

# The Right GPS Fix - Check Out Our Guide

BY J. SHARPE SMITH

Your choices to economically locate employees and vehicles are constantly growing. You can opt for a system you own and operate; a web-based subscription purchased from a third party provider or a combination of the two.

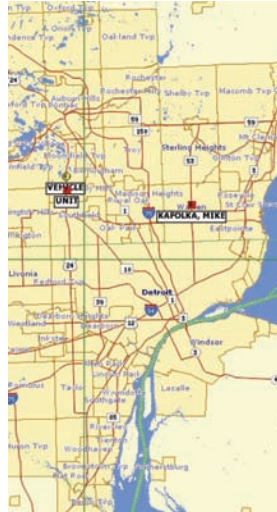
With the introduction of digital technology, GPS modules can now be the size of a postage stamp with power consumption measured in milliwatts. As a matter of course, vehicle location technology can now be integrated directly into portable and mobile two-way radios, cellular phones and other mobile devices like PDAs.

The new web-based fleet management systems each provide different functionalities, but they have one thing in common. All the user needs is the device installed in the vehicles and access to the Internet on their computer. With that simplicity comes low upfront costs as well.

## Market Research: GPS/AVL is Number One

GPS/AVL was the number one application desired as an add-on to a system among 20 to 30 different applications, in survey performed by Motorola. "When we asked them what feature would entice them to move from their existing analog radio system to a digital private mobile radio system, GPS/AVL flew to the top of the list," says Craig Chenicek, director of Motorola Radio Products.

Market research by CX2 Technologies, one of the nation's largest operators of 220-222 MHz spectrum, has found a certain level of interest in just seeing the exact position of the vehicle, but "to be competitive in the space and interest some of the larger fleets, you need to be more feature rich," says Allan Finkleman, CX2 vice president, marketing and business development.



Joe Banos, President, SmarTrunk Systems, agrees that today's more sophisticated user needs more information than location. "Are you buying GPS, or do you really need a mobile resource management (MRM) system? Banos asks. "The language that any GPS receiver speaks is pretty standard. The supporting characters are what make or break the system. You have to ask yourself what am I going to do with the information after I get it?"

Mobile resource management (MRM) is a relatively new term that means simply "the ability to track the progress of your mobile resources in real-time and assign the right job to the right resource with the right equipment in the right location at the right time," according to *Directions Magazine*.

## Owner Operated MRM Systems

Because the software resides on the customer's server, with a user owned and operated MRM system, there is no monthly bill for accessing information. The software, computer and the data belong to the customer, which is particularly important to fleets with concerns about network security and information privacy.

## Private Network-based Systems

Motorola, Inc., recently introduced the MOTOTRBO™ Professional Digital Two-way Radio System, which provides organizations with access to GPS-based location tracking, text messaging and other IP data applications on the users' computer network and on their private radio network.

"We find, time and time again, the markets that we are serving are very budget conscious and they don't want to deploy devices with recurring costs into their

all their vehicles," Motorola's Chenicek says. "That is a strict requirement. We designed a standalone system where they will own the radio equipment, the infrastructure and the software application that runs on the dispatcher's console, not rent time on someone else's system."

SmarTrunk recently entered the MRM market, introducing its ST-960 Fleet Management System, which can be added to conventional or LTR™ format Motorola, ICOM or Vertex Standard equipment. It provides encrypted position reports, text messaging and remote monitoring/control functions. ST-960 equipped radios can operate with other existing radios on any SmarTrunk System.

Portronix manufactures the "PGPS1" GPS Receiver Module module and sells it to the dealer community to incorporate vehicle tracking and vehicle location functions into mobile 2-way radios. Working with the Fleetsync™ data signaling, the universal GPS module is integrated into the Kenwood TK-80 Series, TK-150 Series and TK-180 Series radios. Portronix's GPRS Mini Vehicle Tracking Unit operates over cellular networks.

