

Comdex, Monday

Here I am again. It's six thirty on Monday night, and I'm back in hall G waiting in line for another keynote. There are about the same number of people as were last night's line for Bill Gates. This is not something I expected, since the keynote speech of Carly Fiorina this morning was a walk-in. Other than Gates, who else could bring out this many curious people? I'll get back to that. But first, it's theme time.

What's it all about?

Every Comdex has a theme or two, the hottest buzzword among all the buzzwords. In the past, it's been "the year of the LAN" or "the Internet" or "the PC" or "the GUI", but all of these are old hat. This year's shoo-in for an overarching theme could have been "e-commerce", and there's certainly enough going on that relates to that subject. But this is Internet time, and e-commerce, which was just coming into its own during last November's show, is a bit too old-hat and well accepted to generate the buzz it would have had back in, say, April.

Java, likewise, is a little too mature, and thanks to the Web everyone's been a Java user for over a year already. XML has the opposite problem, a complex concept few people have actually been seen in real life. The surprising buzzwords here: *Wireless networking* and *biometrics*.

There is a great deal of interest in wireless connectivity. Part of it is the traditional LAN kind of networking, in which radio waves, or telephone or AC wires, replace dedicated network wiring. But the more exotic part of it is the integration of handheld and other mobile devices into the information stream. This one makes sense: the cell phone has become a universal tool with an installed base of hundreds of millions of subscribers. The PDA and pager markets are smaller, but still significant. Comdex attendees, who are generally early adopters of technology, are well acquainted with all of these media and are anxious to use them to carry the Internet along when they travel.

And everybody talks about the ultimate mobile network device, the car. Bill Gates built half his keynote around the uses of a networked car. Carly Fiorina of HP talked extensively about a world where every object is a smart device, and cars are just a mobile information appliance that happens to carry people around. Hopefully the networked car won't have the same effect on driving as the cellular phone, or personal safety concerns may turn next year's Comdex into the Year of the Telecommuter.

Biometrics

Given the explosion in the use of mobile devices, it may have been easy to expect wireless networking to be a hot topic this year. Biometrics is an odder choice, but it's everywhere, from the big banner ads flying outside the convention center to the little flashing red LED on the cover of the Program Guide, advertising "the only Mouse with Biolink Fingerprint Security". After a day and a half I still haven't figured out how security is usefully enhanced by preventing the use of one's mouse by unauthorized hands. But obviously many people do, considering the number of products that scan fingerprints, retinas and voice patterns. Frank Dzubeck, a Comdex board member who moderated a wireless technology panel I attended today, said twenty percent of the pre-show email he received was from end users asking about biometrics. From the look of it, their products were waiting for them when they arrived here.

Products: seen on the floor

So what's out there? I spent a couple of hours today wandering the aisles between the Fiorina keynote and the afternoon conference sessions, and saw some exciting things. Among them:

Bluetooth: get ready for the PAN

That's the Personal Area Network. Bluetooth is an industry standard, developed by Ericsson and adopted by other companies from IBM to Intel. Its goal is to create a radio link that will cause any Bluetooth-equipped device to link automatically to any other like device that comes within ten meters. Once linked, the devices are on their own to figure out what to do. PDAs might synchronize their calendars with PCs. Cellular phones can automatically link to PDAs or computers and become wireless modems. Bluetooth-enabled cars can receive anything from routing information to digital music from portable devices, as Bill Gates showed last night. In a really fascinating demonstration of what Bluetooth can do, one company is building a cellular phone that automatically turns into a conventional cordless phone when it comes within range of a base station, saving a fortune in phone bills and eliminating one more electronic device.

Here's the really interesting part: The target cost to the consumer of adding Bluetooth to any device is \$5. Five dollars. The goal is to connect any device that could possibly benefit from becoming aware of the world around it. John Roberts, Microsoft's general manager for WinCE, used the term "smart object" to denote a class of devices, third in a hierarchy below PCs and information appliances, for which connectivity is simply a way to get their core job done.

