

Enterprise Impacts From The Consumer Electronics Show

Robert Lee Harris

This year, CES had more of everything—headsets, multimedia and storage. Will that mean more softphones and more bandwidth at work?

In many ways, consumer electronics is just about the opposite of business information technology. Consumers often go gung-ho for the latest gadget, while business buyers are far more conservative. In fact, you could argue that the modern era of IT began with the saying “You’ll never get fired for recommending IBM.”

The consumer doesn’t have to run purchase decisions up the management flagpole, and there is no brand loyalty (with the exception of Apple). Manufacturers don’t get many opportunities to up-sell existing consumer customers, but they do get a new chance to score a quick hit with every invention. Couple these factors with falling prices for components, and you get a dynamic consumer electronics market teeming with weird gadgets.

At CES this year, there were a lot of bad ideas on display, as well as a few brilliant ones. I saw a few great examples of new consumer tech that businesses might want to consider, including a dual-mode phone, a full-featured SOHO/home PBX and many great headsets, plus portable storage and keyboard devices. And I saw convergence at every turn, some of it clever but a lot of it ridiculous (see “Robert Harris’s Questionable Convergences”).

Consumer VOIP Choices Lead The Way

Business IT customers aren’t the only ones who have been playing it safe: The legacy PBX manufacturers have hedged their bets and dragged their feet as well, especially when it comes to voice over IP (VOIP). Of course, they have to offer “gradual migration” to their installed base, but that

doesn’t explain why six or seven years of converting to IP have produced systems that are buggier than their predecessors and require more frequent patches and updates. Many loyal business customers have been waiting to replace their legacy systems until the IP-PBXs were as reliable, and they have been disappointed.

Meanwhile, consumer VOIP devices have taken a huge lead in terms of functionality, with mobile phones that support five different forms of communication (standard voice, push-to-talk voice, email, instant messaging and photo/video) and home network equipment featuring failover and dual-band capabilities that exceed those available in many enterprise networks.



D-Link V-Click dual-mode phone

For example, at CES I saw the D-Link V-Click dual-mode phone. When it ships in a month or so, it will allow the user to switch between GSM cellular and Wi-Fi networks with one click of a button.

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Robert Harris' Questionable Convergences

One of the silliest combinations I have ever seen is the “Telephone Mouse.” A company called DreamNovia manufactures the DreamMouse Phone, a USB mouse with VOIP phone features.



DreamMouse Phone

Picture someone busy “mousing” away on their laptop when suddenly the mouse phone rings. You stop your work, open your mouse and start talking. The caller needs you to look up something up, so you close the mouse phone and, uh-oh! You hung up on the caller!

I asked the exhibitor if the mousephone had any business application, to which he responded, “Sure, you start using this as your phone and you save money from the first call.” I was also informed that this device retails for \$50 less than the Sony version.

“The Sony version?” I thought to myself. Sure enough, last year Sony created the Skype Mouse Phone. The Skype Mouse sports the same clamshell design but has the added feature of opening a directory on your PC when the device is opened—when you can no longer use the mouse to navigate.

The second honoree in the unnecessary convergence category is Newcont’s NTP-3422A Audiophone. It is an iPod dock, 2.4-GHz digital cordless phone, radio, clock with alarm/snooze, multi-handset device. As far



Newcont NTP-3422A Audiophone

as I could see from the literature, the integration of these accessories is limited to the speaker.

I did some Internet browsing for similar items and accidentally stumbled upon the Barbie Play Phone with working clock, which has a similar design and form factor (could this turn into another Apple vs. Linksys iPhone dispute?).



Barbie Play Phone

On a more serious note, what I noticed in both of these devices was that they were very focused on hardware based convergence, without really considering the benefits□

The V-Click device is essentially a two-line phone, but this is a capability some PBX vendors have been trying to develop for four years. Granted, they have been trying to provide it by allowing cellular calls to hand over to and from wireless PBX extensions, but vendors like Avaya have given up and scrapped the project, while the consumer sector took the risk. Now customers can get a single device for GSM and Wi-Fi, even though it isn’t perfect. How much longer do you think enterprise users will be willing to keep carrying a separate cell phone?

