Essay No. 3 ~ CLAIMING YOUR INTELLECTUAL PROPERTY RIGHTS IN SOFTWARE INVENTIONS[1] Does software have sufficient utility for patenting?

Introduction and background

Intellectual property rights in inventions that include a programmed computer may be protected in at least three ways. An invention may be guarded as a trade secret; or, if the invention involves software, the copyrights in the authorship of the program may be registered in the Library of Congress of the U. S.; or if the invention has utility and is novel and not obvious, the invention may be disclosed in an application for patent submitted to the U. S. Patent and Trademark Office.

A computer is a general purpose machine that is configured to respond to a sequence of program instructions by executing the instructions in order, to perform logical operations such as calculations and comparisons on data provided to the computer.

Data is encoded information – typically text or images – that is reduced, i.e., digitized, to binary form. The computer program instructions are likewise expressed in binary encoded form in a format known as machine language or machine code. When a program is created, this expression of authorship is written in human-readable language called source code. The source code is then converted to machine or "object" code in an assembler or converter for use by the computer.

Computers are extremely versatile devices that are susceptible to an almost limitless variety of ways to configure them for a particular purpose. Invention may be called into play to conceive a solution to a particular problem. Sometimes the solution resides in the operating program; other times the solution is a unique combination of the structural elements of the computer, i.e., the architecture of the computer. In still other forms, the solution resides in the combination of the software and the hardware it controls. Inventive combinations may also exist in processes that are governed by a programmed computer.

IP Protection Regimes

Trade secrets consist of information that its owner decides to hold privately, taking steps to ensure that it does not become public, thus preserving a competitive advantage in productivity, operating costs, or product performance. Software programs or operating processes are typical examples which, if kept secret, are less likely to be copied or reverse engineered.

Copyright applies to works of authorship fixed in a medium of expression. In addition to including a statement of copyright ownership in the source code such as: © 2017 John Doe, All Rights Reserved, the copyright may be registered by application to the Library of Congress. It is also recommended that, unless maintained as a trade secret, the copyright in software be registered. Typically, software is registered as an unpublished work by submitting a limited portion of its source code with the application.

Patent protection may be obtained for inventions – ideas having utility – by disclosing details of the invention in the form of an application for patent to the U. S. Patent and Trademark

[1] The sole purpose of this article is to provide general information. It should not be relied on for legal advice. Readers with specific questions should confer with their independent legal counsel.

Office. The application must contain full disclosure of the invention and how to build and use it. In return for such disclosure, a patent may be granted to the applicant. A patent grants to the applicant the right, for a limited time, to exclude another person or entity from the use of the invention defined in the patent claims.

It should be clear from the above that inventions involving computers – especially those where the software is created to organize the operations of the computer in a specific new way – are susceptible to all three kinds of protection regimes. Trade secret rights are typically creatures of State law enforceable in State Court. Registration of copyright and grant of a patent both enable access to the Federal Court system to enforce the rights set forth therein.

Inventions in General

Invention is a form of mental or intellectual activity, sometimes accidental but often intentional, which gives rise to a new idea for solving a problem. If the inventor embodies the idea in creating a software program – it becomes a work of authorship. If the idea is embodied in a machine, article of manufacture, composition of matter, or a process – it becomes a patentable idea if it meets certain criteria for utility, novelty, and nonobviousness under the Patent Statute.

One aspect of inventions is that they almost always involve combinations of elements (components) or process steps. Some inventions involve combinations of elements *and* process steps. If the combination has utility, is novel in view of relevant prior art, and would not be obvious to another person skilled in the same field of invention, the invention may be patentable.

Software Inventions

Software inventions are subject to an additional scrutiny under the utility requirement of the Patent Statute, 35 U.S.C. §101, because they inherently contain or embody an abstract idea such as an algorithm, a mathematical formula, or a mental step, none of which – by itself – is considered patentable under the Patent Statute. Thus, if a patent claim is wholly directed to an abstract idea it cannot be patented because to patent it would foreclose all applications of the abstract idea, not just a particular one conceived by the inventor.

Patent Office Guidelines

To aid in reviewing inventions that embody software the courts have devised a two-step test, which the U. S. Patent and Trademark Office has incorporated into its *July 2015 Update to its 2014 Interim Guidance* (hereinafter "Guidelines"). Step one asks whether the claim at issue is directed to an "abstract idea." If so, the review advances to step two, which asks: if an abstract idea is contained in the claim at issue, then it must be determined if the claim contains "something more" than a generic computer that executes routine instructions. During this analysis, the claim as a whole must be considered, not just a portion of it.

The Guidelines give examples of the "something more." For example, the "something more" might be "an inventive concept" that transforms the abstract idea into "improvements to the functioning of the computer itself." However, since these terms are not defined by the Court, the determination of eligibility for patenting usually proceeds on a case-by-case basis.

Business Methods

Software inventions in the field of business transactions are subject to even more limited scrutiny by describing them as "fundamental economic practices" or "certain methods of organizing human activity" unless otherwise differentiated. Both of these classifications approach categorical denial of patent eligibility to inventions of these types that are assumed to be nothing more than abstract ideas – mental steps of processes carried out by human activity.

The policies implemented by the Guidelines have thus far had a substantial chilling effect on the granting of patents directed to software, business methods, and various transactional practices because they are considered as mere processes that can be carried out mentally, or manually, by paper and pencil, or by a generic computer executing routine steps.

The field of business is surely as susceptible to innovation as the technical fields are to the fundamental *engineering* practices that have generated countless successfully patented innovations. Every solution to a problem begins with formulating an abstract idea about the solution, followed by efforts to conceive a solution in concrete terms so that it may be implemented.

Moreover, if software is chosen as the concrete mechanism for implementing the invention there should be no obstacle to its patent eligibility as long as the solution has utility, is novel, and is not obvious to other persons skilled in the same field of activity.

Some Take-Aways

Here are some take-aways for an inventor producing innovations for facilitating commercial transactions between parties to provide useful results, considerations that are aimed at producing a patent-eligible invention.

First, define the problem that needs a solution to achieve improved productivity, reduced cost, etc. Identify the obstacle(s) to be overcome. Break down the existing process into a sequence of discrete steps. Ask how each step is carried out – whether manually, by paper & pencil, by other human activity, by a computer or other processing equipment, via a network, etc.

Second, identify what parts of the process – software or hardware – can be omitted, replaced, or modified? What part(s) can be automated, or accomplished without human effort? Does substitution of those ideas into the sequence defined in step one create something new?

Third, can a computer control the process? If so, what improvement in the operation of the computer needed to accomplish this control? Is it new hardware? Or new software? How does the new component improve the operation of the computer? Does the improvement create a new machine, or result in a new and useful combination of components that did not exist previously, or accomplish something useful that was not available before?

Conclusion

Inventions that include computer software have been subject to close scrutiny in recent years as the courts and the U. S. Patent and Trademark Office struggle to distinguish true invention from routine or obvious processes as embodied in software.

Thus, in characterizing an invention involving software and computers it is important to (a) identify the field of invention; (b) identify the specific application of the invention and how it solves a problem not heretofore provided with a solution; and (c) identify what about the invention is outside the domain of conventional uses for computers.

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