



Premium OEM provides global vehicle-backend connectivity via cloud-based platform



Capgemini supported in the development and operation of essential vehicle connectivity services

With ConnectedDrive, a collection of driving services available for subscription, the BMW Group offers a wide range of products and services relying on data connections between vehicles and backend services. These include updates for navigation, online entertainment, software, functions activated over-the-air, remote diagnostics, and car sharing. With new generations of vehicles, the portfolio and importance of ConnectedDrive services will only increase, making the program a key element in BMW's strategy for gaining new digital savvy customers.

The BMW Group vehicle connectivity platform, which is the technical basis for ConnectedDrive, is responsible for the communication of vehicles and backend applications, a scalable and reliable communications infrastructure, and 24/7 seamless operations for connected services. To prepare for the impending increase in demand, the BMW Group decided to transform the vehicle connectivity platform and provide a top-range technological and operational standard that could support growth and innovation while providing a seamless digital customer experience.

Recognizing the critical nature of the project and the need for extensive expertise, the BMW Group teamed up with Capgemini.

Client: BMW Group

Region: Germany and Poland

Industry: Automotive

Client Challenge:

The BMW Group provides connected services for several generations of vehicles. Rapidly increasing demand for new models requires a scalable global platform to provide reliable connectivity between the vehicles and backend business services.

Solution:

Capgemini assisted with the design, implementation, and operation of a global cloud-native vehicle connectivity platform hosted on AWS. This provides high-level functions for security, upload and download, vehicle wakeup, message delivery, and connectivity management.

Benefits:

- Higher availability and scalability thanks to cloud-native infrastructure
- Efficient APIs for backends and vehicle software simplifying the use of low-level connectivity protocols by vehicles and backends
- Data-driven DevOps model combined with a 24/7 operations team assuring the high availability of the vehicle connectivity platform.



Launching a long-term partnership

Capgemini and the BMW Group started with a rigorous examination of the company's existing systems and objectives. During this process, the partners identified that the vehicle connectivity platform had become overly monolithic, which prevented the degree of scalability needed to support further demand. In addition, although the BMW Group had developed a new solution based on modern Internet of Things (IoT) technology, it had not been fully implemented and still needed to be rolled out for production in three global hubs. Finally, these platforms were all maintained on-premises, which presented additional limitations.

Based on the conclusions of this review, Capgemini and the BMW Group are working together in transitioning the vehicle connectivity platform to AWS Cloud and the adoption of a DevOps approach. As part of this process, the partners also decided to simplify the pre-existing operating model by installing Capgemini as the single supplier for both development and operations.

The project team used established frameworks and tools to perform a service transition for eight mission-critical applications. Shortly afterwards, Capgemini and the BMW Group completed a rollout of a new MQTT-based communications platform, which included four applications handling messaging, file exchange, and remote wakeup of electronic vehicle control units. Throughout this process, the project team stabilized the applications and delivered operational improvements that helped ensure a smooth ramp-up for a new generation of vehicles.

Transitioning to DevOps and the cloud

With the project firmly underway, Capgemini and the BMW Group committed to the implementation of a new DevOps operating model. Based on the established objectives and best practices, the project team designed a fresh working model for the vehicle connectivity platform. Doing so further solidified the

cooperation between development and operations, ensuring that the teams shared joint responsibility for developing, maintaining, and operating the applications with a strict SLA framework. Moreover, the collaborative approach ensured that the teams shared a common set of tools and knowledge.

