# NOTE

## BLIZZARD VERSUS BNETD: A LOOMING ICE AGE FOR FREE SOFTWARE DEVELOPMENT?

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### INTRODUCTION

Video games, once an insignificant and even maligned offshoot of the global entertainment and media industry, are in the midst of a renaissance. Currently the video games market commands over $25 billion in annual revenue.[1] Analysts believe that within the next few

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1 *PWC: Video Game Industry to Drive Entertainment Sector*, BUSINESSWEEK ONLINE, Oct. 7, 2005, http://www.businessweek.com/innovate/content/oct2005/id20051007_999151.htm.

years, video games will drive the growth of the entertainment industry, which is projected to reach $1.8 trillion.[2]

While no single factor explains the successful rise of the gaming industry, it owes its mainstream acceptance partly to increasingly complex virtual environments that stem from constant gains in computing power. As the technology that drives video games evolves, the games evolve as well.[3] Players can then enjoy games that have more realistic environments and effects. In turn, these improvements allow the games to reflect the developers' stylistic intent more accurately.

The meteoric rise of the Internet has enhanced this drive toward realism by facilitating "multiplayer gaming" in which players compete or cooperate within the same game over the Internet.[4] But the Internet is also an expansive and largely uncontrolled distribution channel for transferring computer data. Consequently, it is a thorn in the side of copyright holders who are battling the global piracy of applications and content.[5]

It should come as no surprise that much of the litigation regarding the current scope of copyright protection concerns video games.[6] Software developers have taken great pains to protect their games from pirates and consumers alike.[7] Video game developers in particular have been quick to sue alleged infringers, both under the Copyright Act of 1976[8] and the Digital Millennium Copyright Act

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2 *See id.*

3 Many argue that advances in video game design drive advances in computer design as well. New games often require the most powerful hardware to run. If such games become popular, consumers will buy high-power computer systems spurring hardware manufacturers to release more powerful products to satisfy this increasingly important market segment. Recent examples of superior hardware for gaming applications include Intel's Extreme Edition processors, Nvidia's 3D accelerator cards, and IBM's Cell and Xenon processors.

4 Robert Workman, *Gaming Through the Ages: Take a Look at Evolutions in Gaming over the Past Few Decades*, BUSINESSWEEK ONLINE, Oct. 9, 2006, http://www.businessweek.com/innovate/content/oct2006/id20061009_924541.htm; *see also* James Brightman, *Report: PC Gaming on the Rise*, BUSINESSWEEK ONLINE, Feb. 28, 2006, http://www.businessweek.com/innovate/content/feb2006/id20060228_545385.htm (finding 53% of computer-owning households use personal computers (PCs) for games and 60% of PC gamers play online).

5 Alfred Hermida, *Software Piracy "Seen as Normal,"* BBC NEWS, Jun. 23, 2005, http://news.bbc.co.uk/2/hi/technology/4122624.stm.

6 *See, e.g.*, Sony Computer Entm't, Inc. v. Connectix Corp., 203 F.3d 596 (9th Cir. 2000); Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510 (9th Cir. 1993); Atari Games Corp. v. Nintendo of Am. Inc., 975 F.2d 832 (Fed. Cir. 1992).

7 *See* Elizabeth Knefel, *StarCraft Lawsuit: Privacy and Piracy*, CNN INTERACTIVE, May 4, 1998, http://www.cnn.com/TECH/computing/9805/04/privacy_piracy/index.html. *But see* Id Software: Technology Downloads, http://www.idsoftware.com/business/techdownloads/ (last visited Mar. 15, 2007) (revealing how some game companies, rather than implementing protective measures, will in fact release their game engines to the public in order to encourage open-source development).

8 17 U.S.C. §§ 101–804 (2000).

(DMCA),[9] a controversial and wide-ranging effort to "bring[ ] U.S. copyright law squarely into the digital age."[10]

On September 1, 2005, the Eighth Circuit ruled in *Davidson & Associates v. Jung* that the open-source development of an alternative online service for some of the world's most popular multiplayer video games violated the DMCA's anticircumvention and antitrafficking provisions.[11] The defendants, who created the alternative online service, reverse engineered the networking communications portion of plaintiff's copyrighted code.[12] In doing so, the defendants necessarily ignored the client authentication portion of the code that verifies if the copy of the game connected to the network was purchased legitimately.[13]

In this Note, I argue that the Eighth Circuit decided *Jung* incorrectly. More importantly, the court's holding presents a dangerous consequence that the framers of the DMCA did not intend: Software copyright holders may now immunize their works, even from lawful circumvention, merely by incorporating a proprietary and arbitrary encryption or scrambling code. Legitimate reverse engineers must break these codes to achieve "interoperability,"[14] but must violate the DMCA in the process. This scheme results in an illogical system of copyright protection in which the legal definition of interoperability changes with the type of electronic security measures used.

This scheme may be used to eliminate interoperability, quashing commercial competition[15] and "protecting" a software market from noncompetitive, interoperable extensions and enhancements, particularly those that stem from the open-source development community.

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9 Pub. L. No. 105-304, 112 Stat. 2860 (codified as amended in scattered sections of 17 U.S.C.).

10 S. REP. NO. 105-190, at 2 (1998).

11 *See* 422 F.3d 630, 641 (8th Cir. 2005). Section 1201(a) of the Digital Millennium Copyright Act (DMCA) prohibits any person from "circumvent[ing] a technological measure that effectively controls access to a work protected under this title." 17 U.S.C. § 1201(a) (2000). Circumvention under § 1201 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." *Id.* § 1201(a)(3)(A). A technological measure is anything that "'effectively controls access to a work' if the measure, in the ordinary course of its operation, requires the application of information, or a process or a treatment, with the authority of the copyright owner, to gain access to the work." *Id.* § 1201(a)(3)(B).

12 *See Jung*, 422 F.3d at 636.

13 *See id.* ("[U]nlike Battle.net, [Bnetd.org] does not determine whether the CD Key is valid or currently in use by another player.").

14 Free On-Line Dictionary of Computing defines "interoperability" as "[t]he ability of software and hardware on multiple machines from multiple vendors to communicate." Interoperability from FOLDOC, http://foldoc.org/index.cgi?query=interoperability&action=Search (last visited Mar.7, 2007).

15 *See* Jacqueline Lipton, *The Law of Unintended Consequences: The Digital Millennium Copyright Act and Interoperability*, 62 WASH. & LEE L. REV. 487, 489 (2005).

While such a result serves the designs and desires of copyright holders beautifully, it severely chills the educational, research, and hobbyist communities which have long been protected from aggressive claims of copyright infringement by a system of copyright originally designed to promote fair use, creativity, innovation, and beneficial works in the market. This impact contradicts congressional intent to protect copyright holders from digital piracy.[16]

In Part I of this Note, I introduce the reader to the world of video games, personal computer (PC) copy protection, and multiplayer gameplay, and I explore the backdrop of *Davidson & Associates v. Jung*. I outline and describe the conflict between the parties and highlight the key issues that drove the Eighth Circuit's decision. In Part II, I examine the case both through the lenses of traditional copyright law under the Copyright Act of 1976 and under the DMCA. The discussion takes *Jung* to its reasonable conclusion and demonstrates the chilling effect that the case will have not only on socially beneficial open-source developers but also on commercial developers of interoperable software. In Part III, I discuss many concerns raised about the DMCA that relate directly to the *Jung* decision. I also give reasons and suggest methods for protecting legitimate interoperability interests. Finally, in Part III, I call on judicial, legislative, and government agencies to act toward such an end.

