

Titans and Trolls Enter the Open-Source Arena

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I. Introduction

Open-source software (“OSS”)¹ is changing the software industry, with many software products today containing at least some OSS components. Facebook, with a market capitalization of nearly \$105 billion at its initial public offering, has built its social-networking website on a platform of the Linux[®] operating system.² One million new mobile devices from various phone makers are being activated daily, and run the open-source Linux-based Android[™] operating system.³ Recently, Red Hat, the largest seller of Linux[®] software,

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1. Prominent OSS advocate, Eric S. Raymond, gets credit for popularizing the “open source” terminology. Raymond has written works explaining the innerworkings of the OSS community. See ERIC S. RAYMOND, *THE CATHEDRAL AND THE BAZAAR* (2000) and <http://www.catb.org/~esr/writings/> for a listing of Raymond’s other works.

2. Shayndi Raice et al., *Facebook’s IPO Sputters: Underwriters Forced to Prop Up IPO of Social Network; Only a 23-Cent Rise*, WALL ST. J. (May 18, 2012), <http://online.wsj.com/article/SB10001424052702303448404577411903118364314.html>. Other multi-billion dollar companies like IBM and Google use open-source software as key building blocks for their businesses.

3. Chloe Albanesius, *Android Device Activations Top 500 Million*, PC MAGAZINE (Sept. 12, 2012), <http://www.pcmag.com/article2/0,2817,2409601,00.asp> (reporting that

became the first vendor to make all or nearly all of its money from building, maintaining, and selling OSS.⁴

Open-source software employs a development model and licensing-agreement scheme where many software contributors contribute to a single code base. The software code, with certain other rights normally reserved for copyright holders, is provided under an open-source license that permits users to study, change, improve, and at times, distribute and redistribute the software.⁵

The market acceptance and viability of OSS was not so assured even ten or fifteen years ago, when proprietary software like the Microsoft Windows operating system overwhelmingly dominated the market. Commentators wondered whether OSS could ever be sufficiently robust, powerful, and trustworthy to serve as the foundation of large-scale corporate computing systems, or even whether an OSS license was legally enforceable.⁶

Google mobile chief Andy Rubin announced by tweet that “there have been half a billion android activations to date, with over 1.3m added every day”).

4. Jon Brodtkin, *Red Hat Hits \$1 Billion in Revenue, a Milestone for Open Source*, ARS TECHNICA (Mar. 28, 2012), <http://arstechnica.com/business/news/2012/03/red-hat-hits-a-billion-dollars-in-revenue-a-milestone-for-open-source.ars>. Linux[®] Foundation’s Executive Director Jim Zemlin concluded that “[t]his achievement [of Red Hat] will finally put to bed the argument that ‘nobody can make money with open source.’” Posting of Jim Zemlin, *What Red Hat Has Done is Worth So Much More Than a Billion*, LINUX.COM (Mar. 28, 2012, 11:28 AM), <https://www.linux.com/news/featured-blogs/158-jim-zemlin/558697-what-red-hat-has-done-is-worth-so-much-more-than-a-billion>.

5. As a nonprofit advocacy group, Open Source Initiative describes the OSS model as one “that harnesses the power of distributed peer review and transparency of process.” Open Source Initiative, *Mission*, <http://www.opensource.org> (last visited Sept. 23, 2012) (“The promise of open source is better quality, higher reliability, more flexibility, lower cost, and an end to predatory vendor lock-in.”).

6. Robert W. Gomulkiewicz, *General Public License 3.0: Hacking the Free Software Movement’s Constitution*, 42 HOUS. L. REV. 1015, 1022 n.46 (2005) (citing commentators who questioned the enforceability of the GPL). For discussions on enforceability, see Jason B. Wacha, *Taking the Case: Is the GPL Enforceable?* 21 SANTA CLARA COMPUTER & HIGH TECH. L.J. 451, 456 (2005) (“It is likely that a court, in the U.S. or abroad, would recognize the GPL as a contract.”); *The LinuxWorld News Desk, SCO’s GPL Position is “Just Invalid” Says Professor*, LINUXWORLD (Dec. 4, 2003), <http://web.archive.org/web/20040217085236/http://www.linuxworld.com/story/38115.htm>; Daniel B. Ravicher, *Facilitating Collaborative Software Development: The Enforceability of Mass-Market Public Software License*, 5 VA. J.L. & TECH. 11 (2000) (presenting arguments against enforceability and concluding that open-source licenses are enforceable); Patrick K. Bobko, *Linux and General Public Licenses: Can Copyright Keep “Open Source” Software Free?*, 28 AIPLA Q.J. 81 (2000) (highlighting the two issues of (1) whether the improvements made to the GPL software are derivative works or are themselves copyrightable, and (2) whether the GPL is an enforceable non-exclusive license); Robert P. Merges, *The End of Friction? Property Rights and Contract in the “Newtonian” World of On-Line Commerce*, 12 BERKELEY TECH. L.J. 115, 128 (1997)

The market seems to have answered the first question about the viability and marketability of OSS, which has become part of the mainstream software industry.⁷ After years of business enterprise being powered by a proprietary software infrastructure built by Microsoft, Oracle, IBM and others, big Internet companies like Google are writing or adopting OSS with vigor.⁸ Google, Facebook, Twitter, and other Internet companies are scaling out their cloud-computing infrastructure with open-source software and commodity web servers.⁹ For example, software developers built much of Facebook from the ground up using OSS.¹⁰ Young technology companies today often rely on open-source business software rather than proprietary products such as operating systems from Microsoft.¹¹ Even governmental entities and schools are adopting OSS models, at least in part for budgetary reasons.¹²

More than half of the 517 organizations that responded to a 2011 Gartner survey use OSS.¹³ When Gartner first started tracking open-

(opining that open-source software licenses seem legally enforceable under property and contract law).

7. This was the conclusion of the CEOs and senior executives of the Open Source Think Tank 2008. See <http://thinktank.olliancegroup.com/> and the recent Open Source Alliance survey <http://www.opensolutionsalliance.org/> (last visited Sept. 23, 2012).

8. Microsoft and other software giants recognize their companies as under siege by the burgeoning open-source movement. Microsoft's enterprise software business president, Bob Muglia, acknowledged in 2010 that his company had failed to interact well with college students, and when the recent graduates decided to join startup companies that may be undercapitalized, buying Microsoft software was less attractive than using OSS. Ashlee Vance, *Microsoft Calling. Anyone There?*, N.Y. TIMES (July 4, 2010), <http://www.nytimes.com/2010/07/05/technology/05soft.html?pagewanted=all>.

9. Clint Boulton, *Facebook Built Walled Garden with Open Source Software*, EWEEK (July 12, 2010), <http://www.eweek.com/c/a/Linux-and-Open-Source/Facebook-Built-Walled-Garden-With-Open-Source-Software-799355/1/>.

10. *Open Source*, FACEBOOK, <http://developers.facebook.com/opensource/> (last visited Sept. 23, 2012).

11. Vance, *supra* note 8.

12. See, e.g., *Case Studies on Open-Source Software*, EUROPEAN COMMISSION JOINUP, <https://joinup.ec.europa.eu/software/page/case-studies> (last visited Sept. 23, 2012) (showcasing success stories of governments adopting open-source initiatives); Natasha Wanchek, *4 Tips for Adopting Open Source Software in K-12*, JOURNAL (2010), <http://thejournal.com/articles/2010/07/22/4-tips-for-adopting-open-source-software-in-k12.aspx>; Posting of Administrator, *Open Source Software In Higher Education*, PENNY HARRIS FOUNDATION (Oct. 29, 2011, 12:24 PM), <http://www.pennyharrisfoundation.org/open-source-software-in-higher-education>.

13. Klint Finley, *Most Organizations Now Use Open Source Software According to Gartner*, READWRITEWEB (Mar. 7, 2011), <http://www.readwriteweb.com/enterprise/2011/03/most-organizations-now-use-ope.php> (reporting the results from Gartner's SURVEY ANALYSIS: OVERVIEW OF PREFERENCES AND PRACTICES IN THE ADOPTION AND USAGE OF OPEN-SOURCE SOFTWARE (2011)). "More than 22% of the respondents use

source software in the enterprise in 2006, only ten percent of organizations used OSS.¹⁴ As the comparison of the data in the surveys indicates, OSS has an increasing presence in business and consumer worlds and appears to be here to stay.

The second question providing much discussion a decade ago concerned the enforceability of OSS licenses and what legal remedies were available. Until the 2009 Federal Circuit case of *Jacobsen v. Katzer*, some commentators wondered whether the widely used General Public License (“GPL”)¹⁵ and other open-source licenses were legally enforceable.¹⁶ Since then courts have answered in the affirmative under several legal theories, predominantly under copyright law.

Enforcement actions for and against OSS have increased substantially even as OSS becomes the indispensable infrastructure for online social networks and application programming interfaces (“APIs”) on smartphones. Enforcement actions have moved from relatively quiet and quickly settled disputes within the OSS community to high-profile Silicon Valley patent cases that pit titans against one another, like Oracle against Google and Yahoo against Facebook.

Part II of this paper describes OSS licensing, along with possible legal theories and remedies for OSS claims. Part III presents exemplary disputes within the OSS community during the early and mid-2000s that tested legal theories for enforcement of open-source licenses. In 2009, the Federal Circuit opinion of *Jacobsen v. Katzer*¹⁷ directly addressed the enforceability of OSS licenses under copyright and contract claims. Since then, strategic OSS plaintiffs have emerged with commercial interests beyond the OSS community’s primary interest in license compliance. Part IV describes the large proprietary software companies (“titans”) and litigious non-patent-practicing entities (“trolls”) entering the OSS arena to enforce their patents. The discussion concludes with observations on how the legal

OSS in all departments while 46% use OSS for specific departments.” *Id.* “Nearly one-third cited benefits of flexibility, increased innovation, shorter development times, and faster procurement processes as reasons for adopting OSS solutions.” *Id.* In 2010, an Accenture survey found that fifty percent of organizations planned to migrate mission-critical software to open source within a year. *Id.*

14. *Id.*

15. The Free Software Foundation (“FSF”) stewards the GPL and is responsible for issuing new GPL licenses. See Part III-A *infra* for further description of FSF’s activities.

16. See *supra* note 6.

17. *Jacobsen v. Katzer*, 535 F.3d 1373 (Fed. Cir. 2008); *Jacobsen v. Katzer*, 609 F. Supp. 2d 925 (N.D. Cal. 2009).

actions of the titans and trolls are affecting the protection and enforcement of open-source licenses, as well as what steps the OSS community is taking to defend itself against such actions. Part V summarizes what practical and legal defensive maneuvers remain viable within the context of the history of enforcement within the OSS community, and the likely future of increased patent litigation.

II. Legal Theories for OSS License Enforcement

A. OSS Licensing

Open-source software refers to software products distributed under terms that allow users to use, modify, and redistribute the software under a royalty-free license. The license requires source-code authors, distributors, and users to comply with certain conditions to keep the software available to others.¹⁸ In contrast, commercial proprietary software companies generally distribute only object code and hold source code as trade secret under a restrictive license to prevent competitors from further developing or distributing the software.¹⁹

Open-source software challenges the classic thought about the value of intellectual public goods. Traditional proprietary software creators use their intellectual-property (“IP”) rights to help monetize their IP and prevent others from using it without a license. In contrast, creators of OSS generally rely on their IP rights to keep the original software code and any improvements or additions to it free and widely accessible to others. Open-source software is made available free to the public under a copyright license that allows others to create collaborative projects, to dedicate their works to the

18. The licensee is obligated (1) to preserve the original copyright notices and developer attribution within the code, and (2) to make available any modifications, improvements, or derivative works of the OSS under the same terms as the original license. The second and so-called “copyleft” obligation does not restrict use, but provides a means of enforcement to keep the original as well as the altered forms of the OSS available for public use under the license agreement. Jyh-An Lee, *New Perspectives on Public Goods Production: Policy Implications of Open Source Software*, 9 VAND. J. ENT. & TECH. L. 45, 50–52 (2006). This enforcement of continued availability is “hereditary” (sometimes described as “viral”) because terms of the original license are “inherited” by subsequent licensees of the same code. *Id.*; Phil Albert, *GPL: Viral Infection or Just Your Imagination?*, MACNEWS WORLD (May 25, 2004), <http://www.macnewsworld.com/story/33968.html>. For an argument that the enforceability of viral terms of a license should not be based on contract or property rights, see Proshanto Mukherji, *On Enforcing Viral Terms*, 122 HARV. L. REV. 2184, 2184 (2009).

19. John Locke, OPEN SOURCE SOLUTIONS FOR SMALL BUSINESS PROBLEMS 7 (James Walsh, 1st ed. 2004).

public, or to license certain uses of the works while keeping some rights reserved. Nevertheless, the OSS providers can profit by providing consulting or other services related to the OSS rather than by selling the software or improvements to it.²⁰

The General Public License (“GPL”) is the most popular open-source license in use today.²¹ It permits a software designer to modify GPL-licensed code and distribute such modified code, provided that the entire derivative work thereby created by such modification is licensed as a whole under the terms of the GPL itself.²²

OSS licenses range from permissive to restrictive. The strength of the license provisions may give more or less permission for the OSS to be incorporated into software licensed downstream under closed source-terms and in binary-only form. Strong so-called copyleft provisions require the licensee who modifies and distributes OSS to contribute back by licensing the modifications under the same open-source licenses.²³ For example, the GPL license is a strong copyleft license, and with its third version, the GPLv3, it appears to extend its terms to any modified or derivative work as a whole.²⁴ Copyleft, a play on the word “copyright,” is a condition where any modification to the OSS must be in turn licensed under the same

20. Red Hat is the most prominent example. Brodtkin, *supra* note 4.

21. The Free Software Foundation (“FSF”) stewards the GPL and is responsible for issuing new GPL licenses.

22. Alan Stern & A. Clifford Allen, *Open Source Licensing*, in UNDERSTANDING THE INTELLECTUAL PROPERTY LICENSE 432, 441–42, 445 (PLI Intellectual Prop. Course Handbook Ser. No. G-1025, 2010).

23. For examples, Berkeley (“BSD”), Apache License and Massachusetts Institute of Technology (“MIT”) licenses, as non-copyleft, permissive licenses, allow a developer who modifies the code to explicitly state different licenses terms for any modifications. Stern & Allen, *supra* note 22, at 439. Mozilla Public License and Eclipse Public License are weak copyleft license that explicitly permit incorporation of the copyleft-covered software into a larger binary executable license under different terms. *Id.* at 440. A corporation may use a GPL-licensed software internally in essentially an unrestricted manner. 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 249 (PLI Patents, Copyrights, Trademarks, & Literary Prop. Course Handbook Ser. No. 14750, 2008). If the corporation distributes the software in object code or executable form, however, the corporation must also provide the complete corresponding source code or a written offer to provide the source code. Free Software Foundation, Inc., GNU GENERAL PUBLIC LICENSE, Version 2 ¶ 3 (1991), available at <http://www.gnu.org/licenses/gpl-2.0.html>.

24. For descriptions on the versions of the GPL, see HEATHER J. MEEKER, Chapter 14: *The Border Dispute of GPL2*, Chapter 18: *GPL Version 3.0*, and Chapter 19: *LGPL Version 3.0*, in THE OPEN SOURCE ALTERNATIVE, 183–222, 245–65 (2008).

open-source license.²⁵ The Linux[®] operating system, probably the best-known example of OSS, is licensed under GPLv2, as an extensive amount of software written runs on Linux[®] operating system.²⁶

B. Legal Theories and Remedies for OSS Claims

OSS licensing may involve contract rights as well as intellectual property rights under copyright, patent, trade secret, and trademark law.²⁷ In the past, the OSS community tended to resolve disputes between or among its members before formal legal action, focusing primarily on license compliance.²⁸ Typically an OSS license is enforced under copyright or contract law, although OSS has been involved in patent, trademark, trade secret, and unfair-trade-practice disputes that extend outside the OSS borders into the software community at large.

1. Legal Protections for OSS under Copyright and Contract Law

Stronger Protections for OSS License under Copyright Law

Licensing of OSS software might seem to fall most naturally under state contract law. The remedies under contract law, however, are minimal at best because the monetary damages from freely available software would be little to none. A copyright licensor normally waives the right to a federal claim copyright infringement against a non-exclusive licensee, and is therefore limited to its contractual remedies for breach of the license agreement.²⁹ In other words, a breach of a covenant generally gives rise only to a claim for breach of contract, not copyright infringement.

The Federal Circuit in *Jacobsen vs. Katzer*³⁰ (described in Part III-B below) and other courts have ruled that a breach of typical

25. Stern & Allen, *supra* note 22, at 432. The GPLv3 license allows a limited supplement of terms. *Id.* See GNU GENERAL LICENSE, Version 3 ¶ 7 (June 29, 2007), <http://www.gnu.org/licenses/gpl-3.0.html>.

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

27. See generally Robert W. Gomulkiewicz, *Legal Protection for Software: Still a Work in Progress*, 8 TEX. WESLEYAN L. REV. 445, 445 (2002) (describing how copyright, patent, trademark, trade secret, and contract law protects software).

28. Meeker, *supra* note 24, at 71.

29. Sun Microsystems, Inc. v. Microsoft Corp., 188 F.3d 1115, 1121 (9th Cir. 1999); *Graham v. James*, 144 F.3d 229, 236 (2d Cir. 1998) (Generally, “[a] copyright owner who grants a non-exclusive license to use his copyrighted material waives his right to sue the licensee for copyright infringement.”).

