

# VEHICLE SERVICE-ORIENTED GATEWAY OPPORTUNITIES AND ENABLEMENT

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AUTOMOTIVE CONNECTIVITY & SECURITY

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SECURE CONNECTIONS  
FOR A SMARTER WORLD

COMPANY PUBLIC



CONNECTED VEHICLES

**38**  
**MILLION**

Shipped in 2018\*

**40%**  
2018

**73%**  
2025

Connected vehicle penetration\*

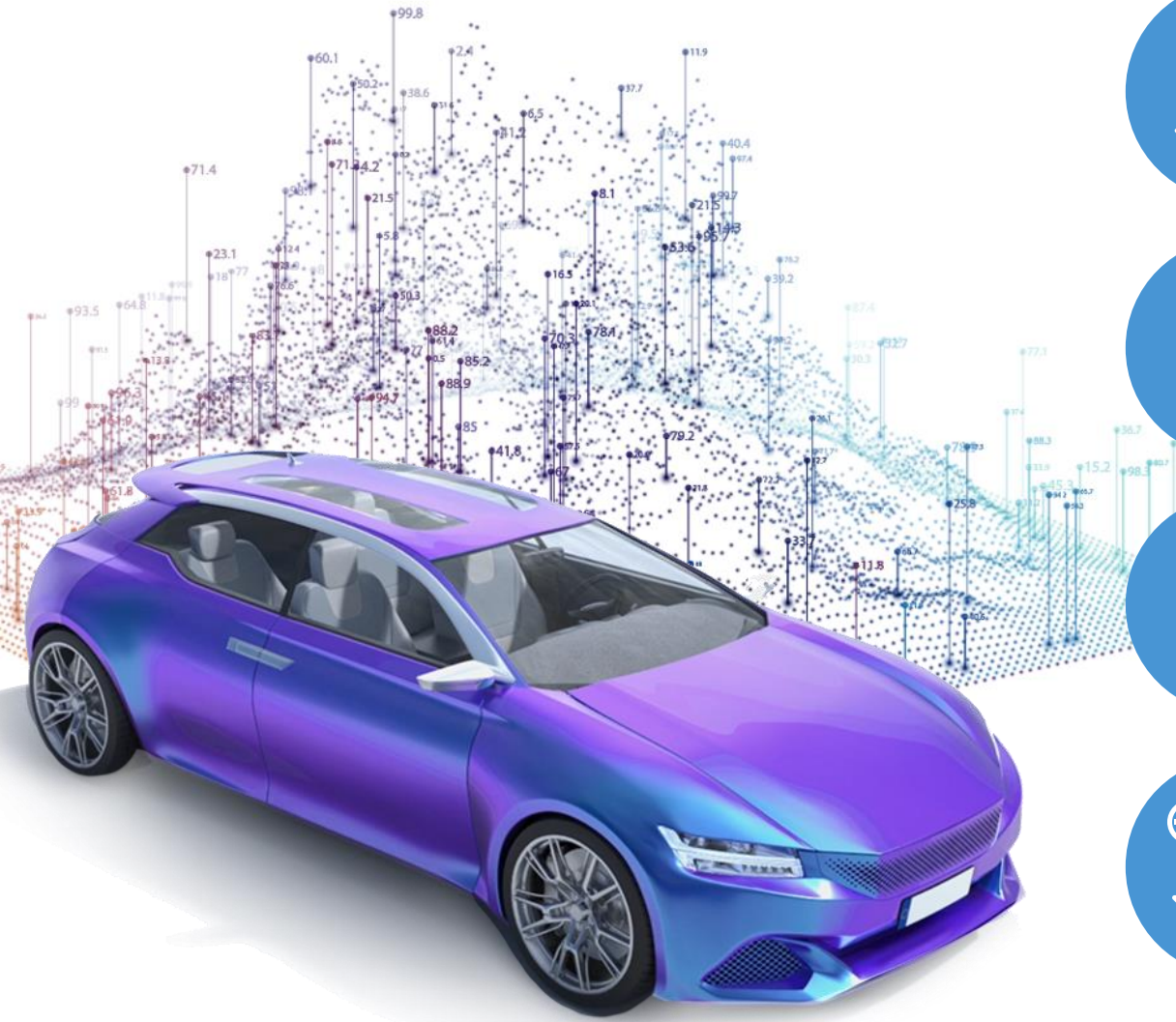
VEHICLE DATA

**4+**  
**TERABYTES**

Vehicle data generated  
per hour\*\*

Represents global data  
Sources: \*Strategy Analytics, 2019; \*\*ABI Research, 2018