## I
## Background: The World of Blizzard Entertainment and Multiplayer Video Games

### A. A Primer on Video Games and Blizzard Entertainment

#### 1. *The Games of Blizzard Entertainment*

Video games are big business. The industry is an incredibly powerful force in today's technology-driven economy; Electronic Arts (EA), the field's eight-hundred pound gorilla and the world's largest video game publisher,[17] is listed on the S&P 500,[18] has a market value of over $19 billion, and realizes higher annual profits than Symantec, Adobe, and until recently, Google.[19] A major competitor of EA and

16 *See id.* at 490.

17 *See* Matthew Kirdahy, *Investors Play Electronic Arts*, Forbes.com, Feb. 20, 2007, http://www.forbes.com/markets/2007/02/20/electronic-arts-games-equity-markets-cx_mk_0220markets35.html.

18 *See* Standard & Poor's, Indices S&P 500, http://www2.standardandpoors.com/portal/site/sp/en/us/page.topic/indices_500/2,3,2,2,00,2,14,2007,69,0,3,0,0,0,0,0,0.html (last visited Apr. 24, 2007).

19 *See* Forbes.com, The Forbes Global 2000, http://www.forbes.com/2005/03/30/05f2000land.html (follow "Sort List By Rank" hyperlink; then select range 801–900 under "Search Results") (last visited Apr. 24, 2007); *see also* Elec. Arts Inc., EA 2006 Proxy Statement and Annual Report 31 (2006), http://media.corporate-ir.net/media_files/irol/88/

the second largest publisher of games for PCs, Vivendi Games (VG), grosses over $1 billion a year and owns the development studio of Davidson & Associates, better known to gamers as Blizzard Entertainment.[20]

Blizzard is well known as one of the most successful and creative developers of PC games. The company has created several immensely popular game series, including *Diablo*, *Diablo II*, *Warcraft*, *Warcraft II*, *Warcraft III*, *Starcraft*, and *World of Warcraft*.[21] Blizzard claims to have sold over nine million copies of *Starcraft* since its release in 1998.[22] As of this writing, Blizzard's best-selling game, *World of Warcraft*, is the largest and most successful "massively multiplayer online game"[23] in history, with over eight million active monthly subscribers.[24]

Many of Blizzard's games, primarily the *Warcraft* and *Starcraft* series, are products of a genre known as real-time strategy (RTS) games.[25] RTS games are generally characterized by casting the player in the role of a military commander in a combat scenario. RTS games utilize the gameplay mechanism of requiring the player to control an army and issues tactical and strategic commands to individual units in "real-time," as opposed to "turn-based" moves such as in chess. The player's goal is to outmaneuver and defeat the player's opponents,

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88189/reports/AnnualReportProxy2006.pdf (reporting $2.951 billion in net revenue for 2006).

20 *See* Press Release, Vivendi, Vivendi Full Year 2006 Revenues Reach €20 Billion 5 (Jan. 31, 2007), *available at* http://www.vivendi.com/ir/download/pdf/CA%202006%20anglais.pdf.

21 *See* Blizzard Entertainment, http://www.blizzard.com (select menu link for "games") (last visited Apr. 24, 2007).

22 *See* Press Release, Blizzard Entertainment, Blizzard Entertainment Unveils Key New Starcraft: Ghost Features at E3 (May 18, 2005), http://www.gamespot.com/ps2/action/starcraftghost/news.html?sid=6126716.

23 "Massively multiplayer online games," known as MMOGs or MMOs, differ from traditional video games in a number of ways: MMOGs are inherently multiplayer and almost exclusively internet-based; they generally support thousands or tens of thousands of simultaneous players interacting with and against each other in the same "game world"; MMOG game worlds are often "persistent" environments, meaning that the game world and other gamers continue to play as others log on or off; game developers operate large central servers to connect players to these persistent game environments; and players typically pay a monthly or bimonthly fee to access the MMOGs. *See* Constance A. Steinkuehler, *Massively Multiplayer Online Video Gaming as Participation in a Discourse*, 13:1 MIND, CULTURE & ACTIVITY 38, 40 (2006), *available at* http://website.education.wisc.edu/steinkuehler/papers/steinkuehlerMCA2006.pdf; Wikipedia.org, Massively Multiplayer Online Game, http://en.wikipedia.org/wiki/MMOG (last visited Feb. 28, 2007).

24 *See* Press Release, Blizzard Entertainment, World of Warcraft Surpasses 8 Million Subscribers Worldwide (Jan. 11, 2007), http://www.blizzard.com/press/070111.shtml.

25 *See* Wikipedia.org, Real-Time Strategy, http://en.wikipedia.org/wiki/Real_time_strategy_game (last visited Jan. 25, 2007).

which are typically controlled by the computer's artificial intelligence.[26]

2. *Internet Multiplayer Enters the Equation*

The nature of RTS games makes them amenable to multiplayer gameplay in which a player competes against an army controlled by another player, rather than a computer opponent. Multiplayer gameplay thus increases the social dimension of gaming by allowing players to interact with each other. In addition, multiplayer gameplay provides players with a richer and more challenging experience far superior to the artificial intelligence of computer-controlled opponents, which many skilled players find insufficient and limited.[27]

Blizzard's RTS games support multiplayer participation through several means, including dial-up modem, "null modem" serial cable,[28] local area network (LAN),[29] and for recent games, through the company's free Internet service, Battle.net.[30]

Battle.net serves several functions for Blizzard games. Primarily, it acts as a communications tool and centralized meeting place for gamers looking to play multiplayer games.[31] After releasing each new game, Blizzard made Battle.net more functional by including an automated ladder system to track competitor skill and performance during online play; support for selecting and filtering different modes of games visible to players; a client-server gaming mode to track player progress more accurately and to curtail in-game cheating in *Diablo II*;

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26 *See id.*; *see also* Bruce Geryk, *A History of Real-Time Strategy Games, Part I: 1989–1998*, GAMESPOT, http://www.gamespot.com/gamespot/features/all/real_time/ (last visited Apr. 24, 2007) (discussing the development of the RTS genre of games).

27 *See* John E. Laird & Michael van Lent, *Human-Level AI's Killer Application: Interactive Computer Games*, AI MAG., Summer 2001, at 16, *available at* http://www.kddresearch.org/Groups/AI-CBR/Papers/Interactive-computer-games-AIMag22-02-003.pdf; *see also* John Breeden, *Siege the Day!*, GAME INDUS. NEWS, http://www.gameindustry.com/review/item.asp?id=451 (last visited Apr. 24, 2007) (explaining that gamers prefer multiplayer gameplay due to flaws in artificial intelligence (AI) technology).

28 *See* Blizzard.com, Blizzard Entertainment: Technical Support Site (Null Modem Serial Cable), http://www.blizzard.com/support/?id=asc0193p (last visited Apr. 24, 2007).

29 LAN connections communicate through various protocols, and *Starcraft* supports LAN multiplayer via two available protocols, Internetwork Packet Exchange (IPX) and User Datagram Protocol (UDP). *See* Blizzard.com, Blizzard Entertainment: Technical Support Site (IPX Network), http://www.blizzard.com/support/?id=asc0128p (last visited Apr. 24, 2007).

30 *See* Battle.net, Home Page, http://www.battle.net/ (last visited Mar. 14, 2007). Note that *World of Warcraft*, as an MMOG, is not played through the same Battle.net system as are Blizzard's other games.

