

THE DEFENSIVE PATENT PLAYBOOK

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Billionaire entrepreneur Naveen Jain wrote that “[s]uccess doesn’t necessarily come from breakthrough innovation but from flawless execution. A great strategy alone won’t win a game or a battle; the win comes from basic blocking and tackling.”¹ Companies with innovative ideas must execute patent strategies effectively to navigate the current patent landscape. But in order to develop a defensive strategy, practitioners must appreciate the development of the defensive patent playbook.

Article 1, Section 8, Clause 8 of the U.S. Constitution grants Congress the power to “promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”² Congress attempts to promote technological progress by granting patent rights to inventors. Under the utilitarian theory of patent law, patent rights create economic incentives for inventors by providing exclusivity in exchange for public disclosure of technology.³ The exclusive right to make, use, import, and sell a technology incentivizes innovation by enabling inventors to recoup the costs of development and secure profits in the market.⁴

Despite the conventional theory, in the 1980s and early 1990s, numerous technology companies viewed patents as unnecessary and chose not to file for patents.⁵ In 1990, Microsoft had seven utility patents.⁶ Cisco

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1. Naveen Jain, *10 Secrets of Becoming a Successful Entrepreneur*, INC. (Aug. 13, 2012), <http://www.inc.com/naveen-jain/10-secrets-of-becoming-a-successful-entrepreneur.html>.

2. U.S. CONST. art. 1 § 8, cl. 8.

3. See Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 266 (1977).

4. See Mark A. Lemley, *Ex Ante Versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129, 129–30 (2004).

5. See Colleen V. Chien, *From Arms Race to Marketplace: The Complex Patent Ecosystem and Its Implications for the Patent System*, 62 HASTINGS L.J. 297, 302–03 (2010) [hereinafter Chien, *From Arms Race to Marketplace*].

filed for one patent between 1984 and 1993.⁷ Oracle opposed software patents at the United States Patent and Trademark Office (“PTO”) hearings in 1994.⁸ While these companies were not representative of the entire market, companies did not file patents to the extent seen today.⁹

Multiple factors in the patent landscape caused a dramatic shift in the use of the patent system. First, the Federal Circuit situated the patent system for rapid growth through significant reversals of patent denials by the PTO.¹⁰ With the patent system primed for growth, Texas Instruments (“TI”) and International Business Machines (“IBM”) catalyzed a patent aggregation “arms race” that increased patent filings industry-wide.¹¹ As a result, webs of fragmented and overlapping patent rights, called patent thickets, developed in many innovative areas.¹²

After the dot-com bubble collapsed, non-practicing entities (“NPEs”) emerged on the patent playing field.¹³ Patent thickets and aggressive litigation by non-practicing entities turned the patent system on its head.¹⁴ As a result, companies developed an array of defensive options and strategies to counter the changing use of patents. However, the tactics

6. This number resulted from a search for “Microsoft” as assignee on the U.S. Patent & Trademark Office’s website. See Patent Full-Text and Image Database, <http://patft.uspto.gov> (last visited Nov. 19, 2014).

7. *Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy: Joint Hearings Before the Fed. Trade Comm’n & Dep’t of Justice* 673–74 (Feb. 28, 2002) (statement of Robert Barr, Vice President for Intellectual Property and Worldwide Patent Counsel, Cisco Systems, Inc.), available at http://www.ftc.gov/sites/default/files/documents/public_events/competition-ip-law-policy-knowledge-based-economy-hearings/020228ftc.pdf.

8. *Public Hearing on Use of the Patent System to Protect Software-Related Inventions: Before Bruce A. Lehman, Assistant Secretary of Commerce and Commissioner of Patents and Trademarks*, USPTO 140 (1994) (statement of Jerry Baker, Senior Vice President, Oracle Corp.) (“I cannot find any evidence that patents for software will tend to [promote technological progress]. Indeed, every indication is to the contrary.”), available at <http://www.uspto.gov/web/offices/com/hearings/software/sanjose/sjhrng.pdf>.

9. According to the U.S. Patent and Trademark Office (“PTO”), there were 176,264 patent filings in 1990, compared to 609,052 in 2013. PATENT TECHNOLOGY MONITORING TEAM, U.S. PATENT & TRADEMARK OFFICE, U.S. PATENT AND STATISTICS CHART, CALENDAR YEARS 1963–2013 (2014), available at http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm.

10. Arti K. Rai, *Who’s Afraid of the Federal Circuit?*, 121 YALE L.J. ONLINE 335, 338 (2011), <http://www.yalelawjournal.org/forum/whos-afraid-of-the-federal-circuit>.

11. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 304.

12. Carl Shapiro, *Navigating the Patent Thicket: Cross Licensing, Patent Pools, and Standard Setting* in INNOVATION POLICY AND THE ECONOMY 119, 119–20 (Adam B. Jaffe et al., eds., 2001).

13. See *infra* Part II.

14. See *id.*

needed to navigate the patent system evolved as the landscape shifted. The analysis below follows the chronological evolution of defensive strategies and sets forth a defensive patent playbook for practitioners in the patent field.

This Note proceeds in four parts. Each Part reviews the development of the patent landscape as a necessary backdrop for an analysis of various defensive patent plays. The issues from each era cumulated to shape the current patent landscape. Part I evaluates early defensive methods used to navigate webs of overlapping patent rights. Part II describes the rise of NPEs, changes in substantive doctrines, and additional strategies introduced in the wake of the dot-com bubble. Part III discusses the current trend towards increased monetization, and assesses defensive options in the current landscape. Part IV explores defensive tactics that may become widely used in the future.

I. EARLY HISTORY

Many technology companies did not seek patent rights on their innovations in the 1980s and early 1990s.¹⁵ However, the emergence of computer platform-based technologies transformed the patent system. This Part traces the development of the patent landscape during the mid- to late-1990s and analyzes the defensive strategies developed during this era to combat the changing use of patents.

A. BACKGROUND: THE DEVELOPMENT OF PATENT THICKETS

During the “early history,” companies shifted their use of patents after actions by the Federal Circuit prompted growth in the patent system.¹⁶ In the 1980s and 1990s the Federal Circuit expanded patent law in the areas of computer software and biotechnology by repeatedly reversing PTO patent denials.¹⁷ Further, through a series of decisions, the Federal Circuit relaxed the requirement that inventions be a nonobvious improvement over the prior art.¹⁸ Scholars contend that these changes “pushed the law

15. See Chien, *From Arms Race to Marketplace*, *supra* note 5, at 302–03.

16. Rai, *supra* note 10, at 338.

17. *Id.*

18. Robert Hunt, *Patent Reform: A Mixed Blessing for the U.S. Economy*, FED. RESERVE BANK OF PHILA. BUS. REV. 15, 20–21 (Nov./Dec. 1999), *available at* <http://www.philadelphiafed.org/research-and-data/publications/business-review/1999/november-december/brnd99rh.pdf>.

in an excessively pro-patent direction, broadening the scope of patentable matter and endowing patentees with unwarranted power.”¹⁹

With the patent system situated for growth, TI and IBM stimulated a patent “arms race” that increased patenting industry-wide.²⁰ When facing bankruptcy in the mid-1980s, TI initiated a licensing and litigation campaign to save the company.²¹ At first, TI took an adversarial stance, but it gradually shifted towards a licensing model.²² By the 2000s, TI had accumulated an expansive patent portfolio and an estimated four billion dollars in licensing fees.²³ Around the same time, IBM started a licensing and assertion campaign.²⁴ Armed with a quarter of the software patents granted by the PTO between 1978 and 1988, IBM’s campaign brought in millions of dollars in licensing revenue.²⁵

By the 1990s, practicing companies grew tired of paying licensing fees and filed more patent applications under the newly relaxed patenting standard.²⁶ Companies developed larger patent portfolios because of their shifting views on the importance of acquiring patents for defensive purposes rather than increased research and development spending.²⁷ As a result, private parties increasingly held exclusive rights in prior discoveries, and patent thickets began to develop in key industries such as biotechnology and computer software.²⁸ Because cumulative innovation occurs when an invention builds on prior discovers,²⁹ these patent thickets became an obstacle to future innovation.³⁰ Too many owners held exclusive patent rights that inventors sought to build upon.³¹

19. Jonathan Masur, *Patent Inflation*, 121 YALE L.J. 470, 477–78 (2011); see Donald R. Dunner et al., *A Statistical Look at the Federal Circuit’s Patent Decisions: 1982–1994*, 5 FED. CIR. B.J. 151, 151 (1995).

20. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 304.

21. *Id.*

22. *Id.* at 305.

23. *Id.* at 304.

24. *Id.* at 305.

25. *Id.* at 304–06.

26. *Id.* at 306.

27. *Id.*

28. Shapiro, *supra* note 12, at 119.

29. *Id.* at 119–20 (noting Sir Isaac Newton’s statement that each scientist “stands on the shoulders of giants” to reach new heights).

30. Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCI. 698, 698 (1998).

31. *Id.*

Furthermore, excessive privatization occurred in developing platform technologies with significant network externalities.³² These technologies needed standards for maximum user benefit.³³ In industries such as computer software and telecommunications, formal standard setting was “a core part of bringing new technologies to market.”³⁴ Excessive patent rights threatened to prevent the development of these standards and to impose a “drag on innovation and commercialization of new technologies.”³⁵

Excessive privatization amplified three key transaction costs that companies had to overcome in order to assemble patent rights—search costs, holdouts, and licensing costs.³⁶ First, the search costs of a patent transaction were costly due to the intangible nature of patent rights.³⁷ Unlike tangible property that can be clearly defined, the boundaries of patent rights generally remain blurred until a federal court interprets the patent’s claims.³⁸ A thicket of patents with unclear boundaries placed inventors in a costly struggle to determine where there was freedom to operate and which patents were relevant to their efforts.³⁹

32. See generally Peter S. Menell, *Tailoring Legal Protection for Computer Software*, 39 STAN. L. REV. 1329 (1987):

Network externalities exist in markets for products for which the utility or satisfaction that a consumer derives from the product increases with *the number of other consumers of the product*. The telephone is a classic example of a product for which there are network externalities. The benefits to a person from owning a telephone are a function of the number of other people owning telephones connected to the same telephone network . . .

Id. at 1340 (emphasis added).

33. See James C. De Vellis, *Patenting Industry Standards: Balancing the Rights of Patent Holders with the Need for Industry-Wide Standards*, 31 AIPLA Q.J. 301, 303 (2003) (“Industry standards are critical in an increasingly interdependent, technology-based world.”).

34. Shapiro, *supra* note 12, at 119.

35. See *id.* at 121–24; see also Heller & Eisenberg, *supra* note 30, at 698–99 (describing the “tragedy of the anticommons” that can occur with the proliferation of intellectual property rights).

36. See Justin R. Orr, Note, *Patent Aggregation: Models, Harms, and the Limited Role of Antitrust*, 28 BERKELEY TECH. L.J. 525, 531–32 (2013).

37. Peter S. Menell & Michael J. Meurer, *Notice Failure and Notice Externalities*, 5 J. LEGAL ANALYSIS 1, 2 (2013).

38. Orr, *supra* note 36, at 529 n.22. Federal courts interpret the meaning of a patent’s claims, which clarify the boundaries of the patent right, in hearings referred to as “Markman” hearings. *Id.*; see also *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996).

39. See Menell & Meurer, *supra* note 37, at 1–2.

Second, companies faced holdout problems, which occur when a patent holder learns that its patent rights are essential to an inventor's overall plan.⁴⁰ As the inventor reaches licensing agreements with more patent holders, the inventor becomes more committed to the project, and the remaining patent holders gain leverage to demand a higher fee.⁴¹ Patent thickets exacerbated this problem because an inventor must purchase rights from numerous patent holders to make, use, or sell a new invention that builds upon prior patents.⁴²

Finally, negotiating individual licensing agreements with a large number of companies in the industry became prohibitively expensive.⁴³ In industries where a single product may relate to hundreds of patents, companies avoided attempting to overcome the patent thicket through negotiated licenses and refrained from introducing new products.⁴⁴ For instance, according to one commentator, a large company in the pharmaceutical industry developed a treatment for Alzheimer's disease, but it did not release the drug due to the threat of overwhelming litigation.⁴⁵

Companies needed to develop strategies to overcome the costs associated with fragmented patent rights, especially in the computer software, telecommunications, and biotechnology industries.⁴⁶ Consequently, defensive plays materialized to combat excessive privatization.

B. DEFENSIVE PLAYS IN THE EARLY HISTORY

During this era, companies developed three major strategies to navigate the patent thicket: (1) defensive patent aggregation, (2) standard setting and RAND cross-licensing and (3) open source software. These strategies make up the first group of "plays" in the defensive patent playbook.

40. Michael Mattioli, *Power and Governance in Patent Pools*, 27 HARV. J.L. & TECH. 421, 428 (2014).

41. *Id.*

42. See Mark A. Lemley, *Ten Things to Do About Patent Holdup of Standards (and One Not to)*, 48 B.C. L. REV. 149, 150–52 (2007).

43. See Jason Schultz & Jennifer M. Urban, *Protecting Open Innovation: The Defensive Patent License as a New Approach to Patent Threats, Transaction Costs, and Tactical Disarmament*, 26 HARV. J.L. & TECH. 1, 8 (2012).

44. Shapiro, *supra* note 12, at 126.

45. MICHAEL HELLER, *THE GRIDLOCK ECONOMY: HOW TOO MUCH OWNERSHIP WRECKS MARKETS, STOPS INNOVATION, AND COSTS LIVES* 4–5 (2008).

46. See Shapiro, *supra* note 12, at 119.

1. *Defensive Patent Aggregation*

Companies began to use the defensive aggregation play industry-wide in the late 1990s.⁴⁷ The cost of paying for patent licenses, like those paid to TI and IBM, and the lack of freedom to operate spurred the growth of patent aggregation as a defensive strategy.⁴⁸ Companies aggregated patents to deter lawsuits, rather than to assert offensively.⁴⁹

Defensive patent portfolios offer no legal defense but can be used to bring counterclaims in a patent suit.⁵⁰ Colleen Chien compared mass patent aggregation to the nuclear arms race with each company viewing its patents as instruments of mutually assured destruction.⁵¹ For example, suppose that Company *X* claims that Company *Y* infringes its patents. If Company *Y* has an extensive patent portfolio that potentially covers Company *X*'s products, Company *Y* will likely counter with an assertion of patent infringement against Company *X*. The threat of countersuit creates an incentive for the companies to enter into a cross-licensing agreement or drop their suits.⁵²

The size and scope of the patent portfolio dictate the effectiveness of the strategy.⁵³ During cross-licensing negotiations, the parties rarely scrutinize each individual patent.⁵⁴ Companies instead focus on quantity rather than quality because of the high cost of determining the validity and scope of each patent claim.⁵⁵ As a result, the aggregated patent portfolio provides “a stronger patent position than the sum of its patent parts.”⁵⁶ However, defensive aggregation requires symmetrical risks to deter litigation.⁵⁷ As discussed in Part II, NPEs do not face the same retaliatory

47. See Chien, *From Arms Race to Marketplace*, *supra* note 5, at 304–308 (noting that defensive patent strategies date back to at least the beginning of the twentieth century when Henry Ford aggregated automobile patents to reduce the risk of being sued and ensure freedom to operate).

