



Lake County Contractors Association Professional Practice Report

December, 2003

2003 TECHNOLOGY DEVELOPMENTS

By William W. Zeigler, CPA
Zeigler Associates, Ltd

As is our practice near the close of the year, we look at current technological developments and those expected in the coming year.

The Basics - PC Systems - The computer's brain [CPU] continues to develop – that is, speed up. In recent months, CPUs that can function as two separate ones, called Hyperthreading, have started to become commonplace. Thus, going forward, new systems should be selected that include this CPU design. Today's top speed of 3.2GHz may not go much farther in the coming year, but design efficiency is where we will see additional performance.

Storage continues its decline in cost per Gigabyte [GB], currently at about 91¢ or \$109 for the less expensive IDE designed 120GB drive (not many years ago we priced hard disks in dollars per Megabyte). Most drives in current prepackaged systems average 80GB compared to perhaps 40GB last year and the coming year should see 120GB as a standard prepackaged system disk size. This increase should show at least a 30% cost reduction per GB. I find more users getting comfortable with and investing in digital devices such as still and moving video cameras. The 'rendered' MPEG result of a 1-hour videotape uses 4-5GB so larger storage devices become more useful.

Hard disk technology changes are currently being developed by companies such as Samsung and Hitachi and are expected beyond 2004 for desktop PCs. However we may see servers with these new designs by the end of next year.

DSL - Recently we have seen more and more previously unserved locations able to obtain DSL. Universal DSL coverage does receive consideration and debate on a political level, which competes with economic issues, as more remote users remain uncovered. Technology and technique improvements are helping. For instance, some previously unserved customers now can obtain service through relatively inexpensive 'remote terminal' facilities being constructed by the communications companies which extend the reach of central office equipment.

Costs have come down and download speeds are now available up to 6Mbps [at twice the cost] obviously bettering the 1.5Mbps service commonly used today. The technical specifications of the common ADSL over the phone lines actually allow 8Mbps download speed. Another specification called VDSL [very hi bit rate DSL] works up to 53Mbps download and 16Mbps upload but requires close proximity [4,000 feet or just under one mile] to the central office, and not yet widely installed pure copper or optic cabling. Phone companies are steadily replacing existing wiring with architecture more compatible with these newer and faster standards but of course this will take time. There are a few areas in the US West market that are currently configured and offering VDSL with tremendous results. As the inertia continues to build in this industry and more users are signed on, that will feed more offerings and technology.

Wireless - Companies are maintaining connections to their networks anywhere in their facilities, and home offices are connecting to the

Internet on their notebooks anywhere in their homes. New, faster equipment is being offered to connect to the Internet over cell phone airwaves.

Internet Through Internal Network - The wireless boxes that allow Internet connections [access points or routers] around the home or office without network jacks or wires has now moved comfortably into cost range for most budgets, under \$100 for the box that often includes a network hub. Many notebooks [e. g, Centrino] now include built-in components allowing wireless network connection with no additional parts to be purchased. Offices that wish to avoid any jack and wiring costs, or structure invasion including subsequent desk and station relocation rewiring costs, can with a wireless structure.

Internet Through Public Local Network - Another area getting quite a bit of attention now extends cellular technology. Users at public locations such as coffee shops or business waiting areas are more often finding wireless access to the internet. New terms are showing up now as these facilities start appearing. A 'hotspot' is a small area surrounding a wireless router or access point [perhaps about 200 feet] that allows a wireless capable pocket PC or computer to connect and immediately start browsing the Internet. Sometimes the individual or company setting this up charges some kind or reimbursement or access charge, sometimes not.

Internet Through Cell Signals - Wireless Internet that extends into existing cell phone service infrastructure is gaining speed and capability. Fairly common technology that has been available for a few years connects a cell phone through a data cable to a notebook's USB or serial port but those speeds have been between 14 and 28kbps. A recent offering at 128kbps is 3-4 times faster than dial up throughput and 50% faster than ISDN. Generally these connections are made with mobile devices [notebooks and/or hand held PCs]. Adapters for the mobile computers cost \$175-\$300 and require a

separate service subscription [e. g, \$80 per month for unlimited MB transfer]. These connections are fast enough to view medium resolution video clips over the Internet and are a significant browsing speed improvement over access through a cell phone.

Spam - With an ever-expanding pool of connected users, DSL or otherwise, spammers rejoice at their apparent growing opportunity. A recent article referenced a Telemarketers Association member who stated that the recently implemented "Do Not Call" Registry would require expanded business development efforts in the email environment. I have noticed a definite increase in the number of people and mass quantity of this material just over the last few months. One user reported a 15-minute system startup time just because of 800 emails being downloaded into their mailbox over the weekend. There are a few techniques to reduce the chance or delay the time when an email address is 'mined' into a spammer's list, which in a matter of days ends up being shared with other lists. But these techniques reduce the benefits of announcing your availability for other good business reasons. Several 'spam server' services have arisen lately that intercept unapproved messages before they are even picked up by your local system. From personal experience, these seem effective and useful.

Summary - Every year brings another interesting set of new developments, some exciting to see and others that might actually be useful. The items described here seem to fall in the latter category, especially considering their reasonable cost and potential utility.

William Zeigler is President of Zeigler Associates, LTD.