



The Highway Doesn't Stop at the Front Door

Getting broadband that “last mile” to the home isn't enough. Customers want to move signals throughout their homes, too. That seems obvious, but the implications for every segment of our industry may become at least as profound and disruptive as the “last mile” problem has been.

Most importantly, MDU owners, developers, and broadband operators will have to refine their thinking about housing design, and the design and location of points in the dwelling unit where broadband signals enter. A utility box in the kitchen seems suddenly inadequate.

Up to now, big, custom audio-video-data installations have typically been handled by skilled installers. The process is expensive, and compatibility requirements have tended to limit the ways these installations can be expanded or modernized. What's more, purchasers of these systems have tended to be homeowners, not renters. The systems themselves have sometimes featured high-volume speaker systems, again limiting some installations to freestanding homes rather than apartments or even townhouses.

All that started to change with computer-centric networks, using standard network “plumbing” such as Ethernet routers, Wi-Fi, and signals carried over electric power wiring. Virtually any equipment can “talk” to other equipment using standard inputs and outputs. The wireless links offer high bandwidth and substantial power-carrying capability. Speakers, for instance, can be equipped with wireless receivers and amplifiers, all in one box.

The key, of course, is that this approach is computer-centric. Recognizing that, Microsoft has been refining new releases of its “multimedia” Windows XP. Several large computer vendors such as Hewlett-Packard and Gateway jumped on the bandwagon

fairly early. Their second-generation machines hit the market this past fall. Some smaller vendors have jumped in as well. Most of the super-fast “gaming” computers are made by smaller suppliers.

Also this past year, LCD panels became the most common computer monitor type, and computer form factors got smaller. This allows computers to be installed in more places throughout the home, places where televisions and audio equipment might also be located. In fact, LCD monitors as large as 21 inches and as small as 14 are often equipped with the proper inputs to double as TV sets as well.

As we discuss in this issue, this year's Consumer Electronics Show in Las Vegas solidified the vendors' thinking. They released an entire new wave of hardware and software designed to “network” the home. The systems typically combine audio, video, security, and climate control. New broadband wireless networking approaches and more convenient ways to tap into the data-carrying capacity of electric wiring were very much in evidence.

The bandwidth requirements are vast, thanks to 96 KHz 6+ channel sound, and the high video resolutions needed to fill giant TV screens. How large? Samsung demonstrated a plasma screen eight feet – 102 inches – from corner to corner. How much bandwidth? We're talking about 80 to 300 Mbps.

Obviously, that kind of carrying capacity dwarfs the capacity of the “last mile” in all but a handful of communities in the United States. Only fiber can handle it.

What do customers expect, and what will get them to demand such bandwidth? First, it appears that VoIP will be the “killer app” of this market. VoIP may soon replace Internet surfing as the main reason to add broadband. VoIP service, plus a broadband connection, comes in at only \$50-80 a

month. That's with essentially no taxes, a bucketful of features, improving quality of service, and free long-distance. The surprise at CES: Vendors, looking at cell phones with cameras, are also betting people will want video VoIP sooner rather than later. And, oh yes, the phone should be “wireless” in the house itself, just like POTS.

Customers also expect multiple media streams. In the 2Wire poll discussed in this issue, the most cited reason to implement a multi-media home network (42 percent of respondents) was that respondents would like rooms in their houses to have multiple usages rather than their current fixed functions. A quarter of the respondents said they want to be able to start watching a movie downstairs in their living room, pause it, and continue watching in the bedroom.

Consumers also want to store, catalogue and show home video and still images throughout the home.

Microsoft has been rethinking its stand on digital “rights” in light of all this. Early versions of multimedia PCs made it impossible, in some cases, to move copyrighted audio and video around the home, even though the consumer owns that material and has every right under law to use it in any noncommercial way. Microsoft has to balance the concerns of the few copyright holders against the rights of millions of consumers. The consumers were losing until a few months ago.

All of this “disruptive” technology causes problems and provides opportunities. It also provides more for us to write about. ♦

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