



What's NEXT in Secure K-12 Learning Environments

Introduction

As K-12 networks grow and more schools and districts move toward one-to-one computing programs, the need has never been greater for secure learning environments. Security in schools and administrative offices is a concern for K-12 school districts, from both physical and network standpoints.

Districts need reliable security and incident warning systems, as well as safeguards that keep data from being altered, destroyed or accessed by unauthorized parties. Districts also need to monitor their networks and protect them from attacks and unmanaged access points, including infected laptops and rogue access points.

Alcatel-Lucent offers extensive knowledge and expertise for protecting network and school system infrastructures and information. Alcatel-Lucent's security solution helps

schools and districts understand their security requirements, identify vulnerabilities and reduce risk, as well as defend against and respond to attacks.

Alcatel-Lucent's security consulting and integration services help districts improve their security policies, practices and use of technologies. In addition, Alcatel-Lucent helps customers address threat and vulnerability management through 24/7 security monitoring and crisis management capabilities.

In addition to network security, physical security is also necessary in today's learning environments. Networks provide an ideal medium for sharing information, including dispersing time-sensitive voice and video traffic network-wide. District-wide communications include district alerts, text messaging, paging, conferencing, E911 and support for school lockdown procedures.

Cheltenham Township School District — Enhancing Student Safety

Cheltenham Township School District in Pennsylvania was looking for a way to enhance the educational environment and security for the school district's 4,700 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 during security drills that even more phones were needed as well. The additional phones would be used 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 meet that need, "Alcatel-Lucent provided inter-building communications solutions, security and text messaging that could function across the new infrastructure," explains Gary Bixby, director of facilities and support services for the district.

Cheltenham added an Alcatel-Lucent IP network and, using the flexibility of IP, the district has 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. "The district has a long-term plan to infuse technology into classrooms," said Christopher W. McGinley, superintendent of the district. "In addition to advancing our educational goals, this new platform enables the district to ensure the safety of our students and forge stronger communications between teachers and parents," McGinley added.

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 needs," says Bixby.

Using Alcatel-Lucent's K-12 education district alert application, Cheltenham is able to simultaneously send every classroom in the district instant notifications regarding weather, news, events or specific security concerns.

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 voicemail box or computer popup screen. Alcatel-Lucent's 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. "We now have more 'open' communication and the technology provides the district with tools [that] make us more productive, efficient and successful ... The impact is very significant!" Bixby notes the new communications capabilities and its effects were not possible with previous systems.

After implementing Alcatel-Lucent's 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," according to Bixby. He added that Alcatel-Lucent's solutions provide "immeasurable benefits" and "enhanced educational programs with no limitations" to the district.

Ridley School District — Improving Communications, Safety and Security

Ridley School District in southeastern Delaware County, Pa. serves Ridley Township and the boroughs of Ridley Park and Eddystone. The district contains more than 5,900 students in one high school, one middle school and seven elementary schools.

Ridley School District has invested in a variety of security measures, both hardware and procedures, to help maintain a safe school environment for students. Next to daily instruction, much of the district's daily energy is focused on keeping its children safe.

Ridley High School is the newly constructed high school for the Ridley School District. Ridley High has a student body of 1,600 students in grades nine through 12.

Don Otto, director of computer and network services for the Ridley School District, has been aggressive in his use of technology to improve communications, security and safety in the high school.

The high school installed an infrared flame detector to combat student smoking. The alarm notification from the wireless smoke detector is transmitted over the Alcatel-Lucent network and the messaging is delivered using Alcatel-Lucent's OmniPCX, an IP PBX platform that provides an evolution path from traditional voice to IP telephony. With the smoke detectors and Alcatel-Lucent network, mobile staff members are immediately alerted via two-way radios anytime a student flicks a lighter or strikes a match.

The district further increased its e-communications when it installed Alcatel-Lucent's OmniPCX and 150 IP phones throughout the district. This allowed the centralization of multiple switches and consolidated the number of lines needed. All the IP phones connect to the OmniPCX over a gigabit Ethernet backbone, eliminating the costly monthly expenses for T-1 lines to join PBXs in each school.

