

PUBLIC SAFETY REPORT

COMMUNICATIONS SOLUTIONS FOR PUBLIC SAFETY

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Why Public Safety Still Needs Paging

Both public and private paging networks with advanced features offer numerous benefits for public-safety agencies.

By Elaine Baugh Walsh

In the midst of an explosion in sophisticated wireless technology, do first responders still need pagers? Let the Arlington County, Va., “After-Action Report (AAR) on the Response to the September 11 Terror-

ist Attack on the Pentagon” released in December give a definitive answer to this question. “Almost all aspects of communications continue to be problematic, from initial notification to tactical operations. Cellular tele-

phones were of little value in the first few hours, and cellular priority access service is not provided to emergency responders. Radio channels were initially oversaturated, and interoperability problems among jurisdictions and agencies persist,” the report says. The AAR specifically states, “Every firefighter and EMS responder should have a pager to receive dispatch notices both on and off shift,” and adds that during the Pentagon attack, pagers were “the most reliable means of notification.”

Throughout the United States, pagers are ubiquitous technology for more than 6 million people. This includes millions of workers in 50,000 public-safety agencies for crisis communications, homeland security, EMS, police and fire services, special weapons and tactics (SWAT) and other special forces. While widely available since the 1950s and approved by the FCC in 1958, the first messaging system that could be considered a pager, as invented by Al Gross, was used by the Detroit Police Department in 1921. A public-safety heritage is built into every paging device used in emergency communications more than 80 years later.

Without a display, with limited range and no message storage, the first portable paging devices were considered huge advances in on-site communications, but they share little beyond a convenient form factor and economics with modern paging technology.

Paging and Public Safety



Photo by John Valceanu

During the Pentagon attack on Sept. 11, pagers were the most reliable means of notification.

Next-Generation Features

Current paging systems operate as virtually wireless multicast, alerting thousands of people in seconds with secure text messages. With each message, the system displays who received and read it and how each person is responding. Paging systems, as evidenced by the findings of the AAR, are extraordinarily reliable. And with a private system often costing one-tenth the price of a comparable trunked voice system for similar

coverage, the cost is minimal.

Even after working 24 hours straight during a recent snowstorm testing a new radio system, Jerry Whittington, senior public safety incident response monitor for Erie County, N.Y., was still eager to share that the county's proprietary paging system has improved communications for homeland-security personnel throughout the county. Erie County, which covers 1,058 square miles and includes Buffalo as a major metropolitan area, has a 2-year-old custom paging system with 8,000 pagers in use by EMS, police and fire personnel. This includes the 94 volunteer departments within the county.

In emergencies, when other wireless services may be overloaded and unreliable, paging with multicast transmitters retains the ability to send critical messages. Paging systems don't solely depend on landlines

likely to be compromised in wide-scale disaster situations. Paging infrastructure can be controlled via satellite links so terrestrial events don't have the same impact. That was dramatically demonstrated after Hurricane Katrina and the Minneapolis bridge collapse when paging systems continued to operate under conditions that swiftly overwhelmed many terrestrial-based systems.

Simulcast, as used in paging, allows the same message to be broadcast over multiple transmitters simultaneously, for better penetration into, under and around buildings than cellular and mobile radio systems. Physical obstructions can be less of a deterrent to pager operation, and simulcast technology allows for inherent redundancy, further increasing reliability. Pagers on public systems operate throughout the United States, so coverage isn't an issue for more than 90 percent of the population.

Terrain doesn't present coverage issues for paging systems. The Foothills Fire Protection District serves 29 rugged square miles of Jefferson County west of Denver in the Rocky Mountains. Jeanette Kehoe, business manager for the Foothills Fire Protection District, says that with two-way radio, there were occasional issues with coverage. "With paging, I know that the message will get to everyone," she says.

In addition to its radio system, the Foothills Fire Protection uses a public system from Contact Wireless, a Denver-based paging operator, to be sure that messages reach every member of the combination volunteer and paid department staff. Because some firefighters live outside of the district, a text message requiring all to respond immediately is sent via the paging system. While immediate notification is crucial in an emergency, Kehoe says that it's also a convenient way to announce routine events such as training.

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“Every firefighter and EMS responder should have a pager to receive dispatch notices both on and off shift.”

— Arlington County Report on Sept. 11 Pentagon Attack

off-the-shelf AA or AAA batteries in many paging models, adding to the high return on investment (ROI) of

paggers. Numeric paggers offer a display of a phone number, and alphanumeric paggers include text or a

keyboard. Paggers and paging-based devices can be accessed by phone, secured Web site, e-mail, modem, cell phone and two-way paggers. Users can choose to subscribe to an existing commercial paging service or construct a private system for exclusive use by their agencies.

Public and Private Options

Agencies choosing a public system option gain national coverage, and service can be immediately operational. Satellite is deployed in public systems for traffic distribution, which enhances reliability in major emergency events. If users travel beyond their home regions, they are assured of continued coverage.

“Many public-safety agencies find wide-area paging on the public network to be the best solution to their communications needs,” says Linda Hoover, executive director of American Association of Paging Carriers (AAPC). “Those who require an extended coverage area and the immediate access to an operational system on the public network are enthusiastic users across the U.S.”

For other public-safety agencies, however, a private system is often the most logical choice. Customizable and expandable — a public system may have 10 base stations in a region but a private system could have 20 or more — a private paging system can usually be incorporated into an existing radio system. Private systems allow for tiered use in emergencies, so the highest priority users are allowed unlimited access, medium-priority users have less access and low-priority users may only receive, for example, outbound messages.

While mass alerting via group call means that virtually an unlimited number of people can be reached,



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Paging and Public Safety

which is essential for an agency, most agencies set up multiple groups. Selective group messaging can be used to alert, for example, just chief officers to get a silent alarm, while all of the appropriate accident investigation team members are sent text messages with full text. A private system can be designed for access to specialized databases and can be connected to agency dispatch centers. Larger agencies usually enjoy economy of scale with their own leased systems and can expand the capabilities of the system with customized functions such as access control, lighting and automatic emergency alerts.

Disasters don't strike on schedule or at convenient times. To reach your SWAT team members at 2 a.m., a paging notification, simultaneous with a radio call, is both secure and immediate and reaches members regardless of whether they're in the

More Information

The American Association of Paging Carriers (AAPC), formed in 2002, represents paging carriers and suppliers. The group's Web site, www.pagingcarriers.org, includes links to technology, regulatory initiatives, manufacturers and resellers and information on the Global Paging Conference, June 17 – 19 in Montreal.

coverage area. Whittington said that the Erie County system has 95-percent coverage, and while he can't guarantee that a message will reach team members outside of the coverage area, the system will forward the text message to a cell phone. Erie County can't guarantee paging message delivery; however, the county is working on a project to facilitate forwarding.

The turning point for emergency response in America is Sept. 11, and the final word on paging for first

responders comes again from the AAR. Lisa Thompson, wireless communications systems manager for Arlington County's emergency communications center (ECC) recalls how paging performed during the Pentagon attacks. "From the initial wireless message to notify our police, fire, EMS, county manager and ECC staff, to the recall of all dispatchers, police officers and firefighters, paging has performed flawlessly," Thompson says.

Not bad for a technology celebrating its 87th year. ■

Elaine Baugh Walsh is president of E Comm International, a marketing consultant to the wireless industry. The company provides public relations, advertising, sales training and marketing support to manufacturers, associations and dealers. Walsh has been in the wireless industry for 30 years. Contact Walsh at elaine@ecomint.com.

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