# Vehicle Data Opportunities Will Transform the Automotive Industry



## New Revenue Streams

Up to \$750B\* for data-driven services by 2030  
77.4% millennials\*\* willing to pay for updates  
Mobility as a Service (MaaS)



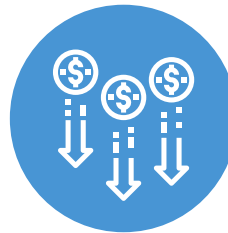
## Rapid Innovation driving Connected User Experiences

Convenience features  
Location-based services  
Post-sale feature upgrades



## Rapid Innovation driving In-Vehicle User Experiences

Vehicle personalization  
Customizable cabin environment



## Reduced Costs

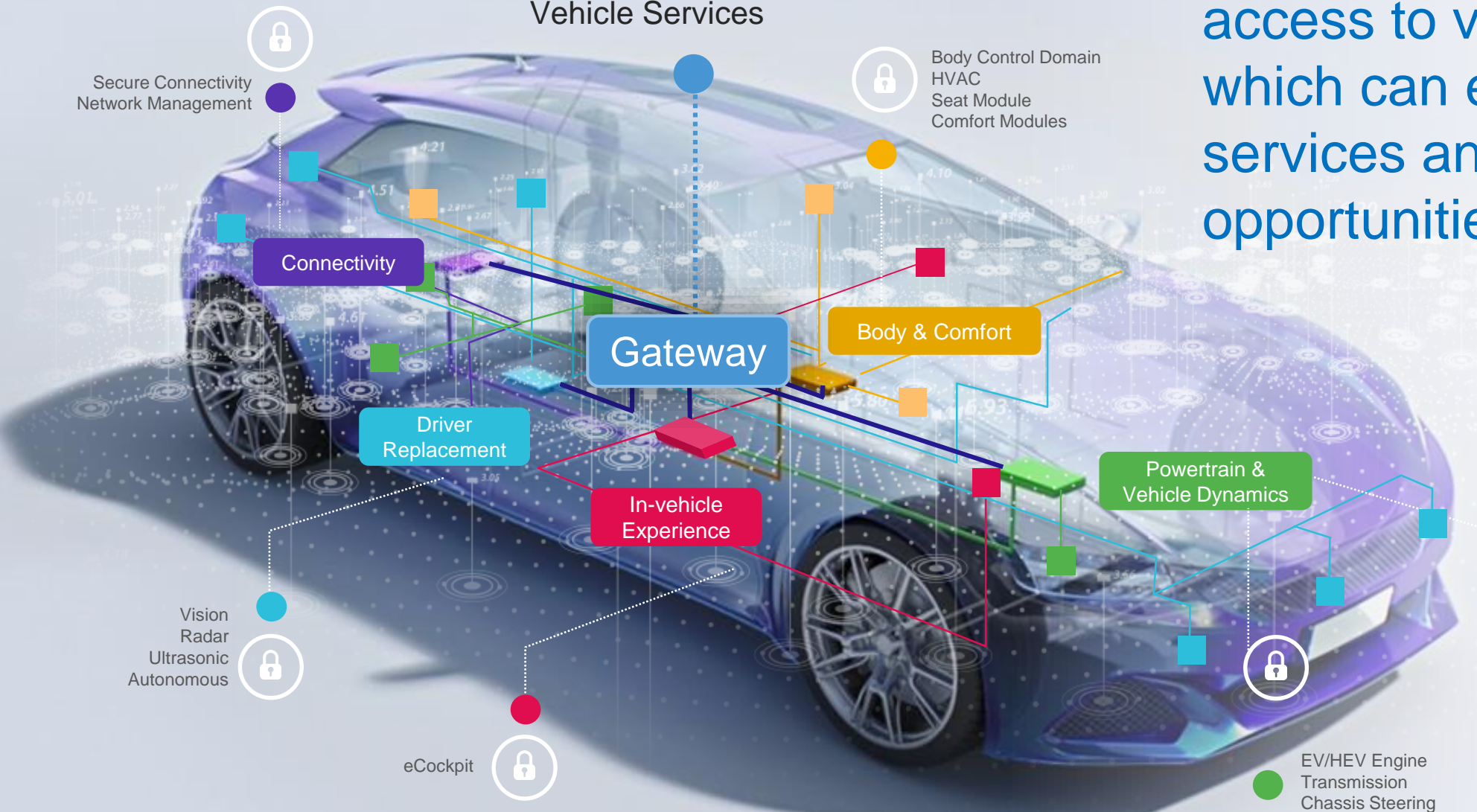
Predictive maintenance  
Maximize reuse for MaaS platforms  
Efficiency gains in supply chain increasing profitability of OEMs by upto 20%\*\*\*



