. STATE UNIV. COMPUTER SCI. COLL. NEWS, Feb. 19, 2007, <http://www.csc.ncsu.edu/news/464>.

27. Sharon Gaudin, *PS3 Cluster Creates Homemade, Cheaper Supercomputer*, COMPUTER WORLD, Oct. 24, 2007, http://www.computerworld.com/s/article/9043942/PS3_cluster_creates_homemade_cheaper_supercomputer.

28. Lisa Zyga, *US Air Force Connects 1,760 PlayStation 3's to Build Supercomputer*, PHYSORG.COM, Dec. 2, 2010, <http://www.physorg.com/news/2010-12-air-playstation-3s-supercomputer.html>.

29. Anton Shiloy, *Nintendo Wii Costs Roughly \$88 to Manufacture – Analysts*, XBIT LABORATORIES, Apr. 7, 2009, http://www.xbitlabs.com/news/multimedia/display/20090407124321_Nintendo_Wii_Costs_Roughly_88_to_Manufacture__Analysts.html.

30. Kashem Miah, *Actual Cost to Make Popular Gadgets*, ZIGGYTEK, July 5, 2009, <http://blog.ziggytek.com/2009/07/05/actual-cost-of-popular-gadgets-to-make>; Arik Hesseldahl, *Consumer Electronics Teardowns*, BUS. WEEK, July 2, 2009, <http://finance.yahoo.com/family-home/article/107263/consumer-electronics-teardowns.html>.

31. See Ralph Edwards, *The Economics of Game Publishing*, IGN, May 5, 2006, <http://games.ign.com/articles/708/708972p1.html>.

Additionally, the publisher will also have to pay the developer royalties for the game based on a percentage of the net sales revenue of the game after deductions, such as taxes, shipping, insurance, and returns. This royalty percentage varies greatly within

cluster as an extreme example, those 1760 computers represent an estimated \$352,000 loss with no way to make a profit since the Air Force is probably not using its consoles to play licensed content. However, this large loss is the exception rather than the rule, and Linux was a value-added feature for users who were likely to purchase licensed content and, by a smaller subset of Linux programmers who were likely to create programs for the PS3 that would give it additional functionality and value. Overall, most experts, and Sony itself, saw Linux as a way to tap into the positive network effects of the existing Linux network to greatly increase the value of the console.³²

Sony released firmware version 3.21 in April 2010, which removed users' ability to run Linux on their machines.³³ This angered many users, including the above-mentioned researchers who now had no way to replace failed machines in their supercomputer clusters.³⁴ Sony was subsequently sued in a class action case over removal of the feature, but the case was dismissed.³⁵

the industry and deals will often include step ups in rates based on hitting certain sales goals or milestones. Based on our independent research, the typical royalty is anywhere from 10% to 20%.

Publishers "[m]anufacture, distribute, and market games." JON FESTIGER, VIDEO GAME LAW 2 (Sunny Hanada, ed., 2005). Developers, meanwhile, create the games; they typically "license any third-party content [such as movie content] required to create or market the game." *Id.* "Already platform manufacturers are also major publishers, and some of them (notably Microsoft, Sony, and Nintendo) are developers as well." *Id.* The typical business model is as follows: "Publishers provide the financing developers need to produce a game, subject to the completion of milestones at acceptable levels of quality Publishers advance these monies against the developer's future royalties." *Id.* However, more complex "financing methodologies are emerging . . . as game development periods lengthen and the costs associated with producing a quality product increases." *Id.*

32. Simon Carless, *E3: Kawanishi Talks Homebrew Linux PS3 Development*, GAMASUTRA, May 12, 2006, http://www.gamasutra.com/view/news/9290/E3_Kawanishi_Talks_Homebrew_Linux_PS3_Development.php.

33. Mark Buckingham, *Sony's PS3 Firmware 3.21 Removes Linux and "Other OS" Capability*, BLOG CRITICS, Apr. 1, 2010, <http://blogcritics.org/gaming/article/sonys-ps3-firmware-321-removes-linux>.

34. Nate Anderson, *Air Force May Suffer Collateral Damage from PS3 Firmware Update*, ARS TECHNICA, May 12, 2010, <http://arstechnica.com/gaming/news/2010/05/how-removing-ps3-linux-hurts-the-air-force>.

35. Kris Graft, *Sony Sued for Disabling PS3 'Other OS' Option*, GAMASUTRA, April 29, 2010, http://www.gamasutra.com/view/news/28303/Sony_Sued_For_Disabling_PS3_Other_OS_Option.php. The case was in the Northern District of California under the name *Ventura v. Sony Computer Entertainment America*. It was finally dismissed in December 2011 on the basis that consumers cannot expect any features of a machine to continue working after the warranty period. Sarah Pierce, *Game Over for Sony PS3 "Other OS" Class Action Lawsuit*, TOP CLASS ACTIONS, Dec. 16, 2011,

The case progressed slowly in comparison with the speed at which technologically savvy consumers are used to solving technical problems, and those who relied on the continued use of Linux on the PlayStation turned to self-help measures. In fall of 2010, PS3 Jailbreak reached the market.³⁶ It was an exploit loaded onto a USB drive and primarily created to allow the installation of backup managers—software that allowed users to store copies of disc-based games on the hard drive of the PS3.³⁷ Backup managers make loading games faster and allow users to reduce wear on physical discs.³⁸ However, they also allow users to pirate games because a user can merely rent or borrow a physical disc to create a permanent digital copy. After a few months of firmware patching and securing injunctions against sales of these devices, Sony had once again secured the console.³⁹

However, Sony's victories were short-lived. In December 2010, the hacking group known as "fail0verflow" found a way to force the PS3 to boot to Linux.⁴⁰ Later, allegedly using fail0verflow's techniques,⁴¹ George Hotz discovered and published the root keys.⁴² Experts felt publishing the keys was an irreversible breach of the authentication protocol; Sony could update the keys on every console through a firmware update, but that would render all previously manufactured games incompatible with updated consoles.⁴³ Hotz also distributed a software program called a custom firmware ("CFW"), which either modified or replaced the existing firmware on PS3s to allow users to install unauthorized applications.⁴⁴ The hacking community then created applications adding various functions to

<http://www.topclassactions.com/lawsuit-settlements/lawsuit-news/1523-game-over-for-sony-ps3-qother-osq-class-action-lawsuit>.

36. Tamoor Hussain, *PS3 Finally Hacked?*, COMPUTERANDVIDEOGAMES.COM, Aug 19, 2010, <http://www.computerandvideogames.com/260947/ps3-finally-hacked>.

37. Leslie Katz, *Sony Halts Sales of PS3 Jailbreak*, CRAVE, Aug. 27, 2010, http://news.cnet.com/8301-17938_105-20014940-1.html.

38. *PS3 Backup Manager Official from PS Jailbreak*, PS3CRUNCH, Sept. 17, 2010, <http://www.ps3crunch.net/ps3-backup-manager-official-ps-jailbreak.html>.

39. Katz, *supra* note 37.

40. Kevin Parrish, *Fail0verflow Obtains PS3 Cryptography Key*, TOM'S GUIDE, Dec. 31, 2010, <http://www.tomsguide.com/us/PlayStation-Console-Private-Cryptography-Key-fail0verflow-linux,news-9542.html>.

41. Complaint at 1, *Sony Computer Entm't Am. LLC v. Hotz*, No. CV11 0167, 2011 WL 147657 (N.D. Cal. Jan. 11, 2011).

42. Shohag, *supra* note 8.

43. Parrish, *supra* note 40.

44. Mike Bendel, *Geohot Releases PS3 Firmware 3.55 Jailbreak*, EXOPHASE.COM, Jan. 8, 2011, <http://exophase.com/20678/geohot-releases-firmware-3-55-jailbreak>.

the PS3, including re-enabling the installation of Linux.⁴⁵ Though Hotz claims his software does not enable piracy,⁴⁶ others modified it to play pirated copies of Sony's flagship game Killzone 3 two weeks before the game's release.⁴⁷

Sony filed suit in the Northern District of California alleging violations of various statutes, including the DMCA's anti-circumvention provisions.⁴⁸ Sony attempted to assert jurisdiction over Hotz, a New Jersey resident, in California; it based its argument for jurisdiction on the grounds that Hotz may have signed a terms of use agreement subjecting him to California's jurisdiction.⁴⁹ Sony also alleged jurisdiction because of targeting, and the court allowed Sony to subpoena the identities of anyone who visited Hotz's website and may have seen the published key in an effort to prove that a substantial number of people in California accessed the keys.⁵⁰

Jurisdiction was, and will be for future cases, important because the Ninth Circuit holds anti-circumvention is a distinct right. Hotz could have been much better off if the case was in his native New Jersey; the Third Circuit has yet to decide an anti-circumvention case so a court there could be more open to alternate interpretations of the DMCA. Accordingly, the fair circumvention proposal in this Note is an analysis that the District court and Third Circuit could use if a case arose in New Jersey.

Sony and Hotz settled their case March 31, 2011.⁵¹ Facebook subsequently hired Hotz, though the nature of his work there is not publicly

45. *Video: PS3 Linux on Kmeaw CFW 3.55 Custom Firmware*, PS3 NEWS, <http://www.ps3news.com/PS3-Hacks/Video-PS3-Linux-on-Kmeaw-CFW-3-55-Custom-Firmware/> (last visited Jan. 20, 2012).

46. *Sony v. GeoHot Hacker Lawsuit*, ATTACK OF THE SHOW: G4TV, Jan. 13, 2011, <http://www.g4tv.com/videos/50733/sony-vs-geohot-hacker-lawsuit>.

47. *Killzone 3 & Crysis Pirated*, CONSOLEPRESS, Feb. 14, 2011, <http://consolepress.com/main/2011/02/14/killzone-3-crisis-pirated>.

48. *Sony Computer Entm't Am. LLC v. Hotz*, No. 3:11CV0167, 2011 WL 147657 (N.D. Cal. Jan. 11, 2011).

49. Ben Kuchera, *Sony v. Hotz: Mismatched Serial Numbers and Sealed Manuals*, ARS TECHNICA, Mar. 28, 2011, <http://arstechnica.com/gaming/news/2011/03/sony-v-hotz-mismatched-serial-numbers-and-sealed-manuals.ars>.

50. David Kravets, *Judge Lets Sony Unmask Visitors to PS3-Jailbreaking Site*, WIRED, Mar. 4, 2011, <http://www.wired.com/threatlevel/2011/03/geohot-site-unmasking>.

51. Mark Hachman, *Sony, Hotz Settle PS3 Hacking Suit; Hotz Vows Boycott*, PC MAG., Apr. 11, 2011, <http://www.pcmag.com/article2/0,2817,2383390,00.asp>.

known.⁵² Subsequent firmware updates re-secured the PS3, though it is unclear if this was accomplished through a fundamental change in how the PS3 operates or if Sony merely added new keys against which later games are verified.⁵³ The settlement does not address the legality of Hotz's actions, but the expense of the case serves as a warning to people who may try to circumvent Sony's console in the future.⁵⁴ One way to make these actions legal is by securing a DMCA exemption through the Library of Congress rulemaking (discussed in the next section). The Electronic Frontier Foundation is pursuing this course.⁵⁵ The alternative is a judicial doctrine, which is what this Note proposes.

