GETTING CAUGHT IN THE WEB...
THE INTERNET AND SMALL BUSINESS OPPORTUNITIES

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More people are getting connected to the Internet. Businesses, both nationally and internationally, are perhaps the biggest constituents of the Internet. It has become an integral marketing tool for large and small firms alike. In this paper, the author discusses the Hows and Whys of Web access for small businesses. To remain competitive, businesses must understand the implications of the information-rich infrastructure the Internet provides. The impact of exponential development in Web-based technology to Internet usage is also covered. Benjoe Juliano's home page is at http://www.coastal.edu/~juliano

Introduction

Who would have predicted that what started in the late 1960's as a project of the U.S. Department of Defense would lead to what the Internet is today? The Internet has surpassed all other technological equipment, gadgets, tools, and appliances as far as rate of development goes. In the 1970's, it was initially intended as a military tool but then it became a research tool in the academic community (Comer, 1995). Universities across the U.S. soon connected their networks to the Internet to facilitate research. By the late 1980's, there were about 200 computer networks connected to the Internet; by 1990, there were more than 2,000. As of 1993, realizing many other applications of the Internet, this number jumped to 10,497 networks in 53 countries with over 6,000 networks in the United States alone (Comer, 1995). There are currently more than 46 million users connected to the Internet, and that number is growing very rapidly (Pitkow and Kehoe, 1997).

So, what is this thing people refer to as the Web? The Web is an Internet browsing service that allows users to reference information available on various computers. It is a mechanism that links information stored on computers at different remote sites. Various data formats are supported by this service: textual information, sounds, graphical images, full-motion video, etc. Through the Web, people can access information across the globe. People can also provide information across the globe. These features make the Web an excellent resource and marketing tool for businesses.

Why Spin Your Own Web?

As more and more people began accessing the Internet, the word "Web" also acquired a secondary meaning. Anyone who had the tools to create hypermedia documents (meaning documents containing references to nontextual information such as sound and graphics) stored in a network connected to the Internet that were linked to other such hypermedia basically created their own "web" that was accessible through the Web. Creating all these links to other areas of the Web was akin to a spider spinning its own web.

Why should a business spin its own web? Consider, for example, searching for information about Myrtle Beach on the Internet. The author obtained more than 400,000 hits with the excite search engine and more than 100,000 hits using the Alta Vista search engine (the numbers have actually decreased from an earlier study conducted a few months earlier, most likely due to downsizing the number of hits on some search engines to accommodate more significant documents). This gives us an idea as to how much information (primarily tourist attractions, hotels and restaurants, and real estate) about Myrtle Beach is available on the Web.
Table 1.
Searching for references to “Myrtle Beach” on the Web (data collected September 29, 1997).

<table>
<thead>
<tr>
<th>Search Engine</th>
<th>URL</th>
<th>Number of documents found</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alta Vista</td>
<td>altavista.digital.com</td>
<td>101,720</td>
</tr>
<tr>
<td>Euro Seek</td>
<td><a href="http://www.euroseek.net">www.euroseek.net</a></td>
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<td>excite</td>
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<td>18,549</td>
</tr>
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<td><a href="http://www.webcrawler.com">www.webcrawler.com</a></td>
<td>52,276</td>
</tr>
<tr>
<td>yahoo</td>
<td><a href="http://www.yahoo.com">www.yahoo.com</a></td>
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</tr>
</tbody>
</table>

The Grand Strand is undoubtedly one of the most popular tourist areas in the U.S. As familiarity with the Internet increasingly becomes common for everyone it comes to no surprise that practically every city is becoming even more visible through the Web. Nowadays, tourists access the Web to shop around for information regarding a particular area of interest prior to visiting that area. They get up to date information about the weather, the latest and best attractions, and most importantly for ideas on what they can spend their money on.

Most businesses that have gone on-line by spinning their own web have realized the potential of the Internet for online commerce. Its support for multimedia facilitates delivering customer-based, interactive information through sounds, full color graphic images, video clips, online order forms, or even surveys on the Web. Most have also discovered the Web as a cost-effective advertising media, in contrast to more traditional media such as the newspaper, television, and the radio. Advertising on the Web allows you to broadcast your information to a world wide audience of more than 46 million people, 24 hours a day.