48. *Id.* at 304.

49. Schultz & Urban, *supra* note 43, at 6.

50. *See id.*

51. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 334; *see generally* Henry S. Rowen, *Introduction*, in *GETTING MAD: NUCLEAR MUTUAL ASSURED DESTRUCTION, ITS ORIGINS AND PRACTICE* 1–13 (Henry D. Sokolski, ed., 2004).

52. Schultz & Urban, *supra* note 43, at 6–7.

53. *Id.* at 6.

54. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 308.

55. *Id.*

56. Orr, *supra* note 36, at 526.

57. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 317.

risks because they do not make, use, import, or sell any infringing product.⁵⁸

Defensive aggregation allows companies to combat excessive privatization by creating a “patent stalemate” with other practicing companies.⁵⁹ In addition to defensive aggregation, another play developed in the early history to assist the assimilation of patent rights in platform-based technologies.

2. *Standard Setting/RAND Cross-Licensing*

Standard setting and reasonable and nondiscriminatory (“RAND”) licensing pledges provide companies with a method for overcoming transaction costs and standardization issues. Standard-setting organizations (“SSOs”) set standards to promote coordination and interoperability.⁶⁰ When SSOs incorporate patented technology into a standard, the patent holder gains leverage and the power to holdout for inflated licensing rates because of the expense of switching to a different standard.⁶¹ SSOs attempt to “mitigate the tension between proprietary rights and the need for interoperability” through RAND pledges.⁶²

A RAND pledge is a commitment to offer implementers of a standard a reasonable license to any patents necessary to implement the standard.⁶³ Prior to incorporation into a standard, SSOs require patent holders to disclose all patents or pending patent applications relevant to the standard and to submit a Letter of Assurance.⁶⁴ In the Letter of Assurance, patent

58. *See infra* Part II.

59. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 317.

60. Marc Rysman & Timothy Simcoe, *Patents and the Performance of Voluntary Standard-Setting Organizations*, 54 MGMT. SCI. 1920, 1922–23 (2008).

61. *See* U.S. DEP’T OF JUSTICE & USPTO, POLICY STATEMENT ON REMEDIES FOR STANDARDS-ESSENTIAL PATENTS SUBJECT TO VOLUNTARY F/RAND COMMITMENTS 1 n.2 (2013), *available at* http://www.uspto.gov/about/offices/ogc/Final_DOJ-PTO_Policy_Statement_on_FRAND_SEPs_1-8-13.pdf.

62. Kassandra Maldonado, Note, *Breaching RAND and Reaching for Reasonable: Microsoft v. Motorola and Standard-Essential Patent Litigation*, 29 BERKELEY TECH. L.J. 419, 422 (2014).

63. Jorge L. Contreras & Richard J. Gilbert, *A United Framework for RAND and Other Reasonable Royalties*, 30 BERKELEY TECH. L.J. (forthcoming 2015) (manuscript at 4), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2502066.

64. *See, e.g.*, INT’L ELECTROTECHNICAL COMM’N ET AL, GUIDELINES FOR IMPLEMENTATION OF THE COMMON PATENT POLICY 15 (providing a General Patent Statement and Licensing Declaration Form For ITU-T or ITU-R Recommendation) *available at* http://www.itu.int/dms_pub/itu-t/oth/04/04/T04040000010003PDFE.pdf (last visited Jan. 16, 2015); *Letter of Assurance for Essential Patent Claims*, IEEE,

holders agree to license their patents on RAND terms if their patent becomes essential to the practice of the standard.⁶⁵ If patent holders decline to make RAND commitments, their technology will not be integrated into the standard.⁶⁶

Companies throughout the technology industry implement standards in order to compete in the market and provide interoperable products. In theory, implementers of the standard gain access to patented technology at a reasonable rate, and patent holders benefit through the widespread adoption of their technology and reasonable royalty rights. The patents encumbered by a RAND commitment may still be licensed and asserted, but the patent holder must offer the implementer reasonable licensing terms.⁶⁷ However, after seeking RAND commitments, SSOs rarely become involved in the licensing process.⁶⁸

This lack of oversight allows standard essential patent (“SEP”) holders to utilize RAND-encumbered patents as offensive and defensive weapons, to encourage cross-licensing.⁶⁹ If a company asserts patent infringement of a non-SEP patent, the alleged infringer can utilize their RAND-encumbered SEPs in the same manner as other patents are utilized.⁷⁰ If a party implements the standard, they necessarily infringe the SEP. Thus, the threat of mutually assured destruction can reduce litigation and forcibly encourage cross-licensing agreements.⁷¹ However, a recent court ruling has modified patent holders’ ability to obtain injunctions on

http://standards.ieee.org/about/sasb/patcom/loa-802_11-kpn-08Jan2013.pdf (last visited Jan. 16, 2015).

65. Contreras & Gilbert, *supra* note 63, at 1–2.

66. See, e.g., Int’l Telecomm. Union, *Common Patent Policy for ITU-T/ITU-R/ISO/IEC*, <http://www.itu.int/en/ITU-T/ipr/Pages/policy.aspx> (last visited Jan. 16, 2015).

67. See, e.g., *Letter of Assurance for Essential Patent Claims*, *supra* note 64.

68. Jay P. Kesan & Carol M. Hayes, *FRAND’s Forever: Standards, Patent Transfers, and Licensing Commitments*, 89 IND. L.J. 231, 239 (2014).

69. See generally Thomas H. Chia, Note, *Fighting the Smartphone Patent War with RAND-Encumbered Patents*, 27 BERKELEY TECH. L.J. 209, 209–11 (2012) (defining standard essential patents as patents that are necessary to implement a given standard); Shapiro, *supra* note 12, at 119–120 (describing the “risk of holdup”).

70. See Dan O’Connor, *Standard-Essential Patents in Context: Just a Small Piece of the Smartphone War Puzzle*, PATENT PROGRESS (Mar. 5, 2013), <http://www.patentprogress.org/2013/03/05/standard-essential-patents-in-context-just-a-small-piece-of-the-smartphone-war-puzzle/>.

71. Chia, *supra* note 69, at 213–14.

RAND-encumbered patents.⁷² Part III evaluates this modification and the play's role in the current patent landscape.⁷³

In conclusion, standard setting and RAND pledges enable companies to provide interoperable products in platform-based technologies.⁷⁴ Patent holders benefit from the adoption of their technology, and implementers acquire patented technology at a reasonable rate. But the breach of RAND pledges limits the effectiveness of the play.

3. *Open Source Software*

In addition to RAND pledges, open source software emerged as an alternative approach to software development.⁷⁵ The label "open source" refers to the distribution of source code used to develop software programs so that other programmers can study and modify the code.⁷⁶ The success of open source depends on shared contributions to a nonproprietary model and the theory that the motivations to innovate go beyond the economic incentives achieved through exclusivity.⁷⁷

Open source software originated with Richard Stallman's operating system, which he called GNU.⁷⁸ Stallman granted individuals a license to modify his source code and distribute it to others under the GNU General Public License ("GPL").⁷⁹ But Stallman required the person who modified and distributed the software to grant others the same conditions granted under the GPL.⁸⁰ Open source software progressed when Linus Torvalds built upon Stallman's foundation and shared his kernel, a central component of the operating system, under the GPL.⁸¹ Torvalds's kernel became known as Linux.⁸²

72. See *Apple, Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1331–32 (Fed. Cir. 2014).

73. See *infra* Part III.

74. See Rysman & Simcoe, *supra* note 60, at 1922–23.

75. YOCHAI BENKLER, *THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM* 63–67 (2006).

76. See Sara Boettinger & Dan L. Burk, *Open Source Patenting*, 1 J. INT'L BIOTECHNOLOGY L. 221, 222 (2004) (defining "open source" and explaining that programmers typically use programming languages, the source code, to develop software that is then translated to a machine-readable format, called object code, which programmers cannot understand or analyze when distributed).

77. See BENKLER, *supra* note 75, at 94–99.

78. *Id.* at 64.

79. *Id.* at 65.

80. *Id.*

81. *Id.* at 65–66.

82. *Id.*

After a decade of incremental improvements, technology companies in mainstream industry began to utilize open source software.⁸³ This utilization promotes innovation and limits the enforcement of patents that use open source software.

a) Open Source License Benefits

Open source licenses promote innovation by increasing competition and empowering diverse problem solving. Open source increases competition by acting as a “valuable check on potential monopoly power.”⁸⁴ Enhanced competitiveness yields lower prices and accelerates innovation.⁸⁵ For example, in 1998, a leaked internal memorandum from Microsoft revealed that a Microsoft strategist considered open source software a major threat to the company’s dominance over the desktop computer.⁸⁶ The increased competition generated through open source licenses prohibited Microsoft from monopolizing the desktop operating platform and charging inflated prices.⁸⁷

Further, open source licenses spur technological development by enabling numerous programmers to contribute to open source projects.⁸⁸ The presence of a wide range of contributing licensees allows society to benefit from a multitude of diverse approaches to solving technological issues.⁸⁹ Resulting technological developments benefit consumers and companies seeking to promote innovation to achieve business objectives.

b) Open Source Limits on Patent Rights

Using software subject to an open source license does not affect the ability to *obtain* patent protection, but it severely curtails the *enforcement* of patent rights.⁹⁰ If a programmer includes software under an open source

83. *Id.* at 66.

84. James Boyle, *Open Source Innovation, Patent Injunctions, and the Public Interest*, 11 DUKE L. & TECH. REV. 30, 31–32 (2012) (noting that, although most prevalent in computer software, open source licensing can be “found in areas ranging from synthetic biology to the development of artificial limbs.”).

85. *Id.*

86. BENKLER, *supra* note 75, at 123.

87. See Robert P. Merges, *A New Dynamism in the Public Domain*, 71 U. CHI. L. REV. 183, 193 (2004).

88. FED. TRADE COMM’N., THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION (Mar. 2011), *available at* <http://www.ftc.gov/reports/evolving-ip-marketplace-aligning-patent-notice-remedies-competition>.

89. Boyle, *supra* note 84, at 32.

90. *See id.*

licensing agreement in a proprietary program, the patent holder limits the enforceability of its patent rights against downstream users.

First, under the GPL Agreement, contributors grant the licensee—any user of the open source software—a copyright license to their software.⁹¹ In addition to the direct license granted, companies may be prohibited from utilizing patent rights they have *licensed from third parties* in open source projects.⁹² For instance, Company A receives a patent license from a third party for GreatSoftware with no right to sublicense GreatSoftware. Company A wants to utilize GreatSoftware in an open source project under the GPL. However, because Company A does not have the ability to sublicense GreatSoftware, it cannot satisfy the licensing requirements of the GPL. Thus, Company A must either remove GreatSoftware from its product or not distribute the open source project containing GreatSoftware. Therefore, the requirements of the open source license limit Company A's ability to utilize patent rights licensed from a third party in conjunction with open source software.

Although open source licenses severely limit the direct use of patent rights, patent holders may still utilize their rights in certain situations. Under the GPL, even if patented technology contains open source software, patent holders may still (1) engage in licensing and assertion campaigns against infringers not using the inventor's open source code, (2) distribute a patented version of software without the open source code, and (3) assert patent rights against redistributors that do not conform to the open source license terms.⁹³ For example, if a competitor sells an infringing product not derived from the inventor's original code, the patent holder may assert its patent rights against the competitor because users who independently created other software are not granted a license.⁹⁴ Ironically, the patent holder will likely be unable to assert patent rights against competitors who copy its source code, but will be able to assert patent rights against competitors who did not copy the source code.⁹⁵

91. GNU, GNU General Public License Version 1, GNU OPERATING SYSTEM (Feb. 1989), <https://www.gnu.org/licenses/gpl-1.0.html>.

92. Laura A. Majerus, *Patent Rights and Open Source—Can They Co-exist?*, FENWICK & WEST LLP INTELL. PROP. 2006 SUMMER BULL. 1, 2–3 (June 30, 2006), http://www.fenwick.com/FenwickDocuments/IP_Bulletin_Summer_2006.pdf.

93. *Id.*

94. *Id.*

95. Gene Quinn, *Beware Open Source Strings Attached if You Want a Patent*, IP WATCHDOG (Oct. 12, 2010), <http://www.ipwatchdog.com/2010/10/12/beware-open-source-strings-attached-if-you-want-a-patent/id=12787/>.

As software patents became more prevalent in the 2000s, open source licenses began to include reciprocal patent agreements, in addition to copyright provisions, to ensure that software patents could not prevent the use or modification of open source software.⁹⁶ Part III evaluates how these patent provisions altered this play and describes “infection” defenses provided by open source software.⁹⁷

c) Summary of Open Source Licenses

Open source provides an alternative approach to innovation that enhances competitiveness and enables numerous programmers to contribute to open source projects. Although the first two versions of the GPL only granted a copyright license, the inclusion of open source software in proprietary programs limits patent holders’ ability to enforce patent rights.

II. POST-DOT-COM BUBBLE

After the dot-com bubble burst, obstacles within the patent system accumulated. As practicing companies shifted their use of the patent system and patent thickets expanded, an influential player emerged on the patent playing field—the NPE. The term “NPE” generally refers to patent holders who monetize their patents without producing a product or practicing the technology.⁹⁸ The rise of the NPE (or “patent troll”)⁹⁹ dramatically altered the patent landscape. This Part introduces a broad strategy to influence substantive doctrinal changes through lobbying and evaluates three additional plays that surfaced during this era: public disclosure, patent pledges, and RPX defensive protection.

A. BACKGROUND: RISE OF THE NPEs

When the dot-com bubble collapsed, failed startup companies (“startups”) provided NPEs with an abundance of patents. During the 1990s and 2000s, startups accumulated patents as tools to receive venture

96. Simon Phipps, *4 Ways Open Source Protects You Against Software Patents*, INFOWORLD (Nov. 8, 2013), <http://www.infoworld.com/article/2609614/open-source-software/4-ways-open-source-protects-you-against-software-patents.html>.

97. *See infra* Part III.

