

Safe Campus Solutions: Going Beyond Emergency Notification

Alcatel-Lucent dynamic communications solutions for education

Educational institutions are facing increasing pressure from parents, students, and regulators to secure their campuses. Many have implemented standardized school lockdown procedures. However, universities with open, expansive campuses, more transient populations, and a student body of legally adult citizens need more advanced emergency communications plans to deal with these challenges. Alcatel-Lucent has worked with many schools and universities to implement unified communications systems that support lockdown procedures, provide emergency notification, enable collaboration with first responders, and integrate with building control systems to support surveillance, deliver alarms and alerts, and enhance the awareness and responsiveness of campus security personnel and administrators. Alcatel-Lucent Safe Campus solutions allow schools to leverage existing infrastructure investments for voice and data while adding video and mobility components for a comprehensive, three-step approach to campus safety — awareness, response coordination and campus notification.

Table of contents

1	Introduction
2	Alcatel-Lucent 1-2-3 Safe Campus approach
2	Awareness
2	Leveraging converged communications
3	Enterprise E911
4	Response coordination
4	Emergency conferencing with first responders
6	Campus notification
7	Emergency notification software
7	Safe Campus solution components
8	Safe Campus solutions in action
8	Cheltenham Township School District
8	Santa Fe Community College
9	Conclusion
10	Acronyms

Introduction

Recent news about emergency situations on both K-12 and higher education campuses have made the issue of safety and security for staff, faculty and students a key consideration for educational institutions. These institutions are now faced with increasing pressure from parents, students, and regulators to secure their campuses. And recent government regulations require schools, colleges and universities to implement new security measures:

- The Clery Act, requires all colleges and universities that participate in federal financial aid programs to keep and disclose information about crime on and near their respective campuses. Compliance is monitored by the United States Department of Education, which can impose civil penalties, up to \$27,500 per violation, against institutions for each infraction and can suspend institutions from participating in federal student financial aid programs.
- The Virginia Tech Victims Campus Emergency Response Policy and Notification Act passed by the U.S. Congress includes requirements for notification, communication, and emergency response procedures in the event of a security emergency.

To secure their campuses, many institutions have implemented standardized school lockdown procedures that include teacher, student and staff training and emergency drills. However, universities with open, expansive campuses, more transient populations, and a student body of legally adult citizens need more advanced emergency plans to deal with these challenges. Parents and communities want educational institutions to quickly alert faculty, staff and students about emergencies and incidents that require lockdown or evacuation. And new regulations require all institutions to have:

- The ability to monitor and secure high-risk areas
- Emergency response plans that enable administrators, safety personnel and first responders to work together seamlessly
- The tools to quickly alert staff, faculty and students about emergencies and incidents that require lockdown or evacuation

So what can educational institutions do to meet these challenges? And what can universities learn from school districts and adapt for their unique environments?

Awareness technology is critical and having a clear, advanced emergency communications plan is a fundamental part of campus security. As a result, many institutions have put the primary focus on implementing a solution for emergency notification. However, emergency communications is about more than notification. It is about chaos management and speeding the flow of information to decision makers so they can respond quickly and appropriately and disseminate the right information to the right people at the right time.

Before decision makers can notify the campus community, they must become aware of the event, gather information and coordinate the response between school or campus security, the administration, and, if needed, local police or other first responders. Therefore, communications technology is a critical tool for efficient information delivery in a crisis.

Alcatel-Lucent 1-2-3 Safe Campus approach

Alcatel-Lucent has worked with many schools to implement unified communications systems that support lockdown procedures, provide emergency notification, enable collaboration with first responders, and integrate with building control systems to support surveillance, deliver alarms and alerts, and enhance the awareness and responsiveness of campus security personnel and administrators.

