Taking the Show on the Road

GPS Drives U.S. Mobile Resource Management Growth

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Mobile Resource Management (MRM) systems use GPS to monitor – and, of course, manage – every corporate asset that moves. Not just heavy-duty tractors and fleet vehicles, but trailers, construction equipment, and mobile workers. The plaintive cry of those 1960s American TV cops, "Car 54, Where Are You?" is now ancient history.

Fleet vehicle tracking or AVL (Automatic Vehicle Location) has been growing steadily since the late 1980s. While QUALCOMM's first OmniTRACS units relied on range measurements from geostationary satellites to compute the vehicle's location, suppliers introduced GPS-based systems soon after enough GPS satellites had been launched to provide all-day coverage.

Today, the long haul trucking segment shows signs of maturing, but the rest of the U.S. AVL market continues to grow at a healthy pace. More importantly, it has become part of a larger, faster-growing market – Mobile Resource Management.

In 2005, our company profiled more than 160 MRM service and equipment suppliers, including more than 30 new entrants to the market. In our recently released study, the *C.J. Driscoll & Associates 2005-2006 Mobile Resource Management Systems Market*, we found that at the end of 2005, nearly 1.9 million GPS/wireless devices were in use in MRM applications in the United States.

These systems yielded almost $1 billion in revenue for wireless network operators and suppliers of MRM applications and equipment. We estimate that's almost double the number of units in service three years ago. By 2009, the number of MRM units deployed is expected to surge to 5.8 million, and annual revenues in the MRM marketplace will double again to about $2 billion. Why the lusty new growth in what, frankly, has been a staid, slow-but-steady marketplace for many years? A number of key factors are at work:

• Communication networks cover more, cost less. Broadband cellular data networks provide fleet operators

with reasonably priced wireless data communications that offer nearly nationwide coverage. The selection of satellite networks offering ubiquitous wireless data messaging has also increased. In general, terrestrial and satellite wireless communication networks continue to increase their coverage while becoming more robust and less expensive.

• Cellular handsets use network servers for faster response. A number of cellular providers have integrated GPS in their handsets. Many of these handsets use A-GPS technology (A for assisted), which differs from stand-alone or "autonomous" GPS by adding another element, the network server.

Autonomous GPS receivers measure the time delay from transmission to receipt of GPS satellite signals and use this data to compute the receiver's location without any external assistance. Devices with A-GPS receive assistance from a network server to determine which satellite signals to monitor and to compute at least the initial position. This reduces the time needed to determine the final position —as well as GPS receiver cost and power consumption.

A-GPS also enables indoor and other weak GPS signals to be used effectively in the location solution. And, if GPS signal transmissions are blocked, transmissions from cellular towers can aid in the location solution.

• Installed tracking devices drop in price. Installed tracking devices that incorporate GPS, wireless modems, intelligent processors, and, sometimes, batteries, have dropped in price. Some units can talk to a variety of terrestrial and satellite wireless networks, as needed.

• Web-based applications make dedicated computers obsolete. Widespread use of web-based tracking applications allows fleet operators to monitor the location and status of their vehicles from any Internet-capable PC, obviating the need for dedicated computers and software packages.

Mobile Workforce Management

The *2005-2006 Mobile Resource Management Systems Market* projects that mobile workforce use of portable devices for tracking and monitoring will be the fastest growing MRM segment.

Today, about 250,000 field personnel — from couriers to plumbers to "the cable guy"— carry GPS-equipped cell phones or other portable devices that can report location back to a center for monitoring, dispatching, or receiving direction. This allows dispatchers to send the closest worker to another job, and record start and finish times for billing purposes. In some cases, the worker's location is linked to sophisticated field force automation applications.

Overall, there are an estimated 65 million mobile workers in the United States, and we predict that by 2009 more than 2 million workers will be equipped with mobile location-enabled cell phones and portable devices of one type or another. Figure 1, below, shows that they will become the largest segment of the MRM market, accounting for more than one-third of the total.

In 2005, nearly 1.9 million GPS / wireless devices were in use in Mobile Resource Management applications in the United States. . . by 2009, the number will surge to 5.8 million with $2 billion in revenues.

Unquestionably, the rapid spread of GPS-equipped cell phones provides the foundation for the rapid growth of this market segment. Our 2003 study, *Commercial Telematics Systems and Services,* reported that, even then, two-thirds of local fleet operators used cellular phones to communicate with drivers. Today, the percentage is substantially higher. For enterprises whose mobile workers already use cellular phones, Blackberries and other portable wireless devices, converting to GPS-equipped units is relatively simple and inexpensive.

