COPYRIGHT ISSUES WITH OPEN SOURCE SOFTWARE

I.   INTRODUCTION

Today, most companies are using open source software internally, and many are actively distributing open source software either within software programs or embedded in physical products. According to one study, ninety percent of companies will utilize OSS either directly or embedded in other programs by 2012.[1] When companies use open source software in development projects, one survey found that twenty-two percent of the software product or application is open source software.[2] Software developers, especially those newly educated, view OSS as another resource to use in developing software.[3] The term "open source" refers to a concept of freedom of software, not freedom from costs associated with using the software.[4] The bottom line is that users are not free to use the software in any way that they might like; if users do not heed the requirements placed on the use of OSS, they might find themselves embroiled in an action claiming copyright infringement.[5]

Each piece of OSS has an accompanying license. Although these licenses may be grouped into three broad categories, permissive, weak "copyleft," and strong "copyleft,"[6] figuring out which restrictions apply to software programs that combine different pieces of OSS, and, more fundamentally, whether the licenses even allow the pieces to be combined, are daunting tasks. The Open Source Initiative (OSI) has approved approximately seventy separate OSS licenses.[7] In addition, open source developers have created hundreds of other versions of software

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[1] Richard Acello, Opening Up to Open Source: Corporation Counsel Must Be Ready to Deal with "Free" Software and Its Licensing, 94–JUN A.B.A. J. 32, 32 (2008).

[2] Press Release, Black Duck Software, Inc., Commercial Use of Open Source Software Drives Significant Cost Savings for Enterprises and Development Organizations, says Black Duck Analysis (Nov. 10, 2009), http://www.blackducksoftware.com/news/releases/2009-11-10.

[3] Acello, *supra* note 1, at 32–33.

[4] *See* Edmund J. Walsh, *Open Source Software Flexes Its Muscles*, CORP. COUNS. MAG., June 1, 2008.

[5] *See id.*

[6] Robert H. Tiller et al., *Best Practices for Acquisition, Use and Distribution of Free and Open Source Software*, in OPEN SOURCE SOFTWARE 2008: BENEFITS, RISKS AND CHALLENGES FOR SOFTWARE USERS, DEVELOPERS AND INVESTORS, at 248–50 (PLI Patents, Copyrights, Trademarks, & Literary Prop. Course Handbook Ser. No. 14750, 2008). A licensee who makes modifications to code licensed under a "copyleft" license and then distributes those modifications must license the modifications under the same open source license, although in the case of one copyleft license, limited supplemental terms may added. *See* Alan Stern & A. Clifford Allen, *Open Source Licensing*, in UNDERSTANDING THE INTELLECTUAL PROPERTY LICENSE 2010, at 432 (PLI Intellectual Prop. Course Handbook Ser. No. G-1025, 2010).

[7] Open Source Initiative, License by Name, http://www.opensource.org/licenses/alphabetical (last visited Aug. 27, 2011).

licenses, from variations of OSI-approved licenses to highly specific open source licenses with unique requirements.[8]

In the not too distant past, the perception was that OSS licenses mostly went unenforced; even when enforcement was pursued, it was done publicly through peer pressure rather than through legal channels.[9] In the last several years, however, three situations have changed that perception. First, in 2007, the Software Freedom Law Center (SFLC) began filing a series of copyright infringement lawsuits on behalf of the developers of BusyBox and other OSS licensed under the second version of the GNU General Public License (GPLv2).[10] All of these lawsuits, except one, have settled[11]; the remaining lawsuit was filed in December 2009 and most defendants have settled. Consequently, gleaning practice tips from these lawsuits is guesswork, at best. Second, the Court of Appeals for the Federal Circuit, by virtue of its decision in *Jacobsen v. Katzer*,[12] signaled that there is no longer a question of enforceability of OSS licenses through copyright infringement actions.[13] Third, in August 2010, Oracle America, Inc.

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[8] *See* William H. Venema, *Open-Source Software*, Nᴀᴛ'ʟ L. J., Oct. 20, 2008, at 12.

[9] Tiller et al., *supra* note 6, at 245.

[10] Press Release, Software Freedom Law Center, Best Buy, Samsung, Westinghouse, and Eleven Other Brands Named in SFLC Lawsuit (Dec. 14, 2009), http://www.softwarefreedom.org/news/2009/dec/14/busybox-gpl-lawsuit/; Press Release, Free Software Foundation, Free Software Foundation Files Suit Against Cisco for GPL Violations (Dec. 11, 2008), http://www.fsf.org/news/2008-12-cisco-suit; Press Release, Software Freedom Law Center, SFLC Files GPL Violation Lawsuit Against Extreme Networks, Inc. (July 21, 2008), http://www.softwarefreedom.org/news/2008/jul/21/busybox/; Press Release, Software Freedom Law Center, SFLC Files Another Round of GPL Violation Lawsuits on Behalf of BusyBox Developers (June 10, 2008), http://www.softwarefreedom.org/news/2008/jun/10/busybox/; Press Release, Software Freedom Law Center, BusyBox Developers File GPL Infringement Lawsuit Against Verizon Communications (Dec. 7, 2007), http://www.softwarefreedom.org/news/2007/dec/07/busybox/; Press Release, Software Freedom Law Center, Second Round of GPL Infringement Lawsuits Filed on Behalf of BusyBox Developers (Nov. 20, 2007), http://www.softwarefreedom.org/news/2007/nov/20/busybox/; Press Release, Software Freedom Law Center, On Behalf of BusyBox Developers, SFLC Files First Ever U.S. GPL Violation Lawsuit (Sept. 20, 2007), http://www.softwarefreedom.org/news/2007/sep/20/busybox/.

[11] Press Release, Software Freedom Law Center, FSF and Cisco Settle GPL Dispute (May 20, 2009), http://www.softwarefreedom.org/news/2009/may/20/fsf-cisco-settlement/; Press Release, Software Freedom Law Center, BusyBox Developers Settle Case with Extreme Networks (Oct. 6, 2008), http://www.softwarefreedom.org/news/2008/oct/06/busybox-extreme-settle; Press Release, Software Freedom Law Center, BusyBox Developers and Supermicro Agree to End GPL Lawsuit (July 23, 2008), http://www.softwarefreedom.org/news/2008/jul/23/busybox-supermicro/; Press Release, Software Freedom Law Center, BusyBox Developers Agree To End GPL Lawsuit Against Verizon (Mar. 17, 2008), http://www.softwarefreedom.org/news/2008/mar/17/busybox-verizon/; Press Release, Software Freedom Law Center, BusyBox Developers and High-Gain Antennas Agree to Dismiss GPL Lawsuit (Mar. 6, 2008), http://www.softwarefreedom.org/news/2008/mar/06/busybox-hga/; Press Release, Software Freedom Law Center, BusyBox Developers and Xterasys Corporation Agree to Settle GPL Lawsuit (Dec. 17, 2007), http://www.softwarefreedom.org/news/2007/dec/17/busybox-xterasys-settlement/; Press Release, Software Freedom Law Center, BusyBox Developers and Monsoon Multimedia Agree to Dismiss GPL Lawsuit (Oct. 30, 2007), http://www.softwarefreedom.org/news/2007/oct/30/busybox-monsoon-settlement/.

