Implementing Network Video for Traditional Security and Innovative Applications: Best practices and uses for network video in K-12 schools*

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Abstract

Administrators are constantly seeking ways to cost-effectively and adequately increase security and improve efficiency in K-12 schools. While video is not a new tool to schools, the shift from analog to network technology has increased the accessibility and usability in a variety of applications. Properly installed and used, video is a powerful tool for schools that can help advance security, risk management and operations in K-12 schools. This article will explore some of the uses and benefits of video in schools, covering traditional security as well as innovative uses. We will then consider best practices for ensuring the successful implementation of network video in schools including: (1) Invest in network technology, (2) Make it a team effort, (3) Plan in advance, (4) Cover key areas, (5) Select the right equipment and, (6) Leverage video with other systems.

By understanding the technology and exploring some of the potential uses for video in an educational setting, administrators can reap benefits from video in security applications and beyond.

NOTE: This module has been peer-reviewed, accepted, and sanctioned by the National Council of Professors of Educational Administration (NCPEA) as a scholarly contribution to the knowledge base in educational administration.

Invest in Network Technology

*Version 1.1: Jul 10, 2008 8:40 am -0500
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While legacy video technology has long been used in schools, it has been difficult to apply proactively on a regular basis. Legacy technology was a closed-loop system managed almost exclusively by the security professional who historically understood and had access to the equipment. It might take hours or even days to identify, access, copy and share the relevant video. Such a lengthy and involved process is rarely initiated until after an event had occurred.

However, network video has significant advantages over digital video recorders (DVRs), making this technology particularly useful for schools. Unlike traditional video, which required the installation of proprietary video systems, network video and video management software integrate seamlessly with the existing IT network. Network video cameras are just like any other peripheral (like a printer or scanner) running on the existing IT network and the video management software is just another application running on a PC. Cameras can be added onto the network, whereas DVRs run on a closed system that supports a limited number of cameras. In many cases, video from DVRs, while available through software online, is not available across different locations. Network video can be quickly and easily captured, reviewed, and shared, making it a resource for a broader audience on a daily basis. While usage still depends on processes and management, network video is much more likely to be used on a regular, proactive basis than analog video.

The investment in network technology is an investment in scalability and flexibility and ultimately yields a lower total cost of ownership. For schools, network video offers the maximum performance and flexibility, while requiring fewer resources and less training to manage.

Make it a Team Effort

Implementing an effective video surveillance system in a school requires the collaboration of multiple parties. The objectives that the end user has in mind for the system will determine the equipment selected, placement of cameras, and many other details in the implementation process. For this reason, it is critical to involve administrators, end users, security professionals and the IT group from the beginning.

Administrators bring knowledge of their objectives for the system as well as an understanding of budget limitations and the overall security strategy of the school. IT professionals will ultimately be responsible for implementing, managing, and maintaining the system, so their involvement and opinions are vital to the project. End users and functional area specialists have knowledge of key areas that need to be covered by video and can offer ideas on how video can streamline their jobs. For example, teachers may be able to provide input regarding problem areas on campus where students are likely to smoke or fight. Or the transportation director might be able to suggest how video can be used to streamline the process of loading and unloading buses. Involving a range of users early also helps ensure they are engaged in the process and are motivated to use the system once it is implemented.

Plan in Advance

Lack of planning is one of the most common mistakes schools make when attempting to implement a video system. Planning is required for several reasons. First of all, users must outline their goals in order to configure a system that is capable of meeting those objectives. For example, a principal of an elementary school may wish to make positive identifications with close-up face shots of every person who enters the main entrance of the building to allow identification in case an unauthorized adult picks up a child. Meanwhile, a high school may be more concerned with seeing whether or not there is movement in the parking lot while classes are in session or after hours. These two applications require different kinds of cameras, lenses and housings. Without clear objectives, it is impossible for buyers to prioritize the purchase and placement of equipment. Generally where schools are concerned, funds are limited and surveillance systems must be implemented in multiple phases. Only with a long-term plan can administrators identify critical, secondary, and "nice-to-have" needs for video.