B. THE ANTI-CIRCUMVENTION PROVISION OF THE DMCA AND ITS CURRENT EXEMPTIONS

Congress enacted The Digital Millennium Copyright Act (DMCA) in 1998 partly to encourage the creators of content to distribute content on the Internet by giving them the extra protection of disallowing the circumvention of technological measures that control access to copyrighted material.⁵⁶ Exactly what this extra protection is remains unclear, and the different interpretations of 17 U.S.C. § 1201(a) form the crux of the split between circuits. In brief, § 1201(a)(1)(A) prohibits any user from circumventing an access control,⁵⁷ while § 1201(a)(2) prohibits any entity or individual from making or selling anything that enables circumvention of an access or copy control.⁵⁸

52. *Facebook Hires George Hotz, Famed Playstation 3 Hacker Known as Geohot*, L.A. TIMES, June 27, 2011, <http://latimesblogs.latimes.com/technology/2011/06/facebook-geohot-george-hotz-playstation-hacker.html>.

53. Sebastian Moss, *Firmware 3.60 Reportedly Makes PS3 Secure Once Again*, PLAYSTATIONLIFESTYLE.NET, Mar. 11, 2011, <http://playstationlifestyle.net/2011/03/11/firmware-3-60-reportedly-makes-ps3-secure-once-again/>.

54. One of settlement's terms is that Hotz agrees "not to continue sharing the offending code." Ian Sherr, *Sony Settles With PS3 Hacker*, WALL ST. J., Apr. 12, 2011, at B6. *See also*, Mark Hachman, *Sony, Hotz Settle PS3 Hacking Suit*, PC MAG., Apr. 11, 2011, <http://www.pcmag.com/article2/0,2817,2383390,00.asp>.

55. *Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies*, U.S. COPYRIGHT OFFICE, <http://www.copyright.gov/1201/2011/initial> (last updated Dec. 1, 2011).

56. *See* H.R. REP. NO. 105-551, pt. 2, at 23–25 (1998).

57. "No person shall circumvent a technological measure that effectively controls access to a work protected under this title." 17 U.S.C. § 1201(a)(1)(A) (2006).

58. Making or selling access circumvention control devices is prohibited by 17 U.S.C. § 1201(a)(2):

Congress recognized that the anti-circumvention provision might interfere with the ability of users to make fair use of copyrighted material⁵⁹ and included multiple exemptions to attempt to balance the interest of copyright holders and fair users. For example, exemptions are in place for non-profit institutions, government activities, encryption research, minors, security testing, protection of personally identifying information, and for certain analog mediums.⁶⁰

Two other exemptions are especially important as a basis for the proposal at issue—the Library of Congress rulemaking proceeding and the reverse engineering⁶¹ exemption—because these two exemptions show Congress’s intention that the DMCA remain an active balance of interests.

1. The Library of Congress Rulemaking Proceeding

The Library of Congress evaluates the adverse impact of access measures every three years, and may temporarily waive the prohibition against circumvention if it determines that the access measures prevent legitimate uses of copyrighted materials.⁶² The Library of Congress rulemaking is seen as a safety measure to continue to balance the interests

No 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.

59. See H.R. REP. NO. 105-551, pt. 2, at 25–26.

60. 17 U.S.C. § 1201(d), (e), (g)–(k).

61. “Reverse engineering is the process of disassembling a hardware or software product from another company to find out how it works, with the intention of duplicating some or all of its functions in another product.” Festinger, *supra* note 31, at 19, n. 33.

62. The rulemaking proceeding is defined by 17 U.S.C. § 1201(a)(1)(C):

[D]uring each succeeding 3-year period, the Librarian of Congress, upon the recommendation of the Register of Copyrights . . . shall make the determination in a rulemaking proceeding for purposes of subparagraph (B) of whether persons who are users of a copyrighted work are, or are likely to be in the succeeding 3-year period, adversely affected by the prohibition under subparagraph (A) in their ability to make noninfringing uses under this title of a particular class of copyrighted works.

of users and content creators by allowing the effective text of the statute to adapt over time.⁶³

There are two important points to note in this exemption. First, the rulemaking proceeding occurs every three years and the exemptions only last for three years.⁶⁴ This is potentially flawed because it is not as responsive as the court system. The court system allows a challenge to the law at the time the use occurs whereas the rulemaking system binds users to the three-year cycle regardless of changes in technology. For example, video game emulators allow old games to continue being played once the consoles become obsolete, and they circumvent the normal authentication process that consoles perform. This circumvention was allowed in the second rulemaking in 2003.⁶⁵ However, if there had been a time when both the console was obsolete and the rulemaking had yet to allow circumvention, content would be inaccessible to a legitimate purchaser. Conversely, using the court system, the purchaser could have a ruling on whether circumvention is permissible when a console becomes obsolete. Additionally, the impermanence of the rulemaking disrupts consumer expectations. This same exemption for content dependent on obsolete consoles was not renewed in 2010,⁶⁶ suddenly disallowing the purchaser to continue using content when there was already an expectation that such use was permissible. However, if a court instituted this same exemption, the ruling would be a precedent and consumers could legitimately rely on that exemption.

Second, the rulemaking only explicitly applies to §1201(a)(1)—the prohibition against a user circumventing—and does not exempt the maker or distributor of a tool designed to help the user perform the exempted circumvention, which is governed by § 1201(a)(2). Using the previous example, though the owner of a game for an obsolete console would be exempt from liability for using an emulator, the creator of the emulator

63. See H.R. REP. NO. 105-551, pt. 2, at 36.

64. 17 U.S.C. § 1201(a)(1)(C).

65. *Rulemaking on Exemptions from Prohibition on Circumvention of Technological Measures that Control Access to Copyrighted Works*, U.S. COPYRIGHT OFFICE, <http://www.copyright.gov/1201/2003/index.html> (revised Feb. 11, 2011) [hereinafter *Rulemaking on Exemption 2003*].

66. *Compare Rulemaking on Exemption 2003 with Rulemaking on Exemptions from Prohibition on Circumvention of Technological Measures that Control Access to Copyrighted Works*, U.S. COPYRIGHT OFFICE, <http://www.copyright.gov/1201/2010/index.html> (revised Feb. 7, 2011).

would still be liable.⁶⁷ This creates the problem of a hollow right because few people have the expertise to create an emulator. The failure to consider the application of the plain text is just one factor causing confusion about the meaning of § 1201(a).

2. The Reverse Engineering Exemption

The second important exemption for this proposal is the reverse engineering exemption, § 1201(f), also thought of as the interoperability exemption.⁶⁸ The cases examined in Section III have facts that suggest an application of this exemption, but none of them considered it.⁶⁹ Thus, the authority on interoperability is primarily the plain text of the statute and pre-DMCA history referred to by Congress.

The first important point of § 1201(f)'s plain text is that the circumventer must have acquired a copy of the computer program lawfully;

67. Emulators have been found legal on other grounds. *See, e.g.,* Sony Computer Entm't, Inc. v. Connectix Corp., 203 F.3d 596 (9th Cir. 2000) (finding that the creation of an emulator was protected fair use as defined by 17 U.S.C. § 107).

68. The text of the defense follows:

(1) Notwithstanding the provisions of subsection (a)(1)(A), a person who has lawfully obtained the right to use a copy of a computer program may circumvent a technological measure that effectively controls access to a particular portion of that program for the sole purpose of identifying and analyzing those elements of the program that are necessary to achieve interoperability of an independently created computer program with other programs, and that have not previously been readily available to the person engaging in the circumvention, to the extent any such acts of identification and analysis do not constitute infringement under this title.

(2) [Identical to (1) except that it provides exemptions for §§ 1 201(a)(2)-(b).]

(3) The information acquired through the acts permitted under paragraph (1), and the means permitted under paragraph (2), may be made available to others if the person referred to in paragraph (1) or (2), as the case may be, provides such information or means solely for the purpose of enabling interoperability of an independently created computer program with other programs, and to the extent that doing so does not constitute infringement under this title or violate applicable law other than this section.

(4) For purposes of this subsection, the term "interoperability" means the ability of computer programs to exchange information, and of such programs mutually to use the information which has been exchanged.

17 U.S.C. § 1201(f)(1).

69. *See* MDY Indus., LLC v. Blizzard Entm't, Inc., 629 F.3d 928 (9th Cir. 2010); MGE UPS Sys. Inc. v. GE Consumer & Indus. Inc. (MGE II), 622 F.3d 361 (5th Cir. 2010); Chamberlain Grp., Inc. v. Skylink Techs. (Chamberlain II), Inc., 381 F.3d 1178, 1201 (Fed. Cir. 2004); Lexmark Int'l v. Static Control Components, Inc. (Lexmark II), 387 F.3d 522 (6th Cir. 2004); Chamberlain Grp., Inc. v. Skylink Techs., Inc. (Chamberlain I), 292 F. Supp. 2d 1040, 1042 (N.D. Ill 2003). *See also infra* Section III.

this does not require ownership.⁷⁰ Second, the information derived from circumvention may not be used to infringe a copyright.⁷¹ Third, the circumventer can share information with anyone else that seeks to create interoperable programs.⁷² However, there is ambiguity in determining when circumvention is “necessary” and what constitutes an “independently” created program in order to qualify as an exemption under the DMCA.⁷³

Congress sought to clarify this section, stating that their purpose was to keep the existing precedent from *Sega Enterprises v. Accolade*.⁷⁴ It shows that Congress attempted to list reasonably foreseeable exemptions as clearly as possible in the text, but also expected that the record would be used as an interpretive reference. Additionally, the record stresses the importance of continued evaluation.⁷⁵

In *Sega*, Accolade Inc., a San-Jose, California-based game developer,⁷⁶ decompiled the object code of a handful of authorized game cartridges and studied the resulting source code in order to make its own unauthorized game cartridges compatible with the Sega Genesis console.⁷⁷ As part of this process, Accolade had to copy a part of Sega’s code that acted as an authentication program.⁷⁸ The court ruling on the case framed the question as, “whether the Copyright Act permits persons who are neither copyright holders nor licensees to disassemble a copyrighted computer program in order to gain an understanding of the unprotected

70. 17 U.S.C. § 1201(f)(1).

71. § 1201(f)(1)–(3).

72. § 1201(f)(3).

73. § 1201(f)(1).

74. S. REP. NO. 105-190, at 29 (1998) (citing *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992)) (“The objective is to ensure that the effect of current case law interpreting the Copyright Act is not changed by enactment of this legislation for certain acts of identification and analysis done in respect of computer programs.”).

75. H.R. REP. NO. 105-551, pt. 2, at 36 (“[T]he Committee is concerned that marketplace realities may someday dictate a different outcome, resulting in less access, rather than more, to copyrighted materials that are important to education, scholarship, and other socially vital endeavors. . . . In this scenario, it could be appropriate to modify the flat prohibition against the circumvention of effective technological measures that control access to copyrighted materials, in order to ensure that access for lawful purposes is not unjustifiably diminished.”).

76. See Denise Caruso, *Three Companies are Preparing Fast-Action Games for Slow-Internet*, N.Y. TIMES, Jan. 15, 1996, at D3. See also *Company News: Accolade is Bought by Infogrames Entertainment*, Apr. 20, 1999, at C4. In 1999 Infogrames Entertainment S.A., a European video game software maker, purchased Accolade for \$50 million in cash. *Id.*

77. *Sega*, 977 F.2d at 1514–16.