98. Orr, *supra* note 36, at 525 n.3.

99. “Patent troll” references the children’s tale where three billy goats must pay a fee to the troll waiting under the bridge in order to pass. Robin Feldman & Tom Ewing, *The Giants Among Us*, 2012 STAN. TECH. L. REV. 1 (2012).

capitalist funding.¹⁰⁰ Startups that owned patents attracted larger investment amounts and experienced longer incubation periods.¹⁰¹ In the early 2000s, the speculative bubble in the stock market quickly deflated, and “[w]hen the dot-coms came crashing down, many in the IP world suspected that the bankrupt companies held hidden treasures.”¹⁰² NPEs purchased such patent “treasures” at bankruptcy proceedings from failed startups and other technology companies.¹⁰³

Alternative billing arrangements allowed NPEs to take advantage of asymmetrical costs.¹⁰⁴ In the past, attorneys generally billed clients in patent litigation on an hourly basis.¹⁰⁵ However, NPEs began utilizing the contingent-fee arrangement popularized by Jerome Lemelson and his attorney, Gerald Hosier.¹⁰⁶ A contingent-fee arrangement occurs when a lawyer represents a plaintiff in exchange for a specified percentage of the damages or settlement recovered from the defendant.¹⁰⁷ In patent cases, a defendant typically searches extensively for prior art in order to make an invalidity argument, which results in significant discovery costs.¹⁰⁸ NPEs take advantage of lower discovery costs and a contingent-fee arrangement as a strategic advantage against defendants using the more expensive hourly billing structure.¹⁰⁹

While NPEs assert some legitimate claims of patent infringement, they predominately monetize patents with weak claims of infringement through “nuisance suits.”¹¹⁰ Although research shows that NPEs generally

100. Jerry X. Cao & Po-Hsuan Hsu, *The Informational Role of Patents in Venture Capital Financing* 1 (June 8, 2011), available at <http://ssrn.com/abstract=1678809>.

101. *Id.* at 23.

102. Lisa Lerer, *Going Once*, ALM IP L. & BUS., Oct. 2005, at 12.

103. Robin M. Davis, Note, *Failed Attempts to Dwarf the Patent Trolls: Permanent Injunctions in Patent Infringement Cases Under the Proposed Patent Reform Act of 2005 and eBay v. MercExchange*, 17 CORNELL J.L. & PUB. POL'Y 431, 431–32 (2008).

104. See James E. Bessen & Michael J. Meurer, *Essay: The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387, 413 (2014).

105. David L. Schwartz, *The Rise of Contingent Fee Representation in Patent Litigation*, 64 ALA. L. REV. 335, 338 (2012).

106. See Chien, *From Arms Race to Marketplace*, *supra* note 5, at 311–12 (noting that Jerome Lemelson pioneered NPE licensing and assertion campaigns in the 1980s and 1990s by signing licenses with over a thousand companies and earning over a billion dollars).

107. Murray L. Schwartz & Daniel J. B. Mitchell, *An Economic Analysis of the Contingent Fee in Personal-Injury Litigation*, 22 STAN. L. REV. 1125, 1125 (1970).

108. See Schwartz, *supra* note 105, at 349–53.

109. See Bessen & Meurer, *supra* note 104, at 413.

110. “Nuisance suits” refer to instances when a patent owner files a patent infringement claim “seeking to license even clearly bad patents for royalty payments small

lose in summary judgment or during trial,¹¹¹ NPEs leverage the costs of defending a suit to obtain licensing agreements on weak infringement claims. Between 1985 and 2004, alleged infringers averaged \$2.46 million in defense fees in patent litigation suits that continued through trial, whereas alleged infringers only averaged \$57,000 in defense fees in suits resolved before going to trial.¹¹² Because of the costs associated with defending an infringement suit and unclear patent boundaries, approximately seventy percent of all patent cases settled in the early 2000s.¹¹³ NPEs exploit the fact that companies have higher discovery costs and an incentive to settle in nuisance suits for any amount up to the anticipated defense costs.¹¹⁴

Further, while defensive patent aggregation may give companies the ability to neutralize potential suits against other practicing companies, NPEs do not fear countersuit.¹¹⁵ For aggregation to deter suits, two or more companies must have symmetry of exposure that maintains a “patent stalemate.”¹¹⁶ If two companies each own extensive patent portfolios and produce products, the risk of countersuit deters patent assertion.¹¹⁷ However, unlike practicing companies, NPEs do not face the same retaliatory risks because they do not make, use, import, or sell any infringing product or technology.¹¹⁸ An NPE’s primary risks in patent litigation are that (1) the court shifts the fees to hold the NPE liable for the defendant’s expenses,¹¹⁹ or (2) the court invalidates the asserted patent,

enough that licensees decide it is not worth going to court.” Mark A. Lemley, *Rationale Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495, 1517 (2001).

111. John R. Allison et al., *Patent Quality and Settlement Among Repeat Patent Litigants*, 99 GEO. L.J. 677, 693–94 (2011) (exposing that if default judgments are not taken into account, NPEs win only 8% of their cases).

112. See James E. Bessen & Michael J. Meurer, *The Private Costs of Patent Litigation* 16 (B.U. Sch. L., Working Paper Series, Law & Econ. Working Paper No. 07-08, 2008), available at http://ssrn.com/abstract_id=983736.

113. See Jay P. Kesan & Gwendolyn G. Ball, *How Are Patent Cases Resolved? An Empirical Examination of the Adjudication and Settlement of Patent Disputes*, 84 WASH. U. L. REV. 237, 274 (2006).

114. See David Rosenberg & Steven Shavell, *A Model in Which Suits are Brought for Their Nuisance Value*, 5 INT’L REV. L. & ECON. 3, 4–5 (1985).

115. Schultz & Urban, *supra* note 43, at 7–8.

116. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 317.

117. See *id.* at 317–18.

118. *Id.*

119. 35 U.S.C. § 285 (2012) provides that in “exceptional cases” the court may award reasonable attorney fees to the prevailing party. NPEs face more risk from fee-shifting after *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 134 S. Ct. 1749 (2014). See *infra* Part IV.

foreclosing any future assertion of the invalidated patent by the NPE.¹²⁰ Because of these limited risks, NPEs exploit the asymmetrical exposure and cost of litigation to their advantage.¹²¹

As a result, by the mid-2000s, NPEs brought around twenty percent of total patent infringement suits and became prominent players in the patent field.¹²² For example, Acacia Research Corporation (“Acacia”), a publicly traded company, monetizes purchased patents¹²³ and enforces patents owned by individual inventors or companies.¹²⁴ From 1993 to 2008, Acacia generated \$410 million in revenues and litigated 308 lawsuits.¹²⁵

Additionally, Intellectual Ventures (“IV”) became a feared NPE during this time with an estimated portfolio of over 30,000 patents.¹²⁶ IV portrays its primary purpose as a patent intermediary that facilitates patent transactions between individual inventors and manufacturing entities.¹²⁷ However, Robin Feldman and Tom Ewing identified 1,276 shell companies that IV operated to hide nearly eight thousand U.S. patents and three thousand pending applications.¹²⁸ IV’s use of shell companies does not promote its claimed role as a “patent intermediary.” Conversely, the use of shell companies enhances IV’s leverage in licensing and assertion campaigns by hiding patents until after companies have committed to the underlying technology.¹²⁹

In addition to the threat of NPEs, the continuing influx of patents exacerbated patent thickets. These obstacles prompted further additions to the defensive patent playbook.

120. Allison et al., *supra* note 111, at 678-80.

121. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 317-18.

122. Colleen V. Chien, *Patent Trolls by the Numbers* (Santa Clara Univ., Working Paper Series, Legal Studies Research Paper No. 08-13, 2013), *available at* <http://ssrn.com/abstract=2233041>.

123. Orr, *supra* note 36, at 525-26.

124. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 328-29.

125. *Id.* at 329.

126. Feldman & Ewing, *supra* note 99, at 4.

127. *Historical Perspective on the Patent Market*, INTELLECTUAL VENTURES INSIGHTS BLOG (July 1, 2013), <http://www.intellectualventures.com/insights/archives/historical-perspective-on-the-patent-market>.

128. Feldman & Ewing, *supra* note 99, at 4.

129. Orr, *supra* note 36, at 543-44.

B. DEFENSIVE PLAYS IN THE WAKE OF THE DOT-COM BUBBLE

While companies continued to use the plays from Part I,¹³⁰ four additional plays entered the defensive patent playbook during this era: lobbying for doctrinal changes, public disclosure, patent pledges, and RPX defensive protection. Public disclosure and patent pledges provide companies with further methods of navigating patent thickets but do not provide additional defense from NPEs. Companies attempted to address the NPE threat that emerged in the wake of the dot-com bubble by seeking substantive changes in the law.

1. *Lobbying for Changes in Patent Doctrines*

As a general defensive strategy, companies with significant resources may attempt to change the law. These companies can seek doctrinal changes from the legislative branch by funding advocacy groups and from the judicial branch by filing amicus curiae briefs.¹³¹ While this play will not mitigate imminent threats, changes in patent law doctrines may have the greatest effect on the future patent landscape.

Companies may fund lobbying groups that will advocate on behalf of their interests. Lobbying has been a method of change in this country since the founding of the Republic¹³² and has become central in patent law reform. For example, when the patent system began to accumulate the obstacles discussed above, Congressman Lamar Smith introduced the Patent Reform Act of 2005, which he called “the most comprehensive change to U.S. patent law since Congress passed the 1952 Act.”¹³³ In response to reform efforts, many large companies allocated substantial money to form and fund lobbying groups, such as the Coalition for Patent Fairness and the Coalition for 21st Century Patent Reform.¹³⁴ These

130. *See supra* Part I.

131. “Amicus curiae” refers to “someone who is not a party to a lawsuit but who petitions the court or is requested by the court to file a brief in the action because that person has a strong interest in the subject matter.” BLACK’S LAW DICTIONARY 102 (10th ed. 2014)

132. William N. Eskridge, Jr., *Federal Lobbying Regulation: History Through 1954*, in THE LOBBYING MANUAL: A COMPLETE GUIDE TO FEDERAL LOBBYING LAW AND PRACTICE 6 (3d ed. 2005).

133. *See Amendment in the Nature of a Substitute to H.R. 2795, The “Patent Reform Act of 2005”, Hearing on H.R. 2795 Before the Subcomm. On Courts, the Internet, and Intell. Prop. Of the H. Comm. On the Judiciary*, 109th Cong. 214 (2005) (statement of the Hon. Lamar Smith, Chairman of the Subcommittee).

134. *See* Candace Lombardi, *Tech Firms to Lobby for Patent Litigation Reform*, ZDNET NEWS (May 11, 2006, 1:22 PM), <http://www.zdnet.com/article/tech-firms-to-lobby-for-patent-litigation-reform/>; IPFrontline, *New Coalition Seeks to*

lobbying groups represented both the information technology and biomedical industries, which had divergent interests.¹³⁵ Eventually, after millions of dollars and significant compromises, the Patent Reform Act of 2005 evolved to become the America Invents Act (“AIA”), which strengthened companies’ defensive position.¹³⁶ However, the Supreme Court addressed many of the proposed changes before the AIA was signed into law.

In addition to legislative lobbying, companies may seek to influence patent doctrines through amicus curiae briefs. The influence of amicus curiae briefs is debatable,¹³⁷ but companies throughout the 2000s filed these briefs in support of their interests. For example, in 2006 and 2007, companies filed extensive amicus curiae briefs in substantive patent law cases before the Supreme Court. In *eBay Inc. v. MercExchange, L.L.C.*, a number of technology companies filed briefs supporting eBay’s certiorari petition.¹³⁸ Ultimately, the Court’s opinion increased the difficulty of obtaining a permanent injunction to prevent further use of infringing technology.¹³⁹ The decision essentially eliminated NPEs’ ability to

Protect American Innovation, IP FRONTLINE (Mar. 23, 2007), <http://www.ipfrontline.com/depts/article.asp?id=14571&deptid=8>.

135. See generally WENDY H. SCHACHT, CONG. RESEARCH SERV., RL33367, PATENT REFORM: ISSUES IN THE BIOMEDICAL AND SOFTWARE INDUSTRIES (2006).

136. See Tracie L. Bryant, Note, *The America Invents Act: Slaying Trolls, Limiting Joinder*, 25 HARV. J.L. & TECH. 687, 688–90 (2012); Wes Klimczak, *IP: How the AIA Has Affected Patent Litigation*, INSIDE COUNSEL MAG. (June 18, 2013), <http://www.insidecounsel.com/2013/06/18/ip-how-the-aia-has-affected-patent-litigation>; see also *infra* Part III (discussing *inter partes* reviews).

137. See generally Joseph D. Kearney & Thomas W. Merrill, *The Influence of Amicus Curiae Briefs on the Supreme Court*, 148 U. PA. L. REV. 743 (2000).

138. The companies presenting the briefs included Yahoo!, Intel, Microsoft, Oracle, Micron, Research-in-Motion, and Nokia. Dennis Crouch, *Review: eBay v. MercExchange Amici Briefs*, PATENTLY-O (Jan. 30, 2006), http://patentlaw.typepad.com/patent/2006/01/eBay_v_mercexch.html; see, e.g., Brief for Yahoo! Inc., as Amicus Curiae in Support of Petitioner, *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006) (No. 05-130).

139. *eBay*, 547 U.S. 388 (2006):

According to well-established principles of equity, a plaintiff seeking a permanent injunction must satisfy a four-factor test before a court may grant such relief. A plaintiff must demonstrate: (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.

Id. at 391.

threaten companies with injunctions, thereby reducing their leverage.¹⁴⁰ Furthermore, in *KSR International Co. v. Teleflex, Inc.*, numerous companies filed amicus curiae briefs.¹⁴¹ The holding in this case broadened the applicability of the obviousness test, ruling that obviousness is not “confined by a formalistic conception of the words teaching, suggestion, and motivation.”¹⁴² The decision made the obviousness claim easier to assert as an invalidity defense and seemingly diminished the presumption of patent validity under 35 U.S.C. § 282. It remains unclear what, if any, effect the amicus curiae briefs had on the Court’s holdings, but both decisions increased defendants’ leverage in patent litigation.

In conclusion, companies may seek to change patent law doctrines through lobbying and amicus curiae briefs. The results of lobbying develop slowly, and the value gained from amicus curiae briefs is difficult to measure. However, companies that successfully affect substantive patent doctrines shift their exposure in the patent landscape. These efforts will likely be coupled with other defensive plays, such as public disclosure.

2. *Public Disclosure*

Public disclosure erects a “bulwark against future patent threats” by creating prior art that patent applications must overcome.¹⁴³ Patent examiners evaluate patent applications by searching the state of the prior art.¹⁴⁴ When parties disclose information, the disclosure becomes part of the existing prior art.¹⁴⁵ Because no patent may be granted for knowledge within the prior art or any obvious improvement thereupon, public

140. Courts have granted injunctions to NPEs in a handful of cases. *See, e.g.*, *Joyal Prods., Inc. v. Johnson Elec. N. Am., Inc.*, No. 04-5172(JAP), 2009 WL 512156 (D.N.J. Feb. 27, 2009) (granting an injunction in favor of a NPE that had previously practiced the patent); *Commonwealth Scientific & Indus. Research Org. v. Buffalo Tech. Inc.*, 492 F. Supp. 2d 600 (E.D. Tex. 2007) (granting an injunction to a research institution of the Australian government).

