IMPACT-Auto with Digital Twin
A reliable, scalable and secure platform for OTA software updates
Making journeys safer, more efficient and more fun.
Keeping connected vehicles updated
Challenge: How do you manage billions of devices?

Connected vehicles bring many benefits for their owners, and new opportunities for manufacturers and dealers. But they also bring some new challenges. Vehicles are getting more complex all the time, relying on multiple ECUs to control everything from critical subsystems to infotainment services. That’s a lot of software components – and to keep them secure and functioning optimally, they need to be kept up to date with the latest version of software and firmware. So, when the industry has hundreds of ECUs in millions of connected vehicles, there will be billions of devices that need to be managed – and that’s a big technical challenge.
Automotive manufacturers/dealers need better ways to manage ECU’s and TCU’s in connected vehicles for OTA SW/FW updates to prevent recall costs, reduce security risks, improve customer experience and create new revenue streams.

At its most basic level, Nokia IMPACT Auto provides a complete cloud native solution for managing connected vehicle software across the entire lifecycle – including over-the-air software, firmware and profile updates.

Benefit from a cloud-native multi-tenant platform
Secure OTA updates for software, firmware and profiles

Built on the Nokia IMPACT platform

Scalable, reliable, secure and open standards-based

Robust roadmap for innovative functionality

Flexible deployment options

IMPACT Auto - A complete solution for managing software

• Fewer recalls
• Faster updates
• Happier customers
IMPACT Auto -
A complete solution for managing software

Off-board
1. IMPACT (IoT Management Platform for All Connected Things) provides device management for complete lifecycle management of all car software parts, and OTA capabilities and Data Lake to store the Data
2. SMP (Service Management Platform) – orchestration module for integrating various vehicle lifecycle management platforms.
3. Virtual Car - add-on module supporting functionalities such as virtual car model management, SW update process virtualization.
4. SW parts warehouse for software components repository, and car inventory management enabled by Bell Labs AI/ML techniques.
5. NetGaurd Endpoint security for Anomaly based detection
6. Rating/Charting for all business use cases

On-board
1. IMPACT GW is a gateway deployed in-vehicle. IMPACT GW interacts with clients of various components in Vehicle.
2. Client works with the IMPACT GW to implement the software upgrade on components.
Nokia IMPACT Auto - Virtual Car

Create a digital twin for every vehicle - for even simpler updates

Virtualized view of all software parts

Customers can update their own vehicle

Dealers can identify updates needed

Diagnostics and data collection
IMPACT Auto - Use cases

Software updates
Software updates are prompted through digital twin and automatically downloaded to increase safety and adding new features.

Remote vehicle health monitoring
A feature that includes collection and transmission of data regarding a vehicle's status, condition, and performance which provides early warning maintenance signals, enhances vehicle safety, reduces manpower and maintenance costs, and improves vehicle readiness.

Predictive maintenance
Predictive maintenance powered by digital twins helps to precisely monitor vehicle health and recognize anomalies in a timely manner. IoT-enabled predictive maintenance is to use time series data to identify the time that the automotive equipment is likely to fail.
Why Nokia?
The global OTA leaders

Nokia is a founding member of the 5G Automotive Association (5GAA). The 5GAA aims to bring automotive and telecommunications companies together to harmonize and accelerate the introduction of intelligent transport and communication solutions.

Connected vehicle portfolio
- Secure software lifecycle
- WING platform for connectivity
- Edge Computing
- Private LTE network
- C2X initiative
Join with Nokia
The intelligent choice to manage billions of devices

#1
market leader in device management*

1.8B+
devices under management

120,000+
devices models recognized

220+
IoT community members

+ Proven scale for tomorrows IoT networks

*Source: Analysys Mason, December 2018
About Nokia

We create the technology to connect the world. Only Nokia offers a comprehensive portfolio of network equipment, software, services and licensing opportunities across the globe. With our commitment to innovation, driven by the award-winning Nokia Bell Labs, we are a leader in the development and deployment of 5G networks.

Our communications service provider customers support more than 6.1 billion subscriptions with our radio networks, and our enterprise customers have deployed over 1000 industrial networks worldwide. Adhering to the highest ethical standards, we transform how people live, work and communicate. For our latest updates, please visit us online www.nokia.com and follow us on Twitter @nokia.

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