30. *Jacobsen*, 535 F. 3d at 1382–83. The court found that a provision in an open-source license requiring the inclusion of author, license, and copyright information if the

contractual promises (also called covenants or obligations) in a license agreement does not constitute copyright infringement.³¹ A breach of license conditions, however, might constitute infringement.³²

The exception then to the rule of only contract remedies for software licenses occurs when the licensee breaches a *condition* of the license, that is, a contractual term on which the licensor conditioned his permission for the licensee to access the copyrighted material. The condition must have a close nexus to the licensor's exclusive copyright rights such as copying, selling, and creating derivative works.³³ In *MDY Industries, LLC v. Blizzard Entertainment, Inc.*, the Ninth Circuit explained that "a potential for [copyright] infringement exists only where the licensee's action (1) exceeds the license's scope (2) in a manner that implicates one of the licensor's exclusive statutory rights."³⁴

With copyright infringement, a licensor has various remedies to pursue, including recovery of lost profits, statutory damages of up to \$150,000 per work, injunctive relief, attorney's fees, as well as enforcement against downstream infringers.³⁵ In contrast, violation of independent contractual covenants generally does not give rise to injunctive relief, and permits only limited compensation for direct

software was modified and redistributed was a condition enforceable under copyright law, not a mere covenant. *Id.* In *Jacobsen*, the rights that were being conditioned were the right to modify and distribute the software, rights that are unquestionably exclusive rights of the copyright holder.

31. State law normally defines the terms of "covenant" and "condition." A covenant is a promise to act or not act in a particular way. For example: "Licensee agrees that it will not X." A condition is a precondition that must be fulfilled before a party delivers a benefit. For example: "Provided that Licensee does not A, then Licensor will allow Licensee to B."

32. *Id.*

33. Three exclusive rights that pertain to copyright ownership of software under the Copyright Act are the rights to reproduce, prepare derivative works based thereon, and distribute copies of the copyrighted work. 17 U.S.C. § 106(1) (2006). Note that unless the user distributes the software, the conditions of the OSS license would not apply. *See, e.g.*, GNU GENERAL PUBLIC LICENSE, Version 3 (GPL-3.0) §§ 1–3, <http://www.opensource.org/licenses/GPL-2.0>; GNU LESSER GENERAL PUBLIC LICENSE, version 3.0 (LGPL-3.0) §§ 2, 4–6 (June 29, 2007), *available at* <http://www.opensource.org/licenses/lgpl-3.0.html>.

34. *MDY Industries, LLC v. Blizzard Entertainment, Inc.*, 629 F.3d 928, 940 (9th Cir. 2010); *Jacobsen*, 535 F.3d at 1380 (holding that if the copyright holder limits the scope of the license and the licensee acts outside the scope, then the licensor can bring an action for copyright infringement). *See also* *S.O.S., Inc. v. Payday, Inc.*, 886 F.2d 1081, 1087 (9th Cir. 1989).

35. 17 U.S.C. § 504 (2006). Therefore, the violation of license conditions that equate with copyright infringement gives rise to copyright infringement remedies including injunctive relief.

economic loss, with parties bearing their own attorneys' fees.³⁶ In the open-source context, where software is licensed without charge, a plaintiff may have difficulty establishing economic loss. Thus, injunctive relief as a copyright remedy may be the only meaningful remedy that open-source licensors have.

In the *Jacobsen v. Katzer* case described in Part III-B below, the Federal Circuit found that OSS, although made available to the public for free, includes an economic component even though profit is not immediate.³⁷ The creator derives economic value from a public license because the creator is able to subsequently improve the software based upon users' suggestions.³⁸ As the software improves, so does the creator's reputation, and the software is improved even further.³⁹

2. Copyright-Ownership Challenges in OSS

The ability to bring a claim of copyright infringement against an allegedly infringing party lies solely with the legal or beneficial owner(s) of the right being infringed.⁴⁰ A few years ago, questions remained about whether OSS works created by multiple authors were joint works, compilations or collections, and whether derivative works may be characterized as joint works, compilations, or derivative works.⁴¹

The ownership issue of joint authorship was highlighted in the BusyBox cases described in Part III-A below.⁴² Bruce Perens, one of the authors of Busybox software, announced that he did not approve of the litigation that the other authors had filed against Best Buy and others.⁴³ He raised the question regarding his own rights as one of the

36. *Jacobsen*, 535 F.3d at 1380.

37. *Id.* at 1379.

38. *Id.*

39. *Id.* (citing *Planetary Motion, Inc. v. Techsplosion*, 261 F.3d 1188, 1200 (11th Cir. 2001)).

40. See RAYMOND T. NIMMER, *THE LAW OF COMPUTER TECHNOLOGY* § 10:22 (4th ed. 2009) (explaining the challenge in determining the owner in an OSS project).

41. 17 U.S.C. § 101 (2006) (defining compilation, joint work, and derivative work); 17 U.S.C. § 201(a)-(b) (2006) (describing ownership under copyright law); 17 U.S.C. § 201(a) ("The authors of a joint work are co-owners of copyrights in the work."). NIMMER, *supra* note 40, at § 10:23 (describing the differences in ownership between joint works, collective works, and derivative works).

42. 17 U.S.C. § 101 ("A 'joint work' is a work prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole.").

43. Jennifer Buchanan O'Neill & Christopher J. Gaspar, *What Can Decisions by European Courts Teach us About the Future of Open-Source Litigation in the U.S.*, 38

authors of the open-source software. The answer depends on whether the software is considered a “joint work” or a “compilation” under copyright law.⁴⁴ As with copyright terms, standard copyright categories are often difficult to apply to software. Under copyright law, if a joint work exists between OSS code writers, then they are co-owners of an undivided interest in the entire work.⁴⁵ One author can use the entire work as he or she pleases without seeking permission from the other joint author(s). This might include suing over OSS compliance for specific jointly created code, which occurred in the BusyBox cases.

The question of joint authorship extends to another copyright ownership issue on whether OSS programs are compilations or collections. Code elements that, by themselves, are not copyright protectable because they lack a “modicum of creativity,”⁴⁶ may be compiled in a creative way to receive copyright protection.⁴⁷ A “compilation” results from a process of selecting, bringing together, organizing, and arranging pre-existing material of all kinds, regardless of whether the individual items in the material have been or ever could have been subject to copyright. The selection of what data to include and the chosen arrangement of that data are legitimate candidates for protection under a compilation theory.

By comparison, a “collective work” is a work, such as a periodical issue or anthology, in which a number of contributions, constituting separate and independent works, are assembled into a collective whole.⁴⁸ If OSS were a collective work, then the combined efforts of multiple authors are separate works temporarily joined

AIPLA Q.J. 437, 457–58 (2010) (quoting the blog of Perens saying that “[t]he version 0.60.3 of Busybox upon which Mr. Andersen claims copyright registration in the lawsuits is to a great extent my own work and that of other developers. I am not party to the registration. It is not at all clear that Mr. Andersen holds a majority interest in that work”).

44. 17 U.S.C. § 101.

45. 17 U.S.C. § 201(a) (“The authors of a joint work are co-owners of copyright in the work.”); *Oddo v. Ries*, 743 F.2d 630, 633 (9th Cir. 1984) (holding that co-owner cannot be liable for infringement of the copyright, and that each author has the independent right to use or license the copyright subject only to a duty to account for any profits an author earns from the licensing or use of the copyright).

46. *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 346 (1991) (explaining that “originality requires independent creation plus a modicum of creativity”). In *Feist Publications*, the court concluded that an arrangement of telephone numbers based on the associated list of alphabetized names lacked the modicum of creativity required for copyright protection. *Id.* at 363.

47. 17 U.S.C. § 103 (2006).

48. 17 U.S.C. § 101.

together.⁴⁹ Anyone using the collected work would require permission from all the authors. Under the collection theory, all the creators of particular code covered by an OSS license would need to agree before a violator of an open-source license could be sued. Where many and even hundreds of programmers have contributed to an open-source project, the collection theory quickly breaks down for creating any legally enforceable protection.

Another challenge with OSS ownership concerns the nature of derivative works.⁵⁰ A derivative work, in comparison to the compilation, requires a process of recasting, transforming, or adapting “one or more preexisting works”; the “preexisting work” must come within the general subject matter of copyright set forth in 17 U.S.C. § 102, regardless of whether it is or was ever copyrighted.⁵¹

Problems may arise when a business either distributes the OSS or a derivative version to an affiliate, to another business external to the business, or in an end product. This was another issue chronicled in the BusyBox cases. The challenge is to know what copyleft requirements trigger when someone modifies and distributes an open-source licensed work, and what exactly defines a derivative work. Unless a modification is licensed under the requisite OSS license, the rights granted under the open-source license are deemed terminated.⁵² The GPL, for example, requires the author of the derivative work to license that new work under the same terms of the GPL. What constitutes a derivative work is often the main issue of OSS disputes.⁵³ The inquiry about whether particular software is a derivative work necessitates a highly fact-dependent analysis.⁵⁴

49. *Id.* (“A ‘collective work’ is a work, such as a periodical issue, anthology, or encyclopedia, in which a number of contributions, constituting separate and independent works in themselves, are assembled into a collective whole.”).

50. *Id.* (“A ‘derivative work’ is a work based upon one or more pre-existing works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgement, condensation, or any other form in which a work may be recast, transformed, or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications which, as a whole, represent an original work of authorship, is a ‘derivative work.’”).

51. H.R. Rep. No. 94-1476, pt.1, at 57 (1976).

52. This termination contrasts with the right of an author of a derivative work under the Copyright Act: the copyright of the derivative work is “independent of, and does not affect or enlarge the scope, duration, ownership, or subsistence of, any copyright protection in pre-existing material.” 17 U.S.C. § 103(b).

53. GPL licensors concede that a software program that runs on top of an OSS operating system does not create a derivative work. Bradley M. Kuhn et al., *A Practical Guide to GPL Compliance* 3, SOFTWARE FREEDOM LAW CENTER (2008), available at <http://www.softwarefreedom.org/resources/2008/compliance-guide.pdf>. Although beyond the scope of this paper’s discussion, the determination of software as being a derivative

Distinguished from collective works, joint works of authorship may share similarities with both derivative works and compilations, and could be seen as one and the same but for the intention of the authors.⁵⁵ One author's recasting, transforming, or adapting of another author's preexisting work may create either a derivative work or a joint work consisting of inseparable parts.⁵⁶ Similarly, depending on the intent of the authors, the assembling of the works of several different authors into a collective whole may create either a compilation or a joint work consisting of interdependent parts.⁵⁷ The general consensus now within the OSS community is that OSS projects are joint works, and as they are modified, they become compilations or derivative works. In other words, code creators are co-owners with an undivided interest in the code, and they must comply with terms of the license under which they contributed to the code.

3. Potential Legal Minefields for OSS under Patent Law

The open-source community as a whole opposes patenting of software. While debate about whether software should be patentable is beyond the scope of this paper, understanding why the community opposes patenting of software helps give a context for recent conflicts between patent holders and copyright owners of OSS.⁵⁸ Patent infringement can occur even if the infringer has never heard of or been in contact with the patented invention. An independently created useful work can infringe a patent if determined to be the same as the claimed invention. Thus, a software programmer may infringe a patent accidentally or incidentally by independently creating a software product with similar features as the infringed invention. In other words, patent infringement requires no

work may depend on whether the software is linked statically or dynamically to another. 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).

54. Kuhn, *supra* note 53, at 3.

55. 1-6 MELVILLE B. NIMMER, NIMMER ON COPYRIGHT § 6.03.

56. *Id.*

57. *Id.*

58. Opinions against patentability of software can be strong. See, e.g., Simon Phipps, *Why Software Patents Are Evil*, INFOWORLD (Mar. 16, 2011) (remarking that "[n]o programmer I've ever met refers to software patents, for two reasons. First, they aren't written for programmers to learn from- they're written for patent lawyers to sue against. You'll find software patent filings contain no sample code and few technical descriptions. When I worked at IBM, I asked a patent lawyer at the company what was needed to file a patent. I was told 'a rough idea-we can fill in the details for you-and then all the ways you can think of by which we could tell if someone else is using that idea.'").

willfulness on the part of an OSS creator. By comparison, copyright infringement requires that the infringer have at least had some contact or connection with a copyrighted work to have infringed that work. Independently created works do not infringe one another's copyrights.

From the perspective of many OSS and proprietary software programmers, the patent system has become a minefield for innovators who accidentally infringe one or more of the hundreds of thousands of active software patents.⁵⁹ Given that a few lines of similar code can lead to patent infringement, the amount of legal research required to compare every line of a computer program against every active software patent is astronomical. Further, since software patents rarely provide any lines of code from which to compare, affirmative steps to avoid possible patent infringement is a near impossible task. OSS creators have been pulled into a growing number of patent-infringement cases in recent years as an inevitable result of OSS's higher profile and monetary value in the software industry.

4. Added Legal Protection for OSS under Trademark Law

While the vast majority of OSS disputes focus on either copyright or patent rights, other intellectual property rights including trademarks may come into play. Trademarks are important for branding particular OSS code.

As a recent example, Alev O. Karasulu, the founder of the Apache Directory Server Project, filed a complaint against Red Hat in 2011 alleging various claims, including a request to cancel a trademark registration of "Penrose."⁶⁰ As the owner of Identityx, Inc., Jim Yang, had approached Karasulu earlier about the development of open-source virtual-directory software, and Karasulu offered to develop the software as an OSS project.⁶¹ Karasulu used the name "Penrose" for the virtual directory OSS project beginning in 2005. In 2008, Yang filed an application to register the trademark "Penrose" for software through Identityx, Inc., which he subsequently sold to Red

59. Timothy Lee, *The Real Victims in the Patent Wars: How the Software Industry's Litigation Explosion Is Devastating Small Startups*, SLATE (Feb. 12, 2012), http://www.slate.com/articles/technology/future_tense/2012/02/patent_wars_silicon_valley_and_diy_software_innovators_single.html.

60. Complaint at 1, *Karasulu v. Red Hat, Inc.*, No. CV11-02219-EMC, (N.D. Cal. May 6, 2011), 2011 WL 1868406, available at <http://docs.justia.com/cases/federal/district-courts/california/candce/3:2011cv02219/240400/1/0.pdf?1305266121>.

61. *Id.* at 4.

Hat. The dispute resolved quietly, with Karasulu voluntarily moving for dismissal with prejudice.⁶²

Besides traditional disputes concerning the use of trademarks, a few courts in early OSS cases considered whether the GPL itself was functioning as a trademark. In 2001, *Progress Software Corp v. MySQL AB* tested the enforceability of the GPL.⁶³ Because of the software's GPL notice, the court granted a preliminary injunction under the theory of trademark infringement, enjoining Progress and its subsidiary NuSphere from, among other things, sublicensing or distributing the MySQL program under the MySQL trademark or using the MySQL trademark.⁶⁴

Also in 2001, the Eleventh Circuit Court of Appeals in *Planetary Motion, Inc. v. Techsplosion* considered the GPL licensing notices as evidence of the trademark owner's intent to control the use of its mark, CoolMail.⁶⁵ The Eleventh Circuit Court of Appeals found that the plaintiff intended to use the CoolMail mark as a trademark, and used it in a way sufficiently public to create ownership rights in the mark.⁶⁶

Few legal analysts now would consider the GPL notices positioned within the OSS source code to function as trademarks. Since the early OSS-related cases like *Progress* and *Planetary*, the connection between open-source licensing and related trademarks is better understood. Currently, Red Hat and other OSS software companies consider their husbandry of trademark rights to be

62. Voluntary Dismissal, *Karasulu v. Red Hat, Inc.*, No. CV11-02219-EMC (N.D. Cal. Aug. 5, 2011) (dismissal reported by <http://ia600609.us.archive.org/2/items/gov.uscourts.cand.240400/gov.uscourts.cand.240400.docket.html>).

63. *Progress Software Corp. v. MySQL AB*, 195 F. Supp. 2d 328, 329 (D. Mass. 2002) (discussing the GNU General Public License).

64. *Id.* The parties eventually settled out of court without court guidance. YWEIN VAN DEN BRANDE, et al., *A HISTORY OF FOSS LAW AND LICENSING* (2011), available at <http://ifosslawbook.org/a-history-of-foss-law-and-licensing/>.

65. *Planetary Motion v. Techsplosion, Inc.*, 261 F.3d 1188, 1198 (11th Cir. 2001) ("Software distributed pursuant to [the GNU General Public License] is not necessarily ceded to the public domain and the licensor purports to retain ownership rights, which may or may not include rights to a mark . . ."). In 1994, the software developer Byron Darrah began distributing an email application named "CoolMail" over the Internet, and allowed users to copy the software under a public license. *Id.* at 1191. The next year a German company, S.u.S.E. GmbH, successfully sought permission to distribute CoolMail in a compilation of UNIX-based programs. *Id.* In 1998, Appellant, Michael Carson, formed Techsplosion, a company that offered an email service named "CoolMail." *Id.* In 1999, Darrah transferred all rights in the CoolMail software to Planetary Motion who sued Techsplosion under the Lanham Act. *Id.* at 1192; Lanham Trade-Mark Act § 43(a), 15 U.S.C. § 1125(a) (2012).

