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IN-VEHICLE NETWORKING

In-vehicle Networking – which way will it go?

Airmax looks at Market Opportunities, OEM Roadmaps and Future Automotive Protocols

Just a few years ago, vehicles were being designed with multiple proprietary data networks as OEMs re-used designs and connectors from past models. Now, however, with the increasing need to cut production costs, reduce design time, and limit the variety of parts supplied, every OEM is making a concerted effort to adopt networking standards in place of their older legacy designs.

With the very evident migration by the OEM from proprietary standards to CAN, LIN, FlexRay, MOST, 1394, and others the future is any-which-way.

No wonder most GPS tracking companies are not entering the remote vehicle diagnostics market.

The issue for telematics aftermarket service providers is simply to predict what the OEM's will do. To date some truck and a few car manufacturers have entered the market by offering on-board solutions but the trend has been to be vehicle or manufacturer specific. With most fleets being mixed and a certain reticence by the OEM' to co-operate fully it is doubtful if they will be able to offer a fully integrated solution. This is would seem to be the market for the OEM suppliers perhaps or tier 1's.

When that ominous "check engine" light appears on a vehicle's dashboard, not everyone rushes to a mechanic.

Police officers, for instance, are likely to keep driving and car drivers subject to a full maintenance contract will often wait and de-prioritise their decision to have to car checked over in the mistaken belief that they are not paying.

But that can spell trouble - neglecting the problem that sets off the light today may lead to a breakdown and expensive repair tomorrow. Hoping to catch problems while they're small, some leasing companies are embracing technology that remotely monitors engine performance.

Providing a Remote Vehicle Diagnostics Service (RVD) is Potentially one of the Most Useful Applications of Vehicle Telematics

RVD traditionally thought of by researchers and analysts as:

- Enhanced B-call, transmitting wireless data in the event of a vehicle breakdown.
- Dealership link, sending data relating to any malfunction direct to the motorist's dealership. Warranty analysis, enabling manufacturers to monitor trends such a component reliability and life cycles.
- Remote software download, enabling manufacturers to provide a software patch to fix malfunctioning components, avoiding the need for a vehicle recall.

However in reality RVD has been driven by:

- Total mileage capture for service and cost management
- Specific and generic manufacture faults for asset management AND residual value management
- Driver profiling for insurance purposes and duty of care

- Fuel management and refuel event check plus emission measurement but particularly CO_2 for Carbon offsetting
- Combined driver ID plus GPS to add a location to an event

All of which are seen as key differentiators in wrapping services to the end user.

Traditionally most tracking companies have had their development routes in either vehicle security or perhaps communications but RVD specialists tend to pedigree from garage diagnostics tool manufacturers. The likes of Bosch, Delphi, TRW, Visteon as OEM first line suppliers and more recently a flurry of independents are trying to benefit from the confused Block Exemption rules for dealerships

Airmax has grown up in all three camps and has combined its know-how to create a RVD system that reads data from the EOBD and beyond. It's also a very compelling technology as essentially the vehicle is the 'black box' – the remote unit is there to simply listen and record and you lessen the need for an intelligent 'black box'.

With no wire cutting and no antennas the system becomes a plug and play unit. The result in this technology leap is huge in terms of data capture and budget as there is very little hardware cost. Indeed RVD systems with GPS are substantially less to manufacture and less to install than tracking or security devices. With a modular design you can then add remote tyre pressure and temperature management, driver ID and in-car driver safety camera technology to achieve who-how-when-where and why services.

Unfortunately vehicle manufacturers still make it difficult and do not publish their vehicle data preferring to protect their service offerings to their own dealers and those who have bought their diagnostics test equipment. This has resulted in a plethora of specialist retro engineering companies offering vehicle codes on the web and in some cases companies being driven underground to offer services such a mileage clocking and trouble code resets. Not a level playing field by any means.

However to date, Airmax Remote have identified consumer (driver) reluctance (grudge) to pay subscriptions for telematics services. This is a key factor in limiting the prospects for widespread uptake of remote diagnostics as a vehicle option. Fortunately, Airmax has been able to forge alliances with manufacturers, leasing and insurance companies and dealerships to bring co-operative business models, in order for all parties to gain tangible benefits from the technology. RVD, coupled with added GPS, is growing up fast and coming of age.

The European Commission's proposal for a public E-call service to be established by 2009 could see all new vehicles equipped with communications platforms capable of supporting additional telematics services, including remote diagnostics and perhaps crash sensors.

Road Pricing and Road Tolling seems to refer to this technology but with most RVD systems either patented or bespoke its unlikely to be used and in these options will resort to Toll Gate or RFID cards.

Thinking ahead the opportunities do look interesting.

Intelligent insurance based on Pay How You Drive launched November 2006 by Zurich and Royal and Sun Alliance using RVD.

In June 2006 ALD Leasing introduced Automated Service management in the UK remotely monitoring vehicles based on vehicle trouble codes and mileages.

RVD is able to calculate each vehicle's CO_2 emissions based on trips and fuel burn and not mileage giving fleets the opportunity to accurately calculate their true CO_2 footprint for offsetting.

Finally it's this disruptive technology that may see the death of the fuel card as it becomes redundant when the vehicle is able to report mileage and VIN as well as fuel levels and the fuel garage supplier.