141. The companies presenting briefs in support of the petitioner included Intel, Micron, Cisco, GM, Time Warner, and Viacom. Dennis Crouch, *KSR Shifts Obviousness Debate to “Mere Aggregations” and Presumptions of Non-Obviousness*, PATENTLY-O (Nov. 20, 2006), http://patentlyo.com/jobs/2006/11/ksr_shifts_obvi.html. Other companies filed briefs in support of neither party: IBM, Ford Motor Company, and Daimler Chrysler. Predictably, Intellectual Ventures filed a brief in support of respondent. *Id.*

142. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007).

143. Schultz & Urban, *supra* note 43, at 27.

144. Prior art may be defined as references or knowledge available to the public before a specified date. *See generally* Robert P. Merges, *Priority and Novelty Under the AIA*, 27 BERKELEY TECH. L.J. 1023 (2012).

145. The AIA enhances the power of public disclosure because other inventors can no longer swear behind disclosed references. 35 U.S.C. § 102(b) (2012).

disclosure affects the patentability of others' inventions.¹⁴⁶ Companies use public disclosure as a salvage strategy or as a tactic to reduce downstream transaction costs. There are multiple methods of implementing this play, each with their own benefits and limitations.

a) Public Disclosure Benefits

Companies impede competitors from obtaining patents and reduce the patent thicket through the public disclosure play. They implement this strategy in two different scenarios. First, companies may use public disclosure as a salvage strategy when their research leads to an unpatentable invention or a "patentable invention that is of limited commercial value."¹⁴⁷ Even if their research does not yield valuable patent rights, companies affect the patentability of others' inventions by altering the state of the prior art.¹⁴⁸

In addition, companies may use public disclosure to reduce downstream transaction costs. As the value of patent rights increased in the 1990s, the value of preempting patent rights increased.¹⁴⁹ As a result, entities attempt to obtain preempting patent rights.¹⁵⁰ These entities profit by controlling the building blocks that further cumulative innovation can build upon.¹⁵¹ Practicing companies may utilize public disclosure to prevent others from obtaining preemptive patent rights and consequently eliminate prohibitive transaction costs. By entering information into the public domain, companies strategically "forgo property rights to reduce downstream transaction costs."¹⁵²

For example, in the late 1990s, scientists used single nucleotide polymorphisms ("SNPs") as diagnostic tools that functioned as "disease markers."¹⁵³ SNPs could have created "a potential anticommons" because in theory many SNPs could be present in a gene that causes a disease.¹⁵⁴ Any organization researching a gene in order to create a therapy would

146. See Gideon Parchomovsky, *Publish or Perish*, 98 MICH. L. REV. 926, 928 (2000).

147. Wendell Ray Guffey, *Statutory Invention Registration: Defensive Patentability*, 16 GOLDEN GATE U. L. REV. 291, 292 (1986).

148. See Parchomovsky, *supra* note 146, at 928.

149. See Merges, *supra* note 87, at 185–86.

150. *Id.*

151. The *In re Fisher* case now prevents the patenting of research intermediaries that provide no practical benefit to the public by ruling that these intermediaries contain no specific and substantial utility. 421 F.3d 1365, 1367 (Fed. Cir. 2005).

152. Merges, *supra* note 87, at 191.

153. *Id.* at 189.

154. *Id.* at 189–90.

need to license every patented SNP associated with that gene.¹⁵⁵ Ten major pharmaceutical companies responded by creating the SNP Consortium for the purpose of entering SNPs into the public domain.¹⁵⁶ The SNP Consortium set out to disclose 300,000 SNPs in two years, but it surpassed this goal by entering nearly 1.4 million SNPs into the public domain by the end of 2001.¹⁵⁷

b) Public Disclosure Limitations

The public disclosure play may eliminate companies' ability to obtain patent rights. Under 35 U.S.C. § 102, inventors must file a patent application within one year of public disclosure.¹⁵⁸ Therefore, unless a patent application is filed within one year of disclosure or as the method of disclosure, companies lose their ability to seek patent rights by utilizing a public disclosure strategy.

This bar may become important because the public disclosure play sometimes relies on third parties. If a company wants to use public disclosure to reduce downstream transaction costs, the company must ensure that others in the industry will make similar public disclosures before implementing this tactic because once one party begins preempting, "all will want to obtain blockade positions."¹⁵⁹ However, the risk of losing the ability to obtain patent rights can be mitigated by a strategic disclosure strategy.

If a company decides to use public disclosure, it must determine the most effective method of implementing the strategy. This Note analyzes three methods of entering information into the public domain: (1) creating a printed publication, (2) filing a utility patent application, and (3) prosecuting a patent application and dedicating the patent to the public. Each method contains its own limitations.

Parties may disclose their technology by creating a printed publication. The PTO considers a reference to be a printed publication "upon a satisfactory showing that such document has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable

155. *Id.*

156. *Id.* at 190.

157. Gudmundur A. Thorisson & Lincoln D. Stein, *The SNP Consortium Website: Past, Present and Future*, 31 NUCLEIC ACIDS RES. 124 (2003).

158. 35 U.S.C. § 102(a)-(b)(1) (2012).

159. See Richard A. Epstein, *Steady the Course: Property Rights in Genetic Material* 48-49 (Univ. of Chi. L. Sch., John M. Olin L. & Econ. Working Paper No. 152, 2003), available at http://ssrn.com/abstract_id=317101.

diligence, can locate it.”¹⁶⁰ Therefore, a party could create a “printed publication” by publicly posting information on the internet.

Creating a printed publication enables quick and cheap disclosure. However, in order for the disclosure to be considered prior art, the patent examiner must learn about it, and the disclosed information must be described in a comprehensible manner.¹⁶¹ Patent examiners spend on average only eight to eighteen hours to complete review work for each patent.¹⁶² Therefore, in order for this method of public disclosure to be effective, companies must make the printed publications easily searchable, and the inventors must provide comprehensible disclosures in the publications.

Alternatively, parties may disclose information through the PTO by filing a patent application. Patent applications become prior art as of their filing date¹⁶³ and are published eighteen months after the filing date or earlier if requested.¹⁶⁴ Thus, a party may choose to file a patent application to create prior art and then later abandon the application.¹⁶⁵

Filing a patent application as a method of disclosure enhances the effectiveness of the play and mitigates the risk of losing patent rights. First, it increases the patent examiner’s ability to find the disclosure. Also, because it generally takes over one year for a patent application to become abandoned,¹⁶⁶ companies utilizing this method have more time to withdraw from the public disclosure strategy without forfeiting their ability to gain patent protection.

Nevertheless, filing a patent application to disclose has its own drawbacks. First, it may become expensive to file an application for each

160. *In re Wyer*, 655 F.2d 221, 226 (C.C.P.A. 1981) (citing *I.C.E. Corp. v. Armco Steel Corp.*, 250 F. Supp. 738, 742–43 (S.D.N.Y. 1966)).

161. Schultz & Urban, *supra* note 43, at 27–28 (noting that organizations have attempted to build a repository for prior art to help lower the search costs associated with finding the published information for both defense lawyers and the PTO).

162. *Id.* at 29.

163. 35 U.S.C. § 102(a).

164. 35 U.S.C. § 122(b)(1)(A) (2012).

165. Prior to the implementation of the AIA, 35 U.S.C. § 157 (2006) allowed inventors to file a Statutory Invention Registration (“SIR”) that prevented others from obtaining a patent but lacked any enforceability right.

166. Companies must fail to reply to an Office Action from the PTO before the application is abandoned. 35 U.S.C. § 133 (2012). The type of technology of the invention dictates the response time for an Office Action. The PTO provides estimates of the time until a first Office Action on its website, at http://www.uspto.gov/cgi-bin/fao_calc/fao_calc.pl?au=&submit=Search+by+Art+Unit.

disclosure. The PTO currently charges \$280, or \$140 for a small entity, to file a utility patent application.¹⁶⁷ Furthermore, while a patent application becomes prior art as of its filing date in the United States,¹⁶⁸ the patent application may not serve as prior art internationally until published.¹⁶⁹ Companies seeking to disclose information internationally may choose to simultaneously create a printed publication online, rather than relying on the PTO to publish their application in a timely manner.

Finally, companies may prosecute patents and subsequently dedicate the patent to the public.¹⁷⁰ However, companies likely would choose alternative methods of public disclosure due to the cost associated with prosecuting a patent application.

c) Summary of the Public Disclosure Play

Companies primarily consider implementing a public disclosure play in two scenarios. First, companies may utilize public disclosure to supplement prior art as a salvage strategy when an invention is unpatentable or of limited commercial value.¹⁷¹ Second, where the value in preventing preemption exceeds the value of patent rights, companies may consider utilizing public disclosure to eliminate downstream transaction costs associated with excessive fragmentation of patent rights.¹⁷² Before using this tactic, however, companies must ensure that others in the industry commit to making similar public disclosures because once one company begins preempting, other companies may abandon the public disclosure strategy.¹⁷³ Ideally, in order to protect patent rights, companies implementing public disclosure would simultaneously create a comprehensible “printed publication” and file a patent application that will subsequently be abandoned.

3. Patent Pledges

In addition to public disclosures, companies may use patent pledges as a defensive tactic. Patent pledges are “promises by patent holders not to enforce their patents under certain conditions.”¹⁷⁴ These pledges are

167. 37 C.F.R. § 1.16(a) (2013).

168. 35 U.S.C. § 102(a)(2) (2012).

169. *See, e.g.,* Alex Zhang, *Key Considerations for Patent Strategies in China*, IPWATCHDOG (Nov. 6, 2011), <http://www.ipwatchdog.com/2011/11/06/key-considerations-for-patent-strategies-in-china/id=20241/>.

170. 35 U.S.C. § 253(b) (2012).

171. Guffey, *supra* note 147, at 292.

172. *See* Epstein, *supra* note 159, at 48–49.

173. *See id.*

174. Schultz & Urban, *supra* note 43, at 30.

typically announced publicly and do not require reciprocal agreements by other inventors or companies.¹⁷⁵ Parties who utilize patent pledges do so in reliance on the legal doctrines of contract law, estoppel, or implied license.¹⁷⁶

Since ownership of the pledged patents remains with the promisor, these patents likely retain their defensive utility against other practicing companies in the future. Further, because NPEs are not exposed to countersuit, a patent pledge does not affect NPE litigation.¹⁷⁷ Thus, patent pledges do not reduce or modify the promisor's exposure to patent litigation, but they do provide practicing companies with alternative benefits.

a) Patent Pledge Benefits

Patent pledges provide consumers assurance of an open network, influence the development of standards, and increase innovation by startup companies. First, patent pledges provide consumers assurance that the pledged patents will not hinder the adoption of market-wide interoperability standards.¹⁷⁸ In markets with network externalities, assurances of interoperability possess significant power. A patent pledge can eliminate the threat of dominance present in a proprietary system and assures users of a commitment to interoperability, which influences consumers' views of the expected network size.¹⁷⁹ In network markets, consumers base purchases of durable products on the expected size of the network.¹⁸⁰ Thus, assurances to consumers may be a powerful tactic

175. *Id.*

176. *Id.* (explaining that an implied license requires the pledgee to show that the pledgor intended to license the patent for a specific use and estoppel only provides a defense to patent infringement when the alleged infringer can show that he knew of the patent pledge and reasonably relied upon it).

177. *Id.* at 7–8.

178. Jorge L. Contreras, *Tesla Motors and the Rise of Non-ICT Patent Pledges*, PATENTLY-O (June 16, 2014), <http://patentlyo.com/patent/2014/06/motors-patent-pledges.html>.

179. See Jorge L. Contreras, *A Market Reliance Theory for FRAND Commitments and Other Patent Pledges*, __ UTAH L. REV. (forthcoming 2015) (manuscript at 4–5), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2309023; see also Merges, *supra* note 87, at 193 (explaining that a public domain operating system “comes without the threat of leverage and dominance that are always present with a proprietary operating system”).

180. Michael L. Katz & Carl Shapiro, *Network Externalities, Competition and Compatibility*, 75 AM. ECON. REV. 424, 426 (1985).

because systems that are expected to be popular will be more popular for that reason.¹⁸¹

IBM's support of Linux provides an example. IBM focused its business on the sale of "infrastructure" software, including network management, collaboration tools, and databases.¹⁸² In the late 1990s, IBM recognized that its computer operating system, OS/2, could not compete with Microsoft's Windows operating system.¹⁸³ If Microsoft controlled the personal computer operating system, IBM would have suffered financially because the operating system acted as an "input into its main product lines" of infrastructure software.¹⁸⁴ IBM responded by supporting the open source Linux platform and announced it would invest one billion dollars to make Linux suitable for enterprise use.¹⁸⁵ IBM continued its commitment by making a patent pledge of five hundred patents in 2005 that "made the headlines of every major technology-related news publication."¹⁸⁶ The patent pledge assured users that they could commit to Linux without the threat of dominance present in a proprietary operating system such as Microsoft Windows.¹⁸⁷ Ultimately, the assurance provided by IBM's patent pledge likely altered the competitive landscape and improved IBM's position in the market.

Furthermore, companies may use the assurances of patent pledges to influence the competitive environment in which they operate by promoting standards or preventing their adoption. In markets with network externalities, a natural tendency toward standardization exists.¹⁸⁸ Patent pledges commit the network to openness and concede any attempt for proprietary control over the standard.¹⁸⁹ Because the assurance of

181. Michael L. Katz & Carl Shapiro, *Systems Competition and Network Effects*, 8 J. ECON. PERSP. 93, 94 (1994) [hereinafter Katz & Shapiro, *Systems Competition and Network Effects*].

182. Merges, *supra* note 87, at 192.

183. Dirk Riehle, *The Economic Case for Open Source Foundations*, IEEE COMPUTER, Jan. 2010, at 95.

184. Merges, *supra* note 87, at 192–93.

185. Wen Wen et al., *Patent Commons, Thickets, and the Open Source Software Entry by Start-up Firms*, (Nat'l Bureau of Econ. Research, Working Paper No. 19394, 2013), <http://www.nber.org/papers/w19394.pdf>.

186. Andrés Guadamuz González, *Open Science: Open Source Licenses in Scientific Research*, 7 N.C. J. L. & TECH. 321, 360–61 (2006).

187. Merges, *supra* note 87, at 186 (stating that IBM's investment in the Linux system "amounts to a credible commitment that no one—including IBM itself—will be able to exercise the sort of hold-up power that comes with exclusive ownership of property rights in a computer operating system").