[12] Jacobsen v. Katzer, 535 F.3d 1373 (Fed. Cir. 2008).

[13] *Id.* at 1379–80.

filed a lawsuit against Google, Inc. alleging that the Android operating system infringes Oracle's intellectual property rights, including its copyrights.[14]

As demonstrated by the number of recent lawsuits relating to OSS, corporations must be diligent when incorporating the usage of OSS into their business strategies.[15] In the current precarious economic environment, any perceived weakness in a corporation's intellectual property portfolio could be devastating. Perceived weakness due to OSS, even if not substantiated, could delay project completion or a business transaction.[16] Additionally, if the weakness is substantiated, dealing with the software code after product completion and distribution could result in costly engineering modifications and remedial distributions along with potential litigation.[17]

From a corporation's point of view, the openness of OSS is a double-edged sword. There are obvious financial benefits to using OSS. On the other hand, the problem is that open source software is readily available and easy to copy by anyone in the corporation. In addition, open source license agreements, by definition, are self-executing.[18] This means that an OSS user does not have to click an "I agree" button when downloading OSS source code, removing what has been a crucial step in the acceptance of the terms of a software license.[19] Because it is so easy for employees and contractors to obtain OSS, many corporations underestimate the extent of usage in-house and in their products.[20] Although the enforcement trend evidenced by the recent lawsuits might discourage some corporations from using OSS, the point is not to avoid OSS, but to thoroughly understand the terms of the open source licenses and to comply with them if the determination is made at the corporate level to use a particular piece of OSS.[21] Consequently, an attorney advising a corporation on potential OSS usage needs to advise the client on ways to minimize exposure to the possibility of copyright infringement, taking into consideration that this area of law has been only lightly tested in the courts.

To that end, this paper will (1) give a brief background of open source licenses; (2) discuss the meanings of copyleft and derivative works in the OSS copyright context; and (3) explore the perceived and real risks when using OSS, including litigation and settlements.

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[14] Complaint, Oracle Am., Inc. v. Google, Inc., No. 3:10-cv-03561 (N.D. Cal. Aug. 12, 2010).

[15] Michael Morgan & Sorin Cohn–Sfetcu, *Automated Software Systems for Intellectual Property Compliance*, 20 INTELL. PROP. & TECH. L.J. 14, 14 (2008).

[16] *Id.*

[17] *See id.*

[18] LAWRENCE ROSEN, OPEN SOURCE LICENSING 5 (2005). Open Source Definition number seven states that "[t]he rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties." *Id.*

[19] *See* Specht v. Netscape Commc'ns Corp., 306 F.3d 17, 32 (2d Cir. 2002). Click agreements are valid as long as a party manifests assent and knows that the act constitutes agreement to terms. *See id.*

[20] *See* Barry L. Bell & Ryan N. Herrington, *Avoiding an Open Source Licensing Trainwreck*, 28 LICENSING J. 16, 19–20 (2008).

[21] *See* Steve Seidenberg, *Aggressive Attitude*, INSIDE COUNS., Mar. 2008, at 26, *available at* http://www.woodcock.com/publications/documents/3.7.08%20InsideCounsel_Open%20Source%20Offensive_Mar%202008.pdf.

II. BACKGROUND OF OPEN SOURCE LICENSES

OSS is software that is under copyright and is conditionally licensed.[22] Open source licenses can be categorized, depending on the strength of their copyleft provisions, into three categories: permissive, weak copyleft, and strong copyleft. Permissive licenses allow the OSS to be incorporated into software licensed downstream under closed source terms and in binary-only form.[23] A strong copyleft provision requires that a licensee who modifies and distributes OSS "contribute back" the modifications by licensing the modifications under the same open source license.[24]

The Berkeley Software Distribution (BSD) license is categorized as a permissive license because it does not contain copyleft provisions; it allows modifications to be kept private or to be distributed under different license terms.[25] The Apache License, Version 2.0, is also generally considered a non-copyleft license because a developer who modifies the code can explicitly state different license terms for any modifications.[26] The MIT License is another example of a permissive license.[27]

The Mozilla Public License and the Eclipse Public License are categorized as weak copyleft licenses.[28] Weak copyleft licenses explicitly permit incorporation of the copyleft-covered software into a larger binary executable licensed under different terms.[29] For example, the Mozilla Public License is considered a weak copyleft license because the requirement that modifications be made available in source form under the same license can be avoided by placing the modifications in separate files.[30] Some also consider the GNU Lesser General Public License (LGPL) to be a weaker copyleft license than the GNU General Public Licenses (GPL).[31] The LGPL states "[t]he Lesser General Public License permits more lax criteria for linking other code with the library."[32] However, although many attorneys advise their clients to develop a closed source program such that it is dynamically, rather than statically, linked with a LGPL library, it is arguable whether the information that the closed source program needs to contain from the LGPL library, such as in a header file, makes the closed source program into a derivative work of the LGPL library.[33]

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[22] Tiller et al., *supra* note 6, at 247–48.

[23] *Id.* at 248; *see* Stern & Allen, *supra* note 6, at 439.

[24] *See* Stern & Allen, *supra* note 6, at 432. Note, though, that the GPLv3 license allows for limited supplemental terms. *Id.*; FREE SOFTWARE FOUNDATION, INC., GNU GENERAL PUBLIC LICENSE VERSION 3 ¶ 7 (2007) [hereinafter GPLv3].

[25] Stern & Allen, *supra* note 6, at 439.

[26] *Id.* at 439–40.

[27] Tiller et al., *supra* note 6, at 248.

[28] *Id.* at 250.

[29] *Id.* at 250; *see* Stern & Allen, *supra* note 6, at 440–41.

[30] Stern & Allen, *supra* note 6, at 440.

[31] Tiller et al., *supra* note 6, at 250.

