

(Approx. 1,499 words)

## Cloud Computing – The Future of Personal Computing?

By Brian K. Lewis, Ph.D., Member and Contributing Columnist, Sarasota PCUG, Florida  
www.spcug.org  
bwsail(at)yahoo.com

Obtained from APCUG with the author's permission for publication by APCUG member groups.

You may not have heard of it, but “Cloud Computing” is the latest buzz-word in computing circles. The question is, just what does it mean? The problem is that at this point, there is no really solid definition for this term. You can search for it and you'll find a number of interpretations. So, from all that I have encountered, I'll try to synthesize one for you. Cloud computing is being able to access files, data, programs and services all via the Internet. You would have little or nothing stored on your computer, in fact, your computer might simply be a device, desktop or handheld, that can access the web and all of its services. In addition, cloud computing offers the services of enormous computer networks that function as if they were components of a supercomputer. These networks can process tens of trillions of operations per second compared to three billion operations per second for the most powerful desktop computer. This kind of computing power can be used for analysis of risk in financial portfolios, delivering personalized medical information, and powering immersive computer games. These networks use hundreds or thousands of network servers using PC related technology.

I think this excerpt aptly describes the computer cloud. *“What is Google's cloud? It's a network made of hundreds of thousands, or by some estimates 1 million, cheap servers, each not much more powerful than the PCs we have in our homes. It stores staggering amounts of data, including numerous copies of the World Wide Web. This makes search faster, helping ferret out answers to billions of queries in a fraction of a second. Unlike many traditional supercomputers, Google's system never ages. When its individual pieces die, usually after about three years, engineers pluck them out and replace them with new, faster boxes. This means the cloud regenerates as it grows, almost like a living thing.”* (Quotation is taken from a Business Week article dated 12-13-2007 by Stephen Baker.)

Although some of these services may appear to be only of interest for corporations and their IT departments, services are also being made available for home and small business users. As you might expect, the availability of this Internet computer access depends on fast broadband access. An area where the U.S. lags behind many other countries. In this country we think that having 10-15 megabits/sec on our broadband is really fast. However, in Japan, 50 megabits/sec is closer to the norm, even for home users.

So who would be providing these cloud computing services? Actually, they already exist in the form of Google Apps, Amazon Elastic Compute (EC2), Sapotek's Desktop2 ([www.desktoptwo.com](http://www.desktoptwo.com)), Zim Desk ([www.zimdesk.com](http://www.zimdesk.com)) and Zoho Office ([www.zoho.com](http://www.zoho.com)). (There are also a number of companies providing these services and more to large corporations only.) Sapotek claims to have 175,000 users of their Desktop2 and their servers can handle 8 – 10,000 of them at the same time. They have a partnership with Sun that will provide the equipment to handle as many as 350,000 users. Every time I look for more

information on Cloud Computing I find new companies listed that are offering these services. It is a very rapidly growing industry.

So, if you wanted to take advantage of the services in the cloud, what could you expect to find? Let's take a look at Desktop2. This is a free service that provides normal office applications: writer, spreadsheets, presentations, notepad, and a calendar. It also provides hard drive storage, e-mail, instant messaging, blogs. MP3 player, RSS service and a web site editor. The free version does come with ads as you would expect.

Zimdesks is very similar to Desktop2. Its web applications includes pop3email, file manager, sidebar, RSS, browser, word processor, spreadsheet, calendar, tasks manager, accessories/widgets, web messenger, video conference, media player, Internet radio, web TV, games, zimcommunity, zimblog, and much more. It is also a free service that incorporates advertising. Like everyone else they have to support themselves somehow. The third of these services is Zoho Office. On their home page you not only find a list of the services they provide, they are all available for trial simply by clicking on a icon. As with the previous services, the list of applications is quite extensive.

Google Apps is very similar in its offerings to the preceding services. However, it is more oriented towards business users. It does have a free version which might be useful for the individual user.

Zoho uses Java to run its applications on the web. Other services may use Flash or Java. Either of these allow the applications to run in your browser and to operate at reasonable speeds. I have tried out the word processing and found it to be no different than using a word processor on my computer. This is true even though the speed of my Internet connection is usually only 500 – 750 kilobits/sec. When you are using a wireless card modem it is only on very rare occasions that you can match fast DSL speeds. I'm sure that those of you on cable or fast DSL would have no problem using a web-based application, at least with regard to the speed of the applications response. However, if you are preparing a graphic loaded presentation, then you might experience some slow down depending on the speed of your connection.

The idea of relying on Web-based applications and storing data in the "cloud" of the Internet has long been pushed as a way to do business on the road. Now software companies are making entire Web-based operating systems. They present themselves as a complete computer in the cloud and are aimed at a wider audience. These browser-based services could help those who can't afford their own computer.

There are also those who are convinced that this is the future of computing. However, some security concerns should be considered. Unless you know how secure your data is when you use a cloud system, you should be cautious about what you share with the on-line servers. You need to know how your data is protected from other users of the "cloud". As a service provider they should be willing to undergo external audits and/or security certifications. Also you need to know what kind of data protection and data recovery procedures are provided. As has been demonstrated many times, computers do fail. Finally, you need to know what happens to your data in case the company fails or is sold to another entity. This is also not uncommon in the high tech industry. As is always the case, before allowing sensitive information to be used or stored on the web, remember "caveat emptor".

Lastly, consider what computing might be like should the “cloud” become the method of choice. Certainly there would be no need for computers to have all the bells and whistles we now associate with them. Just think about the possible design of a system destined for use solely with cloud computing. It would only need a minimal operating system that would allow the computer to boot, then start the web browser which would connect to the Internet. Your cloud page would be your home page and display your chosen desktop. As for a hard drive, a 10 - 20 gigabyte solid state drive would probably be adequate. USB ports for printers, scanners, possibly other I/O ports would be included. The one thing you would want to be high end would be the graphics system. This would allow display of high resolution graphics used in online games and for viewing videos. It is possible that the graphics processing unit (GPU) would be more powerful than the CPU (central processing unit) or it might even incorporate the CPU. This could all be contained in a 1-2 pound laptop or compressed further into a handheld computer/cell phone. Although some of these characteristics are found now in smart phones, the spread of cloud computing would enhance the features of these phones. For most of us, the available screen size on these smart phones is not large enough, leaving a market opening for inexpensive laptops such as the ASUS Eee PC or the OLPC (One laptop per child). In neither case would we need an operating system as massive as Microsoft Windows.

One thing is certain, anytime you try to predict the future you usually miss the mark by a mile. So it will be interesting to see what reality brings about over the next few years.

Dr. Lewis is a former university and medical school professor of physiology. He has been working with personal computers for over 35 years, developing software and assembling systems.

This article has been provided to APCUG by the author solely for publication by APCUG member groups. All other uses require the permission of the author (see e-mail address above).