Another clever innovation I found at CES is the Equivox PhonePort telephone system. For just \$880, this turnkey “PBX in a box” includes a SIP proxy, voice mail server and auto attendant, and comes pre-configured for quick and easy connection to several SIP- or IAX-based IP services, including Vonage Business Plus. Users configure individual stations through a Web interface. Again, while vendors are trying to offer what they call economical small office solutions for \$5,000–\$10,000, here’s one springing up in the residential market for a tenth of the cost.

Some device combinations are clever—others seem to have no practical use

The phone as a fashion and decorating statement was a popular theme at CES this year

Function Meets Fashion

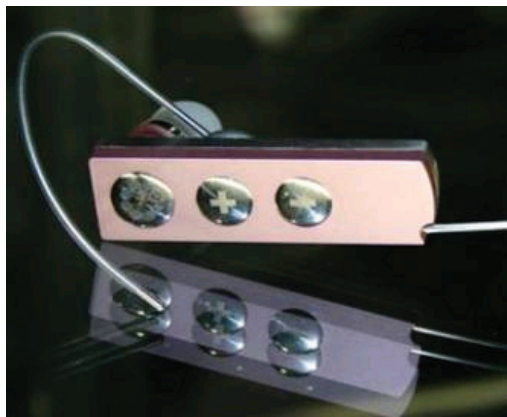
Devices that showcase their aesthetic value over features and functions have little impact on the future of technology. What they do illustrate is the creative effort that goes into shoring up the falling price of commodity devices—in this case, VOIP handsets and Bluetooth headsets.



Futiro Luna Skype phone

For example, I saw the beautiful Futiro Luna Skype phone at CES. To me, it looks a little like a shiny \$75 shoehorn, but Futiro advertises the phone with the slogan “Do more than talk, make a statement.”

There also were many Bluetooth fashion headsets, but the one that received CES Innovations Design and Engineering Showcase honors was the Joby Zivio. Available in the near future, but not yet priced at CES, it has a jewelry-like casing and a retractable boom microphone for what Joby calls the “moments that matter.”



Joby Zivio Bluetooth headset

Another Bluetooth headset vendor at CES advertised its headset with the line, “You’re wear-

ing a \$400 suit and \$200 shoes to the meeting. What headset will you be wearing?” Personally, I’m not expecting to attend any meetings in the near future that require a \$600 get-up, but if I do, you can bet I won’t walk in talking on a headset, no matter how well it matches my tie!

One of the most dramatic products at CES was the Bluetooth Virtual Keyboard, built by i.Tech Dynamic and distributed in the U.S. by Golan Technology. Attendees flocked around the demos of this Innovations Award winner. The device is small—just 3.7 inches tall by 1.4 inches wide and 1.1 inches thick, and it weighs only 3.1 ounces—and priced just under \$200. When paired with a Bluetooth-capable PDA or laptop, it laser-projects a full-sized keyboard onto any flat surface.

After several false starts a few years ago, this latest VKB attempt may be poised for adoption by users who are frustrated by mobile devices’ tiny keyboards, although it is still a separate component to carry around, like the non-virtual adjunct keyboards that have been available for years. I wondered if typing on a hard surface continually would be a long term health risk for your fingers; Golan reps in the booth had no information regarding the matter.



i.Tech Bluetooth Virtual Keyboard

Technology Trends Are People Trends

New systems and applications come into the work world in two ways: Either management mandates them, or end users bring them. In either case, end users will not adopt something new unless they perceive it as a convenience rather than a burden.

Consumers might not be as insistent at work when it comes to using virtual keyboards and

headsets, compared with the enthusiasm they showed for surfing the Web, but, based on what I saw at CES, I do think some of these devices reflect trends that will have an increasing influence on business technology:

- Headset use will increase.
- Multimedia cell phones will raise expectations for audio quality.
- Portable USB storage devices will hold more and more digital content.

The combination of these three trends will, I believe, make it very natural for users to accept PC softphones, thus removing a barrier to converged services in the enterprise. Let me explain.

First of all, consumers may not buy the idea of headsets as a fashion statement, but hands-free laws are being passed in a growing number of populous states to improve driving safety. Consumers are not about to give up the combination of driving and talking on the phone, and commoditized Bluetooth headsets will make this transition much more convenient for drivers.

Headset manufacturers also seem to be ramping up with many more options in headsets. One interesting development is the bone conduction headset, which carries sound through the bones of the skull and jaw. It provides clear audio despite outside noises while letting you continue to hear your surroundings.

