

UStec Tackles Streaming Media

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Technology sends power, IR, multiple A/V streams over single Cat 5.

UStec, one of the original manufacturers of structured wiring, is really justifying its "tec" moniker. The company's new tecStream digital networking technology breaks the cable-and-can model of traditional structured-wiring providers.

Two years in the making, tecStream is the quintessential networking solution for delivering multiple streams of high-resolution audio and video, power and control signals over a single Cat 5+ cable to multiple users in multiple locations.

A user can surf the Web, talk on the phone, and watch and control the television at a single location via a single cable. In fact, eight users in the house can do the same thing simultaneously, as long as each has a client device connected via Cat 5+ to the remote tecStream Switch.

"You can't do what we do on any existing technology," says Tom Cunningham, director of technical development for UStec.

tecStream consists of two core components. The hub of the system is the eight-port tecStream Switch, located in a wiring closet. Up to eight remote clients can be wired via Cat 5+ to the Switch, allowing access to all clients from any networked room in the home. There are two types of clients. The tecStream 2000 is the basic setup, while the tecStream 2500 adds analog inputs to the mix.

Both client devices feature an IR input and output jack, one RJ11 connector for phone, one RJ-45 for a Cat 5+ connection to the tecStream Switch, two 1394 (FireWire) ports, one generic Ethernet port for IP devices, two sets of composite outputs (one for onscreen display, one for recording), and one set of component outputs for 480i display devices. The tecStream 2500 module also includes two sets of composite and S-Video inputs for hooking analog devices to the digital network.

The modules are powered over Cat 5 -- only a single cable needs to run from the wall to the device.

UStec claims the network guarantees the capacity to transport 16 simultaneous, independent streams of video at 30Mbps each.

James Westbrook, CEO of Automated Home Technologies, Keller, Texas, has been beta-testing the tecStream system and likes what he sees so far. He has a demo set up in his showroom and compares it to the PVID 8 x 4-video distribution system from Crestron. "We love Crestron. It's a great system. ... PVID will serve as a matrix switcher but it's a point-to-point system so you can only send one source to multiple rooms." That's the problem with most of the high-performance Cat 5+ A/V distribution systems on the market. You can distribute one source to multiple rooms simultaneously, but not multiple sources to multiple rooms.

Multisource, multimode Cat 5+ distribution systems do exist, but they use Internet protocol (IP) for delivery. It's no secret that IP lacks the quality of service to deliver multiple streams of high-quality content.

tecStream, on the other hand, does accommodate native IP streams (and native 1394, for that matter), but does not rely on the protocol for streaming content over the network. Instead, UStec, in cooperation with a European partner, developed a protocol specifically for the purpose of transporting multiple streams of high-resolution content over Cat 5+ with "no degradation up to 300 feet," according to the company. Even analog sources can join the network, thanks to a technology that encodes analog streams at high bit rates (12Mbps).

The magic is not only in the transport protocol, but in the switching device as well. UStec's proprietary switch dramatically improves the efficiency of how bandwidth is used on the network, according to the company. As such, it combines the best of IP and 1394 but without their limitations.

"Straight 1394 is bus-based, so it can run out of space," says Cunningham. "tecStream gives us switching like Ethernet but with guaranteed bandwidth. Ours is a 100MB full-duplex switch that can accommodate 16 simultaneous streams."

Working It

Of course, all of that technology does no good if you can't pull content from the connected sources and enjoy it on televisions and audio gear on the network. UStec's solution is a TV-based graphical user interface (GUI) with companion universal remote. It is coupled with the technology to inject IR commands onto the Cat 5+ cable and the intelligence to control IR-enabled sources on the network.

tecStream cannot distribute HD content per se -- for no other reason than digital rights management, says UStec -- but a demo at the company headquarters reveals no visible difference between an HD and tecStream-converted stream. Westbrook of Automated Home Technologies has a similar demo in his own showroom. "I have one TV set up with DVI out of a high-definition satellite tuner and another with a component video output from tecStream," he says. "You can't tell the difference."

Bringing tecStream to Market

UStec already has a sales network for its structured wiring products, but the company is setting up a new organization, headed by newcomer Mark Cassidy, to market the tecStream line.

UStec markets only through dealers, so the company is not publishing "retail" pricing for tecStream. But company representatives say the solution should cost consumers about \$4,500 for two rooms and \$8,500 for five rooms. Westbrook thinks the pricing is reasonable, especially in view of tecStream's ease of programming.

It won't replace his Crestron offerings, says Westbrook, but it will open the doors to new business.

According to UStec, tecStream is expected to ship Sept. 1, 2005.

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