Nextel, the digital wireless service provider, introduced the first GPS-based applications on cellular phones in 2003. Today, most companies that track their mobile workforce with GPS-equipped handsets and Blackberrys are Nextel subscribers. Sprint was the next U.S. carrier to introduce handset-based tracking applications, when it launched the Sprint Business Mobility Framework on its CDMA network

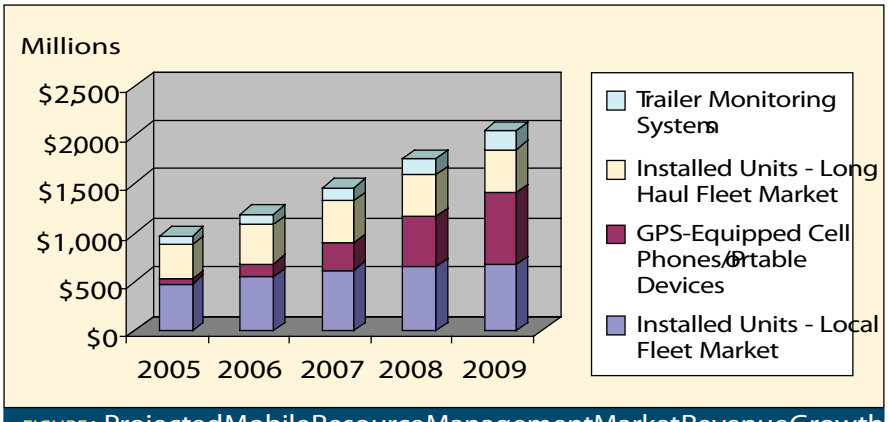

FIGURE 1. Projected Mobile Resource Management Market Revenue Growth
Source: C.J. Driscoll & Associates' 2005-06 Mobile Resource Management Systems Market Study

Mobile Resource Management System Suppliers

The 2005-06 Mobile Resource Management Systems Market Study includes a table listing the largest U.S. Mobile Resource Management Systems suppliers, and also shows each supplier's subscriber growth since early 2003. The 291 page report also provides profiles of over 160 suppliers of mobile resource management systems and services, including target markets, unique features, installed base, and system pricing. Among the most noteworthy companies are:

QUALCOMM, the largest U.S. supplier of Mobile Resource Management Systems provides tracking and wireless data communications service for about 417,500 mobile units. Nearly seventy-five percent of QUALCOMM's MRM installed base is equipped with the company's OmniTRACS fleet management system, which is widely used in the long haul trucking industry. QUALCOMM is also a leading supplier of trailer monitoring systems and systems for monitoring the location and status and heavy equipment.

@Road is the largest MRM supplier to the local fleet market. The company provides service to approximately 150,000 fleet vehicles. Following its acquisition of UK-based Vidus in 2005, @Road has expanded its applications to include field force management.

PeopleNet Communications, a major trucking-sector MRM supplier, has grown significantly in recent years. Since early 2003, the company's installed base has more than doubled, from an estimated 25,000 units to 55,000 units.

Teletrac has expanded its subscriber base to over 45,000 units in the local fleet market, and contributes fifty percent or more of parent company TrafficMaster's revenues and profits. They are reported to be adding sales and marketing staff in hopes of further increasing market penetration.

TeleNav, with an installed base in excess of 40,000 units, is the largest supplier of cell phone based navigation services and one of the largest handset-based MRM service providers. TeleNav's applications are sold and invoiced by Nextel, which has contributed significantly to the company's subscriber growth.

SkyBitz is one of the fastest growing suppliers in the trailer-monitoring sector. The company's installed base has grown from an estimated 5,000 units in early 2003 to more than 60,000 units today.

From The 2005-06 Mobile Resource Management Systems Market Study

in mid-2005.

Late last year, Sprint acquired Nextel. Existing Nextel systems and applications will continue to be supported, but at some point in the future the carrier's networks will no doubt be merged.

Verizon Wireless launched handset-based monitoring applications last summer. In Canada, Bell Mobility and TELUS also support handset-based tracking applications over their iDEN and CDMA networks.

Cingular, T-Mobile and other cellular carriers that operate GSM networks do not currently offer cell phone based tracking applications because GSM cell phones with integrated GPS receivers are not yet widely available.

Traditional AVL Still Strong

The local fleet AVL market continues to show consistent growth with more than 900,000 vehicles now equipped with GPS tracking systems. As noted above, market growth has been spurred by affordable, reliable, and pervasive wireless data communication networks, including broadband cellular networks, in nearly all large and medium-sized metropolitan areas in the United States. Also, the reduced cost of GPS/wireless devices has made tracking systems more attractive to local fleet operators.

The long haul trucking sector is a different story. Growth in the traditional market for satellite communications and tracking of fleet trucks has been slow, because of market maturity, but fleet-operator investment in trailer monitoring systems has taken off.

> The largest market segment in 2009? Two million mobile workers equipped with GPS enabled cell phones and other portable devices.

A clutch of suppliers – including QUALCOMM, Terion, GE Equipment Services, SkyBitz, TransCore, and GeoLogic Solutions – has introduced systems for monitoring untethered trailers. Tethered systems require the tractor be at least occasionally connected to the trailer so the tractor can supply power. Untethered units, on the other hand, are powered by internal rechargeable batteries or solar panels, or some combination of the two. Untethered trailer-monitoring systems can update the location and status of trailers whether they are connected to a tractor or parked at a customer or trucking company facility.

