Commercial Use of the Internet: Some Pros and Cons

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Abstract

The U.S. Department of Defense originally designed the Internet to increase the productivity of government workers and it has now become an enormous opportunity for businesses to advertise, correspond with clients, order from suppliers, and conduct many other business functions at minimal cost. The Internet has achieved faster acceptance by Americans than any other previous technologies and businesses are already discovering that the Web is having a profound impact on how they conduct business. Conservative estimates are for Internet retail sales to reach \$7 billion by the year 2000, and some respected analysts predict it to grow to \$100 billion over the next five to eight years. As with any new initiative, there are costs, benefits, and risks associated with the undertaking. Anyone who wishes to maintain a Web site on the Internet can do so at a modest cost, or in some cases at no cost. One of the many benefits to be gained from placing a company on the Internet such as gaining access to the World Wide Web (WWW). The WWW gives anyone who is connected the ability to communicate with distant computers all over the world and provides the benefit of being able to send and receive electronic mail (E-mail). While there are a number of different risks incurred when a company establishes a Web site and goes on the Internet the biggest concern, by far, is security. When a company installs a Web server at their site, they open a window into their local network that the entire Internet can peer through. These substantial risks notwithstanding, the Internet provides an opportunity that business cannot afford to pass up. The number of companies that have already taken advantage of the Internet and the rapid increase in the number of Internet users has fueled a phenomenal growth in electronic commerce. The Internet provides an excellent opportunity to increase sales at a lower marginal cost than was possible before. Companies that pass up this tremendous opportunity will probably not survive in the 21st century competitive climate.

Readers with comments or questions are encouraged to contact the author via e-mail.

Introduction

The U.S. Department of Defense designed the Internet as a tool to increase the productivity of government workers, mostly military, with a few users from the academic community and from high tech businesses. Although the Internet was designed and implemented by the Department of Defense, it is no longer operated by the government. What was once considered a toy by some and a research tool by others has become an enormous opportunity to advertise a business, correspond with clients, order from suppliers, and much more.

Phenomenal Growth

According to estimates used in a Department of Commerce report, the number of U.S. Internet users has steadily grown from 5 million in 1993 to some 76 million in 1998 (www.thestandard.net 1999). The Internet has achieved faster acceptance by Americans than any other previous technologies (Primoff, 1998). The acceptance and growth of the Internet is so great that Dow Jones Indexes has introduced the Dow Jones Internet Index (DJII) to benchmark the performance of U.S. Internet stocks (<http://indexes.dowjones.com/djii/djiinews.html>, 1999). As the Internet infrastructure continues to develop over the next several years, new interaction will be possible between consumers and businesses, and businesses with each other.

E-commerce has grown so dramatically in recent years that some forecasters estimate that almost a third of all business in the year 2000 will be conducted electronically. According to private sector forecasts contained in a major U.S. Department of Commerce report entitled *The Emerging Digital Economy* business-to-business e-commerce will reach \$300 billion by 2002. Some researchers project that by 2001 business-to-business elec-

(www.adage.com, 1999). The U.S. Department of Commerce reports that U.S. exports related to, and supporting e-commerce, such as computers, software, information services and financial services, currently account for over \$40 billion. Starting in October of 1999 the U.S. Department of Commerce will ask more than 13,000 retailers to report how much of their monthly sales revenue was generated on the Internet (<http://www.zdnet.com/intweek/stories/news/0,4164,2341418,00.html>, 1999). Conservative estimates are for Internet retail sales to reach \$7 billion by the year 2000, and some respected analysts predict it to grow to \$100 billion over the next five to eight years" (Primoff, 1998). Other researchers project that by 2001, online retail revenues will reach \$17 billion (www.adage.com, 1999).

