

Trolls, geeks and lots of lawyers

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Nortel Networks Inc.'s auction of 6,000 patents and patent applications at the end

of June was one of the most remarkable corporate transactions in recent years, a technology equivalent of the 1989 buyout of RJR Nabisco. Representatives from many of the world's largest tech companies huddled in conference rooms at **Cleary Gottlieb Steen & Hamilton LLP** in New York to bid on intellectual property that they hoped would give them a significant advantage in the market for smartphones.

As the bidding escalated, surprising combinations emerged: **Apple Inc.** teamed up with **Microsoft Corp., Research In Motion Ltd., Sony Corp.** and **EMC Corp.** to outbid the tandem of **Google Inc.** and **Intel Corp.**

The price the Apple team paid was even more shocking: \$4.5 billion, or \$750,000 per patent, by far the most that had ever been paid for a pool of patents. Google responded by agreeing to pay \$12.5 billion for **Motorola Mobility Inc.** on Aug. 15, a purchase driven partially by the appeal of Motorola's patents.

The two deals reflect a major change in the role of patents in the tech sector. Authorized by the U.S. Constitution and enshrined in federal statute since 1790, the patent system gives inventors a 20-year exclusive right to use or license a novel piece of technology. The grant is meant to encourage experimentation that will lead to commercial innovation. A drug company does research, discovers a molecule that helps cure a disease, patents it and then manufactures and sells the drug or licenses another company to do so.

But developments in the tech world over the past decade have turned that formula on its head. Products may embody not one patent or a few of them but thousands; by one estimate, smartphone technology involves 25,000 patents owned by dozens of companies. While patents on molecules precisely specify the innovation, those on software and tech devices are often vague, and companies may develop products before searching for patents with which to protect them, a phenomenon that spurred Google to purchase patents related to mobile telephony. The Nortel auction also exemplified the emergence of a highly liquid market for patents over the past decade, which has driven up prices as it has eroded the relationship between innovation and product development.

These developments have been immensely controversial in Silicon Valley. Some observers see them as evidence that the patent system does little to serve its intended function of rewarding innovation and instead allows the large companies and opportunistic acquirers that hold most key patents to unfairly extract licensing fees from emerging companies. In this view, the development of a highly liquid market in patents, along with more vigorous judicial enforcement of patents, has hindered the market for new technology by acting as a tax on innovation.

Others argue that the rise of patent liquidity is not only beneficial but inevitable, given the complexity of products. The history of patent law in Silicon Valley over the past half-century reflects the unintended consequences of a dramatic change in a legal regime and the complex relationship between evolving technologies and the legal environment in which tech companies operate. And because of the convergence of various technologies in smartphones, the patent system is as contentious and important as it's ever been.

Smartphones are made possible by products from which Silicon Valley takes its name: semiconductors. Individual chip models have implicated hundreds of patents since they were first manufactured in large quantities in the early '60s. Those patents were the subject of frequent litigation, including the famous case of Robert Noyce v. Jack Kilby, in which two of the industry's founding fathers battled over who had invented the integrated circuit first and therefore earned the patent on it. In the end, their respective companies, **Fairchild Semiconductor Corp.** and **Texas Instruments Inc.**, cross-licensed their technologies, a common outcome at the time.

Federal courts were highly suspicious of patents and reluctant to enforce them, traits that were especially pronounced in the 9th Circuit, which has jurisdiction over California. The U.S. Supreme Court paid little attention to the area, which remained a backwater through the middle decades of the 20th century. As a result, patent litigation didn't require tremendous resources, and companies almost always settled. "There were no jury trials, and cases were tried to judges who generally were not patent-friendly," says Claude "Cash" Hamrick, who's been a patent lawyer in the Valley since 1967. "However, the cases allowed competitors to see where others in the field stood with some judicial oversight."

This judicial attitude toward patents effectively reduced their value and pushed parties to settle or cross-license, especially since semiconductors' rapidly increasing complexity meant that chip companies almost inevitably infringed one another's patents.

Prolonged litigation seemed like a waste of time in a field where innovation was happening faster than the Patent and Trademark Office could process patent applications or the federal courts could handle disputes. Semiconductor companies often protected the most advanced elements of their technology by treating them as trade secrets rather than revealing valuable information in patent applications. Suits to prevent former employees from disclosing trade secrets were at least as common as patent litigation in Silicon Valley in the '70s and became a common way of delaying a new company's product launch when an employee left for a startup.

"I can remember in the late '70s and early '80s startups coming to talk about some new plan," says James Pooley, now deputy director for patents at the World Intellectual Property Organization and at the time a litigator in the Valley. "There was a lot of trade

secret risk, but with regard to patents, the sense was that [the established company] might not notice, and if it did, a license would be available."

