



REMOTE CONTROL

Predictive maintenance and condition monitoring are an integral part of some industries, and are growing in importance in the transport sector. The driver's daily checks are a first line of defence, but remote monitoring systems allow fleet engineers to gather substantial amounts of data without having to bring vehicles into the workshop. This lets them benchmark vehicles within a fleet, and see which may be in need of servicing or repair.

A technical standard agreed by consensus of all of the European OEMs enables this. The rFMS (or Remote FMS) standard for trucks and buses aims to make it easy to access data for fleet management purposes; it is an evolution of the long-established FMS standard (see box, p16) which allows status information (such as position, speed, engine RPM) to be monitored, and sends notification of driver warnings (telltales). However, neither standard directly sends fault codes.

Armin Keller of Logicom has been involved in developing the FMS and rFMS systems for almost 20 years, and says: "We have more and more requests for more and more data, but not all data are available in the same way

A data standard dictates how trucks send status information back to base. As fleet management becomes ever more digital, the data services available are increasingly sophisticated, finds Toby Clark

in different trucks. The manufacturers have proprietary messages on the internal bus system, so it is not easy to standardise those on a common gateway."

This has safety implications, "because you are offering an interface to the internal bus system, and this is loaded with critical data. If you connect to that internal gateway without having a firewall – a really good firewall! – you might have access to some safety systems."

One thing the rFMS standard does not cover is the system by which data is transmitted from the vehicle to the end-user. Rather, it offers APIs (application

programming interfaces) that allow the user to gather data from the vehicle via the manufacturer's back-office system. And this increases the importance of protecting that network, Keller points out. "It's becoming more and more important that the OEMs protect their internal bus system against external access. It is much easier to have the data requested via the back office of the OEMs, without having direct access to the vehicle network."

Most manufacturers use the GSM network to transmit rFMS data to their servers, but, Keller says, the intention was that each OEM can use their own communication link.

In any case, rFMS is designed for restricted bandwidth, states Keller. He adds: "Most of the data is aggregated by the third parties and customers, so it's not necessary to know the mileage every second. There's a minimum update rate required, but it is possible for an OEM to offer the position information every second, if it is paid for by the customer or a third party."



“RIO wants to link all of the participants in the logistics chain in a straightforward manner [and] there is absolutely no doubt that we are unable to develop all of the solutions ourselves. Instead, we need to rely on strong partners”

Jan Kaumanns

APPY DAYS

Anybody with a smartphone or tablet is used to the idea of apps: software solutions for a specific purpose, whether it is counting your steps, sending a text message, monitoring a video doorbell or playing a game.

Some rFMS products have started to take the same approach. RIO, a brand of the Traton group (which also includes MAN and Scania), announced in March that it had more than 50 partners providing services for its platform. CEO Jan Kaumanns said: “RIO wants to link all of the participants in the logistics chain in a straightforward manner [and] there is absolutely no doubt that we are unable to develop all of the solutions ourselves. Instead, we need to rely on strong partners.”

Like Apple with its App Store, RIO has built a ‘marketplace’ where end users can download services directly to their systems. And just as with mobile phone apps, there is often the choice between a free service and a more comprehensive paid-for version – usually charged as a monthly, per-vehicle subscription. Examples include ‘One Minute Locator’, an add-on to Essentials, which is the basic (free) RIO telematics system to increase the frequency of GPS readings from every 15 minutes to every minute, for more precise location tracking, and is priced at €0.13 per vehicle per day.

Also on the RIO platform, MAN offers its ServiceCare S and ServiceCare M products. ServiceCare S is a free product offering basic service scheduling and a certain level of predictive maintenance, while ServiceCare M is an upgraded, paid-for service. There is also a link to MAN’s phone-based Driver app, allowing the driver to report damage or defects; this information is forwarded to the service provider, who can make sure that the right components are available when the vehicle is next in.

MAN’s rival in light commercial



vehicles, Ford, has also introduced a connected uptime system which it promises will transform the way its vehicles are run and maintained.

FORD

Its projections show FORDLiive can potentially reduce vehicle downtime by up to 60%. That figure is estimated based on customers promptly responding to vehicle health alerts in FordPass Pro/Ford Telematics to help avoid roadside assistance call-outs, and based on anticipated time saved using Ford Transit Centres for maintenance and repair.

Connecting Ford’s commercial vehicle customers, the Transit Centre network and the automaker itself, the system uses real-time vehicle data to individually optimise the productivity of each vehicle in a customer’s fleet. Around 500,000 connected Ford commercial vehicles are already operating on Europe’s roads.

FORDLiive enables smart maintenance, allowing scheduling of servicing at the most efficient time and providing notifications when an action is identified that could help prevent a breakdown.