There are, of course, other reasons why businesses should seriously consider spinning their own web. It is not just considered the “in” thing to have a WWW address on television commercials and on most new products. Having a WWW address indicates that your business is serious about your customers’ needs. Some companies are already replacing standard brochures, flyers, and business cards with WWW addresses that display dynamic pages that can be accessed from all over the world via the Internet in just a matter of seconds (Gibson, 1997). Furthermore, moving towards a paper-less society and using electronic media is also an environmentally friendly way to do business.

What Does the Web Have to Offer?

The Web allows one to create and store hypermedia documents that are accessible through remote browsers around the world. As mentioned earlier, hypermedia documents usually contain references to nontextual information such as sound and graphics. The term “multimedia”, on the other hand, encompasses hypermedia documents and focuses more on what the user may encounter as they experience a document. Hence, documents on the Web are no longer static like traditional documents. They no longer need to stay passive. Depending on whatever features one incorporates on a Webified document, these pages are dynamic, interactive, and may have full-color graphics, animation, real-time audio and even real-time video (Galea, 1997). All this for a fraction of the cost of having the same or a similar effect on a television commercial!
Of course other traditional Internet services are also available. This includes electronic mail or e-mail, which facilitates the use of electronic forms (Krakowka, 1997). With e-mail, customers are given another means of getting in touch with you and your business. Electronic forms, on the other hand, can be used for processing orders, requests for more product information, etc. As a means of providing immediate feedback to your customers, electronic forms can also be used for surveys, comments and suggestion sheets, etc. Other more recent trends on the Internet will be elaborated in the section titled “What is the future of the Web?”

Web page design is crucial when putting information on-line. This really depends significantly on the type and number of target audience you expect to visit your site. A lot of graphics, sound, and animation will really grab the users’ attention. But as a picture paints a thousand words, a thousand bytes may take a few seconds to download in a computer equipped with less than ideal components (Blumenthal, 1997). Not every user out there will have a Pentium class machine with enough memory to render the most graphics enhanced pages. Some Web page designers who love feature-laden pages have adopted the “Too bad” attitude towards users with substandard computers - if these users are not willing to wait to experience the full impact of your pages, then it is not worth catering to them. This is fine if you don’t mind losing these customers! Others provide plain text and graphics-enhanced versions of their pages. The choice depends on a lot of factors. Deciding on how much graphics to put on a page based on your target audience remains a major decision in Web page design.

Perhaps the most important feature of the Web is its speed, and “from [its] speed emerges interactivity” (Hitchcock, 1996). In comparison to the traditional way of designing, printing, and distributing a corporate brochure, the Web cuts down on the time it takes to disseminate information. On-line electronic brochures can be updated at any time. These documents, and any changes made to them, would immediately be accessible on the Web. The same holds true for changes in pricing information, product specifications, new product announcements, and even product recalls.

Using the Web to supplement traditional business methods also implies adopting a change in how one does business. Adopting Internet technologies within a firm can dramatically lower information publishing and dissemination costs by eliminating the need for paper broadcasting processes (Kambil, 1997). Through the Web, companies have to redefine how they communicate with their customers. These customers can place orders, seek out detailed product and technical information, check out prices and order status, and even configure products on a corporate Web site. Some sites even allow users to program automatic software agents to alert them of special offers and new product arrivals - a service tailored to the specific customer. Internet access also allows small and large firms alike to access expertise, information, and resources worldwide at low costs. This lowers information and entry barriers across various industries, allowing smaller firms to better leverage resources and compete on a global scale (Kambil, 1997).

How Does One Spin One’s Own Web?

