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Book 'Em

by Dan Daley

Convergence may become the definitive word of the new century; integration of technologies and applications has become pervasive in virtually every category of business and society. One of the most active of these areas is how systems contractors are being asked to combine access control with security functions, keeping people and information flowing freely in large, complex spaces. This is while still providing a high degree of protection to the space and its occupants, and doing so in an unobtrusive manner.

A good example of this in action is at the recently renovated Topeka Shawnee County Public Library, in Topeka, KS. The three-story building's redesign, by internationally noted architect Michael Graves, triples its square footage. Less grand but equally critical, are the 40-plus identity-card reader stations now in place throughout the building to provide controlled access to staff and visitors. That system is integrated with an elaborate security system covering the building and the immediate adjacent areas—such as parking lots and walkways—with nearly 80 fixed and flexpannable cameras. The input of those cameras' converges on a central security control room with eight flat-panel screens on which security personnel can watch overlapping areas of coverage, bolstered by an alphanumerical paging system that broadcasts the location of problems to roving security guards or pages them after hours. The \$400,000 access control and security system was finished in November after 11 months of planning, design and implementation by Smith Audio Visual of Topeka.

The input of nearly 80 cameras converges on a central security control room with eight Viewsonic flatpanel screens on which Greg Gaul, the library's safety and security manager, and his security personnel can watch overlapping areas of coverage.

"The whole point of the project was to fully integrate the controlled access system with the surveillance and security network," explained Larry Heilman, president of Smith Audio Visual, which was the primary contractor for the job. "As the expanded facility became bigger, it needed a bigger system.



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The access control points went from nine card readers before renovation to over 40 readers now. Before, the security cameras were fixed. Now we have a number of PTZ [pan/tilt/zoom] cameras remotely controllable."

"The key to this system is to cut down our reaction time and provide a quickly accessed record of events," added Greg Gaul, safety and security manager at the library. "This system, with a push of a button, alerts security, zooms a camera in on the area, and logs the events in a matter of seconds. In the past, this sometimes would have taken minutes just to alert an officer."

Larry Heilman, president of Smith Audio Visual, oversaw the replacement of the security system's timelapse video recorders with a matrix of five Crest CDVS-5416-240 digital video recorders, fed by a mixture of Pelco PTZ, Crest CJ-9124 and PRI 950P3 cameras.



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takes forever, and even time-lapse takes a long time," Heilman said. "The Crest DVR, on the other hand, marks location points in the DVR which are stored along with the images in the LAN. The server is very central to the integration of the access and security systems, in large part because of the amount and detail of the documentation of the data they record."

Another aspect of systems integration is how various department managers can access streaming video from the

Smith Audio Visual upgraded the components to both the access and security aspects of the project. For instance, the security system's time-lapse video recorders were replaced by a matrix of five Crest CDVS-5416240 digital video recorders, fed by a mixture of Pelco PTZ and Crest CJ-9124 and PRI 950P3 cameras. This culminated in up to 16 channels on each of the eight 15-inch Viewsonic flat-panel monitors, which replaced standard curved-glass CRT monitors. On the access side, control is now via Identicard's Smartcard smart card reader system, which has active circuitry on an embedded Mylar strip, also allowing for a smaller credit-card-sized access card.

But equally complex and interesting is the way in which the systems were designed to intertwine. "It was very much a software based solution, using code that we ourselves wrote," Heilman noted. "No matter how much manufacturers will tell you that their technologies are compatible with others, the reality is you'll still need to create and refine your own software interfaces for a lot of equipment".

The software adjustments helped adapt the system to the facility's central LAN server, which automatically creates database logs of the use of the controlled access points and stores the images from the cameras. The images are also recallable, stored in purposely small cache sizes-enough to fill an hour of recording-making locating a particular point on the disc faster and more accurate. "Locating a specific point on a videotape

security system to see who is passing through various access portals. "[The video streaming] has its own separate circuit on the LAN, which they can view and review as needed," Heilman explained. "They can also send an e-mail to security or the police department through the same system."

Heilman also noted that the access system itself acts as a monitoring system, a sort of secondary security network. "We can set up time zones throughout the facility," he pointed out. "Each zone would have time blocks programmed into the card readers indicating when no one was supposed to be in that area. We tested that out on Veteran's Day, when the library was closed and when cleaning personnel had to be out of the building by 9 p.m. We did an all-points test on that day. If someone were to enter the closed zones, it would trip a motion or H2O sensor, glassbreak or forced door, and it would set off an alert and page the security personnel on call."

A third layer of electronic accountability is also piggybacked onto the system. Smoke alarms and water leak sensors are also plugged into the system, which is routed through the facility's fire panels and then to the security system.

Remarkably, none of this is accomplished using a central computer system. Instead, with the LAN acting as a centralized routing and storage system, both the access control and the security systems have their own computers for programming such functions as the time zone settings.

As beautiful as the newly revitalized library building is, it would have been marred by too obvious an access and control system. Smith's technicians carefully blended the hardware into the interior design, hiding and camouflaging them and using cables that combine video signal passing with motor control input to minimize wire runs. And all this incessant monitoring has a less sinister side, Heilman said. "Cleaning and catering people can see when certain rooms are finished with their meetings or other uses, then go in and refresh them without peeking into the rooms and possibly disturbing a meeting. It tykes the whole facility run with a more professional feel to it, like a very nice hotel."