With phones in all classrooms and common areas, such as cafeterias, libraries and gymnasiums, teachers and administrators can communicate more easily. More

and tools that simplify this process and support security management for both Alcatel-Lucent and third-party networking devices.

At the heart of Alcatel-Lucent's network security solution are strong security features embedded in the Alcatel-Lucent OmniSwitch family of data switches. The Alcatel-Lucent operating system protects the network from attacks and significantly reduces potential network downtime.

For user authentication, Alcatel-Lucent offers Access Guardian, which enables enforcement of device and network security policies by providing role-based access to the network. Access Guardian authenticates network users, including district teachers and administrators, students and parents, confirms their PCs' conformance to security policies, and then provides access rights based on the user's role.

With the Alcatel-Lucent OmniVista 2500 and 2700, school district IT managers or directors can then monitor network activity, configure and troubleshoot each device, as well as manage an entire network from a single platform.

OmniVista has a true client-server architecture that allows multiple users to access its services simultaneously either through a Java-based client or through Web browser application. It delivers network-level management while providing access to various element managers. The OmniVista 2700 incorporates Alcatel-Lucent's Quarantine Manager to ensure a safe and secure infrastructure through

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phones also make it easier to call 911 or dispense district-wide alerts during an emergency. Additionally, the OmniPCX provided voicemail to all teachers and administrators for the first time. The district then integrated its e-mail servers with voicemail to provide a unified messaging system, enhancing its ability to effectively communicate during emergencies.

Network Security Solutions

School districts need to know who is on the district network, check if those users are compliant, direct what those users can access, see what those users are doing and quarantine and remediate. Alcatel-Lucent provides a comprehensive set of network management applications

extensive network access control, customizable security policies based on district needs and services, and the elimination of threats from misbehaving devices by quarantine and isolation. Quarantine Manager can be integrated with OmniVista or used as a stand-alone product.

Once devices are quarantined, users can be redirected to a captive portal where they have the opportunity to download the appropriate anti-virus updates or other software to bring them into compliance with district policy. With Alcatel-Lucent's Access Guardian and Quarantine Manager, a district network can proactively prevent virus and worm attacks, ensure performance, protect IP telephony devices and provide reliable network services to all authorized users.

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— Christopher W. McGinley, superintendent, Cheltenham Township School District

OmniAccess SafeGuard lets districts peer deeper into network traffic to determine what users are doing on the network and then compare that with what they're allowed to do. OmniAccess SafeGuard then flags any activities prohibited by the district's acceptable use policies (such as peer-to-peer downloads or unsecured, public instant messaging), therefore helping K-12 districts enforce the school board's desire to keep students safe online and protect a school from becoming an agent of illegal activity.

Alcatel-Lucent VPN Firewall Brick solutions are designed to support large-scale district network deployments and manage the processing of large volumes of traffic on the network. Alcatel-Lucent VPN Firewall Brick solutions offer carrier-class reliability and security features and provide security management capabilities for all phases of network deployment, from VPN firewall installation to operation, management, and reporting.

Running on a unique, secure operating system, the Alcatel-Lucent VPN Firewall Brick portfolio is virtually impenetrable to hackers and its advanced safeguards protect against denial-of-service attacks, while delivering high-speed content security and premium authentication services.

For today's school and district's networks, ensuring network security is one of the biggest concerns. The high reliability and ease-of-use offered by Alcatel-Lucent's security products make them ideal for K-12 systems seeking to offer high security on their networks at relatively low cost.

Conclusion

With the Alcatel-Lucent network security solution and the physical security support offered by Alcatel-Lucent's OmniPCX and Unified Communications suite in use at

Cheltenham and Ridley schools, districts get a comprehensive set of tools to secure the learning environment.

Alcatel-Lucent solutions help school districts share critical information, including time-sensitive voice and video traffic. These messages can be dispersed to the entire school community, improving response time and ensuring the safety of both students and staff. District alerts, text messaging, paging, conferencing and E911 help K-12 learning environments remain secure and protected. Additionally, the complete set of tools designed to provide management, configuration, troubleshooting, and security to the district network allows IT administrators and managers to operate a safe and effective network infrastructure. Complete network protection and physical security are what's NEXT in secure K-12 learning environments.



For more information on what Alcatel-Lucent can do for your district, visit www.Alcatel-Lucent.com.