66. *Planetary Motion*, 261 F.3d 1188 at 1196.

alongside their enforcement of open-source licenses.⁶⁷ The GPL notices themselves, however, are not considered to function as trademarks.

The recent dispute over the Koha trademark between Horowhenua Library Trust (“HLT”) of New Zealand and a U.S. company, PTFS, illustrates the importance of trademark protection to open-source projects.⁶⁸ HLT manages the Koha open-source project.⁶⁹ PTFS filed for trademark protection for Koha in New Zealand after it had acquired LibLime, which used the trademark.⁷⁰ LibLime provides library services associated with Koha software.⁷¹ Subsequently, PTFS agreed to transfer the trademark to HLT on condition that HLT would not restrict anyone’s use of the trademark associated with the Koha OSS.⁷² This trademark dispute follows other Koha community concerns over whether LibLime has sufficiently contributed software patches and other content back to the community.⁷³ Nevertheless, the dispute over the trademark *Koha* is distinct from the issue of license compliance.

The aforementioned cases involving the trademarks of “Penrose,” “CoolMail,” and “Koha” show that proper use of trademarks can be as important to the OSS community as they are to proprietary software developers and vendors. OSS applications can develop reputations as users increasingly associate an application’s

67. Heather J. Meeker, *Open Source and the Age of Enforcement*, 4 HASTINGS SCI & TECH. L.J. 267, 270 (2012), available at <http://hstlj.org/wp-content/uploads/2012/09/MeekerV4I2.pdf>.

68. *Kiwi Library in Trademark Fight with US Corporation*, STUFF (Nov. 23, 2011), <http://www.stuff.co.nz/national/6016492/Small-library-fights-US-corporation-over-software-patent>.

69. *Id.* *Koha* also means “gift” in Māori, a native language of New Zealand. *Id.*

70. *PTFS/LibLime Granted Provisional Use of Koha Trademark in New Zealand*, LIBLIME (Nov. 23, 2011), <http://www.liblime.com/ptfsliblime-granted-provisional-use-of-koha-trademark-in-new-zealand>.

71. *Id.*

72. *Id.* (suggesting that PTFS was “prepared to transfer the trademark to a nonprofit Koha Foundation with the provision that the Foundation hold the trademark in trust and not enforce it against any individual, organization, or company who chooses to promote services around Koha in New Zealand”). An interference action was taken against the Koha registration. For information on the status of the interference at the INTELLECTUAL PROPERTY OFFICE OF NEW ZEALAND, see Koha, Case No. 819644, <http://www.iponz.govt.nz/app/Extra/Case/Browse.aspx?sid=634651005225172414> (last visited Sept. 23, 2012).

73. For updates on the dispute, see Koha Library Software Community, *Koha News*, <http://koha-community.org/category/koha-news/>, (last visited Sept. 23, 2012).

name with a particular standard of quality or a set of features.⁷⁴ Trademark law help protects the relationship that an OSS project develops with its users.⁷⁵ The law also allows an OSS project to maintain a certain amount of control over the use of its brand.⁷⁶

5. ITC 337 Action as Uncommon Legal Protection for OSS

Where international trade of OSS is involved, OSS licensors might pursue a little-used enforcement action that is more commonly associated with patents. If violations of OSS licenses occur as unfair practices in import trade, OSS licensors could file an action with the United States International Trade Commission (“ITC”), as authorized by Section 337 of the Tariff Act of 1930.⁷⁷ When the ITC finds an unfair-trade violation, it issues an order directing that infringing goods be excluded from import into the United States.⁷⁸ Border enforcement of copyrights by the U.S. Custom and Border Protection (“CBP”) requires that copyrights have been registered with the Library of Congress and also recorded with the CBP.⁷⁹ A successful ITC action would enjoin the importer from unfair trade of open-source software.⁸⁰

III. Enforcement Within the OSS Community

Most open-source disputes leading up to the 2009 case of *Jacobsen v. Katzer* settled out of court. Up until the mid-2000s, the

74. Richard Fontana et al., Software Freedom Law Center, *A Legal Issues Primer for Open Source and Free Software Projects*, SOFTWARE FREEDOM LAW CENTER (Mar. 8, 2011), <http://www.softwarefreedom.org/resources/2008/foss-primer.html>.

75. *Id.*

76. *Id.*

77. Tariff Act of 1839, ch. 497, § 337, 46 Stat. 590, 703–04 (codified in 19 U.S.C. § 1337 (2012)); CONGRESS RESEARCH SERVICE, INTELLECTUAL PROPERTY RIGHTS PROTECTION AND ENFORCEMENT: SECTION 337 OF THE TARIFF ACT OF 1930, Rep. No. 7-5700 RS22880 (2009), available at ipmall.info/hosted_resources/crs/RS22880_091026.pdf.

78. The United States Customs and Border Protection (“CBP”) executes the order by seizing the infringing goods at the border. Tariff Act of 1839, ch. 497, § 337, 46 Stat. at 703-04 (codified in 19 U.S.C. § 1337 (2012)).

79. *Id.* A 337 action requires that the software have an “enforceable United States copyright registered under title 17 [the Copyright Act].” 19 U.S.C. § 1337(a)(1)(B)(i).

80. This is particularly true after *eBay v. Mercantile Exchange LLC*, 547 U.S. 388 (2006), where the Supreme Court held that an injunction should not be issued automatically based on a finding of patent infringement. Now it requires a showing irreparable harm for injunctive relief. See Robert W. Hahn & Hal J. Singer, *Assessing Bias in Patent Infringement Cases: A Review of International Trade Commission Decisions*, 21 HARV. LAW & TECH. 457, 459–60 (2008) (“The average number of patent cases filed at the ITC was ten per year in the 1990s; since 2000, the number of cases has doubled to an average of twenty-three per year.”).

OSS community typically treated their disputes differently from those of other intellectual property holders because the community primarily focused on license compliance. When members of the OSS communities pursued enforcement, it often occurred through public peer pressure rather than through legal channels.⁸¹ By the mid-2000s, a small yet growing number of OSS disputes led to more formal enforcement actions. These early cases presented a variety of claims—some more successful than others—that laid the groundwork for the enforcement actions seen today.

A. Software Freedom Law Center Enforces OSS Licenses

As the use of OSS increased, the OSS community members saw greater need to protect OSS so that the OSS coders would have the continued ability to modify and improve the licensed original works. The Software Freedom Law Center (“SFLC”) and other OSS advocacy organizations determined that they needed to make OSS users understand the obligations imposed by the GPL and to enforce the obligations through litigation if necessary. The SFLC has led the development and enforcement of the GPL.⁸²

Not until 2007 did anyone file a U.S. lawsuit concerning a violation of the GPL.⁸³ The SFLC began filing a series of lawsuits in 2007 on behalf of Erik Andersen and Rob Landley, two authors of BusyBox software.⁸⁴ In the first lawsuit, SFLC sued Monsoon Multimedia. The complaint alleged that Monsoon Multimedia distributed the OSS-licensed BusyBox by embedding it within the hardware of Monsoon’s media devices and within downloadable firmware without providing the source code as required under the terms of the GPLv2.⁸⁵ The SFLC dismissed the lawsuit when Monsoon agreed to appoint an open-source compliance officer,

81. Tiller et al., *supra* note 23, at 245.

82. SFLC describes the legal issues in open source and the obligations imposed by the GPL in two 2008 publications: *A Legal Issues Primer for Open Source and Free Software Projects*, GPL, 2008, www.softwarefreedom.org/resources/2008/foss-primer.pdf and *Practical Guide for GPL Compliance*, GPL, 2008, www.softwarefreedom.org/resources/2008/compliance-guide.html.

83. *On Behalf of BusyBox Developers, SFLC Files First Ever U.S. GPL Violation Lawsuit*, SOFTWARE FREEDOM LAW CENTER (Sept. 20, 2007), <http://www.softwarefreedom.org/news/2007/sep/20/busybox>.

84. BusyBox emulates standard Unix tools in a small executable code in cell phones and other embedded devices.

85. Complaint ¶¶ 11–12, *Anderson v. Monsoon Multimedia, Inc.*, No. 1:07-cv-08205 (S.D.N.Y. Sept. 19, 2007), available at <http://www.softwarefreedom.org/news/2007/sep/20/busybox/complaint.pdf>.

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.⁸⁶

The successive BusyBox cases followed a similar pattern in settlement and became the archetype of OSS settlement agreements. The series of BusyBox suits included the defendants Xterasys Corporation and High-Gain Antenna, LLC,⁸⁷ Verizon,⁸⁸ Supermicro,⁸⁹

86. *BusyBox Developers and Monsoon Multimedia Agree to Dismiss GPL Lawsuit*, SOFTWARE FREEDOM LAW CENTER (Oct. 30, 2007), <http://softwarefreedom.org/news/2007/oct/30/busybox-monsoon-settlement/>. FLC sued Monsoon Multimedia, Inc., alleging that Monsoon had violated the GPLv2 under copyright law by including BusyBox code in the firmware of their Monsoon Multimedia HAVA line of product without releasing BusyBox source code. Complaint ¶¶ 11–13, 19, *Anderson*, No. 1:07-cv-08205. Plaintiffs claimed that the only permission Monsoon had to distribute BusyBox software was pursuant to the GPL, characterizing that permission as “contingent” on Monsoon’s compliance with its terms. Complaint ¶ 12, *Anderson*, No. 1:07-cv-08205. For a description of BusyBox, see , *BusyBox—The Swiss Army Knife of Embedded Linux*, BUSYBOX, <http://www.busybox.net/downloads/BusyBox.html> (last visited Sept. 23, 2012); SOFTWARE FREEDOM, CONSERVANCY, Current Member Projects: BusyBox, <http://sfconservancy.org/members/current/> (last visited Sept. 23, 2012) (describing BusyBox as a combination of tiny versions of many common UNIX utilities into a single small executable with a fairly complete environment for any small or embedded system).

87. Complaint, *Andersen v. Xterasys Corp.*, No. 07-CV-10455 (S.D.N.Y. Dec. 6, 2007), available at <http://www.softwarefreedom.org/news/2007/nov/20/busybox/xterasys.pdf>; *BusyBox Developers and Xterasys Corporation Agree to Settle GPL Lawsuit*, SOFTWARE FREEDOM LAW CENTER (Dec. 17, 2007), <http://www.softwarefreedom.org/news/2007/dec/17/busybox-xterasys-settlement/>; (SFLC announcing a settlement with Xterasys, which agreed to stop product shipments until it published complete source code for the GPL code, and to pay an undisclosed sum to the plaintiffs); *BusyBox Developers and High-Gain Antennas Agree to Dismiss GPL Lawsuit*, (Mar. 6, 2008), <http://www.softwarefreedom.org/news/2008/mar/06/busybox-hga/> (SFLC announcing a settlement with High-Gain Antennas, which agreed to comply with the GPL, and to pay an undisclosed sum to the plaintiffs).

88. Complaint, *Andersen v. Verizon Comms., Inc.*, No. 07-CV-11070 (S.D.N.Y. Dec. 6, 2007), available at <http://www.softwarefreedom.org/news/2007/dec/07/busybox/verizon.pdf>; *BusyBox Developers Agree To End GPL Lawsuit Against Verizon*, SOFTWARE FREEDOM LAW CENTER (Mar. 17, 2008), <http://www.softwarefreedom.org/news/2008/mar/17/busybox-verizon/> (SFLC announcing a settlement with Verizon, which agreed to comply with the GPL, and to pay an undisclosed sum to the plaintiffs).

89. Complaint, *Anderson v. Super Micro Computer, Inc.*, No. 08-CV-05269-RMB (S.D.N.Y. June 9, 2008), available at <http://www.softwarefreedom.org/news/2008/jun/10/busybox/supermicro-complaint.pdf>; *BusyBox Developers and Supermicro Agree to End GPL Lawsuit*, SOFTWARE FREEDOM LAW CENTER (July 23, 2008), <http://www.softwarefreedom.org/news/2008/jul/23/busybox-supermicro/> (SFLC announcing a settlement with Super Micro, which agreed to comply with GPL, and to pay an undisclosed sum to the plaintiffs); Notice of Voluntary Dismissal, *Andersen v. Bell Microproducts, Inc.*, No. 08-CV-5270 (S.D.N.Y. Oct. 17, 2008).

Bell Microproducts, Inc.,⁹⁰ Extreme Networks, Best Buy Co., Samsung Electronics Americas, Inc., Westinghouse Digital Electronics, LLC, JVC Americas Corp., Western Digital Technologies, Inc., Robert Bosch LLC, Phoebe Micro, Inc., Humax USA, Inc., Comtrend Corp., Dobbs-Stanford Corp., Versa Technology, Inc., Zyxel Communications Inc., Astak, Inc., and GCI Technologies Corp.⁹¹ The suits were based on claims of copyright violations of the GPLv2 in a variety of consumer electronic products, such as DVD players and televisions. Like the earlier *Monsoon* case, the defendants agreed in the later BusyBox cases to comply with the OSS license as well as to 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.

In 2009, the SFCL filed its first OSS case not associated with BusyBox, *Free Software Foundation, Inc. v. Linksys, Inc.*⁹² The Free Software Foundation (“FSF”) as copyright owners alleged that Cisco violated copyright law by distributing FSF-copyrighted programs through the sale of Linksys wireless routers, without satisfying the terms of the GPL and Lesser GPL licenses.⁹³ The parties settled in 2009 with an agreement that appears similar to those in the BusyBox cases.⁹⁴ The settlement provided that Cisco would appoint an OSS

90. Complaint, *Anderson v. Bell Microproducts, Inc.*, No. 08-CV-5270 (S.D.N.Y. June 9, 2008), available at <http://www.softwarefreedom.org/news/2008/jun/10/busybox/bell-complaint.pdf>.

91. Complaint, *Software Freedom Conservancy, Inc. v. Best Buy Co., Inc.*, No. 09-CV-1015 (S.D.N.Y. Dec. 14, 2009), available at <http://www.softwarefreedom.org/resources/2009/busybox-complaint-2009-12-14.pdf>. The defendants includes Best Buy Co., Samsung Electronics Am., Inc., Westinghouse Digital Electronics, LLC, JVC Americas Corp., Western Digital Technologies, Inc., Robert Bosch LLC, Phoebe Micro, Inc., Humanx USA, Inc., Comtrend Corp., Dobbs-Stanford Corp., Versa Tech. Inc. Zyxel Comm'ns Inc., Astak, Inc., and GCI Technologies Corp. *Id.* at 1.

92. Complaint, *Free Software Fdn., Inc. v. Cisco Sys., Inc.*, No. 1:08-CV-10764 (S.D.N.Y. Dec. 11, 2008), available at <http://www.softwarefreedom.org/news/2008/dec/11/fsf-cisco-complaint.pdf> (last visited Sept. 23, 2012). See Ryan Paul, *Free Software Foundation Lawsuit Against Cisco a First*, ARS TECHNICA (Dec. 11, 2008, 7:56 PM), <http://arstechnica.com/open-source/news/2008/12/free-software-foundation-lawsuit-against-cisco-a-first.ars>.

93. Complaint ¶¶ 6, 25, 26, 44–45, *Free Software Found., Inc. v. Cisco Sys., Inc.*, *supra* note 92. The complaint alleges copyright infringement of computer code covered by three open-source licenses: the GPLv2; GNU Lesser General Public License version 2 (“LGPLv2”); and GNU Lesser General Public License version 2.1 (“LGPLv2.1”). *Id.* ¶ 19.

94. Brett Smith, *FSF Settles Suit Against Cisco*, FREE SOFTWARE FOUND. (May 20, 2009), <http://www.fsf.org/news/2009-05-cisco-settlement.html>.

compliance director to ensure compliance, and pay an undisclosed financial contribution to the FSF.⁹⁵

B. Federal Circuit Finds OSS License Enforceable Under Copyright Law

Viewed as a victory for open-source licensing, the 2009 federal case of *Jacobsen v. Katzer* provided the first written court opinion in the United States that directly concerned open-source licensing law.⁹⁶ The case strengthened the legal underpinnings of free and open source/open-source software (“F/OSS”) because it addressed the fundamental question of remedies available to OSS developers.⁹⁷ *Jacobsen* brought claims under both contract law and copyright law.⁹⁸ For breach of contract, monetary damages are common and injunctions rare. For copyright infringement, remedies include injunctions to stop development and distribution of infringing products, and statutory damages of up to \$150,000 per infringed registered work if a defendant willfully infringed the copyrighted work.⁹⁹ The Court of Appeals for the Federal Circuit (“CAFC”) nonetheless set a high standard for injunctive relief in cases of OSS license breach. The district court on remand did not grant *Jacobsen* an injunction because he failed to demonstrate that he was likely to suffer irreparable harm.¹⁰⁰

95. *Id.*

96. *See, supra* note 17.

97. *What is Free Software?*, FREE SOFTWARE FOUND., <http://www.gnu.org/philosophy/free-sw.html> (last visited Sept. 23, 2012) (defining free software by delineating the four kinds of freedom necessary for the software to be free as “a matter of liberty”: (1) “freedom to run the program”; (2) “freedom to study how the program works, and adapt it to your needs”; (3) “freedom to redistribute copies so you can help your neighbor”; and (4) “freedom to improve the program, and release your improvements to the public, so that the whole community benefits.”)