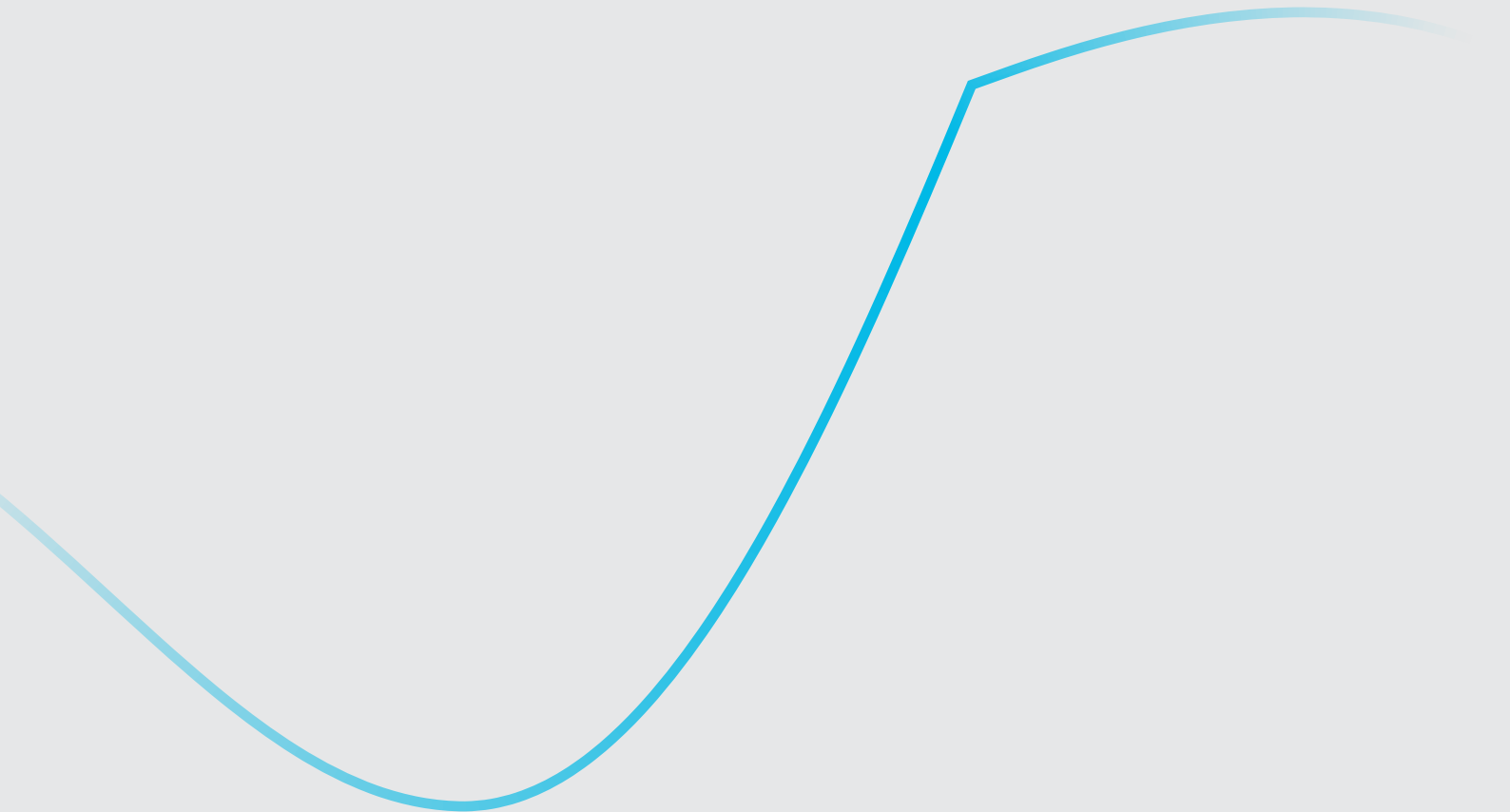
Once the teams were properly unified with a DevOps-based approach, Capgemini and the BMW Group focused on transitioning its infrastructure and all applications to the public cloud. Key stakeholders worked with the project team to develop a migration strategy that minimized risk as well as impact on end customers.

Following a smooth transition, the products became cloud-native while using features such as containerized applications, autoscaling, and data streams. As a result, the company was able to provide more stable services while improving the cost efficiency and scalability of the vehicle communications platform.

Laying the foundation for the digital experience

Capgemini and the BMW Group have continuously enhanced the vehicle communications platform, which has significantly improved service continuity while reducing response times to customer service requests. Due to the greater scalability achieved by migrating to the public cloud, the BMW Group has improved its capacity to manage data intense products, such as simultaneous mass software updates for millions of vehicles and autonomous driving.

These results and Capgemini's DevOps delivery model provide the BMW Group with a solid foundation for improving the digital experience for millions of ConnectedDrive customers across present and future vehicle generations. Together, the organizations will continue this engagement in pursuit of additional enhancements to vehicle communication in support of a more effective customer experience.



About Capgemini

Capgemini is a global business and technology transformation partner, helping organizations to accelerate their dual transition to a digital and sustainable world, while creating tangible impact for enterprises and society. It is a responsible and diverse group of 340,000 team members in more than 50 countries. With its strong over 55-year heritage, Capgemini is trusted by its clients to unlock the value of technology to address the entire breadth of their business needs. It delivers end-to-end services and solutions leveraging strengths from strategy and design to engineering, all fueled by its market leading capabilities in AI, generative AI, cloud and data, combined with its deep industry expertise and partner ecosystem. The Group reported 2024 global revenues of €22.1 billion.

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