This is not a new technology. Magazines in the 1970s advertised the “Bone Fone,” a vest-like radio that conducted the sound up from your shoulders to your inner ear. Since then, bone conduction has had serious use in hearing aids as well as emergency response and noisy environments.

Some drivers may be more comfortable using this technology in traffic than ear-covering headsets that block outside noise. At CES, Phicom displayed the Alljoy AH510M, while Hanho Electronics Co displayed the HIB707W I-Bone Bone Conduction Headset.



Alljoy AH510M

The I-Bone (both in wireless Bluetooth and a smaller corded model) allows the user to hear music in stereo and answer calls on a cellular phone. Banking on this technology crossing over to the business market, Hanho Electronics plans to release a call center version late in the year.

Another new headset, the BW 900 from Sennheiser Electronic Corp., is compatible with all types of speech-based Bluetooth devices, and allows the user to easily switch among them—say, from a mobile device to an office phone. I expect this interoperability and ease of use will not only appeal to users, but will also help them become comfortable with PC-based softphones.

Consumers Will Love Softphones

Today, many users resist the PC softphone, not because they are used to a handset, but because they don't trust the reliability of a PC-based phone application. But headset use in their consumer lives will (ahem) soften them up, especially as they start to depend on dual-mode capabilities and as more of them use headsets with PCs and laptops as part of their work (in call centers, for example). And, I guess you can't overlook that Jack Bauer cool factor.

Once even the casual desk jockeys get used to headsets in their private life, then they will find old-style handsets annoying. Tucking the handset between their chin and shoulder will feel awkward, and they will wander away from their desk until the cord pulls them back or the phone jumps off the desk.

If PC softphones are pulled along by cool headsets, maybe Apple's iPhone will pull along another old innovation—the touch-screen tablet PC. At CES, the iPhone was touted as a music player and telephone combination, but what the attendees really went wild for was the “soft key” screen. Earlier touch screen tablets were considered cumbersome, but now Apple is making a smaller version of the same technology, and it looks fun and innovative.

The Apple iPhone may not break into the business market, but it could help to usher in a new level of comfort with softphone-type technology. And the idea of integrating portable music and video into communications devices could have other consequences as well.

Make My Mobile A Multimedia Model...

My second prediction, that multimedia cell phones will raise expectations for sound quality, is based on the obvious proliferation of dual-use cellphones—and now, dual-use headsets. A good example is Ubixon's Lubix Bluetooth Stereo Headset (model LC1).

The two pieces click together so the device can be worn as a “necklace” when not in use, and the



Ubixon Lubix Bluetooth Stereo Headset

More drivers will adopt headsets as more states adopt hands-free driving safety regulations

Adding WAN bandwidth is getting less expensive—are you too stingy?

sound enhancement features are extraordinary. Ambient sound distractions can be eliminated, while various 3D field effects can be invoked to simulate a live performance, spatial dispersion and wide (3D) stereo sound image. The Lubix is as focused on sound quality and as cool as anything an MP3 listener would use, but this is also a Bluetooth mobile phone headset, not a “music only” headset. The headset displays information such as the incoming phone number, volume level and type of 3D sound effect on the LCD screen.

In the same vein, the Shenzhen Neopoint's Lanso A5+ Bluetooth headset comes with a stereo multimedia chipset. It allows you listen to music, then switch to voice when a call comes in.

While these devices improve the audio on cell phone calls, they can't entirely compensate for the low fidelity that most mobile service providers deliver. These operators are planning to increase revenue by delivering real time content such as mobile music and television, but consumers won't want this content unless its quality is better than “phone call” voice. They should expect their subscribers to ask, “If I can listen to an MP3 in full stereo, why does my headset have to sound so tinny once I switch to a call?”

The bandwidth and prioritization required for the real time multimedia content will just as readily accommodate high-fidelity voice. Telecom engineer Chris Ellis, in a statement to the UK's office of communications, predicted, “It will seem extraordinary to us in a few years' time how the telephone operators were able to avoid providing premium quality voice services for so long. Every other consumer audio market offers products with a quality/price trade off.”

...And Gimme A Side Order Of Storage

Another prominent trend is the use of USB drives to hold music, video, work files—and now soft-phones. At CES this year, Vonage was recognized with an Innovations Award for the V-Phone, a USB memory stick pre-loaded with Vonage Talk Software and a phone number.