98. Second Amended Complaint at 1, *Jacobsen v. Katzer*, No. C06-1905-JSW, 2007 WL 5138282 (N.D. Cal. Dec. 12, 2007) (suing for “Declaratory Judgment, Violations of Copyright and Federal Trademark Laws, and State Law Breach of Contract”); Amended Complaint at 1, 25–27, *Jacobsen v. Katzer*, No. C 06 1905 HRL, 2006 WL 1547582 (N.D. Cal. Mar. 13, 2006) (asking for “Declaratory Judgment, for Violations of Antitrust Laws, California Business and Professions Code § 17200, and Lanham Act, and for Libel, Demand for Jury Trial,” and asserting that *Katzer*’s patent is unenforceable and not infringed by the software *Jacobsen*’s hobbyist group developed as F/OSS).

99. 17 U.S.C. § 504 (2012).

100. *See, supra*, note 17.

C. Commercial OSS Vendors File Lawsuits Over OSS License Violations

As OSS-related companies became profitable in the mid-2000s, litigation became a viable option for OSS enforcement when informal attempts to gain license compliance failed. As a private company, Artifex filed some of the first lawsuits to enforce the GPL. In 2008, it sued Diebold, Inc., the parent corporation of Premier Elections Solutions, Inc. and quietly settled.¹⁰¹ In 2009, Artifex brought claims against Palm, Inc. and other defendants in an action related to its MuPDF software, a PDF rendering engine that includes a small PDF interpreter for the personal-digital-assistant and e-book markets.¹⁰² The case with Palm was terminated in early 2011.¹⁰³

Artifex used a “dual licensing” model, providing the software under both the GPL and a commercial license.¹⁰⁴ Artifex offers an example of how commercial open-source companies could provide two types of software products where the rights available under an open-source license did not include the value of the additional protections, performance warranties, support, and indemnification available under the commercial license.

101. Complaint for Copyright Infringement ¶ 11, *Artifex Software Inc. v. Diebold Inc.*, No. 3:08-CV-04837-SC (N.D. Cal. Oct. 22, 2008), available at <http://www.terekhov.de/GPLvDIEBOLD/COMPLAINT.pdf> (last visited Sept. 23, 2012). The last available document filed in the case was a court order to continue a hearing date from April 3, 2009 to May 29, 2009. Order at 1, *Artifex Software Inc. v. Diebold Inc.*, No. 3:2008-CV-04837 (N.D. Cal. Apr. 2, 2009) (parties agreeing in principle to settle and finalizing the settlement agreement), available at <http://docs.justia.com/cases/federal/district-courts/california/candce/3:2008cv04837/208205/37/>. Since that order, Election Systems & Software acquired Premier Election Solutions from Diebold on September 3, 2009, and then Dominion Voting Systems acquired Premier’s assets from Election Systems on May 19, 2010. See Kim Zetter, *Diebold Unloads Beleaguered Voting Machine Division*, WIRED (Sept. 3, 2009, 1:50 PM), <http://www.wired.com/threatlevel/2009/09/diebold-sells/>; *Dominion Voting Systems, Inc. Acquires Premier Election Solutions Assets from ES&S*, DOMINION VOTING SYS., INC. (May 19, 2010), available at <http://www.voteraction.org/files/DominionAcquiresPremierRelease.pdf>.

102. Complaint, *Artifex Software, Inc. v. Palm, Inc.*, No. 2009-CV-05679-JF (N.D. Cal. Dec. 2, 2009), available at <http://docs.justia.com/cases/federal/district-courts/california/candce/5:2009cv05679/222215/9/0.pdf?1269829609>.

103. Notice of Voluntary Dismissal with Prejudice, No. 5:09-CV-05679-JF (N.D. Cal. Feb. 7, 2011), available at <http://ia600404.us.archive.org/33/items/gov.uscourts.cand.222215/gov.uscourts.cand.222215.28.0.pdf>. Before the dismissal, Hewlett-Packard Company had acquired Palm, Inc. on July 1, 2010. *HP Completes Palm Acquisition*, HEWLETT-PACKARD CO., (July 1, 2010), <http://www.hp.com/hpinfo/newsroom/press/2010/100701xa.html>.

104. *Abstract from the Hardcopy Observer*, ARTIFEX SOFTWARE INC. (Nov. 1, 2010), <http://www.artifex.com/pressreleases/HCO-november1-2010.htm>.

D. Red Hat Settles to Protect Upstream and Downstream OSS Users

The *Firestar Software, Inc. v. Red Hat, Inc.* case demonstrates the additional issues that open-source companies must consider when settling a patent infringement case.¹⁰⁵ Red Hat's \$4.2 million settlement agreement with Firestar Software, Inc. and DataTern, Inc. may provide a model for future patent-OSS cases.¹⁰⁶ FireStar had asserted infringement of its patents.¹⁰⁷ In 2006, FireStar Software filed a lawsuit with the U.S. District Court for the Eastern District of Texas, alleging the infringement of a patent related to linked databases (U.S. Patent No. 6,101,502) by Hibernate, a JBoss™ OSS product. Firestar filed the suit a couple months after Red Hat announced it was acquiring JBoss.¹⁰⁸ Unlike traditional patent settlements, Red Hat negotiated for the settlement to cover other members of the OSS community including upstream licensors of the Red Hat product and downstream licensees.¹⁰⁹

Profitable OSS vendors like Red Hat are recognizing that their IP settlements for open-source products have wide-ranging implications for other OSS licensees. This adds to the complexity of how a settlement agreement might be structured in order to provide protection for former, current, and future users of particular open-source code, and any past or future modifications of that code.¹¹⁰

105. Complaint ¶ 11, *FireStar Software, Inc., v. Red Hat, Inc.*, No. 2:06-cv-00258-TJW, 2006 WL 1930014 (E.D. Tex. June 26, 2006). Other defendants include Jboss, Inc. and DaVinci-Matterhorn LLC a/k/a Merger LLC.

106. First Amended Counterclaims, Third-Party Complaint, and Cross-Claims, ¶¶ 11, 27, 31, 33, *Datatern, Inc. v. Foley & Lardner, LLP*, No. 2:09-cv-00038, 2009 WL 4487991 (E.D. Tex. Oct. 8, 2009) (revealing the Firestar and Red Hat settlement amount in a subsequent case alleging legal malpractice of dismissed counsel). For more details about the subsequent disclosure of the involvement of an attorney's patent-holding company, see IV-B-2.

107. The patent-in-suit was later assigned to a Texas company named DataTern. An investment group named Amphion Innovations US, which owns a stake in FireStar and set up its wholly owned subsidiary DataTern as a patent licensing company, also became a party to the suit. Florian Mueller, *Red Hat Feeds the Patent Trolls and Fools the FOSS Community*, FOSS PATENTS (Mar. 14, 2011), <http://www.foosspatents.com/2011/03/red-hat-feeds-patent-trolls-and-fools.html>.

108. Martin LaMonica, *Red Hat Scoops Up JBoss*, CNET (Apr. 10, 2006, 8:26 AM), http://news.cnet.com/Red-Hat-scoops-up-JBoss/2100-7344_3-6059293.html.

109. Settlement Agreement at 6, RED HAT (June 6, 2008), available at http://www.redhat.com/f/pdf/blog/patent_settlement_agreement.pdf. For a discussion of specific definitions and language used to cover users up and downstream, see *The Red Hat-FireStar Settlement Agreement is Published - updated*, GROKLAWS (July 15, 2008, 4:03 PM), <http://www.groklaw.net/articlebasic.php?story=20080715054748526>.

110. *Id.*

E. Patents Enforced Against Open-Source Software

The flood of software patent litigation in the last decade has inevitably spilled over into the OSS world, in part because Internet vendors and social networks such as the Internet titans of Amazon, Google and Facebook use OSS within their web servers. More than 40,000 software patents are granted each year and no source including the United States Patent and Trademark Office (“USPTO”) provides any effective cataloging of software patent claims.¹¹¹ Analysts now conclude it is impossible for software firms to do effective freedom-to-operate searches to void infringing software patents.¹¹² Thus, inadvertent patent infringement among millions of software authors seems inevitable. Yet in 2006, Nathan Myhrvold, the Microsoft veteran who founded the mass patent aggregator Intellectual Ventures (described in Part IV-B-4 below), complained about the “culture of intentionally infringing patents” in the software industry.¹¹³

IV. Patent Titans and Trolls Enter the OSS Community

Open-source software has become part of the mainstream software industry and a major underpinning of the Internet-cloud infrastructure.¹¹⁴ Big Internet companies are writing or adopting open source with enthusiasm, after years of enterprise powered by proprietary software infrastructure from Microsoft, Oracle, HP, IBM,

111. Christina Mulligan & Timothy B. Lee, *Scaling the Patent System*, 68 N.Y.U. ANN. SURV. AM. L. (forthcoming 2012), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2016968 (citing James Bessen, *A Generation of Software Patents* 25 fig. 1. (Bos. Univ. Sch. of Law Working Paper No. 11-31, Berkman Ctr. Res. Publ'n No. 2011-04, June 21, 2011) (forthcoming in B.U. J. SCI. & TECH. L.J.)).

112. *Id.* at 27 (determining that even if a software designer wanted to avoid infringing a software patent and review the appropriate patents, it would be mathematically impossible because it would take an at least two million patent attorneys or agents, working full time, to consider whether all these software-producing firms have infringed any of the software patents issued in a typical year). In practice, many software firms do not try to avoid infringement and just hope they are not sued. Nevertheless, companies still pursue patents for their computer software because they offer the strongest form of IP protection. An owner of a patent may prevent all others from making, using, or selling the patented invention.

113. Michael Orey & Moira Herbst, *Inside Nathan Myhrvold's Mysterious New Idea Machine*, BUSINESSWEEK (July 3, 2006), http://www.businessweek.com/magazine/content/06_27/b3991401.htm (“You have a set of people who are used to getting something for free.”).

114. This has been the conclusion of the CEOs and senior executives of the Open Source Think Tank. *Open Source In The Mainstream - OSBC 2011 Notes*, ISTOCKANALYST (May 23, 2011, 5:00 P.M.), <http://www.istockanalyst.com/finance/story/5174721/open-source-in-the-mainstream-osbc-2011-notes>.

and others.¹¹⁵ Internet companies are scaling up much of their cloud-computing hardware infrastructure with OSS and commodity hardware.¹¹⁶ Many smartphones and other mobile devices run on OSS like Google's Android™ operating system.¹¹⁷ Even Microsoft has contributed code to the Linux® OSS.¹¹⁸

One of the results of the open-source explosion is that large software- and Internet-enabled companies are battling more frequently in patent infringement suits or open-source licensing enforcement.¹¹⁹ Meanwhile, small OSS players are getting hit in the patent cross-fire and are now receiving their own invitations from patent-holding companies such as Lodsys to license certain patents to avoid being sued.

A. Titans Build Upon and Fight Over Open Source

At some point in the last ten years, Microsoft and other software giants recognized that their companies were coming under siege by the burgeoning open-source movement.¹²⁰ Today's computer programmers may go through college and software-specific educational programs writing programs predominantly on non-Microsoft and other non-proprietary software, further chipping away at the previously dominant operating-system-specific software applications and providing new generations of programmers and developers with open-source alternatives.

115. Redmonk Analyst Stephen O'Grady told eWeek that open source often wins out over proprietary products because proprietary products have little benefit relative to the returns for developing non-differentiating software in-house. Clint Boulton, *Facebook Built Walled Garden with Open Source Software*, EWEEK (July 12, 2010), <http://www.eweek.com/c/a/Linux-and-Open-Source/Facebook-Built-Walled-Garden-With-Open-Source-Software-799355/1/>.

116. *Id.*

117. Timo Paananen, *Smartphone Cross-Platform Frameworks: A Case Study* 19, 46 (Apr. 27, 2011) (unpublished bachelor's thesis, JAMK University of Applied Sciences), https://publications.theseus.fi/bitstream/handle/10024/30221/110510_Thesis_Timo_Paananen.pdf (comparing open-source and proprietary cross-platform mobile programming frameworks for smartphones).

118. *Microsoft Contributes Linux Drivers to Linux Community*, MICROSOFT CORP. (July 20, 2009), <http://www.microsoft.com/en-us/news/features/2009/jul09/07-20linuxqa.aspx>.

119. See M.G., *Yahoo! v Facebook: Making a Tough Job Harder*, Post on *Schumpeter Blog*, ECONOMIST (May 14, 2012, 9:10), <http://www.economist.com/blogs/schumpeter/2012/03/yahoo-v-facebook> ("In such sectors as the mobile-phone industry, barely a day goes by without some new legal tussle hitting the headlines.").

120. Microsoft's enterprise software business president, Bob Muglia, acknowledged in 2010 that Microsoft had not been interacting with college students, and when the recent graduates decided to join startup companies that may be undercapitalized, buying Microsoft software was less attractive than using OSS. Vance, *supra* note 8.

1. *Microsoft, the Elder Titan*

The elder titan Microsoft, holder of around 18,000 patents,¹²¹ has approached the OSS community with seemingly inconsistent treatment of both attacks and truces since 2000. Microsoft has not directly pursued its claim that Linux[®] software and other OSS violate 235 Microsoft patents.¹²² Yet Linux[®] users express concerns that if the Windows desktop marketshare were to erode, Microsoft would threaten Linux[®] directly with lawsuits.¹²³ As one demonstration of a dualistic foe-or-friend approach to OSS, Microsoft was asserting that the Linux[®] operating system violated Microsoft's patents while submitting two OSS licenses for the approval of the Open Source Initiative,¹²⁴ which were approved as complying with the OSS licensing requirements.¹²⁵

Perhaps adding to confusion, Microsoft itself is a licensee of and contributor to OSS. For example, it acknowledged a failure to comply with the GPL in its distribution of the Windows 7[®] USB/DVD Download Tool.¹²⁶ In another example, Microsoft contributed three drivers to Linux[®] software under the GPLv2.¹²⁷ In April 2012, the Linux Foundation¹²⁸ reported that Microsoft was in the top twenty of Linux[®] kernel contributors.¹²⁹

121. Timothy B. Lee, *Microsoft's Android Shakedown*, FORBES (July 7, 2001, 8:00 AM), <http://www.forbes.com/sites/timothylee/2011/07/07/microsofts-android-shakedown/> ("Android, like every large software product on the planet, infringes numerous Microsoft patents.")

122. Cade Metz, *Meet Bill Gates, the Man Who Changed Open Source Software*, WIRED (Jan. 30, 2012), <http://www.wired.com/wiredenterprise/2012/01/meet-bill-gates/all/1>.

123. Jon Brodtkin, *Linux Patent Protection Network Gets Boost from Facebook, HP*, NETWORKWORLD (Apr. 20, 2011, 12:04 AM), <http://www.networkworld.com/news/2011/042011-linux-patent-protection.html>.

124. The Open Source Initiative, a public interest organization, maintains the Open Source Definition, which details ten criteria that must be met before a software package can be called "Open Source." *The Open Source Definition*, OPEN SOURCE INITIATIVE, <http://www.opensource.org/docs/osd> (last visited Sept. 23, 2012).

125. *OSI Approves Microsoft License Submissions*, OPEN SOURCE INITIATIVE (Oct. 12, 2007), <http://www.opensource.org/node/207> (OSI Board approving the Microsoft Public License (Ms-PL) and the Microsoft Reciprocal License (Ms-RL) as consistent with the Open Source Definition).

126. Ryan Paul, *SFLC Tech Director Finds One New GPL Violator Every Day*, ARS TECHNICA (Nov. 9, 2009, 7:27 PM), <http://arstechnica.com/open-source/news/2009/11/sflc-tech-director-finds-one-new-gpl-violator-every-day.ars>.

127. *Microsoft Contributes*, *supra* note 118.

128. The two main evangelizers of Linux[®] software, the Open Source Development Labs and the Free Standards Group, merged to form the Linux Foundation. China Martens, *OSDL, Free Standards Group to Merge*, INFO WORLD (Jan. 22, 2007), <http://www.infoworld.com/t/platforms/osdl-free-standards-group-merge-009>. The OSS industry is unusual because of extensive dependence on non-profit entities for guidance. *Id.* These

Beginning in the early 2000s, the Microsoft's business strategy reportedly included financial support for litigation to spread fear, uncertainty, and doubt ("FUD")¹³⁰ about open-source software.¹³¹ In several well-publicized cases, the SCO Group, Inc. ("SCO") sued International Business Machines ("IBM"),¹³² Red Hat,¹³³ Novell,¹³⁴ AutoZone,¹³⁵ and Daimler-Benz.¹³⁶ In 2003, SCO sent letters to about 1,500 major corporations that used Linux[®] code informing them of SCO's infringement claims and stating that it intended to aggressively

entities include the OSI, Free Software Foundation, Mozilla Foundation, Apache Foundation and Eclipse Foundation.

129. Libby Clark, *Microsoft Fields Tough Questions about Open Culture at the Company*, LINUX.COM (Apr. 13, 2012, 14:32), <https://www.linux.com/news/featured-blogs/200-libby-clark/564056-microsoft-fields-tough-questions-about-open-culture-at-the-company>. See also Lawrence Latif, *Microsoft Contributed More Code than Canonical to Linux Since 2.6.32*, INQUIRER (Apr. 4, 2012, 4:32 P.M.), <http://www.theinquirer.net/inquirer/news/2166123/microsoft-contributed-code-canonical-linux-2632>.

130. FUD, a term originating in the computer hardware industry, is a tactic used to spread fear, uncertainty, and doubt about a competitor's product to dissuade a customer from buying a competitor's product.