31 *See* Davidson & Assocs. v. Jung, 422 F.3d 630, 633 (8th Cir. 2005).

and, most recently, anonymous matchmaking and automated tournament management.[32]

Before Blizzard released Battle.net, a third-party commercial application called Kali enabled people to play PC games over the Internet if the games supported LAN multiplayer through the Internetwork Packet Exchange (IPX) protocol. These games included Blizzard's *Warcraft*, *Diablo*, and *Starcraft* series. Kali worked by emulating and passing a game's IPX communication through the Internet's Transmission Control Protocol/Internet Protocol (TCP/IP), essentially fooling the game into thinking it was being networked through a LAN and not through the Internet.[33] Blizzard unofficially supported the Kali protocol in its earlier games and even included an application in later versions of *Warcraft II* to facilitate Kali support within the game.[34] After Blizzard developed and released Battle.net for multiplayer Internet use of supported games, the company updated some older games to support its own service and quietly dropped even unofficial mentions of Kali from its web site.[35] Of particular significance to the issue in question in this Note is the user authentication scheme Blizzard incorporated into Battle.net.

### 3. *Copy Protection and User Authentication in Blizzard Games*

Because computers can create bit-for-bit copies of software relatively easily, software piracy has been a serious issue ever since the release of the first PCs over thirty years ago.[36] The Software and Infor-

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32 *See* Battle.net, Battle.net Info, http://www.battle.net/news/0611.shtml (last visited Mar. 14, 2007); Wikipedia.org, Battle.net, http://en.wikipedia.org/wiki/Battle.net (last visited Mar. 1, 2007).

33 *See* Posting of Ernest Miller to http://research.yale.edu/lawmeme/modules.php?name=News&file=article&sid=149 (Feb. 26, 2002, 22:07:21 EST) [hereinafter Posting of Ernest Miller].

34 Blizzard's support web site maintains a list of changes made in each version of *Warcraft II*. In version v1.2, Blizzard included its "WAR2KALI" program as well as a full shareware version of the Kali software suite. *See* Blizzard Entertainment: Technical Support Site, Warcraft II, Changes in Version v1.2, http://www.blizzard.com/support/?id=nwt0496p (last visited Apr. 24, 2007).

35 Although Battle.net is a free service for players who have purchased Blizzard games, by moving players away from third-party online services, Blizzard was able to introduce its own in-game features, such as ladder systems, tournaments, and player skill matchmaking. This change also allowed Blizzard to sell Internet banner advertising within the Battle.net interface. *See* Battle.net, Advertising, http://www.battle.net/advertising/ (last visited Mar. 1, 2007).

36 On February 3, 1976, Bill Gates wrote an angry "Open Letter to Hobbyists" regarding what he perceived as rampant piracy of the BASIC compiler program Microsoft developed for the Altair PC. *See* William Henry Gates III, General Partner, Micro-Soft, An Open Letter to Hobbyists (Feb. 3, 1976), *available at* http://www.digibarn.com/collections/newsletters/homebrew/V2_01/homebrew_V2_01_p2.jpg. Gates claimed that the free sharing of his company's program amounted to stealing and deprived software developers of deserved royalties. *See id.* Many view Gates' letter as the first documented case of widespread software piracy. *See* Adam Goode, Intellectual Property 3–4 (Dec. 6, 2000) (unpublished

mation Industry Association (SIIA) claims that in 1999 software developers across the globe lost over $12 billion in revenue to software piracy.[37] Computer games naturally constitute a significant percentage of software piracy today because gamers are generally savvy users of computers and the Internet and arguably have greater access to the new tools and technologies that facilitate piracy.[38]

The prevalence of the Internet, as both a convenient medium of transfer and a facet of modern society, is a significant factor in software piracy as well. Because of the (relatively) ample storage capacity of a compact disc (CD), which holds between 650 and 700 megabytes of data,[39] Blizzard—and virtually every other major game developer—ships games on CDs; a game shipping on a single CD is thus necessarily limited to a maximum of 700 megabytes of data.[40] While a full CD-worth of data is significant, the popularity of high-speed Internet access (commonly referred to as "broadband") in homes, businesses, and other institutions makes transferring hundreds of megabytes not only practical, but downright trivial to accomplish.[41]

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manuscript, on file with Rennselear Polytechnic Institute Department of Computer Science), *available at* http://www.cs.rpi.edu/courses/fall00/ethics/papers/goodea.pdf. Interestingly, the main mode of transmission of the copied software was not over a network such as the Internet or magnetic media such as floppy disks, but rather on "paper tape," an old form of data storage consisting of strips of paper punched with holes that a computer can read mechanically. *See* Computer History Museum, Altair BASIC Paper Tape (1976), http://www.computerhistory.org/exhibits/highlights/basic.shtml (last visited Apr. 24, 2007).

37 *See* SOFTWARE & INFO. INDUS. ASS'N, SIIA'S REPORT ON GLOBAL SOFTWARE PIRACY 2000 (2000), *available at* http://www.siia.net/estore/GPR-00.pdf.

38 *See* Ent. Software Ass'n, Anti Piracy FAQ, http://www.theesa.com/ip/anti_piracy_faq.php (last visited Apr. 24, 2007) (attributing over $3 billion in losses to pirated entertainment software not including Internet piracy).

39 *See* Joanne M. Snow, *CD-Rom Briefs: Must Today's High Tech Lawyers Wait Until the Playing Field is Level?*, 17 J. MARSHALL J. COMPUTER & INFO. L. 615, 619 (1999) ("The CD-ROM disc, within its 4¾ inch diameter, has the capacity to store up to 700 megabytes of data or over 716,000,000 characters."). While the term megabyte, as commonly used to describe storage capacity, is technically a misnomer, *see* National Institute of Standards and Technology, Definitions of the SI Units: the Binary Prefixes, http://physics.nist.gov/cuu/Units/binary.html (last visited Apr. 24, 2007), this Note will use the term to avoid unnecessary confusion.

40 The actual game data may be much larger than the capacity of the CD it ships on as most games, including Blizzard's, are compressed to fit on fewer discs for distribution and are uncompressed to their original size during the installation process. *See, e.g.*, Tom Harris, *How File Compression Works*, http://computer.howstuffworks.com/file-compression.htm (last visited Mar. 14, 2007).

41 *See* Universal City Studios, Inc. v. Reimerdes, 111 F. Supp. 2d 294, 314 (S.D.N.Y. 2000) ("DSL lines, which increasingly are available to home and business users, offer transfer rates of 7 megabits per second. Cable modems also offer increased bandwidth. . . . Hence, transmission times ranging from three to twenty minutes to six hours . . . are readily achievable . . . ." (footnotes omitted)).

To combat the increasing ease of piracy, Blizzard, beginning with *Starcraft* in 1998,[42] instituted a copy protection and user authentication scheme known as a CD key.[43] A CD key is typically a unique ten- to twenty-digit alphanumeric sequence derived from a secret mathematical algorithm and printed on the CD case or packaging in which the software product ships.[44] One of the principal functions of the CD key is copy protection to prevent the installation of unauthorized, or "pirated," versions of a game.[45] To install a Blizzard game from the distribution CD onto a user's computer, the user must enter the CD key into the game's installer program.[46] The CD key is verified against a mathematical algorithm stored within the software's installer that determines if the value entered is *potentially* valid;[47] if so, the installer will allow the game to be installed onto the user's computer. If the installer rejects the value entered as an invalid CD key, the installation is halted. Notably, the installer does not connect to the Internet or to Battle.net at any point during the installation to verify that the CD key entered was actually issued by Blizzard.[48]

Blizzard's CD key also serves a "user authentication" function. Unlike copy protection, user authentication serves as a gatekeeper only for the optional multiplayer aspect of Blizzard's games.[49] Once the game has been installed—and, necessarily, after a CD key has been inputted and verified—if a user connects to Blizzard's Battle.net

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42 *See* Posting of Ernest Miller, *supra* note 33.

