

Daimler Creates Blueprint for Global Data Centers with Cisco Nexus 9000 Switches

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Daimler AG is one of the world's most successful automotive companies. With its divisions Mercedes-Benz Cars, Daimler Trucks, Mercedes-Benz Vans, Daimler Buses and Daimler Financial Services, the Daimler Group is one of the biggest producers of premium cars and the world's largest producer of trucks above 6 tons.

Executive Summary

Customer Name: Daimler AG

Industry: Automotive and manufacturing

Location: Stuttgart, Germany

Number of Employees: 298,000

Challenges	<ul style="list-style-type: none">• Build a next-generation, software defined data center network• Strike a balance between global IT consistency and regional IT independence• Improve network automation and operational efficiency
Solutions	<ul style="list-style-type: none">• Cisco Nexus® 9000 Series switches• Cisco NX-OS
Results	<ul style="list-style-type: none">• Established a fully redundant, multi-site, multi-tenant data center network• Accelerated infrastructure deployments from one week to two hours• Created a data center network blueprint that can be extended worldwide



Creating the blueprint

With three distinct business units – Mercedes-Benz AG, Daimler Truck AG, and Daimler Mobility AG – and operations around the world, Daimler AG must strike a careful balance between global IT consistency and regional IT independence. So, when the colocation facility housing the company's primary data center announced its impending closure, Daimler AG saw an opportunity to create a cutting-edge IT infrastructure that would help optimize that balance.

“We set out to build a next-generation datacenter and create a blueprint for our regional teams,” says Uwe Franosch, data center architect and senior consultant at Daimler AG. “We wanted a software-defined infrastructure that could provide the latest innovations and holistic automation from day one.”

Daimler AG built a Virtual Extensible LAN (VXLAN) Ethernet Virtual Private Network (EVPN) using 392 Cisco Nexus 9000 Series switches. Leveraging a multi-site design, the VXLAN EVPN links the company’s infrastructure across two data centers in Frankfurt.

“We’ve had a good experience with Nexus switches in the past, and the Nexus 9000 with Cisco NX-OS gave us the feature set and functionality we were looking for,” Franosch says. “It supports multi-site EVPN, provides software defined automation, and it’s very stable and resilient.”

“We set out to build a next-generation data center and create a blueprint for our regional teams.”

-Uwe Franosch, Data Center Architect and Senior Consultant, Daimler AG

To ensure the architecture would accommodate a diversity of regional needs and environments, Daimler AG built the network with simplicity and flexibility in mind.

“The architecture will be distributed to different teams and different sites around the world, so we wanted to keep the fabric as clean as possible and not weigh it down with controllers or security components,” Franosch explains. “We’ve standardized connectivity, routing, and multi-site orchestration, and we’ll move security closer to the application, where it’s really needed.”

The two data centers in Frankfurt each contain two distinct computing rooms, and Daimler AG used its new network to establish four interconnected availability zones. To secure the communication streams between the computing rooms, the company encrypted its data center interconnects using the embedded MACsec capabilities of the switches.

“All of the zones are fully redundant, with the same configuration and routing instances,” Franosch says. “We have automatic failover in the event of an outage, and software updates have no impact on our applications.”

Downtime had always been an issue, he explains, with four-to-five-hour maintenance windows eating into Stuttgart weekends and disrupting regional operations. But that’s no longer the case, with Daimler AG experiencing zero downtime since the new network was installed in 2019.

Accelerating app performance

Daimler AG is using Cisco NX-OS – the network operating system that powers modern data centers – as a distributed control plane and foundation for automation. Network operations have accelerated as a result, and deployments that used to take a week or more now take two hours or less.

“Automation is a huge advantage for us, and we’ve been very impressed with NX-OS,” Franosch says, noting the creation of an automation platform using NX-OS and Ansible modules. “To deploy new switches, we just have to rack, stack, connect to power, and connect an Ethernet cable. Everything else is automated.”

The network fabric has not only accelerated data center operations, but also application performance.

“The switches have extremely low latency and they are very, very fast,” Franosch says. “In the past, we only had 10GbE connectivity in our data center core, but now we can support up to 100GbE. We can see how much faster the data is moving, both east-west and north-south.”

The blueprint for the network architecture will soon be extended to the company’s data center teams in North America and Asia Pacific, helping increase the consistency, availability, and automation of Daimler AG’s IT resources worldwide.

“This is our first step toward a zero-trust, software-defined infrastructure,” Franosch says. “We’ve tapped into the next level of innovation and efficiency, and it’s exciting.”

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