131. For a discussion on Microsoft's financing of SCO's lawsuits, see Tom Ewing, *Indirect Exploitation of Intellectual Property Rights By Corporations and Investors*, 14 HASTINGS SCI. & TECH. L.J. 3, 55-58 (2012).

132. Caldera Sys., Inc. [d/b/a/ SCO Grp.] v. Int'l Bus. Machs., Inc., No. 030905199 (D. Utah Mar. 56, 2003) [hereinafter *SCO v. IBM*]. For a timeline of the case, commentary, and posting of over 1,000 associated court documents, see GROKLAW.NET, *SCO v. IBM Timeline*, <http://www.groklaw.net/staticpages/index.php?page=20031016162215566> (last visited Sept. 23, 2012).

133. Complaint ¶¶ 73, 77, Red Hat, Inc. v. SCO Grp., Inc., No. 03-772 (D. Del. Aug. 4, 2003) (requesting declaratory judgment that SCO has no claims against Red Hat for copyright infringement and trade secret misappropriation). For a timeline of the case, commentary, listing, and posting of court documents, see GROKLAW.NET, *Red Hat Timeline*, GROKLAW, <http://www.groklaw.net/staticpages/index.php?page=20031017044328636> (last visited Sept. 23, 2012).

134. SCO Grp., Inc. v. Novell, Inc., No. 2:04-CV-139, 2004 WL 1432157 (D. Utah Jan. 20, 2004). For a timeline of the case, commentary, and posting of hundreds of associated court documents, see GROKLAW.NET, *SCO v. Novell Timeline*, GROKLAW, <http://www.groklaw.net/staticpages/index.php?page=20040319041857760> (last visited Sept. 23, 2012).

135. SCO Grp., Inc. v. AutoZone, Inc., Case No. CV-S-04-0237-DWH-LRL (D. Nev. Mar. 3, 2004). For a timeline of the case and posting of select court documents, see Groklaw.net, *Autozone Timeline*, GROKLAW, <http://www.groklaw.net/staticpages/index.php?page=AZ-Timeline> (last visited Sept. 23, 2012).

136. Complaint, SCO Grp., Inc. v. Daimler Chrysler Corp., No. 04-0576587-CK, 2004 WL 524757 (D. Mich. Mar. 3, 2004), available at <http://www.groklaw.net/pdf/sco-dcx.pdf> (last visited Sept. 23, 2012). The court entered a stipulated order of dismissal without prejudice in 2004. Stipulated Order, SCO Grp., Inc. v. Daimler Chrysler Corp., No. 04-0576587-CK (D. Mich. Dec. 21, 2004), available at <http://scofacts.org/DC-2004-12-21-B.pdf> (last visited Sept. 23, 2012).

pursue enforcement of its intellectual property rights.¹³⁷ The long string of legal actions began in 2003 and a jury in 2010 returned a verdict in *SCO v. Novell*, finding that Novell owned the copyrights at issue.¹³⁸

The SCO cases highlight problems that can result if a licensee allegedly incorporates proprietary or patented software into the GPL software and then redistributes it to the public.¹³⁹ SCO claimed that IBM as licensee incorporated SCO's patented software into IBM's Linux[®] project during a failed collaboration attempt to produce an advanced version of Unix for Intel's Itanium processor.¹⁴⁰ In the process of slow death, SCO filed for Chapter 11 bankruptcy

137. JANE K. WINN & BENJAMIN WRIGHT, LAW OF ELECTRONIC COMMERCE, 2 Suppl. 13–34 (2008). The U.S. District Court in Delaware stayed the case pending the outcome of the *SCO v. IBM* case. Mem. Order at 5, *Red Hat, Inc. v. SCO Grp., Inc.*, No. 03-772-SLR, 2004 WL 883400 at *2 (D. Del. Apr. 6, 2004).

138. For a timeline of the case, commentary, and posting of hundreds of associated court documents, see Groklaw.net, *SCO v. Novell Timeline*, GROKLAW, <http://www.groklaw.net/staticpages/index.php?page=20040319041857760> (last visited Sept. 23, 2012). In 2011, CPTN Holdings LLC—a consortium of Microsoft, Apple, Oracle, and EMC Corporation—acquired from Novell 882 OSS-related patents subject to the GNU GPL v. 2 and the OIN License at the insistence of the Department of Justice. *CPTN Holdings LLC and Novell Inc. Change Deal in Order to Address Department of Justice's Open Source Concerns*, U.S. DEP'T OF JUSTICE (Apr. 20, 2011), <http://www.justice.gov/opa/pr/2011/April/11-at-491.html>; Thomas Catan, *When Patent, Antitrust Worlds Collide*, WALL ST. J. (Nov. 14, 2011), <http://online.wsj.com/article/SB10001424052970203503204577036003036334374.html>.

139. David S. Evans & Anne Layne-Farrar, *Software Patents and Open Source: The Battle over Intellectual Property Rights*, 9 VA. J.L. & TECH. 10, 18 (2004); Brian W. Carver, *Share and Share Alike: Understanding and Enforcing Open Source and Free Software Licenses*, 20 BERKELEY TECH. L.J. 443, 456 (2005); LORI E. LESSER, *A Hard Look at the Tough Issues in Open Source Licenses*, in OPEN SOURCE SOFTWARE (2005): CRITICAL ISSUES IN TODAY'S CORPORATE ENVIRONMENT 7, 16–17 (2005).

140. Complaint ¶¶ 104–36, *SCO v. IBM*, No. 2:03cv0294 (D. Utah Mar. 6, 2003), available at http://www.groklaw.net/pdf/IBM-835-Exhibit_1.pdf. This initial complaint is notable because it contains no claim of copyright infringement. See Answer ¶ 1, *SCO v. IBM*, No. 2:03cv0294 (D. Utah Apr. 30, 2003), available at <http://www.groklaw.net/pdf/Doc-13.pdf>. Amended Complaint, *SCO v. IBM*, No. 03-CV-0294 (D. Utah July 22, 2003); Memorandum Decision and Order, *SCO v. IBM*, No. 2:03-CV-294 (D. Utah Feb. 9, 2005) (dismissing motion to allow more discovery to determine enforceability of SCO's purported copyrights in UNIX and copyright claims against IBM). See also Kerry D. Goettsch, *Recent Development*, *SCO Group v. IBM: The Future of Open-Source Software*, 2003 U. ILL. J.L. TECH. & POL'Y 581, 583–84 (2008); Andrew LaFontaine, Comment, *Silicon Flatirons Student Writing Contest 2005: Adventures in Software Licensing: SCO v. IBM and the Future of the Open Source Model*, 4 J. ON TELECOMM. & HIGH TECH. L. 449, 468–80 (2006); Brian W. Carver, *Share and Share Alike: Understanding and Enforcing Open Source and Free Software Licenses*, 20 BERKELEY TECH. L.J. 443, 473 (2005); Nina L. Chang, Comment, *No GNU Is Good G'News for SCO: Implications of SCO v. IBM*, 9 INTELL. PROP. L. BULL. 47, 47 (2004).

(reorganization) in 2007, which the bankruptcy trustee moved to convert to Chapter 7 bankruptcy (liquidation) in 2012.¹⁴¹

2. Oracle and Google Battle over the Android™ Operating System

Open-source software entered center stage in the worldwide patent wars with the Android™ operating system, which was released under the Apache Software License 2.0 in 2007.¹⁴² Recent Android®-related patent cases involve a wide variety of parties, including Motorola Mobility, HTC, Samsung Electronics, Oracle, Google, Facebook, and Yahoo. Offensive patent suits as well as defensive patent acquisitions are in full action.

In titanic defensive maneuvers, Google has been buying new patents aggressively for its patent portfolio, as demonstrated in its purchase of Motorola Mobility, Inc.¹⁴³ Google says that its purchase of Motorola Mobility will give it thousands of patents to use as protection in legal cases concerning smartphones running Google's Android™ operating system.¹⁴⁴ Google offers the Android® operating system under an open-source license for use in smartphones, computer tablets, and other small mobile devices.¹⁴⁵ Google has turned Android™-related software into the foundation of a mobile-phone empire, with worldwide phone carriers offering an ever increasing array of Android™-run phones.¹⁴⁶ Yet Google heretofore seemed somewhat handicapped by its lack of patents to assert in defense of the Android™ operating system, which employs the Linux® kernel.¹⁴⁷

In 2010, Oracle sued Google in part because Google's Android™ operating system allegedly infringed Oracle's copyrights and patents of covering its Java® software, which it acquired from Sun

141. Motion of the Chapter 11 Trustee to Convert Cases from Chapter 11 to Chapter 7 of the Bankruptcy Code, In re TSG Group, Inc., No. 07-11337 (Bankr. D. Del. Aug. 6, 2012), available at <http://www.groklaw.net/pdf3/SCOGBK-1419.pdf>

142. Android Open Source Project License, ANDROID, <http://source.android.com/source/licenses.html> (last visited Sept. 23, 2012).

143. See William Alden, *Morning Take-Out*, DEAL BOOK (Apr. 9, 2012), <http://dealbook.nytimes.com/2012/04/09/morning-take-out-458/> (suggesting that Google paid \$12.5 billion to acquire Motorola Mobility because of Motorola's patent portfolio).

144. Ian Sherr & Frances Robinson, *EU Probes Motorola Patents*, WALL ST. J., Apr. 4, 2012, at B4.

145. *Android Everywhere*, ANDROID, <http://www.android.com/developers/> (last visited Sept. 23, 2012).

146. Vance, *supra* note 8.

147. *What is Android?*, ANDROID, <http://developer.android.com/guide/basics/what-is-android.html> (last visited Sept. 23, 2012).

Microsystems, Inc. that same year.¹⁴⁸ Oracle claimed that the Android™ operating system infringed two patents (eight claims) and copyrights in thirty-seven Java® application programming interface packages (“APIs”).¹⁴⁹

Oracle’s action was the first of the “smartphone war” cases tried to a jury.¹⁵⁰ The jury found that Google did not infringe the asserted claims of the two patents.¹⁵¹ Nevertheless, the jury found that Google infringed nine lines of code called “rangeCheck,” but deadlocked on whether Google’s use constituted “fair use.”¹⁵² Judge Alsup later ruled that copyright does not protect the structure, sequence and organization of the API elements at issue.¹⁵³ Applying the Ninth Circuit decisions of *Sega Enterprises, Ltd. v. Accolade, Inc.* (1992) and *Sony Computer Entertainment, Inc., v. Connectix Corporation* (2000), the court reasoned that procedures required for interoperability of APIs were “functional requirements for compatibility,” and therefore as a “system or method of operation” it did not constitute copyrightable expression under Section 102(b) of the Copyright

148. Complaint for Patent and Copyright Infringement, *Oracle Am., Inc. v. Google, Inc.*, No. 4:10-df-03561-IB (N.D. Cal. Aug. 12, 2010).

149. Order Partially Granting and Partially Denying Defendant’s Motion for Summary Judgment on Copyright Claim, *Oracle Am, Inc. v. Google Inc.*, 810 F. Supp. 2d 1002, 1005 (2011). The court describes an API as:

containing a set of definitions governing how to call upon the services of a particular program and what types of input the program must be given and what kind of output will be returned. APIs make it possible for programs (and programmers) to use the services of a given program without knowing how the service is performed. APIs also insulate programs from one another, making it possible to change the way a given program performs a service without disrupting other programs that use the service.

Id.

150. Order re Copyrightability of Certain Replicated Elements of the Java Application Programming Interface, *Oracle Am., Inc. v. Google, Inc.*, No. 4:10-df-03561-IB (N.D. Cal. May 31, 2012) (No. 1202).

151. The two asserted patents are “Method and system for performing static initialization,” U.S. Patent No. 6,061,520 (filed Apr 7, 1998) and “Method and apparatus for resolving data references in generated code,” U.S. Patent No. RE38104 (filed Mar. 3, 1999).

152. The judge instructed the jury to take for granted that the structure, sequence and organization of the thirty-seven API packages as a whole were copyrightable. Final Draft of Jury Instructions at 1, *Oracle v. Google*, No. 3:10-cv-03561-WHA (N.D. Cal. May 14, 2012) (No. 1141), *available at* <http://docs.justia.com/cases/federal/district-courts/california/candce/3:2010cv03561/231846/1141/>.

153. Order re Copyrightability of Certain Replicated Elements of the Java Application Programming Interface, *Oracle Am., Inc. v. Google, Inc.*, No. C 10-03561 WHA (N.D. Cal. May 31, 2012) (No. 1202), *available at* <http://docs.justia.com/cases/federal/district-courts/california/candce/3:2010cv03561/231846/1202/>.

Act.¹⁵⁴ Suggested by the *Oracle v. Google* ruling, APIs of Java[®] and other object-oriented languages might appear to have limited or no copyright protection, thus clearing the way for access of the Android[™] operating system to most of Java[®] technologies under the GNU General Public License.¹⁵⁵ Yet this district court case will not be the last word on the Android[™] operating system, since Oracle intends to appeal case, and numerous Android[™]-related cases are docketed in the U.S. and worldwide.¹⁵⁶

3. Patents as Weapons and Armor in the Titan Fight

Younger as well as more established titans are taking offensive and defensive positions even as patent litigation enters the OSS arena. One such example is Facebook where open source has been a key part of its success story. It and other online and cloud services have cut costs by using Linux[®] code on commodity hardware. On top of OSS infrastructure may be proprietary technology and both may be targeted with patent lawsuits.¹⁵⁷ Recognizing such vulnerability, Facebook recently acquired 750 patents from IBM to cover “software

154. *Id.* at 2. The court analogized the current case to those of *Sega* and *Sony*. *Id.* at 29–32 (summarizing *Sega Enters., Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992) and *Sony Computer Entertainment, Inc., v. Connectix Corp.*, 203 F.3d 596 (9th Cir. 2000); 17 U.S.C. § 102(b) (2012)). The court recognized Oracle’s claim in the implementation of the methods embodied in the API. The parties conceded, however, that these elements were not copied, in that Google had written its own implementations of the Java API.

155. China Martens, *JAVAONE: Sun – The Bulk of Java is Open Source*, ITWORLD (May 8, 2007), <http://www.itworld.com/070508opsjava>. See Oliver Herzfeld, *Oracle v. Google: Are APIs Covered by Copyright Law?*, FORBES (May 1, 2012) (describing APIs as specification “hooks” that developers insert into programs to allow other programs to communicate with the developers’ programs and take advantage of their functions).

156. For example, both Apple and Microsoft have sued several Android[™] phone manufacturers for patent infringement, with Apple’s ongoing legal actions against Samsung being a particularly high-profile case where Apple was awarded damages of \$1.049 billion. Amended Verdict Form at 15, *Apple, Inc. v. Samsung Electronics, Co., Ltd.*, No. 5:2011cv01846 (N.D. Cal. Aug. 24, 2012), available at <http://www.groklaw.net/pdf3/AppleVsSamsung-1931.pdf>.

157. How much of the cloud-based software is OSS and how much is proprietary is unknown. The move to Web applications challenges the open-source model because copyleft works only if a company is distributing software to its users. With network services, the GPL becomes a permissive license, so if the company is not distributing the code, it may have no obligation under the license to contribute code modifications back to the OSS. In 2007, the FSF released the Affero GPL whose terms can require that the software licensed under the Affero GPL is downloadable when it is offered as a network service. Stephen Shankland, *Affero: A New GPL for Software as a Service*, CNET (Nov. 19, 2007), http://news.cnet.com/8301-13580_3-9820397-39.html.

and networking” technologies in a defensive move.¹⁵⁸ The deal came at a time when Facebook was under fire from Yahoo! with a suit alleging Facebook infringed ten Yahoo! patents concerning Internet advertising optimization, privacy, customization, networking, and messaging innovations.¹⁵⁹ The case was dismissed four months later.¹⁶⁰

Suits between titans are not uncommon. Back in 2004, Yahoo! sued Google for patent infringement by claiming infringement of ten patents, and received \$201 million in settlement from Google. Patents are used as weapons and arsenal in the multi-front battle areas of mobile and cloud computing and inevitably are hitting some OSS targets.¹⁶¹

B. Trolls See Attractive Open-Source Targets

Patent-assertion entities (“PAEs”), as a subset of nonpracticing entities (“NPEs”),¹⁶² are often led by patent attorneys who see opportunities to acquire patents and then sue businesses that are allegedly infringing those patents. PAEs, like modern-day mythical trolls hiding under IP bridges, buy IP created by others and then opportunistically extract licensing fees as a form of bridge toll.¹⁶³

Patent lawsuits involving PAEs have increased dramatically over the last decade with the number of PAE-instigated patent lawsuits in the United States increasing by an estimated average of more than

158. Brian Womack, *Facebook is Said to Buy 750 IBM Patents to Boost Defenses*, BLOOMBERG (Mar. 22, 2012), <http://www.bloomberg.com/news/2012-03-22/facebook-is-said-to-buy-750-ibm-patents-to-boost-defenses.html>.

159. Complaint for Patent Infringement, *Yahoo! Inc. v. Facebook, Inc.*, No. cv12-01212 (N.D. Cal. Mar. 12, 2012), available at <http://docs.justia.com/cases/federal/district-courts/california/candce/3:2012cv01212/252420/1/> and <http://online.wsj.com/public/resources/documents/yahoo03122012.pdf> (asserting claims from ten patents). See Anna Hicks, *Goliath vs. Goliath: Yahoo and Facebook Sue Over Patents*, IPWATCHDOG.COM (Apr. 13, 2012), <http://www.ipwatchdog.com/2012/04/13/goliath-vs-goliath-yahoo-and-facebook-sue-over-patents/id=24143/> (observing that Yahoo owns about 1,000 patents and Facebook recently acquired 750 patents from IBM).

