Aeris IoT Automotive Platform: Enhancing the Driving Experience

AERIS IoT AUTOMOTIVE PLATFORM

◇ Full stack telematics

◇ Comprehensive global device, connectivity, and services delivery

◇ Innovative architecture results in responsive services and lower risk

The Aeris IoT Automotive Services platform enables automakers to customize connected vehicle solutions in order to create a better driving and ownership experience.

Aeris has been providing IoT connectivity service to OEMs for more than a decade. With more than 10 million devices on its network, and a global reach that encompasses 190 countries and more than 550 carriers worldwide, Aeris IoT Automotive Services provides end-to-end solutions — from connectivity to telematics applications to evolving transportation-as-a-service features.

Globally, automakers are ramping up their connected car efforts for several reasons, such as releasing software updates in real time, which is extremely important for maintaining security; using data to analyze system performance; and to obtain valuable data on how to make better cars.

AERIS IoT AUTOMOTIVE PLATFORM

Providing complete automotive services — as well as a management platform — enable secure, embedded telematics to easily integrate and connect with the vehicle, allowing for full account creation and management services.

The Aeris IoT Automotive platform includes:

◇ A control client in the vehicle that manages communications and services delivery

◇ A services catalog, with an extensive set of micro-services

◇ Over-the-air capabilities to update software in the vehicle remotely, add new services, maintain security, and more

◇ A core back end that effectively manages services delivery, including event and notification managers, command and control components, digital rights management, as well as the code to handle authentications and authorizations

◇ An API gateway that easily connects to OEM systems

Micro-Services

The Aeris IoT Automotive Services solution is built on modular, micro-services architecture, which is customizable for OEM deployments. The benefits for OEMs is that it gives them the ability to create new services in a rapid manner and adapt to changing market conditions. Micro-services can be optimized for specific regions, especially when diverse locations have different service needs. Additionally, micro-services allow for the introduction of new services without risking the installed base.

Remote Services

Many connected car-related functions can be activated remotely, including vehicle health reports, maintenance notifications, as well as proactive diagnosis and predictive maintenance. Additionally, insights are obtained on a range of features, such as lock / unlock; remote engine start; do not enter / do not leave zones (geo-fencing); as well as multiple types of alerts (theft, speeding, hard braking, hard turns, engine issues, tire or fuel requirements, and more). Aeris IoT Automotive Services enables customers to have more vehicle control via remote access.

Over-the-Air Services

Connected cars require software and firmware updates. More important to the customer, these updates need to be hassle-free, without the need to return the car to the dealership for every revision. This has led to the significant advancements in automotive over-the-air (OTA) updates.

For the connected car, OTA refers to a process of transmitting diagnostic and operational updates and data from one remote server to a multitude of on-board systems. Updates can be sent to multiple vehicles at the same time, thereby achieving higher software-related update activations; reducing long-term warranty costs; securing driver and vehicle data; and enabling remote upgrades and additions to automotive maintenance or infotainment systems.

The Who and What of OTA

Basically, there are two types of OTA updates. Software over-the-air updates (SOTA) refer to downloading software components (graphics, fonts, maps, audio, and video) and configuring the data for various applications. Firmware over-the-air (FOTA) updates refer either to complete replacement of permanent software programmed into the system or changing and updating a patch for the installed permanent software.

The main users of either FOTA or SOTA initiatives would be automotive OEMs, connected car device manufacturers, cloud service providers, compliance authorities, info technology companies, and system integrators. The aim is to remotely reach areas that include the telematics control unit (TCU); the electronic control unit (ECU); infotainment systems; safety and security of drivers, passengers, vehicles, and data; as well as other aspects of a connected car.

Automakers are looking to enhance customer satisfaction levels with the help of OTA updates by increasing operational efficiency, vehicle performance, and feature advancement.

Capsule Farms: Scalability Made Easy

The Aeris platform enables rapid and effective scaling and customization. This is accomplished by way of capsule farms, which allow for extreme customization and a much faster time to market.

Capsule farms essentially are containers clustered around a specific logic, containers that are ideal for TaaS (Telematics as a Service). Spin up multiple instances of infrastructure almost instantly for performance protection and rapid development in either a public or private cloud. In an automotive solution, capsule farms can help with scalability while improving responsiveness, making services delivery ultra-fast.

Aeris Aerport: Connectivity Oversight

With so many devices moving across disparate geographic areas, having different networks can be problematic. Aeris is the only carrier-agnostic service provider that offers both GSM and CDMA connectivity, including 2G, 3G, and 4G LTE. That means with one network, you are connected 24/7, regardless of device type or location.

Using the Aeris AerPort management portal, Aeris clients have total visibility into every device, including data usage and billing. The AerPort dashboard allows you to manage, monitor, and troubleshoot devices to gain insight into your network operations in near real time. In contrast, Mobile Virtual Network Operators (MVNOs) need hours to register and analyze data going through the network.

Security

As more and more automotive systems are connecting to, integrating with, and relying on software, any point of remote access becomes a potential risk factor. Aeris IoT Automotive Services addresses these security issues at the initial design stage. We understand that with massive volumes of personal car data, threat vectors, as well as other risks associated with a connected car, can be exposed if not tightly secured and continuously monitored.

Recently, the Future of Automotive Security Technology Research (FASTR) consortium released its "Automotive Industry Guidelines for Secure Over-the-Air Updates", which are intended to assist OEMs in evaluating platforms for secure updates.

As a founding member of FASTR, Aeris works with multiple entities to accelerate automotive security by marshaling industry-wide collaboration on threat models, reference architectures, proof of concept, code samples, white papers, and best practice methods.

ABOUT AERIS:

Aeris is a technology partner with a proven history of helping companies unlock the value of IoT. For more than a decade, we've powered critical projects for some of the most demanding customers of IoT services. Aeris strives to fundamentally improve businesses by dramatically reducing costs, accelerating time-to-market, and enabling new revenue streams. Built from the ground up for IoT and road tested at scale, Aeris IoT Services are based on the broadest technology stack in the industry, spanning connectivity up to vertical solutions. As veterans of the industry, we know that implementing an IoT solution can be complex, and we pride ourselves on making it simpler.

Visit **www.aeris.com** or follow us on Twitter **@AerisM2M** to learn how we can inspire you to create new business models and to participate in the revolution of the Internet of Things.

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