The first Bluetooth devices are scheduled to ship in the first quarter of 2000. They are a PCMCIA card and a USB device designed to give notebooks and other traditional PCs the ability to communicate with each other and with the next wave of devices - cell phones, PDAs and other things that will be designed with native Bluetooth capability.

One controversy that arose today dealt with a conflict between Bluetooth and the current standard for conventional wireless networking, called IEEE 802.11. The two standards coexist on the same radio frequency range, chosen by both because it was the only practical frequency that was available worldwide. After talking to a couple of Bluetooth engineers, one of whom I've known for ten years, it appears there's a great deal of denial about the problem. One vendor's engineer expects that Bluetooth will simply squeeze 802.11 out of the picture; the other expects that it's more a matter of hysteria than a real

problem, and likened it to the current concerns over Y2K. Time will tell whether he's right - about either Bluetooth or Y2K.

By the way, if you wonder about the Bluetooth name (I did), it has two origins. Bluetooth was the name of the king who united the separate states of Denmark into a single country. Bluetooth is also the successor to Redtooth, the original code name for the infrared ports that adorn virtually every modern laptop and that almost nobody ever uses. (I used mine today to exchange electronic business cards. More on that later.) Unless Denmark had a King Redtooth, the two explanations are completely incompatible, so pick the one you like.

ClearType: Microsoft gets one out the door (maybe)

In yesterday's dispatch, I alluded to several near-products that Bill Gates promised in his 1998 keynote. One of these was ClearType, a clever bit of software that allows programs to triple the resolution of LCD screens by addressing each color dot in each screen pixel separately. Gates touted it as a breakthrough technology for electronic books, and in demonstrations it did make a dramatic difference in the readability of text, especially in small or fancy fonts.

I may have spoken one day too soon. ClearType is prominently featured in the Microsoft booth, imbedded in a new product called Microsoft Reader. And the Justice Department will be happy to know that Microsoft has been developing alliances with book publishers to offer electronic editions of its current books. MS Reader will be available for either free or cheap download from the Microsoft website in January or February. Microsoft is targeting laptop users as their first market, since there are so many of them out there. Future products should include a dedicated e-book device, although Microsoft will probably not design or manufacture the box. ClearType will eventually be incorporated into Windows 2000 so all applications can take advantage of the increased screen resolution. It will not be part of the initial Windows 2000 product.

Windows CE reaches adolescence - HP Jornada and Compaq Aero

Whether you like the Windows CE platform or not (I don't, especially), it's clear that companies are putting a great deal of work into making viable products out of Microsoft's original design spec. MS intended to give hardware designers as much leeway as possible in the design of CEs, and HP and Compaq show three distinctly different form factors between them.

The Compaq Aero is a keyboardless device that has about the same footprint as a Palm Pilot. Compaq dealt with the differences between users by making the Aero available in two different designs. The first is an extremely thin (about 1/4 inch) and light device that is smaller than a Palm V but sports a very bright color screen. The second is a heavier device, over 1/2 inch thick but the same size in the other dimensions. This one has all the bells and whistles - a CF slot (the emerging standard for expansion cards smaller than PCMCIA) for which they offer the IBM miniature 340MB hard drive, an embedded MP3 player, a voice recorder, and other features I didn't take particular notice of. Both units are well shaped, with the edge in hand-friendliness going to the wasp-waisted and far lighter small unit. But the added capabilities of the larger Aero are hard to pass up. I don't think either one will lure away any Pilot users, but neither one is likely to end up as shelfware. These are both solid, usable designs.

HP takes the opposite approach with the Jornada. This is a line of keyboard-based systems that is targeted more as a small, limited-function PC than as a companion like the Aero. The keyboard makes the system more usable than the Compaq models, but the size is too big to fit in a pocket, and too small to compete with larger CEs like the Vadem Clío as a platform for heads-down work. The tradeoff of size for features makes it less likely that the Jornada's owner will always carry the device everywhere, the way many Pilot users do.

Keynotes and sessions

HP may not have built the best CE device at the show, but its CEO, Carly Fiorina, gave a terrific keynote speech this morning outlining the company's new strategy. It was one of three good sessions I attended today.