Alcatel-Lucent Safe Campus solutions allow schools to leverage existing infrastructure investments for voice and data while adding video and mobility components for a comprehensive, three-step approach to campus safety:

- Awareness
- Response coordination
- Campus notification

Awareness

Leveraging converged communications

Many schools, colleges and universities have looked at IP telephony as a way to save money and avoid the costs of Centrex systems. While cost savings is a strong driver for adoption of voice over IP (VoIP), even greater benefits come from the applications and services that are made possible by merging voice, data and video traffic on a single infrastructure.

The benefits start with enabling schools to cost-effectively place a phone in every classroom. But convergence — both the integration of voice, data and video, and the bridging of wired and wireless networks — is also the key to building the foundation for a dynamic campus communications solution. With an integrated, converged solution, safety is improved by allowing each instructor to have a unique voice mail, facilitating integration with Lightweight Directory Access Protocol (LDAP) to enable dial-by-name, and enabling easy number portability as instructors change classrooms or offices.

By using IP technology, campuses can also integrate other devices with their communications system, such as cameras, door and window sensors, video surveillance, smoke detectors and building control systems. Events can trigger alert notifications that can be sent over the IP network to any number of devices. And these notifications can include text and video feeds from IP video surveillance cameras near the site of the alarm.

For example, when a school visitor rings the doorbell at a school, the receptionist can instantly bring up video of the person on an IP desktop phone or a PC to help determine if the person should be allowed entry. Or if an incident occurs in a classroom, a teacher or professor can signal a panic alarm over the network to security staff and administration to begin lockdown procedures. Users can dial by function to instantly reach “Security” or “Nurse,” and the communications system can dynamically find the right person to respond to the alert. The Alcatel-Lucent OmniPCX™ Enterprise Communication Server (CS) can support mobile phone extensions to provide even greater coverage.

Enterprise E911

Alcatel-Lucent Safe Campus solutions also include the Alcatel-Lucent Enterprise Emergency Alert application, which provides early awareness and real-time internal notification for emergency calls placed within an enterprise, pinpoints the exact location of the call, and delivers critical information. This complete E911 application also provides call recording, dynamic geographic mapping and support for E911 in both VoIP and TDM environments (Table 1). With this application, educational institutions can enable effective, real-time E911 alerting and meet state regulatory obligations for E911 compliance.

Table 1. Alcatel-Lucent Enterprise Emergency Alert solution features

FEATURES	BENEFIT
Emergency call internal alert notification by voice, e-mail, Short Messaging Service (SMS), and toast pop-up	Provides and directs early warnings to on-site security personnel of an emergency call, and directs public safety first responders once they arrive on-site
Streaming audio of emergency call recording	Helps emergency responders by providing detailed audio call content for detailed verification, compliance, and evidence purposes for a comprehensive trail of situation
Integration with Dash Carrier Services for E911 Private Switch Automatic Location Identifier (PS-ALI) service	Centralizes and automates the initial administration of Emergency Location Identification Numbers (ELINs) and Emergency Response Locations (ERLs) to facilitate emergency call completion
Identification of caller number and location to Public Safety Answering Point (PSAP)	Provides automatic, real-time updates via PS-ALI databases when a phone is relocated
Emergency calls routed by location	Routes calls to the appropriate PSAP based on the caller's location
Automatic updates and location of IP phones	Eliminates manual data entry errors to ensure that moves, adds, and changes are updated accurately
Dynamic geographic locations	Provides ability to manage situations more effectively with visual site-map displays
High availability architecture option	Supports high availability ideal for medium to large enterprises
Multiple interface options	Supports a variety of Session Initiation Protocol (SIP), T1, and analog, and leverages enhanced features of Alcatel-Lucent coupler multi-purpose interface board

The application ensures that emergency calls sent from a school environment reach the appropriate emergency dispatch center or PSAP based on the caller's location, that the PSAP can identify the caller's location, and, if necessary, return the call if it is dropped. It also notifies key security personnel of an emergency call in progress, relays the caller's location, and records the call for future reference.

These capabilities are critical in an emergency during which a teacher or student may dial 911, bypassing campus security. While this is a critical step to having police or emergency medical teams respond, it leaves the administration unaware of the situation and may keep staff from implementing campus safety procedures and delivering appropriate notifications. They may not even know anything is wrong until police arrive.