78. *Id.*

functional elements of the program,”⁷⁹ and held that if a party has a legitimate reason for copying and no other way to access the functional elements, the copying is fair use.⁸⁰

While the fair use analysis used was for copyright infringement, it is important to review it as the foundation for both the DMCA exemption and the proposed fair circumvention analysis in this Note. The four primary factors of fair use are (1) the purpose and character of the use, (2) the nature of the copyrighted work, (3) the amount and substantiality of the portion used in relation to the whole copyrighted work, and (4) the effect of the use upon the potential market for the copyrighted work.⁸¹ The court holds that the third factor—amount and substantiality of the portion used—favored Sega because Accolade copied the entire section of code that was required to make cartridges interoperable: it was irrelevant that the code used was only approximately 20 to 25 bytes among the 500,000 to 1,500,000 bytes contained in a cartridge.⁸² The first, second, and fourth factors all favored Accolade.⁸³

The first factor—purpose and character of the use—was commercial, but the court reasoned that Accolade never sought to avoid performing its own creative work.⁸⁴ The court drew a “distinction between the copying of works in order to make [an] independent creative expression possible and the simple exploitation of another’s creative efforts.”⁸⁵ Furthermore, the court looked to the public benefit created by the purpose and character of the use:

Accolade’s identification of the functional requirements for Genesis compatibility has led to an increase in the number of independently designed video game programs offered for use with the Genesis console. It is precisely this growth in creative expression, based on the dissemination of other creative works and the unprotected ideas contained in those works, that the Copyright Act was intended to promote.⁸⁶

Normally such discussion of public benefits is reserved for the fourth factor, but the court looked outside of the intent of Accolade to consider the

79. *Id.* at 1514.

80. *Id.* at 1527–28.

81. 17 U.S.C. § 107 (2006).

82. *Sega*, 977 F.2d at 1516.

83. *Id.* at 1527.

84. *Id.* at 1522.

85. *Id.* at 1523.

86. *Id.*

effect of the particular actions by Accolade; essentially, whether Accolade's intent comports with the spirit of the Copyright Act.⁸⁷

The second factor—nature of the copyrighted work—weighed in favor of Accolade because during reverse engineering the source code had to be fully copied to filter out the purely functional elements from the protected elements.⁸⁸ Though the non-functional elements deserve protection, heavily weighing this factor could lead to de facto monopolies over the functional elements due to the copying necessary to filter and then create something new.⁸⁹

The court reasoned that the fourth factor—the effect on the market should Accolade's activity become widespread—also weighed in favor of Accolade because of limited interference in the market.⁹⁰ The consideration is whether or not the new work serves as a replacement for the copyrighted work.⁹¹ Accolade's actions merely opened up the platform so that they could compete in the same market.⁹² The court distinguished that the videogame market is one in which consumers will purchase multiple games, so the chance that Accolade would usurp Sega's games is too small to be unfair.⁹³

The court also performed the opposite analysis, weighing the antitrust ramifications of not allowing Accolade to reverse engineer. The court stated that “an attempt to monopolize the market by making it impossible for others to compete runs counter to the statutory purpose of promoting creative expression and cannot constitute a strong equitable basis for resisting the invocation of the fair use doctrine.”⁹⁴ Thus, allowing reverse engineering is an organic way to reintroduce competition into the market without using antitrust law to force the market open.

The reasoning used in the fourth factor is problematic for the videogame industry because of the way the market traditionally functions.

87. *Id.*; see also FESTINGER, *supra* note 31, at 25 (“Noting that the *U.S. Copyright Act* was intended to promote growth in creative expression, the United States Court of Appeals found that ‘Accolade’s identification of the functional requirements for Genesis compatibility has led to an increase in the number of independently designed video game programs offered for use with the Genesis console’”).

88. *Sega*, 977 F.2d at 1524–26.

89. *Id.*

90. *Id.* at 1523.

91. *Id.*

92. *Id.* at 1523.

93. *Id.*

94. *Id.* at 1523–24.

Consoles were traditionally sold at a loss,⁹⁵ with the manufacturer hoping to recover its costs and eventually make a profit through licensing revenue—fees the publisher pays to the manufacturer for allowing it to make games for the console.⁹⁶ The closed platform was necessary to force a bargain between manufacturer and publisher.⁹⁷ If the platform were open, then no publisher would pay the licensing fee.⁹⁸

Accolade used reverse engineering to enter the closed platform without paying the licensing fee. There are positive and negative effects from Accolade's actions. The positive effects are increased choice for consumers and increased competition, which could lead to lower prices for games—all pointed to by the *Sega* court.⁹⁹ The negative effects are far-reaching. Assuming Accolade had already recovered the cost of reverse engineering, it could choose to sell its games at the same price as other publishers. This would give Accolade more profits per cartridge than competitors who must sacrifice some profit to licensing fees, and would only yield the benefit of increased choice to consumers. Alternatively, Accolade could afford to lower the price of its games and still collect as much profit as its competitors who pay the license fee. In order to compete, the competitors would have to lower the price of their games and collect less profit. Over time, this undercutting could work to price competitors out of the market, eventually reducing the benefit of increased choice even though it did provide the benefit of reducing prices.

Possibly the largest factor preventing Accolade from drastically affecting the market is that quality and subject matter between games is not the same: games are expressions, not commodities.¹⁰⁰ If a person really

95. RABOWSKY, *supra* note 21, at 22–23.

96. See TRISTAN DONOVAN, REPLAY: THE HISTORY OF VIDEO GAMES 159, 163, 166, 168 (2010); GGBeyondcom, *Serious Business of Gaming—Vendor Lock-In, Part (1/2)*, YOUTUBE (July 3, 2010), http://www.youtube.com/watch?v=wdsPba1G_us.

97. “Historically, having a video game published for a proprietary console required the makers of the game to pay the platform owner/publishing company (e.g., Atari, Nintendo, etc.) a fee/royalty to have their game published more easily and to permit production of the disc or cartridges to be sold to consumers.” FESTINGER, *supra* note 31, at 19–20.

98. See *id.* at 20 (“To enforce their intellectual property rights in the platform and the ability to license games for their platforms, console owners/publishers embedded security devices and codes into the console, its operating system code and the game itself.”).

99. *Sega*, 977 F.2d at 1522–23.

100. “Copyright applies to the tangible expression of an idea, not the idea itself.” FESTINGER, *supra* note 31, at 45. In *Atari Game Corp v. Oman*, 979 F.2d 242 (D.C. Cir. 1992), the court held that the video game *Breakout* “had the spark of creativity necessary for copyright protection. *Id.* A video game is a fixed expression of an idea, rather than a

wants to buy a particular game, he or she will not find a worthwhile replacement paying a few dollars less for a different game.¹⁰¹ It is true though, that if Accolade maintains the market price for an extended period of time, they will build a profit buffer that they can reinvest to create higher-quality, more desirable games. Thus, game platforms are not as susceptible to short-term impact from actions such as Accolade's, but could be susceptible over a longer term if Accolade manages its savings well.

Regardless of whether Accolade maintains or lowers prices, the console manufacturer still loses the licensing revenue. The court overlooks that if this practice becomes widespread, then the console manufacturer must act to reduce the losses on console sales. The action could be to find new revenue sources, but the more direct action would be to turn the console sale into a profit rather than a loss. Sega could accomplish this either by raising prices, lowering the quality of the product, cutting overhead, or reducing the cost of the console through innovation.

The most direct way to recover this loss is by raising the price of consoles, but this has detrimental effects on the survival of the platform because it limits the user base by pricing some consumers out of the market.¹⁰² With fewer consumers buying the console, it is unclear if the manufacturer would be able to sell enough consoles to recover the fixed costs of research and development, even if it recovers the cost of

commodity, such as steel. *See id.* Thus, when people buy a game, what they are buying is the specific intellectual property—when a buyer purchases the game *Halo*, for example, they are buying that specific game and there is no substitute. Therefore the game company can price the game however they want. Even if there is a similar game that is cheaper, the game manufacturer does not lose that market share because the buyer does not see the goods as interchangeable.

101. However, a lack of quality control was one of the main factors in the collapse of the videogame industry in the early eighties. DONOVAN, *supra* note 96, at 98. At that time, Atari, the dominant console manufacturer, did not have a way to control what games were published for its VC2600. *Id.* The market was flooded with low-quality games priced so low that makers of quality games could not even recover costs and still compete. *Id.* This scenario is less likely to happen today because information about the quality of games is more easily accessible than in the early eighties, given the large variety of websites with game reviews and gaming magazines. *See, e.g., Games*, METACRITIC, <http://www.metacritic.com> (last visited Mar. 29, 2012); IGN, <http://www.ign.com> (last visited Mar. 29, 2012); GAMER, <http://www.atgamer magazine.com> (last visited Mar. 29, 2012).

102. This is based on the inverse of what normally happens; console price drops almost always create an increase in hardware sales (i.e. increased user base). *See, e.g., Chad Buenaflor, PS3 Price Drop Increases Sales*, GAMING NERD, Aug. 22, 2011, <http://www.gamingnerd.com/ps3-price-drop-increases-sales>.

manufacture.¹⁰³ More importantly, with fewer consumers using the platform, publishers have less incentive to program games for a particular platform because they also cannot recover fixed costs of porting a game, which is the process of making a game designed for one console compatible with another.¹⁰⁴ Eventually, the unprofitable manufacturer must exit the market, leading to less consumer choice and more concentrated monopolies in fewer consoles. In fact, Sega's inability to maintain profitability of their consoles led to its eventual departure from the platform market in 2001,¹⁰⁵ cutting the market from four home console platforms¹⁰⁶ to three.

Recognizing these dangers, the more likely approach by the console manufacturer with a closed platform would be to find alternative sources of revenue to recover the losses from console sales and licensing revenue. For example, Microsoft secures a separate revenue stream from the online service connected to the Xbox 360 console.¹⁰⁷ It collects both a service fee from consumers and a percentage on the sales of digital content sold through their online service.¹⁰⁸ Thus, if a current manufacturer can create alternative revenue streams, the risk of one of its consoles exiting the market due to sales losses seems unlikely.

The more likely detrimental effect of Accolade's circumvention is the reduction in quality control that a closed platform can exercise over compatible software. For example, because the PS3 is capable of high definition graphics, consumers expect games that take advantage of this

103. Edwards, *supra*, note 31

104. *Id.* It generally takes between "nine months and three years" to create a game. FESTINGER, *supra* note 31, at 3.

Typically, a developer builds a "demo" . . . Publishers then assess the marketability of these demos and decide whether to finance production. After the game has been produced but before mass reproduction of a sales version, games (other than those for the PC) must be certified for technical compliance and quality by the applicable platform manufacturers. . . . At any stage, games developed for one platform may also be "ported" to other platforms.

Id.

105. DONOVAN, *supra* note 96, at 334; *Sega Dreamcast*, THE HISTORY OF COMPUTING PROJECT, http://www.thocp.net/software/games/consoles/sega/sega_dreamcast.htm (last visited Jan. 23, 2012).

106. Sega (Dreamcast), Nintendo (Nintendo 64), Sony (PlayStation), and Microsoft (Xbox).

107. RABOWSKY, *supra* note 21, at 26.

108. Edwards, *supra* note 31.

capability.¹⁰⁹ Additionally, Sony wants to show off these capabilities so that it is perceived as a better console than its competitors. But, if the closed platform is circumvented to an open one, then the platform manager can no longer control quality and the burden of filtering-out low-quality games may shift.