Another private network-based fleet management system is Cook's Communications' FleetStat MRM solutions, which works only with Kenwood brand radios. The server-based system integrates GPS capability into the radio, giving users vehicle tracking and mobile messaging while maintaining voice conversations. GPS kits are available for Kenwood TK-80 Series, TK-150 Series, TK-160 Series and TK-180 Series radios.

One of the newest entrants in the U.S. MRM market is Mobi-Com, based in Erin, Ontario, Canada, which has developed a range of fleet management solutions, including text messaging, GPS/AVL and dispatch management. Mobi-Com's Mobi-Dispatch software resides on the user's computer system and is designed to be integrated with Kenwood TK-180 Series Fleetsync™ radios.

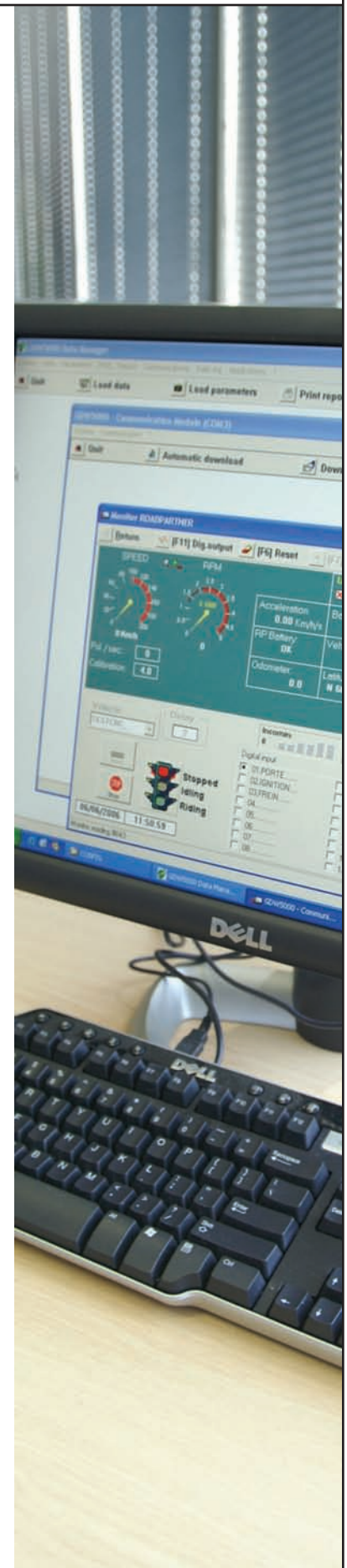
Mobi-com is a subsidiary of Mobile Business Communications Ltd, which uses the same fleet management software to provide SMR-style trunked dispatch on more than 70 channels in the southeast region of Canada, which includes Toronto.

### Cellular Transmission and Other Options

Many systems allow you to choose the network for transmitting the data back to the dispatch operation. Opting for cellular grants flexibility in terms of coverage area, so vehicles can be set up with the coverage area that best serves their daily route.

When designing a fleet management system, Location Technologies, will consider using two-way radio first to save on recurring airtime charges, but it will integrate with cellular networks if the drivers' routes or bandwidth needs demand it.

"Obvious advantages exist with cellular over two-way, in terms of coverage and bandwidth," says Eric Cowger, president, Location Technologies. "We see more willingness of people to spend the money on the recurring cost of a cellular network as the benefits become known to fleet managers."



CES Wireless provides systems that run on the user's server, and operate over the customer's choice of networks, including conventional repeater, remote base station, remote repeaters, community repeaters; and analog trunking – for example, LTR™, Smartnet™, Smartzone®, and Passport®; cellular packet data services such as CDPD, GSM and CDMA; and 220MHz Linear Modulation Systems.

Jules Neuringer, president, Portronix, recommends Manning NavComp's RasTRAC® AVL tracking software, which works over cellular, two-way radio or satellite systems, as well as supporting more than 30 types of vehicle tracking hardware. "We have customers who are using RASTRAC® MRM software to simultaneously track vehicles that have the GSM/GPRS [cellular] units ... and vehicles that have the Kenwood radio/GPS module combination," says Neuringer.

