



DB Cargo AG

With around 4,200 rail sidings in Europe and 16 own national companies, DB Cargo offers customers access to one of the largest rail networks in the world and is thus the number one in European rail freight transport. Its size is also reflected in its resources: with a total of around 93,000 freight wagons and around 3,000 locomotives, DB Cargo has the largest rail fleet in Europe. DB Cargo is investing in the technology of the future and is pushing ahead with the digitalization of locomotives, freight cars and processes in the marshalling yards and workshops.



amspire Lab

At the Asset Maintenance Digital Lab, in short called "amspire", situated at the "House of Logistics & Mobility"-institution in Frankfurt, Germany, interdisciplinary teams of around 50 engineers, IT developers, data scientists, transformation experts and experts from DB Cargo and other areas of the DB Group work on automation, digitization and condition based maintenance (CBM) topics. These projects are relating to vehicle equipment and maintenance to increase availability and quality for customers.

SMART DATA LOGGING

DB Cargo, a leading company in the European freight rail transportation business, chose Eurotech as their strategic partner for a smart data logging application. DB Cargo requested Eurotech to implement an end-to-end architecture to gain real-time status on its locomotive fleet.



Eurotech's integrated hardware and software architecture

By combining its expertise in IoT architectures and embedded hardware subsystems for Transportation and Railway applications, Eurotech implemented an end-to-end solution that provides the on-board hardware and software and the off-board tools to enable smart data logging applications and Edge computing.

DB Cargo adopted Everyware IoT, Eurotech's open, integrated and managed IoT infrastructure for Edge-to-Cloud data communication and device management. "Eurotech is doing an excellent job in terms of delivering high quality data and fulfilling the need of our users and data scientists" commented Thomas Pohl, Head of Condition Based Maintenance Project at DB Cargo AG "They are able to provide most of our required functionality with their standard telematic system and IoT-platform".

On-board Hardware

For its on-board telematics units DB Cargo selected Eurotech BoltGATE 20-25 MVB Edition, a railway-certified Multi-service IoT Edge Gateway designed to enable monitoring and management applications on Rolling Stock and seamless integration with Cloud services. The rugged BoltGATE 20-25, designed to operate in the harshest heavy-duty environments, provides safe, non-invasive signal sampling and MVB data logging, communication and management.

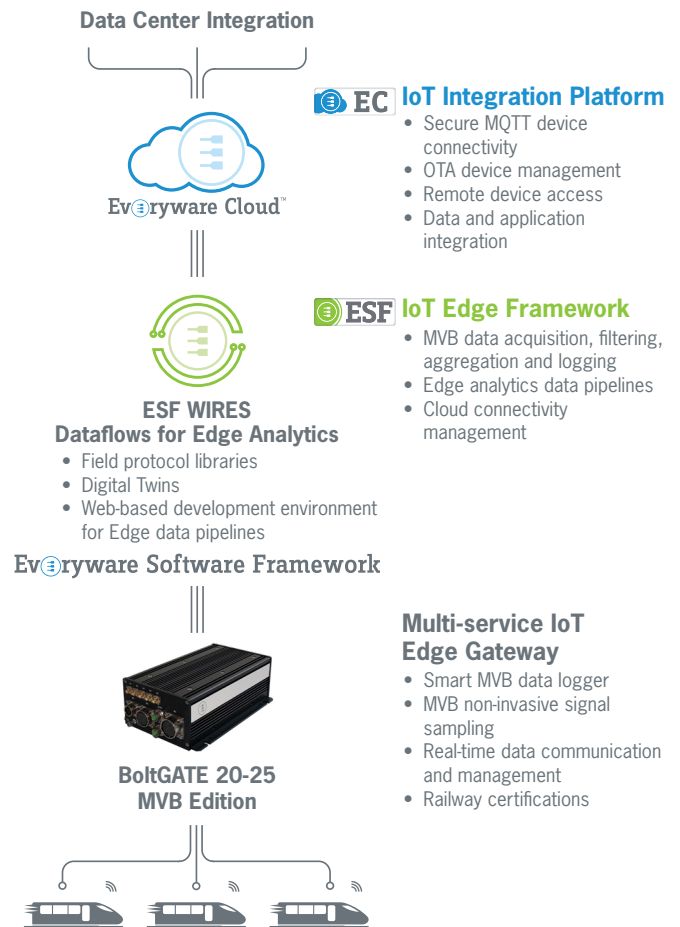
On-board Framework

The BoltGATE 20-25 is enriched by Everyware Software Framework (ESF), Eurotech's IoT Edge Framework that provides field protocol libraries for MVB data acquisition, filtering, aggregation and logging.

ESF provides a dataflow functionality for edge analytics called ESF Wires, a web-based development environment that allows the creation of data pipelines with a modular approach. In order to create and test new Condition Based Maintenance (CBM) rules, Eurotech provides a test bench system, which enables DB Cargo to develop and simulate any kind of counters and alerts based on real MVB traffic.

Off-board Platform

ESF also provides Cloud connectivity management towards Everyware Cloud, Eurotech's IoT Integration Platform. EC enables OTA device management through



secure MQTT connectivity. EC allows integration of the MVB data collected in the field with the customer's ground servers.

Simulation Environment

In order to enable an end-to-end workflow for data scientists including explorative data selection, data evaluation, rule creation and evaluation, Eurotech provides an offline simulation environment.

SUCCESS FACTORS

- Simple MVB data acquisition and Edge analytics
- Edge-to-Cloud open, integrated platform
- Configurable and scalable solution: can be deployed on the largest rail fleet in Europe
- Simulation environment for offline rule development