The console manager could accept this burden, essentially shifting the costs that it would have expended in quality control before a game is published, to a system of reviewing and educating consumers about the quality of a game after it is published. This shift might result in a greater cost to the console manager because this after-the-fact distribution of information to a large number of consumers could be more expensive than before-the-fact interactions with a small number of quality publishers.¹¹⁰

Given the extra cost, the platform manager probably would shift the burden of determining quality to consumers, who would need to rely on reviewers and other middlemen. In the past, consumer quality control was difficult because there were fewer news sources for rating games,¹¹¹ and game packaging itself was more artistic than representative of the actual game.¹¹² Today, however, information about games is easy to find on the Internet, and consumers can often download or rent games on a trial basis, on the PlayStation Network for example, prior to purchase. Thus, current technology facilitates the consumer's ability to bear the burden of determining quality. Moreover, quality is an individual judgment. For example, not everyone enjoys the gameplay experience of a blockbuster title like *Killzone 3*. In fact, a game of superior technical quality may actually have an inferior gameplay quality: the platform manager may not

109. See Shawna Blumenschein, *The Best Video Game Console: What You Want as a Gamer*, SUITE 101, June 10, 2010, <http://shawna-blumenschein.suite101.com/the-best-gaming-console-part-i-a247790> (stating that graphics quality is a concern of buyers).

110. However, extensive quality control could result in considerable expense for the console manager who has to pay workers as opposed to shifting these costs to reviewers and other middlemen—such as that which Nintendo performed for its Nintendo Entertainment System. DONOVAN, *supra* note 96, at 169–70.

111. Compare RETROMAGS.COM, <http://www.retromags.com/forums/files/category/38-usa-publications/> (last visited Apr. 17, 2012) (this website archives most, if not all, old videogame magazines from the 80s and 90s and there are only 34 magazines) with *Metacritic Review of God of War III*, METACRITIC, <http://www.metacritic.com/game/playstation-3/god-of-war-iii> (last visited Apr. 17, 2012) (the review aggregated 101 different sources of video game criticism).

112. See, e.g., *11 Old School Nintendo Games with Very Deceptive Box Art*, 11 POINTS, Apr. 7, 2010, http://www.11points.com/Games/11_Old_School_Nintendo_Games_With_Very_Deceptive_Box_Art (showing some great examples of how different the packaging was from the actual game graphics).

permit a game that provides superior gameplay because the platform manager more highly values technical quality. Thus, the benefit of greater choice could outweigh the burden borne by the public to filter out low-quality games.

However, the closed platform does offer greater benefit for attracting high-quality games. Console manufacturers often compete with each other to secure high-quality exclusives,¹¹³ whether it is an exclusive game or merely additional features for a game available on other platforms. They could compete by lowering licensing fees or by providing extra services. If a manufacturer is unable to collect fees because a publisher like Accolade has reverse engineered a game to avoid paying fees, then the only bargaining chip the manufacturer has is to offer more services. The process of securing exclusives becomes one-sided because the manufacturer has very little leverage, and the cost of providing services without receiving licensing fees reduces the profitability of the console.

Though speculation on market effect is the basis for the fourth element of fair use, the element is flawed because it fails to consider these secondary and tertiary effects instead using a restricted market view. The Sixth Circuit dictum in *Lexmark v. Static Control* illustrates this problem as the district and circuit courts reached different conclusions about which market should be analyzed.¹¹⁴ The district court viewed the market as that of competing toner cartridges.¹¹⁵ Static Control had copied Lemark's toner loading program in order to create compatible, competitive toner cartridges.¹¹⁶ The Sixth Circuit, however, correctly stated that the relevant market is that of the copyrighted work itself, not the markets for products that apply the software.¹¹⁷ Thus, the market, according to the Sixth Circuit, was that of the toner loading program, and "Lexmark ha[d] not introduced any evidence showing that an independent market exist[ed] for a program as elementary as its Toner Loading Program."¹¹⁸

This limited view of the market makes sense for traditional copyrighted materials such as books and music because they are sold in

113. RABOWSKY, *supra* note 21, at 27.

114. *Lexmark Int'l, Inc. v. Static Control Components, Inc.* (Lexmark II), 387 F.3d 522, 544–45 (6th Cir. 2004).

115. *Lexmark Int'l, Inc. v. Static Control Components, Inc.* (Lexmark I), 253 F. Supp. 2d 943, 961 (E.D. Ky 2003). The holding is explored below in Section III(D).

116. *Lexmark II*, 387 F.3d at 529–31.

117. *Id.* at 544–45 (citing, *inter alia*, *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 577 (1994)).

118. *Id.* at 545.

complete, usable form to the consumer; however, given the secondary market of software programs (i.e., sold with a bundled device or requiring a device to operate), it would be hard to make a case that use by a copier ever has an effect on the market for the device.

Furthermore, this separation between program and product ignores the fact that software (especially operation-focused software like the Toner Loading Program in *Lexmark*), when combined with the rest of the product, is part of the result purchased by consumers and contributes, however subtly, to the consumer's decision of whether the product is one of quality and worth purchasing again. Considering the Toner Loading Program; it could be that the small size of the program allows the printer to print faster or to take up less physical space because it can be stored on a smaller chip. Both speed and size are factors considered by the consumer, and the Toner Loading Program may have made a contribution, though small, to the final product. If Static Control had copied a large part of the copyrighted material and created its own printer, it is unclear if the court would have considered all the software needed to run a printer as a whole, for which there could be a market, or if it would consider each program separately.

Thus, the fourth factor of the traditional fair use test fails in the software context because it does not consider secondary markets.

C. APPLYING THE RULEMAKING AND PLAIN TEXT EXEMPTIONS TO *HOTZ*

Though parts of the analysis are flawed, the test used in *Sega* is instructive for determining when circumvention is appropriate. *Sega* establishes that courts must consider the intention of the circumventer and effects on the market, and that a circumventer may be justified in copying.¹¹⁹ This conclusion should force courts to consider whether the plain text of the statutory reverse-engineering exemption, which states that the circumvention must be “necessary to achieve interoperability of an independently created computer program,”¹²⁰ comports with the intent of Congress to keep the *Sega* result.

Looking to *Hotz*, it is unclear whether either the rulemaking exemption or the plain text of the reverse-engineering exemption applies. *Hotz* made the case publicly that the recent rulemaking would exempt the exact same circumvention he performed on the PS3 if he had performed it

119. *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1522–23 (9th Cir. 1992).

120. 17 U.S.C. § 1201(f) (2006).

on a phone.¹²¹ The failure of this argument is twofold: (1) the rulemaking can only proceed if the circumvention would have otherwise violated the provision,¹²² and (2) the text of the current exemption is limited to phones.¹²³ Thus, by claiming the rulemaking exemption, Hotz makes an explicit admission that his actions do not fall under the reverse engineering exemption and are a violation of the provision.

Furthermore, under the plain text of the reverse-engineering exemption, it is unclear whether the software distributed by Hotz was independently created because it is unclear if his software performs a modification of the copy of Sony's firmware that resides on the machine, or if he is distributing a complete copy of Sony's firmware with the modification already performed.¹²⁴ The plain text of the exemption fails to match the intention of Congress because both methods produce the same result, but the plain text of the law distinguishes between the two by requiring independent creation, which may be absent in latter method. However, under *Sega*, even this method may still be allowed if the copying was necessary for the circumvention.¹²⁵ Thus, the plain text of the reverse engineering exemption fails to match the intention of Congress.

In sum, the great detail of the exemptions provided by Congress was not an attempt to enumerate definite limits on rights, but rather an attempt to explain as fully as possible what the law should be at that point in time, with the explicit intent that it continue to evolve. While the history of the statute forms the framework for the proposed fair circumvention analysis of this Note, it is a history that ended when Congress enacted it, and subsequent cases must be examined to expose how it should have evolved to suit the software market since then.

121. Don Reisinger, *Geohot Speaks Out on PS3 Jailbreak Legal Battle*, CNET, Jan. 14, 2011, http://news.cnet.com/8301-13506_3-20028540-17.html.

122. Memorandum from Marybeth Peters, Register of Copyrights on Recommendation of the Register of Copyrights in RM 2008-8; Rulemaking on Exemptions from Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies to James H. Billington, The Librarian of Congress (June 11, 2010), at 78–85.

123. *Id.* at 2.

124. There are many tutorials on the Internet, but only discovery into the function of the program would have revealed exactly what Hotz distributed.

125. *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1526 (9th Cir. 1992).

III. INTERPRETATIONS OF ANTI-CIRCUMVENTION BY THE CIRCUIT COURTS

A. NINTH CIRCUIT: A PROPERTY RIGHT TO PROHIBIT ACCESS

The Ninth Circuit gave the most recent opinion in *MDY Industries, LLC v. Blizzard Entertainment, Inc.*,¹²⁶ deciding that the DMCA grants an entirely new property right to copyright holders.¹²⁷ Blizzard created the bestselling massively multiplayer online game (“MMO”) *World of Warcraft*, in which the player adventures in a curated world.¹²⁸ An entire subculture developed wherein users created guilds and other communities within the game.¹²⁹ MDY created a program called Glider that automatically played the game without requiring input from the user.¹³⁰ Essentially, the user could step away from his or her computer and the in-game character would keep playing the game.¹³¹ At this point, the program did not infringe a copyright, nor was it violating the DMCA.¹³²

Subsequently, Blizzard created a program called Warden that scanned users’ computers for the presence of Glider and refused access to those

126. *MDY Indus., LLC v. Blizzard Entm’t, Inc.*, 629 F.3d 928 (9th Cir. 2010).

127. *Id.* at 944–45.

128. Seth Schiesel, *Conqueror in a War of Virtual Worlds*, N.Y. TIMES, Sept. 6, 2005, at E1 [hereinafter Schiesel, *Conqueror in a War of Virtual Worlds*]; Seth Schiesel, *World of Warcraft Keeps Growing, Even as Players Test Its Limits*, N.Y. TIMES, Feb. 10, 2005. See also ENTERTAINMENT SOFTWARE ASSOCIATION, 2011 SALES, DEMOGRAPHIC AND USAGE DATA: ESSENTIAL FACTS ABOUT THE COMPUTER AND VIDEO GAME INDUSTRY 9 (2011), available at http://www.theesa.com/facts/pdfs/ESA_EF_2011.pdf (reporting that in 2011, there were six versions of *World of Warcraft* among the top twenty bestselling computer games, including the original *World of Warcraft*, which was ranked thirteen). In January 2011, Blizzard announced that its “*World of Warcraft* subscriber base had grown to 12 million users.” Sara Yin, *‘World of Warcraft: Cataclysm’ Sells 4.7M in First Month*, PC MAG., Jan. 10, 2011, <http://www.pcmag.com/article2/0,2817,2375542,00.asp>. For more information about *World of Warcraft*, see *World of Warcraft*, BLIZZARD ENTM’T, <http://us.blizzard.com/en-us/games/wow> (last visited Mar. 29, 2012); Schiesel, *Conqueror in a War of Virtual Worlds*, *supra* note 128 (“*World of Warcraft* has taken off in many countries because Blizzard has made a game that is easy for casual players to understand and feel successful in, while including enough depth to engross serious gamers, who may play a game like *World of Warcraft* for 30 hours a week or more. Previously, many massively multiplayer games had seemed to pride themselves on their difficulty and arcane control schemes.”).

129. See Jane Pinckard, *World of Warcraft is the New Golf*, PC MAG., Apr. 5, 2006, <http://www.pcmag.com/article2/0,2817,1945822,00.asp>.