To eliminate this awareness gap, the Alcatel-Lucent Enterprise Emergency Alert application supports a 911 silent monitoring feature. Silent monitoring of 911 calls allows campus security personnel and administration to be aware of all 911 calls placed from the campus phone system. When the call is originated, on-campus staff can silently conference in on the call to know the details of the incident and coordinate their response with first responders and, if needed, arrive first on the scene with their own safety and security personnel.

All 911 calls that originate from a phone extension registered on the OmniPCX Enterprise CS can be monitored, including calls from desktop phones in classrooms, offices or residence halls, on-site mobility phones that might be carried by roaming security or staff, or dual-mode mobile phones issued to college students or faculty.

The Alcatel-Lucent Enterprise Emergency Alert application can also be configured to push the exact location of a 911 call to first responders, saving precious minutes in an emergency. Combined with local and wide area data communications products, it can also push floor plans, schematics and video surveillance feeds to first responders to ensure everyone has a real-time understanding of the situation.

Response coordination

Emergency conferencing with first responders

Another key piece of the emergency communications puzzle is allowing security personnel and administrators to communicate not only with each other, but also with first responders, including local police, campus police, fire and rescue, and emergency medical technicians.

The primary mode of communication for first responders is via land mobile radio (LMR). Recent breakthroughs in technology allow traditional LMRs to interoperate. Several radios on different frequencies and different system types can now communicate with one another, thus providing the first step toward interoperability. Alcatel-Lucent is taking the LMR interoperability concept to the next logical step by enabling collaboration.

The Alcatel-Lucent OmniTouch™ My Teamwork Land Mobile Radio Conferencing and Collaboration (LMRCC) solution combines all the LMR interoperability features with a robust software platform that allows full audio conferencing of any telephone device into the LMR radio band. Taking it further, the conferencing portion of the solution also allows for the integration of data collaboration in the context of an LMR conference. The data collaboration feature provides anyone with Internet access the ability to share data with users in remote locations using a secure and encrypted Internet browser.

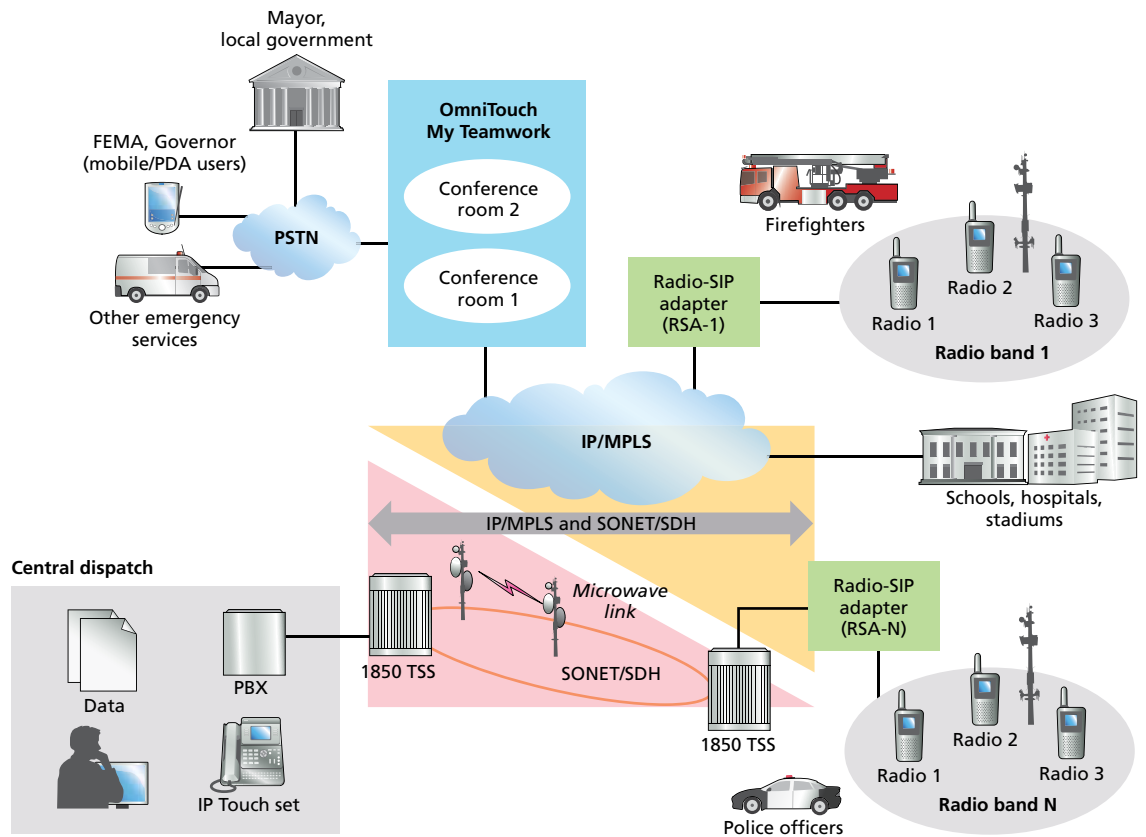
The LMRCC solution takes advantage of the existing enterprise architecture by connecting into the telephone system to gain connectivity to the Public Switched Telephone Network (PSTN) or a private telephone network.