[32] FREE SOFTWARE FOUNDATION, INC., GNU LESSER GENERAL PUBLIC LICENSE VERSION 2.1 ¶ preamble (1999).

[33] *See* Stern & Allen, *supra* note 6, at 444; *infra* Part III.B.

GPL licenses require that modifications be distributed under the same GPL license; this type of license purports to extend its terms to the modified work as a whole, making both the second version (GPLv2) and third version (GPLv3) strong copyleft licenses.[34] Software licensed under the GPL may be used internally by a corporation in essentially an unrestricted manner.[35] However, if a corporation distributes software in object code or executable form, the software must be accompanied by complete corresponding source code or a written offer to provide the source code.[36] Moreover, derivative works that are distributed must be licensed under the GPL.[37] The issue, of course, is the determination of what legally constitutes a derivative work. Although there are hundreds of open source licenses in use,[38] currently, fifty-two percent of OSS developed through projects is licensed under GPLv2 and GPLv3,[39] making it important for corporations to understand these licenses. Furthermore, the Linux operating system, probably the best known piece of OSS, is licensed under GPLv2,[40] as is an extensive amount of software written to run on Linux.[41] It should be noted that some software licensed under the GPL, for example the GPLv3 licensed GCC Compiler, widely used in Linux and other software products, includes an exclusion term.[42] Using the GCC Compiler may combine portions of certain GCC header files and runtime libraries with the compiled program.[43] The licensors of the GCC Compiler realized that many software developers would not use the compiler because of this; thus, the licensors added the exclusion to this piece of OSS.[44]

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[34] *See* Stern & Allen, *supra* note 6, at 441–42, 445. The GPLv3 license allows for limited supplemental terms. *Id.* at 432; GPLv3, *supra* note 24, ¶ 7.

[35] Tiller et al., *supra* note 6, at 249.

[36] FREE SOFTWARE FOUNDATION, INC., GNU GENERAL PUBLIC LICENSE VERSION 2 ¶ 3 (1991) [hereinafter GPLv2]; GPLv3, *supra* note 24, ¶ 6. GPLv3 provides a few more alternatives for providing the corresponding source code than GPLv2.

[37] GPLv2, *supra* note 36, ¶ 2; GPLv3, *supra* note 24, ¶ 5.

[38] Venema, *supra* note 8, at 12.

[39] According to Black Duck Software's information on the use of open source licenses, which is updated daily, fifty-two percent of open source projects are licensed under a version of GPL, eight percent under MIT, eight percent under LGPL, six percent under BSD, five percent under Apache, and one percent under Mozilla Public License. Black Duck Software, Open Source Resource Center, http://www.blackducksoftware.com/oss (last visited Aug. 27, 2011).

[40] The Linux kernel is licensed under GPLv2, although the license includes a note from Linus Torvalds, who is a co-owner of the copyright to the Linux kernel, providing that the "copyright does *not* cover user programs that use kernel services by normal system calls - this is merely considered normal use of the kernel, and does *not* fall under the heading of 'derived work'." Note from Linus Torvalds, GNU General Public License Version 2 (1991), http://www.kernel.org/pub/linux/kernel/COPYING (last visited Aug. 28, 2011).

[41] Ron Phillips, *Deadly Combinations: A Framework for Analyzing the GPL's Viral Effect*, 25 J. MARSHALL J. COMPUTER & INFO. L. 487, 490 (2008).

[42] FREE SOFTWARE FOUNDATION, INC., GCC RUNTIME LIBRARY EXCEPTION, VERSION 3 (2009), http://www.gnu.org/licenses/gcc-exception.html; Free Software Foundation, Inc., GNU Operating System: GCC Runtime Library Exception Rationale and FAQ, http://www.gnu.org/licenses/gcc-exception-faq.html (last visited Aug. 27, 2011).

[43] *Id.*

[44] *See id.*

Although the GPL licenses are the most commonly used open source licenses, this does not mean that the other open source licenses should be ignored. An open source license under which a particular software program is licensed should be thoroughly understood before a corporation uses that software internally or distributes that software in any manner.

III. COPYRIGHT IN THE OSS CONTEXT

The three exclusive rights that pertain to copyright ownership of software under the Copyright Act are the rights to reproduce, prepare derivative works based upon, and distribute copies of the copyrighted work.[45] In general, all open source licenses grant users these rights. The caveat is that there are conditions attached to the open source licenses that attempt to control the rights granted to the users.[46] For the GPL and LGPL, for example, the conditions do not apply unless the user distributes the OSS.[47] Therefore, in-house use of OSS licensed under the GPL and LGPL is unconditional.[48] It must be noted, however, that in-house use of software licensed under other OSS licenses may not be unconditional. Problems usually arise when corporations either distribute OSS or a derivative version of the OSS to an affiliate, to an entity external to the corporation, or in an end product. The problem associated with distributing the unmodified OSS source code, as chronicled in the Busybox complaints and settlements, is fairly straightforward. More complicated, though, are the copyleft requirements that trigger upon distribution of modified OSS. First, what copyleft means needs to be understood. Second, what constitutes a derivative work in the OSS context needs to be ascertained.

A. CHANGING COPYRIGHT WITH COPYLEFT

Although not all open source licenses have copyleft terms, the majority of OSS projects are licensed under a GPL license,[49] which does include copyleft terms.[50] The copyleft concept was initiated by the open source movement.[51] Copyleft is a play on the word "copyright,"[52] which is a grant of exclusive rights, such that others are excluded from the ability to reproduce, make a derivative based upon, and distribute copies of the copyrighted work.[53] Under a copyleft license, which is a conditional license, any modification to the OSS must, in turn, be licensed under the same open source license.[54] Unless the modification is licensed under the requisite open

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[45] 17 U.S.C. § 106(1)–(3).

[46] *E.g.*, GPLv2, *supra* note 36, ¶¶ 1–3; GPLv3, *supra* note 24, ¶¶ 2, 4–7.

[47] *E.g.*, GPLv2, *supra* note 36, ¶¶ 1–3; GPLv3, *supra* note 24, ¶¶ 2, 4–6.

[48] *E.g.*, GPLv2, *supra* note 36, ¶¶ 1–3; GPLv3, *supra* note 24, ¶ 2.

[49] *See supra* note 39 and accompanying text.

[50] GPLv2, *supra* note 36, ¶ 2(b); GPLv3, *supra* note 24, ¶ 5(c).