130. Seth Schiesel, *Grounding Autopilot Players of World of Warcraft*, N.Y. TIMES, Feb. 7, 2009, at C5.

131. *Id.*

132. *MDY Indus., LLC v. Blizzard Entm’t, Inc.*, 629 F.3d 928, 945 (9th Cir. 2010).

computers with Glider present.¹³³ MDY then reprogrammed Glider to evade the scans of Warden.¹³⁴ Here, there was still no copyright infringement, but the court held there was a DMCA violation because Glider evaded Warden's attempt to restrict access.¹³⁵

In its ruling, the court relied primarily on the text of the statute, but also looked at the legislative history. Turning to the text, the court first examined the difference between the access control provision and the copy control provision:

[Section] 1201(a)(2) prohibits the circumvention of a measure that “effectively controls access to *a work protected under this title*,” whereas § 1201(b)(1) concerns a measure that “effectively protects *a right of a copyright owner under this title in a work or portion thereof*” (emphasis added [by the court]). We read § 1201(b)(1)'s language—“right of a copyright owner under this title”—to reinforce copyright owners' traditional exclusive rights under § 106 by granting them an additional cause of action against those who traffic in circumventing devices that facilitate infringement. Sections 1201(a)(1) and (a)(2), however, use the term “work protected under this title.” Neither of these two subsections explicitly refers to traditional copyright infringement under § 106. Accordingly, we read this term as extending a new form of protection, i.e., the right to prevent circumvention of access controls, broadly to works protected under Title 17, i.e., copyrighted works.¹³⁶

By the plain text comparison here, something new appears in the access-control provision. The intentional change in language from “a work protected under this title” to “right of a copyright owner” is a clear indication that the access-control provision is meant to apply broadly to all copyrighted works.

However, the text is problematic because it does not clearly create a right. “A work protected under this title” is merely a descriptor identifying where the law applies. It is ambiguous enough to question the holding that access protection is a new right. If Congress truly intended to create a new right, then it would have made more sense to amend the existing rights contained in § 106. Such amendments are clearly feasible given that Congress most recently added a right in digital transmission of music in

133. *Id.* at 936

134. *Id.* at 935–36.

135. *Id.* at 928.

136. *Id.* at 944–45.

1995.¹³⁷ The fact that Congress kept these provisions of the DMCA separate from the rights enumerated in § 106 creates ambiguity as to whether the DMCA creates a new right.

To further bolster its reading of the text, the court also examined the statute's definition of circumventing an access control:

[T]o “circumvent a technological measure” means “to descramble a scrambled work, to decrypt an encrypted work, or otherwise to avoid, bypass, remove, deactivate, or impair a technological measure, without the authority of the copyright owner.” 17 U.S.C. § 1201(a)(3)(A). These two specific examples of unlawful circumvention under § 1201(a)—descrambling a scrambled work and decrypting an encrypted work—are acts that do not necessarily infringe or facilitate infringement of a copyright. Descrambling or decrypting only enables someone to watch or listen to a work without authorization, which is not necessarily an infringement of a copyright owner's traditional exclusive rights under § 106. Put differently, descrambling and decrypting do not necessarily result in someone's reproducing, distributing, publicly performing, or publicly displaying the copyrighted work, or creating derivative works based on the copyrighted work.¹³⁸

The reasoning here is persuasive at first glance because the court does not consider private viewing an infringement of copyright. This interpretation of private viewing would require a new right to protect against unauthorized private viewing. However, § 106 already allows rights holders to restrict private viewing through their display and performance rights.¹³⁹

The semantics of the court's argument implies that if a person decrypts or descrambles a work, then they are no longer a member of the public; when in fact, they are the public from whom the copyright holder is

137. Digital Performance Right in Sound Recordings Act of 1995, Pub. L. No. 104-39, 109 Stat. 336 (codified as amended at 17 U.S.C. § 106(6)).

138. *MDY*, 629 F.3d at 945.

139. The relevant part of the section allows copyright owners the right to authorize the following:

(4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, to perform the copyrighted work publicly;

(5) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly; and in the case of sound recordings, to perform the copyrighted work publicly by means of a digital audio transmission.

17 U.S.C. § 106 (2006).

allowed to withhold the expression in exchange for money or other consideration. By decrypting or descrambling a work users are generating a copy for themselves that they often view (perform or display). Thus, closely analogous rights that prohibit the public from unauthorized access already exist.¹⁴⁰ This makes a new property right unnecessary for copyright holders to enforce access rights. In this light, the anti-circumvention provision was merely Congress's attempt to clarify that descrambling and decryption is merely a form of liability, with separate penalties, related to violation of the above-mentioned rights.¹⁴¹ The fact that the DMCA is part of Title 17 tends to indicate that anti-circumvention and traditional copyrights are interdependent rather than freestanding. Admittedly, this interdependency does not preclude the Ninth Circuit's holding that the DMCA creates a new right, but it certainly creates questions about how interdependent Congress intended them to be.

However, the Ninth Circuit also found support for its reading of the DMCA in the legislative history. The report they cite states:

[T]he digital environment poses a unique threat to the rights of copyright owners, and as such, necessitates protection against devices that undermine copyright interests. In contrast to the analog experience, digital technology enables pirates to reproduce and distribute perfect copies of works—at virtually no cost at all to the pirate. As technology advances, so must our laws. The Committee thus seeks to protect the interests of copyright owners in the digital environment¹⁴²

This rationale strengthens the reading by the Ninth Circuit because it demonstrates that Congress was concerned with the interests of copyright owners. "Interests" is a broad term that could encompass economics, rights, or many other things. On one hand, it is clear that Congress viewed new technology as both an opportunity and a threat, but on the other, there is still ambiguity as to whether the proper solution is the creation of a new right. It helps to look at some concrete scenarios that formed the basis of Congress's concerns:

140. See, e.g., *Harper & Rowe, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539 (1985) (wherein copyright holders were allowed to restrict access to a work pre-publication).

141. H.R. REP. NO. 105-551, pt. 2, at 23–24 (1998).

The Committee on Commerce adopted an amendment that moves the anti-circumvention provisions out of Title 17 and establishes them as free-standing provisions of law these regulatory provisions have little, if anything, to do with copyright law. The anticircumvention provisions (and the accompanying penalty provisions for violations of them) would be separate from, and cumulative to, the existing claims available to copyright owners.

142. *Id.* at 25.

[A]n increasing number of intellectual property works are being distributed using a “client-server” model, where the work is effectively “borrowed” by the user (e.g., infrequent users of expensive software purchase a certain number of uses, or viewers watch a movie on a pay-per-view basis). To operate in this environment, content providers will need both the technology to make new uses possible and the legal framework to ensure they can protect their work from piracy.¹⁴³

This concern is directly related to access and to content providers’ ability to exploit their property on the Internet.

An absolute right would assuage these concerns, but seems overbroad. As the Federal Circuit pointed out, an absolute right against circumvention creates DMCA liability for disabling a burglar alarm on a house that contains a single book.¹⁴⁴ It seems odd that in addressing a narrow problem, content distribution on the Internet, Congress would intend to rewrite existing law so broadly and to frustrate consumer expectations regarding technology that pre-dates the proliferation of digital distribution.

The above example is extreme, so consider the implications of the Ninth Circuit’s decision on the actual facts of its case. What benefit did the anti-circumvention right serve? Blizzard explained that the Glider program harmed them because it shortened the amount of time it would take a user to reach the higher levels of the game.¹⁴⁵ Their interest is in maximizing the revenue generated from each user. Profits are an interest of a copyright holder, and Congress sought to protect interest by enacting the DMCA.¹⁴⁶ Now consider the user who pays the monthly fee to access World of Warcraft.¹⁴⁷ There are 720 hours in a thirty-day month. The user has paid for those hours, but he or she is physically unable to gain the full benefit of this purchase because he or she must eat, sleep, and maybe go to work. Out of those 720 hours purchased, an average eighteen-year-old uses only sixty hours.¹⁴⁸ It would take this user twelve months to actually play 720 hours. Blizzard profits from the fact that no user could possibly extract the full

143. *Id.* at 23.

144. *Chamberlain Grp., Inc. v. Skylink Techs., Inc. (Chamberlain II)*, 381 F.3d 1178, 1201 (Fed. Cir. 2004).

145. *MDY Indus., LLC v. Blizzard Entm’t, Inc.*, 629 F.3d 928, 936 (9th Cir. 2010).

146. H.R. REP. NO. 105-551, pt. 2, at 23–24.

147. As of March 2012, a six-month subscription to World of Warcraft was \$12.99 per month, according to Battle.net, Blizzard Entertainment’s gaming website. *WoW Subscription Option – Credit Card*, BATTLE.NET, <http://us.battle.net/support/en/article/payment-option-credit-card> <http://us.battle.net/en/what-is> (last updated Mar. 23, 2012).

148. *Video Game Addiction: Is It Real?*, HARRIS INTERACTIVE, Apr. 2, 2007, <http://www.harrisinteractive.com/news/allnewsbydate.asp?NewsID=1196>.

value out of the monthly subscription. Congress's fear was that content providers needed protection from consumers who would tip the copyright balance in their favor through piracy.¹⁴⁹ Here the DMCA is being used to cheat consumers out of non-infringing activity—using the Glider program that allowed them to play even when they were not physically present—that allows them to realize the full value of their purchase.

Similarly, the class action suit against Sony for removing Linux from the PS3 alleged the same basic policy point—Sony deprived consumers of the full value of their purchase.¹⁵⁰ In this respect, Hotz's software is similar to Glider in that it restores the full value of a consumer's purchase and, just like Glider, the Ninth Circuit would likely find Hotz liable under their property rule. Sony had a right to restrict access to the software, which is protected by copyright, on the PS3 and Hotz circumvented the access control. Here it is a very black-and-white issue. Furthermore, it is doubtful that Hotz would be eligible for the reverse-engineering exemption as explained in Section II.B. This is especially true given that MDY explicitly satisfied every point of the exemption: Glider was independently created software,¹⁵¹ and it was necessary to circumvent Warden in order to make Glider interoperable with World of Warcraft. This exemption was not considered by the court.

In sum, though the Ninth Circuit decision has flaws, it contains three essential points for creating the proposed fair circumvention analysis. First, Congress would not have enacted a new law unless it intended to add, in some way, to the existing copyrights. Second, part of this addition necessitates looking beyond the traditional copyrights to examine the interests, economic or otherwise, of copyright holders. Third, failing to consider how the ruling affects the market may lead to inequitable results. All three of these must be incorporated into the proposed analysis.

B. FEDERAL CIRCUIT: A LIABILITY RULE BOUND TO EXISTING COPYRIGHTS

The Federal Circuit addressed the anti-consumer anomaly in the 2005 decision *Chamberlain v. Skylink*, which rests at the opposite end of the spectrum from the Ninth Circuit. This case held that the DMCA merely

149. H.R. REP. NO. 105-551, pt. 2, at 23.

150. Graft, *supra* note 35; Pierce, *supra* note 35.

151. See MDY Indus., LLC v. Blizzard Entm't, Inc., 629 F.3d 928, 941–42 (9th Cir. 2010) (explicitly finding that there was no copyright infringement so it would be impossible to find that the Glider software copied the World of Warcraft software).

creates a new form of liability and requires that the circumvention of access be linked to an underlying use for which the copyright owner may withhold authorization.¹⁵²

The case concerned the manufacture of universal garage door openers (“GDOs”). Chamberlain’s system consisted of a transmitter using a rolling code encryption to send a signal to the GDO software triggering the opening of the garage door; Skylink manufactured a transmitter that would override the rolling code encryption and signal the GDO software to open the door.¹⁵³ Because Skylink manufactured a device that circumvented access protection (the rolling code in the transmitter) to a work protected by Title 17 (the GDO software), Skylink and anyone who used their device were prima facie liable for DMCA violations of § 1201(a)(2) and § 1201(a)(1)(A), respectively.¹⁵⁴

The court claimed that support for their construction rested in the interplay between existing copyrights and the DMCA.¹⁵⁵ Specifically, the court looked to § 1201(c): “Nothing in this section shall affect rights, remedies, limitations, or defenses to copyright infringement, including fair use, under this title.”¹⁵⁶ The court reasoned that “[a] provision that prohibited access without regard to the rest of the Copyright Act would clearly affect rights and limitations, if not remedies and defenses,”¹⁵⁷ and further, “it is significant that virtually every clause of § 1201 that mentions ‘access’ links ‘access’ to ‘protection.’”¹⁵⁸ Because the court read the DMCA as interdependent with traditional copyrights, it required that the circumvention be linked to a use that is one of the exclusive rights of the copyright holder.