43 *See id.*

44 *See* Davidson & Assocs. v. Jung, 422 F.3d 630, 633 (8th Cir. 2005).

45 *See id.*

46 *See* Posting of Ernest Miller, *supra* note 33.

47 Because the CD key is generated from an algorithm, and each key must be unique for each CD shipped, the algorithm used must necessarily have enough valid combinations to account for the potentially large number of software units sold. This results in a larger pool of mathematically "valid" keys than the number of keys actually issued by the software developer. Hackers have taken advantage of this fact by creating key generators, or "keygens," which decipher the mathematical algorithm used and output a CD key value that the installer will read as valid. *See* JOHN F. GANTZ ET AL., IDC, WHITE PAPER: THE RISKS OF OBTAINING AND USING PIRATED SOFTWARE 2 (2006), *available at* http://download.microsoft.com/download/7/6/9/769E42E0-68C4-4826-838B-0F801DB2EFC2/IDC%20White%20Paper%20on%20Risks%20of%20Pirated%20Software.pdf; Wikipedia.org, Keygen, http://en.wikipedia.org/wiki/Keygen (last visited Mar. 20, 2007). That value, however, may already exist as another user's CD key or, more likely, may never have been issued by the developer. The desire for a large number of potential CD keys has led to instances in which the "algorithm" employed is shockingly simple. Take, for example, the well-known and comical case of Microsoft's Windows 95 operating system, which utilized a ten-digit numeric CD key. The Windows installer authenticated any ten-digit number that summed its last seven digits to equal a multiple of seven, including "7777777." *See* Posting of Trevor Barry, ccstb@bath.ac.uk, to supporters@bath.ac.uk (Apr. 2, 1996), *available at* http://www.surrey.ac.uk/eng/Intranet/ict/MISC/CDKEYS.TXT (last visited Apr. 26, 2007).

48 *See* Posting of Ernest Miller, *supra* note 33.

49 *See id.*

service in an attempt to play online,[50] the Battle.net servers will check the installed game's CD key for two criteria: (1) whether the CD key is valid, and (2) whether another Battle.net user is simultaneously logged on to the service with the same CD key.[51]

Significantly, the verification process used by Battle.net is different from, and much more stringent than, that used by the software installer's mathematical algorithm; it likely consists of a check against an internal database of actual Blizzard-issued CD keys.[52] Importantly for this Note, the proprietary Battle.net authentication scheme cannot be decrypted or accessed by third parties, and Blizzard is unwilling to release the scheme.[53] In the second prong of user authentication, if Battle.net determines that the CD key is valid but that another computer using the same CD key is simultaneously logged into the system, Battle.net will refuse access to the new attempt.[54] Because only one instance of any legitimate CD key is allowed at any time, this system effectively prevents a user with a valid CD key from sharing the key.[55]

### B. Open Source and the Bnetd Project

Like many open-source software projects, Bnetd was started by a group of volunteers and hobbyists trying to create a solution to problems they perceived with the Battle.net service.[56] The authors of

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50 A player who merely connects to Battle.net does not trigger the CD key check process. In fact, Battle.net allows any installed Blizzard game to connect to Battle.net in order to download updates (known as "patches") that have been released for the game after the original CDs have been distributed. Only after each game has been patched to the latest version will Battle.net attempt to authenticate a CD key. *See id.*

51 *See id.*

52 In Blizzard's Emulation FAQ, the company asks and answers the question: "Why doesn't Blizzard provide facilities that enable these emulators to authenticate CD keys through Battle.net? [Answer:] In order for us to keep our proprietary CD-key algorithms secure, we cannot allow outside servers to query for the validity of CD keys." Battle.net, Emulation FAQ, http://www.battle.net/support/emulationfaq.shtml (last visited Apr. 26, 2007). While it is clear from this statement that Blizzard keeps its CD key authentication routines private, successfully installing the game with a mathematically correct CD key created by a keygen will nonetheless nearly always result in a denial of access from the Battle.net servers. *See* Wikipedia.org, *supra* note 47.

53 *See* Battle.net, *supra* note 52.

54 *See* Blizzard Entertainment: Technical Support Site, CD-Key in use by [another player], http://www.blizzard.com/support/?id=asc0641p (last visited Mar. 1, 2007).

55 Because of the overlap in this multitiered authentication scheme, anyone using a shared CD key is free to install the game, update to the latest patch, and play the single-player game or multiplayer game mode via a modem, serial, or LAN connection—that is, any game mode outside of Battle.net, including the semisupported Kali. *See supra* notes 33–35 and accompanying text. Further, multiple users may log onto Battle.net using the same CD key so long as none do so simultaneously. *See* Battle.net, CD-Key in use by [Your Name], http://www.blizzard.com/support/?id=asc0729p (last visited Apr. 26, 2007).

56 *See* Bnetd FAQ, Why Create Bnetd when Battle.net Already Exists?, http://www.chiark.greenend.org.uk/~owend/free/bnetd-faq.html#q1.4 (last visited Apr. 26, 2007). The original Bnetd site, created and maintained by Tim Jung, the named defendant in *Davidson & Associates v. Jung*, has been transferred to Blizzard's control as of the

Bnetd created it to provide an alternative TCP/IP multiplayer server to Battle.net that anyone could download and run. With most volunteer open-source projects, the various contributing authors and developers come and go in a more or less fluid fashion, and active work on the application can be intermittent, depending on the interest, time, and skill of the particular participants at any given point. The Bnetd software was at all times developed and released under the GNU General Public License (GPL), which seeks to promote software development processes and source code that all may contribute to, adapt for use in other open-source software, or merely peruse.[57]

The Bnetd project initially began life as "StarHack," an application developed by student Mark Baysinger in 1998.[58] StarHack had very limited functionality and originally supported only Battle.net's chat service.[59] According to an archived version of the web site, the purpose of StarHack was not to facilitate piracy.[60] Rather, the creators sought to provide a forum for exchanging useful information for "writ[ing] [StarHack's] own Battle.net server software," "gather[ing] stats about games, automatically," and "gain[ing] insight on the [Starcraft] program."[61] Even after Baysinger abandoned work on the Battle.net server portion of Bnetd, other developers continued working on it in the familiar fashion of open-source development.

The new developers (the defendants in *Davidson & Associates v. Jung*) picked up where Baysinger left off and largely completed the functional aspects of Bnetd. The Bnetd server acts as a Battle.net emulator and largely manages to "mirror all of the user-visible features of Battle.net."[62] The authors' ultimate purpose was to make Bnetd fully interoperable with Blizzard's games, thus allowing players of Blizzard games to bypass frequent outages or interruptions in the Battle.net service.[63] To achieve this interoperability, the authors of Bnetd recorded and studied the network traffic sent between a Blizzard game

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court's latest decision, and all files and resources that existed there have been removed. *See* Former Bnetd Web Site, http://www.bnetd.org (last visited Apr. 26, 2007) (presently redirecting to Blizzard's Battle.net web site, http://www.battle.net).