What does this mean for campuses?

In the event of an emergency, the communications network can bridge administrators at home or in remote offices, on-site security and staff, first responders, or disaster recovery teams with audio, video and data conferencing. Conferencing features include application sharing, such as video surveillance or views from time lapse photography, building floor plans, class schedules or student and staff records as appropriate. With the ability to share more information in a shorter amount of time over a secured connection, institutions can help ensure better decision making with input from all appropriate personnel whether on or off campus.

Figure 1 depicts the Alcatel-Lucent solution for coordination and collaboration with public safety and security teams.

Figure 1. Coordination and collaboration with public first responders



When campus safety personnel become aware of a 911 call or alarm, they can also go directly to the location of the event and immediately communicate with arriving emergency response teams. In addition, the school leadership, such as administration, campus safety and trustees, can listen in and gain a real-time understanding of the scope and magnitude of the event. This is critical. There is no need to wait for the campus safety chief to brief the administration or campus leadership. Everyone has the information they need in real time to determine the correct mass notification message and whether to direct that message to select groups or send it campus-wide.

In addition, modern emergency response teams have vehicles that are equipped to access the Internet. By initiating an Alcatel-Lucent OmniTouch My Teamwork LMRCC conference with these first responders, the response teams can join the conference and receive floor plans, schematics and even view IP video surveillance camera feeds — allowing them to be fully prepared to address the event.

An additional advantage of using OmniTouch My Teamwork LMRCC to integrate emergency response team radio communications is the ability to record the event conference room. After the event is over, both the campus and public safety teams can review the recording for training purposes.