188. Katz & Shapiro, *Systems Competition and Network Effects*, *supra* note 181, at 105.

189. Merges, *supra* note 87, at 193.

openness alters consumers' expectations as to the size of the network, patent pledges influence the adoption of a standard. For instance, IBM utilized its patent pledge to promote the Linux operating system, which prevented Microsoft's Windows system from becoming the industry standard.¹⁹⁰

Finally, established companies may utilize a patent pledge to promote increased innovation by startup companies. Patent thickets can increase at least three costs for startups: (1) costs of inventing around others' patent rights, (2) costs of acquiring patents owned by others, and (3) costs of infringement, which includes licensing costs and litigation costs.¹⁹¹ Patent pledges may reduce these costs for startup companies entering the market by clearing a portion of a patent thicket.¹⁹²

These reduced costs may promote increased funding of startup companies. When applying for venture capitalist funding, a startup typically reports ongoing litigation.¹⁹³ A litigation risk or the potential for licensing demands deters some investors who see the exposure as a limit to potential revenue.¹⁹⁴ Economist Catherine Tucker estimates that venture capitalist investments in new innovations and startup companies over the past five years would likely have been \$109 million higher if not for the excessive patent litigation by "non-frequent litigators" and \$22.772 billion higher if not for litigation brought by "frequent litigators."¹⁹⁵

Thus, the patent pledgor may "forego [sic] potential opportunities to license their [intellectual property rights] in hopes of increasing innovative activity that will spur demand for complementary products and services from which the contributor can appropriate value."¹⁹⁶ For example, IBM strategically employed a patent pledge to increase innovative activity by programmers within the Linux platform. The patent pledge spurred the development of Linux, resulting in increased demand for IBM's infrastructure software.¹⁹⁷ While patent pledges provide companies with multiple benefits, the play contains some limitations.

190. *See id.* at 123.

191. *See* Wen, *supra* note 185, at 5.

192. *Id.* at 2.

193. Catherine Tucker, *The Effect of Patent Litigation and Patent Assertion Entities on Entrepreneurial Activity* 9–10 (2014), available at <http://ssrn.com/abstract=2457611>.

194. *Id.* at 10 (recognizing that "there may be other positive effects of patent litigation on VC investment that should be traded off against the potential for these negative effects").

195. *Id.* at 36.

196. Wen, *supra* note 185, at 29.

197. Merges, *supra* note 87, at 192–93.

b) Patent Pledge Limitations

Companies should be aware of a patent pledge's inability to alleviate concerns regarding the enforceability and revocability of the pledge.¹⁹⁸ In theory, after making a patent pledge, companies cannot assert patent rights against others that meet the conditions of the pledge.¹⁹⁹ Thus, the pledgor has no ability to offensively monetize the pledged patents. However, no caselaw has interpreted the enforceability of patent pledges or their revocability.²⁰⁰ According to some scholars, patent pledge enforceability remains vulnerable to attack because the pledges rely on the doctrines of estoppel and implied license.²⁰¹ Further, the revocability of patent pledges remains a concern.²⁰² Without a reciprocal agreement to keep the pledged technology open, a pledge could theoretically be withdrawn.²⁰³ The pledgor may change its business strategy, or the pledged patents may be transferred to a successor that chooses not to honor the patent pledge.²⁰⁴ The determination of the enforceability of a pledge and whether the pledge can be revoked influences both the effectiveness of the patent pledge and the value of the patents.

c) Summary of the Patent Pledge Play

Companies participating in a market with network externalities may consider the patent pledge as a tactic to (1) provide consumers assurance of an open network, (2) influence standardization within the market, and (3) increase innovative activity by startup companies. A company with patents used for primarily defensive purposes must determine if the value derived from the patent pledge exceeds the value of maintaining unencumbered patents for future use. If a company's business model depends on the monetization of patents, the potential value gained through the patent pledge must be weighed against the income derived from patent monetization.

198. See Schultz & Urban, *supra* note 43, at 32; see also Florian Mueller, *IBM Breaks the Taboo and Betrays its Promise to the FOSS Community*, FOSS PATENTS (Apr. 6, 2010), <http://fosspatents.blogspot.com/2010/04/ibm-breaks-taboo-and-betrays-its.html>.

199. See Schultz & Urban, *supra* note 43, at 31. Searches in Westlaw and Lexis confirmed Jason Schultz and Jennifer Urban's assertion that no court has interpreted a patent pledge, as of January 25, 2015.

200. *Id.*

201. *Id.* at 32.

202. *Id.*

203. *Id.*

204. *Id.*

Because the contours of patent pledge enforceability and revocability have not been clearly defined, companies implementing technology included in patent pledges must consider the risk that a pledged patent will be revoked or transferred to an offensive entity. Companies may consider seeking a license from the pledgor, if feasible, to eliminate this risk. However, if the patent pledge garnered significant publicity, the risk of revocation may be mitigated by the reputational harm that would result.

4. *Defensive Protection: RPX*

In addition to self-implemented plays, companies may utilize a third party for added protection. In 2008, RPX Corporation (“RPX”) began offering a “Defensive Patent Aggregation” service to reduce companies’ exposure to patent litigation.²⁰⁵ RPX monitors patents available for sale and acquires patents that may be asserted against members or potential members.²⁰⁶ RPX licenses these patents to companies that pay the annual subscription fee to become a member.²⁰⁷ Thus, RPX protects members from immediate threats of patent litigation from other practicing companies and NPEs.

However, once a license has been provided, RPX may sell the acquired patents to practicing companies or NPEs, which has been called a “catch and release method.”²⁰⁸ Releasing patents seems to fuel, rather than deter, the threat of patent litigation. RPX does not assert patents²⁰⁹ but indirectly poses a significant threat to practicing companies. Suppose RPX approaches Company Z and asks them to become a member. Company Z rejects the offer. RPX can sell a patent to an aggressive third party that will bring suit against Company Z so that the next time Company Z will be more compliant with RPX’s request. One company has already claimed that RPX is guilty of extortion, racketeering, and wire fraud.²¹⁰

RPX has recently started to offer patent litigation insurance products.²¹¹ These insurance products attempt to transform “the expensive

205. RPX Corporation, Registration Statement (S-1) (Sept. 2, 2011).

206. *Id.*

207. *Id.*

208. David Hetzel, *Embracing the New IP Reality*, INTELL. ASSET MGMT. MAG. May/June 2010, at 32.

209. Registration Statement (S-1), *supra* note 205.

210. Patrick Anderson, *Patent Aggregator RPX Accused of Extortion, Racketeering & Wire Fraud*, GAMETIME IP (May 31, 2011), <http://gametimeip.com/2011/05/31/patent-aggregator-rpx-accused-of-extortion-racketeering-wire-fraud/>.

211. *Welcome to RPX Insurance Services*, RPX INS. SERVS., <http://www.rpxcorp.com/insurance/> (last visited Nov. 8, 2014).

uncertainty of NPE litigation into a manageable and predictable cost of business.”²¹² However, it appears only a handful of companies have chosen to utilize the insurance products.²¹³

In conclusion, companies may utilize the RPX defensive protection play to supplement other patent strategies. However, RPX’s “defensive patent aggregation” service provides limited protection from litigation exposure and creates additional threats in the patent system. These services provide companies with various tools, but the trend of increased patent litigation has not subsided.

III. CURRENT LANDSCAPE

Excessive litigation of patent rights has caused the media,²¹⁴ legal scholars,²¹⁵ and President Obama²¹⁶ to question the validity of the current patent system. The obstacles of prior eras have accumulated in the current patent landscape. Practicing companies fight “patent wars” in areas of dense patent thickets,²¹⁷ and the number of NPE suits continues to grow.²¹⁸ Data provided by RPX indicates that in 2012, NPEs brought sixty-two percent of patent infringement suits.²¹⁹ In addition to the lingering threats, some practicing entities in the current landscape shifted from patent aggregation to patent monetization. As a result, companies

212. *Id.*

213. Boris Marjanovic, *RPX Corporation: A Cheap and Misunderstood Patent Company With a Moat*, SEEKING ALPHA (Aug. 30, 2013), <http://anorthinvestments.com/2014/09/23/rpx-corporation-a-cheap-and-misunderstood-patent-company-with-a-moat/>.

214. *See* 441: *When Patents Attack!*, THIS AMERICAN LIFE (July 22, 2011), <http://www.thisamericanlife.org/radio-archives/episode/441/when-patents-attack>; *Patent Trolls: How Some Say They're Hurting U.S. Economy* (CBS News television broadcast Dec. 21, 2012).

215. *See generally* DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* (2009); Peter S. Menell, *A Method for Reforming the Patent System*, 13 MICH. TELECOMM. & TECH. L. REV. 487 (2007).

216. *See* Barack Obama, President of the United States, State of the Union Address (Jan. 28, 2014), 2014 DAILY COMP. PRES. DOC. NO. 00050 (urging Congress to pass a patent reform bill); David Kravets, *History Will Remember Obama as the Great Slayer of Patent Trolls*, WIRED (Mar. 20, 2014, 6:30 AM), <http://www.wired.com/2014/03/obama-legacy-patent-trolls/>.

217. *See* Terry Ludlow, *Trends in US Patent Litigation*, INTELL. ASSET MGMT. MAG., Sept.–Oct. 2011, at 15; Jacob Goldstein, *The Smartphone Patent War*, *In 1 Graphic*, NPR: PLANET MONEY (Aug. 17, 2011), <http://www.npr.org/blogs/money/2011/08/17/139723088/the-smartphone-patent-war-in-1-graph> (showing an illustration of smartphone patent cases).

218. Chien, *Patent Trolls by the Numbers*, *supra* note 122.

219. *Id.*

have resorted to (1) old plays in the current landscape, (2) modified plays, and (3) new entries to the defensive patent playbook. However, in order to understand these plays, the progression of the current patent landscape must be evaluated.

A. BACKGROUND: A TRANSITION IN THE USE OF AGGREGATED PATENTS

In light of the high costs associated with acquiring and maintaining patent portfolios, company executives eventually questioned whether their intellectual property assets had the potential to earn income.²²⁰ Many companies had diverted substantial money from their research and development funds to acquire patents,²²¹ and paid thousands of dollars in maintenance fees for each individual patent.²²² As a result, some companies progressed from defensive patent aggregation to offensive patent monetization.²²³

Monetization of a patent portfolio generates revenue to recoup purchase costs, offset maintenance fees, fund research and development, or enable a change in direction for the company.²²⁴ Monetization by companies occurs in three forms: (1) direct licensing and assertion campaigns against other practicing companies, (2) selling patent assets, and (3) patent privateering.²²⁵

As previously discussed, IBM and TI pioneered the monetization of patents through licensing and assertion campaigns.²²⁶ With this model in place, other companies that originally built patent portfolios for defensive purposes developed separate licensing and assertion divisions to generate royalties from their portfolios.²²⁷ For example, General Electric, which historically has rarely engaged in licensing, began enforcing patents

220. Lerer, *supra* note 102, at 12.

221. Tom Ewing, *Indirect Exploitation of Intellectual Property Rights by Corporations and Investors: IP Privateering and Modern Letters of Marque and Reprisal*, 4 HASTINGS SCI. & TECH. L.J. 1, 16 (2012).

222. After the PTO grants a patent, patent holders must pay maintenance fees after three and a half years (\$1600), seven and a half years (\$3600) and eleven and a half years (\$7400). 37 C.F.R. § 1.20(e)–(g) (2013).

223. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 325.

224. Orr, *supra* note 36, at 540.

225. *Id.* at 539.

226. *See supra* Part I.

227. Orr, *supra* note 36, at 540.

through its “Trading and Licensing” division.²²⁸ In 2008, General Electric’s licensing and assertion campaign brought in \$291 million.²²⁹

In contrast, other companies monetize by selling their patents if offensive assertion is not feasible given the companies’ resources and culture.²³⁰ Companies sell ancillary patents to both practicing companies and NPEs with grant-back licenses to eliminate the risk of the patents being used against them.²³¹ For instance, Acacia claimed that it was approached by “large companies looking to turn their patents into revenue.”²³² Similarly, IV contends that practicing companies sell their patents to NPEs.²³³ In fact, some companies that previously spoke out about the negative effects of NPEs later sold their patents to those same entities.²³⁴ But most companies remain hesitant, at least publicly, to sell their patents to NPEs because many in the patent field consider this action an “unforgivable sin.”²³⁵

Finally, companies monetize their patent portfolios through patent privateering.²³⁶ Patent privateering occurs when practicing companies sponsor NPEs by transferring full or partial interest in patents to NPEs under revenue sharing arrangements.²³⁷ The privateer, a specialized form of NPE, acts as an agent for these sponsors who are working to achieve corporate goals.²³⁸ The sponsor may attempt to camouflage its involvement.²³⁹ This practice allows companies to indirectly monetize their patent portfolios and alter the competitive landscape, while maintaining

228. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 322–23.

229. *Id.* at 323.

230. *Id.* at 325.

231. Matthew Fawcett & Jeremiah Chan, *March of the Trolls: Footsteps Getting Louder*, 13 INTELL. PROP. L. BULL. 1, 20 (2008).

232. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 314 (citing ACACIA TECHS., LLC, ACACIA TECHNOLOGIES: LEADER IN PATENT LICENSING AND ENFORCEMENT 3, <http://acaciatechnologies.com/docs/CorporateBrochure.pdf> (last visited Dec. 17, 2010)).

233. Nathan Myhrvold, *The Big Idea: Funding Eureka!*, HARV. BUS. REV., Mar. 2010, at 41.

234. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 344 (noting that Micron’s counsel spoke publicly about the negative effects of NPEs and later transferred 4,500 patents to an NPE, Round Rock Research LLC).

235. Ewing, *supra* note 221, at 22.

236. *See id.* at 8–9 (explaining that privateering was an effective and cheap method of waging war by enlisting private parties to attack enemy ships and allowing the privateers to keep the proceeds).

237. Orr, *supra* note 36, at 541.

238. Ewing, *supra* note 221, at 24.

239. *Id.* at 5.

focus on their core business and avoiding the risk of retaliation or reputational damage.²⁴⁰

While the secretive nature of some patent privateering makes it difficult to trace, it appears that companies provide patent arms to some NPEs.²⁴¹ For example, Nokia and Sony each transferred patents to an NPE, Mobile Media LLC, that later asserted those patents against Apple.²⁴² Similarly, Microsoft transferred patents to a Canadian NPE, Mosaid Technologies, that later brought suit against Google.²⁴³

In addition to arming NPEs, companies also create NPEs for the purpose of patent privateering. In July 2011, Apple, Microsoft, Research in Motion, Sony, Ericsson, and EMC formed a company, called the Rockstar Consortium, to outbid Google and Intel for Nortel Networks' patent assets.²⁴⁴ After the purchase, Rockstar Consortium maintained control of the patents and acted as a privateer for its founding companies. Rockstar used Nortel's patents to initiate suits against Google and Samsung.²⁴⁵

As these challenges in the patent landscape have accumulated, companies have resorted to old plays, modified tactics, and new strategies.

B. OLD PLAYS IN THE CURRENT LANDSCAPE

Although developed in the mid-1990s, companies continue to use defensive aggregation and patent pledges to enact defensive patent strategies. Companies in today's landscape implement these plays in their original form. The following analysis provides examples of the modern use of this "old play."

1. *Defensive Aggregation*

Defensive aggregation may be considered an "old play," but companies still utilize the threat of mutual destruction as a defensive tactic in modern practice. For example, Facebook utilized defensive aggregation in litigation against Yahoo!. Just before Facebook's initial public offering,

240. *Id.* at 13–14.