57 *See* GNU General Public License, Version 2, June 1991, http://www.fsf.org/licensing/licenses/gpl.txt.

58 *See* Posting of Ernest Miller, *supra* note 33.

59 *See id.*

60 StarHack About, http://web.archive.org/web/19990219233052/starhack.ml.org/about/ (last visited Apr. 26, 2007).

61 *Id.*

62 Davidson & Assocs. v. Jung, 422 F.3d 630, 635 (8th Cir. 2005).

63 *See id.* at 635–36. Also note that Bnetd can and has been used to play Blizzard games such as *Starcraft* over internal LAN networks using the more common TCP/IP protocol rather than the older IPX protocol supported by Blizzard, which also allowed multiple installations of *Starcraft* with a single CD key and without any online authentication of the CD key over Battle.net. *See* Reply Brief of Defendants-Appellants at 18–22, Davidson & Assocs. v. Jung, No. 04-3654 (8th Cir. Mar. 7, 2005).

and the Battle.net server and attempted to disassemble the game's files to compile its code.[64] To accomplish this, the authors had to first install and run the game and connect to a Battle.net server. In doing so, they necessarily saw and agreed to Blizzard's End User License Agreement (EULA), presented upon installation of the game, and to the Terms of Use (TOU) of the Battle.net service, which appeared after first connecting to a Battle.net server.[65] Both the EULA and the TOU expressly prohibited reverse engineering of the game and of the Battle.net service.[66]

One of the key differences between Battle.net and Bnetd is how each program handles authentication whenever users, or clients, connect to the server. Battle.net takes a two-pronged approach to determine whether clients are using legitimate or pirated copies of its games.[67] First, the client sends to Battle.net an encrypted version of its CD key, which Battle.net then validates against an internal database of legitimate CD keys kept under Blizzard's exclusive control.[68] If Battle.net determines that the client's CD key is valid, it then ascertains whether that same CD key is already connected to Battle.net. A single CD key simultaneously used by more than one player constitutes piracy because multiple installations by multiple users violate Blizzard's EULA.[69] If no other clients using the same CD key are connected to Battle.net, the server sends the game a signal that allows the game to complete its connection and enter Battle.net mode.[70] In contrast, because the authors of Bnetd had no access to Blizzard's internal CD key database, they could not incorporate a similar CD key validating mechanism into a Bnetd server, and instead their only option was to set the servers to send an "okay" signal to any client that attempted to connect.[71]

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64 *See Jung*, 422 F.3d at 636.

65 *See id.* at 633–35.

66 *See id.* at 634–35 nn.4–5.

67 *See* Davidson & Assocs. v. Internet Gateway, 334 F. Supp. 2d 1164, 1169 (E.D. Mo. 2004).

68 *See id.*

69 *See id.*

70 *See id.*

71 *See id.* at 1173. It may, however, have been possible for Bnetd to perform the second prong of the Battle.net authentication process—if more than one copy of the same CD key attempted to connect to the same Bnetd server, the server could conceivably detect this and refuse the connection just as Battle.net would. The record does not discuss why this concurrent "unique CD key" procedure was not implemented in Bnetd, *see id.*, but for various reasons, without access to a list of truly legitimate CD keys, concurrent uniqueness alone is of questionable value when used as a means of authenticating clients. *See* Wikipedia.org, *supra* note 47.

On February 19, 2002, Blizzard Entertainment issued a cease and desist order to Bnetd's host, Internet Gateway, Inc.[72] Citing concerns about piracy, Blizzard requested that Internet Gateway stop development and distribution of the Bnetd program immediately.[73]

## II
## *Davidson & Associates v. Jung* and Treatment Under Traditional Copyright

### A. The Decision

In *Davidson & Associates v. Jung*,[74] the Eighth Circuit affirmed the district court on two major grounds.[75] First, the court of appeals decided that the defendant-creators of Bnetd violated the DMCA's anticircumvention and antitrafficking provisions by reverse engineering Blizzard's Battle.net code.[76] Second, the Eighth Circuit held that Bnetd failed to qualify for the DMCA's narrow interoperability exemption for reverse engineering.[77]

Regarding anticircumvention, the court held that Battle.net's "secret handshake"—the process of exchanging encrypted CD key information between the game and server—was a technological measure controlling access to Blizzard's games, and that Bnetd, by allowing access to Battle.net mode without a valid or unique CD key, circumvented Blizzard's technological measure.[78] The court then made short work of the § 1201(a)(2) antitrafficking issue, holding that Bnetd had limited commercial application and was distributed solely to "circumvent[ ] Blizzard's technological measures controlling access to Battle.net and the Blizzard games."[79]

Second, the court held that the Bnetd authors did not fall within the interoperability exception to the DMCA's anticircumvention provision.[80] Because Bnetd servers could not authenticate CD keys sent

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72 *See* Blizzard Entertainment Corporate Counsel, Letter to Internet Gateway Inc. (Feb. 19, 2002), http://www.eff.org/IP/Emulation/Blizzard_v_bnetd/20020219_blizzard_bnetd_letter.html.

73 *See id.*

74 422 F.3d 630 (8th Cir. 2005).

75 *See id.* at 640–41. The Eighth Circuit also affirmed the district court's holding on conflict preemption, thus allowing parties to contract away any rights regarding reverse engineering and fair use through a valid EULA and TOU. *See id.* at 638–39.

76 *See id.* at 640–41. The anticircumvention provision is contained in 17 U.S.C. § 1201(a)(1)(A), which states that "[n]o 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) (2000). The antitrafficking provision is contained in 17 U.S.C. § 1201(a)(2).

77 *See Jung*, 422 F.3d at 641–42.

78 *See id.* at 640–41.

79 *Id.* at 641.

80 *See* 17 U.S.C. § 1201(f)(1) (2000) (allowing a lawful user of a computer program to circumvent a technological measure "for the sole purpose of identifying and analyzing

by Blizzard games connecting to the defendants' servers,[81] gamers could play unauthorized copies of Blizzard games over Bnetd. This fact essentially prevented Bnetd from claiming the exemption provided in § 1201(f)(1).

### B. Traditional Copyright Law Treatment

Cases involving video games have helped to determine the reasonable limits of reverse engineering in establishing computer program interoperability. *Sega Enterprises Ltd. v. Accolade, Inc.*[82] defines the general scope of reverse engineering in this regard, namely that a person seeking to understand unprotected functional elements of a program may disassemble a copyrighted program for a legitimate reason when no other means of access to those elements exist.[83] *Sony Computer Entertainment, Inc. v. Connectix Corp.*[84] likewise follows the *Sega* holding and extends protection for reverse engineering to situations such as Bnetd's in which disassembly is used to allow another company's games to run on an alternate gaming platform.[85]

The *Sega* facts are distinctly parallel to those in the instant situation. There, engineers for the video game developer Accolade reverse engineered the code from Sega's video game console and cartridges in order to make Accolade's unlicensed games compatible and interoperable with Sega's Genesis game system.[86] According to the court, Accolade engineers reverse engineered Sega's copyrighted material "simply to study the functional requirements for Genesis compatibility so that [they] could modify existing games and make them usable with the [Sega] Genesis console."[87] The court added that Accolade's

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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 that any such acts of identification and analysis do not constitute infringement under this title"); *Jung*, 422 F.3d at 642.

