The Potential Impact of Recent Changes to the United States Patent System On Open Source Software Projects

By Landon Blake

Introduction

In this article we'll examine recent changes to the United States Patent System created by the legislation known as the "America Invests Act". After a brief discussion of how patents work we'll look at the problems with the previous United States patent system. We will then discuss how the America Invests Act attempted to solve these problems, and where it fell short. We will conclude with a brief discussion of how the changes to the patent system discussed in this article could potentially impact open source software projects. Most of the material researched and analyzed during the preparation of this article is from a series of articles on patents in the Economist Magazine. References to these articles are included at the end of this article.

What Are Patents?

We will begin our article with a simple definition of patents. [URL1]

A patent is provided by a government entity to an inventor. This patent is a form of intellectual property that typically allows the inventor to have the exclusive right to use, or license to others the right to use, their invention. Most patents are granted for a limited amount of time, after which others are allowed to freely use or build upon the invention.

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Why are patents important?

Patents are essentially a tradeoff between the inventor and society. Most patent systems attempt to balance the rights of the inventor to benefit financially from their invention with the

Intellectual Property Rights

The Inventor

Society

Disclosure of Invention
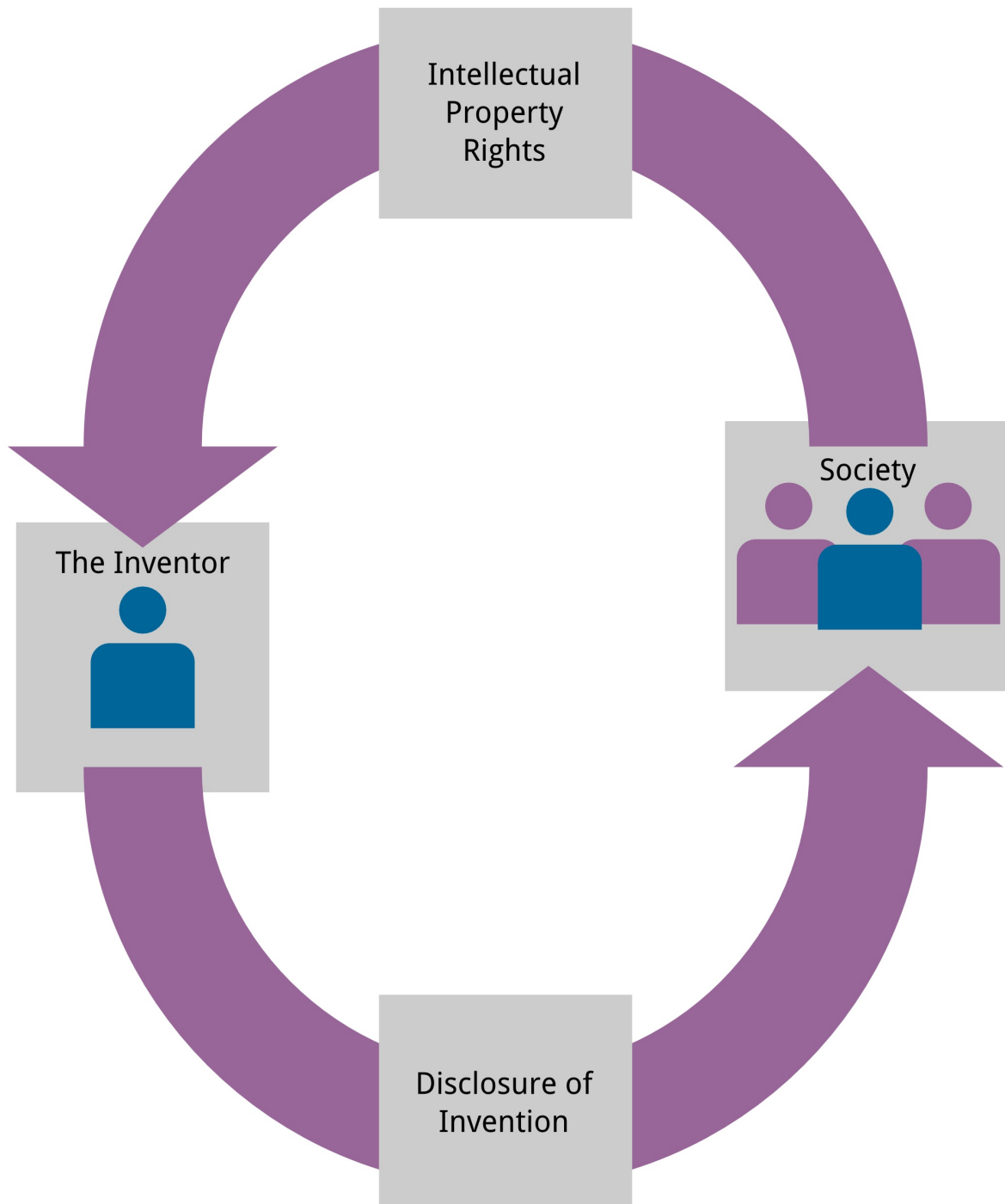
The Patent Tradeoff

