

The Silicon Flatirons Roundtable on Entrepreneurship, Innovation and Public Policy

Report No. 2

Topic: *Rethinking Software Patents*
Discussion held on April 20, 2007

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On April 20, 2007, the University of Colorado School of Law's Silicon Flatirons Program hosted a roundtable entitled, *Rethinking Software Patents*. This roundtable is the second in the *Entrepreneurship, Innovation, and Public Policy Roundtable Series*, co-sponsored by local venture capitalist Brad Feld, Managing Director of *Foundry Group*. Reports on each discussion in the *Roundtable Series* are available online at <http://silicon-flatirons.org/>. University of Colorado School of Law Associate Professor Paul Ohm moderated the discussion, and a full list of participants is attached as Appendix A.

The discussion was timely, as the role of patents in general and software patents in particular have become increasingly controversial. In the face of skyrocketing costs of patent litigation and the increasing use of patent lawsuits as a strategic tool to extract royalties (as opposed to protect existing products),¹ both Congress and the Supreme Court are eyeing avenues for possible reform. Notably, even patent examiners describe the current situation as problematic, with few commentators defending either the speed or effectiveness of the Patent's Office ability to sort the wheat from the chaff. Indeed, patent examiners themselves have explained that, with significant patent reforms, they will be increasingly unable to "provide the quality of examination the peoples of the world deserve" and that "[a]n increase in patent applications does not necessarily represent an increase in technological progress[.]"² Against this backdrop, Silicon Flatirons brought together a select group of attorneys, engineers, venture capitalists, and professors to identify areas of consensus as well as those requiring further exploration.

The Roundtable began with a short presentation from Pamela Samuelson, who holds a joint appointment with the University of California Berkeley's School of Information and Boalt Hall School of Law and is widely recognized as a pioneer in intellectual property and information policy.³ She began by noting that controversy has surrounded software patents

¹ See e.g. Nathan Vardi, *Patent Pirates*, Forbes.com (May 7, 2007), available at http://www.forbes.com/free_forbes/2007/0507/044.html.

² The Bureau of National Affairs, *Patent Examiners' Unions Warn of Global Decline in Patent Quality*, BNA.com, Apr. 20, 2007, available at <http://pubs.bna.com/ip/bna/PTC.NSF/eh/a0b4g7y6q9>, quoting *Open Letter From a Coalition of Patent Examiner Representatives* (Apr. 13, 2007), available at <http://pub.bna.com/ptcj/POPALetterApr13.pdf>.

³ Samuelson has written about this subject from several different points of view. In 1990, she wrote a paper entitled *Benson Revisited: the Case Against Patent Protection for Algorithms and Other Computer Program-Related Inventions* (39 Emory L.J. 1025 (Fall, 1990)). In *Benson Revisited*, she argues against Professor Donald Chisum's argument that *Gottschalk v. Benson* (409 U.S. 63 (1972)) should be overruled. See Donald S. Chisum, *The Patentability of*

for more than forty years. Samuelson observed that the sustained controversy itself suggests flaws in the software patenting system. Samuelson remarked, “the United States Patent and Trademark Office did not know what to do with [software patents] in the 1960s, and so many years later the same is still true.” Samuelson is now examining software patents under a grant by the Kauffmann Foundation. Specifically, she is looking at how software patents affect entrepreneurs. From the standpoint of entrepreneurs, Samuelson advocates the following four reforms: (1) a higher standard for “invention”, (2) meaningful and low cost post-grant review, (3) damages, rather than injunctive relief, particularly for components like interfaces, and (4) proportionality of damages.

After this background, participants explored several important aspects of the issue of software patent reform. Participants noted that the patent system is in many ways ill equipped to handle increasingly complex systems. Invoking a widely noticed blog post which he had authored (which followed an earlier Silicon Flatirons conference), Brad Feld suggested that the best of all worlds would be to determine that software inventions should be unpatentable.⁴ Other participants noted the difficult feasibility questions arising from this strategy, including that anything done in software could also be done in hardware. The discussion then turned to economic implications, and the proper economic lens through which the issue should be considered. Finally, participants discussed potential solutions to the problems plaguing the patent system and the viability of those solutions.