81 *See Jung*, 422 F.3d at 642.

82 977 F.2d 1510, 1514 (9th Cir. 1992) (holding that a programming company has a right to use a competitor's copyrighted work in order to understand the noncopyrightable, functional elements of the work).

83 *See id.*

84 203 F.3d 596 (9th Cir. 2000).

85 *See id.* at 602–06.

86 *See Sega*, 977 F.2d at 1514.

87 *Id.* at 1522. The *Sega* court also noted that Accolade's purpose in reverse engineering Sega's code was nonexploitive and had limited commercial application. *See id.* at 1522–23. Although the Bnetd developers knew that unauthorized copies of Blizzard games were being used on Bnetd servers, the *Jung* court acknowledged that Bnetd's purpose was to provide an alternative to the sometimes frustratingly unreliable Battle.net service. *See* Davidson & Assocs. v. Jung, 422 F.3d 630, 635 (8th Cir. 2005) ("The users of Battle.net have occasionally experienced difficulties with the service. To address their frustrations with Battle.net, a group of non-profit volunteer game hobbyists, programmers, and other individuals formed a group called the 'bnetd project.'").

actions were legitimate in part because the defendants lacked any other method available to study the Sega system's requirements.[88] Similarly, the Bnetd authors examined Battle.net network traffic and behavior simply to study the functional requirements in order to achieve compatibility with Blizzard games.[89]

The *Connectix* court followed the *Sega* rationale on facts even closer to those in *Jung*. In *Connectix*, software engineers examined how Sony's proprietary PlayStation console functioned in order to create an emulated alternative platform on which users could play Sony PlayStation games.[90] Reverse engineering in that case, as in *Sega*, was the "only way to gain access to the ideas and functional elements embodied in a copyrighted computer program," and the reasons for reverse engineering were legitimate.[91]

The *Connectix* court also examined the set of nonexclusive factors set forth in 17 U.S.C. § 107 for determining fair use.[92] These include:

> 1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
>
> 2) the nature of the copyrighted work;
>
> 3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
>
> 4) the effect of the use upon the potential market for or value of the copyrighted work.[93]

In the *Connectix* case, involving copying and disassembling of Sony's PlayStation BIOS,[94] the court extended *Sega* to cover alleged infringement of hardware compatibility.[95] Importantly, *Connectix* also held that a fair use defense in such a situation can prevail despite any infringing nature of intermediate copies—including disassembled copies—a defendant may have used.[96]

The development of Bnetd unfolded in a similar fashion. The Bnetd authors were examining a proprietary system to which they had no other means of access, as the Battle.net code resided with Blizzard, and the Bnetd authors could not look to software manuals or other publications to learn how Battle.net functioned. The Bnetd authors

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88 *See Sega*, 977 F.2d at 1522.

89 *See Jung*, 422 F.3d at 636.

90 *See* 203 F.3d at 598, 606.

91 *Id.* at 602 (quoting *Sega*, 977 F.2d at 1527) (emphasis omitted).

92 *See* 203 F.3d at 602–08. For examples of other cases applying the § 107 fair use factors in the software context, see Triad Sys. Corp. v. Se. Express Co., 64 F.3d 1330, 1336–37 (9th Cir. 1995); *Sega*, 977 F.2d at 1521–22.

93 17 U.S.C. § 107 (2000).

94 *See* 203 F.3d at 598.

95 *See id.* at 603–04.

96 *See* 203 F.3d at 599 ("Any other intermediate copies made by Connectix do not support injunctive relief, even if those copies were infringing.").

sought to achieve a functionally compatible and interoperable platform that enthusiasts could use to play Blizzard games online.[97] To accomplish this goal, Bnetd's authors had to physically access a Blizzard work or create an intermediate copy of one.[98] In this respect, Bnetd is directly analogous to the Connectix engineers' goal of creating a functionally compatible and interoperable platform to support Sony PlayStation games.[99]

Further, the fair use factors favor Bnetd more strongly than they did either Accolade or Connectix. The purpose of Bnetd was strictly nonprofit; the Bnetd software was not only freely available, it was also distributed under the GPL[100] and included source code that was free to download, modify, and distribute.[101] In addition, the "hack value" claimed by the Bnetd authors leans far more closely to deriving an educational experience than to any commercial one.[102] The other factors also fall in line with *Sega* and *Connectix*, as the nature of the work of functional computer code is afforded lower protection under copyright law than is literary work;[103] the amount of Blizzard copyrighted code used was extremely low since Bnetd was created by observing network traffic between Battle.net and the Blizzard games;[104] and, finally, the effect on the public market for Blizzard's copyrighted work might not be substantially affected by the existence of a product that "competes" with a freely provided service and offers additional multiplayer options to those who purchase Blizzard's games.[105]

Additionally, the *Connectix* court stressed the role of reverse engineering as fair use in promoting the "ultimate aim [of the Copyright Act]," which is to "stimulate artistic creativity for the general public

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97 *See supra* note 89 and accompanying text.

98 *See supra* note 64 and accompanying text; *cf. Connectix*, 203 F.3d at 599–600 (explaining that certain ways of gaining information besides reverse engineering, such as reading about the program, would be ineffective in this case because Sony did not make the information available in that way).

99 *See supra* notes 90–91 and accompanying text.

100 *See supra* note 57 and accompanying text.

101 *See* Davidson & Assocs. v. Internet Gateway, 334 F. Supp. 2d 1164, 1172 (E.D. Mo. 2004) ("The bnetd project is a volunteer effort and the project has always offered the bnetd program for free to anyone who wants a copy of it.").

102 *See id.*

103 *See* Sony Computer Entm't, Inc. v. Connectix Corp., 203 F.3d 596, 603 (9th Cir. 2000) (quoting Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510, 1526 (9th Cir.1992)).

104 *See* Posting of Ernest Miller, *supra* note 33 (noting that the actual Bnetd code did not contain any of Blizzard's copyrighted code).

105 Battle.net itself is a free service to which Blizzard allows access to any Internet-playable Blizzard game. *See* Davidson & Assocs. v. Jung, 422 F.3d 630, 633 (8th Cir 2005). Blizzard's potential concerns about unauthorized copies of Blizzard games gaining access to Bnetd servers do have merit here, but as the *Connectix* court stressed, no single factor listed in 17 U.S.C. § 107 is dispositive in analyzing fair use. *See Connectix*, 203 F.3d at 608 (quoting Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 578 (1994)).

good."[106] Thus, Bnetd's serving as an alternative to a proprietary server system suffering from "difficulties that users sometimes experienced"[107] actually broadens the market for Blizzard's own games by providing a more stable gaming experience for users. At the same time, servers like Bnetd alleviate the traffic load on Blizzard's own servers.

Most likely, under longstanding interpretations of traditional copyright law, the Bnetd authors would have had a significantly stronger defense to Blizzard's infringement claims. The well-established and protected doctrine of fair use provides a safe harbor that spurs innovation and balances the rights and responsibilities of copyright holders, limiting their ability to use copyright as a means to stifle the creative market improperly. But in the software context, how has the DMCA changed fair use doctrine?

## III
## Results, Concerns, and Suggestions Arising from the DMCA

The DMCA was originally intended to "bring[ ] U.S. copyright law squarely into the digital age," without carving out wholesale changes to existing copyright law.[108] Yet the DMCA significantly altered the landscape of high-tech copyright law, particularly with respect to the doctrines governing reverse engineering and fair use of protected material. Congress's overriding intent in passing the DMCA was to stem the perceived tide of uncontrolled digital media piracy.[109] Though recent cases have arisen to test the DMCA's antipiracy[110] and profit protection measures independently,[111] the

106 *Connectix*, 203 F.3d at 603 (quoting Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 432 (1983)).