Businesses are already discovering that the Web is having a profound impact on how they conduct business. In this Information Age, the Internet is allowing companies to open new distribution channels, forge communities of buyers and sellers, increase revenues and boost the bottom line. Many companies are utilizing this Internet technology and discovering the positive impacts of e-commerce. "Cisco Connection Online, a business-to-business commerce site, is now selling \$11 million in networking equipment a day, at an annual rate of \$4 billion-roughly 45% of Cisco's total revenue" and Dell Computers is selling \$5 million a day, at an annual rate of \$1.8 billion, from its Web site" (www.adage.com, 1999). "Microsoft's Expedia travel service sells \$4 million a week, or more than \$200 million a year, in airline tickets from its site" and "Ticketmaster sold \$35 million in tickets on its Web site in 1997, roughly 3% of its total ticket sales" (www.adage.com, 1999). Even Wal Mart, the giant of the retail business, plans to offer Internet shopping by this Christmas (<http://www.herring.com/insider/1999/0925/news-walmart.html>, 1999).

Anyone who wishes to maintain a Web site on the Internet can do so at a modest cost, or in some cases at no cost. Companies such as America Online, CompuServe, Prodigy, Microsoft and IBM are well known as providers of software and connections to the World Wide Web. These companies began by charging an hourly rate for people and businesses for access to the Web but, with increased competition from local companies, they have been forced to change their billing strategies and now most companies charge a low flat monthly rate. Some Internet companies will host a Web site free in return for advertising space on your Web pages. This lower cost has made Internet access easily available to even the smallest of businesses. The question now is whether your company is ready to take the plunge and place your business on the information superhighway of the future?

What are the Costs, Benefits, and Risks?

When a business considers establishing a Web site and placing a portion of their business on the Internet, three questions that naturally come to mind, are what are the costs, what are the benefits and what are the risks?

Costs

Depending upon the level of expertise in a company the out-of-pocket cost to establish and maintain a Web site can range from almost nothing to thousands of dollars each year. To obtain a Web site location you must find a unique name (domain name) that has not been reserved and register it with InterNIC, the company that currently administers the Web site documentation for the government. You can check a domain name to determine if it is in use by visiting the InterNIC Web site at <http://www.internic.net/> and accessing InterNIC's WHOIS database. Although other

suffixes are available, profit oriented companies typically use the "com" suffix. A large number of suffixes are available if you wish to register in a foreign country. The cost for registering a Web site for two years is \$70, a very nominal sum. Many entrepreneurs register Web sites based on company names or products and offer them for sale at a huge profit.

After an unused domain name is selected a domain name service and a Web host must be located for your site. The Internet Service Provider (ISP) that you are using to access the Internet may act as your domain name service and may provide limited space and host your domain name as part of the regular monthly fee. Some of the free Web page sites available are <http://www.geocities.com/>, <http://www.tripod.com/>, <http://www.angelfire.com/>, and <http://www.xoom.com/>. These locations provide free Web hosting, subject to some restrictions, in return for advertising placed on your Web site. In order to avoid someone else reserving your domain name while you search for a domain name service and a Web hosting service (typically a Web hosting service will act as your domain name service without charge) you may wish to find a name and host simultaneously. A Web host service will usually register the domain name for you.

Monthly fees for hosting a Web site range from about \$5 to \$50 or more depending on the space needed, number of times the site is accessed, and other parameters related to servicing the site. Web host providers do not need to be located in your geographical area and you can shop the providers by searching the Internet. A good bundle of space and services for a small business can be located for about \$15 per month.

With a limited knowledge of the Internet your company should be able to ob-

tain a Web hosting service and a domain name for a very nominal cost. The major cost is in designing and maintaining your Web pages and this can run into the thousands of dollars. If your firm has the expertise simple Web pages can be designed and uploaded to your Web host using the Netscape "Composer" that can be downloaded free from Netscape's Web site. However, this approach creates rather simple Web pages and problems can be experienced in uploading the files. A program like Microsoft's "Front Page" will do a more sophisticated job and learning to program in Hypertext Markup Language (HTML) provides even more versatility. A File Transfer Protocol (FTP) package is recommended for uploading your Web site files to your Web host's server. While both "Composer" and "Front Page" are capable of uploading files, the process does provide much flexibility. Inexpensive FTP programs, such as CuteFTP, are available for downloading from the Internet and they are recommended for transferring your files. If you choose to have a Web page design company to design and maintain your Web site, be prepared to pay several thousand dollars for the initial design and a monthly maintenance fee.