The main problem with this construction is that § 1201(c) can just as easily be interpreted as creating a separate right from copyright. The separate right interpreted by the Ninth Circuit has no effect on any copyright or defense to infringement.¹⁵⁹ That court even considered the question of copyright infringement and found there was no violation by

152. *Chamberlain Grp., Inc. v. Skylink Techs., Inc. (Chamberlain II)*, 381 F.3d 1178, 1201, 1204 (Fed. Cir. 2004).

153. *Chamberlain Grp., Inc. v. Skylink Techs., Inc. (Chamberlain I)*, 292 F. Supp. 2d 1040, 1042 (N.D. Ill. 2003).

154. *Chamberlain I*, 292 F. Supp. 2d at 1042.

155. *Chamberlain II*, 381 F.3d at 1197–1200.

156. 17 U.S.C. § 1201(c); *Chamberlain II*, 381 F.3d at 1200.

157. *Chamberlain II*, 381 F.3d at 1200.

158. *Id.* at 1197.

159. *See MDY Indus., LLC v. Blizzard Entm’t, Inc.*, 629 F.3d 928, 941 (9th Cir. 2010).

MDY,¹⁶⁰ thus confirming that the access protection of the DMCA had no effect on the copyrights or defenses.

The second problem with this construction is that the DMCA has an extensive list of exemptions, as discussed in Section II.B. If Congress wanted courts to limit application of the DMCA per the Federal Circuit's requirements, then it could have inserted such a provision among the many exemptions that comprise the enacted statute. The Federal Circuit court says that § 1201(c) essentially is an exemption; however, this clause is ambiguous. In fact, subsequent attempts to amend the DMCA to incorporate the holding in this case have failed, showing that Congress explicitly rejected this interpretation of the DMCA.¹⁶¹

The Federal Circuit heavily relied on policies in the legislative history to resolve the ambiguities in the text because “[p]olicy considerations cannot override our interpretation of the text and structure of [a statute], except to the extent that they may help to show that adherence to the text and structure would lead to a result so bizarre that Congress could not have intended it.”¹⁶² The bizarre result facing the court was that applying the plain text of the DMCA as the Ninth Circuit did would make the long-standing practice of manufacturing interoperable GDOs illegal. Moreover, Chamberlain admitted that ruling in its favor would alter virtually all existing consumer expectations concerning the consumer's rights to use purchased products containing copyrighted software protected by access controls.¹⁶³ The court further explained that such a ruling would disrupt rights that the Copyright Act grants to the public:

[T]he owners of a work protected by both copyright and a technological measure that effectively controls access to that work per § 1201(a) would possess unlimited rights to hold circumventors liable under § 1201(a) merely for accessing that work, even if that access enabled only rights that the Copyright Act grants to the public.¹⁶⁴

The Federal Circuit did not reach the question of how fair use should interact with the DMCA,¹⁶⁵ but the House's explanation of their concerns

160. *See id.*

161. *See* Bill D. Herman & Oscar H. Gandy, Jr., *Catch 1201: A Legislative History and Content Analysis of the DMCA Exemption Proceedings*, 24 *CARDOZO ARTS & ENT. L.J.* 121, 190 (2006) (Rep. Boucher was vocal opponent of the DMCA from the beginning and has sought to amend it in at least three sessions of Congress).

162. *Chamberlain II*, 381 F.3d at 1192.

163. *Id.* at 1191 n.8.

164. *Id.* at 1200.

165. *Id.* at 1199 n.14.

regarding how the two should interact partially supports the Federal Circuit's interpretation:

The Committee was therefore concerned to hear from many private and public interests that H.R. 2281, as reported by the Committee on the Judiciary, would undermine Congress' long-standing commitment to the concept of fair use. . . . The Committee on Commerce felt compelled to address these risks, including the risk that enactment of the bill could establish the legal framework that would inexorably create a "pay-per-use" society. . . . The Committee has endeavored to specify, with as much clarity as possible, how the right against anti-circumvention would be qualified to maintain balance between the interests of content creators and information users. The Committee considers it particularly important to ensure that the concept of fair use remains firmly established in the law. Consistent with the United States' commitment to implement the two WIPO treaties, H.R. 2281, as reported by the Committee on Commerce, fully respects and extends into the digital environment the bedrock principle of "balance" in American intellectual property law for the benefit of both copyright owners and users.¹⁶⁶

There is an implied concern that the DMCA be balanced with fair use, but more importantly, there is an explicit concern that the interests of consumers and copyright owners must be balanced. None of the previous cases dealt with access in the absence of infringement,¹⁶⁷ so the court was faced with a fact pattern that seemed unforeseen by Congress in enacting the DMCA. When faced with the case of universal GDOs, interpreting the DMCA to maintain long-held consumer expectations and an industry practice that leads to competitive pricing and innovation was a plausible way of dealing with the ambiguities that the court found in the statute.

166. H.R. REP. NO. 105-551, pt. 2, at 26 (1998).

167. *Chamberlain II*, 381 F.3d at 1199. In *Lexmark International, Inc. v. Static Control Components, Inc.*, 253 F. Supp. 2d 943, 971 (E.D. Ky. 2003), the trial court ruled that the defendant's conduct constituted copyright infringement. In *Sony Computer Entertainment America v. Gamemasters*, 87 F. Supp. 2d 976, 987 (N.D. Cal. 1999), the plaintiff's allegations included both trademark and copyright infringement, and the defendant conceded that its product made "temporary modifications" to the plaintiff's copyrighted computer program. In *RealNetworks*, the defendant's product allegedly disabled RealNetworks' "copy switch," RealNetworks' technological measure designed to let the owner of copyrighted material being streamed over RealNetworks' media player either enable or disable copying upon streaming. *RealNetworks*, No. C99-2070P 2000 U.S. Dist. LEXIS 1889, at *1. The court stated explicitly that the avoidance of the copy switch appeared to have little commercial value other than circumvention and the consequent infringement that it enabled. *Id.* at *21. In short, the access alleged in all three cases was intertwined with a protected right.

If *Hotz* had been decided by the Federal Circuit, the result would have been more favorable for Hotz, but this would likely depend on the same problem of independent creation discussed in Section II.B. Under this rule, owners of PS3s have purchased their copy of the software running on the system and may do whatever they please with it so long as they are not violating one of the copyrights. If Hotz's program merely allows users to circumvent access in order to replace the Sony software, then he is, in effect, selling a universal GDO. Conversely, if Hotz is distributing a modified copy of Sony's software, then he violated the access control in connection with a copyright violation and would be liable. Thus, a central problem with the Federal Circuit's rule here is that a violation of the provision must accompany a violation of copyright, making the provision merely a fee enhancement to underlying infringement.

Though the fair circumvention proposal in this Note does comport with the Federal Circuit's theory that the provision is interdependent with traditional copyrights, it is careful to recognize that the liability created by the provision must remain separate from an analysis of infringement. The proposed analysis considers that there may be times when access must be restricted even though the use would not be infringing. However, the proposed analysis also considers that at times circumvention may be appropriate even though the use could infringe the copyright.

C. FIFTH CIRCUIT: THE FIRST-MOVER PROBLEM

The DMCA and traditional copyright, in all of the analyses considered in this Note, provide separate causes of action. When circumvention and infringement are carried out by two different people or companies, there is not usually a problem pursuing both claims because the two entities are usually affiliated in some way. However, a problem arises when the infringement action fails because the use was fair and the circumvention action fails for lack of proof. What happens to the fair user and how does the DMCA affect the mystery circumventer—the first mover?

The Fifth Circuit recently considered this issue in *MGE UPS Systems v. GE*.¹⁶⁸ MGE UPS Systems ("MGE") manufactured uninterrupted power supply ("UPS") hardware.¹⁶⁹ In order to protect its business of servicing the hardware, it installed security software that required a service technician to

168. *MGE UPS Sys. Inc. v. GE Consumer & Indus. Inc. (MGE II)*, 622 F.3d 361 (5th Cir. 2010).

169. *Id.* at 364.

attach a special hardware dongle¹⁷⁰ in order to access the software on the UPS hardware and service it.¹⁷¹ At some point, the security software was circumvented so that the UPS could be serviced without requiring authentication of the dongle.¹⁷² General Electric (“GE”) employees were using copies of this modified security software to service MGE UPSs.¹⁷³ MGE could not prove that anyone at GE had actually circumvented the original software as opposed to simply using already-circumvented software.¹⁷⁴

The Fifth Circuit originally used the Federal Circuit’s analysis and held that since the subsequent use of the software after the circumvention was fair, the circumvention of the access-protection measure was not related to an underlying copyright, and thus, it was not a DMCA violation.¹⁷⁵ However, this decision was later narrowed, without explanation, to hold that the court could not construe circumvention “to encompass use of a copyrighted work subsequent to a circumvention merely because that use would have been subject to a technological measure that would have controlled access to the work, but for that circumvention.”¹⁷⁶ Thus, a user is free to make a non-infringing use of copyrighted material without DMCA liability so long as someone else performed the circumvention. The revision, therefore, does not follow the analysis of the Federal Circuit and instead separates analyses of DMCA and copyright liability by focusing on the proof required for a DMCA claim.

Turning to *Hotz*, this rule has no impact because *Hotz* admitted to circumventing the access-protection measures. However, the case illustrates a problem created by the strict separation of liabilities. If a user hypothetically performed no additional circumvention to install the program *Hotz* created and the program is a fair use, then the law creates a

170. A dongle is a small device that plugs into a computer and serves as an adapter or as a security measure to enable the use of certain software. *Dongle*, MERRIAM-WEBSTER.COM, <http://www.merriam-webster.com/dictionary/dongle> (last visited Jan. 20, 2012).

171. *MGE UPS Sys. Inc. v. GE Consumer & Indus. Inc. (MGE I)*, 95 U.S.P.Q.2d 1632, 1634 (5th Cir. 2010), *withdrawn & superseded in part by MGE II*, 622 F.3d.

172. *Id.*

173. *Id.*

174. *MGE UPS Sys. Inc. v. GE Consumer & Indus. Inc. (MGE II)*, 622 F.3d 361, 365 (5th Cir. 2010).

175. *MGE I*, 95 U.S.P.Q.2d at 1635–36.

176. *MGE II*, 622 F.3d at 366.

scapegoat to enable legal acts by subsequent users. This has two detrimental effects on consumers.

