Campus Safety: Five Advances in Physical Security for Higher Education

Physical Safety in a More Complex World

Recent headlines underscore the need for better ways to protect students, faculty, and staff from threats including weapons, violence and assaults, robbery, arson, natural disasters, vandalism, and thefts. Safe and secure campuses are better learning environments. They help attract and retain top faculty and administrators. And preventing theft and vandalism frees up funds for other initiatives.

To help create a safe and secure environment, your campus has already taken smart steps such as planning, training staff, and implementing technology, including video surveillance cameras, physical access controls, and paging and radio systems. And yet serious security vulnerabilities persist:

- 41 percent of survey respondents struggle with visitor management
- 50 percent cannot lock down more than 75 percent of their campus
- 39 percent said that their video surveillance systems are not integrated with physical access control systems
- More than 33 percent have radio systems that cannot interoperate with first responders’ radio systems

United States colleges and universities reported more than 50,000 criminal offenses and arrests in 2011

- Campus Safety and Security Data Analysis Cutting Tool (http://ope.ed.gov/security/)

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Now you can improve campus safety by taking advantage of five advances in physical security for higher education campuses.

1—Operate All Physical Security Systems over the Campus IP Network

Implementing and managing separate networks for video surveillance, physical access control, and communications increases costs. Proprietary networks also limit your freedom to choose any vendor’s cameras and door controllers.

Connecting all physical security solutions to the existing campus IP network lowers network costs. It also helps to improve campus safety and security because your different systems can work together to accelerate incident detection and response. For example, with integrated video surveillance and physical access control systems, you can identify the person who used a stolen access card by viewing video captured at the door. And Cisco® Unified IP Phones in classrooms, lecture halls, and offices can serve as easy-to-use security consoles:

- **Lockdowns**: Faculty and staff can press a button on a Cisco Unified IP Phone to lock down a room, building, residence hall, or the entire campus. This helps colleges and universities isolate intruders more quickly than they could if lockdowns had to be initiated from a specialized console in the campus safety office.

- **Visitor management**: When a visitor presses a button to request access to a controlled area, a staff member hears an alert and sees real-time video on the Cisco Unified IP Phone’s built-in display. After the visitor looks into the video surveillance camera to explain the purpose of the visit, the staff member can press a button on the phone to unlock the door.

- **Panic message**: A faculty member or other employee who hears alarming noises can push a button to send a panic message by email or instant message to predefined personnel.

- **Partnership with local police**: With Cisco IP Interoperability and Collaboration System (IPICS), administrators, campus safety officers, and first responders can join talk groups to collaborate on incident response. They can use any type of radio system, traditional phone, IP phone, smartphone, tablet, or laptop.

2—Invest Once for All Campuses

Traditionally, each one of your campuses needed its own servers and software to manage its physical security solutions. This led to redundant technology investments and, in some cases, uneven security across locations.

Cisco physical security solutions scale to manage hundreds of thousands of endpoints, which means you can implement a centralized solution to monitor and manage endpoints in any site. The only equipment needed on individual campuses is cameras and door controllers. The benefits of a centralized solution include:

- Uniform level of security for all locations
- Lower capital costs
- Lower staffing requirements because safety officers can centrally view and manage the system from anywhere, using any device, including iPhones, iPads, and Android devices
3—Lower Data Center Costs with Virtualized Servers

Until recently, the management software for physical security solutions required a physical server. A college with three locations, each with video surveillance, physical access control, and unified communications, required at least nine servers. The proliferation of physical servers strained data center space and power capacity.

You can lower data center costs by operating Cisco Physical Security solutions and Cisco Unified Communications applications as virtual servers on a Cisco Unified Computing System™—the same one you might already use for learning or administrative applications. Multiple virtual applications can operate on the same physical server, lowering space, power, and cooling requirements. Each Cisco Video Surveillance Manager virtual server can support up to 10,000 IP video surveillance cameras.²

In addition to reducing costs, virtualization can improve availability. One reason is that the Cisco UCS® has built-in redundancy. To perform maintenance on a Cisco UCS blade server, your IT team can move the virtual servers to any other available blade server in the system—in minutes.

