

AVL and LBS are Cut from the Same Rug *by Harry Niedzwiadek*

In a nutshell, Automatic Vehicle Location (AVL) systems offer commercial and public transit fleets what LBS offers the mass market... the ability to derive value by knowing the location of a mobile terminal or asset. Also known as Mobile Resource Management Systems, AVL systems present significant benefits to fleet operators. In his recently released [U.S. Fleet AVL Market Study](#), Clem Driscoll cites "... a number of benefits for fleet operators, including increased driver productivity, improved dispatching efficiency and customer service, and enhanced security for drivers, vehicles and cargo."

The Bureau of Highways in Howard County, Maryland justified spending more than \$400,000 last year to install AVL systems on 83 snowplows (see their [Web site](#) for public access to snowplow maps that are updated every 15 minutes during storms). With each truck costing approximately \$100,000 and about \$40,000 to operate, they had no trouble justifying this expense on the basis of savings through enhanced operating efficiency. The county's trash pickup trucks and street sweepers are next for the AVL modernization pipeline. The county uses ESRI's ArcIMS in their system, the very technology that lies behind ESRI's [ArcLocation Solutions](#) for the LBS market.

Morey's Seafood International combined Air-Trak's CloudBerry TerraTrak™ GPS tracking system with ESRI's ArcLogistics™ Route to enhance and manage their delivery process ([more about this integrated solution](#)). The Cloudberry System provides current delivery vehicle location with address, speed, heading and miles traveled. ArcLogistics Route helps plan daily delivery routes that are then used by dispatchers to monitor and manage deliveries. Since implementing the system, Morey's average load per vehicle is up 30%, there has been an 18% reduction in the fleet, and management has reported customer satisfaction at an all-time high.

According to Driscoll, the U.S. fleet AVL market has been growing steadily since the 1980s, with nearly one million systems now in operation, mainly used in long haul trucking (~390,000 systems) and public transit (~45,000 systems). Yet, as Driscoll notes in the study, this represents less than 5% market penetration. The deepest market penetration of AVL is public transit (50%), which has been fueled by the needs for optimized transit efficiency, and for driver and passenger security.

There is vast application potential for AVL. Applications currently in use or under development include: In-Vehicle Information Systems (e.g., Radio Data System -Traffic Message Channel), Automatic Vehicle Location Systems, Enhanced 911, Long-Haul/Short-Haul Single-Load Management, Vehicle/Cargo/Fleet/Trailer Tracking, Fleet Monitoring Systems, Vcommerce, Mcommerce, Vehicle/Cargo Tracking, In-Vehicle Navigation, and Mayday Systems.

AVL technology has also been getting much more attention with the U.S. government's focus on homeland security, and as Driscoll notes, "... particularly for the 400,000+ trucks carrying hazardous materials." Folks in the homeland security business genuinely get the value of location at the operational level, so this market niche will surely experience some rapid growth in the next few years. Driscoll also reports that, "The Department of Transportation is conducting tests to measure the effectiveness of AVL and other safety and security technologies for safeguarding hazardous materials being transported by trucks."

It's no wonder that the AVL market remains healthy and is growing. Just as with LBS, rapid advances in wireless, location determination, GIS and Internet technologies are fueling its growth. LBS market watchers should spend some time getting to understand the more mature AVL market.

I believe that the most significant point to take away from a close examination of the AVS market today is that the foundational technologies for AVS (the baseline functions and component middleware) are essentially the same as for LBS. Both AVS and LBS rely on capabilities to:

- Assign identity to mobile assets/users
- Determine and report out as needed the location, speed, heading etc of an asset/mobile terminal
 - [Identity + location/speed... is really useful information, right?]
- Determine and display past/present/predicted location in user friendly form (address, on a map, etc)
- Determine and display a route and provide driving directions, maneuver information and travel advisories
- Determine the optimal route given traffic, weather, way points, etc
- Track mobile assets/terminals
- Find mobile assets/terminals
- Monitor mobile assets/terminals
- Send alert when mobile assets/terminals are at a location/region or have left a location/region
- Communicate with users of mobile assets/terminals
- Inform users of mobile assets/terminals with time/location-sensitive and/or personalized information
- Inform users of mobile assets/terminals with information about destinations, nearby services, etc

This is not an exhaustive list, but I think the point is made. It's the same technology under the hood!

Now granted, the applications that employ the common building block functions for AVL and LBS are as diverse as imagination allows. There are many ways to creatively combine these functions. This is mostly where vendors will continue to distinguish themselves in the marketplace. Nevertheless, service providers, developers and users alike should be keenly aware of the common foundation for AVL and LBS. There are great benefits to be realized from this fundamental understanding.

A special note of thanks to Clem Driscoll for agreeing to share choice tidbits from his study report: [*U.S. Fleet AVL Market Study*](#).