On Lock-Down

THE SECURITY SECTOR EMBRACES A WIDE RANGE OF EFFECTIVE SYSTEMS AND TECHNOLOGIES

by Godfrey Budd

As the Internet revolution matures and computer processing power continues to increase, the security and life safety sectors are experiencing the impacts in various ways. One involves the possible looming redundancy of that stalwart of many access management systems, a bulky control panel stashed in a closet or utility room.

A critical component of these networks has been radio frequency identification devices (RFID). They have been common for a decade or so in office towers, correctional facilities, airports and laboratories handling dangerous materials – anywhere there's a need to be selective about who passes through a doorway. A card reader on the door or door jamb reads your card and relays the data to the control panel, which verifies that you may enter.

But, in the last couple of years, some owners with an eye on security have been opting for systems where the doors themselves are "smart" and have an ultra-compact control panel on board, which also doubles as an Internet protocol (IP) device. "Now, you present a phone or fingerprint to the door and it allows you through – or not – without communication to anything else. The smarts are in the door. With IP, controls can be done over a wide network," says Gabriel Ana, general manager for systems and technologies at Houle Electric Limited.

Ana says that IP has enabled companies to manage access cost-effectively on a remote basis. A managed access system can be used to set up and operate a hierarchy, which authorizes who has preferential access. The system might be run out of a company's headquarters or branch office, or it might be outsourced to a security firm or other specialist.

Access management operations are now typically done from a centralized location, supported by back-up at other locations. Houle provides this service to both business and government. "The concept has been around for a decade or more, but there have been IP limitations, proprietary barriers [which hinder the integration of systems across multiple platforms]. Also, the communications infrastructure was not robust enough. These problems have now mostly been resolved," Ana says.

Many security devices can be either stand-alone or part of a network. Take lock-down systems: the new Schlage CO-220, introduced last fall and available from Allegion Canada Inc., is a stand-alone lock that provides instant lock-down from anywhere in the classroom with the touch of a button.

For small campuses, the CO-220 lock can be manually programmed and lets administrators add or delete users. "For larger campuses, users can utilize offline access control software that provides the ability to manage a database of access users, set auto-lock and unlock schedules, and capture audit trails from the lock," says Josh Weidman, director of sales and marketing at Allegion Canada Inc. The company is part of Allegion PLC, whose debut occurred last year following its spin-off from Ingersoll Rand.

Video Analytics (VA) is another technology that enables a more finely-calibrated security system. Using software that sorts images of events, and thus replacing a rent-a-cop scanning monitor, VA, in effect, turns a camera into a computer that can decide which events, as represented by recorded images, are permissible, meriting further action, or tripping an alarm, and which events are just fine. Any number of actions – falling, running, fighting and shouting – can be included in a category requiring a security response. Some facilities are equipped with hundreds of cameras, with as many as 500 to 1,000 expected to become more common, says Colin Lobo, a principal at Lobo Consulting Services Inc., a firm that provides security design for prisons.

In the past, large numbers of cameras could make efficient monitoring difficult, but that is changing. "There are lots of ways to alert the operator. Video analytics has advanced tremendously in the last few years. Analytics are making decisions as well as alerting a security officer. There are different types of security analytics and the difference depends on the objective. The key element is to understand the operator's requirements," Lobo says.

He points to new VA systems that can sharply reduce the number of monitors needed to track what's happening in front of all those cameras – from 20 to 30 screens to as few as two. A server's analysis of the data fed to it from the digital cameras is based on specific algorithms, which can be customized to site-specific requirements, he says.

Another factor that boosts monitoring efficiency, Lobo says, relates to the control of multiple networks via a single platform. "Prisons now use about 15 systems, including cameras, door control, intercom duress alarms, perimeter detection, P.A., fire alarms, HVAC and lighting controls, that all run through one system." Like Ana of Houle Electric, Lobo attributes some of today's security efficiency gains to the recent move toward open protocols and away from proprietary systems. "From one system interface, you can control various customized systems," he says.

Security systems are increasingly moving away from coaxial cable-based networks to IP-based cabling and wireless, says Vern Mantai, VP electrical at Hemisphere Engineering.

Coaxial still has a role, however. "We've been working on a project with coaxial, but, because of some of the distances involved, we have much of the network on coaxial, but it has modules to convert from coaxial to IP signalling, and modules to convert IP to coaxial," Mantai says.

Like Ana and Lobo, Mantai also points to the utility of VA systems and observes that a type used at some military installations "could detect a bug on a wall." He expects VA prices to drop. "It's not being used in routine applications yet, but I think it will eventually become available in all security cameras," he says.

Bringing an older building's cabling up to speed when upgrading security, or network communications generally, can be a challenge. The cost of new "traveller" cable for an elevator shaft can add an extra $5,000 to $10,000 per elevator cab, says Scott Knutsen, president and CEO of Cobra Integrated Systems Ltd.

It was this sort of issue that prompted Cobra to develop a technology device that can sidestep a lot of retrofit cabling. "It allows us to take an older cable, say a Cat 3, and convert it to up to 100 megabits per second capacity. You're bringing the Cat 3 to Cat 5 functionality," Knutsen says. "So when an elevator is upgraded, you don't need to replace the cable."

Cobra's manufacturing began in elevator communications, and its cost-saving cable technology was developed for retrofits, but, Knutsen says, "we've looked at new projects and found it's less expensive to install our devices. Cat 5 for elevators is expensive as it's bending all the time. It must be very robust, but with this device you can use cheaper cables. Our device enables digital cameras, displays and bulletin boards."

The company introduced the technology two years ago and works for both life safety and security. It was used when 108 new digital cameras were installed recently in a Vancouver building with legacy cabling. It helped get the job done in nine days, "instead of a month or two," Knutsen says.

Security for homes, small business and retail outlets has improved. Today's equipment is often compact, IP-enabled and false-alarm-free. "People want to know the activities going on around their premises. With IP, you can see who's there when you're off site," says Shawn Shajirat, VP business development and operations at Globe Shields Enterprise Ltd, a manufacturer's representative and importer of security products.

Some of its devices are a reminder that there are still security issues that are easily managed without the cost of VA. One is a passive infrared detector, which is immune to pets weighing up to 20 kilograms, and is designed for residential and industrial applications. Its digital counterpart provides pet immunity up to 35 kilograms and is better suited for larger industrial and commercial areas.

The company has just introduced a multi-tasking security system for the home, office or retail space, that can manage lighting control, door locks, CCTV, video intercom and recording. And there's an app to run the network from a smart phone. "We expect its biggest market will be in the residential sector," Shajirat says. ∎