Carly Fiorina: HP goes back to its roots

After introducing herself with a video that culminated in the question "what's your e?", Ms. Fiorina got down to business. HP's job in rebuilding itself, she said, is to return to its roots as a creator of revolutionary, but practical, new technology products. Not surprisingly, she focused her talk on the Internet and HP's opportunity in it. She listed three key areas in the Internet space, and claimed HP is the only company positioned to play in all three:

- *e-services*: Fiorina made her point strongly and often that, in the new economy, products are primarily a way of packaging services. She gave a number of examples, some of which tied in HP's pervasive computing initiatives. She also made one of her major announcements in this area, declaring that HP will release the source code for eSpeak, the core of their pervasive computing architecture, to the public on December 8th. HP's goal is to have eSpeak become a "universal translator" of Internet services to any device from handheld information appliances to automobiles to legacy laser printers.
- *Appliances*- HP will use its hardware expertise to develop both information appliances and the underlying circuitry to enable them. These devices will take on new and different forms and do things we don't even think about today. HP's goal is to create embedded circuitry as small as a few molecules thick for connecting devices to the Internet. In doing so, they should make it possible to turn virtually anything into a smart object. Fiorina used this part of her presentation to announce a new hardware partnership. They will be working with Swatch to create the first Internet-enabled wristwatch. As she made that announcement, six thousand people mentally started their Christmas lists for 2000.
- *Infrastructure*: HP will build on their experience and market position in the server arena to create the back end

infrastructure for pervasive computing. She reiterated the fifteen year old HP vision for pervasive computing - "as available as oxygen, as reliable as the sun, as invisible as radio waves" - and sees the need for a network architecture that can support billions of devices and trillions of transactions.

Fiorina capped off the presentation by discussing Project Cooltown, a model city in which everything is connected. Your alarm clock, for example, can check the traffic reports and wake you up early if the commute is going to be a long one. Your PDA becomes your portal into your centrally stored files, and the only device you ever need to carry. You give a presentation by "squirting" the URL of your slides into a video projector, which pulls them off the network to show them.

I don't know how much of this will ever become reality, although the underlying hardware is all either available or on the way. But I do know that those engineers at HP know how to have fun.

"The Intelligent Edge": the shape of new information devices

This was an excellent session, given by decision makers from Microsoft, IBM and Ericsson, that tried to predict the kind of information devices that people would be using in upcoming years.

Not surprisingly, the Ericsson representative predicted a future in which PDA functions collapsed into phones. He showed a new Europe-only phone with a built-in PDA based on the EPOC operating system. EPOC is a product of Symbian, a joint venture of Ericsson, Nokia and Motorola along with PDA manufacturer Psion. Given the combined cell phone market share of the three main players, Symbian is a group to watch. Nokia and Motorola both have EPOC-based phones on the way, so we should be seeing them in the States soon.

The Microsoft representative was John Roberts, who manages the Windows CE line. He also did not surprise anyone when he predicted a world in which cell phones and intelligent devices are powered by Windows CE. He made some good points about the need to separate people's electronic identity from the device they are using. He also focused on the need for pervasive wireless connectivity, focusing on connectivity as the necessary condition for making smart devices truly useful.

Following the tradition of splitting every concept into three key points, he outlined the challenges to making this connected world a reality: *directory services*, so the devices can find each other even when they're moving, *synchronization*, so they can figure out what information they share and replicate it intelligently, and *security*, so your intelligent devices will give your personal information only to you.

Microsoft is working on solutions to the first and third of these problems, offering Active Directory Services based on LDAP as a global directory and smart cards as an approach to providing security. He didn't talk about solutions to the synchronization problem. Any Lotus Notes administrator can tell you that synchronization is hard, even in a well controlled environment. In the brave new world of smart objects, where a blender can contain a database, life will get very interesting for the replicators, and data integrity may be the biggest challenge facing architects of the new information services.

The IBM presenter, Jim Coulson, did a good job of presenting the assumptions that lead people to produce bad wireless devices. Among these are an over-reliance on desktop design standards like high bandwidth connectivity, high resolution video and decent text input devices. He made the point that, in the real world, people are much more familiar with cellular phones than they are with other connected devices like PDAs and set-top boxes. For that reason, he expects that the enabling of devices for Internet use will start with the telephone before moving on to devices more suited to handling text-based data. His suggestion for computer-focused technologists: get used to it.

