Mercedes-Benz Research and Development

Executive Summary

Mercedes-Benz Research & Development North America (MBRDNA) sought to enable its distributed innovation teams to move hundreds of microservices to the cloud — thereby advancing the next-generation of connected car services. Multi-cloud support and granting development teams more ownership of the services and applications they deploy were a priority. With Pulumi, the MBRDNA team found the ideal toolset to tame the complexity of many teams and many clouds while making their platform for the future of automotive transportation a reality.

About MBRDNA

Embedded in a worldwide network, Mercedes-Benz Research & Development North America (MBRDNA) continuously strives to remain at the forefront of automotive innovation. MBRDNA is headquartered in Sunnyvale, California, with key focus areas of Autonomous Driving, Advanced Interaction Design, Digital User Experience, Machine Learning, Customer Research, and Open Innovation. Their Redford, Michigan location is focused on Powertrain and eDrive technology while the Long Beach, California location is where MBRDNA teams test the durability of the latest driver assistant and telematic systems. The Digital Hub in Seattle, Washington focuses on developing cloud architectures and platforms for the next generation of connected car services. MBRDNA also has a Testing and Regulatory Affairs Division in Ann Arbor and an Advanced Vehicle Design center in Carlsbad.

Innovating in the Era of the Connected Car

Scaling operations to this level requires ongoing creativity and agility, with every product and process subject to modification at any time, and efficiency and ongoing excellence top of mind for everyone in the organization. To amplify these distributed efforts, In November 2017 the company announced a new Digital Hub in Seattle to focus on harnessing cloud computing to expand and enhance connected car functionality.

“Our core focus is cloud architecture and building out the cloud platform for the next generation of connected car services,” said Dinesh Ramamurthy, Engineering Manager, MBRDNA. “We also have application development teams responsible for connected car-related microservices. We have hundreds of these different microservices that are based on-premises, and we are in the process of migrating them to the cloud.”

Ramamurthy leads a cross-functional team that is responsible for both application and infrastructure architecture. He also works closely with the open innovations team in Sunnyvale. As a result, he wears a lot of hats, and has a lot of people and processes he is striving to optimize. Ramamurthy is constantly on the lookout for new solutions to the multitude of challenges that present themselves in all-cloud environments.

Developers in the Driver’s Seat: Programming the Cloud with Pulumi

“When I read about Pulumi coming out of stealth mode, and saw what they were doing, I realized that the way they were trying to solve the multi-cloud problem was exactly what I was looking for,” said Ramamurthy. “I needed a solution that cuts across silos and gave our developers a tool they could use themselves to provision infrastructure to suit their own immediate needs.”

“We want to foster a, ‘you build it, you own it’ culture that empowers our teams to think and act for themselves and optimizes efficiency as a result,” said Ramamurthy. “Pulumi helps application development teams to build cloud-based infrastructure using a language of their choice and allows infrastructure engineering teams to build scalable reusable modules that can be leveraged by other teams.” Ramamurthy and his team worked closely with Pulumi to develop a proof-of-concept for building a reusable cloud infrastructure blueprint with Pulumi code.

“What really stands out in Pulumi is the ability to apply program language constructs and best practices to your cloud infrastructure code,” he said. “I like the type safety we achieved by using TypeScript for our Pulumi implementation. So far, it’s proving to be much easier to develop and I like the ability for different teams to collaborate on infrastructure code.”

The Road Ahead

MBRDNA Seattle sees a number of critical uses for Pulumi moving forward.

“Our team really enjoys working with the Pulumi team and working on the actual Pulumi product. We like how Pulumi handles infrastructure state. In addition, the Pulumi portal gives us a really nice overview of all the different infrastructure stacks that are deployed in the organization.”

Pulumi Corporation

Pulumi’s cloud engineering platform brings infrastructure, developer, and security teams together through a unified software engineering process that tames cloud complexity and accelerates innovation. Using the Pulumi platform, teams can build, deploy, and manage modern cloud applications faster and with more confidence, using any language, any architecture and any cloud. Pulumi lets teams build Modern Infrastructure as Code using popular programming languages (Python, JavaScript, TypeScript, Go, .NET/C#). It enables deploying infrastructure and applications together through a unified delivery process.

Finally, teams can manage cloud applications with Policy as Code, better visibility, and controls.

More Information

Discover our complete set of examples, documentation, and API references. Learn More

Have questions about Pulumi? We're happy to help. Contact Us