[51] RICHARD FONTANA ET. AL., A LEGAL ISSUES PRIMER FOR OPEN SOURCE AND FREE SOFTWARE PROJECTS 4 (2008), *available at* http://www.softwarefreedom.org/resources/2008/foss-primer.pdf.

[52] *Id.*

[53] 17 U.S.C. § 106(1)–(3).

[54] Stern & Allen, *supra* note 6, at 432. Note, though, that the GPLv3 license allows for limited supplemental terms. *Id.*; GPLv3, *supra* note 24, ¶ 7.

source license, the rights granted under the open source license are terminated. Contrast this with the right of an author of a derivative work under the Copyright Act: "[t]he copyright in [the derivative] work is independent of, and does not affect or enlarge the scope, duration, ownership, or subsistence of, any copyright protection in the preexisting material."[55] In the case of a copyleft term, the author of a derivative work is *required* to license that new work under the requisite open source license because it is a derivative work. The question of whether a piece of software is a derivative work of OSS licensed under copyleft terms is, therefore, a very important question. A corporation not wishing to release its source code under a copyleft license should ensure that its software will not be construed as a derivative work.

B.   A DERIVATIVE WORK IN THE OSS CONTEXT

Currently, determining what constitutes a derivative work is a matter of educated guess work. The courts have not decided this issue in the OSS context. In *Progress Software Corp. v. MySQL AB*,[56] while denying a motion by MySQL for preliminary injunctive relief on a copyright claim, the court noted that the parties' experts raised a factual dispute concerning whether the allegedly infringing software program was a derivative or an independent and separate work under the second paragraph of the GPL.[57] Without a court's analysis of what determines the difference between a derivative under the GPL, on the one hand, and an independent and separate work under the GPL, on the other, this case does little to help corporations decipher when their own code will need to be licensed under the GPL as well.

The authors of some OSS licenses have published what they think the scope of a derivative work is.[58] Not unexpectedly, GPL licensors have a broad view of what constitutes a derivative work.[59] For example, the license provides that identifiable sections that can be considered independent and separate works are not derivative works.[60] However, if one distributes those same sections as part of a whole that is based on the OSS, the license provides that the distribution of the whole must be under the OSS license, regardless of who wrote it.[61] The Apache License, Version 2.0, states a narrower definition for a derivative work.[62] That definition explicitly excludes "works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof."[63]

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[55] 17 U.S.C. § 103(b).

[56] Progress Software Corp. v. MySQL AB, 195 F. Supp. 2d 328 (D. Mass. 2002).

[57] *Id.* at 329.

[58] FONTANA ET. AL., *supra* note 51, at 4.

[59] GPLv2, *supra* note 36, ¶ 2.

[60] *Id.*

[61] *Id.*

[62] THE APACHE SOFTWARE FOUNDATION, APACHE LICENSE VERSION 2.0 ¶ 1 (2004), *available at* http://www.apache.org/licenses/LICENSE-2.0.html.

[63] *Id.*

It is clear that merely an aggregation of OSS software and closed source software together in a product does not fall into even the broadest definition of a derivative work.[64] In addition, even the GPL licensors concede that a software program that runs on top of an OSS operating system does not create a derivative work.[65] On the other end of the spectrum, modifications made directly to OSS source code would be considered a derivative work under any OSS license.[66] The gray area lies between these two points.[67] Software that falls into this gray area "involve[s] close questions about derivative works, requir[ing] a highly fact-dependent analysis."[68]

Within the context of software in general, there is a circuit split with respect to the test used to determine whether certain software code is a derivative work.[69] The Third Circuit adopted the "structure, sequence, organization" test delineated in *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*[70] This test has been criticized as overly broad because it ignores § 102(b) of the Copyright Act, which excludes "any idea, procedure, process, system, [or] method of operation"[71] from copyright protection.[72] The Second Circuit developed a three step test, Abstraction, Filtration, and Comparison (AFC), to determine whether one piece of software is a derivative of another.[73] First, a court dissects the accused program's structure and isolates each level of abstraction contained therein.[74] Second, the court examines the structural components at each level to determine whether the component is protectable because it is an "idea" or unprotectable because it is incidental to the idea, required by external factors, or taken from the public domain.[75] Third, the court performs a substantial similarity inquiry to determine whether the defendant copied any aspect of protected expression.[76] This test has been adopted by the

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[64] GPLv2, *supra* note 36, ¶ 2.

[65] The GPL Compliance Guide, published by the SFLC states: "Alongside [OSS], companies often distribute fully independent, proprietary programs, developed from scratch, which are designed to run on the FOSS operating system but do not combine with, link to, modify, or otherwise derive from the GPL'd components. In the latter case, where the work is unquestionably a separate work of creative expression, no derivative work has been created." BRADLEY M. KUHN ET. AL., A PRACTICAL GUIDE TO GPL COMPLIANCE 3 (2008), *available at* http://www.softwarefreedom.org/resources/2008/compliance-guide.html.

[66] *See, e.g.*, GPLv2, *supra* note 36, ¶ 2.

[67] *See* Phillips, *supra* note 41, at 491.

[68] KUHN ET. AL., *supra* note 65, at 3.

[69] Donald R. Robertson, III, *An Open Definition: Derivative Works of Software and the Free and Open Source Movement*, 42 NEW ENG. L. REV. 339, 346 (2008); Dan Ravicher, *Software Derivative Work: A Jurisdiction Dependent Determination*, LINUX.COM, Nov. 13, 2002, http://www.linux.com/feature/113252.

[70] Whelan Assocs., Inc. v. Jaslow Dental Lab., Inc.797 F.2d 1222 (3d Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987).

[71] 17 U.S.C. § 102(b).

[72] MARSHALL A. LEAFFER, UNDERSTANDING COPYRIGHT LAW 429 (5th ed. 2010).

[73] Computer Assocs. Int'l, Inc. v. Altai, Inc., 982 F.2d 693, 706 (2d Cir. 1992).

[74] *Id.* at 707.

[75] *Id.*

[76] *Id.* at 710.

