by michael schuyler
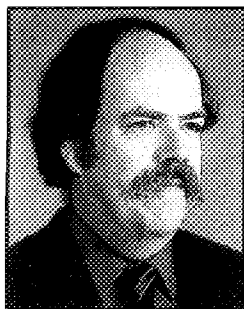
A Look at What's on the Horizon

Some of the Internet Librarian conference sessions have great implications.

There were looks of envy, if not downright hostility, as I announced my scheme to travel to Monterey, California, in November to attend the Internet Librarian Conference, sponsored by Information Today, Inc. "Tough duty," they said. "Warmer than here," they said. My ulterior motive was to check up on my daughter Linnea, who has finished Navy boot camp and is now studying Arabic at the Defense Language Institute (http://www.nttcdmry.navy.mil) at the Presidio of Monterey, about a mile away from the conference site. She gave Carol a sweatshirt that says "DLI. We study Arabic so you don't have to."

Internet Librarian is a national conference. You can tell just from the many exhibitors who bring their good stuff. Contrast the expensive booths here with the classic "6-foot table with a blanket draped over it" prevalent at many state conferences. The conference was held November 6–8. Many attended the Election Day party. I wonder if Florida will be through counting by the time this column is printed.

The content of the conference was divided into several different tracks. You really couldn't hit everything. Contrary to what my colleagues think, I attended five sessions a day, all 3 days. A couple of them I want to talk about because I think they have great implications.

Linux Has Its Possibilities

On the one hand I believe Linux is overrated, driven by anti-Microsoft emotions rather than common sense. In more than one publication that I have seen recently, there is a pie chart showing the tremendous growth of Linux as a percentage of installed operating systems. The implication is always that Windows is losing ground, but a careful analysis shows Linux has gained ground not at the expense of Windows, but from a decline of both Netware (Novell) and UNIX. Novell just can't seem to do anything right these days, which is a real shame. I've run Novell for a decade now and find it to be an extremely stable system compared to Windows NT.

But Linux is a flavor of UNIX. It's "open source," free, and all that, but it still walks, talks, and quacks like UNIX. When you boot up a Linux machine, unless an administrator has fixed it up differently, you get a dollar sign prompt. Good luck! In the applications software world, Linux/UNIX is very much like DOS. (Remember the C:\ prompt?) It's a lower-level operating system that someone else builds on to make the applications more user-friendly, just as Windows 3.1 by Microsoft is built on top of MS-DOS, and Word and Lotus are built on top of Windows. In the newer editions of Windows, you can still get to some DOS commands. Although Microsoft has said the next version of Windows won't have DOS at all, I just found it on a Windows Millennium Edition computer, so it's not quite dead.

The geeks, who hate Microsoft, love Linux, not only because it's arcane enough to provide a platform for bragging rights in esoteric commands and programming, but because of its anti-corporate political

statement. Linux is installed and run by systems administrators to run servers. It is rarely installed as an end-user platform for someone who lives at an applications software level—in Microsoft Word, for example.

That may change, and strangely enough, public access computers in libraries just might be the venue. "Linux Outside the Cave" by Edward Corrado, the UNIX and library systems administrator for Rider University, makes the case for this (see http://library.rider.edu/scholarly/il2000/index.html). Corrado has pulled together all the necessary pieces to create public access PCs running Linux and Netscape that boot off a CD-ROM.

What this means is that it's bulletproof. You can't change anything on the CD-ROM, so if someone messes around, you reboot and you're returned to the original configuration. Bear in mind that this is currently a totally Web-based solution. You can't run epixtech's PAC for Windows doing it this way. But there are some other really excellent reasons for doing this.

For example, Linux is free. Certainly you will probably buy the source from Red Hat or someone else (http://www.redhat.com), but once you have it you don't owe any money per machine. Contrast this to Windows, which will set you back over a $100 to upgrade from one version to another.