Analysing real-time vehicle data,

THE FMS STANDARD

The FMS data standard was initially developed by a group of truck manufacturers – Mercedes-Benz, MAN, Scania and Volvo/Renault – which came together in 2000 under the European vehicle manufacturers’ organisation ACEA; IVECO and DAF joined in 2001. This ‘heavy truck electronic interface reference group’ worked with Armin Keller of Logicom to publish the first version in 2003. He has been involved as a moderator and consultant (and effectively the project’s coordinator) ever since.

The Bus-FMS standard came about when manufacturers such as EvoBus and VDL joined the group, and the first version of the standard was published in 2004.

The rFMS standard continues to evolve. “We have published version 3,” says Armin Keller, “and I think we will publish version 4 this year. It will have a big emphasis on electric and gas and hybrid engines.” Future versions, he adds, “may allow parameters to be transmitted to the vehicle, like starting the heating system before a trip.”

“We have more and more requests for more and more data, but not all data are available in the same way in different trucks”

Armin Keller



FORDLiive (pictured, right) provides vehicle-specific maintenance information to customers. Small businesses with up to five vehicles receive notifications through the FordPass Pro app, based on an obligatory FordPass Connect activation.



Managers of larger fleets are kept informed by a vehicle health dashboard in a dedicated version of Ford Telematics. In addition to vehicle health monitoring, this tool includes location and mapping, driving behaviour, fuel usage, multi-make capabilities and a companion app for drivers to interface with fleet managers. It will be offered in 2021 via subscription.

Vehicle health data is automatically sent by the vehicle’s FordPass Connect modem, featuring as standard for Transit, Transit Custom, Transit Connect, Ranger and Fiesta Van models since mid-2019.

Supporting this service is a new FORDLiive centre staffed with dedicated agents, including at Ford’s Dunton Campus, UK, which is co-located with Ford’s Transit engineering teams for maximum knowledge crossover – and this is already up and running.

IVECO

Late last year, IVECO launched its data service, branded ‘ON’. Operators of vehicles fitted with the brand’s connectivity box, including the New Daily and S-Way tractor, receive access to new services including fuel consumption, over-the-air vehicle software updates and support through remote monitoring and diagnostics. A basic level of functionality and regular automated reports, for example of driver performance based on ADAS data, is offered at no charge. The system also links to its emergency breakdown support and parts sales operations. Enhanced services, such as quarterly meetings to discuss improving fuel economy, are only available for a fee. An add-on fleet management package is offered through a partnership with telematics firm Verizon Connect. This

can include remote tacho download and automatic recording of driver hours, as well as geofencing, job tracking and driver messaging, among other features.

Another paid-for option is a flexible maintenance contract, in which intervals are set based on the real-world usage of the vehicle, rather than time or mileage.

In a statement announcing the launch, Thomas Hilse, IVECO brand president, explains that the services have two effects: “First of all, they turn the vehicle into a platform that communicates and receives data in real time. Secondly, they turn IVECO into a true consultant to the customer and the driver. We are changing the very concept of service.”

To develop these services, the company has partnered with consultancy Accenture and Microsoft. Over the next five years, they are developing ‘digital hubs’ in Europe, the USA, India and Brazil. In the corporate announcement, Andreas Weishaar, chief strategy, talent, ICT and digital officer, said that the hubs “will move CNH Industrial [IVECO’s parent company] from being a manufacturer of physical products to being able to deliver new digitally born and connected products and services.” **TE**

WHO OWNS YOUR FLEET’S DATA?

In the US, Navistar (parent company of the International truck brand) has established an open-architecture fleet management system called OnCommand Connection. This can be connected to trucks of any make using third-party telematics hardware, to remotely download performance data and generate management information.

But this system operates via a common back-office link, which means that Navistar has access to

all of the data generated – and, apparently, it makes full use of that data. In a 2019 interview with US news website *Trucks.com*, the firm said that it can tell when a competitor truck pulls into a service bay, and extract detailed information about its engine and other systems. The system uses the openly available data from any truck’s standard J1939 data connection, and cross-references this against location.

Navistar has used the

information to benchmark its products against its competitors, and with several hundred thousand vehicles on the system – two-thirds from other brands – it has plenty of information to go on. One executive boasted, “I can tell you which are the best performing dealerships for the competition. We know the most frequent fault codes of the competition’s vehicles”.

The service is offered free for two years on new International trucks;

when you visit International’s own support page for OnCommand Connection, the only link is to a form to opt out of the service, which includes this warning: “Please note that the pre-installed OnCommand Connection Device may continue to collect data regarding the performance of your vehicle and that data may be used by OCC Technologies, LLC and shared with Navistar for purposes of product and service development and improvement.”