Fifth,[77] Tenth,[78] and Eleventh[79] Circuits. The First Circuit, in *Lotus Development Corp. v. Borland International, Inc.*,[80] rejected the widely accepted AFC test, narrowing the meaning of a derivative work for software by holding that the use of the software interface (menu command hierarchy) was essential to operating the software, and, thus, an unprotectable "method of operation."[81] The Ninth Circuit adopted a process of analytical dissection to determine whether similarities in software code result from unprotectable expression.[82] This test is similar to the filtration step in the AFC test.[83] The Ninth Circuit affords "thin" protection to bodies of work that consist largely of uncopyrightable elements and "broader" protection to bodies of work that include variations of expression.[84]

One possible distinction between derivative and non-derivative works is the way that a piece of closed source software links to the OSS. Linking is a key issue in determining whether or not a work is derivative because, depending on the type of link, protectable OSS code could be copied into the executable software, possibly creating a derivative work. The common methods for linking software are static linking and dynamic linking.[85] Static linking results in a single executable file containing executable code from both the OSS and the closed source software prior to runtime.[86] Because OSS is copied into the executable prior to runtime, a derivative work could result, which would require that the software as a whole be licensed under the open source license.[87] With dynamic linking, in contrast, the OSS is a library or a subroutine that is kept in a separate directory; the closed source software calls the OSS code at runtime.[88] However, in order to dynamically link to an LGPL library, for example, although the closed source software remains separate from the LGPL library, the closed source software needs to contain information from the LGPL library, such as in a header file, which arguably could turn the closed

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[77] Eng'g Dynamics, Inc. v. Structural Software, Inc., 46 F.3d 408, 409 (5th Cir. 1995) ("The panel adheres to its adoption of the abstraction-filtration-comparison test and to its application of the test on the facts before us.").

[78] Mitel, Inc. v. Iqtel, Inc., 124 F.3d 1366, 1371 (10th Cir. 1997) ("In recent opinions this court has relied increasingly upon the conceptual framework known as abstraction-filtration-comparison to aid in separating idea from expression and identifying protectable expression.").

[79] Bateman v. Mnemonics, Inc., 79 F.3d 1532, 1544–46 (11th Cir. 1996). The court notes "[i]t is essential that one keep in mind that the approaches adopted by the other circuits merely are a means to a very important end: filtering out all unprotectable material." *Id.* at 1546 n.27.

[80] Lotus Dev. Corp. v. Borland Int'l, Inc., 49 F.3d 807 (1st Cir. 1995).

[81] *Lotus*, 49 F.3d at 816.

[82] Apple Computer, Inc. v. Microsoft Corp., 35 F.3d 1435, 1445 (9th Cir. 1994).

[83] Ravicher, *supra* note 69. The court notes "the unprotectable elements have to be identified, or filtered, before the works can be considered as a whole." *Apple Computer*, 35 F.3d at 1446.

[84] *See Apple Computer*, 35 F.3d at 1446–47.

[85] *See* Michael F. Morgan, *The Cathedral and the Bizarre: An Examination of the "Viral" Aspects of the GPL*, 27 J. MARSHALL J. COMPUTER & INFO. L. 349, 356 (2010).

[86] *Id.* at 366.

[87] *See* Stern & Allen, *supra* note 6, at 434.

[88] *Id.*

source program into a derivative work of the LGPL library.[89] Although the general industry view is that linking dynamically to an LGPL library does not trigger the copyleft requirement, this view has not been tested in the courts.[90] Until this issue appears in front of the courts, there is no definitive answer as to whether dynamic linking creates a derivative work.[91]

If a piece of software is determined to be a derivative of OSS, arguing a *de minimis* copying defense will most likely not succeed if the copied software code is protectable, i.e., original and not within the unprotectable categories[92] defined in the Copyright Act.[93] The Third Circuit stated, "[a] de minimis defense does not apply where the *qualitative* value of the copying is material."[94] In *Dun & Bradstreet Software Services, Inc. v. Grace Consulting, Inc.*, both the plaintiffs' and defendants' experts agreed that the accused software would not work without the copied portion of code.[95] If the copied OSS code is highly critical and protectable, even if it seems insubstantial in size compared to the entire piece of closed source software code, a *de minimis* defense will most likely fail.[96]

IV.   RISKS WHEN USING OSS, INCLUDING LITIGATION AND SETTLEMENTS

A.   RISKS

One risk a corporation faces when using OSS is that a license might be entered into without the corporation's knowledge. Many corporations do not have adequate policies in place to deal with the implications of entering into software licenses, including open source licenses.[97] A software developer who uses OSS is entering into a software license just by using the OSS, whether it is used in-house or eventually distributed in an end-product. Software developers, generally, are not explicitly given the authority to enter into contracts; however, under agency law, a software developer most likely would be deemed to have apparent authority[98] to enter into a self-

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[89] *See id.* at 444 (Also noting "[t]he LGPL does provide an explicit exception for header files which use 'only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length).'").

[90] *See id.* ("The general practice however is that header files are not considered to create a derivative work when they merely function to call an LGPL library through a dynamic link.").

[91] For an in-depth derivative works analysis as it relates to the GPL, see Morgan, *supra* note 85.

[92] 17 U.S.C. § 102(b) ("In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.").

[93] *See* MiTek Holdings, Inc. v. Arce Eng'g Co., 89 F.3d 1548, 1555 (11th Cir. 1996).

[94] Dun & Bradstreet Software Servs., Inc. v. Grace Consulting, Inc., 307 F.3d 197, 208 (3d Cir. 2002).

[95] *Id.*

[96] *See id.*

[97] A survey of IT leaders showed that only one-third of respondents had a formal open source software policy in place. Press Release, Gartner, Gartner Survey Reveals More than Half of Respondents Have Adopted Open-Source Software Solutions as Part of IT Strategy (Feb. 8, 2011), http://www.gartner.com/it/page.jsp?id=1541414.

[98] RESTATEMENT (THIRD) OF AGENCY § 2.03 (2006).

executing OSS license. In that case, the corporation would have to abide by the license terms, whether or not the corporation's management has knowledge of the license.[99]

Unless a corporation has a formal OSS policy in place, the corporation might not discover that it is bound by OSS license terms until the issue is forced during a corporate inflection point. Many times what triggers discovery of OSS license compliance issues are inflection points when a corporation (1) is required contractually to verify whether OSS is used, (2) must adhere to validation and performance specifications regarding OSS, (3) needs to be in compliance with regulations, (4) is releasing a new product, (5) shifts its policy toward or away from OSS usage, or (6) is involved in related litigation.[100] Dealing with unexpected OSS at any of these times could be expensive and time-consuming.

