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## Emergency Services Go Wireless

BY [CRAIG LIDDELL](#) ([profile](#)) | January 23, 2003



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Nowhere are speed, security and scope in communication more important than in emergency services. So any decision to upgrade could be considered a vote of confidence in the technology.

[The Ambulance Service of New South Wales \(NSW\)](#) is following in the footsteps of the [Queensland Ambulance Services](#) by implementing a mobile data radio network. This will reduce the time it takes for ambulances to receive messages from headquarters.

The contract is a coup for Brisbane-based wireless developer [Technisyst Computing](#). It will contribute more than \$20 million to the company's bottom line over five years.

"Our system ensures that ambulances get to jobs as quickly as possible," says Bill Delaney, Technisyst CEO. "We can have information sent to ambulances within ten seconds and in emergencies, every second counts."

The Ambulance Service of New South Wales is the first user of the network. However, it is being built to scale for use by all NSW Government agencies. The New South Wales Office of Information Technology issued the contract.

Technisyst Mobile Data Radio Service enables operators to pinpoint the exact location of all ambulances in the fleet at any given time. They can then dispatch the closest vehicle to an emergency.

Over 300 ambulances in New South Wales will be fitted with Mobile Data Terminals. The system will consist of 35 base stations to cover Sydney and regional areas of New South Wales. It is expected to be operational within twelve months.

The computer touch screens display data and allow ambulance crews to enter set responses. Once the network is running, users will know to within 10 metres where the ambulances are and their status. When a 000 call generates a location, the control centre dispatcher looks at the screen and decides

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which ambulance is nearest, and sends the job details to that terminal. The details are then displayed on a touch screen inside the ambulance, located on the dashboard.

"The emergency services environment has many challenges that need to be overcome," says Delaney. "Vehicles and paramedics work around the clock and emergency work has to take priority. This means that we need to be very flexible when undertaking activities such as fitting equipment into vehicles or conducting user training."

Both deployments consist of four elements.

Firstly, the Private Mobile Data Network which is based on the [Ericsson Mobitex Network](#).

By contrast to spread spectrum used for 802.11 wireless networks, Mobitex is a narrow-band packet-based data only network designed specifically for applications that have lots of short and bursty traffic. Deployments operate in the 400MHz spectrum range. A single base station can provide coverage to an area of some 20 kilometres in diameter and can maintain communications with vehicles travelling over 160KPH.

The second element is a wireless gateway switch used to interconnect customer host systems to the wireless network called TC-Gateway.

Thirdly, in-vehicle equipment consists of a wireless modem, Mobile Data Terminal and Global Positioning System (GPS). The core to the in-vehicle system for NSW is Technisyst's TC-Connect Embedded Computing Platform.

Finally, custom software is used for both the Mobile Data Terminal and TC-Connect applications in the vehicle. Integration software is used to integrate the Mobile Data Network to the customers existing Computer Aided Dispatch Systems.

"Technisyst selected Mobitex because we believe it is the best data network in the world for the types of emergency service applications that we supply," says Delaney. "Mobitex is in use in over 26 countries around the world, it is an open solution with equipment available from multiple vendors and it continues to be developed by Ericsson."

Queensland Ambulance Services were so pleased with the network they choose to expand the number of wireless base stations in May last year.

The original contract signed in 1999 was valued in excess of \$7 million over three years.

Technisyst provided the design, installation, and commissioning of the mobile data network, including the installation of Automated Vehicle Location (AVL) and Mobile Data Terminal (MDT) systems for over 350 ambulances.

Technisyst has come a long way from their original focus on custom software applications in the wired world when they began in 1986. After working with [Telstra](#) some years later to develop a wireless solution on their DataTAC network, they choose to focus a significant section of the company in that area. This was folded into their Wireless Data Group in 1995.

For The Ambulance Service of NSW, the solution is a significant upgrade.

"Voice communications between ambulances and the communications centres is

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provided by a number of different radio networks across the state," a spokesperson says. "In the Sydney area voice communications is primarily provided by the Government Radio Network (GRN)."

"The GRN is primarily an analogue voice network," she continues. "It has been operating successfully since 1993. Some data traffic has been added in recent years. The increasing demand for data applications has resulted in an increased demand for data capacity. As a result, the [NSW Government](#) has contracted for a new data network for the Ambulance Service of NSW."

She adds, "the new system is a digital data system, designed specifically for data use. The Mobitex data system is used world-wide by emergency service organisations for transmission of data."

"The Mobitex System was very good in 1999," Delaney adds, "and it continues to be. Mobitex was developed from the ground up to be a data only network, so it suffers none of the compromises that often exist in networks that share voice and data communications over the same infrastructure."

Security consists of several measures.

"The system is a digital packet based system making it inherently difficult to access for casual hackers," he says.

"Both host and mobile access is only granted to authorised parties," Delaney continues. "Data sent over the network is also able to protected through a wide range of compression and encryption algorithms, and this can occur either at the communications layer and/or at the application layer."

Finally, "each wireless modem is uniquely identifiable, and each modems access to the system, and to particular host systems can be individually managed," he concludes. "This means that a modem that has been lost or stolen can be permanently disabled from accessing any network."

"Technisyst has been in a position to work with wireless data as the market and industry segment has developed," Delaney concludes. "As a result, we have a great depth of experience in working with wireless and making wireless work. But we have also always been a solutions focused company. So as our experience has developed, we have always tried to take a strategic position to be able to deliver cost effective solutions."

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