## Web-based Solutions Provide Easy Access to Fleet Management

Businesses need quick return on their investments in technology. An "On Demand" service where the application is provided by a third party and accessed over the Internet means there is no need to set up any infrastructure or buy a computer server. As another plus, fleet management tools are made available to the manager, supervisor, dispatcher and anyone else in the company with Internet access.

FleetLinc, a subsidiary of CES Wireless Technologies Corp., offers a recently introduced web-based MRM solution. It provides asset tracking, vehicle location and dispatch in real time and at low-cost. It uses cellular carriers to provide transmission on stop times and locations, routes taken and speed exceptions closest vehicle to the service address, street search, automated data reports sent as email attachments daily. The system also

provides bi-directional text messaging, vehicle status updates and vehicle sensor reports.

"We have a lot of successful implementations with the enterprise solutions, but the small companies have a difficult time coming up with the justification for the cost of an enterprise solution. A web-based solution is the answer for them, because although, typically it may be more limited in functionality, it is all they require," says Troy Bieger of CES.

NetworkCar®'s Networkfleet™ is a recently introduced web-based fleet management solution that plugs directly into the vehicle's onboard computer. As well as monitoring the location of the vehicle, it monitors fuel consumption and other vehicle diagnostics, such as the antipollution system, water pressure, oil pressure and the oxygen sensor. Exception reports are automatically Emailed to the fleet manager. Networkfleet's data is transmitted over the nationwide Velocita Mobitex network but is now transitioning to a cellular carrier.

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Another option for web-based fleet management is @Road, whose fleet management infrastructure provides wireless communications, location-based services and transaction processing over the Internet. Specifically, the @Road platform captures the user's vehicle data, applies mapping, vehicle diagnostics, workflow management applications. To gain access to @Road, users subscribe to the service and log into [www.road.com](http://www.road.com) through a handset or in-vehicle solution. Users may also host the application on its server under a license to @Road.

For more flexibility, RasTRAC® allows for a combination of a web-based solution with MRM software installed on the user's dispatch computers. "We have a customer with multiple locations and the dispatcher at each location has software running on their computer," says Larry Durbin, chief operating officer, Manning NavComp. "The reason they do this is that it is very fast and very agile and it gives a lot of [MRM] capabilities to each dispatcher, plus management people throughout the company will access the web site to solve a problem or assess a certain driver. They don't need all the functionality of a real time software application."