Potentially more damaging would be the discovery of inclusion of unknown OSS licensing terms at a corporation's major economic or structural inflection point, such as during venture capital financing, merger, acquisition, or an IPO offering.[101] Even if the risk is only perceived rather than actual, the perception itself could hurt the corporation's position during negotiations.[102] For example, while IBM was negotiating the acquisition of Think Dynamics in 2003,[103] it was discovered that Think Dynamics' software code contained eighty to one hundred pieces of unaccounted for OSS.[104] Because of this, IBM lowered the price it paid for Think Dynamics from $67 million to $46 million.[105]

An example of a perceived, but most likely not actual, risk would be inclusion of OSS in software that is used only internally in a corporation. There is little legal risk when using OSS operating systems, other OSS information technology (IT) infrastructure software, or OSS development tools within a corporation.[106] This is because the risk of using OSS usually occurs upon distribution. The problem is that what constitutes a "distribution" may be unclear.[107] In addition, some OSS licenses may use their own definitions of the term "distribution" to include qualifications and limitations.[108] For example, the Open Software License (OSL) expressly provides that OSS "made

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[99] *See id.*

[100] Douglas D. McGhee, *Free and Open Source Software Licenses: Benefits, Risks, and Steps Toward Ensuring Compliance*, 19 INTELL. PROP. & TECH. L.J. 5, 8 (2007).

[101] Joel N. Bock, *When Open Source Code Disrupts a Safe Exit*, N.Y. L.J., Mar. 31, 2008, at 10.

[102] *See* Stern & Allen, *supra* note 6, at 415.

[103] Press Release, IBM, IBM Acquires Think Dynamics (May 14, 2003), http://www-03.ibm.com/press/us/en/pressrelease/214.wss.

[104] Venema, *supra* note 8, at 12.

[105] *Id.*

[106] Tiller et al., *supra* note 6, at 254.

[107] ROSEN, *supra* note 18, at 42 ("Certainly [distribution] means selling or giving copies of software away to others. It also may include such arrangements as incorporating software into consumer or industrial products and selling those products to others. For some software, it may also include making the software available across a network for execution by others.").

[108] *Id.* at 43.

available as an application intended for use over a network" must be treated as a distribution.[109] Determining what is meant by the term "distribution" is important in assessing a corporation's risk in using OSS.

Another potential legal risk associated with use and distribution of OSS is that different OSS licenses are not necessarily compatible with each other.[110] If a software developer combines OSS in such a way that pieces of software licensed under different open source licenses would be considered as one large work, conflicts in the OSS licenses might actually prevent the work's distribution.[111] For example, OSS licensed under the GPL and OSS licensed under the Mozilla Public License may not be combined into a single program and distributed.[112]

Another potential risk has to do with the disclaimed warranties of title and quality associated with OSS. Open source licenses generally disclaim all warranties, do not provide indemnification, and provide no promises to repair, upgrade, or support the OSS.[113] The risk of intellectual property infringement of the software falls to the OSS user, as does any issue of quality.[114]

Once OSS in incorporated into a corporation's product and distributed, the corporation is vulnerable to the threat of termination of the OSS license if the terms of the OSS license are not met. On termination of the license, any subsequent use of the software would infringe the copyright. Determining whether a corporation is actually infringing the copyright of a particular piece of OSS, however, is far from certain. Although the court in *Jacobsen v. Katzer*[115] provided some clarity, there has been a dearth of legal interpretation of terms of the different open source licenses.

B. OSS LITIGATION AND SETTLEMENTS

OSS litigation is a recent occurrence when compared to other types of litigation. The SFLC filed the first lawsuit concerning a violation of the GPL in the United States in September 2007.[116] The complaint alleged that Monsoon Multimedia distributed BusyBox, OSS that is licensed under GPLv2, embedded within its media devices and hardware and also within firmware downloadable from its website, without providing the source code, as required under the terms of GPLv2.[117] The parties agreed to dismiss the lawsuit in October 2007 when Monsoon agreed to

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[109] OPEN SOURCE INITIATIVE OSI, THE OPEN SOFTWARE LICENSE 3.0 ¶ 5, *available at* http://www.opensource.org/licenses/OSL-3.0.

[110] Morgan & Cohn–Sfetcu, *supra* note 15, at 18.

[111] *See* Venema, *supra* note 8, at 12.

[112] *See* ROSEN, *supra* note 18, at 245.

[113] Stern & Allen, *supra* note 6, at 426.

[114] *See id.*

[115] Jacobsen v. Katzer, 535 F.3d 1373 (Fed. Cir. 2008).

[116] Press Release, Software Freedom Law Center, On Behalf of BusyBox Developers, SFLC Files First Ever U.S. GPL Violation Lawsuit (Sept. 20, 2007), http://www.softwarefreedom.org/news/2007/sep/20/busybox/.

[117] Complaint ¶ 11–12, Anderson v. Monsoon Multimedia, Inc., No. 1:07-cv-08205 (S.D.N.Y. Sept. 19, 2007).

appoint an Open Source Compliance Officer, publish the source code, notify previous recipients of the availability of the source code, and pay an undisclosed financial consideration to the developers of BusyBox.[118]

Again in November 2007, SFLC filed lawsuits on behalf of the developers of BusyBox, this time against two companies, Xterasys and High-Gain Antennas.[119] The developers of Busybox settled with Xterasys in December 2007 after coming to an agreement that Xterasys would cease binary distribution of BusyBox until SFLC confirmed that Xterasys had published complete corresponding source code on its website, employed an internal Open Source Compliance Officer, notified those who had previously received BusyBox from Xterasys of their rights to the software, and paid financial consideration.[120] The BusyBox developers dismissed the lawsuit in March 2008 against High-Gain Antennas when High-Gain Antennas agreed to appoint an Open Source Compliance Officer, publish the source code of BusyBox, notify past recipients, and pay an undisclosed amount of money.[121]

The SFLC filed five more lawsuits on behalf of the developers of BusyBox, four of which have had similar remedial outcomes. A December 2007 lawsuit against Verizon through Actiontec Electronics[122] was dismissed in March 2008[123]; June 2008 lawsuits against Super Micro Computer and Bell Microproducts[124] were dismissed in July 2008[125] and settled out of court in October 2008,[126] respectively; and a July 2008 lawsuit against Extreme Networks[127] was settled in October 2008.[128] The latest lawsuit was filed against fourteen consumer electronics companies, including Best Buy, Samsung, Westinghouse, and JVC in December 2009 on behalf of the Software

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[118] Press Release, Software Freedom Law Center, BusyBox Developers and Monsoon Multimedia Agree to Dismiss GPL Lawsuit (Oct. 30, 2007), http://www.softwarefreedom.org/news/2007/oct/30/busybox-monsoon-settlement/.

[119] Press Release, Software Freedom Law Center, Second Round of GPL Infringement Lawsuits Filed on Behalf of BusyBox Developers (Nov. 20, 2007), http://www.softwarefreedom.org/news/2007/nov/20/busybox/.

