



# Data Opportunities Lie in Off-the-Shelf Technology

By Joe Ross

**V**oice communication is the priority for public safety, and likely will be for a long time. But data opportunities abound. We are at the nexus of the public safety data evolution and must act now to make sure we aren't left behind. In fact, this is an opportunity to again step into a leadership position — remember how the cellular community benefited from public safety radio innovations through the 1980s?



Broadband efforts under way at 700 MHz offer tremendous promise for applications and devices to satisfy our growing data needs, through a highly competitive marketplace, leveraging products available at a local retail store. Technologies such as 1x EV-DO already are available commercially from Verizon Wireless and Sprint Nextel. EV-DO for public safety will deliver the high capability and low cost of commercial solutions with the control and consistency of dedicated public safety networks. Importantly, the devices that will operate on these networks will have the small form factors and extensive feature sets that public safety users already enjoy.

There is no better example of the power of commercial broadband technology than what is happening in San Diego, where San Diego Police Department users can access CAD data, video, records, and criminal databases using smart-phone-sized devices. That city's police use a commercial broadband solution, but an agency's dedicated network could leverage the backup power, backhaul, and other components of its LMR system. And if the network goes down, an emergency backup system can be deployed — without the permission of cellular carriers — in its own band.

## The Gear

Public safety users want small, functional tools, and leveraging the same devices used by the public provides other benefits. Now, if a plainclothes officer walks past a suspicious vehicle, she has to enter tag information into a large de-

vice, immediately drawing unwanted attention. If, however, her device is no different from millions of others, the suspects won't notice. A mobile data terminal (MDT) or ruggedized computer raises suspicion, but a small, handheld device that anyone might carry and use is inconspicuous.

Commercial networks already can stream video to phones and PDAs. Next-generation devices will be able to stream live video from them. Current devices also have integrated GPS. In fact, they can deliver better performance than standard GPS, using signals from base stations and other technologies to determine locations inside buildings — a capability critical for firefighting and special weapons and tactics (SWAT) operations. Wireless carriers do not allow access to many such capabilities built into devices; but if public safety owns the infrastructure and controls the handsets, this information will be available.

Many cell phones have integrated cameras, and while the photo resolutions on the devices isn't great, they still can provide useful images. Eventually, this feature could transmit scene images back to a dispatch or command center. Consumer demand means a lot of money is being poured into these devices, and the quality of cell-phone cameras is steadily increasing as prices remain the same.

Current smart phones enable Web, e-mail, and messaging. More applications, such as on-demand floor plans or mug shots, can be delivered to handheld devices. Granted, some of these applications are better suited for full notebook PCs, but the processors in handheld devices offer public safety another option, giving officials more tools to solve their communications needs.

Even "ruggedized" solutions are available in commercial cellular products, and the slight cost increase to satisfy public safety's unique requirements creates possibilities to dramatically improve communications. Additional features, such as large buttons and dials and intrinsic safe-

ty, can be added to existing platforms — but remember, many public safety applications don't require these modifications. Not all public safety devices must be rugged.

The next generation of commercial devices will support high-resolution streaming video and improved displays, along with native VoIP. In fact, the entire telephone industry is moving to all-IP solutions that include push-to-talk voice and streaming video with minimal required throughput, adjusting bandwidth usage as wireless conditions vary.

Initially, before nationwide public safety broadband 700 MHz networks are launched, devices that support commercial and public safety broadband networks will be available to support 700 MHz, 800 MHz, and 1.9 GHz spectrum with technologies such as EV-DO. The

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expectation is that public safety will subscribe to commercial broadband services and purchase devices that include the 700 MHz public safety band. This will enable public safety to use dedicated public safety networks where they are availa-

ble and provide an instant subscriber base as more agencies opt to construct local, regional, or state broadband networks. As the marketplace matures, public safety manufacturers will provide new offerings that are rugged and deliver advanced capabilities.

What next-generation solutions are out there? Only time will tell. But the cost, capability, and speed of commercial solutions can save us from reinventing the wheel and enable us to focus on our operational needs. ■



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