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New alert systems link devices to save lives

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The first security guard to arrive at any future school shooting will probably type a code into his radio and voice a simple message: "Shots fired in freshman dorm. People in the building should lock their doors and keep low. Others should avoid the area."

The school's security system will then call every member of the school community and play the message. It will also run the message through a voice-to-text program and send the text to every cellphone, e-mail address and instant messaging account. The whole process, from first recording to final delivery, will probably take a couple minutes.

The push for such alert systems began after the Sept. 11 attacks and accelerated after Hurricane Katrina and the Virginia Tech killings. Their specter sells technology that can instantly share information – through every possible combination of voice, video and text – among hundreds, thousands or even millions of people.

These systems will doubtless save lives, but they will ultimately do much more. They will change the way you work, the way you drive, the way you live. You may sacrifice some privacy, but you will get much in return.

"It's hard for people to wrap their heads around all the potential uses," said Kevin Brown, chief executive of IPcelerate in Carrollton. "Essentially, if taken to its logical conclusion, the idea is to eliminate this one phrase: I wish I'd known that sooner."

Modern alert systems come in many forms, but a common ideal underlies them all. They link existing devices – phones, faxes, computers, radios, sensors – into a network. They let any one node send information to and receive information from any other node or group of nodes. And they use intelligent software to prompt users to handle emergencies correctly.

Developers dreamed up such systems after the Sept. 11 terrorist attacks. Back then, incompatible radio networks kept police and firefighters from coordinating their efforts. Things got even worse when the FBI, the National Guard and others arrived with still more radio networks. No one could talk easily to anyone else.

Next-generation systems, which cities are slowly rolling out, help different departments talk to each other. They also let professionals talk directly to the public.

"Traditionally, when you call 911, you tell your problem to an operator, who then summarizes your problem to a police or fire dispatcher, who then summarizes it to people in the field," said Lindsay Hiebert, marketing manager for the Emerging Technology group at Cisco Systems.

"The systems we sell today allow the 911 operator to locate the closest responders and patch you through to their radios. Responders get the story faster and better, which lets them help you faster and better," Mr. Hiebert said.

If a call to 911 reveals a major threat, one that endangers a neighborhood or town, new alert systems can reverse the flow of information. If, for example, a sniper were stalking a neighborhood, the police could record a warning and tell a computer to call to every resident within a certain radius of the gunman's location.

Sound impossible? About 40 towns around Hartford, Conn., already use Reverse 911 systems. Half the towns in the state will have them in a year. Nationally, such systems are spreading slowly, but most places will eventually get them.

"My family came home one day about a month ago and found two messages on our answering machine. They were recorded warnings from the city police department about a hostage situation about a mile away," said Steve Reed, a senior director of strategy and business development at Motorola.

"I work with this sort of technology every day, but I was still pretty amazed. ... We're right on the cusp of doing some pretty cool things," said Mr. Reed, who lives in suburban Chicago.

Similar technology will find commercial uses.

Airlines, for example, already send text messages to update travelers on schedule changes and weather delays.

Vendors expect them to steadily enhance such services.

Travelers at the airport bar, the noisy one where you can't hear the PA, may get messages when their flights are about to board. Travelers on two-leg flights may soon get directions to their second flight as soon as the first one lands. Folks with GPS phones may get turn-by-turn directions from one gate to the next.

Further enhancements will enable some truly cool services, vendors predict.

Say a plane with 130 passengers gets delayed by an hour. The airline computer system will know that 100 passengers have connections and which of them will be able to make

their connections. The fortunate passengers would get directions to their next flight. The rest would receive rescheduling options and the ability to book one with a single click.

"The system might let you choose between a middle seat in coach at 7 p.m. or a first-class seat at 8. Each one of them would be a hot link, so you could complete the transaction just by clicking on your choice," said Phil Edholm, chief technologist and vice president of network architecture for Nortel's Enterprise Networks.

"If nothing worked, you could place a call to someone at the airline by clicking on a third link," he said.

"Of course, people will need Internet-enabled phones for that much interactivity, but analysts predict that most of us will have them in a few years," said Mr. Edholm, based in Santa Clara, Calif. "Until then, these networks will offer simplified services that use text messages, which nearly every phone can receive."

Such a system would cut airline payrolls because it would largely automate a process that is currently labor-intensive. Indeed, many alert systems will automate existing services. Many others will make new services possible.

Combine GPS-tracking bracelets with modern software and you get a system that calls the cops and alerts teachers when a sex offender approaches a school campus. The same combination would call the cops and a battered wife if her husband violated a restraining order.

"We already have the technology to do a lot of location-based things, and the costs are reasonable. The big impediment is human ambivalence," said Greg Poldy, director of public safety products at Northrop Grumman Corp.

"Everyone wants the alert that will save their lives. No one wants the government to know where they are all the time."

No one wants their employer knowing that either. In New York, cabbies threatened revolt over a satellite tracking system that would help cabs find customers and avoid traffic. The system would probably boost fares, but many cabbies hate the idea of being tracked.

Other uses seem less controversial. Some companies already use systems from IPcelerate to link time clocks to telephones. If a worker fails to clock out on time, the system calls his manager, who can then touch a button to call the worker. Customers hope the system will slash overtime.

Top-of-the-line systems combine specialized hardware and software such that every user can send or receive nearly any type of information.

Simpler systems, such as the ones sold by Cistera Networks of Dallas, can link regular radios and cellphones with nearly any device.

The simplest systems don't even require hardware. Frisco-based Recursion Software makes programs that support complex alerts on simple cellphones.

In all, there are dozens of companies that sell alert technology. This glut of competitors may create the very problem that everyone wants to avoid – system incompatibilities.

More likely, insiders say, the various systems will work on the same Internet standards that already let so many devices work together online.

Better still, interoperability should let individuals use one device to get alerts from different networks.

"People will sign up for alerts that interest them, the same way they can sign up for RSS feeds now," said Bob DeAnna, chief technology officer at Recursion.

"You'll sign up for alerts from your city police department, your children's schools, your employer, your airline, your local traffic, the National Weather Service and whoever else you want. You'll choose in advance the information you want, and it will come to you automatically."