One interesting prediction came out of this session. The Ericsson representative said that, by 2001, 95 percent of all cellular phones would be enabled for the Wireless Application Protocol. This is a standard that allows phones to handle a subset of Internet information that is filtered and optimized for low bandwidth connections and small displays. And given the source of the comment, it sounds more like a marketing plan than a prediction.

The close of the Information Edge session brings me back where I started, to the floor of Room G and the line for the last keynote of the day. It's Linus Torvalds, creator of Linux, and when the lights go down and Linus walks on stage to a standing ovation, it's clear this is a meeting of the faithful.

Linus and Linux

The atmosphere was something like a religious revival. Linus (it's funny how Bill Gates is Gates, but Torvalds doesn't sound right for Linus) reiterated the philosophy behind Linux and the Open Source movement. It was interesting to hear him lump the Mac with the PC and deride it as an example of the Old, Way of Doing Business. He made some interesting points:

- Companies, and some European governments, are starting to buy Linux because they want some control over their software environments (translation: they don't trust Microsoft to deliver code free of critical bugs).
- The Open Source model is growing. Software companies like Netscape and HP are not the only ones releasing source code for critical products. Hardware vendors like 3DFX are releasing the hardware designs of their products so others will write good device drivers for them.
- The market for Linux has exploded. This is apparent in the growth of the Linux section of Comdex. Last year there were six booths in the Linux pavilion. This year, the entire convention center of the Las Vegas Hilton has been taken over by the Linux Business Expo. Linus gave an example of the new prosperity by holding up his Linux Visa card, complete with the ubiquitous penguin logo.

During the Q&A session, Linus' lack of control over Linux became quite obvious. He declined to answer questions about security and performance, deferring to developers who were not there as the ones who really knew what was going on in those areas. As he pointed out several times during the talk, he is the caretaker of Linux, not its manager. He did invite

Microsoft to develop its own implementation of Linux. He didn't expect them to accept his invitation.

Cool stuff

The world's smallest Pilot keyboard (really)

It would 't be Comdex without the occasional encounter with serendipity. Today it was a Japanese inventor who doesn't even have a booth. He was showing off a keyboard for the Palm Pilot. The keyboard probably didn't weigh a quarter of an ounce, and would not have looked out of place as the prize in a box of Cracker Jacks. It is designed to stick on the screen over the Graffiti pad, and consists of a small paper and plastic sheet. On the sheet, all the keys of the standard QWERTY keyboard are laid out. Each one has a raised plastic dot. The dots are high enough that they can be hit pretty accurately with two thumbs while holding the device. Pressing a key activates software that detects the XY position of the dot being pressed. The software translates that position into a letter and passes it on as if the letter had been recognized by Graffiti. The keyboard has no moving parts, adds no bulk and almost no weight to the Pilot, and can be removed and reattached. I found it very easy to use and much faster than handwriting recognition after a little practice. For handwriting diehards, the software includes a pop-up Graffiti window that slides over the remaining display area and slides away after use.

The product is called the Thumbtype, and it isn't sold in the US yet, but when it is available he'll sell a million of them. For more information, check out <http://www.thumbtype.com>.

Infrared beaming gets real

We've all seen the demos. Salesperson meets potential client, and as a form of greeting they point their PDAs at each other to trade electronic business cards over the infrared link. The practice is at least as old as the Newton.. The only problem is that infrared beaming has worked well when people are using the same application on the same device, but not otherwise.

Today that changed for me. After talking to an IBM contact, we both discovered we had no business cards. He did have is Palm V, and I had my Psion 5mx. Both support infrared transfer. Both support vCard for contact information. Would they talk to each other? Yes! I walked away with his business information in my contact database, and he has mine. Later I got the Thumbtype inventor's information the same way.

I've been seeing a trend recently for people to sign Internet email by attaching their vCard file. I've successfully imported these as well. After four years, it finally seems that vCard has arrived, one more step toward the realization of a connected future.