Campus notification

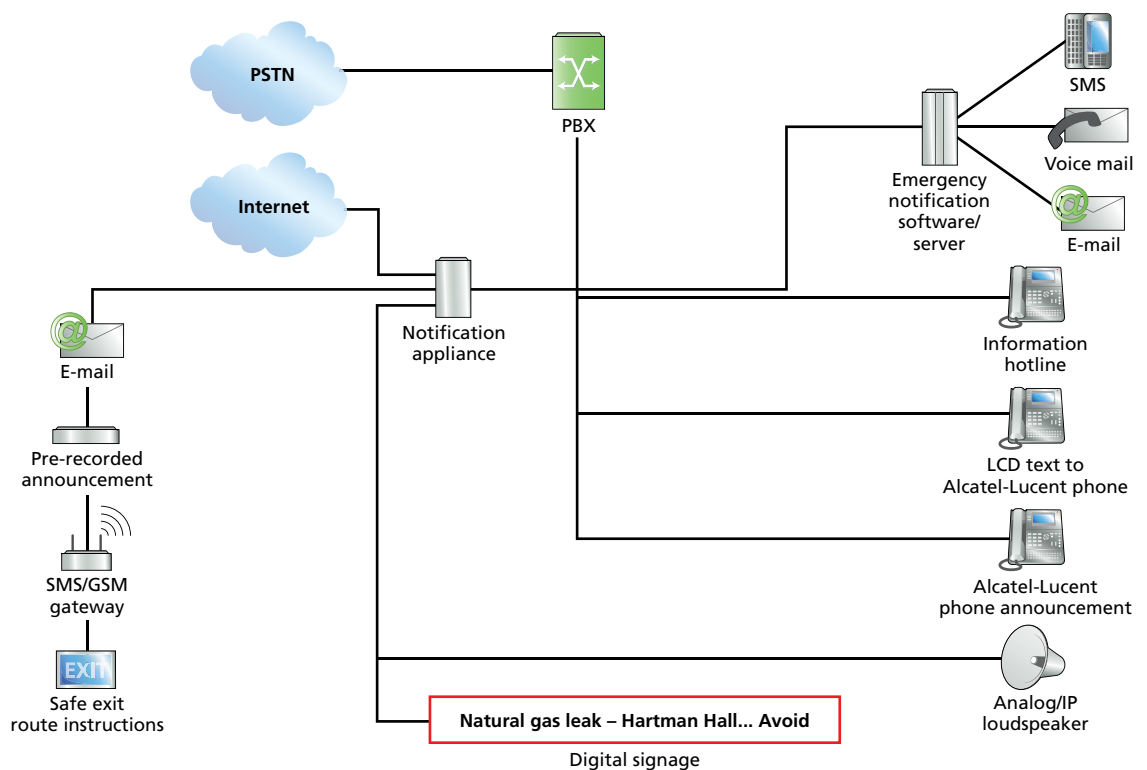
With the campus leadership fully aware of the event and its scope, the school is now ready to craft and deliver mass notifications. The Alcatel-Lucent solution enables flexible, multi-vector communication to be delivered in a variety of ways, including:

- Voice mail
- Personal mobile phones via voice mail or SMS
- E-mail
- Digital signage — LCDs/LEDs in common areas
- Building intercoms — either analog or IP-based
- Instant messaging
- Analog (NTSC) or digital (ATSC) TV
- IPTV — either the Alcatel-Lucent video over IP solution or a carrier-provided service
- Hotlines using interactive voice response tools and contact centers

Working with an application partner, Alcatel-Lucent can turn Alcatel-Lucent IP Touch phones into loudspeakers by dynamically activating the speakerphone function. This feature was used in February 2008 at Santa Fe Community College when a gunman was spotted on campus. (See “Safe Campus solutions in action” for more details.)

Figure 2 depicts how the Alcatel-Lucent solution delivers messages to multiple devices via multiple methods, including third-party mass notification applications.

Figure 2. Multi-vector campus notification



Emergency notification software

When educational institutions began implementing emergency response plans, they initially focused on notification software. These solutions were usually hosted and subscription-based, and boasted the ability to deliver thousands of messages per minute. Market leaders for this service are 3N and NTI's Blackboard purchased ConnectED. Subscriptions typically include a maximum estimated number of devices and transmissions with a service level guarantee.

In many cases, these notification software options are opt-in solutions. Students and employees visit a portal maintained by the school to enter their preferred contact method and information, and acknowledge that they are allowing communication from the university or school. This helps the administration feel assured that they are efficiently communicating a single message to all people on campus.

However, because this is a voluntary service, not all students, faculty and staff are registered. In the event of a campus-wide emergency, those who haven't signed up will not be contacted. In addition, there may be dozens of people on campus who are guests or strangers to the university or school, and many faculty members have classroom policies that prohibit mobile phone or laptop use during lectures. Also, it is highly likely that there are students, faculty and staff who are hearing or visually impaired on campus.