241. Ewing, *supra* note 221 at 38–39.

242. Orr, *supra* note 36, at 541.

243. *Id.* at 541–42.

244. Chia, *supra* note 69, at 213.

245. See Kurt Orzeck, *Google, Samsung Sued Over Nortel Search-Engine Patents*, LAW360 (Oct. 31, 2013, 8:59 PM), http://www.law360.com/articles/485409/google-samsung-sued-over-nortel-search-engine-patents?article_related_content=1.

Yahoo! asserted ten patents against Facebook.²⁴⁶ Facebook counterclaimed using ten of its own patents, four of which it acquired after Yahoo!'s initial assertion.²⁴⁷ Three months after the initial complaint, Yahoo! and Facebook ended the infringement suit and formed a "strategic alliance."²⁴⁸

Similarly, defensive aggregation of patents has been rampant in the ongoing smartphone patent litigation. In October 2009, Nokia sparked a series of suits by asserting that Apple's iPhone infringed their patent rights.²⁴⁹ The companies settled twenty months later,²⁵⁰ but the "smartphone war" had begun. Technology giants—such as Microsoft, Google, Apple, Samsung, Research in Motion, and HTC—became participants in a series of patent litigation actions that instigated vast expenditures in patent aggregation.²⁵¹ In July 2011, the Rockstar Consortium paid \$4.5 billion to outbid Google and Intel for Nortel Networks' six thousand patent assets.²⁵² Google responded by acquiring 17,000 patents in its purchase of Motorola Mobility for \$12.5 billion.²⁵³ Google announced that its primary objective was to protect itself and other business partners from future patent litigation.²⁵⁴

246. Complaint for Patent Infringement, *Yahoo! Inc. v. Facebook, Inc.*, No. CV-12-01212, 2012 WL 764479 (N.D. Cal. Mar. 12, 2012).

247. Defendant Facebook, Inc.'s Answer; Counterclaim Against Yahoo! Inc. for Patent Infringement, *Yahoo! Inc. v. Facebook, Inc.*, No. CV-12-01212-JSW, 2012 WL 1094169 (N.D. Cal. Apr. 3, 2012).

248. John Letzing, *Facebook, Yahoo Kiss and Make Up*, WALL ST. J. (July 6, 2012, 6:54 PM), <http://online.wsj.com/news/articles/SB10001424052702303684004577511132642631606>.

249. See Judith Aparri, *Reckoning Smartphone Patent Wars with Nokia, Apple, HTC, Motorola, and Samsung*, INT'L BUS. TIMES (Apr. 7, 2014, 2:12 PM), <http://au.ibtimes.com/articles/546903/20140407/apple-vs-samsung-cases-ip-wars-patent.htm#.VEFX5Va0b1o>.

250. See Ryan Davis, *Apple Pays Up To Settle Nokia Patent Suits*, LAW360 (June 14, 2011, 1:16 PM), <http://www.law360.com/articles/251166/apple-pays-up-to-settle-nokia-patent-suits>.

251. See Aparri, *supra* note 249; see also Ludlow, *supra* note 217, at 15.

252. See Liam Tung, *Google Settles with Rockstar Consortium Over Nortel Patents*, ZDNET NEWS (Nov. 21, 2014, 1:57 PM), <http://www.zdnet.com/article/google-settles-with-rockstar-consortium-over-nortel-patents/>.

253. See Aaron Pressman, *Now that Google's Selling Motorola, How Much Did it Overpay in 2011?*, THE EXCHANGE – YAHOO! FINANCE (Jan. 29, 2014, 4:42 PM), <http://finance.yahoo.com/blogs/the-exchange/google-selling-motorola-phone-business-but-keeping-some-patents-214150173.html> (indicating that Google ultimately paid around \$4 billion for the 17,000 patent assets after Motorola's assets were sold).

254. Larry Page, *Supercharging Android: Google to Acquire Motorola Mobility*, OFFICIAL GOOGLE BLOG (Aug. 15, 2011), <http://googleblog.blogspot.com/2011/08/supercharging-android-google-to-acquire.html>.

As illustrated, companies implement defensive aggregation effectively in the modern landscape. However, defensive aggregation is not the only old play that remains in the modern playbook.

2. Patent Pledges

Although developed in the mid-2000s, companies have recently implemented the patent pledge. For instance, Google and Tesla Motors recently used the patent pledge tactic. Google controls the Android operating system used on hundreds of millions of mobile devices worldwide.²⁵⁵ Android allows users to develop applications, commonly referred to as “apps,” and distribute these applications on the Google Play marketplace.²⁵⁶ In March 2013, Google announced an Open Patent Non-Assert (“OPN”) Pledge.²⁵⁷ The OPN Pledge states that Google will not “sue any user, distributor or developer of open-source software on specified patents, unless first attacked.”²⁵⁸ By October 2014, Google had included 114 U.S. patents and 131 international patents in the OPN Pledge.²⁵⁹ Just as IBM assured consumers that they could commit to Linux’s open source operating system with their patent pledge,²⁶⁰ Google’s OPN Pledge assures users freedom to develop open source software within the Android platform. Additionally, like IBM’s pledge increased software for the Linux system,²⁶¹ Google’s pledge will probably enhance the amount of apps produced for the Android platform.

Similarly, Tesla Motors Inc. (“Tesla”) recently implemented a patent pledge. Tesla’s chief executive officer, Elon Musk,²⁶² announced that “Tesla will not initiate patent lawsuits against anyone who, in good faith,

255. Android Developers, *Android, the World’s Most Popular Mobile Platform*, <http://developer.android.com/about/index.html> (last visited Jan. 25, 2015).

256. *Id.*

257. Duane Valz, *Taking a Stand on Open Source and Patents*, GOOGLE OPEN SOURCE BLOG (Mar. 28, 2013), <http://google-opensource.blogspot.com/2013/03/taking-stand-on-open-source-and-patents.html>.

258. *Id.*

259. *Open Patent Non-Assertion Pledge: Pledged Patents*, GOOGLE OPEN PATENT NON-ASSERTION PLEDGE, <http://www.google.com/patents/opnpledge/patents/> (last visited Oct. 4, 2014).

260. *Merges*, *supra* note 87, at 193.

261. *Id.* at 192–93.

262. Elon Musk co-founded Zip2 and PayPal before his role as CEO of Tesla Motors. *Executive Bios*, TESLA MOTORS INC., <http://www.teslamotors.com/executives> (last visited Sept. 10, 2014). Musk currently oversees the development of rockets and spacecraft in his position as chief designer at SpaceX. *Id.* In addition, Musk is the non-executive Chairman and principal shareholder of SolarCity. *Id.*

wants to use our technology.”²⁶³ At the time of the announcement, Tesla had 172 issued U.S. patents and 123 published pending applications comprised primarily of battery and charging technologies.²⁶⁴ While Tesla’s exact motivations remain unclear, Musk may have sought to assure customers that Tesla would operate on an open network that would not confine consumers to Tesla’s charging technology and stations.

Three days after issuing its patent pledge, Tesla met with Nissan and BMW to discuss methods of collaboration and a supercharging network.²⁶⁵ This meeting led some to speculate that Tesla seeks to make its roadside charging stations or battery packs the industry standard.²⁶⁶ Yet, it is equally plausible that Tesla’s patent pledge intended to ensure that other companies do not exclude Tesla from an interoperable network. Others argue that Tesla seeks to coordinate electric vehicle makers around open standards and allow more companies to enter the industry in order to overcome the gasoline-vehicle standard.²⁶⁷ Ultimately, while patent pledges can promote or deter the adoption of standards, it is unclear which interoperable component Tesla allegedly seeks to promote as a standard.

Finally, Tesla may be foregoing opportunities to license their charging and battery technology in an effort to spur innovation within the electric vehicle industry. Just as increased innovation within the Linux platform ultimately stimulated demand for IBM’s infrastructure software,²⁶⁸ spurred innovation in battery technology could propel the electric vehicle industry and thereby increase demand for Tesla’s cars and batteries.

While the effectiveness of these pledges remains uncertain, companies implement patent pledges in the modern landscape. In addition to these old plays, the modern defensive playbook contains a couple of plays that have been adapted for the current landscape.

263. Elon Musk, *All Our Patent Are Belong to You*, TESLA MOTORS INC. (June 12, 2014), <http://www.teslamotors.com/blog/all-our-patent-are-belong-you>.

264. *Envision IP: Auto Industry May Ignore Tesla Patents*, DELTASIGHT (June 26, 2014), <https://www.deltasight.com/tesla-auto-industry-may-ignore-tesla-patents/>.

265. Nikki Gordon-Bloomfield, *Nissan, BMW, Look to Adopt Tesla’s Charging Standard*, TRANSPORT EVOLVED (June 16, 2014), <https://transportevolved.com/2014/06/16/nissan-bmw-look-adopt-teslas-charging-standard/>.

266. William J. Watkins, Jr., *Rethinking Patent Enforcement: Tesla Did What?*, FORBES OPINION (July 17, 2014, 1:16 PM), <http://www.forbes.com/sites/realspin/2014/07/17/rethinking-patent-enforcement-tesla-did-what/>.

267. James Bessen, *History Backs up Tesla’s Patent-Sharing*, HARV. BUS. REV. BLOG (June 13, 2014), <http://blogs.hbr.org/2014/06/history-backs-up-teslas-patent-sharing/>.

268. *Merges*, *supra* note 87, at 192–93.

C. MODIFIED PLAYS IN THE CURRENT LANDSCAPE

Part I evaluated the open source and RAND strategies implemented in the 1990s. However, these plays have evolved over time. The following analysis traces the development of the open source and RAND plays and provides the current strategies for their utilization. Some of the plays discussed in this Section provide litigation tactics available in very specific situations rather than general defensive strategies.

1. *Open Source Licenses II: Patent Provisions and Infection*

Open source licenses evolved over time. Because both copyrights and patents can protect software, open source licenses—like the GPL—faced a unique challenge. As software patents became more prevalent in the 2000s, open source licenses began to include reciprocal patent agreements, in addition to copyright provisions, to ensure that software patents could not prevent the use or modification of open source software.²⁶⁹

Open source patent provisions prohibit patent assertion by any licensee against the licensor and other downstream licensees of the technology.²⁷⁰ These provisions are usually structured as either a license to a specified technology or a general covenant not to sue.²⁷¹ The Open Source Initiative lists nearly seventy different variations of open source licenses.²⁷² The majority of the analysis in this Section discusses the GPLv3 and Apache licenses, but the provisions of open source licenses vary.²⁷³

The GPLv3 prevents the enforcement of patent rights through Section 11 of the GPLv3, which states that “[e]ach contributor grants [any licensee] a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.”²⁷⁴ However, the provision has caused confusion because it appears directed towards “contributor[s],” which Section 11

269. Phipps, *supra* note 96.

270. Schultz & Urban, *supra* note 43, at 33.

271. *Id.*

272. *Open Source Licenses: Licenses by Name*, OPEN SOURCE INITIATIVE, <http://opensource.org/licenses/alphabetical> (last visited Jan. 18, 2015).

273. Of the nearly 100,000 projects hosted on Google Code in 2008, 42.6% of these projects utilized the GPLv2/GPLv3 licenses and 25.8% used the Apache license, including the Android operating system. Greg Stein, *Standing Against License Proliferation*, GOOGLE OPEN SOURCE BLOG (May 28, 2008), <http://google-opensource.blogspot.com/2008/05/standing-against-license-proliferation.html>.

274. GNU General Public License Version 3, GNU OPERATING SYSTEM (June 29, 2007), <http://www.gnu.org/licenses/gpl.html>.

defines as “copyright holder[s].”²⁷⁵ If a “contributor” must modify the GPLv3 software to be a “copyright holder,” the mere distribution of GPLv3 software without modifications appears not to trigger the license in Section 11.²⁷⁶ In an attempt to clear confusion regarding the interpretation of Section 11, GPLv3’s drafters stated that “non-contributor redistributors remain subject to applicable implied patent license doctrine.”²⁷⁷

In addition to the patent license, the GPLv3 contains a termination clause that terminates copyright and patent licenses in the event that a user initiates a patent lawsuit against any GPLv3 contributor.²⁷⁸ These provisions appear to further constrain the enforcement of proprietary technology that includes open source software.

a) Limitations on Effectiveness of Open Source Patent Provisions

The open source patent provisions have some limitations to their effectiveness. Open source licenses lack clarity as to the scope of the patent rights licensed.²⁷⁹ The drafters of GPLv3 recognized the lack of clarity and subsequently attempted to produce information to assist interpretation.²⁸⁰ However, because no caselaw has interpreted a patent-related open source provision,²⁸¹ uncertainty surrounds the scope and enforceability of the patent licensing provisions.²⁸² This uncertainty increases the business risk

275. *Id.*

276. Hendrik Schöttle, *Open Source Software and Patents: How the GPLv3 Affects Patent Portfolios*, INT’L LAW OFFICE (Feb. 5, 2013), <http://www.internationallawoffice.com/newsletters/Detail.aspx?g=64b59c8c-9677-46eb-97fe-3d22f9fc011e>.

277. *What Does “the Program” Mean in GPLv3?*, FREE SOFTWARE FOUNDATION, <https://www.gnu.org/licenses/gplv3-the-program.html> (last visited Feb. 19, 2015).

278. GNU General Public License Version 3, *supra* note 274.

279. *See* Schultz & Urban, *supra* note 43, at 34; *see also* Andrew Strickland & Amy Chun, *Leveraging Open-Source Software in Patent Litigation*, AM. BAR ASS’N – SEC. OF LITIG. (Sept. 20, 2011), <http://apps.americanbar.org/litigation/committees/intellectual/articles/fall2011-leveraging-open-source-software-patent-litigation.html>.

280. *See What Does “the Program” Mean in GPLv3?*, *supra* note 277.

281. In 2008, the Federal Circuit held that an open source agreement was enforceable as an express contractual license under *copyright law*; the Federal Circuit found that even without monetary exchange, open source licenses contain consideration because these licenses may generate market share and improve the licensee’s reputation. *Jacobsen v. Katzer*, 535 F.3d 1373, 1379–83 (Fed. Cir. 2008).

282. Schultz & Urban, *supra* note 43, at 33 (recognizing that the validity of open source licensing agreements may be challenged when patents have been transferred to third parties who claim a lack of privity with the original licensee).

in both releasing software and using software licensed by others under the GPLv3.²⁸³

b) Infection of Open Source Software as a Defensive Tactic

Most technology companies today use software protected under an open source license.²⁸⁴ These companies face an internal struggle to coordinate their use of open source software with their patent portfolio management.²⁸⁵ Under a broad interpretation, the GPLv3 grants licenses not only to modified open source software but also to any software that “links” to the open source software.²⁸⁶ The uncertain scope of open source provisions may drive companies to prohibit use of open source software in proprietary commercial products.²⁸⁷ Thus, coordination within a company becomes vital to ensure that a proprietary project does not become “infected” with open source software.