First, it removes incentives for first movers such as Hotz to circumvent access controls and enable consumers to perform otherwise legal uses of copyrighted material. This is the detriment that Congress attempted to address with the triennial rulemaking procedure. Regardless of the risk of legal action, much of the benefit of being the first mover is an increase in reputation, which could be its own reward or could lead to earning higher wages or more lucrative jobs.¹⁷⁷ In fact, this seemed to be Hotz's motivation as he earns a living as a software security consultant and has achieved high status from jailbreaking the iPhone.¹⁷⁸

Second, it creates an incentive for first movers to hide their identities. In the case of video game consoles, consumers want the ability to use the consoles as they see fit.¹⁷⁹ Because the demand exists, someone will likely create a supply to meet it. If the identity of the supplier is hidden, then the consumer will not be able to rely on reputation to determine quality and safety. In fact, this problem is already occurring with custom firmware derived from Hotz's exploit. The PS3 uses secure socket layer technology, which verifies the identity of Sony's PlayStation Network servers using a list of certificates stored on the console.¹⁸⁰ Notably, none of the data sent, including credit card data, is encrypted.¹⁸¹ Custom firmware from malicious sources could include certificates for non-Sony servers, rerouting the flow of data and easily stealing the plain-text information.¹⁸² From the perspective of platform managers like Sony, this is beneficial because it deters consumers from using the custom firmware because of fear of having information stolen. However, the demand still exists and supply will meet it, so the incentive to hide identities created by the DMCA affects three groups: it introduces a new benefit for malicious sources to exploit consumers who would otherwise be able to choose secure products from

177. See Yochai Benkler, *Coase's Penguin, or, Linux and The Nature of the Firm*, 112 *YALE L.J.* 369, 425 (2002).

178. David Murphy, *iPhone, PS3 Hacker George 'GeoHot' Hotz Heads to Facebook*, *PC MAG.*, June 26, 2011, <http://www.pcmag.com/article2/0,2817,2387584,00.asp>.

179. Chloe Albanesius, *Judge Throws Out Sony PlayStation 'Other OS' Class-Action Suit*, *PC MAG.*, Dec. 14, 2011, <http://www.pcmag.com/article2/0,2817,2397633,00.asp>.

180. Ben Kuchera, *Report: PSN Hacked, Custom Firmware Could Pose Security Risk to Users (UPDATED)*, *ARS TECHNICA*, Feb. 17, 2011, <http://arstechnica.com/gaming/news/2011/02/report-psn-hacked-showing-stunning-lack-of-credit-card-security.ars>.

181. *Id.*

182. *Id.*

reputable sources they could identify; it decreases the benefits to consumers who are either too wary to use products from reputable, but unidentifiable, sources or who lose valuable information to malicious sources; and it maintains the status quo for Sony because they can effectively reduce the number of consumers who defect to alternative sources.

If the scapegoat effect did not exist, then the three interests involved are those programmers, who the platform creator could easily identify and collaborate with to create better platforms; the consumers, who gain the benefit of choice and lower costs from competition; and the platform manager, who may lose short-term monopoly profits, but may gain long-term because they are forced to innovate to meet consumer demand for better products. This may not be the kind of balancing Congress considered, but it does create important benefits and could work to eliminate the ability of malicious sources to take advantage of consumers.

In sum, the Fifth Circuit decision contributes two points to the proposed fair circumvention analysis. First, the analysis should be separate from a copyright infringement analysis, but it also cannot completely ignore the subsequent uses. Second, it must consider the intent and purpose of the first-mover to properly recognize that there are beneficial and malicious circumventors.

D. SIXTH CIRCUIT: DEFENSE OF NON-COPYRIGHTABLE SUBJECT MATTER

While the Ninth Circuit and Federal Circuit disagree on how to apply the access prohibition provision to copyrightable works, the Sixth Circuit showed that an absolute defense to the provision is to show that the work is not copyrightable subject matter because, as the statute states, the DMCA applies to “work[s] protected under this title.”¹⁸³

Static Control manufactured chips that could be installed in toner cartridges to make them interoperable with Lexmark printers.¹⁸⁴ Lexmark printer cartridges had a toner loading program (TLP) encoded in Lexmark’s own custom programming language.¹⁸⁵ The program both monitored the status of the cartridge and served as an authentication protocol between the cartridge and the software on the printer.¹⁸⁶ Static Control admitted to

183. 17 U.S.C. § 1201(a)(1)(A) (2006).

184. *Lexmark Int’l v. Static Control Components, Inc. (Lexmark II)*, 387 F.3d 522, 530 (6th Cir. 2004).

185. *Id.* at 529–30.

186. *Id.*

copying the TLP in its entirety, but that this program was dictated by practical realities, efficiency, and industry practice. In *Lexmark v. Static Control*, the district court held Static Control liable for a DMCA violation because the TLP controlled the consumers' ability to access the functions of the printer.¹⁸⁷

The Sixth Circuit reversed this ruling based on its reasoning that the TLP was not copyrightable, relying on *Altai's* reasoning that "[w]hile, hypothetically, there might be a myriad of ways in which a programmer may effectuate certain functions within a program . . . efficiency concerns may so narrow the practical range of choice as to make only one or two forms of expression workable options."¹⁸⁸ The court extended the analysis of printer cartridges to reason that the merger and scenes-a-faire doctrines generally preclude a code sequence from achieving copyright if compatibility requires that the code be included in a device to make it work.¹⁸⁹ Thus, DMCA liability was inapplicable to the TLP program that was copied. Implicit in this holding was that the TLP was a separate program from printer operations as a whole.¹⁹⁰

This defense is problematic because the distinction between separate programs and components of a single program is often arbitrary. Hypothetically, the TLP could have been considered a subroutine of the larger printing program. This is, in effect, how the District Court considered the situation and held the DMCA applicable to circumvention of the TLP.¹⁹¹ In this light, the Circuit Court may have reached their decision based on the fact that Lexmark separately copyrighted the TLP and the printing program.

The distinction between a subroutine and a program does not change the copyright infringement analysis set out in *Altai*, which was designed to filter out non-copyrightable, functional elements and then perform a fair use analysis on the remaining copyrightable elements.¹⁹² This analysis reduces the inequity of getting an amorphous concept like functionality wrong because it allows courts to balance the analysis over the four factors of fair use, working like a legal averaging of benefits and harms. With fair

187. *Lexmark Int'l v. Static Control Components, Inc.* (Lexmark I), 253 F. Supp. 2d 943, 968–69 (E.D. Ky. 2003).

188. *Id.* at 536 (citing *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 708 (2d Cir. 1992)).

189. *Id.*

190. *See id.*

191. *Id.* at 968–69.

192. *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 708 (2d Cir. 1992).

use, a finding that an element of a program is original rather than functional will maintain the element's copyright protection even though a court may otherwise find that a use was fair based on other factors. Furthermore, finding a single element functional will not cause the larger program to lose copyright protection. This allows courts to narrowly limit the precedential effects of their holdings because of the greater quantity of facts considered.

Conversely, the DMCA makes the single fact of functionality dispositive. If some element of the aggregate program is protectable, then the DMCA would prohibit circumvention of an umbrella access control over the aggregate program. To find the DMCA inapplicable the court must either find that the element is a separate functional program or find that the entire program is functional. A court may be more likely to err on the side of functional, especially if the element is difficult to separate from the larger program, or if faced with a sympathetic defendant or with a use that the court strongly feels is in the public interest. Consequently, the market for the program deemed functional is harmed because it may now be freely copied. While there is no proof that this difficulty of distinguishing between original and functional led to the outcome in *Lexmark II*, the fact that the court issues a majority opinion as well as two concurrences¹⁹³—one dissenting in part¹⁹⁴—suggests that there was a struggle to try and get the right result as a matter of public policy even though the facts could have driven the result either way. Thus, the absolute defense to the DMCA is flawed because it can actually serve to harm protected content in situations where a fair circumvention analysis might lead to a more individualized, equitable result.

Turning to *Hotz*,¹⁹⁵ the key issue would be whether the firmware that Hotz circumvented was functional. It had aesthetic visual components like a background and icons and the innovative Cross Media Bar (“XMB”) interface, but at its core it was software that simply controlled operation of the machine. It was very similar to the menu structure that was found functional in *Lotus v. Borland*.¹⁹⁶ The court would have had to spend a considerable amount of time examining whether the code used by Sony was sufficiently original or functional

193. *Lexmark II*, 387 F.3d at 551, 553.

194. *Id.* at 553 (Feikens, J., dissenting).

195. *Hotz* settled on March 31, 2011. Hachman, *supra* note 51.

196. *See Lotus Dev. Corp. v. Borland Int'l, Inc.*, 49 F.3d 807, 814–15 (1st Cir. 1995), *aff'd by an equally divided court*, 516 U.S. 233 (1996).

In sum, the problem exposed by the Sixth Circuit holding is that the distinction between original and functional may not be the kind of decision a court is well-equipped to make, especially when the all-or-nothing liability of the DMCA makes this distinction dispositive. In addition, protection of functional elements can benefit the public, and the proposed analysis should err on the side of allowing protection.

IV. PROPOSAL FOR A FAIR CIRCUMVENTION ANALYSIS FOR THE DIGITAL MILLENNIUM COPYRIGHT ACT AND ITS APPLICATION TO *SONY V. HOTZ*¹⁹⁷

A. OVERVIEW

This Note proposes that courts use a fair circumvention analysis for circumvention of access protection for software that is separate from the fair use analysis used for copyright infringement. Software is unlike traditional copyrighted material because its expressive content exists on multiple levels—both at the code level and at the human interaction level—and because expressive content is mixed with functional content. Because of software's uniqueness, courts have a history of analyzing software infringement differently.¹⁹⁸ This proposal follows that history. This proposal is supported by the existing reverse engineering exemption based on the fair use analysis in *Sega Enterprises v. Accolade*, and the fact that Congress explicitly intended that the DMCA should not change the precedent of that case.¹⁹⁹ In fact, early versions of the DMCA called for a fair use analysis to be used for all circumvention, but piracy concerns prevented its use in 1998 and the strength of movie industry lobbyists has blocked subsequent attempts to amend the DMCA.²⁰⁰ Given 17 U.S.C. § 1201(c)'s proscription against affecting copyright and an emphasis throughout the record that the law must continually adapt to changes in technology,²⁰¹ it seems time for the courts to reign in special interest and restore the law to its intended effect.

197. *Sony v. Hotz* was settled on March 31, 2011, without the court reaching the legal merits of the case; therefore, any predictions about this case are based on what could have happened if this case had gone to trial.

198. See *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693 (2d Cir. 1992); *Lotus Dev. Corp.*, 49 F.3d 807.

199. S. REP. NO. 105-190, at 29.

200. See Herman & Gandy, Jr., *supra* note 161.

201. See H.R. REP. NO. 105-551, pt. 2, at 23–25.

In practice, this proposal could require two analyses: one for the circumvention and one for any literal or non-literal infringement by the circumventer or by subsequent users of a device created by the circumventer. While some factors of the proposed analysis look toward the infringement analysis, it should be kept separate to recognize that Congress intended to give more protection to copyrighted works when they noted that the anti-circumvention provision may prevent fair uses. Implicit in using this analysis is the belief that the DMCA is more than a liability rule and is, as the Ninth Circuit asserts, a property right to prevent access.²⁰² However, as a part of the Copyright Act, this right must be tempered by the Act's overall purpose.

Since this analysis is based on the one used in *Sega*, it has four factors. However, the nature of each factor is different than in *Sega* and incorporates the lessons learned from the other cases discussed in Section III. Unlike traditional fair use, no single factor of the analysis is more important than another. In using the analysis this way, courts can avoid the problem illustrated by *Lexmark II*²⁰³—that courts may be more likely to find content functional to avoid harsh effects of the DMCA—by allowing full consideration of multiple factors. The factors of the proposed analysis are: (1) the purpose and character of the circumvention; (2) the nature of the access-restricted work; (3) the copyright holder's interest in restricting access; and (4) the market effect of allowing circumvention.

B. PURPOSE AND CHARACTER OF THE CIRCUMVENTION

The analysis here focuses on determining the intent behind circumventing the technological protection measure. A court must distinguish between malicious circumvention and circumvention intended to create public benefits. Clearly, malicious intentions would include piracy or destroying the content owner's ability to exploit the access-protected content. Beneficial intentions would be to make greater amounts of independently created expression possible, to maintain existing consumer expectations about the ability to use content, or to create some other important public benefit.

