



QA|WARE

Cloud services in the automotive industry

QAware is shaping the future with cloud technologies

Within the highly critical production environment, the IT consulting and project company QAware from Munich has developed a cloud-native software solution for the automotive industry.

The digitalization process in the automotive industry is progressing inevitably. Openness to new technologies and the associated expertise are the cornerstones for successfully realizing a technology transformation. Together with BMW Group, QAware GmbH successfully migrated a long-standing mainframe application to a cloud-native solution.

In 2017, QAware and BMW Group started a project with the aim of replacing the on-premise software with modern infrastructure. Amidst technically complex challenges and in the midst of an international crisis, the first rollout was successfully completed in November 2020 at the Munich plant, meeting strict quality requirements. The IT solution is now productively deployed in numerous plants without any issues, and it provides the plants with newly calculated bills of materials daily, which are used as the basis for manufacturing the vehicles.

10 to the power of 50 vehicle configurations

The bill of materials is the central data structure in vehicle production. It provides information about all the components required for assembling the vehicles. Over the years, a diverse supply chain has been created with a strong focus on product orientation, serving high volumes in plants worldwide with zero defects. A remarkable variety of more than 10 to the power of 50 vehicle configurations reflects the automaker's strong customer focus, which must be supported by the newly introduced IT solution. From brakes to screws or even bamboo interiors, individual customer requests are realized in the plants every day.

Organizational and strategic changes were the drivers for the development of the mission-critical project, as the historically grown application landscape could no longer keep



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up with the increasing data volume and high operating costs of the mainframe. By introducing a horizontally scalable JEE-based application architecture using modern cloud-enabled products such as Solr and Kafka in the Azure Cloud, costs were reduced and the manageable data volume increased. The new IT solution integrates data from nine different source systems and consolidates it into a single point of truth, a system that provides information about the entire bill of materials for the company and updates it immediately.

The bill of materials is a dynamic object that undergoes changes almost every second from various departments. A major technical challenge was to make all of these changes reconstructable even days later. All bill of materials information is provided to many stakeholders in the company via a universal API, enabling new business processes and process optimizations in dealing with the bill of materials in the company.

Close collaboration between IT and business departments

The success of the project is due to close collaboration between IT and business departments. With the help of BMW Group experts, QAware clarified the highly complex rules for correct evaluation of the bill of materials. To ensure the long-term correctness of the IT solution, numerous automated regression tests are written in a language that experts can read and continuously maintain. In addition, QAware implements process improvements that were not feasible in the existing system landscape.

QAware GmbH is a German software company with offices in Munich, Mainz, and Rosenheim. The company was founded in 2006 and offers services in the areas of software development and IT consulting. A special focus is on cloud-native engineering. QAware employs around 200 people and has been repeatedly awarded as a top employer.

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