Placing a company on the Internet, either by contracting with an ISP to connect your employees to the Internet or by hosting a company Web site, provides a number of benefits. Gaining access to the Internet opens up the World Wide Web (www), which gives anyone who is connected the ability to communicate with distant computers all over the world and to access data stored on those computers using easy point-and-click software. The World Wide Web is by far the fastest growing part of the Internet and is the part of the Internet where businesses are starting to set up shop in mass numbers. Businesses are finding the Web to be a relatively cheap form of advertising and they can use their Web page to answer frequently asked questions (FAQ)

about their company. They are also using the Internet to conduct worldwide searches for employees. In today's highly competitive market a small company can look like a large corporation on the Internet and not have to deal with the perception that a small company can't compete with the large conglomerates. Companies can perform market research on the Internet as well as accept credit card payments and process online orders 24 hours a day, the Internet never closes. This means that people around the world can view a company's webpage any time of the day in their locale. Some companies even send work from one office that is about to close to another in a different time zone to increase productivity by working on the project 24 hours a day.

Another valuable benefit from being on the Internet is the ability to send and receive electronic mail (E-mail). E-mail provides an easy avenue for people to interact without the interruption created by a telephone call or the cost incurred. Companies that have locations worldwide can communicate with other offices around the world and avoid the large costs of long distance calls. There are three reasons that E-mail may be preferable to the telephone. First, E-mail is less intrusive for the recipient and the sender of an E-mail message can feel comfortable knowing that his or her message will not interrupt the recipient in the middle of something important. The recipient of the E-mail can respond whenever it is convenient for them. Second, when sending E-mail, being brief and to the point is not considered rude. In phone conversations, most people feel obligated to socialize for a few minutes before getting down to business and then again after the business is concluded. With e-mail socializing is not as important, gossip will be reduced, and productivity will increase. Third, it is easier to keep track of the substance of E-mail communications than it is telephone conversations because E-mail messages can be saved electronically and

printed whenever desired. There can be no misunderstanding about the content of the message since it is in writing. Using E-mail, relatively large amounts of information can be sent electronically, completely free of charge except for access fees. Of course employees may be provided access to E-mail simply by signing up with an ISP, but consider how impressive it is to have all employees receiving and sending E-mail from an <http://www.johndoe@yourcompany.com> address.

Risks

While there are a number of different risks incurred when your company establishes a Web site and goes on the Internet the biggest concern, by far, is security. When a company installs a Web server at their site, they open a window into their local network that the entire Internet can peer through. Granting the public limited access to their site is the reason that companies go online and, although most people are content to window shop, others will try to peek at things that were not intended for public consumption. There is an even greater risk that others, not content to look without touching, will attempt to force the window open and creep through. The results of this intrusion may range from being merely embarrassing to the causing serious damage to your company. For example, the discovery one morning that your site's homepage has been replaced by an obscene parody would be embarrassing while the theft of your entire database of customer information would cause serious repercussions. IBM plans to introduce a "security chip," the PC 300PL, that will offer added protection to for confidential documents (http://www.pcworld.com/shared/printable_articles/0,1440,12997,00.html, 1999). Expectations are that this chip will become the industry standard.

There are basically three overlapping types of security risk. These risks can ema-

nate from problems with your Web server, problems with the remote user's browser, or from other points on the Internet from which data may be intercepted. For example, bugs or misconfiguration problems in the Web server could allow unauthorized remote users to steal confidential documents not intended for their eyes, execute commands on the server host machine that allowing them to modify the system, gain information about the Web server's host machine that will allow them to break into the system, or launch denial-of-service attacks, rendering the machine temporarily unusable.