The V-Phone looks like a little pocket knife on a key chain and costs \$40. You plug it into a USB port and make calls through the detachable stereo earpiece/microphone (included). And 250MB of



Vonage V-Phone

storage is also included. A Bluetooth version is being planned.

Another “Phone on a Thumb Drive” on display at CES was the SanDisk Cruzer Titanium. This USB flash drive costs about \$50 and includes Skype software, allowing users to make voice and video calls from PC to PC anywhere in the world. Besides moving lots of content around, these devices confirm the trend toward progressive acceptance of softphones over traditional handsets.

To quickly download or share files requires not only storage, but also high-bandwidth connections. Video calls in real time will be even more demanding. And that brings me to one last observation gleaned from CES.

Customers Won't Mind Paying For Broadband

Many home network items on display at CES included wireless Gigabit Ethernet routers and gateways with dual WAN capability, as well as devices optimized for streaming multimedia content. All these products are based on the assumption that residential network users are willing to pay for massive amounts of last mile bandwidth.

In fact, in many parts of the U.S., they already are doing so. Both cable modem and DSL subscriptions are up, even in areas where the pricing is high because of a lack of competition. Gaming is the reason. Kids and adults are gathering to play interactive games at “LAN parties” and playing together online over their wide area connections.

Latency is a fun-killer when it comes to games, since if your play is delayed, someone else could shoot or score first. In a D-Link product brochure at CES, I found an interesting, consumer-oriented explanation of network latency, which D-Link calls “lag”:

“Lag is defined as the wait between the time you press your gaming controller and your online game responds.”

To combat lag, D-Link is offering its new Gaming Router—with four Gigabit Ethernet ports and 802.11g wireless connectivity at up to 108 Mbps. The router's GameFuel software is optimized to recognize and prioritize packets from PC, Xbox and PlayStation 2 games. The company promises GameFuel will “give online games priority on the network to let you dominate your opponents with lag-free performance.”

It seems that game players are as serious about traffic latency as network engineers. To meet increased network demands for games, video and other applications, both the residence and the enterprise will likely have to increase bandwidth significantly. Paying for bandwidth probably won't be an issue—at least on the consumer side. But what other perceptions about latency and selective performance will these consumers bring to work with them?

Perhaps if they get used to the idea that they can't use all their bandwidth for top performance

in a game, and expect at the same time to video-conference with Grandma and download a movie, they will expect to see variable performance of different applications at work.

On the other hand, I have seen such low prices for such hefty increases in bandwidth—less than \$100 per month on an MPLS contract to go from 512 kbps to 1.024 Mbps, for example. If you think about that, it's cheaper than TDM even if you run non-compressed voice. I wonder if network managers are still stingy about adding bandwidth because their “best practices” training comes from a few years ago, when this type of capacity increase would have been cost prohibitive.

Conclusion

The interesting thing about this year's CES is the re-emergence of some “old” innovations, but in such a way that they will probably have a better chance at entering the enterprise. I think the acceptance of softphones, for example, will accelerate as a consequence of the little USB phones and the ubiquity of headsets. Ironically, mobile phones that also play music and video will now raise the bar for phone call quality—just as they once lowered expectations.

In both the business and the consumer markets, bandwidth will get faster and cheaper on both wired and wireless networks. It all starts with these somewhat frivolous consumer products: car

phones, music on phones, video games and Internet alternatives to cable television□

Companies Mentioned In This Article

Apple (www.apple.com)
D-Link (www.dlink.com)
DreamNovia (www.dreamnovia.com)
Equivox (www.equivox.net)
Futiro (www.futiro.com)
Golan Technology (www.vkb-support.com)
Hanho Electronics
(<http://hanics.en.ec21.com>)
i.Tech dynamic (www.itechdynamic.com)
Joby (www.joby.com)
Newcont (www.newcont.com)
Phicom (<http://wellear.com>)
SanDisk (www.sandisk.com)
Sennheiser Electronic
(www.sennheiserusa.com)
Shenzhen Neopoint (www.neo-point.net)
Skype (www.skype.com)
Sony (www.sony.com)
Ubixon (www.ubixon.net)
Vonage (www.vonage.com)