Nature of the Problem

Wrong System

Moderator Paul Ohm asked participants to begin by deciding whether the current software patenting system in fact is flawed. Not one to mince words, Brad Feld answered, “software patents are evil things and should go away.” Beyond their sheer evilness, participants identified several problems with software patents. To begin, it is useful to consider the difference between copyright and patent. The United States Patent and Trademark Office website describes a patent as “the grant of a property right to the inventor What is granted is not the right to make, use, offer for sale, sell or import, but the right to exclude others from making, using, offering for sale, selling or importing the invention.”⁵ Copyright, on the other hand, is described as protecting “the form of expression rather than the subject

Algorithms, 47 U. Pitt. L. Rev. 959, 971 (1986). Samuelson instead asserts that there was a sound basis in existing caselaw for keeping patents out of the software arena. Then, four years after *Benson Revisited*, Samuelson co-authored *A Manifesto Concerning the Legal Protection of Computer Programs*, which approached the issue from another perspective. In *A Manifesto*, she examined the characteristics of the patent system, and software patents, concluding that there was a substantial mismatch resulting in the patent regime’s inability to provide effective remedies in the software context. Pamela Samuelson, Randall Davis, Mitchell D. Kapur & J.H. Reichman, *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 Colum. L. Rev. 2308 (Dec. 1994).

⁴ See Feld Thoughts, *Abolish Software Patents*, at http://www.feld.com/blog/archives/2006/04/abolish_softwar.html.

⁵ United States Patent and Trademark Office, *What is a Patent?*, last visited Oct. 16, 2007, at <http://www.uspto.gov/web/offices/pac/doc/general/#patent>.

matter of the writing.”⁶ Patenting software seems contrary to this foundational distinction. Feld referenced the work of his Doctoral Advisor, Eric von Hippel, who is famous for saying that innovation comes from users, not manufacturers.⁷ Feld recalled hearing Von Hippel muse, “I get the notion that you can patent a machine, and I get the notion that you can protect innovation, but the whole reason copyright exists is so that you can’t patent your book, and you can’t patent a string of words.”

To remove software inventions from the patent system, it is critical to distinguish between the form of expression and subject matter of writing. On this point, Phil Weiser, the Executive Director of the Silicon Flatirons Program, noted that part of the difficulty is that it is not always easy to differentiate between software and hardware. Specifically, Weiser noted the concern that anything you can do in software, you could also do (and patent) in hardware. Several panelists had reactions to this concern.

Lee Zieroth, recalled experiences he had with the Office of Technology and Licensing at Stanford University, including meeting with Whitfield Diffie and Martin Hellman about patenting their idea to secure information with public and private keys. Zieroth noted that even though he thought it would be hard to get a software patent, he could use method claims with a reduction to practice to get protection of the fundamental ideas. Zieroth’s conclusion was that when it comes to the distinction between hardware and software, one can “get wrapped around the axel fairly quickly.” Herb Fenster added that the patent system was not built to make such distinctions, as it was predicated on patenting buggy whips, not highly complex systems. Thus, to Fenster, drawing lines between hardware and software is a little bit like “rearranging chairs on the head of a pin.”

Other participants did not see the possibility of a hardware substitute as a credible barrier to software patent reform. According to Brad Feld, the economic cost of deploying something in hardware far exceeds the cost of deploying it in software. Furthermore, Feld noted the differences in economic cycles for software versus hardware. Similarly, Pamela Samuelson noted that the distinction would not matter if there were a strong policy statement against patents for software. Then, even in the face of artful drafting, courts could enforce the policy of not patenting software.

Intense Proliferation

Beyond concerns specifically related to patent doctrine, there are concerns that the sheer volume of software patents has become unmanageable. Although a vast amount of work is being done, some contend that only a small portion relates to the foundational goal of the patent system: encouraging innovation and disclosure. In 2004, Bill Gates stated an aggressive goal for Microsoft: to apply for 3,000 patents per year.⁸ Similarly, one participant noted that while he was working as an engineer for a major technology company, licensing

⁶ United States Patent and Trademark Office, *What is a Copyright?*, last visited Aug. 15, 2007, at <http://www.uspto.gov/web/offices/pac/doc/general/index.html#copyright>.

⁷ See ERIC VON HIPPEL, *DEMOCRATIZING INNOVATION* (2005) (<http://web.mit.edu/evhippel/www/democ.htm>).

⁸ Martin LaMonica, *Gates calls for more software research*, News.com, Aug. 2, 2004, available at http://news.zdnet.com/2100-3513_22-5293764.html.

negotiations were often reduced to comparing stacks of patents – the company with the smallest stack paid. Thus, to some extent, firms must rely on patents in order to remain competitive.⁹

Economic Considerations

After discussing the legal and marketplace landscape, the discussion turned to economic considerations. Specifically, participants discussed the extent to which the current system is effective at encouraging innovation. Keith Maskus, Chair of the University of Colorado's Economics department, noted that economic theory alone could not answer this concern given the lack of an alternative system for comparison. Maskus reiterated the concern that an increased number of patents do not necessarily suggest increased innovation. Significantly, Maskus noted the lack of evidence of increased investment in Research and Development. However, as noted above, the situation begins to resemble a prisoner's dilemma; for Maskus, the issue is therefore how to incentivize individual entities to "disarm".