The narrower the notification solution is, the greater the missed opportunity to notify the entire campus population with a targeted, crafted message. The Alcatel-Lucent solution is designed to minimize system blind spots and secondhand, word-of-mouth communications, which may or may not be delivered as the school intends. It works with third-party applications, but gives campuses additional options by supporting deployment either end-to-end or piece-by-piece, depending on the needs of the campus.

Safe Campus solution components

Alcatel-Lucent Safe Campus solution is a blended offering that includes several main components:

- Alcatel-Lucent OmniPCX Enterprise CS
- Alcatel-Lucent Enterprise Emergency Alert application
- Alcatel-Lucent OmniTouch My Teamwork LMRCC with Raytheon SIP adapter
- Alcatel-Lucent OmniAccess™ WLAN
- Mobicall from New Voice (an Alcatel-Lucent solution partner)

A campus may also choose to deploy Alcatel-Lucent video over IP for school districts, colleges and universities, offered in partnership with Video Furnace. This solution is primarily used on providing campus and classroom video as well as broadcast television entertainment to PCs or to TVs equipped with a set-top box. It also includes a message delivery feature that allows the administration to deliver a scrolling alert or video message to every screen connected to the system.

Alcatel-Lucent backs its Safe Campus solutions with an end-to-end suite of professional services that ensure the long-term success of an integrated campus safety and security system. The Alcatel-Lucent team of skilled and highly-experienced professionals provides customized services from consulting and design, through integration and deployment, to maintenance and operations.

In addition, the Alcatel-Lucent Application Partner Program (AAPP) offers a wide variety of third party ecosystem partners certified for compatibility with Alcatel-Lucent Safe Campus solutions. These partners support enterprise emergency service and response requirements.

Cheltenham Township School District

Cheltenham Township School District in Pennsylvania was looking for a way to enhance the educational environment and security for the school district's 4700 students and more than 600 staff members. Cheltenham needed to establish district-wide communications capabilities, which included installing security with text messaging, paging and conferencing and incorporating E911.

The district realized that during security drills even more phones were needed in classrooms to ensure directions were received from the principals or the superintendent. New phones also allowed teachers and staff to communicate during emergencies.

To address this need, Alcatel-Lucent provided inter-building communications solutions, security and text messaging that could function across the new infrastructure

Cheltenham added an Alcatel-Lucent IP network and, using the flexibility of IP, the district also integrated other campus systems, both in and out of the classroom, for unified messaging and communications across the voice and data network and multiple devices. Today, computers and phones work together to provide links among school facilities and local public safety personnel, improving communications and security for students and teachers.

Cheltenham looked at a variety of equipment providers, but the choice was clear.

"Alcatel-Lucent was the only vendor who was willing to develop a solution unique to [our] district's needs," says Gary Bixby, who was the director of facilities and support for the district at the time of the initial installation.

Using the Alcatel-Lucent K-12 education district alert application, Cheltenham is now able to simultaneously send instant notifications regarding weather, news, events or specific security concerns to every classroom in the district. The Alcatel-Lucent security application broadcasts messages to alert administrators and teaching staff via phone or computer. In the event of emergency or disaster, additional information and instructions are delivered via voice mailbox or computer pop-up screen.

Alcatel-Lucent education applications developed specifically for K-12 strive to enable school districts to share knowledge and information, delivering enhanced educational resources and security.

"All aspects of the new solution from Alcatel-Lucent have demonstrated greater results than projected for our day-to-day business and operations," said Bixby.

Bixby notes the new communications capabilities and its effects were not possible with previous systems. After implementing Alcatel-Lucent solutions, Cheltenham now enjoys discreet messaging, parent access to classroom information and fully-integrated communications including voice, data, system controls, security and video conferencing.

"Alcatel-Lucent met our specifications without compromise," said Bixby. He added that Alcatel-Lucent solutions provide "immeasurable benefits" and "enhanced educational programs with no limitations" to the district.

