

# High School Goes High Tech

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Schools are intended to be safe, secure havens of educational opportunity for children of all ages. Unfortunately, as we have all seen played out through the media, those hallowed halls and grounds can sometimes become the site of violent incidents that lead to injury and even death. Thus, finding a means to protect and safeguard students, teachers and other authorized individuals has become a focal point for school officials and parents.

In particular, since 9/11, an enormous amount of time, energy and money has been expended within the public sector to reduce the likelihood of violence in public schools. Statistics show these efforts have paid off. For example, in 1998 there were more than 2.7 million criminal acts performed on school property across the nation, but by 2000 that number was more than cut in half to 1.2 million.

Despite this overall decline in campus crime, the magnitude of some of the incidents that do occur — such as Columbine and Virginia Tech — is on the rise. And there's no magic wand that can be waived to eliminate such tragedies; even professionally trained campus security personnel can't be everywhere at all times. But with research, planning, hard work and the assistance of modern technology, the odds can at least be balanced in a given learning institution's favor.

As Jackson High School of Stark County (Ohio) discovered, this is where network-based video surveillance and access control systems come into play.

School officials enlisted local integrator ProTech Security to design and install a fully IP-based video, access control and intercom system to look out for its student body. The decision to move away from an existing analog CCTV system toward cutting-edge security technology was made during the planning stages of a two-year, \$50 million building and renovation project. Find out how the objectives of this project were achieved to perfection.

## School Officials Had Taste of IP Video Before Project Began

Jackson Local is comprised of six buildings — four elementary schools, a middle school and a high school. In 2005, Jackson Local School District began a large building renovation project at its high school facility that has effectively increased its size by 50 percent — from 310,000 to 460,000 square feet.

"This is a new addition with two renovations. The new building was Phase 1. Phase 2 started after Christmas 2006 when they moved the students into the new building," says Arthur Morrison, operations manager with ProTech. "Later this summer we'll start Phase 3 to complete the existing building in the fall of 2007."

One of the things that caused Jackson school officials to go with a full IP solution was the fact that traditional analog systems can sometimes fall short in providing clear, concise images. "There's no denying that we did have trouble identifying students and events with our previous [analog] video system," says Doug Winkler, business manager for Jackson High School. "The IP video system we now have has proven itself capable of providing extremely detailed images that make it easier for us to work with."

Before the renovation project began, the existing portion of the high school was equipped with a CCTV system comprised of 32 analog cameras and two 16-channel DVRs. That system might have simply been expanded with additional cameras, rather than replaced, had ProTech Security not provided Jackson Local school officials with a taste of what digital IP video can do.

"Instead of installing another DVR and a number of analog cameras to fill the immediate need, we suggested that they take a look at a Mobotix IP camera," says Morrison, who designed the new IP-based system. "We started Jackson High School with the Mobotix D10-D-Secure dome series camera and we recorded them to network-attached storage [NAS] they had on the network."

Many security integrators prefer the NAS solution because it allows data sharing by connected hosts at more than one location. At Jackson Local, video from several school buildings is collected, stored and made available to school officials who have the authority to view it. NAS appliances also deliver the lowest total cost of ownership of any storage approach while offering enterprise-level performance, scalability and data availability.

#### School's Integrated Security Solution Hinges on Networking

The IP-based integrated security system that ProTech installed at Jackson High School consists of IP cameras, a network-based intercom and an IP-based access control system.

"We currently have 48 cameras and 14 card readers installed at Jackson. We also have a number of other doors equipped with electric locks in the facility to provide access according to a preprogrammed schedule," says Greg Coon, service manager with ProTech. "We also have status switches on the access as well as nonaccess doors so we can generate an alarm message and audible sound from the security PC if someone violates one of them."

The IP cameras ProTech installed also have the ability to identify motion during restricted periods and to report it to the security kiosk. This capability could be utilized at a later time to notify operators at the integrator's dual-redundant central stations of an unauthorized individual during restricted periods. When used in this manner, images can be viewed by the central station as well as law enforcement as they approach the location.

The IP-based intercom is used in real-time to allow the school's safety officer to verify identity and allow or disallow access from a central security command post.