160. Stipulated Motion for Dismissal of Claims and Counterclaims by Yahoo! Inc. and Facebook, Inc. and Order, *Yahoo! Inc.*, No. cv12-01212 (N.D. Cal. July 10, 2012), available at <http://docs.justia.com/cases/federal/district-courts/california/candce/3:2012cv01212/252420/40/>.

161. Steven D. Jones, *A Pivotal Fight over ‘Essential Patents,’* WALL ST. J. at B2 (May 7, 2012).

162. Nonpracticing entities may be divided broadly into two groups. The first includes universities and research organization that tend to license out rather than commercialize the inventions created by employees and students. The second, sometimes called patent assertion entities (“PAEs”) or colloquially patent trolls, includes persons or firms that acquire patents to assert them against companies that successfully sell products to extract licensing fees rather than to practice a claimed invention.

163. Tom Ewing & Robin Feldman, *The Giants Among Us*, 2012 STAN. TECH. L. REV. 1, 1 (2012).

thirty-three percent *per year* since 2004.¹⁶⁴ Software patents may account for over ninety percent of troll's most-litigated patents.¹⁶⁵

Software patents can have unpredictable claim interpretation, unclear scope, and questionable validity, in part because the patents rarely include actual code, often describing the software only in broad and general terms of functionality.¹⁶⁶ As a result, the blurred boundaries of these patents provide greater opportunity to extract rents from software companies.¹⁶⁷ Businesses have difficulties retaliating with countersuits against trolls because trolls typically hide under the bridge with no related operating businesses. Combining this with access to market funding for IP acquisition and lawsuits, IP litigation has become a viable troll business plan.¹⁶⁸ The open-source industry provides a tempting target because of its rapid growth, and profitable OSS vendors such as Red Hat have become troll targets.

While the *IP Innovation* and *Bedrock* cases discussed below may not be legally significant by themselves, they represent a growing trend for trolls—non-patent-practicing, patent-assertion companies—to aggressively sue a wide range of companies for patent infringement in East Texas. They have extended their reach into the space of open-source software and not just proprietary software.

1. First Patent-Troll Infringement Lawsuit Against an OSS Vendor

IP Innovation LLC, one of the many subsidiaries of Acacia Research,¹⁶⁹ along with Technology Licensing Corporation filed suit in

164. Litigation Over Time, PATENT FREEDOM, <https://www.patentfreedom.com/about-npes/litigations/> (last updated July 13, 2012).

165. John R. Allison, Mark A. Lemley & Joshua Walker, *Patent Quality and Settlement Among Repeat Patent Litigants*, 99 GEORGETOWN L.J. 677, 695–96 (2010) (“The overrepresentation of software patents in the most-litigated set is quite remarkable [S]oftware patents constituted 20.8% of the once-litigated patents but 74.1% of the most-litigated patents Software patents accounted for 93.7% of the assertions of the most-litigated patents.”).

166. James Bessen et al., *The Private and Social Costs of Patent Trolls*, 3 REGULATION 26, 34 (2011-2012), available at <http://www.cato.org/pubs/regulation/regv34n4/v34n4-1.pdf>.

167. *Id.* at 34.

168. *Id.*

169. *Acacia Research Subsidiary, IP Innovation LLC, Receives Jury Verdict in Patent Infringement Case*, ACACIA RES. CORP. (May 3, 2010), <http://acaciatechnologies.com/pr/050310IP%20Innovationverdict.pdf> (“The jury determined that the patents were invalid and not infringed.”). Acacia Technologies Group of Acacia Research promotes itself as the developer, acquirer, and licensor of patented technologies for primarily individual inventors and small companies with limited resources. ACACIA RES. GRP. LLC, <http://acaciatechnologies.com/index.htm> (last visited Sept.23, 2012); *About Us*, ACACIA RES. GRP. LLC, http://acaciatechnologies.com/aboutus_main.htm (last visited Sept.23, 2012).

2007 against Red Hat and Novell in what may be the first patent-troll lawsuit against an open-source licensor or vendor.¹⁷⁰ IP Innovation asserted that Red Hat and Novell infringed four claims from three U.S. patents that share a common disclosure title of “User interface with multiple workspaces for sharing display system objects.”¹⁷¹ IP Innovation sought royalties on all sales of Linux[®] software-based products, but received none because a Texas jury found all asserted claims as invalid and thus found no patent infringement.¹⁷² For this case as with other cases against OSS vendors, the OSS defendant requested and received help from the OSS community to find prior art that would help to invalidate the asserted patents.¹⁷³

2. *Bedrock Computer Technologies Trolls Many with One Patent*

In *Bedrock Computer Technologies, LLC v. Softlayer Technologies, Inc.*, Bedrock sued Softlayer Technologies, Inc., CitiWare Technology Solutions, LLC., Google Inc., Yahoo! Inc., MySpace Inc., Amazon.com Inc., PayPal, Inc., Match.com, Inc., AOL, LLC, and CME Group Inc.¹⁷⁴ Bedrock claimed that each of the defendants, in using the Linux[®] kernel on their servers, infringed its U.S. Patent No. 5,893,120, entitled “Methods and Apparatus for Information Storage and Retrieval Using a Hashing Technique with External Chaining and On-the-Fly Removal of Expired Data,” by using Linux[®] OSS. In 2011, a jury reached a verdict that plaintiff Yahoo! did not infringe Bedrock’s patent.¹⁷⁵

Months earlier, Bedrock was somewhat more successful in suing Google for infringing the same patent. The jury decided that

170. Jury Verdict and Settlement Summary, *IP Innovation LLC v. Red Hat, Inc.*, No. 2:2007-cv-00447, 2010 WL 2635947 (E.D. Tex. 2010) (finding that the plaintiff’s patents were invalid).

171. The patents are U.S. Patent No. 5,072,412 granted Dec. 10, 1991, U.S. Patent No. 5,394,521 granted Feb. 28, 1995, and U.S. Patent No. 5,533,183 granted July 2, 1996.

172. Judge Randall Rader of the Federal Circuit Court of Appeals took one of his periodic breaks from his appellate duties to preside over this district court. *Appellate Judge Excludes Damages Theory from Patent Trial*, MORGAN, LEWIS & BOCKIUS LLP (Mar. 5, 2010), http://www.morganlewis.com/pubs/IP_DamagesTheoryPatentTrial_LF_05mar10.pdf.

173. See, e.g., Red Hat and Novell, *Red Hat is Asking for Prior Art*, GROKLaw (Feb. 16, 2009, 3:39 PM), <http://www.groklaw.net/article.php?story=20090216150306923>.

174. Complaint at 1-2, *Bedrock Computer Technologies, LLC v. Softlayer Technologies, Inc.*, No. 6:09-cv-00269-LED, 2009 WL 1968729 (E.D. Tex. June 16, 2009).

175. Final Judgment, *Bedrock Computer Technologies, LLC*, No. 6:09-cv-00269-LED (E.D. Tex. Sep. 11, 2011), available at <http://docs.justia.com/cases/federal/district-courts/texas/txedce/6:2009cv00269/116887/881/> (judgment awarding Yahoo costs of \$115,000 for attorney costs and fees).

Google's use of the Linux[®] kernel in its servers infringed the patent and awarded Bedrock \$5 million, which is a small toll in the context of Google's market value.¹⁷⁶ Nevertheless, any court ruling of infringement against the Linux[®] kernel has the potential to affect millions of users of open-source software. For example, hundreds of millions of mobile devices such as smartphones and tablet computers run on the Android[™] Linux[®]-based operating system.¹⁷⁷

Bedrock points out another growing trend in the patent litigation arena, which is now expanding into the open-source community: patent attorneys building businesses out of acquiring patents and suing businesses allegedly infringing those patents. As an example, David Garrod, the owner of Bedrock, was the trolling patent lawyer responsible for the litigation of activities of the Texas-based Bedrock.¹⁷⁸

3. One Patent Attorney Trolls for Many

A prime example of one attorney trolling for many is Erich L. Spangenberg. As mentioned above in Part III-D, Red Hat settled patent infringement claim with Firestar, Inc. for \$4.2 million. *Datatern, Inc. v. Foley & Lardner, LLP*, the subsequent legal malpractice suit against Firestar's dismissed attorneys, revealed the involvement of Erich and Audrey Spangenberg in *Firestar Inc. v. Red Hat Inc.*¹⁷⁹ Erich Spangenberg owns patent-holding companies and

176. Verdict Form, Bedrock Computer Technologies, LLC, No. 6:09-cv-00269-LED (E.D. Tex. Apr. 5, 2011), 2011 WL 1821484 (finding Google's infringement of the '120 patent in the amount of \$5 million).

177. International Data Corp. estimates that smartphones makers shipped 491.4 million devices in 2011. *Smartphone Market Hits All-Time Quarterly High Due To Seasonal Strength and Wider Variety of Offerings*, INT'L DATA CORP. (Feb. 6, 2012), <http://www.idc.com/getdoc.jsp?containerId=prUS23299912>. More than sixty percent of U.S. smartphone sales use the Android[™] operating system. Lance Whitney, *Android Reclaims 61 Percent of all U.S. Smartphone Sales* CNET (May 7, 2012, 9:59 AM), http://news.cnet.com/8301-1023_3-57429192-93/android-reclaims-61-percent-of-all-u-s-smartphone-sales/.

178. Joe Mullin, *Patent Litigation Weekly: PubPat and "Patent Troll" Make Strange Bedfellows*, THE PRIOR ART (June 19, 2009), http://thepriorart.typepad.com/the_prior_art/2009/06/pubpat-and-patent-troll-make-strange-bedfellows.html. Oddly, Garrod also volunteered with Patent Public Foundation, an organization that works against undeserved patents and bad patent policy. *Id.*

179. First Amended Counterclaims ¶¶ 21, 27, 31, 33, Third-Party Complaint, and Cross-Claims, *Datatern, Inc. v. Foley & Lardner*, No. 2:09-cv-00038 (E.D. Tex. Oct. 1, 2009), 2009 WL 4487990 (revealing the contingency fee in its filing of a third-party complaint against Erich L. Spangenberg and his associated companies: IP Navigation Group, LLC; TechDev Holdings LLC f/k/a Plutus IP LLC of Marshall, Texas; and Acclaim Financial Group, LLC).

“has advised patent owners of all sizes on hundreds [over 500] of enforcement, acquisition and monetization transactions.”¹⁸⁰ Foley asserts that Spangenberg received an eighty percent contingency fee of \$3.4 million from the *Firestar* settlement.¹⁸¹

4. Intellectual Ventures as the Titan Troll

Back in 2006, Bruce Perens, as the creator of the Open Source Definition and the manifesto of Open Source, opined that business operations like Intellectual Ventures LLC¹⁸² could cripple open-source software.¹⁸³ He suggested that Intellectual Ventures was “a litigation factory in the making” and speculated that Intellectual Ventures would begin by targeting small and medium-sized businesses, which would choose to pay a license fee rather than face an expensive patent infringement lawsuit.¹⁸⁴ As the world’s largest patent aggregator, Intellectual Ventures controls an estimated 30,000 to 60,000 patents worldwide.¹⁸⁵ With much of its activities shrouded in secrecy, Intellectual Ventures buys and sells patents in an effort to monetize intellectual property.¹⁸⁶ The power of its massive patent portfolio is recognized by many and even the United Nations.¹⁸⁷

180. *The IPNav Leadership Team*, IP NAV, <http://ipnav.com/team> (last visited Sept.23, 2012); Heather Skyler, *The Patent Troll*, GOOD (June 29, 2009), <http://www.good.is/post/the-patent-troll/> (an extended interview where Erich Spangenberg acknowledges “I make an unbelievable living. It’s insane, but I’m not going to apologize for it.”).

181. First Amended Counterclaims, Third-Party Complaint, and Cross-Claims ¶ 11, No. 2:09-cv-00038 (E.D. Tex. Oct. 1, 2009), 2009 WL 4487990 (“Of the \$4.2 million settlement that the Plutus Parties [Spangenberg] obtained on behalf of Plaintiffs [Amphion/Datatern], the Plutus Parties took \$3.4 million.”).

182. Natan Myhrvold and Edward Jung began raising money for Intellectual Ventures in 2002. The stated purpose for their “Patent Defense Fund” was to provide legal protection for large technology companies against IP lawsuits through the use of Intellectual Ventures’s patent portfolios. Intellectual Ventures illustrates an emerging trend to treat IP and patents in particular, as assets for investments similar to stocks. Intellectual Venture’s stakeholders now include pension funds, venture capital firms, and wealthy individuals. Michael Orey & Moira Herbst, *Inside Nathan Myhrvold’s Mysterious New Idea Machine*, BUSINESSWEEK (July 3, 2006), http://www.businessweek.com/magazine/content/06_27/b3991401.htm.

183. Bruce Perens, *The Monster Arrives: Software Patent Lawsuits Against Open Source Developers*, BRUCE PARENS’ WEBLOG (June 30, 2006, 12:32 AM), <http://technocrat.net/d/2006/6/30/5032/>.

184. *Id.*

185. Ewing & Feldman, *supra* note 163, at 1 (extensively analyzing Intellectual Ventures’ activities).

186. *Id.* at 3.

187. The United Nations apparently considers Intellectual Ventures to be a stakeholder in how the Internet is controlled. It appointed Intellectual Ventures’ Executive Vice-president and Executive Director, Country Head of Japan to its

At this point, Intellectual Ventures may not be targeting smaller businesses directly, but associated firms like Lodsys Group, LLC are.¹⁸⁸ Lodsys Group, LLC has built a reputation in the mobile-software industry.¹⁸⁹ Lodsys sent letters in 2011 to a number of small mobile application (“app”) developers claiming infringement on at least one of the four patents it acquired from Intellectual Ventures.¹⁹⁰ Lodsys then embarked on a series of lawsuits in Marshall, Texas.¹⁹¹

“multistakeholder advisory group” on the issue of “Internet governance.” *Multistakeholder Advisory Group - List of Members – 2012*, INTERNET GOVERNANCE FORUM (2012), <http://www.intgovforum.org/cms/component/content/article/114-preparatory-process/941-mag-2012->.

188. Charles Arthur, *Why Won't Intellectual Ventures Answer Questions about its Relationship with Lodsys?*, THE GUARDIAN (July 27, 2011), <http://www.guardian.co.uk/technology/2011/jul/27/intellectual-ventures-myrvold-patent-lodsys> (suggesting that Intellectual Ventures has purchased patents and then transferred them, for example, to Oasis Research and Lodsys—“one-man bands who have abruptly realized their value and begun suing people for infringing them.”). Limited disclosure requirements for limited liability companies make it difficult to discover Intellectual Ventures’ interests in recent litigation such as Lodsys Group, LLC of Marshall, Texas.

189. In response to application developers concerns about how to respond to the threats of lawsuits by Lodsys, the Electronic Freedom Foundation sponsored a webcast for anonymous application developers where attorneys discussed patent trolls and basics of patent litigation. *Patent Trolls and You: EFF Virtual Boot Camp for App Developers*, Electronic Freedom Foundation, YOUTUBE (Sept. 9, 2011), http://www.youtube.com/watch?NR=1&feature=endscreen&v=X6eaDSd54_c.

190. Lodsys Group LLC is the current owner of the United States Patent Nos. 5,999,908; 7,133,834; 7,222,078; and 7,620,565. Lodsys Group LLC - Home Page, www.lodsys.com (last visited Sept.23, 2012). The invention assignment history of the patents at the USPTO indicates that the inventor, Daniel H. Abelow of Newton, Massachusetts conveyed his invention to his company Ferrara Ethereal LLC in Nevada. The chain of assignments extends from Abelow (the inventor) to Ferrara Ethereal LLC (his holding company) in Nevada, Webvention, LLC (another company associated with Intellectual Ventures), Lodsys LLC, and then Lodsys Group, LLC. The latter three companies are located in Marshall, Texas.