Santa Fe Community College

Santa Fe Community College in Gainesville, Florida, provides a dynamic, innovative learning environment to more than 16,500 students. In 2001, the community college worked with Morse Communications, an Alcatel-Lucent Expert Business Partner, to install an Alcatel-Lucent OmniPCX Enterprise CS. In 2007, it also integrated a converged telephony platform with New Voice Mobicall emergency notification system.

“Our goal is to use technology to create a safe campus for all of our students and staff.”

– TIM NESLER, CHIEF INFORMATION OFFICER AND ASSOCIATE VICE PRESIDENT AT SANTA FE COMMUNITY COLLEGE

On February 19, 2008, the system was put to the test when a man with a gun was spotted on campus. Fortunately, tragedy was avoided. No shots were fired and no one was hurt.

The Alcatel-Lucent Safe Campus solution activated the speakerphone functions on all 772 campus telephones, turning them into loudspeakers, which the police and security teams used that day to broadcast regular messages and instructions to everyone on the campus. Announcements were made starting at the beginning of the emergency and during the two and a half hour search for the gunman, who eventually fled.

“This tight integration of the Alcatel-Lucent PBX and Mobicall allowed the product to do more than it ever could have done in any other PBX environment. On another vendor’s PBX, the Mobicall system would have made phone calls to each phone to spread the information, but someone would have had to answer the call to receive the message,” said Bryan May, Director of Sales for Morse Communications. “The Alcatel-Lucent PBX made a big difference in how the emergency communications could be managed. No one can say if the blaring speakerphones are why the man with the gun fled the campus, but it did serve to immediately communicate the situation.”

Tim Nesler, Chief Information Officer and Associate Vice President at Santa Fe Community College, has plans to expand the functionality of the combined system with even more features.

“Our objective with Mobicall is to provide the police department with a central management console to initiate and monitor emergency alerts to various locations and communication devices,” Nesler said. “Next, is to use Mobicall to activate a siren that is being installed... followed by broadcasting to building speakers, beacons and, possibly, a third-party text messaging service.”

Conclusion

Alcatel-Lucent has partnered with school districts, colleges and universities on an end-to-end campus safety solution backed by industry-leading communications platforms and integration expertise.

Building upon the foundation of awareness and collaborative response coordination, Alcatel-Lucent customers can deliver timely, accurate campus-wide notifications to audio and visual devices as well as to personal devices, including mobile phones and PC e-mail clients, while supporting the investment in a personal device mass notification subscription.

With this comprehensive three-step approach, the Alcatel-Lucent Safe Campus solution offers educators:

- Rapid awareness of situations as they occur
- Multiple ways for administrators to stay in the loop during an emergency
- Informed decision making
- Efficient, appropriate communication with the campus community
- A secure environment where the focus is on learning and the student experience

Acronyms

ATSC	Advanced Television Systems Committee
CS	Communication Server
DID	direct inward dialing
FEMA	Federal Emergency Management Agency
IP	Internet Protocol
LCD	liquid crystal display
LDAP	Lightweight Directory Access Protocol
LED	light emitting diode
LMR	land mobile radio
LMRCC	Land Mobile Radio Conferencing and Collaboration
NTSC	National Television System Committee
PBX	private branch exchange
PDA	personal digital assistant
PSDN	Public Switched Data Network
PSTN	Public Switched Telephone Network
PSAP	Public Safety Answering Point
SIP	Session Initiation Protocol
SMS	short messaging service
UPS	uninterruptible power supply
VoIP	voice over IP
WLAN	wireless LAN

www.alcatel-lucent.com Alcatel, Lucent, Alcatel-Lucent and the Alcatel-Lucent logo are trademarks of Alcatel-Lucent. All other trademarks are the property of their respective owners. The information presented is subject to change without notice. Alcatel-Lucent assumes no responsibility for inaccuracies contained herein. Copyright © 2010 Alcatel-Lucent. All rights reserved.
EPG3310010119 (03)