benefits to society that come from disclosure of an invention. In a society without patents, inventors may have an incentive to keep their innovations a secret. Proponents of patents argue this slows down the pace of innovation as a whole. Proponents of patents also claim that investment in research and development by private companies would slow dramatically without a vigorous patent system which protects their investment and allows them to profit from the results of their research and development efforts. [URL2] [URL 3][URL4]

The Previous United States Patent System

For several years there has been strong debate about the effectiveness of the United States patent system. In the ideal situation, companies are granted patents with a narrow scope for truly genuine and unique inventions. (The Economist Magazine pointed to patents in the semiconductor and pharmaceutical industries as an example of this ideal situation. [URL 5]) Opponents of the previous United States patent system argue many patents were issued to companies for inventions that were neither unique nor genuine. These bad patents allow companies to disrupt the business operations of others in their industry. They can do this by threatening patent litigation or by squeezing them for licensing fees. Many agree that bad patents were frequently granted in the United States for business and software ideas that did not really represent true innovation. If these "bad patents" are broad in scope they can cost businesses billions of dollars. Ultimately these costs are passed onto the consumer. For example, a 2008 study revealed that public companies in America earned 4 billion dollars from patents in 1999, but spent 14 billion dollars on patent litigation costs.

The legal costs of patent disputes have ballooned.

The problems with the previous United States patent system resulted in a number of disturbing trends. Over time the number of disputed patents, average monetary awards in patent disputes, and legal costs of patent disputes have ballooned. [URL 6] The current patent system has also allowed the rise of patent trolls. Patent trolls are companies that buy patents from others, but who don't typically invest in research and development to create their own. They then profit from licensing the use of the technology

covered by their patents to other companies. If other companies are unwilling to pay these fees, the patent trolls will sue others for patent infringement to compel payment. This results in legitimate companies being shut down or being forced to pay license fees for a bogus patent that shouldn't have been issued in the first place. The problem with patent trolls is so bad it has generated wide media coverage. This American Life did an excellent story about patent trolls that included shadow offices in a small Texas town. [URL 7] The Amazon CEO also talked about the problem with software patents in a recent Wired Magazine interview. [URL 12] In the interview Jeff Bezos says he'd be willing to give up Amazon's 1-click patent for true software patent reform. (PacketVideo's claim against Spotify for a patent infringement for streaming music over the internet is one example of a patent troll shakedown. [URL 8])

Many technology companies now value quantity of patents over quality of patents.

These patent law suits result in patent wars, in which competing companies each try to acquire broad patents they can use to sue and counter sue. This sets up a scenario in which the only way to avoid patent litigation is a to become a player in the "mutually assured patent destruction" game. Google's recent purchase of Motorola Mobility for 12.5 billion dollars may be one example of a purchase made for defensive patents. Microsoft and Apple have recently sued smart phone makers using Google's Android Operating System. (This is a clear demonstration that legitimate businesses, not just patent trolls, are using patents to go after other businesses.) The purchase of Motorola Mobility would give Google and its business partners an armada of potentially 24,000 patents with which to fight these claims.

Many technology companies now value quantity of patents over quality of patents. They measure the effectiveness of a company's patent portfolio by determining how high the stack of printed patent documents is.

Of particular interest to the open source geospatial software community are the problems with software patents.

Of particular interest to the open source geospatial software community are the problems with software patents. Software patents are singled out as a prime example of the patent system gone wrong. [URL9] Opponents of the patent system argue that new discoveries and true innovation are not required to write most software. In addition, the complexity of software, in which thousands of independent sub-routines or functions are used by a single program, can make software patent review a real challenge.

The America Invents Act [URL10] was meant to fix these problems with the United States patent system.

The America Invents Act

The act was signed into law by Barack Obama on September 16, 2011. The lead sponsors of the act were Patrick Leahy and Lamar Smith.

The act made three important changes.

The act made three important changes. The most significant change was a move from a first-to-invent patent system to a first-to-file system. In the previous patent system you couldn't be

granted a patent if someone else invented it first. Now the patent is issued to the first person to file a patent application for the particular invention. This relieves the United States Patent Office from the burden of determining innovation timelines when evaluating a patent application. Instead, the patent office can focus on the merit of the actual patent application. It also means inventors no longer have the burden of proving they were the first to implement an idea. Critics of the new law also point out the first-to-file system favors large companies, with their army of patent lawyers. The new law included a "micro-entity" provision to address this criticism, but opponents say this provision was not sufficient. Critics also point out, under a first-to-file system, that companies may rush to file an invention before it is truly ready and merits protection. This could result in more bad patents being issued.

