Mobile Technology—
Mobile Data Terminals on Steroids

By Jason Rossback

Imagine a call coming in at 0300. The radio chirps, but instead of a cryptic message informing you of a cardiac arrest on First (or was it Fourth?) Street, a computer comes to life and announces in a clear, audible voice that a 45-year-old male needs your assistance at 235 First Street. The computer then shows you where you are, where you need to go and the best route to get there. It updates your position and status on the map as you race to your destination. You get to the scene, treat the patient and transport him to the nearest hospital.

Rewind to when that call came in. A 45-year-old male in cardiac arrest needs immediate assistance. Back in the dispatch center, the dispatcher keys in the address as the computer notes that the nearest vehicle is three miles away. Immediately that vehicle and crew are assigned to the call. An icon on the map begins to flash, indicating the rig's lights and siren are on, and the ambulance makes its way to the scene. It reaches the destination at 0305, and 15 minutes later the patient is in transport to the nearest hospital, and the job is completed. If only things were this simple!

Actually, this is not bleeding-edge technology, this is reality. The radio chatter and cryptic messages on text-based mobile data terminals (MDTs) can be eliminated and replaced with rich data on a full-color mobile data computer (MDC) with integrated mapping and GPS. This technology, available to the industry today, can revolutionize the way calls are dispatched.

There are four key things to consider when "going mobile":

- Why invest in this technology?
- Which wireless technology will work for my organization?
- What should be considered when purchasing a mobile data computer?
- What features are important in a software package?

Let's discuss these topics and provide some helpful advice on how decisions made now will impact your organization in the future.

Why Invest In This Technology?

Deciding to invest in technology is easy if the return on investment (ROI) can be realized in a reasonable time frame. Things like faster response times, improved vehicle placement, less radio chatter and easier communications with crews can result in time and cost savings. While ROI is important, it often overshadows the "soft" benefits that can also be realized. For private ambulance organizations, the competitive advantages that technology offers can allow documentation of excellent service and depict a vision for the future. Other benefits can include personnel retention, increased overall technical aptitude within the organization, and the ability to increase on-time performance for nonemergency transports and reduce response times to emergency calls.

Which Wireless Technology Will Work For My Organization?

Wireless technology has advanced rapidly in the last decade. What once required a modem, a phone line and a 10-minute wait now requires an antenna and barely a moment for a sip of coffee. The key factor in choosing a wireless network is not necessarily speed. Three components are vital to the decision: coverage, data services and data plans. With coverage, it is important that one can maintain a connection anywhere within the required service area. As for data, support for TCP/IP (the same protocol that drives the Internet) will allow for the most flexibility when choosing software solutions. Additionally, an unlimited data plan will provide a fixed monthly cost model. *Figure 1* can help you choose the network provider that best meets your needs.

Considerations When Purchasing a Mobile Data Computer

Durability—The first thing to consider is how the unit will hold up in the front of the ambulance. Will it withstand the bumpy roads, the occasional coffee spills, the propped-up feet while waiting for a call? Other factors to consider are hinges (will they always work as intended, or will they become loose over time?)

Figure 1: Network Providers' Data Rates

	Network Provider	Data Rate
1xRTT	Verizon, Sprint	50–70 kbps
GPRS	AT&T Wireless, Cingular, T-Mobile	10–50 kbps
EDGE	AT&T Wireless, Cingular	100–384 kbps
EVDO	Verizon	300–500 kbps
iDEN	Nextel (Sprint)	64 kbps

and touchscreen durability (don't count on the stylus being the primary method of data input).

Ergonomics—Trying to read or input data on a small screen while bouncing down the highway at 70 mph is not only difficult, but can endanger the crew, the passengers and other drivers on the highway. An MDC with a larger screen and easy-to-access buttons on the front will provide your crew with a safer and more efficient experience.

Cabling/Mounting—A well-designed system will provide a wiring harness that not only keeps the wiring out of the way, but protects the connections from being accidentally (or purposely) disconnected. Additionally, look for MDCs that have mounting accessories that secure the unit in the cab so that it is easily accessible to the crew.

Important Software Features

Mapping—Select a vendor that provides map data from an established mapping company such as Tele Atlas or Navteq. Routing is a nice feature as well, but it is best to ensure that in addition to drawing the route, the software be able to provide audible and visible alerts for upcoming turns.

CAD Integration—A software package that is integrated with a CAD system—or, better yet, can integrate with any CAD system—will provide the most benefit. Be sure that the software will, at a minimum, be able to receive call data from the CAD system and send updated time stamps back to it.

Open Platform—A software system built on a proprietary platform will ultimately cost much more money than one built on an open platform. The safest investment is in a platform that utilizes a Microsoft operating system.

Network Support—One of the fastest-evolving industries is wireless communications. Because of this, when selecting a software package for your fleet, be sure to choose one that supports the majority, if not all, of the major networks and has a proven track record with radio/modem vendors on each network.

RescueNet Nomad

One product that offers all these benefits is the RescueNet Nomad solution from ZOLL Data Systems.

"Prior to implementing the RescueNet Nomad, our crews, as well as dispatchers, were challenged with making sure the actual location was understood on both ends," says Pete Sturn, of Hall Ambulance Service in Bakersfield, CA. "There's no more back-and-forth with the dispatcher not having a clue as to what the crew is encountering. It comes up on the screen, and everyone is clear on where they're going and what they're supposed to be doing."

"We've not only increased our dispatcher productivity," says Allen Johnson of Montgomery County Hospital District EMS in Conroe, TX, "we've freed up time for our medics, increased the quality of the patient record and added structure for process improvements."

"The [RescueNet Nomad] is one of the most unique and advanced systems in any public-safety sector in the United States," says Herb De La Porte, of Ohio's LifeCare Ambulance Inc. "It moved LifeCare from a radio dispatch service to a sophisticated mobile voice- and data-communication service, allowing us to provide the most innovative emergency care in the area."

Many companies have already made the jump to mobile data computers in their vehicles. The technology has revolutionized the way such organizations operate by optimizing business processes and maximizing performance. ■

Jason Rossback is product manager of field data solutions for ZOLL Data Systems.