107 Davidson & Assocs. v. Internet Gateway, 334 F. Supp. 2d 1164, 1172 (E.D. Mo. 2004).

108 *See* S. Rep. No. 105-190, at 2 (1998); s*ee also* Lipton, *supra* note 15, at 490 ("In passing the DMCA, Congress intended to protect copyright holders against digital piracy in copyright works.").

109 *See* Chris Sprigman, *Copyright Versus Consumers' Rights: How Companies Are Using the Digital Millennium Copyright Act to Thwart Competition*, FindLaw's Writ, Mar. 25, 2003, http://writ.findlaw.com/commentary/20030325_sprigman.html.

110 *See, e.g.*, Universal City Studios v. Reimerdes, 111 F. Supp. 2d 294 (S.D.N.Y. 2000) (finding a violation of the DMCA's antitrafficking provisions in providing and posting Internet links to proprietary DVD decryption software and algorithms that violated the DMCA).

111 *See, e.g.*, Lexmark Int'l v. Static Control Components, 387 F.3d 522 (6th Cir. 2004) (finding that the plaintiff failed to show the merits of a DMCA claim against a competitor that reverse engineered the plaintiff's printer toner code to create a compatible product); Chamberlain Group, Inc. v. Skylink Tech., Inc., 381 F.3d 1178 (Fed. Cir. 2004) (finding that the reverse engineering of the plaintiff's proprietary garage door opener codes in the development and sale of a universal transmitter did not violate the DMCA's anticircumvention provision).

Bnetd project addresses a more difficult scenario in which an antipiracy measure encourages anticompetitive acts.

### A. Problems Arising from *Jung* Under the DMCA

The DMCA has weathered many attacks from legal scholars regarding its potentially negative effect on beneficial competition and consumer rights.[112] Courts' responses to such concerns have been somewhat mixed. Except for the most obvious and egregious cases—those using DMCA copyright provisions in claims that are not inherently associated with copyright violations—DMCA claims have not gained widespread use.[113] In this regard, cases such as *Lexmark* and *Chamberlain* are easily distinguished since they encompassed allegations made against commercial competitors absent any clear inference of piracy.[114]

*Jung* has some notable similarities with these examples and the classic piracy cases. First, Blizzard's anticircumvention claim does not directly implicate a claim of piracy—the record states that the purpose of Bnetd was to provide a competitive gaming environment for current owners of Blizzard's games.[115] In light of Bnetd's competitive nature, both *Lexmark* and *Chamberlain* are relevant, and the anticircumvention claim is merely incidental to the real issue Blizzard is addressing. Furthermore, that the Bnetd project allows potentially unauthorized copies of Blizzard games to be played is a convenient "catch-22." Blizzard is in effect partially responsible for this flaw, and the company has failed to resolve it by modifying its own protection scheme.[116] In addition, because Blizzard does not share its CD key

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112 *See, e.g.*, Lipton, *supra* note 15, at 487 ("DMCA liability should not arise in situations where copyright infringement is not a central commercial concern of the plaintiff."); Jennifer M. Urban & Laura Quilter, *Efficient Process or "Chilling Effects"? Takedown Notices Under Section 512 of the Digital Millennium Copyright Act*, 22 SANTA CLARA COMPUTER & HIGH TECH. L.J. 621, 623 (2006) (analyzing data from over 900 DMCA related takedown notices and concluding the provision yields "little benefit to some of the constituencies it was intended to support"); Derek J. Schaffner, Note, *The Digital Millennium Copyright Act: Overextension of Copyright Protection and the Unintended Chilling Effects on Fair Use, Free Speech, and Innovation*, 14 CORNELL J.L. & PUB. POL'Y 145, 147 (2004) ("[T]he DMCA is not justifiable public policy because it grants too much power to the copyright holder and thus creates a chilling effect on fair use, free speech, future innovation, and competition.").

113 *See* Lipton, *supra* note 15, at 490 (advocating a presumption against DMCA liability when a copyright holder claims a competitor is infringing by manufacturing and distributing competing tangible goods and the copyright issue is merely incidental).

114 *See Lexmark*, 387 F.3d at 531; *Chamberlain*, 381 F.3d at 1185.

115 *See* Davidson & Assocs. v. Jung, 422 F.3d 630, 635 (8th Cir. 2005) (describing Bnetd as "a functional alternative to Battle.net").

116 There are several notable "holes" in the copy protection scheme Blizzard uses to control the spread of unauthorized copies of its games. First, Blizzard does not check the true validity of CD keys upon installation. *See supra* notes 47–52 and accompanying text. Second, though it has the means and opportunity to do so through Battle.net, Blizzard does not prevent unauthorized installation or patching of games when a client first con-

database or algorithms, it was impossible for Bnetd to develop in a way that curbs potential unauthorized use as effectively—or ineffectively—as Blizzard's own system.[117] Because of this, *Jung* may severely restrict the notion of fair use in nearly any software claim.[118] After *Jung*, if a software developer implements an antipiracy system at any level of effectiveness and at any point in the software workflow, such system, which under the DMCA gives the developer the right to exclude all others, will immunize the developer even against products seeking to legitimately modify or interoperate with its software.[119]

The Eighth Circuit also read the DMCA's antitrafficking provision expansively in *Jung*. The court characterized Bnetd's sole purpose as a means to circumvent controlling access to Battle.net.[120] Such a characterization ignores both the main functions of the Bnetd service and the differences between Bnetd—an openly available and user-controllable free software application—and Battle.net.[121]

## B. Protecting Fair Use Under the DMCA

While the prevalent spread of digital and networked technology has affected the rights of copyright owners, addressing the DMCA's

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nects to Battle.net. *See supra* note 50 and accompanying text. Third, Battle.net does not validate CD keys between gateways. *See* Davidson & Assocs. v. Internet Gateway, 334 F. Supp. 2d 1164, 1169 (E.D. Mo. 2004). Finally, the record does not indicate that Battle.net checks for multiple, nonconcurrent unauthorized copies of the same CD key in Battle.net mode. *See Jung*, 422 F.3d at 633, 636. Instead, Battle.net's only concern is if a single valid CD key is concurrently in use simultaneously within the same gateway. *See id.* Thus, numerous unauthorized copies of Blizzard's games can be played over Battle.net as long as a recognized CD key is used and no two copies of the same CD key are simultaneously connected to the same gateway in Battle.net mode. That this occurs in practice can be inferred from Blizzard's help file, which details steps a user can take if his or her CD key is being used—either cooperatively or not—by other players. *See* Blizzard.com, CD-Key in use by [another player], http://www.blizzard.com/support/?id=AAll0641p (last visited Jan. 28, 2006).

117 *See Internet Gateway*, 334 F. Supp. 2d at 1173.

118 *See* Reply Brief of Defendants-Appellants, *supra* note 63, at 17 ("If the simple act of developing a key to bypass an authentication system made a section 1201(f) defense unavailable, then no defendant would ever qualify under section 1201(f) because it provides an affirmative defense to this very act of circumvention . . . .").