"We also have an intercom located at the student entrance, tied through the phone system, that rings the security desk. The student can be verified using both audio

and video, and he can release the door to allow them access if needed," says Coon. An audio component built into the system integrates with the IP cameras. In this case, the Mobotix IP cameras are equipped with a microphone and speaker that could be used by first responders to listen in as well as see inside the school building during an incident, such as that which took place recently at Virginia Tech.

"This was critical thinking in the design process and the recommendation we gave to the school," says ProTech Security President Daniel McKimm, a former law enforcement administrator and FBI academy graduate. This level of integration is not usually available with analog cameras that operate in an IP environment using analog-to-digital conversion.

At this juncture, the mechanics behind the integration of video, intercom and access control is purely manual by nature, but the infrastructure for complete integration during Phase 3 between all three security systems is in place.

"We expect to implement the full integrated capability of our system in Phase 3, or perhaps later," says Morrison. "But the groundwork has been laid and the capability is there once school officials give us the nod."

#### Computer-Based Video Effectively Integrates Multiple Facilities

Because the entire school system operates over the same wide area network (WAN), the integrated video/access control system brings the entire security network together under one umbrella so officials at any location in the school district can effectively view the high school's video and access data on the network.

In addition, school officials as well as the authorities can view these same images and data from anywhere outside the school's WAN using traditional Internet connectivity.

"An open-architecture platform allows us to 'talk' between systems as well as from outside. We live in a world where our children can be exposed to violence at any time and having a system open to local law enforcement makes perfect sense," contends Morrison. "Today, we are seeing more and more first responders with broadband connections in fire, EMS and police vehicles. They are using CAD [computer automated dispatch] systems with Web-based drawings of the building right to the vehicle. Why not our cameras and access systems?"

These capabilities are being welcomed with open arms by law enforcement across the country, especially in the face of increased demands and responsibilities since 9/11 and often shrinking budgets.

"With the system that Jackson High School installed, I can monitor activity inside the school building. Because the system stores video I'm also able to visually review the details of an incident to establish responsibility," says J.J. Lenemier, safety officer with the Jackson Township Police Department. "The intercom allows me to verify the identity of people at the door. Using my PC, I can either grant them access to the building or I can have them come around to the entrance at the security desk where I can better work with them."

#### System Quickly Proves Its Versatility and Effectiveness

In a network environment, such as that established for the Jackson High School system, it's much easier and faster to deploy additional card readers and cameras when needed.

"The beauty of IP technology and open architecture is that it affords one to be

virtually anywhere and yet have full access and control of systems via a secure network connection," says McKimm.

The school system experienced vandalism at its remote bus garage. ProTech was able to quickly cover the affected areas by adding IP cameras to the new video system. Best of all, this was accomplished without leasing expensive telephone lines or installing additional network resources.

Instead, the integrator simply plugged these new IP cameras into the school's existing LAN/WAN.

"It didn't take school officials long to find out just how versatile and effective network-based security can be," says McKimm. "The ability to grow the enterprise in an open, efficient and seamless fashion through this existing network was recognized early on when an immediate need was addressed to deploy cameras within the bus compound to deter and detect acts of vandalism."

By all accounts, the system deployment has instilled a greater sense of safety for school officials, teachers, school staff, parents and their children — even though the students realize they may not be able to get away with past mischief.

"By monitoring our school using video we can better protect our young charges as well as school staff," says Winkler. "And when students know that there's video in the facility, they seem to behave themselves better."

According to Winkler, many Jackson Township residents have expressed approval of the school's decision to monitor their children using video.

"These parents have told us that they appreciate the fact that we're able to offer a safe environment where their children can learn."

Jackson is one of the first schools in Ohio to go with a fully IP-based security solution. "It's a natural progression. Overall, public sentiment is more receptive toward security and surveillance as a viable tool to address crime, misbehavior, verification of action/inaction, deterrence and general resolution of disputed behavior issues," says McKimm.

During the last phase of Jackson's renovation and building project, ProTech will install more IP cameras, door contacts and card readers.

"We look forward to this during the final phase of our building project. The cameras we have now have become an important part of our security efforts as well as our IT infrastructure," says Winkler. "Now that we've seen IP security at work, it would be hard for us to do without it."

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