The law fell far short of what many patent reformers were hoping for.

A second change was the ability to challenge an existing patent at the United States Patent Office, instead of in the judicial system. The goal of this change was to provide an alternative,

and less expensive, method to challenge bogus or overly broad patents. A related change allows third parties to submit evidence of "prior art" when a patent is being challenged. Both of these changes were implemented to reduce the number of bad patents in the technology ecosystem. The law fell far short of what many patent reformers were hoping for. The law doesn't limit the damages that can be sought in patent infringement suits. It does not restrict the suit to the district where the alleged patent infringement occurred. (This allows patent trolls to shop for the judicial systems in which juries are known to be more sympathetic to companies making a claim of patent infringement.) Working demonstrations or actual prototypes of inventions are not required as part of the patent application.

Funding is another problem of the new law. It doesn't provide more funding to the United States Patent Office, although the duties of the office have now been expanded to include dispute resolution. (This may actually leave less time to review patent applications, the source of most of the problems with the previous patent system.) Business Insider reports the new law even "allows Congress to continue to treat the patent office as a petty cash drawer and divert applicant fees to other purposes". The law also did not limit the term of business and software patents.

The Potential Impacts on Open Source Software Projects

There is good news and bad news for open source software projects in these changes to the United States patent system. The new opportunity to challenge bogus patents at the United States Patent Office, with the ability for third parties to contribute to the challenge, is certainly good news. It is plausible that open source software projects will provide examples of prior art when a company challenges a bad patent in this way. (In fact, open source software projects could be a treasure trove of this prior art.) The move to a first-to-file system could prove to be bad news. There are many small companies who have embraced the use and development of open source software. In addition, the companies offering services around an open source software product are often small

businesses. A system that makes it harder for smaller organizations and companies to apply for patents would have a disproportionate impact on the open source community. If the first-to-file system does result in premature patent applications, that will also make the problem with patents worse, not better.

The worst news is the law's failure to address the biggest problems with the United States patent system. With the passage of the America Invents Act, it is not likely the patent system will be examined again by United States legislators for some time. The opportunity for real substantial reform of the patent system has been missed for the foreseeable future. Open source
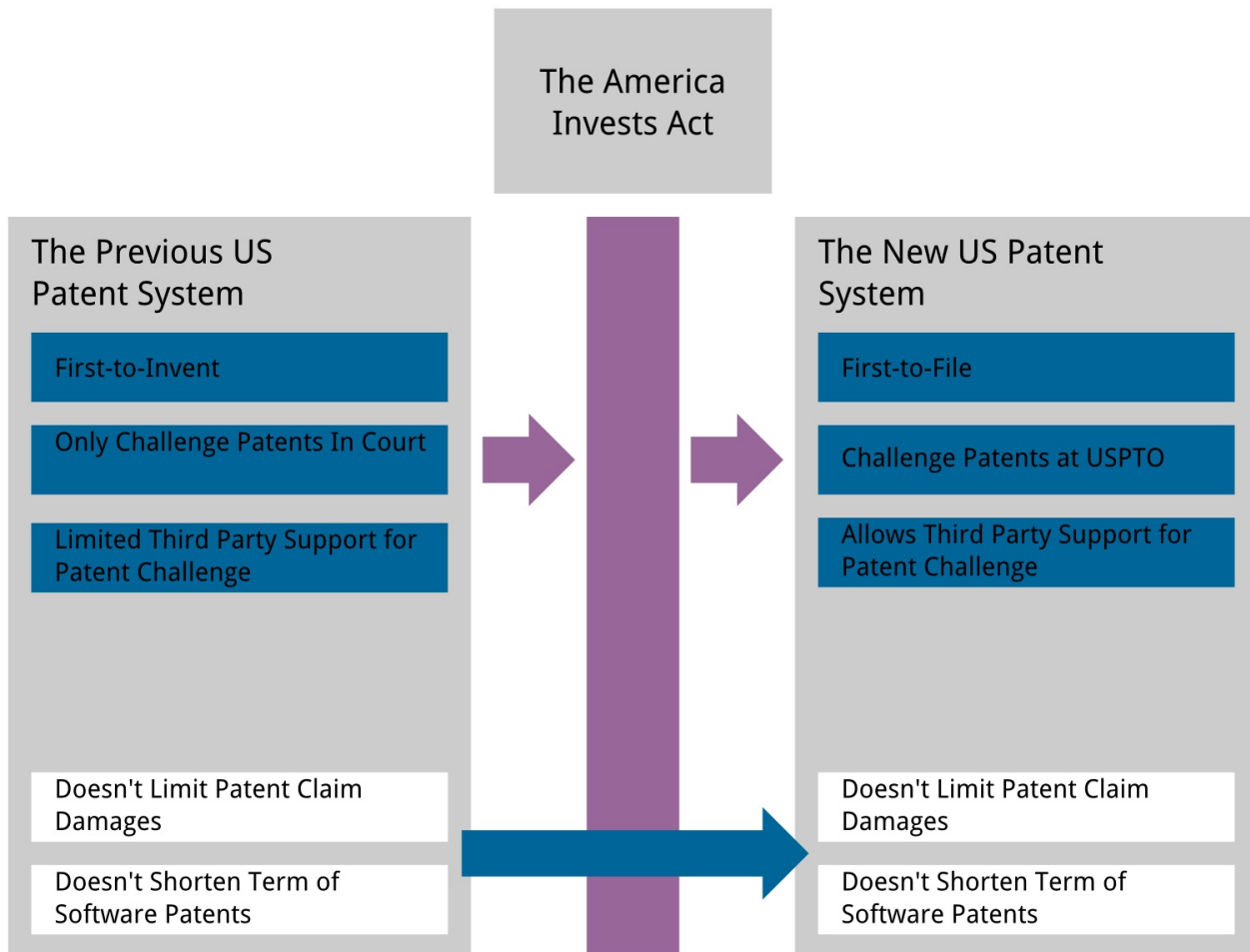
The America Invests Act