If a portion of the plaintiff’s software has been infected by open source software, a defendant can use the infection as a defensive tactic in patent litigation. First, the plaintiff may have unknowingly granted the defendant a patent license under the provisions of the open source license, which can be used as a defense to an infringement claim.²⁸⁸

Furthermore, the plaintiff’s exposure to countersuit increases if the asserted patent includes (1) the defendant’s open source software or (2) third-party open source software. If the defendant’s open source software infected the plaintiff’s software, the plaintiff likely violates the licensing requirements of the open source license.²⁸⁹ In *Twin Peaks Software Inc. v. Red Hat, Inc.*, Twin Peaks Software (“TPS”) asserted patented software against Red Hat.²⁹⁰ Red Hat initially denied the validity of the patents and claimed they did not infringe—a typical patent defense.²⁹¹ However, Red Hat discovered that TPS’s proprietary software

283. See Majerus, *supra* note 92, at 3.

284. Heather Meeker, *Open Source – The Last Patent Defense?*, OUTER CURVE FOUND. (Feb. 11, 2014), <http://www.outercurve.org/blog/2014/02/11/Open-Source--The-Last-Patent-Defense/>.

285. *Id.*

286. Majerus, *supra* note 92, at 1–2.

287. *Id.*

288. See Meeker, *supra* note 284.

289. *Id.*

290. Defendants Red Hat, Inc.’s and Gluster, Inc.’s Answer and Counterclaims to Plaintiff Twin Peaks Software Inc.’s First Amended Complaint for Patent Infringement at 1, *Twin Peaks Software Inc. v. Red Hat, Inc.*, No. 5:12-CV-00911 RMW; 2012 WL 5403091 (N.D. Cal. Aug. 2, 2012).

291. *Id.* at 4–5.

actually included some of Red Hat's open source software, which triggered the defensive termination clause and created a counterclaim.²⁹² Red Hat amended its counterclaim to include a violation of the open source license and sought an injunction.²⁹³ Soon thereafter, the case settled.²⁹⁴

Further, if a third party has infected a portion of the plaintiff's software, the defendant can use the plaintiff's increased exposure to suits from third parties as a defensive tactic.²⁹⁵ For example, the defensive termination provision of the Apache 2.0 states that any patent licenses granted to the licensee on open source software shall be revoked if a licensee asserts patent infringement.²⁹⁶ Therefore, by bringing suit, the plaintiff forfeits any patent licenses it has received from other contributors to the software. Even if the defendant has no direct counterclaim, the plaintiff exposes itself to potential liability from other third parties by filing for patent infringement.²⁹⁷ This exposure may be utilized as a defensive tactic.

Finally, if the defendant discovers that the plaintiff's software has been infected, the defendant may be able to challenge the inventorship of the patent. Even though the AIA eliminated the inventorship requirement of 35 U.S.C. § 102(f), the PTO has argued that "section 101 continues to restrict the grant of patents to inventors."²⁹⁸ While the specific use of open source software will dictate the validity of the inventorship argument, defendants have yet another defensive tool that poses additional risk to the patent holder.

292. *See* Defendants/Counterclaim-Plaintiffs Red Hat, Inc.'s and Gluster, Inc.'s First Amended Answer and Counterclaims to Plaintiff Twin Peaks Software Inc.'s First Amended Complaint for Patent Infringement at 6, *Twin Peaks Software Inc. v. Red Hat, Inc.*, No. 5:12-CV- 00911 RMW, 2012 WL 5403098 (N.D. Cal. Sept. 13, 2012).

293. *Id.*

294. *See* Meeker, *supra* note 284.

295. *See id.*

296. *Apache License, Version 2.0*, THE APACHE SOFTWARE FOUND. (Jan. 2004), <http://www.apache.org/licenses/LICENSE-2.0.html>.

297. *See* Meeker, *supra* note 284.

298. Defendant U.S. Patent and Trademark Office's Dispositive Motion at 9, *Madstad Eng'g, Inc. v. USPTO*, No. 8:12-CV-01589-SDM-MAP, 2012 WL 4936440 (M.D. Fla. Sept. 18, 2012); *but see* Dennis Crouch, *With 102(f) Eliminated, Is Inventorship Now Codified in 35 U.S.C. 101? Maybe, but not Restrictions on Patenting Obvious Variants of Derived Information*, PATENTLY-O (Oct. 4, 2012), <http://patentlyo.com/patent/2012/10/with-102f-eliminated-is-inventorship-now-codified-in-35-usc-101.html> (discussing the unresolved issues that originate from the elimination of 35 U.S.C. § 102(f)).

c) Summary of the Modified Open Source License Play

Before utilizing open source licenses, companies must evaluate the value of the patent rights against the value gained through implementation and distribution of open source software. Companies must coordinate the use of open source software with their patent portfolio management if they plan to assert their patents. If proprietary projects include open source software, patent rights could be severely limited. However, the effectiveness of patents used *defensively* will be unimpeded due to the termination clauses included in open source licenses. Finally, companies in patent litigation should always determine whether their opponent has been infected with open source software. Infection may provide significant defenses and alter the dynamics of patent litigation.

2. *RAND II: Limitations and Breach of Contract Claims*

As discussed in Part I, SSOs require RAND commitments to encourage the widespread adoption of standards and prevent SEP holders from utilizing their leverage to demand inflated licensing rates.²⁹⁹ However, smartphone companies used RAND-encumbered patents in the same manner as other patents were utilized.³⁰⁰ These companies aggregated SEPs as offensive and defensive weapons.³⁰¹ This use of RAND-encumbered patents raised concerns, especially in the smartphone industry where the implementation of a standard in a single smartphone requires hundreds or thousands of SEPs owned by different parties.³⁰² However, recent court decisions seem to have curbed the abuse of RAND-encumbered patents by limiting the availability of injunctions.

a) Injunction Availability

In *Apple Inc. v. Motorola, Inc.*, the Federal Circuit recognized the difficulty of obtaining an injunction on a RAND-encumbered patent but stated that no “per se rule” against injunctions existed.³⁰³ Judge Reyna declared that the *eBay* framework for analyzing injunctive relief should be

299. See U.S. DEP’T OF JUSTICE & USPTO, POLICY STATEMENT ON REMEDIES FOR STANDARDS-ESSENTIAL PATENTS SUBJECT TO VOLUNTARY F/RAND COMMITMENTS 1 n.2 (2013) available at http://www.uspto.gov/about/offices/ogc/Final_DOJ-PTO_Policy_Statement_on_FRAND_SEPs_1-8-13.pdf.

300. See O’Connor, *supra* note 70.

301. See *id.*

302. James Ratliff & Daniel L. Rubinfeld, *The Use and Threat of Injunctions in the RAND Context*, 9 J. OF COMPETITION L. & ECON. 1, 2 (2013).

303. 757 F.3d 1286, 1331–32 (Fed. Cir. 2014).

utilized to evaluate RAND committed patents.³⁰⁴ Nevertheless, Judge Reyna recognized that within the *eBay* framework “a patentee subject to FRAND commitments may have difficulty establishing irreparable harm.”³⁰⁵ Thus, the ability to obtain an injunction on a RAND committed patent appears considerably weaker than it would be without the RAND commitment.³⁰⁶ This decision reduces the threat of SEPs as weapons of mutually assured destruction and reduces patent holders’ leverage when licensing SEPs.

But companies may attempt to revoke their RAND commitment. SSOs members generally declare the essentiality of their patents to the standard in their letter of assurance, but the SSOs do not examine whether the patents are actually essential.³⁰⁷ Thus, companies may argue that their patents are not “essential” to implement the standard under the definition provided in the SSOs’ bylaws, which would allow an ordinary infringement suit.³⁰⁸ But if the patent is essential to the standard, implementers may have a breach of contract defense.

b) Breach of Contract Claim as a Defensive Tactic

The abuse of RAND commitments may lead to a breach of contract claim against a patent holder asserting infringement of a SEP. Because RAND commitments do not arise through statute or regulation, some courts have analyzed RAND commitments as contracts between SEP holders and SSOs, with implementers acting as third-party beneficiaries.³⁰⁹

For example, suppose an SEP holder offers an implementer a license for a RAND-encumbered patent essential to the standard. Due to

304. *Id.*

305. *Id.* Some SSOs require members to license under fair, reasonable, and nondiscriminatory terms (“FRAND”). FRAND and RAND are used interchangeably in this Note.

306. Contreras & Gilbert, *supra* note 63, at 31.

307. See Thomas F. Cotter, *The Comparative Law and Economics of Standard-Essential Patents and FRAND Royalties*, 22 TEX. INTEL. PROP. L.J. 311, 312 (2014).

308. See D. Brian Kacedon et al., *Court Finds Patent Claims Essential to Wi-Fi Standard Because They Cover Technology Required by the Standard and There Are No Commercially or Technically Feasible Noninfringing Alternatives*, FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, LLP LES INSIGHTS (Sept. 17, 2013), <http://www.finnegan.com/resources/articles/articlesdetail.aspx?news=d1f3763e-703e-4506-af9f-868bf89bb5d8>.

309. See *Microsoft Corp. v. Motorola, Inc.*, 864 F. Supp. 2d 1023, 1030 (W.D. Wash. 2012); see also Mark A. Lemley & Carl Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, 28 BERKELEY TECH. L.J. 1135, 1160 (2013).

differing opinions of “reasonable” terms,³¹⁰ the implementer rejects the license offer as inconsistent with the RAND commitment. If the SEP holder files suit for patent infringement, the implementer may attempt to enforce the RAND commitment by bringing a breach of contract action.³¹¹ Alternatively, if the SEP holder seeks injunctive relief prior to RAND negotiations, some courts have found that the SEP holder has breached their duty of good faith owed to the contract between the SEP holder and the SSO.³¹²

These contractual claims provide multiple defenses. First, the breach of contract claim may be used to limit damages by pleading for relief in the form of a judicially determined RAND rate.³¹³ Alternatively, or in addition, the alleged infringer may point to the RAND commitment to reduce the likelihood that the court grants injunctive relief.³¹⁴ Finally, if the SEP holder sought injunctive relief in foreign courts or the U.S. International Trade Commission, the implementer can file a breach of contract suit to enjoin the SEP holder from enforcing an injunction or exclusion order because the SEP holder breached the duty of good faith and fair dealing.³¹⁵ However, these defenses are only available when the plaintiff asserts a RAND-encumbered patent.

c) Summary of the Modified RAND Play

Recent decisions have decreased the threat of SEPs as weapons of mutually assured destruction and reduced patent holders’ leverage when licensing SEPs. Therefore, before making a RAND commitment, a company must determine if “reasonable” royalties at higher volumes that result from standardization outweigh the patents’ offensive and defensive value and higher royalties that could be obtained without a RAND commitment. If a company has already made RAND commitments, it needs to investigate whether the encumbered patents are actually essential to the standard when facing litigation. Finally, the RAND commitment

310. See generally Maldonado, *supra* note 62; Contreras & Gilbert, *supra* note 63.

311. Contreras & Gilbert, *supra* note 63, at 31.

312. See *Realtek Semiconductor Corp. v. LSI Corp.*, 946 F. Supp. 2d 998, 1008 (N.D. Cal. 2013).

313. See *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 WL 2111217, at *53–65 (W.D. Wash. Apr. 25, 2013).

314. See Contreras & Gilbert, *supra* note 63, at 31.

315. See *Microsoft Corp. v. Motorola, Inc.*, 696 F.3d 872, 889 (9th Cir. 2012) (enjoining Motorola from enforcing a patent injunction against Microsoft in Germany); see also *Realtek*, 946 F. Supp. 2d at 1008 (filing a breach of contract claim before the International Trade Commission concluded its investigation or issued an exclusion order).

provides several defensive options for implementers under contract law. However, these options will only be available to implementers confronted with RAND-encumbered patents. While companies cannot choose the patents asserted against them, they can inquire as to whether the asserting party previously made a RAND commitment.

D. NEW PLAYS: NETWORK CROSS-LICENSING AGREEMENTS

Instead of relying on Congress—which is arguably in a worse state of gridlock than the patent system³¹⁶—to provide further remedies, practitioners have continued to develop new defensive plays to protect their interests. Recently, two network cross-licensing agreements³¹⁷ have been proposed as defensive options for practicing companies: the Defensive Patent License Agreement and the License on Transfer Agreement.

Companies may obtain cross-licenses similar to the provisions in the Defensive Patent License Agreement (“DPL”) and License on Transfer Agreement (“LOT”) with other companies through a series of bilateral agreements.³¹⁸ For example, Samsung and Cisco recently entered a cross-licensing agreement that included the two companies’ existing patents as well as patents filed in the next ten years.³¹⁹ However, negotiating individual agreements with a large number of companies in the industry may be prohibitively expensive.³²⁰

Network cross-licensing agreements reduce transaction costs and enhance protection benefits through network effects. Network cross-licenses reduce transaction costs by eliminating the costs of negotiation between patent holders and providing a standard license with predictable terms for each participant.³²¹ Furthermore, the network cross-licensing agreements utilize positive network effects to enhance the benefits of

316. See Christopher Ingraham, *Congressional Gridlock Has Doubled Since the 1950s*, WASH. POST (May 28, 2014), <http://www.washingtonpost.com/blogs/wonkblog/wp/2014/05/28/congressional-gridlock-has-doubled-since-the-1950s/>.

317. In this Note, “network cross-licensing agreement” refers to any collective licensing agreement in which members grant reciprocal licenses to current or future patent rights.

318. Transaction costs could be reduced for companies seeking to obtain the licensing provisions contained in the LOT Agreement, but companies likely would negotiate on an individual basis for cross-licensing agreements more similar to the DPL Agreement.

319. *Cisco and Samsung Enter Into Patent Cross-License Agreement*, CISCO PRESS RELEASES (Feb. 5, 2014), http://newsroom.cisco.com/release/1342531/Cisco-and-Samsung-Enter-Into-Patent-Cross-License-Agree_2.

320. See Schultz & Urban, *supra* note 43, at 8.

321. *Id.* at 47.

participating.³²² As more companies join, the agreements provide more protection from litigation risks and become more attractive to new members.³²³ While these benefits are common to both network cross-licensing agreements, the DPL and LOT Agreements contain distinct licensing provisions that lead to varying reductions in litigation exposure.

a) The Defensive Patent License (DPL) Network

The DPL Agreement, a standardized cross-license, “serves as the connection point for a distributed defensive cross-license network.”³²⁴ Upon joining the DPL network, a participant licenses its entire patent portfolio under a perpetual, worldwide, royalty-free license.³²⁵ If a participant wants to stop offering its patents under the DPL, it may discontinue licensing to newcomers after six months’ notice.³²⁶ However, the participant may not revoke any licenses in place before the end of the notice period unless a licensee brings suit against another DPL participant offensively, in which case all DPL participants may suspend their licenses to the DPL party asserting its patents offensively.³²⁷ Thus, upon entry to the DPL Agreement, companies grant other participants patent licenses that may only be revoked in specific situations. This structure provides protection to participants but requires more commitment than the LOT Agreement.

b) The License on Transfer (LOT) Agreement

Industry participants launched a networked, royalty-free cross-licensing agreement for transferred patents called the LOT Agreement.³²⁸ LOT participants grant a license to other participants, but the license only becomes effective when patents transfer to non-participants.³²⁹ Until transferred, participants preserve full use of their patents.³³⁰ As an example, if a LOT participant owns one thousand patents and transfers two patents to a non-participant, the LOT Agreement grants all other

322. *Id.* at 23–24.