191. Complaint, Lodsys Group, LLC v. Brother Int’l Corp., No. 2:11-cv-00090-TJW (E.D. Tex. Feb. 11, 2011), 2011 WL 780937. Other defendants include Canon U.S.A., Inc., Hewlett-Packard Co., Hulu, LLC, Lenovo (U.S.) Inc., Lexmark Int’l, Inc., Motorola Mobility, Inc., Novell, Inc., Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Telecomm. Am., LLC, and Trend Micro Inc. Lodsys alleges infringement of U.S. Patent Nos. 7,620,565; 7,222,078; and 5,999,908. Complaint for Patent Infringement, Lodsys Group, LLC v. Combay, Inc., No. 2:11-cv-00272-TJW (E.D. Tex. May 31, 2011), 2011 WL 2184390. Other defendants include Iconfactory, Inc., Illusion Labs AB, Michael G. Karr d/b/a Shovelmate, Quickoffice, Inc., Richard Shinderman, and Wulven Game Studios. Complaint for Patent Infringement, Lodsys Group, LLC v. Adidas America, Inc., No. 2:11-cv-00283-TJW (E.D. Tex. June 10, 2011), 2011 WL 2491315. Other defendants include BBY Solutions, Inc., Best Western International, Inc., CVS Caremark Corporation, Sam’s West, Inc., Stanley, Black & Decker, Inc., The Container Store, Inc., The Teaching Company, LLC, Vegas.com, LLC, Vitamin Shoppe, Inc., and Adidas America, Inc. Complaint for Patent Infringement, Lodsys Group, LLC v. DriveTime Automotive Group Inc., No. 2:11-cv-00309-TJW (E.D. Tex. July 5, 2011), 2011 WL 2619445. Other defendants include ESET, LLC, Foresee Results, L.L.C., Liveperson,

Lodsys originally targeted iOS[®] developers but then expanded to Android[™] and game developers along with other technology companies, claiming that the defendants' in-application purchases, feedback forms, cross-promotional links, and other methods of storing user data infringed claims of its patents. Apple's iOS[®] and Google's Android[™] operating system provide in-application purchasing and upgrade functionality to application developers.¹⁹²

Intellectual Ventures' association with Lodsys suggests that Lodsys might be one of its roughly 1300 shell companies, some of which have asserted patents that were acquired from Intellectual Ventures.¹⁹³ From the perspective of many software designers, the normal business operation of patent aggregators like Intellectual Ventures is to extract pre-litigation settlements by sending demand letters, engaging in license negotiations, and entering into non-exclusive licenses in exchange for a fee.¹⁹⁴ Lodsys has been successful in such a plan, reporting over one hundred licensees.¹⁹⁵

The OSS community is particularly concerned about Lodsys "going after small developers and effectively trying to extract multiple royalty streams from the same infringement" ¹⁹⁶ Groklaw.net, a

Inc., Opinionlab, Inc., and New York Times, Co. Drivetime suggested that Lodsys is "a spin-off and the alter ego" of Intellectual Ventures. Motion for Leave to Conduct Jurisdictional Discovery and to Stay Response to Motion to Dismiss at 3, *Drivetime Automotive Group, Inc. v. Lodsys, LLC*, No. CV11-01307 (D. Ariz. Aug. 16, 2011), available at <http://www.groklaw.net/pdf3/DriveTimevLodsys-10.pdf>.

192. Microsoft and Google already have licenses to the portfolio of four patents that were acquired through deals with Intellectual Ventures. Nevertheless, Lodsys asserts that the licenses do not extend to individual developers who employ in-application purchasing in their apps. *Wolfram Joins Lodsys Fight, Files to Defend its iPad App*, MACNN (Aug. 9, 2011), <http://www.macnn.com/articles/11/08/09/unusually.doesnt.ask.court.to.invalidate.patents/#ixzz1u1E4FAQe>.

193. Ewing & Feldman, *supra* note 163, at 2, 5.

194. Motion for Leave to Conduct Jurisdiction Discovery and to Stay Response to Motion to Dismiss at 12, *Drivetime Automotive Group, Inc. v. Lodsys, LLC*, No. CV11-01307 (D. Ariz. filed Aug. 15, 2011) ("A patent troll's singular activity is to extract pre-litigation settlements-it sends demand letters, engages in license negotiations, and enters into nonexclusive licenses in exchange for a fee."), available at <http://www.groklaw.net/pdf3/DriveTimevLodsys-10.pdf>. See also BRIAN T. YEH, CONGRESS RESEARCH SERVICE, AN OVERVIEW OF THE "PATENT TROLLS" DEBATE at i (2012), available at https://www.eff.org/sites/default/files/R42668_0.pdf (observing that "many [patent-assertion entities] set royalty demands strategically well below litigation costs to make the business decision to settle an obvious one").

195. Lodsys Group LLC Licensees, <http://www.lodsys.com/-licensees.html> (last visited Sept. 23, 2012).

196. *Lodsys Patents - Picking Your Brain - Prior Art Updated*, GROKLAW (June 16, 2011, 10:55 AM), <http://www.groklaw.net/articlebasic.php?story=2011061608115990>.

well-known resource for the OSS community, has encouraged OSS community members to gather up prior-art references that can be used to help invalidate the Lodsys patents.¹⁹⁷

Apple responded to the Lodsys suit against Apple's iOS® application developers by requesting and receiving court allowance to intervene in the case. Meanwhile, Google responded to the suit against Android™ application developers by requesting an USPTO inter partes patent re-examination¹⁹⁸ for U.S. Patent Nos. 7,222,078 and 7,620,565, the two patents that Lodsys asserted against Android™ application developers.¹⁹⁹

One might question whether it makes sense for Lodsys to sue small application developers, given little money to be made with such suits. Yet the threat of suits likely resulted in many of the over one hundred parties licensing the patents of Lodsys. The suits against defendants such as the small software and graphic design company Iconfactory²⁰⁰ might have been used to set an example and demonstrate the determination of Lodsys.²⁰¹ The mobile application ecosystem, which includes open-source software projects, seems to be large enough of an opportunity for Lodsys to pursue.

C. OSS Community Maneuvers Defensively

Despite the OSS community's general aversion to software patents, the high-money patent litigation has entered the OSS

197. *Id.* (requesting OSS community members to identify prior art to be used against Lodsys's claimed inventions).

198. A reexamination is a process whereby a third party or inventor can request that the USPTO re-examine a U.S. patent to verify that the subject matter claimed is patentable. 37 C.F.R. § 1.913 (2012). To have a patent reexamined, an interested party must submit prior art that raises a "substantial new question of patentability." 37 C.F.R. § 1.510(b)(1) (2012).

199. According to the USPTO's Patent Application Information Retrieval (PAIR) web system, USPTO accepted both patents for reexamination. *See Public Pair*, USPTO, <http://portal.uspto.gov/external/portal/pair> (last visited Sept. 23, 2012). As of September 2012, the USPTO sent nonfinal office actions and Google filed third-party comments to the office actions in the reexaminations of App. No. 95/000,639 for Patent No. 7,222,078 and Patent App. No. 95/000,638 for Patent No. 7,620,565. All independent claims being re-examined are currently rejected under Section 102 of the Patent Act for the reason that they lack novelty. Other USPTO office actions and attorney responses will likely follow.

200. Iconfactory specializes in creating icons and software for creating and using icons. It works on open-source frameworks, providing both free and for-fee icon designs. *The Technology Behind the Iconfactory*, ICONFACTORY, <http://iconfactory.com/home/technology> (last visited Sept. 23, 2012).

201. Complaint for Patent Infringement, Lodsys Group, LLC v. Combay, Inc., No. 2:11-cv-00272-TJW (May 31, 2011) (naming Iconfactory and seven other defendants).

arena.²⁰² Open-source participants see the need for defensive strategies against unwarranted assertions of patents against those in the open-source community as well as software industry in general. Extensive software patent portfolios of titan companies or trolling patent aggregators may pose major threats for patent misuse “because of the questionable nature of many software patents generally and because of the high cost of patent litigation.”²⁰³ *Bilski v. Kappos*²⁰⁴ affirmed software’s continued patentability in the United States and its increasing rent-seeking value.

Various proposals and methods have been suggested and tried for dealing with problematic patents before any patent is asserted offensively. Among the defensive strategies are: (1) inserting so-called “patent peace provisions”²⁰⁵ into OSS licenses that require

202. For example, Red Hat takes the position that software patents generally impede innovation in software development and that software patents are inconsistent with open-source/free software. Thus, it is generally opposed to software patents. *Statement of Position and Our Promise on Software Patents*, RED HAT, http://www.redhat.com/legal/patent_policy.html (last visited Sept. 23, 2012). See *Patent Reform is Not Enough*, GNU OPERATING SYSTEM, <http://www.gnu.org/philosophy/patent-reform-is-not-enough.html> (last visited Sept. 23, 2012).

203. See, e.g., *Statement of Position and Our Promise on Software Patents*, RED HAT, http://www.redhat.com/legal/patent_policy.html (last visited Sept. 23, 2012); *Patent Policy*, UBUNTU, <https://wiki.ubuntu.com/PatentPolicy> (last visited Sept. 23, 2012); Novell, *Patent Policy*, <http://www.novell.com/company/legal/patents/> (last visited Sept. 23, 2012). Cf. *About Microsoft’s IP Licensing*, MICROSOFT, [http://www.microsoft.com/about/legal/en/us/intellectualproperty/iplicensing/\(includes+IP+Ventures+licensing+early-stage+technology+from+Microsoft+to+others\)](http://www.microsoft.com/about/legal/en/us/intellectualproperty/iplicensing/(includes+IP+Ventures+licensing+early-stage+technology+from+Microsoft+to+others)) (last visited Sept. 23, 2012); *Sustainable Design: Public Policy*, AUTODESK, <http://usa.autodesk.com/adsk/servlet/pc/item?id=14952853&siteID=123112> (last visited Sept. 23, 2012) (“IP rights, especially related to copyright and patents, provide the legal underpinning for software development and licensing.”); *IBM Establishes Worldwide Patent Policy to Promote Innovation*, INT’L BUS. MACH. CORP. (Sept. 26, 2006), <http://www-03.ibm.com/press/us/en/pressrelease/20325.wss> (“[M]ore formal code of conduct around patents could ease the burden on legal and government administrative systems[.]...[which] now deal with growing numbers of questionable patent applications and patent lawsuits.”).

204. *Bilski v. Kappos*, 130 S. Ct. 3218 (2010) (affirming business method implemented by software and computer as having patentable subject matter).

205. When a code contributor pursues legal claims against other associated OSS contributors, patent-license termination clauses (also known as patent peace provisions) end patent and sometimes copyright rights that a code contributor received under an OSS license. See, e.g., *GNU General License, VERSION 3* (June 29, 2007), <http://www.gnu.org/licenses/gpl-3.0.html> (“[Y]ou may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.”); *Common Development and Distribution License*, OPEN SOURCE INITIATIVE, <http://opensource.org/licenses/cddl-1.0> (last visited May 7, 2012) (describing a provision for termination of rights in response to patent claims to help discourage patent litigation amongst the OSS community).

licensees to avoid patent conflicts among OSS contributors; (2) encouraging patent pledges where OSS community members who hold patents promise not to enforce their patents;²⁰⁶ (3) forming groups that collect pools of patents to assert against offensive threats to the community; (4) publishing code to serve as invalidating prior art against future patent applications or patents averred in litigation; and (5) granting defensive patent licenses through a distributed network of OSS patent owners.²⁰⁷

Once threatened with patent-infringement litigation, OSS licensors and licensees also may maneuver defensively by (6) filing *inter parte* or *ex parte* applications for patent re-examination or review²⁰⁸ on patents asserted in lawsuit threats or actual lawsuits; and (7) asserting their own patents or gaining access to others to counter the ones asserted.

1. Patent-Peace Provisions

While most of the defensive strategies have targeted patent litigation coming from outside the OSS community, a “patent peace provision” is a promise not to sue within the community. The patent peace provision requires any licensee of an OSS license to forgo patent lawsuits against the licensor, and terminates both copyright rights to use the software, and patent rights in the program if a user proceeds with patent litigation against the licensor. The GPLv3 and Apache 2.0 licenses have patent peace provisions, thereby addressing the possibility of OSS developers pursuing patenting.

Patent-peace provisions provide some security from patent threats of known OSS licensees, but much like the patent pledge model described below, the benefits are limited to users of the license or technology at issue. Further, the benefits are limited by the provisions having no clear mechanism to identify the patents that are specifically subject to the peace protection. How well these types of

206. See, e.g., *Red Hat Patent Promise*, RED HAT, http://www.redhat.com/legal/patent_policy.html (last visited Sept. 23, 2012).

207. See, e.g., OPEN INVENTION NETWORK, <http://www.openinventionnetwork.com/> (last visited Sept. 23, 2012).

208. The USPTO offers two types of patent reexaminations. The first, *ex parte* reexamination, is initiated by a patent holder, the director of the USPTO, or a third party challenger who plays no further role in the proceeding. The second, the *inter partes* reexamination, is where the challenger may participate. Until recently, the challenger in the *inter partes* reexamination had been barred from appealing issues raised and decided, and even issues that could have been raised in the administrative proceeding. 35 U.S.C. § 301–07 (2006) (*ex parte* reexamination); 35 U.S.C. § 311–18 (2006) (*inter partes* reexamination).

provisions would hold up under legal challenge is unknown because no patent-peace provision has been tested in court.²⁰⁹ Some validity challenges, for example, might occur for later-acquired or sold patents where third parties claim no privity existed with the original licensee.²¹⁰

2. Patent Pledges

The second defensive patent strategy, patent pledges, consists of promises by patent holders that they will not enforce their patents under certain conditions. While yet untested in court, the pledges appear enforceable under the legal theories of estoppel (by showing reliance on the pledges), or of implied license (by showing lawful acquisition and use of the patented technology).²¹¹

Some software companies who hold significant patent portfolios have made non-aggression pledges to the free software community. Professors Schultz and Urban note that patent pledges often represent large actors such as IBM to meet OSS cultural expectations and allay fears of patent threats from companies who may want to join the OSS community.²¹² The pledges have varied in scope.²¹³

Practically speaking, patent pledges or pools by large companies might have little effect if the companies pledge only their less valuable patents and retain the more valuable ones or future ones.²¹⁴ Some observers suggest the original patent-pledge and patent pool

209. Jason Schultz & Jennifer M. Urban, *Protecting Open Innovation: A New Approach to Patent Threats, Transaction Costs, and Tactical Disarmament*, 26 HARV. J.L. & TECH. (forthcoming 2012), available at <http://ssrn.com/abstract=2040945>.

210. *Id.*

211. *Id.* at 23.

212. *Id.* at 24.

213. Richard Stallman described the pledges of IBM as “significant,” of Sun as “not really anything,” and Nokia as “next to nothing.” Richard J. Stallman, *Stallman: Nokia’s Patent Announcement Next to Nothing*, LINUX.COM (May 30, 2005), <http://archive09.linux.com/feature/45271>. Patent Pledge for Open Source Developers, Microsoft.com, <http://www.microsoft.com/openspecifications/en/us/programs/other/interoperability-principles-patent-pledges/default.aspx> (“Microsoft irrevocably promises not to assert any Microsoft Necessary Claims against you as an open-source software developer . . .”) (last visited Sept. 23, 2012).

214. IBM made the first open-source pledge of 500 patents to a patent pool in 2005. Steve Lohr, *I.B.M. to Give Free Access to 500 Patents*, N.Y. TIMES (Jan. 11, 2005), <http://www.nytimes.com/2005/01/11/technology/11soft.html>. See also, Florian Mueller, *Patent Pools and Pledges—Panacea or Placebo?*, SLASHDOT (Nov. 15, 2005) (on file with author), available at <http://yro.slashdot.org/story/05/11/15/1715235/patent-pools-and-pledges---panacea-or-placebo> (commentary noting that mega patent holder IBM made a one-time pledge of 500 patents while obtaining that number of new patents roughly every month).

concepts have failed and are used primarily for public relations.²¹⁵ Thus, patent pledges have been viewed with at least some skepticism.²¹⁶

3. Patent Protection Groups with Defensive Patent Portfolios

The third defensive patent strategy involves patent protection groups that pool their IP resources for the primary purpose of patent defense. Facebook, HP, Rackspace, Juniper, Fujitsu and dozens of other organizations have joined the Open Invention Network (“OIN”), the prominent group building a defensive patent portfolio to protect Linux[®]-using members from potential lawsuits.²¹⁷

The OIN owns a portfolio of around three hundred patents and has licenses to more than 2,000 patents in an attempt to protect the Linux[®] community from IP lawsuits.²¹⁸ The group makes its patented technology “available royalty-free to any company, institution, or individual that agrees not to assert its patents against the Linux System.”²¹⁹ Facebook, Hewlett-Packard, Rackspace, Juniper, Fujitsu and dozens of other organizations have joined the OIN.²²⁰

Having received fiscal or IP donations from IBM, NEC, Novell, Philips, Red Hat, Sony and others, OIN stands ready for battle and assert its pool of patents to neutralize or diminish a patent threat against the Linux[®] operating system.²²¹ In comparison to the defensive patent-holding companies of Allied Security Trust²²² and the RPX Corporation that both indicate they may sell but only use

215. See, e.g., *Mueller, Patent Pools and Pledges - Panacea or Placebo?*, *supra* note 214.

216. See, e.g., *Microsoft Declares Interfaces Accessible; Royalties May Apply*, GARTNER, INC. (Feb. 25, 2008), http://www.gartner.com/DisplayDocument?doc_cd=155733.

217. Jon Brodtkin, *Linux Patent Protection Network Gets Boost from Facebook, HP*, *supra* note 123.

218. *Id.*

219. *Open Invention Network Formed to Promote Linux and Spur Innovation Globally Through Access to Key Patents*, OPEN INVENTION NETWORK (Nov. 10, 2005), http://www.openinventionnetwork.com/press_release11_05.php.

220. Jon Brodtkin, *Linux Patent Protection Network Gets Boost from Facebook, HP*, *supra* note 123.

221. *About*, OPEN INVENTION NETWORK, <http://www.openinventionnetwork.com/about.php> (last visited Sept. 23, 2012).