4—Simplify Large-Scale Camera Deployments with Automated Configuration and Medianet Capabilities

In the past, educational institutions had to hire skilled technicians to configure each camera, which took 30–45 minutes per camera. This meant high costs and lengthy deployment timeframes for colleges and universities with hundreds or thousands of cameras. With new Cisco Video Surveillance 6000 Series IP Cameras, configuration is as simple as connecting the camera to the network. Medianet features in the cameras, the Cisco network, and Cisco Video Surveillance solution automate configuration, so the camera can begin transmitting video just seconds after being connected.

² Up to 100,000 cameras when combined with Cisco Physical Security Operations Manager (PSOM).
5—Capture the High-Quality Images Needed to Identify People

Only with high-video quality can you positively identify people and see car license plates. New Cisco Video Surveillance 6000 Series IP Cameras are 2.1-megapixel, high-definition cameras that produce video streams in full 1080p resolution. When they detect motion, they can send an alert to the appropriate personnel. Models are available in box, dome, pan-tilt-zoom (PTZ), and bullet form factors with options for indoor or outdoor mounting. Some models have an integrated infrared (IR) illuminator for night-time surveillance.

Compare the Old Response to the Modern Response

The Old Response

Campus safety officers who are patrolling the campus are not necessarily immediately aware of intruders because video of the breach is available only on one console, in the security office. Administrators and police have to wait for the safety officer or IT department to create a copy of the video before they can circulate the intruder’s picture.

If a dormitory or classroom lockdown is imposed, facilities personnel walk from building to building to lock doors, increasing the time that buildings remain vulnerable to intruders. Administrators may have no way to alert faculty and students and issue instructions. Campus security personnel cannot communicate directly with first responders because they don’t have the right kind of radio system. In the absence of official communications, anxious parents who have received text messages from their children flood the dean’s office with phone calls.

The Modern Response

The scenario unfolds more efficiently in higher education institutions that use Cisco Physical Security solutions. A high-definition Cisco Video Surveillance IP Camera detects motion near the fence and automatically sends an alert and real-time video feed to the campus safety officer’s iPhone, iPad, or Android device.

The safety officer or an administrator remotely locks doors by pressing the button on a Cisco Unified IP Phone. The office sends a text or audio page to phones in classrooms and labs, notifying faculty about the intruder and providing up-to-date information and instructions. As first responders arrive on campus, office staff can see who is requesting entry on their IP phone displays and selectively open the door.

Using Cisco IPICS, campus safety officers, administrators, and local law enforcement can use ordinary phones, smartphones, tablets, and radios to communicate directly. They can share their status, campus maps, blueprints, and video and photos of the intruder.

“The Cisco Video Surveillance System has enabled us to multiply our security and police force by giving us eyes in multiple locations all at the same time…a deterrent to crime. Our old system was very labor intensive to install and operate. With this new system it takes just 10 seconds to deploy a camera.”

— Christopher Fulkerson, Assistant Chief Information Officer, Elon University, North Carolina
Cisco Solutions for Campus Safety

Cisco Physical Security Solutions harness the power of your existing campus IP network to help protect people and property and encourage good behavior. Unlike proprietary physical security solutions that only work with equipment and software applications from the same vendor, Cisco solutions are based on open standards to interoperate with cameras, sensors, and applications from other vendors. This preserves your investment in existing endpoints and gives you the flexibility to add new safety capabilities as they become available, extending the life of the investment.

“We do not have the resources to manage a cumbersome system, but the Cisco Video Surveillance solution is plug-and-play, and requires almost no additional management time.”
— Paige Francis, Associate Vice President of IT, NorthWest Arkansas Community College

The complete portfolio of Cisco Physical Security solutions supports the safety plans developed by campus safety organizations and local police (Figure 1):

Figure 1. Cisco's Unified Command and Control Solutions for Higher Education
Table 1 lists Cisco and Cisco partner solutions and how they make campuses safer.