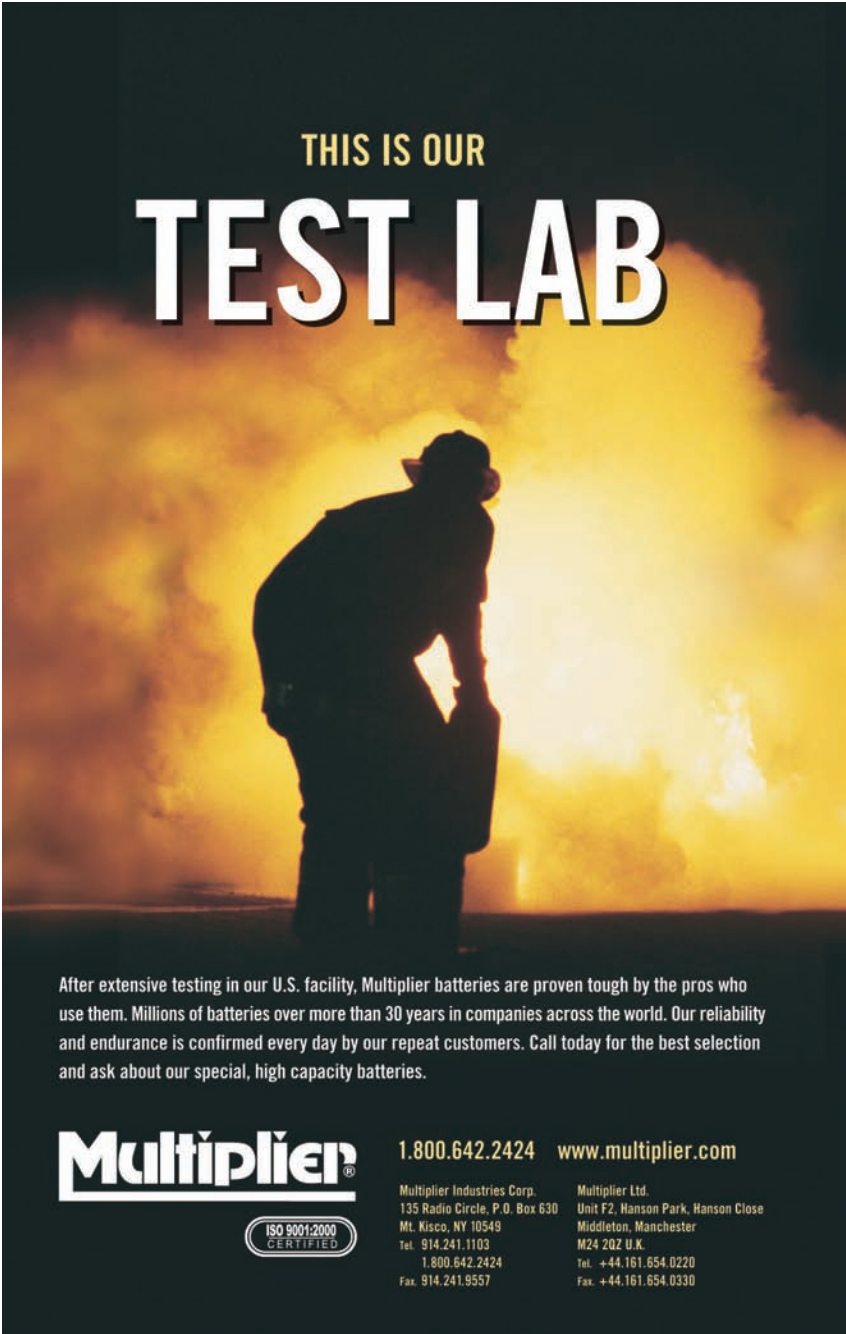
## Cellular Companies Find a Home in MRM

More and more, finding a good MRM system is becoming as easy as calling your local cellular company. Verizon Wireless recently launched a turnkey MRM system, "Fleet Manager," which allows

companies to locate, monitor and manage vehicles equipped with tracking hardware via the Internet. The service is targeted at small to medium size business fleets. It requires the user to have a PC, an Internet connection and tracking hardware installed into each vehicle. The technology features location tracking with GPS-

based mapping, geo-fencing and monitoring of vehicle speed, idling and ignition activity.

Some cellular companies are actually targeting certain industries with specific MRM products. Sprint's "Location-Based Services for Manufacturing," transmits



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tracking information on an array of PDA's and smart phones. Cingular Wireless has deployed a GPRS data network with GPS that allows the City of San Diego to efficiently dispatch its trash and recycling trucks. A Cingular case study tells of plumbing company in Columbia, SC, with 14 vehicles that used its GPS-based MRM solution and logged two extra jobs a day. The system ROI was eight months. Another example of cellular joining up with GPS,

Nextel Communications, Inc., offers the Trimble Construction Manager, which helps construction workers locate and manage assets at construction sites via iDEN handsets and in-vehicle devices.

## GPS: Continuing to Improve in Future

Radios in the future will have the intelligence to roam to the best network — two-way, cellular or

satellite — based on bandwidth, coverage and cost needs. High-speed cellular networks will spawn an increase in location data applications over handsets. Smart phones in the future may even be able to forego GPS and triangulate using Wi-Fi and cellular signals. And you can expect MRM over WiMAX systems. Tracking devices are already being designed to operate on new bands, including 2.5 GHz. □

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