[120] Press Release, Software Freedom Law Center, BusyBox Developers and Xterasys Corporation Agree to Settle GPL Lawsuit (Dec. 17, 2007), http://www.softwarefreedom.org/news/2007/dec/17/busybox-xterasys-settlement/.

[121] Press Release, Software Freedom Law Center, BusyBox Developers and High-Gain Antennas Agree to Dismiss GPL Lawsuit (Mar. 6, 2008), http://www.softwarefreedom.org/news/2008/mar/06/busybox-hga/.

[122] Press Release, Software Freedom Law Center, BusyBox Developers File GPL Infringement Lawsuit Against Verizon Communications (Dec. 7, 2007), http://www.softwarefreedom.org/news/2007/dec/07/busybox/.

[123] Press Release, Software Freedom Law Center, BusyBox Developers Agree To End GPL Lawsuit Against Verizon (Mar. 17, 2008), http://www.softwarefreedom.org/news/2008/mar/17/busybox-verizon/.

[124] Press Release, Software Freedom Law Center, SFLC Files Another Round of GPL Violation Lawsuits on Behalf of BusyBox Developers (June 10, 2008), http://www.softwarefreedom.org/news/2008/jun/10/busybox/.

[125] Press Release, Software Freedom Law Center, BusyBox Developers and Supermicro Agree to End GPL Lawsuit (July 23, 2008), http://www.softwarefreedom.org/news/2008/jul/23/busybox-supermicro/.

[126] Notice of Voluntary Dismissal, Andersen v. Bell Microproducts, Inc., No. 08–cv–5270 (S.D.N.Y. Oct. 17, 2008).

[127] Press Release, Software Freedom Law Center, SFLC Files GPL Violation Lawsuit Against Extreme Networks, Inc. (July 21, 2008), http://www.softwarefreedom.org/news/2008/jul/21/busybox/.

[128] Press Release, Software Freedom Law Center, BusyBox Developers Settle Case with Extreme Networks (Oct. 6, 2008), http://www.softwarefreedom.org/news/2008/oct/06/busybox-extreme-settle/.

Freedom Conservancy and Erik Andersen, a BusyBox developer and copyright holder.[129] Although most of the defendants have settled, a default judgment was ordered against Westinghouse in July 27, 2010.[130] Because Best Buy and SFC made significant progress towards resolving their dispute, a motion for preliminary injunction against Best Buy and Phoebe Micro was withdrawn.[131] The plaintiffs may refile their motion against Phoebe Micro.[132]

All of the litigation surrounding BusyBox revolves around a common theme. The companies that distributed their products, which included BusyBox embedded as part of the firmware, did not comply with the GPLv2 license term of either providing the source code or offering to provide the source code for BusyBox. In addition, every one of the earlier lawsuits either settled or was dismissed after agreement by the offending company to distribute the source code, notify past recipients, appoint an Open Source Compliance Officer, and pay financial consideration to the developers of BusyBox. There were no difficult legal questions: the companies violated a license term, the companies came up with a plan to comply, consideration was paid, and the copyright holders agreed not to pursue copyright infringement claims.

The Free Software Foundation (FSF) filed a complaint against Cisco in December 2008 alleging that while distributing products under its Linksys brand, Cisco violated the terms of many software programs licensed under GPL that FSF holds the copyrights for, including GCC, binutils, and the GNU C Library.[133] A comment from FSF upon filing the lawsuit was that although FSF had been working with Cisco since 2003 to establish a license compliance process and initial changes were promising, Cisco did not follow through with the compliance plan.[134] The case settled in May 2009.[135]

What the Federal Circuit made clear, in *Jacobsen v. Katzer*,[136] is that even though open source licenses have broad and nonexclusive copyright terms, violation of their terms may be recognized as copyright infringement.[137] Specifically, the court stated:

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[129] Press Release, Software Freedom Law Center, Best Buy, Samsung, Westinghouse, and Eleven Other Brands Named in SFLC Lawsuit (Dec. 14, 2009), http://www.softwarefreedom.org/news/2009/dec/14/busybox-gpl-lawsuit/.

[130] Opinion and Order, Software Freedom Conservancy, Inc. v. Best Buy Co., No. 09-cv-10155 (S.D.N.Y. July 27, 2010).

[131] Stipulated Order, Software Freedom Conservancy, Inc. v. Best Buy Co., No. 09-cv-10155 (S.D.N.Y. July 21, 2011).

[132] *Id.*

[133] Press Release, Free Software Foundation, Free Software Foundation Files Suit Against Cisco for GPL Violations (Dec. 11, 2008), http://www.fsf.org/news/2008-12-cisco-suit.

[134] *Id.*

[135] Press Release, Software Freedom Law Center, FSF and Cisco Settle GPL Dispute, (May 20, 2009), http://www.softwarefreedom.org/news/2009/may/20/fsf-cisco-settlement/.

[136] Jacobsen v. Katzer, 535 F.3d 1373 (Fed. Cir. 2008).

[137] *See* Pamela A. MacLean, *Landmark Ruling Backs Key Software Copyright – Violating Terms for Use of Free Computer Code Can Be Infringement*, NAT'L L. J., Aug. 25, 2008, at 6.

Copyright holders who engage in open source licensing have the right to control the modification and distribution of copyrighted material. . . . The choice to exact consideration in the form of compliance with the open source requirements of disclosure and explanation of changes, rather than as a dollar-denominated fee, is entitled to no less legal recognition.[138]

The court provided that whether breach of license is actionable under copyright law or under contract law turns on whether the provision breached is a condition of the license or a mere covenant.[139] The distinction between copyright infringement and breach of contract is important because open source licenses, by definition, do not generate licensing fees and, therefore, the plaintiff's economic harm is not the traditional type of harm recognized by the courts.[140] In addition, many in the open source community had wondered if open source licenses would be enforced by a court; with the *Jacobsen* decision, the risk of a court ruling that open source license terms are unenforceable has diminished.[141]

In *Jacobsen*, a user who downloaded software under copyright was allowed to modify and distribute the software "provided that" the user followed the terms of the license.[142] The court noted that a copyright holder has the ability to grant the right to make certain modifications, yet retains the right to prevent other modifications.[143] In fact, "such a goal is exactly the purpose of adding conditions to a license grant."[144] The result of a court determining that a defendant is in noncompliance with a license's affirmative conditions is that while the defendant is in noncompliance, the open source license terminates; all use is considered copyright infringement.[145]

The District Court in San Francisco subsequently denied Jacobsen's motion for a preliminary injunction.[146] The court noted that the Supreme Court precedent governing the imposition of a preliminary injunction had recently changed, requiring that there be not only likelihood of success on the merits but also likelihood that the plaintiff would suffer irreparable harm without the preliminary injunction; that the balance of equities tip in the plaintiff's favor; and that the injunction be in the public interest.[147] The court reasoned that the harms listed by the Federal Circuit that an open source software copyright holder might encounter are just potential harms.[148] Even though Jacobsen made arguments alleging harms that he might suffer, for example, development inefficiencies and delays,[149] because he failed to offer any evidence of the listed harms, the court determined there was not a clear

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[138] *Jacobsen*, 535 F.3d at 1381–82.