Table 1. Cisco and Partner Technologies for Higher Education Safety

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<thead>
<tr>
<th>Solution</th>
<th>Campus Safety Benefits</th>
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<td><strong>Physical Security</strong></td>
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| **Video Surveillance**           | *Freely place cameras in any location with a wired or wireless network connection, avoiding new cabling costs.*  
*Securely access video from anywhere, at any time.*  
*Store video on or off campus.*  
*Connect existing and new cameras, video analytics, and other systems using open standards.* |
| **IP Cameras**                   | *Avoid the time and costs of professional camera installation. Just connect camera and it’s operational in seconds, thanks to Cisco medianet technologies.*  
*Capture high-resolution images that enable positive identification and stand up in court.*  
*Use power over Ethernet (PoE), avoiding the expense of bringing power cables to out-of-the-way places.* |
| **Incident Response**            | *Provide communications interoperability among people using practically any analog or digital radio system.*  
*Consolidate all information relating to an incident.*  
*Share rich media such as video, images, web links, and alarm status.*  
*Activate predefined security notification policies with a single click.* |
| **Security Operations**          | *Accelerate investigations by viewing all sensors and alarms on an intuitive, map-based interface, and clicking for detail.*  
*Automate response with powerful workflow features and a business logic engine.* |
| **Access Control**               | *Help prevent unauthorized access to school buildings.*  
*Initiate lockdowns with the push of a button on a Cisco Unified IP Phone, quickly isolating safety incidents.*  
*Reduce personnel requirements for entry monitoring.*  
*Create an accurate log of who enters your buildings.*  
*Increase situational awareness by automatically tagging video when someone swipes an access card.* |
| **Other Cisco Technologies**     |                                                                                                                                                         |
| **Virtualized Applications**     | *Reduce data center space, power, and cooling costs.*  
*Accelerate deployment.*  
*Simplify management.*  
*Increase availability.* |
| **Security Solutions**           | *Protect the network from intentional or unintentional damage, helping to keep it available for vital communications and security systems.*  
*Protect confidential student and staff information.*  
*Help prevent infections that may introduced by personal devices used on campus.* |
| **Mobility and Wireless**        | *Provide mobile administrators with Cisco Unified Wireless IP Phones so that they can be reached at the same number from any location*  
*Provide secure guest network access*  
*Pinpoint the location of school laptops and track the location of people wearing RFID bracelets and assets with RFID tags, such as lab equipment.* |
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<td><strong>Unified Communications</strong></td>
<td>• Provide one-touch phone access to first responders</td>
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<td><strong>Cisco Unified Communications Manager</strong> enhances communications on campus, with first responders, and with students. The solution includes SingleWire InformaCast software, which uses Cisco phones and overhead speakers for paging and emergency notification.</td>
<td>• Enable emergency alerting to multiple devices using text messaging and recorded voice announcements</td>
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<td><strong>Cisco Jabber®</strong> provides a unified interface for presence, instant messaging, and click- to-call capabilities, and works on Windows, Mac, iOS, and Android devices.</td>
<td>• Report the precise location of the phone used to dial 911, and send emails to administrators' inboxes or IP phones so that they can confirm the emergency and provide help sooner</td>
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<td><strong>Cisco WebEx® Meetings</strong> provides audio, video, and web conferencing for training and to plan incident response</td>
<td>• Integrate your communications systems with public safety answering points and first-responder agencies</td>
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<td><strong>Video Analytics</strong></td>
<td>• Collaborate with colleagues from anywhere, on any device</td>
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<td>Video analytics detect motion and sounds and alerts the appropriate people.</td>
<td>• Consolidate phone lines needed in district, lowering monthly costs</td>
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<td><strong>Notification Services</strong></td>
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<td>These systems automatically capture images of visitor's face and ID credentials, making it unnecessary for a staff person to always be at the desk; they can also check visitor names against databases of unwanted persons.</td>
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<td><strong>Mobile Client Applications</strong></td>
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<td>These applications let campus personnel use iPhone, iPad, or Android device for video viewing, video capture, people tracking, and environmental sensing</td>
<td>• Integrate intercom, bell, and alarm systems to reduce maintenance and management costs.</td>
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<td>Intrusion detection systems send an alert when video surveillance cameras detect motion.</td>
<td>• Centralize pages and automatic emails and phone notifications.</td>
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<td>These applications let campus personnel use iPhone, iPad, or Android device for video viewing, video capture, people tracking, and environmental sensing</td>
<td>• Replace inefficient, paper-based logging systems.</td>
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<td>Intrusion detection systems send an alert when video surveillance cameras detect motion.</td>
<td>• Maintain an accurate visitor record for auditing and safety-incident reporting.</td>
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Cisco offers comprehensive physical security solutions for higher education. Simple management interfaces, including Cisco Unified IP Phones, lower training costs and enable more campus personnel to use the systems. And because Cisco solutions are based on open standards, you can easily integrate them with products from Cisco partners to meet your institution’s specific requirements.

