CAMPUS SYSTEMS

SMARTER SURVEILLANCE

Driving demand for better video coverage at schools

By Brian Carle

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SCHOOL SURVEILLANCE CONTINUES TO BE ONE OF THE MOST IMPORTANT MARKETS FOR VIDEO SURVEILLANCE, AND WITH GOOD REASON. THE SAFETY OF STUDENTS INCLUDING THOSE WITH SPECIAL NEEDS, VANDALISM, FIGHTS AND OUTSIDER THREATS ARE ALL DRIVING DEMAND FOR BETTER VIDEO COVERAGE.

Similar to many consumer segments, school systems share some common challenges and requirements. Understanding those can aid with technology selection and system design.

INTEGRATED PLATFORMS

When combining data from multiple complimentary security systems, the whole is often greater than the sum of its parts.

Most schools have some form of intrusion system, which by using a variety of sensors such as motion, glass break and door sensors, can detect unauthorized activity. Integration with the video surveillance system provides multiple benefits. When an event is detected, the recording frame rate could be accelerated. More importantly, integration can result in the ability to send snapshots or video clips to building management for visual verification of what may have triggered the intrusion system, saving on false alarms and providing valuable situational awareness to first responders.

Lockdown systems are becoming more popular for schools. Lockdown systems perform a series of actions on the push of a button, allowing predefined emergency procedures to be easily kicked off when an external threat is suspected, such as triggering the mass notification of faculty and staff, locking doors and notifying first responders. When integrated with video, the lockdown system can increase recording rates, provide snapshots or video clips with notifications to first responders and can lockout low priority video users from accessing video feeds which could inadvertently prevent access for high priority users in an emergency.

Finally, a new technology is emerging that will likely prove to be a key component to future school surveillance systems: social media

monitoring. A social media monitoring service aggregates social media from popular services like Twitter, Facebook or Instagram. Posts can be filtered by key words and geography to allow schools to identify social media activity which could indicate a threat. The technology is unique compared to other components of a security system in that it can allow security monitoring professionals to identify threats before they occur. Integration with video allows for visual verification of the person posting as well as correlation of real world events with social media reports.

COMPATIBILITY WITH LEGACY TECHNOLOGIES

Many schools have legacy analog camera equipment in place that still functions well. Replacing cabling or augmenting coax infrastructure with Ethernet-conversion equipment, and replacing cameras to upgrade to IP is in most cases cost prohibitive. Strategies which allow existing cameras to be used and upgraded over time are much more palatable.

In these situations, it is common for DVRs to be replaced in advance of cameras. DVRs can be swapped out to IP based VMS systems or hybrid VMS platforms as a first step towards technology migration. Using a VMS and encoders, system design professionals would need to consider the costs of managing many individual encoders, each with IP addresses, firmware to update and settings to configure. Additionally, each encoder will consume a switch port and require power. Switch port and power outlet consumption may be dramatically reduced when using a hybrid NVR where the analog cameras connect directly to the NVR and share power and network connectivity with the recording platform. Encoders do provide an advantage at sites with fewer cameras, where it may be more cost effective to stream the video back to a centralized NVR using an encoder.

360-DEGREE CAMERAS

360-degree cameras have quickly become popular for school deployments. They can be effective tools for providing great coverage of hallways at intersections. In this scenario, multiple video feeds are pulled from the same camera, each showing a different hallway. This setup reduces camera counts for hallway monitoring and often reduces the number of VMS licenses that need to be purchased.

The majority of popular VMS platforms will allow multiple video feeds from a 360 camera for a single software license, making it economically feasible to provide good

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hallway coverage.

SYSTEM MANAGEMENT IN A DISTRIBUTED ENVIRONMENT

Larger districts benefit greatly from a focus on how system management, health monitoring and configuration can be accomplished. Without centralized management tools, the time spent performing maintenance and updates will grow as the system expands.

As the system grows there is also an increased risk of cameras going down without being noticed. In order to reduce the risk of not recording an important security event, automated notification of system issues should be an available feature and properly configured.

SHARING VIDEO WITH 3RD PARTIES

It's becoming more common for larger school districts to provide external access to other municipal authorities. Most commonly, police and 911 dispatch as well as emergency management benefit from access to a school system's video surveillance feeds. In the event of emergency, first responders can see exactly what's happening and where in real time, which helps to provide the most effective and fastest response.

Important considerations include ensuring reliable connectivity to video feeds and securing the system from unauthorized remote access.

Ensuring the school's WAN connection has

suitable bandwidth available to stream the video is an important design step. Quality of Service (QoS) can be configured to dedicate bandwidth to the video system ensuring reliable remote access to video. Some VMS platforms offer bandwidth saving features such as dual streaming or transcoding. When the video is not being displayed in its full resolution these features will automatically provide a lower resolution version of the video for live display, further reducing bandwidth consumption. In combination with allocating the appropriate amount of bandwidth on the WAN connection, these bandwidth saving capabilities increase the reliability of remote access during an emergency situation.

In most deployments, remote access to the school's system would be provided over the internet making unauthorized access a significant concern. Using a VPN to access the video surveillance system provides a layer of authentication beyond the VMS itself and ensures the communications are encrypted. Another best practice is to configure a white list of authorized IP addresses on the school's VPN or firewall. These methods together help ensure access to the video can only be made by authorized staff at authorized locations. ⊙

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