Some key questions that should be answered in the planning process include: "What do we hope to accomplish with video?" "What problems do we want to tackle using video?" "What are the critical areas we need to cover?" The answers to these and other questions will determine the type and location of video cameras in a school and will provide vital information for the site assessment.

Cover Key Areas

In order for video to be used effectively, it is first necessary to capture the right video. To identify the areas that need to be covered, school administrators should consider the problems they are trying to

address. They can then prioritize areas that should be covered to provide the greatest possible breadth of information. Planning should take into consideration a history of problems in the building, areas most frequently associated with activities such as fights, vandalism, sneak-offs, etc. The following areas are most likely to be the site of serious problems and are good places for schools to start when setting up video coverage:

- Entry and exit doors – Location of entrances and exits throughout the day.
- Public areas - High traffic areas where problems, fights, and other major incidences are likely to occur.
- Loading and unloading areas for buses – Area of high traffic concentration twice a day and a potential hotbed of activity and information.
- Corners and stairwells – Obscured areas that are frequently the locations of fights, bullying, drug usage or worse.
- Restroom entrances / exits – Frequent site of smoking, drug use, fights, and class-skipping.

Select the Right Equipment

Equipment selection is critical to the successful implementation of video in schools. There is an art to selecting the right camera, lens, and housing combination to meet your needs. The objectives for the system outlined in the planning process will dictate the selection of equipment. It is important to evaluate the location and objective of each and every camera to be installed. Location will dictate the kind of camera and/or lens, housing and mounting accessories that can be used depending on the environmental conditions, point of attachment, lighting conditions, and desired shot.

Network video also includes video management software that enables users to capture, review, and manage video. Depending on the desired goals for the system and the number of users, schools should evaluate software to ensure that it can accommodate their needs. For example, schools should determine if someone needs to access the video remotely from off campus on a regular basis? Will users need limited access to camera views or can all users see all camera views? All of these requirements should be outlined and considered when evaluating the network video solution to determine whether or not the schools' needs will be met.

Schools should select a vendor who has had experience specifically with implementations in education environments. Unlike traditional business customers, schools will often not replace equipment for very long periods of time and may not have in-house staff or regular consulting resources to address problems. For this reason, schools should carefully evaluate the vendor's warranty and service policies to ensure that they will receive prompt and ongoing service for their network video equipment.

Augment Other Systems with Video

Video can also be an effective tool for verifying and improving the effectiveness of other security systems. For instance, many schools keep doors locked during class hours and require all visitors to enter through a central access point to prevent people from entering without notice. By providing office staff with live views of video from those entries, they can verify identification and allow entry when appropriate or keep unwanted persons out of the building. This is much more convenient and cost effective than posting a security officer at the door throughout the day to check visitors in and out.

Video may also help corroborate alerts from other systems. For instance, an access control or alarm system may raise an alert that a door that should be closed during class time is open. By leveraging video, administrators can quickly assess the condition and can then appropriately dispatch personnel to address the situation. By considering how video can be used to augment other systems, IT professionals can maximize return on investment as well as the effectiveness of other systems.

Beyond Security

Some of the savviest schools are getting creative and have found ways to use video for operational purposes. For example, some are using video to monitor bus yards and carpool lines to streamline the process of student dismissal and bus loading. Others have noted that video in cafeterias can help ensure that students are on their best behavior and bus their own tables, making it easier to transition through back-to-back lunch periods. Video used to monitor common resource areas such as computer labs, libraries and multi-purpose rooms allows teachers to log on from their desk to determine whether or not the room is

already in use before taking their class over. These are just a few of the many ways video is moving beyond security in schools. By understanding the technology and exploring some of the potential uses for video in an educational setting, administrators can reap benefits across the entire school.