“With an end-to-end Cisco solution, you have a multitude of things you can do beyond what you could do by piecing together multiple vendors’ solutions. For example, Cisco Physical Access Control is not just door access control, but also a solution to monitor people’s presence within the building.”

— David Collins, Senior Executive of Estates and IT Infrastructure, Bournville College
The main reasons colleges and universities worldwide choose Cisco solutions for campus safety and security include:

- **Ultra-scalability**: A single virtualized server can support up to 100,000 video surveillance cameras, simplifying infrastructure and lowering costs.

- **Ease of management**: Getting a Cisco Video Surveillance Camera ready to use is as simple as connecting a cable. Cisco medianet technologies do all the work in the background, and the camera begins transmitting video in approximately 15 seconds.

- **Cisco Capital® finance programs**: Innovative financing enables educational institutions to easily acquire, deploy, and optimize their solutions. Options include Tax-Exempt Lease Purchase (TELP), Fair Market Value Lease, and Cisco Technology Migration Program.

- **Remote Management Services**: To offload the task of monitoring your physical security solutions from the campus IT team, sign up for Cisco Remote Management Services. Trained Cisco engineers monitor your network and equipment to help make sure your Cisco Unified Computing System and physical security solutions are operational and performing optimally.

- **Strong understanding of and commitment to education**: Cisco recruits employees with education backgrounds to help guide product development for colleges and universities of all sizes. Cisco is a strategic partner in the Global Education Initiative, led by the World Economic Forum, as well as other worldwide education programs. Cisco’s largest education initiative is Cisco Networking Academy®, a proven model for next-generation learning that equips students with the IT and networking skills necessary to compete in a global economy. Networking Academy is available in more than 160 countries and serves more than 900,000 students in the United States alone.

- **Commitment to your success**: Cisco can help campus safety teams and local police create plans that take advantage of the power of your IP network to improve campus safety.

**Conclusion: Provide Uniform Safety and Security on all Campuses**

You can take advantage of your existing IP network to increase campus safety and provide a uniform level of security in all locations. The combination of Cisco solutions for video surveillance, physical access control, unified communications, and interoperable communications helps you to:

- More effectively prevent, deter, detect, and respond to safety incidents
- Enhance collaboration between campus personnel and first responders
- Communicate quickly to students, faculty, and staff during an event
- Improve the operational efficiency of your physical security systems and resources
- Reduce financial and legal liability
- Reduce costs compared to deploying standalone security systems, freeing up funds for learning, research, and personnel
For More Information

To learn more about Cisco Safety Solutions for Schools, contact your Cisco representative or reseller, or visit: www.cisco.com/go/schoolsafety.

To learn more about Cisco Physical Security Solutions, visit: www.cisco.com/go/physec.