What exactly does one need to start spinning his or her own Web? You really do not need to have a computer to set up your Web documents. If you do not currently have a computer, you can get in touch with an Internet Service Provider (ISP) to furnish you with the necessary tools to publish on the Web. Various ISPs provide a choice of packages depending on the types of services that you need. These services may include housing and maintaining your Web pages, providing you with an Internet address so people around the world can access your Web pages, as well as other Web-based programming jobs. Various services may also provide choices for network technology, depending on the speed of access you want to your audience to have. The rule of thumb here is that the more graphics your Web pages have, the higher bandwidth required to transmit them at an acceptable rate.

Businesses should remember not to limit themselves to local ISPs. In general, if your business is in a small- to average-sized city, you may be better off doing business with a provider in a larger city, perhaps even in another state. It
seems that ISPs in small cities charge slightly higher than those in larger cities because they do not attract as many customers. Further, ISPs in larger cities tend to have Internet connections with higher bandwidths at competitive rates.

Normally, after deciding on a package or a rate plan, you just need to provide the content you desire on your pages (which you most likely already have in print form). You will need a computer, however, to view your pages. Notice that in comparison to a television commercial or one for the radio, or even a printed brochure, you do not need an extensive production crew, a video camera, a recording studio, or even a television set to create an electronic ad!

An economic alternative of going through an Internet Service Provider to create your Web pages is to create them all yourself. To do this, you either have to

1. learn how to program in the HyperText Markup Language or HTML; this is the language used to describe the contents and format of documents on the Web; or
2. use a Web page generation tool; this is usually available as an add-on or plug-in to an existing computer program (like a word processor) to facilitate the creation of a document written in HTML.

You will still, however, need to establish the presence of your business on the Internet. The most common way of doing this is to go through an ISP to host your Web documents. Most local ISPs charge an initial design fee of $100 and higher. Monthly rates for the storage and maintenance of Web pages usually range from $15 to $150 depending on the package you choose. Of course, there is also a more expensive option. This requires purchasing a powerful and expensive minicomputer and setting up the necessary connections with high speed lines. This alone requires anywhere from at least $10,000 to $15,000 startup expenses. Most powerful minicomputers run the Unix operating system and so you may need to provide for the salary of a Unix guru (or expert) to maintain your computer. Additionally, you may wish to hire a graphics and/or web publisher/programmer. Most big businesses take this approach because it ends up cheaper for them in the long run. What is the difference between going through a local ISP as opposed to something like America Online (or AOL), Prodigy and CompuServe? These latter services provide e-mail addresses as well as Internet access. But a full-service ISP might save you some money if you intend to browse the Web frequently.

Normally, there are no other additional expenses to incur once you have decided on a particular package through an ISP. Before browsing (or surfing) the Web, be sure to know how many online hours per month you are allowed in the program you signed up for, and whether there are any limits to the number of e-mail messages you can send or receive. Unfortunately, free Web-based e-mail services like HotMail (see http://www.hotmail.com) offer free services for personal, not business, uses only. Be careful: some ISPs charge for individual e-mail messages, a sign that you need to shop around for another provider.

Can One Get Even More Out of the Web?

Okay, so you have set up your Web pages and have gone online through an Internet Service Provider. What is next? You need to publicize your pages. People normally search for information on the Web by using an Internet tool called a search engine. By typing in one or a series of key words or phrases, one can let the search engine locate web pages that relate to the idea or concept of interest. No one can locate your page if none of the search engines on the Web are aware of the presence and availability of your page!

The simplest way to do this is to use an online service like Submit It! (check it out at http://www.submit-it.com), which currently supports over 400 Internet search engines and directories in their service. There are other similar services available on the Web. Such services facilitate submitting the Universal Resource Locator (or URL) of your Web pages to many search engines and databases around the world. It is also important that you ensure submission of your URL to some of the online searchable yellow pages. For example, GTE has a SuperPages
Interactive Services page that lists both small and large businesses around the country (see http://superpages.gte.net). Once you have announced and publicized your pages, people around the world will know about your business and what you have to offer.

You can also gather statistics about your pages by installing a counter to them. A counter keeps track of how many hits a Web page has received to date (e.g., how many times a page has been visited). There are plenty of shareware counters available on-line that you can download and install. Depending on what you are after, there are simple counters that merely keep track of the hits and there are some others that give you an idea of who are visiting your pages, from which pages they happen to surf to your pages, the date and time of the last hit, and other information you may find useful.