119 *See* ELECTRONIC FRONTIER FOUNDATION, UNINTENDED CONSEQUENCES: FIVE YEARS UNDER THE DMCA 1 (2003), http://www.eff.org/IP/DMCA/unintended_consequences.pdf ("[The anticircumvention provision] grants to copyright owners the power to unilaterally eliminate the public's fair use rights.").

120 *See Jung*, 422 F.3d at 641.

121 The court's rationale for Bnetd's "'limited commercially significant purpose'" also implicates fair use. *Id.* (quoting 17 U.S.C. § 1201(a)(2) (2000)). In concluding that Bnetd had "limited commercial purpose because its sole purpose was to avoid the limitations of Battle.net," *id.*, the court ignored the fact that software developers often create and release "free" software with source code availability for future development and educational purposes and not as a commercial product, *see* StarHack About, *supra* note 60, and that Battle.net itself is a free service that complements the purchase of Blizzard's games, *see Jung*, 422 F.3d at 633.

overbroad corrective measures is a challenge. Three major avenues exist to protect high tech and commercial innovation under the new copyright regime, but each has inherent difficulties.

Recognizing the potential reach of DMCA liability, Congress included a safeguard within the Act. Section 1201(a)(1)(C) requires the Librarian of Congress to determine once every three years whether the DMCA's anticircumvention provision will adversely affect individuals in their ability to make noninfringing use of copyrighted works.[122] Although Congress must conduct these triennial copyright proceedings with consideration to nonprofit, educational, and research purposes,[123] the proceedings are not likely to help protect fair use in the near future. Unfortunately, the current Librarian of Congress has taken an absolute stance regarding the scope and goals of the proceedings and has failed to see a need to broaden anticircumvention rights for consumers and free software authors.[124] The narrow scope and restrictive response of the proceedings are so ineffectual that the Electronic Frontier Foundation (EFF) decided it would be futile to even participate in the recent 2006 Triennial Rulemaking.[125] Either despite or as a result of the EFF's nonparticipation, the 2006 rulemaking passed without granting an anticircumvention exemption that would implicate *Jung*.[126]

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122 17 U.S.C. § 1201(a)(1)(C) (2000) ("[D]uring each succeeding 3-year period, the Librarian of Congress . . . shall make the determination in a rulemaking proceeding . . . 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 anticircumvention provision] in their ability to make noninfringing uses . . . of copyrighted works.").

123 *See* Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 70 Fed. Reg. 57526 (Oct. 3, 2005) ("This notice requests written comments from all interested parties, including . . . education institutions, libraries and archives, scholars, researchers, and members of the public. . . .").

124 *See Operations of the U.S. Copyright Office: Hearing Before the Subcomm. on Courts, the Internet and Intellectual Property of the H. Comm. on the Judiciary*, 108th Cong. 9 (2004) (statement of Marybeth Peters, Register of Copyrights), *available at* http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=108_house_hearings&docid=f:94033.wais.pdf ("The fears of copyright owner abuse of section 1201 have not become a reality in any significant respect.").

125 *See* FRED VON LOHMANN & GWEN HINZE, ELECTRONIC FRONTIER FOUNDATION, DMCA TRIENNIAL RULEMAKING: FAILING THE DIGITAL CONSUMER 1 (2005), http://www.eff.org/IP/DMCA/copyrightoffice/DMCA_rulemaking_broken.pdf; Fred von Lohmann, DMCA Triennial Rulemaking: Failing Consumers Completely, http://www.eff.org/deeplinks/archives/004212.php (Nov. 30, 2005, 06:33 AM) ("EFF has participated in each of the two prior rulemakings . . . . This year, we are not submitting any proposals. Where consumer interests are concerned, the rulemaking process is simply too broken.").

126 The rulemaking proceedings resulted in exemptions for six classes of copyrighted works, including one for computer programs and video games released in obsolete formats. Interestingly, computer and video games are specifically discussed in five proposed exemptions, highlighting the growing visibility and concerns of the games industry. *See* Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 37 C.F.R. pt. 201 (2006).

Another approach to curbing the existing reach of the DMCA is through a legislative carve-out, as suggested by Professor Lipton.[127] By extending this approach to software or, in a more limited fashion, open-source software, the law would presume a defendant has not violated the DMCA in instances where the copyright is incidental to the plaintiff's claim. Given how easy it is to implement even a minor form of copy protection to any software product or code, the carve-out approach seems all the more logical. The triviality and duplicity of concocting a qualifying "technological measure" under § 1201 for the real purpose of protecting a business practice suggests that Congress should clarify or cabin the DMCA against such attempts.

Finally, since the meaning of fair use may change according to the industry and technology in question, courts can safeguard technological innovation through judicial scrutiny and interpretation. Doing so following the *Jung* decision certainly presents a risk. But the possibility remains that other circuits or the U.S. Supreme Court may recognize the Eighth Circuit's decision as incorrect, thereby preventing other courts from applying *Jung* in future cases involving legitimate interoperability. Such a possibility is not necessarily remote given the original intent of the DMCA,[128] the long-standing history of accepted reverse engineering and fair use,[129] and a growing understanding of the implications of freedom in an increasingly digital and connected world.

## Conclusion

Though the sun has yet to set on current notions of fair use, the Eighth Circuit's interpretation of interoperability under the DMCA and the DMCA's lack of usable fair use exemptions strongly indicate a movement toward commercial protectionism.

*Jung* has significantly weakened and cast into judicial uncertainty landmark technology cases, including *Sega* and its progeny,[130] and *Lexmark,*[131] which formerly limited clear abuses of the DMCA's anticircumvention and antitrafficking provisions. Businesses now have more freedom to claim copyright infringement against socially beneficial activities that would be protected by interoperability but for the business' own use of technological measures to encode or encrypt its content. This opens the door to numerous analogous situations in

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127 *See* Lipton, *supra* note 15, at 487.

128 *See supra* note 108.

129 *See, e.g.*, Sony Computer Entm't, Inc. v. Connectix Corp., 203 F.3d 596, 602–03 (9th Cir. 2000); Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510, 1527–28 (9th Cir. 1993).

130 *See supra* notes 82–85.

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

which similar tactics may be employed to even greater effect. *Davidson & Associates v. Jung* condones judicial sanctioning of closed encryption schemes that have no balancing requirement to account for interoperability. Indeed, programmers may now implement such schemes with a predominant purpose of preventing interoperability, namely, preventing extension, competition, and ultimately dilution of price for commercial products.

Fortunately, neither fair use advocates nor the *Jung* defendants are out of options just yet. The Eighth Circuit's ruling and the district court's summary judgment decision may be appealed. Given that circuits are split over the meaning of interoperability in the DMCA, there will be broad implications for the future of fair use if the Supreme Court does not intervene.

Furthermore, the legislative and administrative checkpoints of the Librarian of Congress's triennial reviews[132] indicate that the DMCA's drafters acknowledged that potential dangers and inherent changes in technology mandate practical and flexible laws. The complex side issues that cloud *Jung* implicate these greater concepts. Moreover, the risk that commercial software developers will misuse technological copyright as a proxy for commercial protection all but ensures a more serious legislative review of this issue, if not now, then most certainly by the end of the coming decade. Until such time, copyright holders wield in their hands a powerful weapon that will, at least in the short term, successfully blunt the socially beneficial development of open-source software—software that is borne of innovation and effectively competes with and extends the functionality of major commercial applications. As Blizzard demonstrates, it is clear that copyright holders will not hesitate to use such a weapon.

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132 *See* 17 U.S.C. § 1201(a)(1)(C) (2000).