The second reason is hardware. Linux is extremely efficient in its use of memory and processing power—this compared to other versions of UNIX, not to mention compared to a memory hog like Windows 95. This means that those old 166-MHz Pentiums, which are looking a little aged in this era of 900-MHz Pentium III's with mega-giga hard drives and tons of memory, can be used quite efficiently in a Linux environment to provide full-service Web access. Using Linux, these old machines are not slow. Corrado reports that his Linux machines are more stable than their Windows counterparts, and also load Web pages faster.

I don't know yet if we will do this, but we are in a perfect position to do so. We have 100 166-MHz machines that are 5 years old. With all the fancy Web stuff these days, we could use some faster processor

power, but we certainly don't have the funding to replace them all. And the CD-ROMs are already in the machines.

It's a pretty good case. Well, we might test a couple. Hmmm. Maybe ...

The Matrix on the Horizon

You may have seen *The Matrix* with Keanu Reeves (http://www.whatisthematrix.com), a bleak film about the near future dominated by technology with a separate visual reality composed of bits and bytes where humans plug in their brains and travel the avenues and dark corridors of The Matrix. This "cyberpunk" sub-genre of science fiction was first heralded by William Gibson's *Neuromancer* in 1984. Many have followed, and we're due for a *Matrix II* sometime real soon.

The problem with writing near-future speculative fiction is that the future catches up to you fairly quickly. Indeed, the Matrix has started already. If you stick around for a couple dozen years it may even be available at an implant near you. Samantha Chmelik, director of research at Evergreen Information Group, gave a paper on "data visualization." Here's just the first sentence: "Evolving from early software patents and M. C. Escher art, data visualization software presents numeric and/or text data in illustrations, designed to reveal complex relationships between data points." (*Collected Presentations*, p.18. Slides are available at http://www.info today.com. Click on Internet Librarian 2000 and go to Presentations.)

It's my understanding, then, that a lot more information about what is in a computer can be crammed into a picture than can be crammed into a description. Indeed, the trend toward multimedia Web design follows this pattern. Next we'll need to install sound cards and Web cams on our public access computers.

Now couple this emerging technology with another, called "computer vision" or "CV." CV, according to John Makulowich, a frequent commentator on National Public Radio, "is the science of teaching a computer how to interpret an image so it can gather useful information." (see http://www.usatoday.com/life/cyber/ccarch/ccmak008.htm) In other words, that Web cam atop your monitor is not only record-

ing your image, it will be able to tell whether you are angry or sad, reading or watching the screen, and more or less what you are doing, with no human intervention. Just think of HAL in the movie *2001: A Space Odyssey*.

I know this has tremendous surveillance implications, but it's not all bad. What if your automobile could tell if you were getting drowsy and was capable of warning you before you crashed and killed yourself?

Now, if you have two cameras on top of the monitor, the transmitted image would be three-dimensional. You could point to the screen and say, "Expand that Window," and the computer would understand and process your request. Put two projectors on your glasses, beam the image directly onto your retinas, and you have *The Matrix*. *2001* was a little optimistic. It hasn't happened yet. Makulowich says it's from 5 to 8 years out. So you may not be able to sign up for your implant quite yet, but your kids will.

Speaking of which, I was able to take mine to dinner a couple of times and wander around the military base a bit. She has some interesting stories.

"Dad!" she says. "The Marines just grunt at each other, but the Army guys! The Army guys bark like dogs!"

"They do, really?" I ask, with mock incredulity. Life off the island must be a little different now. The Presidio is an Army base that hosts the other services as tenants.

"Yep. They say 'Bravo Company, dismissed!' (She says this in a military manner.) and they all start barking!"

"Well, I guess that's better than meowing," I offered.

"And Dad! Dad! This is an Air Force push up!" Linnea puts both hands up and pushes out in the air, struggling and grimacing, panting as if there were an invisible wall in front of her. Finally, after a full minute of this, she gets her hands half way in front of her and then, very slowly, painfully, and drawn out she says, "One!"   ▲

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