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Global Warning

The Internet's International Nature Presents Complex Patent Problems

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Like most other high-technology companies, Internet companies seek to protect their products and ideas from their competitors. Patent protection, under the patent laws of the United States and other countries, is typically seen as the most powerful intellectual protection. Unlike other areas of technology, however, the global nature of the Internet presents a particularly complex environment for protecting inventions. This is because of the divergence between the trans-national nature of the Internet and the territorial rights granted by patents.

Internet-based systems can operate in multiple countries during a single transaction or information exchange. Therefore, patent claims for such systems must be written to cover the individual functional components of the system, apart from the overall system. Internet companies also have to be careful in promoting their technology to avoid the loss of potential patent rights in different countries, some of which bar patent protection for any technology which is publicly disclosed or used prior to filing for a patent.

The Importance of Patent Protection

Before addressing the application of patent protection to Internet technologies, it is useful to understand why patent protection is important for Internet companies. Traditionally, developers of clientserver systems were often responsible for creating the hardware, software applications and the communications mechanisms linking remote clients and servers. In contrast, Internet companies can assume the existence of the computing hardware and the communications infrastructure, and focus on the functionality of the system, typically embodied in the client and server components. Thus, patent protection of complete "systems" of hardware and software fails to essentially protect the technology of Internet companies which provide new applications on the Internet without building any hardware.

As in other software technologies, content and functionality are the keys to a competitive advantage. Copyright protection is appropriate where the content of a web site, such as articles, commentary, or other expression, provides the competitive advantage. Where functionality is the dominant aspect of the company's business, copyright protection is of limited or no value, and patent protection is more appropriate.

Finally, for many Internet companies, the competitive advantage is in the ability to automatically synthesize information for the consumer on demand. Examples include search engines, automated news and information providers, and software distribution services. The quality of these systems, in terms of the value of the information, experience, or product is substantially defined by the functional design of the client and server software.

For the Internet company, whose product is intangible, available for use worldwide, patent protection for the functionality itself becomes critical.

Protecting Functionality

Patent rights are generally allow the patent holder to prevent others from making, using, and selling a patented invention in the country granting the patent. For hardware technology, territorial patent protection is sufficient, since the infringing hardware is physically present in the country where the patent is granted.

Internet technologies are different from hardware technologies. An Internet company can provide products or services in three distinct modes: client programs, server programs or systems using both client and server components. Client programs are software that executes only a user's machine. Server programs are software that executes at the company's Internet site (where the company is providing a service) or on the Internet site of a purchaser

of the server. A particular client is not required, as the server can be accessed by any browser.

Client-server systems include both components, with a specific client program used to access the server. In these systems, the functionality, and hence value, of the system is provided by both components. Java, Shockwave and other technologies that send executable applets from the server to a compatible application may be characterized in this last category of client-server systems, since execution of the applets effectively makes the application a dedicated client. Since the trend in Internet applications is toward increased interactivity through Java or similar technologies, client-server systems present the greatest need for patent protection.

On the Internet, use of a client-server system may involve components operating in multiple locations around the world. For example, a client program in the United States may access a server in Japan, which itself processes the transaction through a database in the Philippines. Similarly, a server in the United States may send a Java applet to a browser in England. Proper patent protection of such systems requires a careful dissection of the invention into its components.

A fundamental rule of patent law is that every element of the claim must be present to infringe. Historically, client-server inventions would be covered by system claims that included both the client and server elements. As a result, such system claims are only infringed by the presence of both a client and a server together in the country where the patent is granted. These claims used to be sufficient, since a company would typically develop and sell the entire system, and a competitor would infringe by also making and selling a similar system. Either the manufacture, sale or use of the system would occur in a country covered by a patent.

But on the Internet, because either the client or the server may be outside of the country — and still used or provided by a competitor — system claims provide limited protection. Instead, inventions in client-server systems need claims directed to the individual components themselves. In these claims, it becomes essential to focus on the inventive aspects of the processing or structure of the particular client or server component. In both instances, the claims must describe the operations from the component's perspective. For example in an online commerce system, client claims may include “transmitting a payment token” and “receiving

a decryption key,” whereas server claims would include “receiving a payment token” and “transmitting a decryption key.” In this fashion, it becomes much easier to prove that all of the claim elements occur within the country covered by the patent.

The value of many Internet companies is in their ability to automatically synthesize specific information for a user. Whether it is finding, analyzing, compiling or otherwise manipulating information, the competitive advantage may reside in the idea of providing certain types of information or analysis not in the technical implementation of how the information is assembled. For example, an Internet business may provide an online auction system, with real-time bidding and purchase of items, using simple bid-matching techniques. For such a company, broad claims would emphasize what is being done in the system—management of auction bids from remote buyers—instead of the underlying algorithms, which may be easily avoided.

Finally, the “click-flow” of a Web site is part of its functionality and supports the experience and utility of the site to the user. Clickflow is the user's perception of the behavior of the Web site, apart from the actual algorithms that the client or server execute in response to the user's actions. Protecting clickflow requires abstracting away from the specific Web pages to underlying structural and dynamic relationships in the information contained in the Web site. The claim perspective, as discussed above, should be from the component that provides the clickflow functionality, and not from the user's view.

Claims on user behavior are infringed only by users, not directly by a company copying the clickflow. The structural and dynamic relationships in the Web site, for example, should be claimed in a way that is specific to the type of information being presented, without limiting the claims to the particular implementation.

Publication and Use on the Internet

In the U.S., a patent application must be filed within one year of public use of the invention or publication of a document describing the invention. 35 U.S.C. Section 102(b). In other countries, there is no such grace period and the patent application must be filed before any such public use or publication. However, some countries, such as Japan, do not consider a public use outside of their borders as invalidating a later-filed patent application. Companies have traditionally relied on this distinction in order to preserve some foreign patent rights, and have marketed or

demonstrated their products in the United States without fear of losing all foreign patent rights.

However, the Internet makes such conduct risky. Many Internet companies promote new products or services on their Web sites before filing for patents. For example, a company may offer a free trial version of its software or may simply give the software away in order to develop a customer base. For client or server software, use in a foreign country would certainly bar a patent. The harder question is whether merely accessing a server in the United States would bar patent protection on the server in Japan or a “country having similar public use criteria.” This question has yet to be addressed. In all cases, an infringer would likely have to demonstrate that the server was accessed or that the software was downloaded and used in the foreign country prior to the filing date of a patent application. While it may be difficult to prove such acts, it is not impossible. Similarly, a description, on a web site, of product incorporating an invention may be deemed a publication of the invention, and also bar the patent application.

Thus, the possible loss of patent rights anywhere in the world suggests that any software components that factor into the company’s technology strategy and are used with its inventions should not be made available or used on the Internet until after the filing date of a patent. Filing a patent application in the United States will preserve most foreign patent rights. The technology can then be distributed, used or publicized on the Internet.

In sum, the Internet forces a rethinking of the basic issues in seeking patent protection: designing the claims to provide for enforceable protection for the invention using limited territorial patent rights, and managing pre-filing business activities to avoid loss of patent rights.