Intellectual Property, Part I

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The first in a series of articles providing basic information on legal issues facing people and businesses that operate in computing-related markets focuses on protection and enforcement of intellectual property rights.

If you develop, sell, distribute, or otherwise profit from the computer hardware, software, networking, and social media markets, then you're likely to confront legal issues regularly, whether you want to or not.

This is the first in a series of articles providing basic information on legal issues facing people and businesses that operate in these markets. This article and the next will focus on protection and enforcement of intellectual property (IP) rights. Subsequent articles will address forming a business, raising funds, employment matters, and other issues relevant to both start-ups and established companies.

Be sure to check the IEEE Computer Society's website for the podcast that accompanies each article in this series (www.computer.org/portal/web/computingnow/computing-and-the-law).

TYPES OF INTELLECTUAL PROPERTY

In the US, patents, copyrights, trademarks, and trade secrets are the four main types of IP. For computer-based technologies, trade secrets were historically a key way to obtain IP protection. Protecting IP as a trade secret worked as long as it wasn't publicly disclosed.

Over time, however, copyrights and patents have been accepted as suitable ways to protect certain aspects of computer-based technologies. Other than protecting a product's name, trademarks don't play a significant role in the protection of computer-based technologies. They can, however, be used to protect Internet domain names.

Trade secrets

Trade secrets protect any process, technique, or information that produces or provides a competitive advantage as long as it remains secret. Reasonable efforts must be made to maintain secrecy. Typically, this means limiting access to the trade secret information and using confidentiality agreements when disclosure is necessary.

Unlike patents and copyrights, trade secret protection is continuous as long as the IP remains unknown to the public, and it can last indefinitely. An example of this is the formula for Coca-Cola. If secrecy is lost, for example, by employee theft or through careless disclosure, the protection could be immediately and irrevocably lost.

To take advantage of trade secrect protection in today's mass software market, developers have learned to sell or license only a portion of their software, such as the object code, while retaining other portions of the software such as the source code and other structural aspects, in secrecy. Trade secret laws don't protect against reverse engineering, however.

Trade secrets were particularly important in the early days of computers because courts were largely undecided about whether copyrights and patents were applicable, and because secrecy could be maintained throughout a small customer base. Today, however, copyrights and patents provide the majority of

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the IP protection for computer-based technologies.

Copyrights

Copyrights are a viable and widely used approach to protect IP rights of computer-based technologies, especially in software and other computer-executable code. Copyrights traditionally have protected literary works such as novels and other original expressions of an idea. Like literary works, software—including the code language itself; its structure, sequence, and organization; screen displays; and user interfaces—is ultimately an expression of an idea. Copyright protection generally lasts for the life of the author plus 70 years.

Mask works are similar to copyrights in that they protect semiconductor design attributes and functionalities. This typically relates to the interconnections between components on a semiconductor chip. The US instituted mask work protection to mitigate chip piracy.

The owner of a software copyright can prevent others from copying the code, as well as from making and selling works that are substantially similar to, or based on, the original code—so-called derivative works. Generally, it's possible to enhance a copyrighted computer program as long as the enhancement doesn't incorporate the underlying work in a concrete or permanent form.

One exception, however, is that an owner of an authorized copy of a copyrighted program can make an adaptation of the original code for his own use if doing so is essential for using the program on the computer—for example, to convert the program to another language needed to run it on the computer—or for archival purposes. As you can imagine, arguments over whether modifications or enhancements constitute derivative works are commonplace in copyright litigation.

The Fair Use Doctrine allows reasonable use of a copyrighted work by someone other than the owner for various purposes. These uses may infringe as a technical matter, but they are excused for the greater good. Examples of this include use of a copyrighted work for criticism, comment, news reporting, teaching, and research.

Courts look at various factors to determine whether a use is fair, including the purpose and character of the use, the nature of the copyrighted work, the amount used, and the effects of the use on the market value of the copyrighted work. In the computer software industry, courts have held that reverse engineering of object code to a human-readable code for purposes of examining its structure and making compatible program copies—for example, compatible videogames—isn't a fair use and thus, is an infringement.