The Previous US Patent System

First-to-Invent

Only Challenge Patents In Court

Limited Third Party Support for Patent Challenge

Doesn't Limit Patent Claim Damages

Doesn't Shorten Term of Software Patents

The New US Patent System

First-to-File

Challenge Patents at USPTO

Allows Third Party Support for Patent Challenge

Doesn't Limit Patent Claim Damages

Doesn't Shorten Term of Software Patents

Diagram of "America Invests Act" Changes to the US Patent System

software projects are not immune to patent disputes. The example of claims over Android mentioned earlier in the article is proof of that. How long until a patent troll sues an open source project or companies related to it, for patent infringement? What effect would a patent claim against companies using popular open source software have? The recent changes to the patent system will not prevent this.

The topic of patent reform should be of special interest to programmers involved with open source geospatial software.

The topic of patent reform should be of special interest to programmers involved with open source geospatial software. Location related technology has been making huge leaps in the last couple of decades. This technology is creeping into many nooks and crannies of the average person's life.

The likelihood of including an algorithm, program feature, or technology in the geospatial arena into your open source software that is the subject of some ambiguous patent is higher than in many other technology fields. Because

geospatial software is undergoing rapid change, it is more likely to be the victim of patent disputes. It will be interesting to see how the recent changes to the United States patent system will impact future patent disputes over geospatial technology, and if these disputes suck open source software projects into their vortex.

Conclusion

The system used to issue and resolve disputes related to patents in the United States is clearly broken. The America Invests Act was an attempt to fix this broken system. This legislation made major changes to the patent system in the United States, including a move to a first-to-file system of issuing patents. However, the America Invests Act fell fall short of the comprehensive patent reform needed to improve innovation in America and remove bad patents as an expensive financial burden on American consumers and businesses. The shortcomings that remain in the United States patent system are especially apparent in the proliferation of bad software patents. In the future we should expect to see more patents, and patent-related disputes that impact open source software projects, including those related to geospatial technology.

Changes in the United States patent system made by the America Invests Act will not prevent these patent disputes.

Article Links

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http://en.wikipedia.org/wiki/Patent

URL 2: "Patents Against Prosperity", The Economist, August 1, 2011
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URL3: "Are Patent Problems Stifling US Innovation", Bloomberg Businessweek, April 8, 2009
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URL6: The Terrible Cost of Patents, Erick Schonfield, www.techcrunch.com, August 19, 2011
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URL7: This American Life Episode "When Patents Attack!"
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URL8: IT Business Edge Article "Packet Video Sues Spotify for Patent Infringement"
http://www.itbusinessedge.com/cm/community/news/vam/blog/packetvideo-sues-spotify-for-patent-infringement/?cs=48055

URL 9: Dan Lynch Blog Post "Why Software Patents Suck"
http://danlynch.org/blog/2009/08/patents/

URL10: Wikipedia Article on the America Invests Act
http://en.wikipedia.org/wiki/Leahy-Smith_America_Invents_Act

URL 11: Business Insider Article "3 Ways the New Patent Law Destroys Jobs"
http://articles.businessinsider.com/2011-09-21/strategy/30183613_1_patent-system-independent-inventors-patent-cases

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