

ENABLING USAGE-BASED INSURANCE POLICIES WITH REAL-TIME VEHICLE TELEMETRY DATA

IMPACT

- Managing up to 4 years of driving activity and more than 120 million messages daily
- Allows for real-time services to improve driver safety and experience
- Lays the foundation for predictive maintenance with machine learning

Vodafone Automotive is part of Vodafone IoT. Vodafone Automotive offers telematics services and electronic products for the automotive sector, in particular stolen vehicle tracking and emergency assistance, usage-based insurance and fleet management.

Challenge

In order to meet the evolving needs of insurance providers, Vodafone Automotive created the User-Based Insurance project (UBI). This project focuses on the key elements of digital motor insurance such as the management of driver data to ensure fair premiums and respect of privacy. Customers want policies and prices that reflect their reality, and at the same time, they want their user data private, safe, and secure.

Vodafone Automotive uses electronic devices – including the so-called “black-box” – to collect data about geolocalization, vehicle position, speed, and acceleration. Using this data, Vodafone Automotive creates and provides driving profiles to insurance companies. Insurance companies then generate a “score” to represent with high precision a tailored risk profile. The company is in this way able to provide a more precise policy customized to their customers. The data also powers new services, such as assistance in case of crash or vehicle theft.

The volume and frequency of the data collected by on-board sensors continue to grow. To keep up with the needs of insurance companies and their policy-holders, Vodafone Automotive wanted to develop a platform capable of storing, streaming, and analyzing vast amounts of vehicle data. Vodafone Automotive also launched the project to scale its architectural structure in order to optimize data acquisition and processing.

Solution

With the Cludera enterprise platform, Vodafone Automotive has the capability to manage and analyze vehicle telemetry data in real-time. The project saw the replacement of the previous architecture with a new platform based on Apache Kafka, Spark, and HBase, which is able to process information with latencies of a few seconds regardless of quantity and frequency. The main feature of this technology is the ability to manage large amounts of data in a flexible and resilient way. The architecture allows Vodafone Automotive to effectively manage both real-time processing of data as well as storage for subsequent processing. With fast processing of vehicle data, Vodafone Automotive can gather information on available trips, speed data and geographical information acquired through GPS. In order to guarantee the high quality and reliability of the information, Vodafone Automotive regularly ensures the cleaning and preparation of data to promptly identify any malfunctioning device.

Using a real-time, streaming platform not only allows Vodafone Automotive to manage an ever-increasing amount of data but also enables the management of time-sensitive data. For example, if a crash occurs or a theft attempt alarm is recorded, every minute is critical. Without a capable data platform, the data quantity saturates the processing ability, especially when factoring in peak hours. Moreover, the ability to acquire and process data in real-time unlocks new possibilities through the use of machine learning.

120M

Messages managed per day

"Our partnership with Cloudera has been instrumental in our digital transformation and the evolution of use cases we have been able to adopt. With the help of Cloudera's consultancy and training, Vodafone Automotive is leading the way for data-driven telematics services."

Paolo Giuseppetti, Head of Innovation,
Vodafone Automotive

About Cloudera

At Cloudera, we believe that data can make what is impossible today, possible tomorrow. We empower people to transform complex data into clear and actionable insights. Cloudera delivers an enterprise data cloud for any data, anywhere, from the Edge to AI. Powered by the relentless innovation of the open source community, Cloudera advances digital transformation for the world's largest enterprises. Learn more at cloudera.com

Results

Ultimately, the UBI project has enabled Vodafone Automotive to better support insurance companies in the risk assessment process and in their ability to offer real-time services to customers. With this new data architecture, insurers are now able to receive data with latencies of just a few seconds and provide prompt assistance to policy-holders.

The enterprise platform enables the company to meet service levels in the order of seconds required by customers and has laid the foundations for offering new services. With more than 10 different use cases currently on going, this new data management strategy also gives Vodafone Automotive a competitive advantage and the foundation to position itself as one of the most innovative players in this market.

Looking to the future, Vodafone Automotive is exploring the inclusion of Machine Learning methodologies to allow the automation of device malfunction notifications and achieve proactive and predictive maintenance for its hardware. Predictive maintenance would also avoid incorrect data being collected into the platform by the malfunctioning device and would avoid time-consuming retroactive data clean-up.