# Smarter data management

More intelligent approaches to remote data logging systems overcome big data transfer limitations by avoiding the need for more capacity and demand on post-processing

Data logging systems are used for on-road fleet testing applications to store data locally. Most loggers support standalone operation, which includes local intelligence to store data on events, to perform calculations such as rainflow classifications and also to calculate data from a large range of math and logical operations.

Today, measurement configurations for thermo management and powertrain testing are composed of between 1,000 to 3,000 measurement channels.

Apart from the primary inputs from the ECUs and analogue module, a general rule is that 10% new calculation channels are implemented, including specific statistics such as totalizer, averages and min/max calculations.

Data loggers store a range of different data formats, including time-based data in various sample rates from 1Hz up to 100 kHz, which uses a lot of storage capacity especially when it comes to large channel count road load data applications (RLDA) and high-speed acoustic measurements. In addition to this, event-based data from CAN, LAN, and Ethernet traffic is also stored. As the traffic data is rich in content, and therefore high in volume, the interpretation can only be done when it is processed and decoded with corresponding description files on a server.

However, the largest amount of internal storage capacity of a data logger is taken up by recorded video data. Even when the stream-based data is stored in the H.264 codec, rather than dedicated JPEG images per frame, the data storage volume is higher compared to both time and traffic-based data formats.

In a typical fleet management application, approximately 10 to 20GB of data is collected over the course of one day. Should a user then store all this data then downloading it all at once, either via Ethernet, Wi-Fi or cellular networks, it causes a bottleneck. It is common for engineers to store as much data as possible in order to double-check full CAN traffic and Ethernet PCAP traffic on top of the configuration. The problem with this approach is high data volumes with transfer times taking several hours as well as the post-processing system requirements on servers, the CPU and RAM resources.

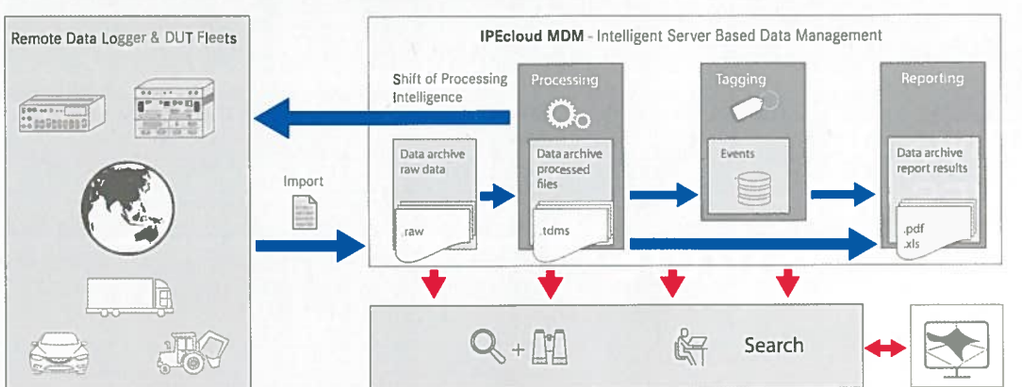
With IPEcloud MDM, it offers features to process measurement data and is designed for large volume data file management, analysis and reporting. However, the data processing and management can only take place after it is transferred with all timing delays and the associated costs. When the data is transferred, it is put through a standard processing routine to check for anomalies and fault codes.


Loggers provide dependable data acquisition in hybrid and electric vehicles

As the amount of vehicle data produced and collected has increased over the last decade, the old-fashioned mentality of storing as much as possible is no longer a viable method due to the demands it puts on post-processing resource. However, technology is available today that avoids having to add more capacity to data loggers, instead it adds more intelligence.

The progress of intelligent data analysis functions using MATLAB tool boxes and MATLAB scripting solutions, which are traditionally processed on the server, can now be executed on the data logger. Therefore, the typical data evaluation and interpretation can take place on the logger side.

With the new generation of IPEmotion RT data logger software, users can deploy processing intelligence to the front-end acquisition system and save significantly on both storage space and transfer time.




A measurement data management system for data loggers organizes, processes, and evaluates test benches or large fleet data