

BMW Group

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Contact: Phil Dilanni
BMW of North America, LLC
phil.dilanni@bmwna.com

The BMW Group Selects AWS to Power Next-Generation Automated Driving Platform.

- Leading luxury automaker is developing next-generation BMW vehicles with AWS and Qualcomm's Snapdragon Ride Vision Platform to accelerate time to market and increase efficiency.

Seattle/Munich – September 5, 2023... Amazon Web Services ("AWS") today announced the BMW Group has chosen AWS as the preferred cloud provider for its automated driving platform. The BMW Group will develop its next-generation advanced driver assistance system (ADAS) using AWS to help innovate new features for its next generation of vehicles, the "Neue Klasse," set to launch in 2025. The new cloud-based system will leverage BMW's pre-existing Cloud Data Hub on AWS, and will use AWS compute, generative artificial intelligence (generative AI), Internet of Things (IoT), machine learning, and storage capabilities to help accelerate the delivery of highly automated BMW vehicles.

"In the next decade, consumer habits and expectations will drive more changes in the automotive industry than we've seen over the past 30 years," said Dr. Nicolai Martin, senior vice president of Driving Experience at BMW Group. "This is just the beginning of a new era of highly automated driving, fueled by innovations in technology and engineering. By collaborating with AWS, the BMW Group, along with our partner, Qualcomm Technologies, is building our new automated driving platform on AWS's scalable, secure, and reliable infrastructure. We're tapping into AWS's ability to help empower the next generation of BMW's automated driving and parking functions."

ADAS supports today's drivers with early warning systems and capabilities that make driving safer and more comfortable. These systems use advanced software and onboard sensors to provide driver warnings, automated braking, and steering functions designed

Company
BMW of North America, LLC

BMW Group Company

Mailing address
PO Box 1227
Westwood, NJ
07675-1227

Office address
300 Chestnut Ridge Road
Woodcliff Lake, NJ
07677-7731

Telephone
(201) 307-4000

Fax
(201) 307-4095

Internet
bmwgroupna.com



to help improve a vehicle's performance on the road. By developing the next generation ADAS platform on AWS, the BMW Group's engineers can respond more quickly to customer demands and deliver new features to help improve the driving experience. This efficiency, supported by the cloud, will help BMW continue to innovate features for its Neue Klasse of vehicles and keep drivers focused on the experience on the road.

The BMW Group has also joined Qualcomm Technologies, Inc., to co-develop next-generation automated driving systems based on the open and modular Snapdragon Ride Platform. The systems feature an integrated Ride Vision software stack to enable 360-degree perception for the vehicle. Together with AWS and Qualcomm Technologies, the BMW Group's engineers have access to leading hardware, vision software, and cloud capabilities in an end-to-end automated driving development platform. Placing the BMW Group's automated driving platform in the cloud helps break down development silos within vehicle software teams at the BMW Group and helps foster greater global collaboration with suppliers to accelerate automated driving innovation.

"As the automotive industry evolves toward a new high-performance, low-power, and highly scalable software-defined vehicle architecture, we are proud to continue our long-standing, strategic cooperation with the BMW Group to codevelop safer and more secure AI-powered driver assistance technologies at scale," said Nakul Duggal, senior vice president and general manager of Automotive and Cloud Computing at Qualcomm Technologies, Inc. "The Qualcomm® Cloud AI 100 solution and Snapdragon Ride Platforms help deliver automotive innovation to the BMW Group and leading brands across the globe. This strategic relationship with AWS and BMW brings together leading-edge technologies from our respective industries to deliver a modern cloud-native software development environment."

The BMW Group will also use AWS to help scale its capacity to handle vast increases in data creation and usage within automated driving feature development. As automakers deploy higher-level automated driving functions, such as adaptive cruise control, parking assist, and piloted driving, the vehicles create more data for engineering teams to analyze and utilize within future feature development. This cloud-based infrastructure will help provide the foundation for the BMW Group to develop and deliver new functions for its vehicles, such as lane departure assist, automated lane change, or hands-free driving functions, even faster.

AWS services will help power this new scalable, automated driving platform based on a common reference architecture, accelerating the development life cycle and broadening it across BMW models. For example, the platform provides the framework needed to process, catalog, and store millions of miles of real-time driving data in Amazon Simple Storage Service (Amazon S3). Engineers and data scientists can then search, identify, and visualize relevant driving scenes to develop and train models using Amazon SageMaker, AWS's service for building, training, and deploying machine learning models in the cloud and on the edge. Engineers can also develop large-scale simulations on AWS compute instances for verification. With this approach, the BMW Group can test and validate new software versions more efficiently, helping to ensure the system's safety and shortening time to market.

"Automated driving is about more than just convenience; it's also aimed at providing driver assistance technology that helps prevent injuries and saves lives," said Wendy Bauer, general manager of Automotive and Manufacturing at AWS. "Implementing these systems on the BMW Group's international scale requires an approach that can process and analyze vast amounts of data, as well as learn and innovate, so automakers can develop safer and more reliable automated and ADAS systems. Working with AWS and Qualcomm Technologies, the BMW Group has the tools required to help make its vision of providing safe, premium quality, high performance, and highly automated driving functions to its customers a reality."

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BMW Group in America

BMW of North America, LLC has been present in the United States since 1975. Rolls-Royce Motor Cars NA, LLC began distributing vehicles in 2003. The BMW Group in the United States has grown to include marketing, sales, and financial service organizations for the BMW brand of motor vehicles, including motorcycles, the MINI brand, and Rolls-Royce Motor Cars; Designworks, a strategic design consultancy based in California; a technology office in Silicon Valley, and various other operations throughout the country. BMW Manufacturing Co., LLC in South Carolina is the BMW Group global center of competence for BMW X models and manufactures the X3, X4, X5, X6 and X7 Sports Activity Vehicles as well as the BMW XM. The BMW Group sales organization is represented in the U.S. through networks of 349 BMW passenger car and BMW Sports Activity Vehicle centers, 147 BMW motorcycle retailers, 104 MINI passenger car dealers, and 38 Rolls-Royce Motor Car dealers. BMW (US) Holding Corp., the BMW Group's sales headquarters for North America, is located in Woodcliff Lake, New Jersey.

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