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Streaming Digital Video

Jul 6, 2006 12:00 PM
By Linda Seid Frembes

AV technology has great potential to enhance the educational experience. The education market also holds unlimited possibilities for AV systems integrators and technology developers who are willing to tailor their products and services to the education market. Beyond the slide projectors and cassette tape player from the not-so-distant past, new technologies that were only suitable for the corporate enterprise are quickly making their way into the classroom.

"There has been a big infrastructure build-out in the past five to six years," explains Pat Cassella, senior director of marketing, education for [VBrick Systems](#). "That includes the installation of high-speed enterprise network backbones that can support multicasting."

Multicast technology enables school districts to stream video to an unlimited number of networked users or classroom with minimal bandwidth. The impetus for the technology investment can be traced to the Universal Service Fund for Schools and Libraries (also known as "E-Rate"), which was established by the Telecommunications Act of 1996. E-Rate mandates that individual telecommunications carriers must provide service to schools and libraries at affordable rates, so cost savings for schools are realized via government subsidies. Schools that qualify can pull from a federal fund that totals around \$2 billion per year.

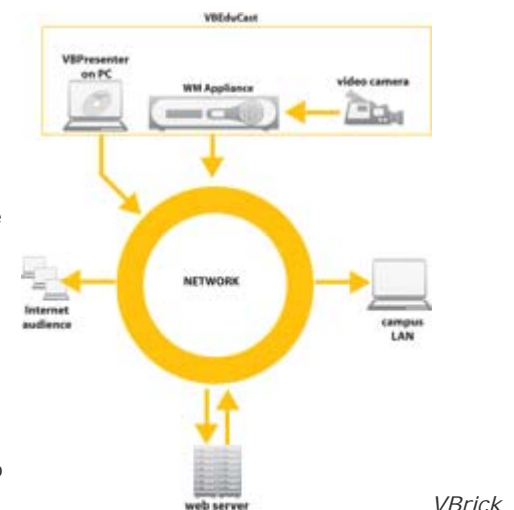
The arrival of high-speed data backbones has opened a new pathway for peripheral technologies. While webcasting has been around for almost a decade, broad data pipelines now mean that networked digital video can be streamed without compromising quality. In addition, graphics and other rich media such as PowerPoint slides can accompany the video presentation. Schools are using digital video streaming in applications such as distance learning, staff training, and video on demand in the classroom.

Streaming also addresses a common issue in both K-12 and higher education classrooms—overcrowding. Cassella notes, "Especially during an event situation like a graduation where there may be a limited number of seats, streaming allows family members to still take part in the ceremony."

One such example is the recent Samuel Clemens High School "gradcast," which enabled parents, family, and friends stationed abroad to experience the commencement online. Nearly half the students at the San Antonio, Texas, high school were associated with the nearby Randolph Air Force Base and Fort Sam Houston Army Base. Viewers from across the globe, including Afghanistan and Belgium, have since viewed the video, which was made available online for 30 days after the event. Closer to home, the gradcast allowed a hospital-bound mother to watch live online as her daughter received her diploma across town.

Streaming video also saved the day at Beacon City Schools in New York, where sudden inclement weather forced the graduation ceremony to move from a large outdoor venue into a significantly smaller 1,000-seat auditorium indoors. Faculty members immediately set up a video stream to an overflow room so everyone who had a ticket could still enjoy the commencement (and not have to go home and miss the graduation altogether).

With the proper network infrastructure, almost any school or university can implement a streaming system at minimal cost. "Our streaming appliance is approximately the size of a small laptop," Cassella says. "There is no PC needed—just a feed such as a camera, cable TV, or VHS tape player. The appliance receives the feed from a source, such as the video camera that recorded the graduation ceremony, then digitizes and streams it to a reflector service or ISP that makes the graduation video file available via the Internet."




VBEduCast

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VBrick

A viewer just needs to launch a web page to watch the stream, which is typically in Windows Media format. Best of all, streaming appliances can be integrated into existing AV setups such as mobile AV carts that can travel from room to room. Companies are developing turnkey packages, such as one offered from VBrick. Dubbed the "VBEduCast" kit, the package includes a digital video encoder appliance, a camera, a software plug-in for Microsoft PowerPoint, cables, and a prepaid hosting/reflector service for less than \$5,500. "As schools add to their streaming capabilities, they can expand out to a larger architecture and add components," Cassella says. "Our EtherneTV initiative provides a pathway to greater capabilities."

As the market matures for streaming and costs continue to drop, other applications for the technology will include streaming live events to the classroom, distributing student or faculty-run content like morning announcements, and streaming cable television to the classroom or dormitory.

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