

Global Challenges for the Internet Software Industry

By Jozef Hubburmin, B.Comm., C.M.A.

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The nature of business software applications has come full circle over the past thirty years. In the 60's and 70's software ran off a central mainframe computer with thousands of workstations. While these workstations were not very powerful, they could communicate with each other through the central mainframe. Unfortunately mainframe computing usually did not allow for communications between companies. The 80's introduced the personal computer (PC's) with powerful software applications to accomplish more complex and more challenging business related tasks. However, PC's had limited capability to communicate with each other, other than within local area networks (LAN's) that rarely extended beyond the corporation. Then came the mid-nineties explosion of the Internet. Businesses and their customers can now communicate via their computer systems, however, the majority of business applications are written for one computer or for one company's LAN. Today, the key is to develop applications, which reside at a web site and are accessible by businesses and consumers. These "web based business applications" are far superior than today's business applications because they are easy to implement, maintain and upgrade, easy to learn to use, far more secure, and far more productive. They truly represent the nature of killer applications for the early 21st century.

A day timer program found on the Internet at www.when.com, is an example of a web based business application. An individual or a work team can log in to view, modify, add, and delete items from a work schedule twenty-four hours a day. The implementation of this application requires no distribution of application disks or downloading of software to end-users and there is no need for labour intensive set up of the application on local PC's. In addition, there are no computer specific compatibility issues such as, "Will it run on my Compaq, Mac, Sun Microsystems workstations, WebTV, etc." If a user finds a bug in the software, he or she notifies the software developer, who in turn fixes the code that resides at www.when.com's Internet web server. The bug is now fixed for all users. With only one version of the software in existence at one time, there are no version control administration costs, and there is no need to send out disks with patches or e-mail instructions for downloading patches, in order to distribute the bug fixes to end-users. It will be interesting to see how long contact management software like Microsoft's Outlook can hold market share over a web based application like When.com.

Upgrades of business applications are required when the environment changes due to new legislation, new corporate goals and objectives, or new techniques, etc. In the past software upgrades were distributed to users by disk, or more recently, by downloading a software patch off an Internet web site. This created increased labour costs to install the upgrade and to administer the version controls (which user is using version 1.1, 1.2, etc.), and the lost productivity due to upgrade down time. Often there are compatibility issues. For example, in 1997 the contact manager software ACT 3.0 did not work properly with a version of the operating system NT 4.0 unless you downloaded several patches off Microsoft's web site. This drove many users and system

administrators bonkers. Web based business applications will run on any operating system (NT, Unix, Mac, WebTV, IBM mainframe, etc.) that uses either Netscape or the Internet Explorer browsers, and there is no upgrade procedure required by the user or the company's IT department. The developer simply installs and tests the upgrade, then loads it on to the Internet web site. The users simply log on at the web site as usual, and the upgrades are already in place.

Internet usage has dramatically increased partly because of the ease of use of the Netscape or Internet Explorer browser interfaces. Since web based business applications use these same browser interfaces, they are far easier to learn than today's business applications. In addition, the developer can insert help links or mouse-over help instructions to facilitate a more intuitive first time user experience. Of course, there is always the ever popular "Frequently Asked Questions" (FAQ's) section to further assist "newbies".

We view security primarily in terms of access, who can see or copy the data, and custody, protecting data from being lost or corrupted. Usually data resides within a central computer (server, mainframe, mini-computer, or PC) that is on the business's premises. Is this data more secure on site than offsite? What happens when the business' premises burn down? Let's compare this to a web based application that resides on an Internet server that is offsite, with redundant mirrored site (another server that has the exact same information as the first server) in another city. With respect to access, the web based applications reside on servers with elaborate security measures that include comprehensive log reports. Detection of unauthorized hacker activity is the best means of preventing intrusions to your data. Thus, web based applications are far more secure than today's local based applications.

Web based business applications increases enterprise productivity. Mutual Exchange International ("Mutual Exchange", www.mutual.com), a barter trading company, uses a system called "The Boss" which allows trades to be registered with a clearing house which in turn writes the transactions to a secure, password protected web site. The Mutual Exchange can register new barter members and view transaction histories at this same web site. All the accounting data related to these transactions reside on servers that are not on Mutual Exchanges' premises and the security is second to none. As one of the most sophisticated barter systems in the world, The Boss has enabled Mutual Exchange International to become a leading player in barter commerce and franchising.

Another example of productive web based business applications is client "updateable" web sites. Many web site owners can now update their web pages without knowing any computer code, knowledge of HTML editors, or understanding of file directories. They can modify, add, and delete text, graphics and other media from pages within their web site without a computer technician. In fact, the originators of the web content can update the web site within seconds of creating the content. For example, a columnist for a web-zine (online Internet magazine) can publish his or her column online by logging into the administrative area of the site, inserting their ID and password, copy and pasting new content from a MS-Word document to a database input box, and clicking a submit button. At www.workwaysonline.com, a site that facilitates the meeting of prospective employees and prospective employers, the entire web site allows for the

updating of text and photos. There is a special program that ensures the photos, uploaded from the web site owner's personal hard drive, are properly optimized for quick loading when the web site is viewed by a browser.

Web based business applications are far more superior in nature than existing software from the standpoint of implementation, maintenance, ease of use, security, and productivity. We will see a dramatic change in the software industry over the next few years with the introduction of new "killer business applications" which capture market share from today's machine and operating system specific software. As such, within three years web based applications will stake their claim as the dominant force in the software industry in the early 21st century.