[139] *Id.* at 1380.

[140] *See* MacLean, *supra* note 137, at 6.

[141] *See* Paul H. Arne, Jacobsen v. Katzer – *Open Source License Validation: How Far Does It Go?*, 25 COMPUTER & INTERNET LAW. 27, 29 (2008).

[142] *Jacobsen*, 535 F.3d at 1382.

[143] *Id.*

[144] *Id.*

[145] Arne, *supra* note 141, at 28.

[146] Jacobsen v. Katzer, 609 F. Supp. 2d 925, 929, 938 (N.D. Cal. 2009).

[147] *Id.* at 937 (citing Winter v. Natural Res. Def. Council, Inc., 129 S. Ct. 365, 374 (2008)).

[148] *Id.*

likelihood of success that the harm was "real, imminent and significant, not just speculative or potential."[150] The parties eventually settled in February 2010; Katzer agreed to a permanent injunction and to a payment of $100,000.[151]

Because the threat of a preliminary injunction has lost some of its potential power, the OSS copyright plaintiff will, most likely, look to other remedies. Under the Copyright Act, a copyright infringer is liable for either (1) the copyright holder's actual damages and the infringer's additional profits or (2) statutory damages.[152] Although the copyright holder's actual damages may be low, the copyright holder's ability to go after the infringer's additional profits might prove costly to the defendant if the defendant profited from taking open source licensed software and incorporating it into its closed source product. The Copyright Act provides that the copyright holder is entitled to recover the infringer's profits attributable to the infringement. In establishing the infringer's profits, the copyright holder needs to present proof of the infringer's gross revenue; the infringer is required to prove deductible expenses and the profit attributable to factors other than the copyrighted work.[153] This means that in the OSS context, where the plaintiff may be able to prove little or no actual damages, if the copyright holder forgoes statutory damages, it may still obtain considerable damages if the infringer's commercial product earned significant profits and those profits can be attributed to the infringement.[154]

Recently, there have been lawsuits filed related to the Android operating system. In particular, Oracle filed a lawsuit against Google in August 2010 alleging that Android infringes Oracle's patents and copyrights.[155] In its amended complaint, Oracle asserts that the Android computer program code is directly copied from copyrighted Oracle code and that about one-third of Android's APIs are derived from Oracle's copyrighted Java APIs and documents.[156] Oracle alleges that in violation of Oracle's copyrights, Android users must copy and use infringing Java class libraries, or works derived from those Java class libraries, to manufacture and use functioning Android devices.[157] On August 1, 2011, Google filed a summary judgment motion on the copyright claims.[158] Google's arguments, in highly summarized form, are that (1) because Oracle cannot establish that Google copied protected elements of the Java language API specifications, the Android APIs are not substantially similar; (2) the alleged similarities in the remaining twelve files are *de minimis*; (3) the documentation is not substantially similar or

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[149] *Id.* at 937 n.3.

[150] *Id.* at 937 (citing *Winter*, 129 S. Ct. at 374).

[151] Joint Administrative Motion Regarding Settlement, Ex. A, Jacobsen v. Katzer, No. C06-1905 (N.D. Cal. Feb. 18, 2010); Stipulated Permanent Injunction, Jacobsen v. Katzer, No. C06-1905 (N.D. Cal. Feb. 22, 2010).

[152] 17 U.S.C. § 504(a).

[153] 17 U.S.C. § 504(b).

[154] *See* Bell & Herrington, *supra* note 20, at 20.

[155] Complaint, Oracle Am., Inc. v. Google, Inc., No. 3:10-cv-03561 (N.D. Cal. Aug. 12, 2010).

[156] Amended Complaint ¶ 40, Oracle Am., Inc. v. Google, Inc., No. 3:10-cv-03561 (N.D. Cal. Oct. 27, 2010).

[157] *Id.* ¶ 41.

[158] Defendant Google Inc.'s Notice of Motion and Motion for Summary Judgment on Count VIII of Plaintiff Oracle America's Amended Complaint at 11–25, Oracle Am., Inc. v. Google, Inc., No. 3:10-cv-03561 (N.D. Cal. Aug. 1, 2011).

virtually identical; and (4) Oracle cannot establish infringement of Oracle's selection and arrangement of allegedly copied elements under the virtual identity standard.[159]

In support of Google's argument that the Oracle cannot establish that Google copied protected elements of the Java language API specifications, Google asserts that (1) the elements common to both the Oracle Java language and Android APIs are unprotectable methods of operation; (2) the API declarations (names of packages and methods and definitions) are unprotectable *scenes a fair* or unprotectable under the merger doctrine; (3) the API package and method names are unprotectable as a matter of law; or alternatively, (4) any similarity is a fair use.[160] Whether the names of API packages and methods and definitions are protectable under the copyright law could be relevant to the linking issues discussed in Part III.B above. To reiterate the example given in Part III.B, in order to dynamically link to an LGPL library, the closed source software needs to contain information from the LGPL library, such as in a header file.[161] Whether this turns the closed source program into a derivative work of the LGPL library could be clarified by a future ruling in the *Oracle* case.

V.   CONCLUSION

Any corporation that uses software internally, distributes products that contain software, or employs software developers needs to understand the risks and advantages of using OSS. An attorney advising a corporation on the risks and advantages of OSS usage needs to ascertain ways to minimize the corporation's exposure to the possibility of action for copyright infringement, even though there is little legal precedent. The use of OSS by commercial corporations increases every year. The movement toward OSS most likely will not lessen in the near future. Proactive attorneys need to advise corporations such that the corporation can take advantage of the benefits of OSS without undue risk.

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[159] *Id.*

[160] *Id.* at 12–22.

[161] *See* Stern & Allen, *supra* note 6, at 444.