Lastly, semiconductor research and manufacturing were still integrated in the '70s; companies that specialized in one or the other had not yet emerged. That changed in the '80s as the semiconductor industry matured and some companies focused on manufacturing commodity chips as cheaply as possible while others labored to develop higher-margin cutting-edge products.

That transition coincided with the launch of the Court of Appeals for the Federal Circuit, one of only a few federal appellate courts whose jurisdiction is based on legal subject matter rather than geography. After years of debate about the merits of a court devoted solely to patent law, Congress in 1982 created the CAFC by merging the appellate division of the U.S. Court of Claims and the Court of Customs and Patent Appeals, which heard appeals from PTO decisions to grant or reject patent applications.

"The CAFC didn't change the law. They just took cases out of the dustbin and started using them," says Roger Borovoy, of counsel at **Fish & Richardson PC** in Redwood City, Calif., and a former general counsel at Fairchild Semiconductor and Intel.

The consistency with which the CAFC interpreted the law was a major change from the disparate approaches that the various federal circuit courts had adopted previously. The CAFC also considerably raised the stakes in any litigation with its willingness to award injunctions, which bar an infringer from producing a product that violates a patent held by another entity. In a landmark 1986 case, the CAFC upheld a lower court ruling for **Polaroid Corp.** that barred **Eastman Kodak Co.** from selling instant cameras and film that infringed Polaroid patents.

The case was exceptional, but the lesson was not lost on corporate America, according to Pooley. "People said, 'Oh my God, you can have a product line shut down because of these rights.' As there started to be more of this kind of litigation, which people also pegged to the founding of the Federal Circuit, we had a shift in how those cases were handled as the work expanded to match the exposure involved."

The cost of defending patent cases and the underlying fear of losing them also helped to drive up settlement values, as did lawyers' realization that juries tended to be pro-patent, a reversal of the common wisdom that had prevailed previously. And, says Robert Colwell, a partner at **Kilpatrick Townsend & Stockton LLP** in Palo Alto, Calif., as the CAFC kept eliminating frivolous defenses to claims of patent infringement, companies started to accumulate more patents.

They also became more aggressive about maximizing the value of the patents they already owned. Two companies in particular led the way. By the mid-'80s, prices for memory chips were crashing, as Japanese and South Korean companies produced them cheaply. Texas Instruments responded by suing the major producers and cutting rich licensing deals with them.

While the cross-licensing agreements of the '60s and '70s gave companies access to one another's technology, TI's licensing program of the '80s allowed it to wring billions of dollars of revenue out of patents on obsolescent technology.

IBM Corp. saw the same opportunity when personal-computer clones began to appear in the early '80s. Most clone companies didn't have any patents and weren't inventing anything, says Robert Barr, the executive director of the Berkeley Center for Law and Technology at the University of California, Berkeley and formerly worldwide patent counsel for **Cisco Systems Inc.**, though the clone licenses included a clause giving IBM the right to license any patents that it wanted from the clone. After the success of the clone-licensing campaign, IBM expanded its licensing efforts to include other, more innovative technology companies, and they reduced their licensing fees for a cross-license to pending or issued patents. That further encouraged other tech companies to build their own patent portfolios and, in some cases, eventually adopt similar licensing programs.

The software industry didn't feel the effects of the CAFC until the mid-'90s. In the 1972 case *Gottschalk v. Benson*, the Supreme Court seemed to suggest that software wasn't patentable, a stance the court softened in the 1981 case *Diamond v. Diehr*, which held that a computer program used to execute a physical process is patentable. The CAFC extended *Diamond v. Diehr* in the 1994 case *In re Alappat*, which held that a novel algorithm combined with a trivial physical step was enough to justify patentability. That same year, Microsoft lost a patent infringement suit to Stac Electronics and settled the case by investing \$40 million in the data storage company and paying it \$43 million in royalties on its patents. By 1998 the CAFC had abandoned the requirement of a physical step in *State Street Bank and Trust Co. v. Signature Financial Group Inc.*, in which the court held that software encoding a business method is patentable.

This about-face displeased much of the software world. Developers embraced a collaborative ethos, and they were therefore suspicious of patent law, a distrust that remains. Software companies used copyright and trade secret to protect their products and tended to get rid of outdated versions of software programs, which made them vulnerable to lawsuits from inventors who had patented the use of software to affect various processes because companies accused of infringing couldn't show that they had relied on practices that in fact preceded the issuance of the allegedly infringed patent.