Trailer monitoring enables trucking fleet operators to keep track of the location of trailers, which often outnumber tractors 3 to 1. With monitoring, fleets can increase trailer utilization and revenues dramatically.

Our 2004 study, *Trailer Monitoring Systems and Services,* found that many large over-the-road fleets that had installed trailer monitoring systems reported a return on investment of 15 percent or more. Monitoring also improves the chances of rapid recovery when a trailer is separated from its load—a crucial factor for high-value or hazardous cargos.

More than 250,000 trailer monitoring units are now installed in the United States. But, with more than 5 million commercial trailers in operation, plenty of growth potential still remains. Our 2004 study confirmed strong interest and willingness to pay for trailer monitoring systems, especially among large truckload carriers with high trailer-to tractor-ratios.

As shown in Figure 2, 60 percent of the 168 trucking fleet managers surveyed indicated a willingness to invest in trailer monitoring equipment and 70 percent said they would pay a recurring monthly fee for monitoring their fleet trailers. The amount they are willing to pay varies depending on the nature of the company's operations and the size of its fleet.

Fleet operators are interested in much more information

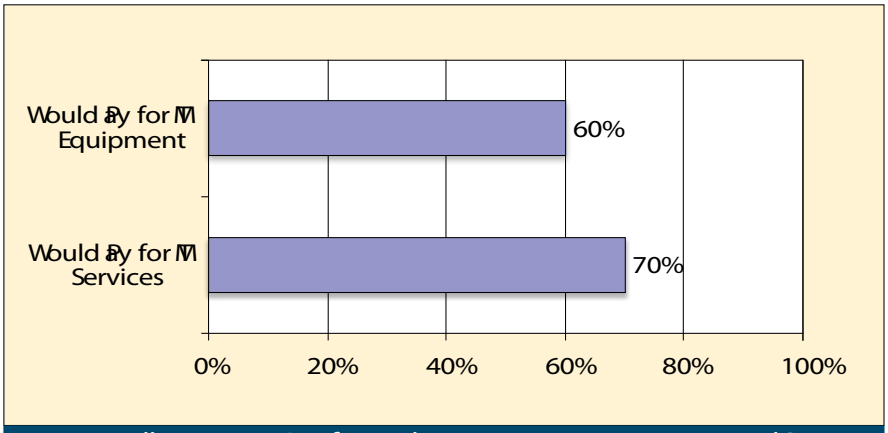

FIGURE 2. Willingness to Pay for Trailer Monitoring Equipment and Services
Source: C.J. Driscoll & Associates' 2005-06 Mobile Resource Management Systems Market Study

about trailers and their contents than just location. Time-stamping trailer arrival and departure, monitoring tire condition, door opening and closing, load status, and other sensor information can be important for efficient and secure trucking operations. But monitoring trailer location – and geofencing to know when trailers arrive at customer locations and depart — remains their top priority.

Costs, Reliability Will Shape MRM Future

There is no question that the MRM market will continue to grow, as current markets expand and new applications emerge. MRM will need even more reliable telecommunications at lower costs. Equipment costs must continue to drop, even as hardware becomes smaller, more robust, and consumes less power. This is especially important for devices that must "live" on batteries — sometimes for months at a time.

The outlook is good for all these developments to occur. There will also be increasing pressure for GPS to work better in "hostile" environments, such as urban canyons, and indoors. So far, no one has asked for caves, but tracking in underground garages and inside rail cars poses comparable challenges.

A fresh challenge – and opportunity – is integration of GPS tracking with RF identification systems. The soon-to-be pervasive short-range ID tags will track goods, packages, and shipping containers from manufacturing plant, to container, to retail shelves.

MRM is well positioned to meet all of these demands.

Authors

Clement Driscoll <clemdriscoll@cjdriscoll.com> is founder and president of C.J. Driscoll & Associates, a Palos Verdes Estates, California–based marketing consulting and research firm focusing on commercial and consumer markets for GPS and wireless products and services. Clients include major cellular carriers, telematics systems suppliers, automotive manufacturers, service providers, and technology companies. In addition to research on MRM, his company has also conducted extensive research on consumer interest in GPS-based applications. The forthcoming 2006 LBS, Telematics and Navigation Systems Study will assess consumer interest and willingness to pay for a wider range of GPS-based products and services.

Mike Sheldrick has 15 years experience in key business development and sales roles in the telematics industry. He was director of automotive business development for Etak (now TeleAtlas), which developed the first commercially successful navigation system. A founding member of the Intelligent Transportation Society of America, Sheldrick co-authored the Strategic Plan for Intelligent Vehicle Highway Systems, which became the blueprint for the U.S. Department of Transportation's plan for telematics. He is a senior consultant with C.J. Driscoll & Associates.

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