What Is the Future of the Web?

With the increasing number of businesses going online and being accessible via the Web, it comes to no surprise that people predict that the Internet’s future will depend on how successful businesses around the world capitalize on its power and potential (Blumenthal, 1997). What started out as a project based on military demands, then on the needs of the academe, the way that the Web is currently being used is dictated by what businesses want from it.

There have been a couple of scares, however important the warnings that they carry. First was the growing concern for security on the Web. Most businesses provide online ordering services. This requires that the customer transmit their credit card numbers through the Web. Some people have discovered ways of intercepting such transmissions, putting in doubt the security of such electronic financial transactions. Most current browsers alleviate these problems by incorporating encryption algorithms to encode transmitted information. Netscape Communications, among other companies, is currently advocating the use of electronic certificates to guarantee safe transmission of information and downloading of files via the Internet. Unfortunately, one would expect that while advances in security are continuously being developed and achieved, methods to break them will also abound.

Recently, America Online got its hands full when a majority of its customers complained about problems getting online through their service over the Christmas holidays. This was brought about by an unexpected surge of customers subscribing to their “unlimited access” program, logging on at about the same time given a limited communications bandwidth! Similar problems exist when one tries to surf the Internet during peak hours between 12 noon and 5 p.m. And then there are the viruses, computer programs that get copied and replicated across the Net. These programs can wreak havoc on any computer system, leading to loss of data. Antivirus programs are currently available to monitor Internet access activities, but only work as long as you keep the latest version to track the latest viruses!

Perhaps another concern to consider is training. Technology is moving at such a rapid pace that it is already quite a challenge to keep up with it. Use of technology entails training people to use this technology and making sure that as this technology changes, the appropriate adjustments in training are made. A serious problem directly related to this is the lack of technology available to teachers (Soloway, 1996), the people expected to train children and students about technology. Also lacking, in various degrees, are productivity software, appropriate training programs, and even a lack of technological vision in pre-service education (Soloway, 1996). This all boils down to the fact that training costs, and businesses have to decide just how much they want to spend to keep up.

Despite all these, the Web continues to grow as people develop better uses for it. Intel’s introduction of the new Multi-Media Extension (or MMX) multimedia-enabled processor chip will give people a much better multimedia experience. Advances in network technology (for example, the use of fiber optics) have facilitated the transmission of two-way real-time audio and video currently being used for video conferencing. Major businesses, medical institutions, and even institutions of higher education currently use this
technology. To facilitate the introduction of this technology to the masses, Microsoft Corporation has been distributing its *NetMeeting* video conferencing software for free (see http://www.microsoft.com/netmeeting). One does not even need a video camera nor a microphone (although any microphone plugged into a computer's sound card will do) to use the package since it provides chat, shared whiteboard, and sharing of applications.

Web pages will continue to have a high degree of interactivity. The more interactive a page, the better it attracts web surfers. This means that Sun Microsystem's *Java* will continue to be a popular and powerful Web programming language of choice. Small Java programs, called *applets*, can be embedded in Web pages to make them more interactive. This also impacts software development and availability: there is already a growing paradigm shift from "purchased" software to "rented" Java applets attached to Web pages (Yourdon, 1996). Perhaps the most popularly used Java applets do graphics, animation, moving text, sound, and others. For some on-line samples, check out Gamelan at http://www.gamelan.com, an extensive repository of Java applets.

Today, one can access live stream radio and television broadcasts through the Web. Some radio stations across the world are now transmitting their broadcasts over the Internet. Fox News Network, CSPAN, and others are doing the same thing with their newscasts, thanks in part to a web browser plug-in by Progressive Networks called RealPlayer (visit http://www.real.com). The recent successful Mars landing was experienced "live" by hundreds of thousands of people around the world via the Web. As the development of Web technology matures at an exponential rate, we must remember that not everyone will have access to the latest technology. It is clear that the Web is here to stay and its business applications will continue to grow.

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