Driving Fleet Management Forward
With new advanced mobile data terminals

Mobile resource management (MRM) using computer-based, in-vehicle terminals is driving fleet management forward and improving fleet efficiencies by giving companies the ability to proactively manage vehicles, routes, security, drivers, and all the logistics involved in short, medium and long-haul operations. But are computer-based solutions alone enough to get the job done? The short answer is ‘No’. You need more than just products, you also need expert knowledge. Advantech-DLoG is an expert in digital logistics, and has been awarded many short and long-haul projects, collaborating with partners worldwide. Advantech-DLoG works with system integrators; the solutions utilize mobile data terminals (MDTs) and other in-vehicle systems that are easy to install, customize, and give customers the best return for their investment.

In order for an MDT application-ready solution to be successful, it must have a slim profile in order to fit into space-constrained vehicle cabs without getting in the way; it also must be designed for use in a harsh environment, facing temperature, shock and vibration extremes; and it needs to work reliably in transient power conditions. In terms of application support, a great solution should give management the ability to monitor vehicles in the field 24 hours a day, 7 days a week. It should also offer complete flexibility by connecting to both interface and related protocols, such as J1708, CAN BUS, OBD-II, simplifying installation and maximizing reach for system integrators.

Vehicle Power Management (“VPM”)

The best application-ready solutions are engineered to contend with the troubles of transient power, both in hardware design and in software control. Such vehicle power management puts software in the hands of the end-user, giving them more granular control of delay power on/off, hard power off, and system wake up functions. How might these variables help fine tune an MDT’s behavior? Delay power on could be used to allow a vehicle’s power system to stabilize after starting the engine before powering up the MDT. Delay power off could be used by delivery drivers making frequent stops, powering off the vehicle but still needing access to the computer terminal.

Vehicle power is characterized by transient changes; the power protection engineered into a good application-ready solution includes not only wide range power input but also software control to protect the unit from electrically-caused damage.

Certifications are another important aspect to look for in choosing a solution. The major relevant
certifications to look for in MDT’s used in fleet management are SAE J1113, and ISO7637-2 (see Figure 1/2 diagram and Callout [page 3]). These certifications give system integrators assurance that the solutions they install are protected against damage from EMI, electrostatic discharge, and components of a vehicle system such as electrical relays, alternators, injectors, and ignition systems.

24/7 Monitoring

A great design feature in an MDT is a user-configurable, 24/7 monitoring mechanism. Such a system enables the MDT to send and receive information during operation on the road, as well as when the vehicle is not actually in service, such as when the driver is off-duty and the vehicle is parked. Monitoring mechanisms can be configured in various ways, including as: 1) a scheduled wakeup call based on time-of-day, which will cause the unit to resume service and send/receive data; 2) a digital I/O event that can trigger a wakeup, for example, a breached door on the trailer causes a real-time alert to be sent to management; 3) an SMS text message or phone call which allows the driver or dispatch to remotely wake up the unit on demand. In this way, an MDT will normally be in a sleep state until triggered. With 24/7 monitoring, the system is on duty even when the vehicle is not, keeping management in-the-know without consuming a lot of power.

Multi-Protocol Vehicle Connectivity

An application-ready solution should give system integrators the flexibility to connect to all the major vehicle physical connectivity protocols. Older vehicles rely on the J1708 standard, newer vehicles utilize CAN BUS technology, and since 2008, the OBD-II standard. These connectivity options allow the Engine Control Unit (ECU) from a wide range of manufactured vehicles to report diagnostic information to an MDT. Engine temperature, oil and fuel levels, driver behavior (acceleration, brake use), pre-failures, and more are all readable and this information can be sent to central dispatchers in real-time.

Fuel efficiency is another key benefit for users and it can be optimized by careful route planning. For this, advanced GPS solutions should be considered.
in a digital logistics platform. Most consumer products use 16-channel satellite positioning, leaving gaps in accuracy. The best solutions use 50 channels combined with AGPS to ensure accurate tracking even when line-of-sight is obscured by terrain or tall buildings. The most complete fleet management solutions will even be able to report anomalies back to a central office, such as drivers deviating from a scheduled route.

When it comes to getting the data from the vehicle back to the office, it is important that an MDT supports a full spectrum of connectivity options, from GSM which is popular in Europe, to America’s CDMA networks, to China’s TD-CDMA/CDMA-2000 networks. WLAN support is also a key requirement and the more sophisticated solutions will support a seamless WLAN to WWAN handover. This is possible due to an engineering design which allows for the ability to manage multiple concurrent network connections. A driver entering a Wi-Fi equipped depot will see reduced WWAN connection fees as the device switches to the depot’s less expensive Wi-Fi connection. Back on the open road, the conversation is handed back to WWAN, with no loss in transactional data.

The combination of protocols, 50 channel support, AGPS and wireless communications offer system integrators a host of options with superior reliability. This enables them to install a complete, application-ready system with ease, in a diverse range of fleet management applications.

**Expert in Mobile Resource Management**

Advantech-DLoG’s TREK series is an example of a comprehensive, advanced technology, application-ready platform, ideal for system integrators and with big benefits to end-users. TREK-72x MDTs are designed with all the key features that have been mentioned, and they are backed by the expert knowledge of Advantech-DLoG’s team of engineers, manufacturing, distribution, service and sales personnel. The result is a complete, application-ready package, ready for local fleets and short-haul applications worldwide, as well as being easy for system integrators to install and maintain.

Advantech-DLoG is a proven expert in mobile resource management. Asset management, fleet
tracking, mobile workforces, optimizing, dispatching and geo-tracking are only a few of the possibilities the Advantech-DLoG portfolio of MRM products. The manageability of cargo assets, people and fleet tracking are core competencies of Advantech-DLoG, from short-haul applications, to long-haul, public transport, ruggedized transport and other mission critical applications. It is no wonder that system integrators turn to Advantech-DLoG for its expert advice, mature and rugged product line, technical, sales and after sales support.

For more information about the TREK-72x advanced MDT, or more information about the complete range of Advantech-DLoG MRM and fleet management, digital logistics solutions, visit www.advantech.com/digital-logistics/ or contact a local sales representative.