In the mid-'90s, software companies such as Cisco and **Oracle Corp.** started patent programs. Daniel Cooperman, Oracle's general counsel from 1997 to 2007 and now of counsel at **Bingham McCutchen LLP** in Palo Alto, notes that the company didn't even have a patent lawyer until the mid-'90s. "Other than IBM and Microsoft, few software companies had patent portfolios in the '90s," he says. "The problem initially was to get software engineers to respect the importance of patents. Ultimately, patent prosecution became imperative, as you needed to have a currency for trading in the event of a patent dispute, much like what occurred in the semiconductor space years before."

Companies such as Cisco and Oracle developed that currency internally by canvassing their own engineers for potentially patentable inventions. They might also gain patents when they acquired other companies, though the perceived need to acquire patents did not generally drive deals. The greater a company's revenue in a sector, the greater its vulnerability to being sued and the more acute its need for patents. "One way to think about how many patents you need is to look at how many patents companies with similar revenues have," Barr says. "I looked at reaching at least a filing rate per year that met what other companies were doing adjusted for revenue." At Cisco, that meant filing 1,000 patent applications a year by 2005.

Around the same time, even the Valley's most successful semiconductor company realized that it too needed more patents, many in areas beyond its core focus. Unable to look to its own engineers, Intel bought the IP it needed. "**At Intel the eureka moment on patents was AT&T's showing up and demanding we take a license and pay them a 'balancing payment,'**" says Ron Epstein, who was director of licensing at Intel in the 1990s and now runs his own patent brokerage, Epicenter IP Group LLC. "Intel was and is a very inventive company, but we did not have many communications patents that might be relevant to AT&T, so we bought some. The effect on the negotiation was immediate. Today almost everyone in tech buys patents to create a portfolio for cross-licensing," a trend that has accelerated dramatically in the past five years.

Tech companies' desire to build patent portfolios coincided with the Internet boom of the late '90s and encouraged venture capitalists to look more closely at their portfolio companies' intellectual property. When the bubble burst, patents were the only asset that many failed startups had, which furnished supply at a time when demand for technology patents remained high and companies such as Intel and Cisco had staffs devoted to analyzing and purchasing them.

The combination of more patents and identifiable groups of buyers and sellers has attracted aspiring middlemen, the most controversial of whom is Nathan Myhrvold, the former chief technology officer at Microsoft. In 2000 he and Edward Jung, a Microsoft alumnus with expertise in Web-related technology, formed **Intellectual Ventures Management LLC**. Their plan was to buy patents from individual inventors, small companies and larger organizations that were restructuring their patent portfolios and then license the intellectual property they acquired. (IV also funds its own research and has been awarded about 1,000 patents, a small fraction of the 30,000 or so it owns.) By 2009, IV had raised about \$5 billion from potential licensees and more traditional institutional investors.

Intellectual Ventures' critics deride it as a patent troll, an opportunistic entity that creates nothing of value and uses the veiled threat of litigation to extract money from real companies. IV volleys back that it saves licensees time and money and reduces litigation exposure by offering a pool of patents relevant for a given area. IV executives have steadfastly declared that the firm sees litigation as a wasteful, inefficient way to enforce patents, but it has sold patents to entities that have then sued to enforce them and late last year filed its first patent infringement lawsuits.

IV has attracted imitators. **RPX Corp.**, which went public earlier this year, also aims to generate revenue by licensing purchased technology but has promised that it will never sue to enforce a patent. In its registration statement, RPX identified a number of competitors, including **Acacia Research Corp., Altitude Capital Partners, Coller IP Management, Millennium Partners** and **Rembrandt IP Management LLC**.

Says RPX CEO John Amster, "The advent of the Internet and connectivity of devices means that more businesses are incorporating more technologies. Patents become a more attractive avenue to invest in when the perception is that more entities are exposed to them."

The more polite term for "troll" is "nonpracticing entity," one that owns intellectual property that it does not itself commercialize. But trolls are only one kind of NPE, and there is an important distinction between entities that acquire patents on the open market to assert or license them and those that develop their own technology and then license it, says Thomas Lavelle, the general counsel at **Rambus Inc.**, which develops technologies used in digital electronics products but does not manufacture the devices themselves.

Lavelle says that companies with broad patent portfolios such as Rambus, **Qualcomm Inc.**, **Tessera Technologies Inc.** and IBM may license patents even in areas where they do not sell products.

Because NPEs don't have products, they can't be sued for patent infringement, and the companies they sue can't settle by agreeing to cross-license. "Not having a business to protect allows you to be much more aggressive" in enforcing your own patents, Barr says. According to Edward Reines, a partner and patent litigator at **Weil, Gotshal & Manges LLP** in Redwood Shores, Calif., almost all the patent litigation before 2000 was brought by competitors; now, a much higher percentage is brought by NPEs.

