Nokia WING drives vehicle connectivity into post-roaming era for automotive OEMs

Connected Cars Case Study: The networking of cars with the outside world, or connected car, is one of the most significant advancements in the automotive industry in the last 50 years. The connected car is quickly moving from the status of being a luxury to one of necessity. Gartner now predicts connected cars will be the largest driver for cellular Internet of Things (IoT) in terms of volume and revenue. Automotive original equipment manufacturers (OEMs) are grappling with digital transformation on many fronts. Electric propulsion, car sharing, automation, and the need for increased connectivity are fueling significant change for automotive OEMs.

Change is also coming to the relationship between automotive manufacturers and the consumer, with manufacturers wanting constant connection to their cars and customers across a global footprint. Reliable and secure connectivity is necessary to monitor and maintain increasingly intelligent vehicles and to create new avenues to revenue opportunities from connected car consumers. Audi, for instance, expects that by 2025 after-sale digital services will generate operating profit of €1 billion – a figure that represents nearly one-third of their 2018 operating profit.

Today’s connectivity model relies on global roaming, which is not sufficient for the demands of a connected car. Global roaming requires a patchwork of roaming partners across various geographies globally and limits the ability of a mobile operator to provide a uniform service level agreement (SLA) which impedes consistent operations for the automotive OEM. Multiple costly operator integrations must be eliminated and automotive OEMs instead must find solutions that enable low latency control, with local data storage to provide for data sovereignty in those countries that require user data to remain in the country.
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Addressing automotive OEM challenges
Nokia’s Worldwide IoT Network Grid (WING) (https://nokia.ly/2QOChD5) is beginning to address these challenges for automotive OEMs as they deliver global IoT to connected cars. WING is a managed service that helps mobile network operators rapidly enhance their existing IoT offerings with global connectivity. WING offers, the first of its kind, global distributed, cloud-native IoT core infrastructure with a unified IoT management platform. WING enables operators to provide automotive OEMs with seamless, low latency IoT connectivity with a globally harmonised service level agreement.

The WING infrastructure is physically distributed across multiple markets globally to reduce latency and meet local sovereignty laws. The WING infrastructure is multi-tenant in nature, allowing mobile network operators (MNOs) of all sizes – from the smallest tier three up to the largest tier one MNO – access to a pay-as-you-go infrastructure to address the connected car market. Because up to 95% of the WING infrastructure is hosted in the cloud, WING is highly scalable and can be made available in new countries or regions without all the typical delays involved in a standard network build.

Automotive OEMs are already leveraging the WING infrastructure as part of their ongoing relationship with mobile network operators who have selected WING for their global IoT platform. These OEMs see the connected car as a path to owning a software and technology platform that unlocks new business models and revenue opportunities. VW, for instance, has plans to invest US$4 billion through 2025 to drive this software platform evolution, and analyst firms such as Morgan Stanley Research have predicted that software and content will grow to represent 60% of the car’s value, up from just 10% today.

Global IoT connectivity
Infotainment is a connected car service that has the potential to drive increased value, but is highly dependent on global IoT connectivity to support well-integrated and immersive experiences. Autotrader has identified it already as a top consideration for new car buyers, with 89% of buyers in the US saying they are willing to wait for must-have tech features. Buyers want rich, immersive multimedia experiences that go beyond playlists on a Bluetooth-tethered smartphone to integrated, personalised high-definition streaming experiences. Infotainment systems will become commerce and advertising platforms, and this evolution will require significantly improved connectivity.

After-sales servicing of vehicles will also go through a significant transformation fueled by improved connectivity. Issues that required a trip to the dealer will be resolved remotely with digital diagnostic tools and over-the-air data exchanges. Owners will be equipped with smartphone applications that will give them real-time visibility of the car’s health, and analytics will predict potential problems before they happen, forging a valuable bond between the OEM and global customers.

Finally, as we look to the future and the emergence of cellular vehicle-to-everything (C-V2X) connectivity powered by 5G networks, the driving experience will again be transformed with safe, reliable, and efficient transportation that will culminate in fully autonomous cars. Assisted and automated driving enabled by C-V2X will save countless lives – each year up to 1.3 million people die on roads as a result of human error. C-V2X R16 planned for December 2019 will support advanced safety – for example, the coordination of vehicle operations and sensor sharing, which will result in a significant safety leap.

Commercial launch in 2020
Automotive OEMs are eager to move towards a more connected future, with many starting production integration this year in preparation for commercial launch next year. ABI predicts connections will reach 168 million by 2025 and exceed 1 billion by 2033. However, getting there will require ultra-low latency, five nines or better reliability and very high bandwidth – requirements that can only be delivered with local connections provided by a network such as WING.

Our automotive future will be well connected, and for automotive OEMs to generate the returns needed to bring this future to light, they will need the capability to address these opportunities on a global scale. The mobile network operators who serve the automotive industry will need solutions to offer a consistent service level and the ability to scale quickly as the automotive market changes. Nokia WING is helping mobile network operators rapidly and efficiently deliver considerable connectivity scale and reach to automotive OEMs around the world.