323. David L. Hayes & C. Eric Schulman, *A Response to a Proposal for a Defensive Patent License (DPL)* 5 (Feb. 4, 2013) (unpublished manuscript), available at <http://ssrn.com/abstract=2054314>.

324. Schultz & Urban, *supra* note 43, at 5.

325. *Id.* at 39.

326. *Id.* at 39–40.

327. *Id.*

328. *LOT Agreement*, GOOGLE PATENT PROGRAMS, <http://www.google.com/patents/licensing/#tab=lot> (last visited Jan. 18, 2015).

329. *Id.*

330. *Id.*

participants a license to the two transferred patents. Licenses to the other 998 patents remain untriggered.

The LOT Agreement allows for license termination when patents transfer to a “non-assertion entity.”³³¹ For example, LOT Participant *A* transfers its patents to non-LOT Participant *B*, triggering the licensing provision. If LOT Participant *C* brings suit offensively against non-LOT Participant *B* and non-LOT Participant *B* qualifies as a “non-assertion entity” under the agreement, the license to LOT Participant *C* may be terminated so that non-LOT Participant *B* can use the transferred patents defensively.

c) Reduction in Litigation Exposure: Protection from NPE use of Defensively Aggregated Patents

These network cross-licensing agreements protect companies from multiple litigation threats. As discussed, NPEs obtain defensively aggregated patents through two monetization strategies implemented by practicing companies: direct sale of patents to NPEs or patent privateering arrangements. If a company sells patents to NPEs, it typically includes a grant-back license to eliminate the risk of the patents being used against them after the sale.³³² Unlike the typical grant-back provision that only prohibits NPEs from asserting against the seller, the DPL and LOT Agreements prohibit NPEs from asserting transferred patents against all licensed participants. Under the DPL, each participant grants other participants a perpetual license upon joining the DPL.³³³ LOT participants grant licenses to other participants that become effective when patents are transferred to non-participants.³³⁴ Thus, both agreements reduce the number of potential targets for NPEs and consequently diminish the profits NPEs derive from purchasing encumbered patents.

In addition, companies indirectly monetize patents by transferring rights to NPEs through privateering arrangements.³³⁵ The structure of the LOT Agreement targets this practice. Because the license does not trigger unless a patent transfers to a non-participant,³³⁶ LOT allows practicing companies to bring suit directly against other participants and confront the risk of retaliation and reputational damage. However, companies cannot

331. LOT Agreement § 1.1(c) *available at* <http://www.lotnet.com/how-to-join-lotnet/index.cfm> (last visited Jan. 18, 2015).

332. Fawcett & Chan, *supra* note 231, at 20.

333. Schultz & Urban, *supra* note 43, at 39.

334. *LOT Agreement*, *supra* note 328.

335. *See* Ewing, *supra* note 221 at 8–9.

336. LOT Agreement § 1.1(c), *supra* note 331.

avoid these risks by transferring their patents to NPEs under privateering arrangements because the LOT license triggers upon transfer. The LOT Agreement deters companies from entering into privateering arrangements with NPEs and decreases the value of encumbered patents to NPEs. The DPL Agreement also protects participants against privateering because the agreement grants participants a license upon entry. Just as countries in the 1800s abolished privateering through treaties,³³⁷ companies eradicate detrimental patent privateering against other participants when they sign the LOT or DPL Agreements. Although both agreements eliminate the threat of patents transferred by participants, companies face additional litigation exposure.

d) Reduction in Litigation Exposure: Protection from Direct Assertion by Practicing Companies

When the patent system functions as intended, companies use patent rights as a tool to recoup the costs of developing a new technology by allowing the patent holder to prohibit other companies from making, using, selling, or importing the patented technology.³³⁸ Under the LOT Agreement, participants may still assert their patents against LOT participants and non-participants in this manner because the license does not trigger unless a patent transfers to a non-participant.³³⁹ Thus, nothing in the LOT Agreement prevents companies from asserting their patents, but the companies must face the risk of retaliation and reputational damage.

Under the DPL Agreement, participants forfeit their ability to assert patents against other participants.³⁴⁰ While the DPL limits companies' abilities to assert their patents, it also eliminates the risk of suit from other participating companies. This protection could create more freedom to operate with respect to DPL technologies,³⁴¹ allowing participating companies to compete on the merits of their products or services—rather than competing in the courtroom.³⁴² Furthermore, the DPL Agreement does not prohibit participants from asserting their patents against non-participants.

337. Ewing, *supra* note 221, at 8.

338. See Lemley, *supra* note 4, at 129–30.

339. LOT Agreement § 1.1(c), *supra* note 331.

340. See Schultz & Urban, *supra* note 43, at 39–40.

341. See *id.* at 48.

342. See Hayes & Schulman, *supra* note 323, at 4–5.

e) Litigation Exposure: Incomplete Protection

However, neither the DPL Agreement nor the LOT Agreement will protect companies from patents already owned by NPEs or obtained by NPEs from non-participants.

f) Network Cross-Licensing Agreement Limitations

Furthermore, network cross-licensing agreements impose some limitations in order to provide the positive attributes previously discussed. Network cross-licensing agreements inevitably lower the value of participants' patents because the patents no longer provide an exclusive right.³⁴³ The license granted to other participants restricts a purchaser's ability to bring suit, so the value of the patent decreases.³⁴⁴ This reduction in value may be a deterrent for both large portfolio companies and startup companies. Large portfolio companies lose significant monetary value in their assets by encumbering their patents with licenses, and startup companies hinder their ability to sell off patents as a method of mitigating losses upon failure.

Because their licensing provisions differ, the DPL and LOT Agreements contain additional, distinct limitations.

i) DPL Agreement Limitations

The risk and limitations of the DPL may deter companies from participating. First, even the creators of the DPL recognize that the DPL is not a viable option for companies with business models dependent upon monetization of their patent portfolios.³⁴⁵ Companies that actively enforce and rely on patents to recoup investments may instead consider the LOT Agreement, which allows direct assertion of patents.

Second, large portfolio companies may not join the DPL because of the potential for disproportionate benefits.³⁴⁶ A company with a minimal patent portfolio may benefit significantly more than companies that have spent substantial money aggregating large patent portfolios.³⁴⁷ A company with few patents acquires licenses to all of the larger companies' aggregated patents without providing much benefit in return.³⁴⁸ Further, a small startup company could use the DPL as an opportunity to compete

343. *See id.* at 4–5.

344. *See id.* at 5.

345. *See* Schultz & Urban, *supra* note 43, at 52.

346. Hayes & Schulman, *supra* note 323, at 5–6.

347. *Id.*

348. *Id.*

with large portfolio companies without the risk of patent infringement.³⁴⁹ Later, when the startup company reaches a position where it is strong enough to survive patent litigation, it could simply terminate its status as a DPL participant.³⁵⁰

Lastly, the biggest deterrent to the DPL may be the risk associated with joining. Once a company joins the DPL, the license granted becomes irrevocable unless another member of the DPL offensively attacks.³⁵¹ Therefore, companies must be so confident in the value of joining the DPL that they will risk their entire existing patent portfolio, which may have cost millions of dollars to aggregate.

ii) LOT Agreement Limitations

The LOT Agreement faces fewer deterrents to entry for companies but provides less protection from litigation. Unlike the DPL Agreement, the LOT Agreement allows participants to assert patents against other participants.³⁵² Depending on a company's monetization strategy, the LOT structure could be viewed as a limitation or a benefit. If a company's patent portfolio consists of patents that will not be asserted, the company may view the lack of protection from other participants' patents as a limitation.³⁵³ On the other hand, companies that seek to enforce their patents may not view this as a limitation because the freedom of assertion may outweigh the lack of protection.³⁵⁴

The LOT Agreement does not face the same lopsided benefit limitation present in the DPL Agreement. The LOT Agreement does not appear to favor companies with large patent portfolios or minimal portfolios. Due to the sheer number of aggregated patents, companies with larger portfolios provide substantial benefit to minimal portfolio companies by providing a larger number of licenses to minimal portfolio companies if the aggregated patents are later transferred to NPEs. Similarly, the LOT Agreements provide large companies significant protection against patents transferred by failed startups to NPEs.

The reduction in participants' exposure increases as more operating companies join the LOT network.³⁵⁵ Therefore, the success of the LOT

349. *Id.*

350. *Id.*

351. *Id.*

352. *LOT Agreement, supra* note 328.

353. These companies likely would be better suited with the DPL Agreement.

354. *See Hayes & Schulman, supra* note 323, at 27.

355. *Id.* at 27.

Agreement depends on whether the LOT Agreement can utilize positive network effects to incentivize other companies to join. Google, Canon, SAP, Newegg, Dropbox, and Asana joined the LOT network and placed 300,000 patents into the LOT pool.³⁵⁶ It is unclear whether these patents will provide sufficient incentive for others to join.

g) Summary of the DPL and LOT Plays

Strategically, until the DPL has significant participation, companies with larger patent portfolios may individually cross-license with other companies to avoid the potential lopsided benefits and risks of joining the DPL. Companies with minimal patent portfolios and infrequent monetization may join the DPL for the added protection and terminate participation if their patent strategy or position begins to shift.³⁵⁷

The LOT Agreement provides less protection than the DPL but requires less commitment. While the LOT Agreement imposes some limitations for companies seeking to monetize patents through direct sale or patent privateering, it provides diminished risk because all patents remain unencumbered until transferred. Companies with large defensive portfolios and startup companies should consider the LOT Agreement if the value gained outweighs the ability to monetize their portfolio by collaborating with NPEs.

IV. DEVELOPING DEFENSIVE PLAYS

Currently, two additional developments may provide future defensive options: inter partes reviews and enhanced fee-shifting. These areas of the law have not fully developed, but this Part introduces these evolving defenses.

Companies may utilize inter partes reviews (“IPRs”) to invalidate asserted patents. During an IPR, the Patent Trial and Appeal Board (“PTAB”) will evaluate patentability “under section 102 or 103 . . . on the basis of prior art consisting of patents and printed publications”³⁵⁸ if the requesting petitioner demonstrates “a reasonable likelihood” that the PTAB would find at least one claim invalid.³⁵⁹ If the petitioner requests an

356. *Asana, Canon, Dropbox, Google, Newegg and SAP Announce Formation of New Cooperative Patent-Licensing Agreement*, CANON GLOBAL (July 10, 2014), <http://www.canon.com/news/2014/jul10e.html>.

357. See Hayes & Schulman, *supra* note 323, at 5–6.

358. 35 U.S.C. § 311(b) (2012).

359. 35 U.S.C. § 314(a) (2012).

IPR after the commencement of patent litigation, a district court will often stay the case.³⁶⁰

Effectively, a stay offers litigants a choice between arguing validity in district courts or at the PTO. District courts construe claims according to “the meaning that [a] term would have to a person of ordinary skill in the art in question at the time of the invention.”³⁶¹ However, during IPRs, the PTAB uses the “broadest reasonable construction in light of the specification of the patent in which it appears.”³⁶² Additionally, the burden of proof differs. A district court requires clear and convincing evidence to invalidate a patent claim, but the PTAB requires only a preponderance of evidence to invalidate a patent claim.³⁶³ Early IPR decisions by the PTAB indicate that the PTO may be a favorable forum for patent challengers,³⁶⁴ but companies need to monitor the challenger success rate and analyze a larger sample size before reaching such a conclusion.

In addition to the AIA developments, a recent Supreme Court decision indicates that fee-shifting might become a more serious threat to NPEs moving forward. Under 35 U.S.C. § 285, a court may only award attorney fees to the prevailing party in “exceptional cases.”³⁶⁵ In *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, the Court articulated a more discretionary standard for determining whether a case is “exceptional.”³⁶⁶ This discretionary standard could mitigate the current asymmetrical exposure present in patent litigation and gives practicing entities a greater threat against NPEs.³⁶⁷

360. Jason E. Stach & Jeffrey A. Freeman, *District Court or the PTO: Choosing Where to Litigate Patent Invalidity*, FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, LLP IP LITIGATOR (Mar./Apr. 2014), <http://www.finnegan.com/resources/articles/articlesdetail.aspx?news=e7ad4528-cec4-4889-a23d-d17bca527ca2>.

361. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005).

362. 37 C.F.R. § 42.100(b) (2013).

363. 35 U.S.C. § 316(e) (2012).

364. David Cavanaugh, *Early Results of Post Grant Proceedings*, INTELL. PROP. TODAY (July 31, 2014), http://www.wilmerhale.com/uploadedFiles/Shared_Content/Editorial/Publications/Documents/IP-today-early-results-post-grant-proceedings-July-2014.pdf (evaluating IPR decisions from September 16, 2012 until May 1, 2014).

365. 35 U.S.C. § 285 (2012).

366. *Octane*, 134 S. Ct. at 1749.

367. See Hannah Jiam, Note, *Fee-Shifting and Octane Fitness: An Empirical Approach Towards “Exceptional”*, 30 BERKELEY TECH. L.J. 611 (2015).

V. CONCLUSION

The patent system is a complex puzzle that constantly evolves. Multiple factors have contributed to the current patent landscape. First, in the 1980s, the Federal Circuit situated the patent system for rapid growth. With the patent system primed for growth, licensing and assertion campaigns catalyzed a patent aggregation “arms race” that increased patent filings and resulted in webs of overlapping patent rights.³⁶⁸ Subsequently, after the dot-com bubble burst, NPEs obtained many of these patents and became prominent players in the patent field by exploiting asymmetrical costs and risks. As a result, the current landscape faces the accumulation of these obstacles and an increasing transition from patent aggregation to patent monetization.

These eras produced numerous defensive strategies to help companies compete in the patent landscape: defensive aggregation, RAND cross-licensing, open source licenses, lobbying for doctrinal changes, public disclosure, patent pledges, third-party defensive protection, and network cross-licensing agreements. These defensive plays range from general strategies to specific litigation tactics.

The evolution of the defensive patent playbook will continue as companies develop new strategic maneuvers, new players emerge in the patent field, and courts define the contours of the AIA. No single private action will cure the current patent system. The viability of these “plays” will be dictated by each individual company’s patent portfolio, business goals, and exposure to litigation. Ultimately, each option and strategy in the defensive patent playbook contains its own benefits, risks, and limitations that must be evaluated to prepare a successful patent game plan.

368. Chien, *From Arms Race to Marketplace*, *supra* note 5, at 304.