For others, the issue is not whether software patents increase or decrease innovation, but rather the effect of the current system on transfer costs. According to Brad Feld, transfer costs are the key concern for entrepreneurs and investors. The problem with the current system is then that a non-innovative company can cause an innovative company to use its budget to defend against frivolous patent suits, rather than on innovation. Maskus noted that outside the realm of software, evidence suggests that the patent system reduces transfer costs, but the group consensus seemed to be that software requires a separate analysis.

Shane Greenstein, a professor with Northwestern University's Kellogg School of Management discussed the theoretical tradeoff of a short-term monopoly in exchange for disclosure changes in the context of the software industry. Specifically, in the context of software, the right to exclusivity may well interfere with coordination and, moreover, may not result in much disclosure (due to the limited information revealed in software patent applications). Notably, he explained that, more so than in many other industries, software companies invest significant sums of money in coordination far in advance of deployment. In that context, temporary exclusionary rights create an extraordinary hold-up opportunity and may well be used for strategic purposes (e.g., to extract royalties) to a much greater extent than to encourage innovation.

⁹ Henning Kagermann, the boss of SAP, a large German software firm, described the situation (with exasperation): "These are the rules of the game!" *The Arms Race*, *The Economist*, Oct. 22, 2005.

Potential Solutions

Trade Secrets

The group discussed trade secrets as a possible solution to the problems associated with the current software patents situation. Participants noted that there is a lot of innovation in the clothing and food industries, even without patents. Furthermore, with trade secrets, there is beauty in simplicity -- unlike the complex analysis involved in a patent suit, cases involving trade secrets are relatively easy for juries to understand.

Some participants suggested that this approach had its limitations as well, highlighting the drawbacks of using trade secrets to protect intellectual property. Naren Tayal, managing partner of Tayal Ventures, said that in his work overseas, he has seen a reliance on trade secrets function as a real barrier to entry. Tayal noted, “if you haven’t put up a flag, no one can shoot at it.” While this might be good for individual competitors, it could be bad for competition in general. Another possible problem with increased reliance on trade secrets is the difficulty of licensing. According to Shane Greenstein, in an environment where trade secrets proliferate, the only way for a large company to obtain valuable software would be to purchase the smaller firm.¹⁰

Other participants did not view this as a significant issue. Brad Feld said that in his experience most economic outcomes in the software industry are buyout situations. According to Feld, the critical issues relate to the relevant distribution channels, complementary products, and other time-to-market concerns, all of which are far more likely to drive buyouts than intellectual property protection issues. On Feld’s view, the primary role of intellectual property law is create concerns over the validity of patents, making it difficult to bound liability in buyout situations. Consequently, entrepreneurs are faced with an unnatural risk of being left uncapped as to intellectual property, allowing lawyers to extract money that has nothing to do with core innovation. Even worse, according to Feld, many people are “opportunistically taking advantage of the friction and fundamental flaws in the patent system as it pertains to software.” In particular, rather than contributing to innovation, they make money off of the system by looking for opportunities to use patents strategically (as leverage to extort royalties) rather than as a motivator for innovation.

Potential System Reform

The roundtable concluded with a discussion of how to improve the current system, including an examination of the Peer to Patent initiative and the USPTO’s consideration

¹⁰ Famously, Nobel Laureate Kenneth Arrow identified the critical limitation of trade secret protection as that, without disclosing the information, the innovator cannot receive licensing revenue or credit for the invention; on the other hand, once the discovery is disclosed, the invention—absent legal protection—loses its value. See Kenneth J. Arrow, *Economic Welfare and The Allocation of Resources for Invention*, available at <http://www.rand.org/pubs/papers/2006/P1856.pdf>.

thereof.¹¹ Just recently, the USPTO decided to implement a pilot program allowing members of the public to view patent applications online, as well as to suggest and vote for relevant prior art.¹² Participants were generally supportive of this step, noting that collaboration and fresh ideas are imperative to the success of any path to reform. However, many participants agreed that the Peer to Patent program does not go far enough, and that incremental reform is less than ideal. Brad Feld noted the fundamental problem of further developing a legal infrastructure around a granted property right lacking validity. The consensus seemed to be that professors, entrepreneurs, venture capitalists, and lawyers need to work together to think of how to effect comprehensive change in the global environment.