Risks associated with the remote user's browser might include: (1) active content that crashes the browser, damages the user system, breaches the user's privacy, or merely creates an annoyance, or (2) the misuse of personal information knowingly or unknowingly provided by the remote user. Data interception risks may occur with network data sent from browser to server or vice-versa via network eavesdropping. Eavesdroppers can operate from any point on the pathway between the browser and server including the network on the browser's side of the connection, the network on the server's side of the connection (including Intranets), the end-user's ISP, the server's ISP, or either ISP's regional service provider. Scotiabank, a Canadian banking firm, offers E-commerce products and services to companies that conduct business on the Internet to secure their E-commerce transactions (http://www.internetnews.com/intl-news/print/0,1089,6_207681,00.html, 1999).

Besides security there are other potential problems. One problem that companies may not consider when researching the possible risks of going online is that when they give their associates access to the Internet for business use the Internet is often used for non-business related activities. Without a company Internet Access Policy this non-business re-

lated use could lead to a decline in office productivity. While most employers realize that very few employees work ceaselessly for an entire eight-hour day, they still do not want to reduce the number of hours that an employee spends actually working. For this reason, many companies have established Internet Access Policies. There are also computer programs available that monitor employee usage of the Internet and report the address of each site visited by a particular user. These programs also have "lock" features that restrict access to Internet sites that an employer does not want their employees to visit while on the job.

Summary

The cost of placing a company on the Internet can be relatively small and the benefits practically unlimited. However, the risks are real because Internet crime is increasing due to the increased use of the Internet and a growing market for stolen data as more companies are willing to pay for stolen competitor information. There are sites on the Internet that teach how to break into other computers and provide software to facilitate the crime.

In the only case of online bank robbery reported to date, Citibank experienced a loss of \$10 million in 1994. "After a 30-month extradition battle with U.S. authorities, the Russian accused of being the mastermind of the biggest bank heist in the brief history of cyberspace is in a federal prison in New York awaiting trial." (Zuckerman, 1997) The computer security industry estimates that less than 10% of all computer-related crimes are reported.

Taiwan is one of the first countries to set up an Internet crime task force that combines agents from the communications and economic ministries with the police department. (AP, 1997) The task force has been re-

sponsible for an arrest of a person accused of setting up a Web site that showed how to make bombs from fireworks. The task force is also employed with the task of prosecuting cyber thieves.

The software industry is lobbying Congress to reduce online theft and reduce financial losses due to such theft (Taft, 1997) by passing a law that would make it a felony to reproduce copyrighted material on the Internet. It is estimated that the software industry lost \$11.3 billion to piracy in 1996 with \$2.3 billion of that coming in the United States. Representative Howard Coble (R-NC), chairman of the subcommittee created to look into the proposal, believes that \$11.3 billion is a conservative figure that could be more in the \$20 billion range.

A two-day forum was recently held to consider who should govern the Internet, which has grown to more than 35 million Internet addresses. Sponsored by Computer Professional for Social Responsibility, the forum questions the government's continued control of the Internet and advocates a greater voice for Internet users (http://199.97.97.16/contentWriter/cnd7/1999/09/27/cndin/7189-0272-pat_nytimes.html).

These substantial risks notwithstanding, the Internet provides an opportunity that business cannot afford to pass up. The number of companies that have already taken advantage of the Internet and the rapid increase in the number of Internet users has fueled a phenomenal growth in electronic commerce. The Internet provides an excellent opportunity to increase sales at a lower marginal cost than was possible before. Companies that pass up this tremendous opportunity will probably not survive in the 21st century competitive climate.

The rapid, relentless, progress of Internet technology requires future research in

the area. This research will probably center on the growth of Internet commerce and on security issues. As the security issues are satisfied, the Internet may well change the way that national and international commerce is conducted. ☞

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