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The Internet created many opportunities for inducing infringement of copyrighted software products and other digital media products such as music, movies, and games. The Digital Millennium Copyright Act provides a legal framework for copyright owners to manage their digital rights over the Internet and block others from copying or using their original works without authorization. For example, the DMCA encourages using digital watermarking and encryption methods. It makes it illegal to circumvent copyright owners' efforts to digitally control access of their copyrighted works. Circumvention may include descrambling, decrypting, or bypassing a technological measure that the copyright owner instituted to protect the work.

In 1989, the US joined the Berne Convention, which can provide a mechanism to address infringement of a US copyright that is occurring outside the US.

Patents

A patent is a property right that the government grants. Having a patent means that you can exclude others from making, selling, or otherwise using the patented invention. Generally, a process, machine, article of manufacture, or composition of matter that is novel, nonobvious, and useful can be patented. If another person makes, uses, or sells the patented invention, that person infringes the patent and can be sued.

Unlike with trade secrets or copyrights, a person who either independently arrives at and uses the patented invention or reverse engineers it can be an infringer. In this sense, patents provide the strongest type of protection for computer-based technologies. However, a patent generally lasts only for 20 years, which is less than the duration of copyright and trade secret protection. In addition, patents are by far the most expensive type of protection to obtain.

The computer industry has long relied on patents to protect computer hardware and other devices without much controversy. Software developers seeking patent protection for their code, however, have encountered varying degrees of resistance over the years. At this time, software is generally patentable. Indeed, in its 2010 decision in the *Bilski v. Kappos* case, the US Supreme Court didn't categorically exclude software as patentable subject matter (http://www.supremecourt.gov/opinions/09pdf/08-964.pdf).

AMERICA INVENTS ACT OF 2011

US President Barack Obama signed the America Invents Act of 2011 into

law on 16 September 2011. The AIA provides the most significant changes to the US patent system since 1952, including a transition to a first-inventor-to-file system and providing for a postgrant review process. The latter allows another person to challenge an issued patent on any grounds.

Importantly, the AIA doesn't change the law regarding the types of subject matter eligible for patenting and doesn't make any special provisions regarding software. The long-term effect of the AIA on software remains to be seen. Some opponents of the AIA suggest that patent protection for smaller start-up companies, including small software companies, will become more difficult. Others suggest that the AIA will benefit the software industry by making it easier to establish clear priority rights—thereby reducing costs—due to the change to the first-inventor-to-file system.

SOCIAL MEDIA ISSUES

Social media raises a host of legal issues including privacy concerns, defamation, and intellectual property violations. It's generally regarded as an online interaction of multiple individuals and the exchange of user-generated content and information. Social media includes social networking sites such as Facebook, Myspace, LinkedIn, Twitter, blogging sites, as well as social multimedia sites such as YouTube and Flickr. These sites now account for hundreds of millions of users, with continuing rapid growth. In the area of patents, courts have determined that postings on social media systems can, in some instances, be deemed "prior art" that invalidates a patent.

Social media also presents myriad copyright issues. A user who creates content—for example, on a Facebook page—owns the copyright to the content as long as it is original and satisfies the threshold of creativity. That is, social media users own a copyright to their own generated content; however, such content is subject to licenses giving the social media system permission to use that content.

In terms of protecting the copyrights of others from potentially infringing uses by social media users, social media systems generally have policies that allow them to remove content from its users' sites, which may infringe another's copyright or trademark. Given the infancy of social media and the meteoric increase in both the number of new users and the amount of content, many issues remain unexamined—for example, the definition of fair use of others' content.

If the owner of protected IP discovers infringement, many options are available to "enforce" that IP. Many of the actions—like litigation—can be expensive and time-consuming. Most are complex and require careful thought before one is selected.

In part II of this article, we will discuss enforcement methods.

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