Sega is especially influential here, as it emphasizes a distinction between copying meant to reduce the amount of expressive works and copying meant to increase the amount of expressive works.²⁰⁴ Piracy or

202. See *infra* Part III.A.

203. See *infra* Part III.D.

204. *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510, 1523 (9th Cir. 1992).

acting to destroy the ability to exploit works has the net effect of reducing available works by removing incentives to create works in the first place, and therefore is counter to the purpose of the Copyright Act. Courts should discourage these intentions. Conversely, activities that allow an increase of the amount of expressive works, as in *Sega*, explicitly accomplish the purpose of the Copyright Act. Furthermore, the analysis follows the results of *Chamberlain* and *Lexmark*, wherein consumer expectations are respected and more expressive works contributes to a competitive market.

The beneficial intention may also be commercial in nature, as was Accolade's intention in *Sega*. If commercial intentions were disallowed, then the factor itself contradicts copyright by valuing the intention to increase the number of expressive works, but devaluing the ability to exploit those works. However, a commercial intention can also be malicious, such as trying to force a competitor out of the market, or trying to illegally profit. For example, if Accolade also manufactured a console and their goal in circumventing was to reduce Sega's licensing profits to force them out of the market, this commercial goal would weigh against them. Similarly, if a circumventer of Sony's firmware had the goal of distributing a firmware that stole credit card numbers, as discussed in Section III.C, this intention would weigh against fair circumvention.

Considering *Hotz*, this factor would weigh in favor of circumvention. Hotz explicitly intended to allow more expression to be created for the PS3. The software he distributed allowed users to install their own independently created applications onto the PS3. Furthermore, it was part of an attempt to restore the Linux feature to the PS3, which would have restored consumer expectations and investment in the console. Furthermore, Hotz explicitly tried to remove piracy capabilities from the software he distributed, suggesting he had no malicious intentions. Also, he was not trying to remove Sony from the market; his software explicitly required that Sony stay in the market because it required a PS3 to operate. In sum, this factor weighs in favor of Hotz circumventing the PS3.

C. NATURE OF THE ACCESS-RESTRICTED WORK

This factor considers the functionality or non-functionality of the work along with whether the access-protected work should be considered part of a larger expressive work. The first part of this factor is adapts the *Lexmark* analysis of functionality into a sliding scale: the more functional the access-restricted work, the more fair the circumvention. However, limiting it to part of a single factor has the benefit of allowing a court to balance

possibly erroneous technical determinations with other factors, especially economic factors where courts usually have more experience. It also allows content that is more functional than expressive to remain protected when a balance of other factors warrants it.

The second part of this factor is determining whether the access-protected work should be considered part of a larger expressive work. This analysis seeks to address both the problem of calling something an element of a program rather than a separate program and the problem of functional works that are integrated into platforms. In both cases, the access-restricted work may function as a gateway for user access to works that are clearly expressive. For example, in *Lexmark*, the toner loading program functioned as a gateway to use the printer and as a single component of the entire printer. In the video game context, the firmware on the console functions as a gateway to use the games, and as a single component of the larger game platform. In sum, this factor recognizes that largely functional works may require protection in order to protect other expressive content.

This factor should weigh in Sony's favor in *Hotz*. The functional nature of the circumvented firmware favors Hotz, but it does have some expressive elements such as the uniqueness of the user interface. More importantly, the firmware is essential to the operation of the entertainment platform, which consists of expressive game content that clearly warrants protection. Circumventing the firmware greatly weakens Sony's ability to protect that expressive content, so the firmware should be considered as merely part of the larger platform rather than a distinct program. Because of this, the factor weighs against allowing circumvention.

D. COPYRIGHT HOLDER'S INTEREST IN RESTRICTING ACCESS

The next consideration is the copyright holder's interest in maintaining access controls over his or her work. This factor's essential inquiry is whether the circumvention seeks to avoid the copyright holder's interest in extracting the customary price for access to the work. Beyond this, a court could weigh any of the holder's other interests that also comport with the goals of copyright. For a console manufacturer this could include security, ensuring profitability, meeting existing contracts and demands of publishers, or a host of other interests. This analysis recognizes that, as discussed in Section III.A, the text of the DMCA allows for the protection of interests instead of being limited to rights.

However, this factor also incorporates the analysis from *Sega* that considers whether the interests of the copyright holder are anti-competitive

or contradict the goals of copyright.²⁰⁵ A court would have to consider whether preventing circumvention allows the holder to keep competitors out of the market or extract a grossly unreasonable price from consumers. It seemed that the former concern contributed to the results in *Chamberlain* and *Lexmark* as underlying assumptions; this analysis would make those underlying assumptions an explicit factor in a court's reasoning.

In *Hotz*, the court may have some difficulty in applying this factor, but would likely weigh it in Sony's favor. Part of this factor weighs in Hotz's favor because his circumvention did not allow consumers to avoid paying the customary price for the firmware that operates the system. Any person who wanted to use Hotz's circumvention must have already purchased a PS3, which included the access-restricted work. However, this factor weighs more heavily in favor of Sony for two reasons. First, Sony had a definite business interest in keeping the PS3 secure to prevent piracy of its own content and to prevent piracy of third-party content on the console. There could be considerable complexity here if the court engages in a detailed analysis of the economic effect of piracy. Second, there was no evidence that Sony was restricting access for anti-competitive reasons. Not only were publishers free to create software for other platforms, but those other platforms also had larger user bases in the United States.²⁰⁶ Furthermore, Sony maintained competitive prices with those other platforms rather than grossly overcharging. On balance, Sony's interests comport with the goals of copyright and weigh in favor of disallowing circumvention.

E. SECONDARY MARKET EFFECTS OF ALLOWING CIRCUMVENTION

The immediate market effect is implicitly considered in the first and third factors of the proposed analysis. To consider the secondary market effects of allowing circumvention, a court would look beyond the traditional narrow market considered in copyright infringement fair use. There are two expanded views to consider for software—time and alternative markets. Expanding the market by time looks to the possible long-term effects of allowing circumvention. An example would be the hypothetical results discussed in section II.B.2., wherein allowing Accolade to reverse engineer the Sega Genesis code could have led to market

205. *Id.* at 1523.

206. Leigh Alexander, *Analysts: PS3 Passes Xbox 360 Worldwide, Nintendo Successor Within A Year?*, GAMASUTRA, Mar. 31, 2011, http://www.gamasutra.com/view/news/33854/Analysts_PS3_Passes_Xbox_360_Worldwide_Nintendo_Successor_Within_A_Year.php (noting that Xbox 360 still leads U.S. sales by 10 million units).

disruption. Expanding to alternative markets, a court would consider both the effect of circumvention on the market for complementary products, such as the market for toner cartridges in *Lexmark*, and the possibility for the copyright holder to mitigate any detriment through an alternative revenue stream, such as Microsoft charging subscription fees for digital services.²⁰⁷

In *Hotz*, this factor should weigh in favor of allowing circumvention because the circumvention would likely cause little harm to the secondary markets of games sales and console sales and Sony has proven alternative revenue streams. It is true that piracy could harm the market for game content, however, Sony's sales lag behind both Nintendo's Wii and Microsoft's Xbox 360 in the United States²⁰⁸ and both of those consoles have been circumvented to allow piracy.²⁰⁹ Thus, games for the other consoles still maintain strong sales despite piracy. Furthermore, the circumvention still requires purchase of the console, so that market is unaffected.

Additionally, Sony could leverage its existing online system to enhance revenues. Unlike Microsoft, which requires a subscription to use multiplayer gaming,²¹⁰ Sony has broken its online service into three tiers: a premium service with extra features that requires a paid subscription,²¹¹ a basic service that allows online gaming for free,²¹² and no service for circumvented consoles.²¹³ Sony could require all users to pay for online access or it could provide a choice: allow users who circumvent the option of paying for online access while those who do not circumvent have free access. In sum, this factor weighs in favor of circumvention because there is little proof that circumvention would cause a significant loss and opportunities exist for Sony to avoid the loss and even enhance their revenue.

207. *Price Change for Xbox LIVE Gold Subscription*, MAJOR NELSON, Aug 30, 2010, <http://majornelson.com/2010/08/30/price-change-for-xbox-live-gold-subscription>.

208. *Id.*

209. Fitzpatrick, *supra* note 15; Hollister, *supra* note 14; *The Wii, Officially "Hacked"?*, *supra* note 15.

210. *How to Use Xbox LIVE for Free*, SALON, <http://techtips.salon.com/use-xbox-live-10053.html> (last visited Apr. 18, 2012).

211. PLAYSTATION PLUS, <http://us.playstation.com/psn/playstation-plus> (last visited Jan. 20, 2012).

212. Verducci, *supra* note 24.

213. Siddanth, *Sony Begins Banning PS3 Jailbreakers and Pirates in the Europe and US*, TECH MANIA, Feb. 19, 2011, <http://www.tech-mania.com/2011/sony-begins-banning-ps3-jailbreakers>.

V. CONCLUSION AND REMAINING QUESTIONS

On balance, Hotz would likely have prevailed using the proposed analysis. The second and third factors—nature of the access-restricted work and copyright holder’s interest in restricting access—weigh in favor of Sony, but the first and fourth factors—purpose and character of the circumvention and secondary market effects—weigh more heavily in Hotz’s favor given the facts. However, the inquiry is fact-specific so the balance could tip in Sony’s favor if a detailed investigation revealed that Hotz actually had malicious intention or that there would be a larger detrimental effect from piracy than this Note has considered.

It is important to note that *Hotz* is about more than reverse engineering; it is about the slow stripping of rights from consumers. Implicit in these claims, and explicitly stated by Hotz to the press,²¹⁴ is a fundamental dispute about the ability of manufacturers to control the use of their products after sale through licensing and technological restrictions placed on bundled copyrighted works. Congress explicitly stated that the DMCA must not be used to create a pay-per-use society.²¹⁵ However, licensing provisions, such as those that eliminate the first sale doctrine,²¹⁶ increasingly restrict ownership of purchased products.

Perhaps more worrisome than content owners using the legal system to strip consumer rights is the trend of accomplishing this through technology. Jailbreaking may be the issue now, but the future problem will be digital rights management that requires constant connections to authentication servers in order to use purchased content, with no guarantee that purchasers will be able to access this content if the servers are taken offline.²¹⁷

Though this Note does not address these concerns in detail, the primary benefit of the fair circumvention analysis proposed in this Note is that the elasticity of the factors allows it to be applied to future legal issues. Moreover, the fact-specific nature of the analysis helps to create

214. Kris Graft, *Killzone 3, Crysis 2 Hit Torrent Sites Prior To Official Launch*, GAMASUTRA, Feb. 14, 2011, http://www.gamasutra.com/view/news/33019/Killzone_3_Crysis_2_Hit_Torrent_Sites_Prior_To_Official_Launch.php?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+GamasutraNews+%28Gamasutra+News%29&utm_content=Google+Reader.

215. H.R. REP. NO. 105-551, pt. 2, at 32.

216. *See, e.g., Vernor v. Autodesk, Inc.*, 621 F.3d 1102, 1116 (9th Cir. 2010) (holding that license provision eliminated first sale doctrine).

217. RABOWSKY, *supra* note 21, at 225.

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consistency similar to the fair use analysis used for copyright infringement. Given the current split among the circuits regarding the meaning of the Digital Millennium Copyright Act's anti-circumvention provision, consistency is exactly what is needed.