Many of the suits have come in the U.S. District Court for the Eastern District of Texas. Nominated to the court by then-President Bill Clinton in 1999, T. John Ward had just handled a patent case as a lawyer in private practice and saw no reason why he couldn't oversee such cases as a judge. Ward had an aggressive view of his court's jurisdiction, brought cases to trial quickly and was located in a region well known for the willingness of its juries to make large damages awards.

Ward retired on Oct. 1 and has joined his son T. John Ward Jr. in private practice in Longview, Texas. His departure has thrown the jurisdiction's future as a hotbed of patent litigation into doubt along with federal rulings meant to rein in Ward and his colleagues and a larger docket of cases that has significantly lengthened the time it takes to get to trial in the jurisdiction.

Perhaps the largest award in a patent suit came in a case brought in the U.S. District Court for the Eastern District of Virginia rather than in Texas. NTP Inc. sued Research In Motion, manufacturer of the BlackBerry, for infringing NTP's patents on wireless e-mail. A jury found that RIM had willfully infringed NTP's patents, and James Spencer, the judge in the case, issued an injunction that would have shut down the BlackBerry system. Instead, in 2006 RIM paid \$613 million to settle the suit.

The U.S. Supreme Court declined to hear an appeal in the case, but after years of deferring to the CAFC, the high court waded into patent law in 2006 with a decision in *eBay Inc. v. MercExchange LLC* that held that a lower-court judge should not automatically issue an injunction upon finding infringement. That decision and subsequent rulings reflected a desire to assert control over the lower court as well as concern about the perceived anti-business effect of the trend in patent law.

But the Supreme Court's renewed interest in patent law and its frequent dissatisfaction with the CAFC have generated little specific guidance for the lower court on the question of patentable subject matter. "For the most part, what the Supreme Court has said to the Court of Appeals for the Federal Circuit is, 'You are wrong,'" says Robin Feldman, a professor specializing in intellectual property at the University of California's Hastings College of Law.

The person tasked with interpreting the high court's vague sense of displeasure is Randall Rader, who was appointed to the CAFC in 1990 and named chief judge last year. Barr expects that Rader will continue the stricter scrutiny of damages awards that his predecessor, Paul Michel, initiated at the end of his term.

That's important because large damages awards help drive litigation and, indirectly, fuel the market for patents even as they seem increasingly at odds with the real value of a single patent or a handful of them in a device that incorporates thousands of patents.

According to Ronald Laurie, a valuation consultant in Palo Alto and a former partner at Weil and **Skadden, Arps, Slate, Meagher & Flom LLP**, current methods of calculating damages for patent infringement "tend to overcompensate patent owners" because they're based on a percentage of the total market value of the product or service that contains the patent rather than on the incremental value that the patent adds to the product.

Some members of the tech community hoped federal patent reform legislation would address this issue, but that hope went unfulfilled. While many tech companies lobbied for a law that would curb what they see as the system's excesses, biotechnology and pharmaceutical companies were unyielding in their support of a regime that strongly upholds patent rights.

"They gutted that cat," says William Fenwick, a name partner at **Fenwick & West LLP** in Mountain View, Calif., of the drug lobby's effect on the bill that President Obama signed into law in September. The Leahy-Smith America Invents Act harmonizes the U.S. patent system with those in the rest of the world by changing U.S. law so that a patent will be awarded to the inventor who first files his application with the PTO rather than to the one who invents first, a change that has modest practical importance but does little to address concerns about the way patents are granted and enforced. Any reform in the system will have to be done by courts.

But how much reform is necessary, or even possible? No patent regime applicable to two industries as different as technology and pharma will be perfect, and much of the current upheaval in the market stems from the rapid change in smartphones, which is common in sectors undergoing dramatic change.

Epstein argues that the patent market performs a valuable function by encouraging innovation by individuals and smaller companies in an era when many larger entities have slashed their research budgets. "It's where the research in research and development is often done today," he says.

James Brelsford, the general counsel at **SanDisk Corp.**, doesn't go that far, but he also doesn't believe the current system is in disarray. "I'm on both sides of the street, and I tend to think it's not that broken," he says, though he acknowledges "the fear that greater liquidity in patents makes a manageable litigation threat harder and harder to manage."

Separating Silicon Valley into good and evil, "real business" and NPE, is simplistic, argues Rambus' Lavelle. Almost all Silicon Valley companies focus on developing software or product design and manufacture their physical products overseas, he says. Developing intellectual property is the essence of their business, and they have to be able to protect what they create. "The world is

moving to a continuum of models," says Lavelle, "including the pure IP folks at one end and the pure manufacture-but-don't-design model at the other. Most everyone else is somewhere in between."

Focusing on the excesses in the patent system obscures how the separation of manufacturing from product development has inevitably made intellectual property a much more liquid asset -- and, just as inevitably, increased the importance of lawyers and valuation experts in a region that still doesn't know quite what to do with them.