Looking at the political realities, the participants acknowledged that moving any patent reform agenda through Congress would face formidable opposition. Notably, the conventional wisdom is that wholesale reform is impossible given the lobbying power of pharmaceutical and life sciences companies, and their interest in keeping a single, unified patent system. As to the suggestion of taking software out of the patent system entirely, Danny Sherwinter, a third year law student now practicing patent law at Townsend, Townsend & Crew, noted that this strategy would raise the issue of what to do about existing software patents. The group acknowledged that there is no easy solution to this problem.

Pamela Samuelson echoed the concerns that abolishing software patents might be unrealistic, though admittedly appealing. Samuelson suggested that lawyers, more than possibly any other group, have a real incentive to keep the current system in place. However, she does not see that as a complete bar to reform. Rather, she suggested that an increased invention standard, proportional damages, and meaningful post-grant review would be meaningful steps toward reforming the system. Wayne Stacy, a partner with Cooley Godward Kronish LLP, agreed with Samuelson. Stacy noted that although some software patents are “bad”, others are extremely valuable, as in the case of public and private keys. Stacy suggested that a major improvement to the system would be post-grant procedures that allow experts, rather than lay people, to consider validity. On the positive side, Samuelson noted that recent Supreme Court cases have sought to address some of the patent system’s excesses and that there were thoughtful reform measures moving through Congress.

Conclusion

The group easily came to the consensus that the current patent system is deeply flawed and presents significant hazards for entrepreneurs. Less clear was the recommended path to reform. In general, the participants embraced measures to improve the quality of patent examinations, such as the Peer to Patent initiative, and concurred that significant patent reform was warranted. There was far less agreement, however, on the issue of whether software patents should be abolished entirely.

¹¹ Peer to Patent was created by New York Law School professor Beth Simone Noveck. It builds on the idea that the patent office needs to harness the collective knowledge of practitioners and researchers within particular fields. *A Patent Improvement*, *The Economist* (Sept. 8, 2007).

¹² The scheme will also allow for participants and examiners to provide feedback to improve the system. *Id.*

ATTACHMENT A
LIST OF PARTICIPANTS AT April 20, 2007 ROUNDTABLE
(participants listed alphabetically by last name)

James Alleman, *University of Colorado* – Professor
David Allen, *University of Colorado Tech Transfer Office* – Associate Vice President
Scott M. Alter, *Faegre & Benson LLP* – Partner
Mike Boucher, *Dakota Legal Software, Inc.* – Founder
Tom Croft, *Cooley Godward Kronish LLP* – Associate
James Crowe, *University of Colorado School of Law, Class of 2007*
Brad Feld, *Foundry Group & Mobius Venture Capital*—Managing Director
Herbert Fenster, *McKenna Long & Aldridge LLP* – Partner
Benjamin S. Fernandez, *Faegre & Benson LLP* – Associate
Brian Geoghegan, *University of Colorado School of Law, Class of 2008*
Shane Greenstein, *Northwestern University – Kellogg School of Management* – Professor
Jason Haislmaier, *Holme Roberts & Owen LLP* – Partner
Steve Halstedt, *Centennial Ventures* – Managing Director and Co-founder
Richard Holzer, *Hensley Kim & Holzer, LLC* – Partner
David Huberman, *Webroot Software, Inc.* – Corporate Counsel
Paul Jerde, *University of Colorado, Leeds School of Business* – Professor and Director of the Deming Center
Laura Kornish, *University of Colorado, Leeds School of Business* – Assistant Professor
Tom Lookabaugh, *PolyCipher* – CEO
Ryan McIntyre, *Foundry Group* – Managing Director
Scott McDaniel, *SurveyGizmo* – Lead Designer
Keith Maskus, *University of Colorado* – Associate Dean for Social Sciences
Jason Mendelson, *Foundry Group* – Managing Director
Paul Ohm, *University of Colorado School of Law* – Professor
Pamela Samuelson, *University of California at Berkeley* – Richard M. Sherman Distinguished Professor of Law; Professor of Information Management; Chancellor's Professor; Director, Berkeley Center for Law & Technology
Kaleb Sieh, *University of Colorado School of Law, Class of 2009*
Daniel Sherwinter, *University of Colorado School of Law, Class of 2007*
Wayne Stacy, *Cooley Godward Kronish LLP* – Partner
Naren Tayal, *Tayal Ventures LLC* – Managing Partner
Jill Van Matre, *University of Colorado School of Law* – Silicon Flatirons Research Fellow
Mark Walker, *University of Colorado School of Law, Class of 2007*
Phil Weiser, *University of Colorado School of Law* – Professor and Executive Director of the Silicon Flatirons Program
Lee Zieroth, *CableLabs* – General Counsel