

Modernize Connected Vehicle Solution from Edge to Cloud

With advancements in 5G, IoT, and Machine Learning, edge computing brings agility and flexibility to the deployment of new services and experiences to connected vehicles. Seamless integration of edge to cloud capabilities enables low latency services while offering endless scalability and availability of sensor data. The DENSO Mobility IoT Core, a general purpose edge compute device, and AWS jointly offer both hardware and software extensible capabilities to OEMs globally.



Collaboration

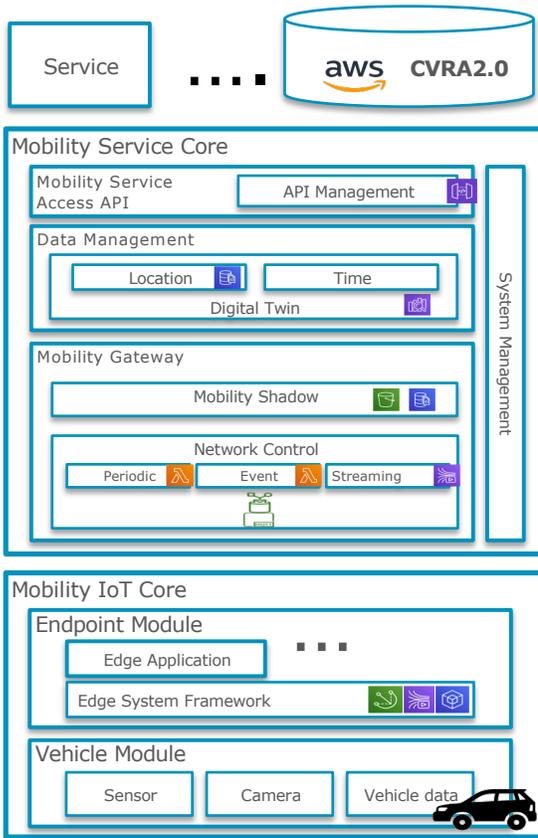


The collaboration demonstrates three real-world use cases jointly developed by DENSO Mobility IoT Core and AWS Connected Vehicle Reference Architecture (CVRA 2.0). This joint solution includes real-time mapping and telemetry, detection of suspicious activity near the vehicle, and real-time driving event detection.



Through a combination of DENSO's engineering excellence and the power of AWS's cloud, the platform allows service providers and auto manufacturers to simplify and accelerate the integration process to provide modular vehicle-to-cloud application services.

Architecture



The AWS Connected Vehicle Reference Architecture (CVRA) is a de-facto open automotive industry solution for connected vehicles that supports a variety of use cases by providing design patterns to build a framework for connected vehicle services.

DENSO's Connected Vehicle Reference System (CVRS) is a reference implementation of the CVRA covering E2E digital value chain from vehicle to services.

The DENSO-AWS CVRA/CVRS solution uses a layered architecture that includes **Mobility IoT Core** on the edge side, **Mobility Service Core**, and Service Library on the cloud side.

The Mobility IoT Core consists of an **Endpoint Module** integrated with AWS, and a **Vehicle Module** that handles vehicle data. The Mobility Service Core is made up of **API**, **Digital Twin**, and **Mobility Shadow**.

This layered architecture provides a framework for vehicle-to-cloud integration for a variety of use cases including real-time telemetry and machine learning.

AWS Services and Benefits



The AWS Connected Vehicle Reference Architecture (CVRA) gave DENSO a quick start in connecting their vehicle systems and managing/presenting data in an organized fleet UI interface.



Amazon Web Services connects DENSO edge computing to a scalable, global, extensible platform that promotes innovation and services. With AWS, DENSO can quickly add new customers and features without the overhead of managing infrastructure.

About: DENSO

DENSO is a leading supplier of advanced automotive technology, systems and components for major automakers. We are committed to making the world a better place through our world-first products and technologies.. The DENSO Philosophy guides our corporate actions, ensuring that we will continue to be trusted by people around the world. Our vision is for a safer and more eco-friendly future with fewer accidents.

About: Amazon Web Services (AWS)

For 14 years, Amazon Web Services has been the world's most comprehensive and broadly adopted cloud platform. AWS offers over 175 fully featured services for compute, storage, databases, networking, analytics, robotics, machine learning and artificial intelligence (AI), Internet of Things (IoT), mobile, security, hybrid, virtual and augmented reality (VR and AR), media, and application development, deployment, and management from 69 Availability Zones (AZs) within 22 geographic regions, with announced plans for 13 more Availability Zones and four more AWS Regions in Indonesia, Italy, South Africa, and Spain. Millions of customers—including the fastest-growing startups, largest enterprises, and leading government agencies—trust AWS to power their infrastructure, become more agile, and lower costs.

Learn More:

<https://aws.amazon.com/automotive/>



DENSO
Crafting the Core