222. Formed in 2001, Allied Security Trust started with Sun Microsystems, Motorola, Hewlett-Packard, Verizon Communications, Cisco Systems, Google, and Ericsson as members. They contribute to the operating expense of the trust, which holds funds in escrow for the purchase of patents. Each member’s escrow funds are used to purchase only patents of which it has interest. The members that contribute to the specific purchase then receive a license to those particular patents. After a certain period of time, the patents are sold or donated.

patents defensively,²²³ the OIN holds its patent portfolio defensively to shield its own members, but says it will also wield the portfolio sword offensively against litigation that is brought by other companies against Linux[®] software.²²⁴

4. *Defensive Publications and Republications of Prior Art*

The fourth defensive strategy for OSS is publishing or republishing prior art. Defensive publication focuses on creating prior-art documentation that is accessible to the public and perhaps more importantly, to patent authorities such as the USPTO. Such published prior art may be used against future patent applications that try to claim the covered OSS technology. Under 35 U.S.C. §§ 102 and 103, a U.S. patent cannot be granted for an invention that is not novel or has been anticipated by publicly disclosed information relevant to the novelty of the software code. Defensive republication of prior art occurs when prior-art contributions are solicited from the OSS community to provide information that might invalidate a patent issued in error because the USPTO had insufficient access to relevant prior art.

A program targeted specifically at protecting OSS is called Defensive Publications, a component of the Linux Defenders program.²²⁵ It documents the OSS that has not been patented so that the OSS can be brought to the attention of a patent authority such as the USPTO to help prevent patents from later issuing on the same software code.²²⁶ OIN conceived Defensive Publications and co-sponsored the program with the SFLC and the Linux Foundation.²²⁷

The aforementioned organizations sponsor programs that republish prior art. The “Peer-to-Patent” and “Post-Issue Peer-to-

223. The publicly traded RPX Corp. asserts itself as a defensive patent aggregator as an anecdote to offensive patent aggregators such as Intellectual Ventures. RPX, founded in 2008 and backed by big venture capital firms, states that it acquires patents to protect technology giants like Google and Cisco from patent lawsuits. Nathan Vardi, *RPX IPO Helps Slay Patent Trolls*, FORBES (May 3, 2011), <http://www.forbes.com/sites/nathanvardi/2011/05/03/rpx-ipo-helps-slay-patent-trolls/> (“RPX was largely put together by people who used to work for Intellectual Ventures . . . and who now are getting rich trying to slay the monster they helped create.”). John Amster, RPX’s chief executive, claims his company will never launch a lawsuit to enforce one of its patents. *Id.*

224. *Formidable Corporations Join Exclusive Patent-Infringement-Defense Clubs* (July 29, 2009), <http://globalgeneralcounsel.blogspot.com/2009/07/formidable-corporations-join-exclusive.html>.

225. *About Us*, DEFENSIVE PUBLICATIONS, <http://www.defensivepublications.org/defensive-pubs-aboutus> (last visited Sept. 23, 2012).

226. *Id.*

227. *Id.*

Patent” programs solicit prior-art contributions from the OSS community to give patent examiners access to prior art relevant to software patent applications that they are examining.²²⁸ “Post-Issue Peer-to-Patent” programs solicit prior-art contributions that might help invalidate a previously issued patent where a patent office lacked the access to relevant prior art.²²⁹

Other more general databases are being developed as repositories for prior-art and technology disclosures. For example, the Prior Art Database of IP.com is a text-searchable database that allows people to defensively publish ideas often as technical disclosures.²³⁰ The database is made available to patent office examiners and the public for prior-art searches. The underlying principles of defensive publication, whether through the Linux Defenders program or the more generalized Prior Art Database, comport with traditional principles of OSS such as public access to knowledge and a distributive structure.

5. *Defensive Patent Licenses*

The fifth promising yet untested patent defense strategy is the defensive patent licensing model proposed by Professors Jason Schultz and Jennifer Urban.²³¹ As applied to the OSS community, defensive patent licensing is a distributed network of OSS patent owners. In simple terms, every member of the network grants a standardized royalty-free patent license to every other member in the network, and commits all patents to one hundred percent defensive purposes.²³²

One of the chief reasons why the professors think a defensive patent license (“DPL”) might be effective, and if adopted, is that it would address the concerns that OSS developers have with patents, similar to the way that the GPL addressed their concerns with copyright.²³³ Another reason is that the DPL could be used as norm

228. *Id.*

229. *Id.*

230. PRIOR ART DATABASE, <http://priorartdatabase.com/> (last visited Sept. 23, 2012).

231. Schultz & Urban, *supra* note 209, at 30. Professors Schultz and Urban analyze their proposed DPL on criteria of cost and benefits distribution; respect for relevant cultural and political values; and reliability. *Id.* at 43. They also append to their article a model DPL. *Id.*

232. *Id.* at 43.

233. Julie Bort, *The Defensive Patent License Makes Patents Less Evil for OPEN SOURCE*, NETWORKWORLD.COM (May 7, 2010), <http://www.networkworld.com/community/blog/defensive-patent-license-makes-patents-less-e>.

setting like the GPL where licensors and licensees might have a general understanding of how to behave well and “do good.”

The DPL takes the concept of a defensive patent pool one step further and requires a greater commitment from its members.²³⁴ The professors modeled the DPL after a standardized open patent license, blending the general strategy of defensive patenting with the OSS values of openness and freedom.²³⁵ They also used an OSS-inspired, decentralized and standardized IP license format to distribute costs and benefits, and to provide a legally binding commitment to defense.²³⁶ The DPL would be irrevocable unless (1) the licensee sues the DPL users offensively; or (2) the licensee stops offering its own licenses under the DPL.²³⁷ The professors suggest that a licensor might stop participating in the DPL with appropriate notice such as six months, but that the previously issued licenses would remain in effect. Also, reciprocal DPLs could be revoked at licensors’ discretion.²³⁸

Some of the concerns that reviewers of the DPL have expressed to the professors include (1) insufficient incentives for OSS community members to patent or to join a DPL; (2) the large commitment of company’s entire patent portfolio; (3) potential anti-trust issues particularly in the European Union; and (4) the potential for gaming or free-riding the system.²³⁹ Under the DPL, a licensor would license its entire portfolio under a nonexclusive, royalty-free perpetual worldwide license to all DPL users.²⁴⁰ While few long-established companies are likely to adopt such a model, a growing number of small OSS developers might be attracted to band together under a DPL in the spirit of freedom similar to that of the OSS movement’s early days.

6. *Inter parte and Ex parte Patent Reexaminations and Reviews*

The sixth patent defense strategy is to request USPTO reexaminations and reviews of patents being used offensively against OSS. Only rarely have OSS community members used the

234. *Id.*

235. Schultz & Urban, *supra* note 209, at 29.

236. *Id.*

237. *Id.*

238. Jason Schultz & Jennifer M. Urban, *A Defensive Patent License Proposal*, YOUTUBE (May 2, 2011) (Stanford Center for Internet & Society, Speaker Series), http://www.youtube.com/watch?v=ttB_mjeIKcY.

239. *Id.*

240. *Id.*

reexamination or review procedures at the USPTO to help invalidate a patent asserted against them or other members of the OSS community. For example, in 2007 before it was acquired by Oracle, Sun Microsystems filed a *inter parte* reexamination request for a patent that Firestar had asserted against Jboss and Red Hat, as described in Part III-D above.²⁴¹ As another example, Google requested a patent reexamination to help its application developers who were sued by Lodsys LLC, as described in Part IV-B-4 above.

In the Leahy-Smith America Invents Act (“AIA”) enacted into law in September 2011, Congress overhauled procedures before the USPTO, designed to provide less expensive alternatives to litigation that might address invalid patent claims.²⁴² Thus, OSS developers may have several revised or untested tools to use at the USPTO to fight patent assertions: *inter parte* examination, *ex parte* review, and post-grant review.

The three types of USPTO review differ in cost and the role that the third-party has after filing the request for reexamination or review. The first tool, an *ex parte* reexamination, will cost a proposed minimum fee of \$17,760 for a large entity starting in 2013.²⁴³ The role of the third party is over once the *ex parte* reexamination is submitted.²⁴⁴ The *ex parte* reexamination procedures are much like those of a normal patent application, with the patent examiner issuing office actions.

With the second tool, the AIA revised the *inter partes* review under 35 U.S.C. § 311, where a third-party challenger may participate and will no longer be barred from appealing issues raised and decided, and even issues that could have been raised in the administrative proceeding. The *inter partes* requester will pay a

241. U.S. Reexamination App. No. 90/008,452 (filed Jan. 27, 2007) for U.S. Patent No. 6,101,502 (filed Sept. 25, 1998). Two weeks after Firestar and Red Hat settled, the USPTO sent an office action rejecting all of the claims in the patent based on the prior art that Sun submitted. The attorneys have delayed prosecution and maintenance fees for the patent are now overdue.

242. Leahy-Smith America Invents Act, Pub. L. 112-29, 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.).

243. *Attachment1: Table of Patent Fee Changes 3*, USPTO, (Feb. 7, 2012) http://www.uspto.gov/aia_implementation/fee_setting_-_ppac_hearing_attachment_1-table_of_patent_fee_changes_7feb12.pdf (last visited Sept. 23, 2012). The proposed fee for large entities is \$17,760, of which \$13,430 will be refunded if the USPTO decides not to order an *ex parte* reexamination proceeding. The proposed fee represents a significant increase over the 2012 fee of \$2,520. The proposed fee for a small entity is \$8,880. *Id.*

244. 35 U.S.C. § 311–18 (2006) (*inter partes* reexamination).

proposed minimum fee of \$27,200 starting February 2013.²⁴⁵ The third party may request a review of a patent (whose original application was filed on or after November 29, 1999) to challenge the patentability of any claim based solely on prior-art patents and printed publications, and limited to novelty or non-obviousness grounds.²⁴⁶

The third tool, effective September 16, 2012, is the post-grant review under 35 U.S.C. § 321 where a third party can challenge the validity of an issued patent. Post-grant review must be initiated within nine months of the issuance of a patent or reissue patent, and permits any patentability issue on one or more claims to be raised. The patentability issue can be based on any evidence. This means that unless the USPTO activity of a person or entity is being actively monitored, post-grant review is unlikely.

How effective these reexamination and review options will be in helping counter lawsuits is uncertain. If successful, a patent would be invalidated and a patent infringement case could not go forward based on the invalidated patent. For example, it will likely cost a small company at minimum of \$10,000 to request an USPTO *ex parte* review of a relatively short patent with four independent claims. Assuming the review occurs within twelve to eighteen months of the request as the program is designed, the cost might be minimal compared to that of litigation.

245. *Attachment 1: Table of Patent Fee Changes 5*, USPTO, (Feb. 7, 2012) http://www.uspto.gov/aia_implementation/fee_setting_-_ppac_hearing_attachment_1-table_of_patent_fee_changes_7feb12.pdf. The proposed fee for a Request for *Inter Partes* Review of twenty or fewer claims is \$27,200 and of sixty-one to seventy claims is \$95,200. The proposed fees do not include a reduced rate for a small entity. *Id.*

246. 35 U.S.C. § 311–319 (2006). Requests must be based on patents or publications, not related to other questions of invalidity such as prior use or sale. 35 U.S.C. § 301 (2006). The requestor must show “a reasonable likelihood” that the requestor would prevail rather than the prior lower standard of “a substantial new question of patentability.” 35 U.S.C. § 312. The Patent Trial and Appeal Board conducts the *inter partes* review in litigation-type proceedings with limited discovery, settlement, protective orders, filing of supplemental arguments, and patent-owner rebuttal arguments. *Inter Partes Disputes*, USPTO, http://www.uspto.gov/aia_implementation/bpai.jsp#heading-1 (last visited Sept. 23, 2012). The proceedings are to be completed within twelve to eighteen months. *Inter Partes Review*, USPTO, http://www.uspto.gov/aia_implementation/bpai.jsp (last visited Sept. 23, 2012). Upon a final decision, the third party requestor is precluded from re-asserting before USPTO or in a court or ITC proceeding the unpatentability/invalidity of a claim on any ground that was raised or that reasonably could have been raised during the *inter partes* review. 35 U.S.C. § 315(c).

7. *Defensive Patenting and Acquisitions*

Over the last decade, some observers of the OSS market wondered whether the OSS community members might be forced into holding patents defensively, as distasteful as it might be to them.²⁴⁷ Defensive patenting seeks patents to determine offensive lawsuits, not for licensing or exclusion purposes. They are only asserted in response to litigation threats. Defensive patenting does not work with patent trolls, however, because trolls do not practice patented technology so they cannot be sued.

Some OSS companies create a patent policy that acknowledges the status of patents in the industry, and then implement measures to incorporate patents into business strategy while explaining its position on software patents to the OSS community.²⁴⁸ For example, Red Hat says it reluctantly defends itself against patent litigation with a corresponding defensive portfolio of software patents.²⁴⁹

V. Conclusion

From the perspective of the members in the OSS community, their open and productive society is being impacted by the recent patent battles of titan software- and Internet-enabled companies such as *Oracle v. Google*. Now small OSS developers are getting hit in the patent crossfire. Additionally, patent trolls are lobbing threats of lawsuits at OSS from the shadows of their shell companies, protected from countersuits by their nonpracticing status and friendly jurisdictional territory, as in the *Lobsys* cases.

Thus, despite the OSS community's general aversion to software patents, the high-money patent litigation has entered the OSS arena. *Bilski v. Kappos* (2010) and the recent legislative reforms with AIA

247. See, e.g., Howard C. Anawalt, *Open Source Licensing and Patent Strategy*, 62 CHIZAIKEN FORUM 18 (2005), http://www.iip.or.jp/e/e_publication/pdf/vol62_howard.pdf. (“In order to protect an Open Source project the developer needs to take into account the full range of intellectual property doctrines, including patent claims. With regard to patents, it is advisable for the developer to review projects to determine patentability of major aspects and to develop an overall patent strategy.”).

248. For example, Red Hat takes the position that software patents generally impede innovation in software development and that software patents are inconsistent with open-source/free software. *Statement of Position and Our Promise on Software Patents*, RED HAT, http://www.redhat.com/legal/patent_policy.html (last visited Sept. 23, 2012).

249. *Statement of Position and Our Promise on Software Patents*, RED HAT, http://www.redhat.com/legal/patent_policy.html (last visited Sept. 23, 2012). Even the recent acquisitions of Motorola Mobility Holding patents by Google and 750 IBM patents by Facebook might be viewed as OSS-dependent companies trying to protect themselves, at least in part, through defensive patent acquisitions.

reinforce the idea that software patents are not going away, much to the OSS community's chagrin. Thus, for the foreseeable future, the community will need to continue maneuvering defensively against assertions of what may be invalid patents.

Gone are the days when most OSS disputes concerned license compliance. Disputes were usually resolved through peer pressure rather than through legal channels. Even when Software Freedom Law Center filed its first lawsuits in 2007, parties generally settled quickly with defendants complying with license terms. Cases such as *Jacobsen v. Katzer* established the enforceability of OSS licenses under copyright law, which has worked fairly well within the OSS ecosystem, but does nothing to prevent offensive patent challenges from external sources.

The question now for the OSS developers is what practical and legal maneuvers can be used most effectively to protect their freedom to develop software.²⁵⁰ Patent peace provisions in OSS licenses and patent pledges by software companies give some protection from internal attack, but provide none where titans or trolls aim at OSS targets from afar. The cost for a defense in a patent lawsuit can easily reach \$3 million, which is enough to wipe out a small OSS developer financially.²⁵¹ Nevertheless, patent trolls "fare extremely poorly in court" with their software patents, even when they litigate them again and again.²⁵²

In the past, practical and legal actions of OSS participants have provided significant protective action. Open-source companies such as Red Hat have taken defensive measures by forming patent pools that can be asserted against offensive threats to Linux[®]-related software. Open-source advocates, such as those associated with Groklaw.net search for invalidating prior art against patents being asserted in patent-infringement suits. OSS-related organizations with programs like Patent Defenders are gathering and publishing code and technical disclosures in online prior-art repositories that serve as sources for invalidating prior art.

250. Although beyond the scope of this paper, the OSS community might also pursue legislative reform such as specialized software statutes that require disclosure of actual software code or statutory limits on the amount of damages that a nonpracticing entity can win in a patent lawsuit.

251. *American Intellectual Property Law Association Report of the Economic Survey*, IPISC, <http://www.patentinsurance.com/iprisk/aipla-survey/> (last visited Oct. 23, 2012) (reporting the average costs of litigation for patent, trademark and copyright infringement, and trade secret misappropriation).

252. Allison et al., *supra* note 165, at 677, 680 (finding that the software patentees in their data group won only 12.9% of their cases, while NPEs won only 9.2%).

The OSS community might consider two additional defensive shields. The first is OSS patent owners granting one another defensive patent licenses (DPLS) through its distributed network. The second is requesting a relatively low-cost USPTO patent review or re-examination, which might lead to the invalidation of the patent being litigated. Open-source organizations or businesses could provide some financial or legal support to OSS-related parties submitting USPTO *ex parte* application requests.

Despite all the practical and legal defensive shields or maneuvers available, the OSS community will need to remain vigilant. The exuberance of patent litigation in recent years has the potential for great harm.²⁵³ Thus, the OSS community best band together and be fully armed, ready to dodge a barrage of patent arrows, and perhaps shoot a few back from its own quiver when necessary.

253. James E. Bessen, Michael J. Meurer, & Jennifer Laurissa Ford, *The Private and Social Costs of Patent Trolls 2* (Boston Univ. School of Law, Law and Economics Research Paper No. 11-45, 2011), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1930272 (estimating that NPE lawsuits are associated with half a trillion dollars of lost wealth to defendant companies from 1990 through 2010).