## Gateway

Over-the-Air Updates  
Vehicle Services

The gateway has central access to vehicle data which can enable new services and opportunities



# Unlocking the data - Service oriented communications

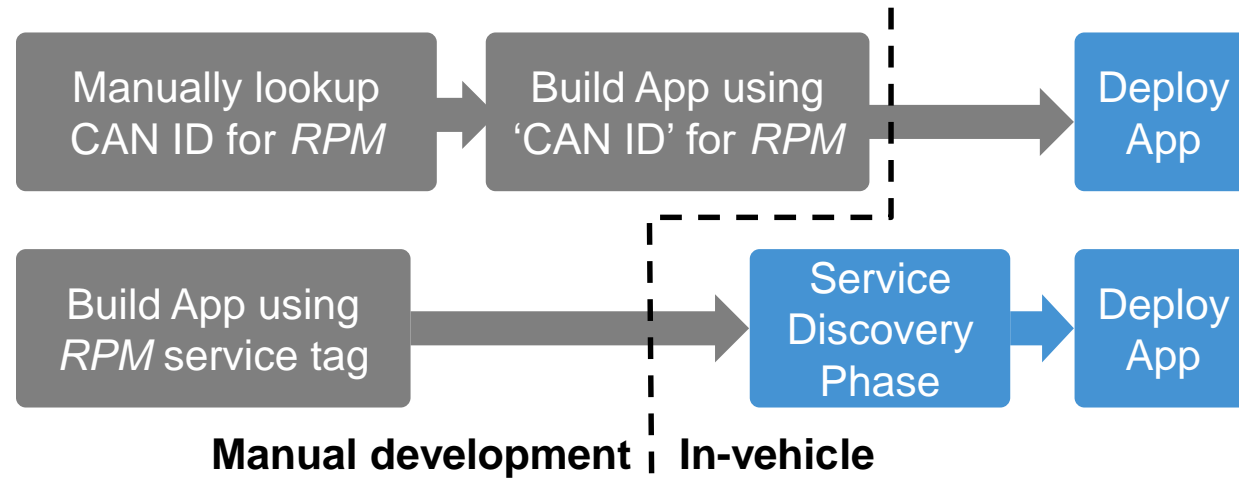
- **Abstracted level of messaging**

- Oriented towards app developers, abstracting the networks
- Publish & Subscribe to 'service' data

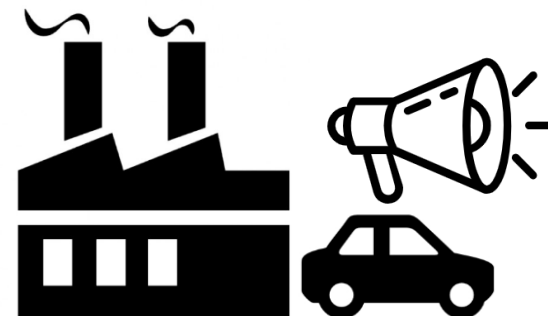
- **Dynamic & scalable**

- Network addresses mapped in 'service discovery phase'
- At end-production line, or when new SW is installed in-field

## Abstracted level of communications



## Service Discovery



**Client:** Who has 'rpm'?  
(broadcast to all ECUs)

**Server:** I do!!  
(Find me at 192.168.1.2:48001)

# Learning from Mobile Market Product Evolution



Cellphone

Communications → Applications & Services  
kbps → Gbps Data Rates  
Massive Increase in Processor Performance  
Over-the-Air Updates  
Enhanced Security



Smartphone

Evolution of Products



Gateway

Higher-speed Connectivity +  
Applications/Services + OTA Updates

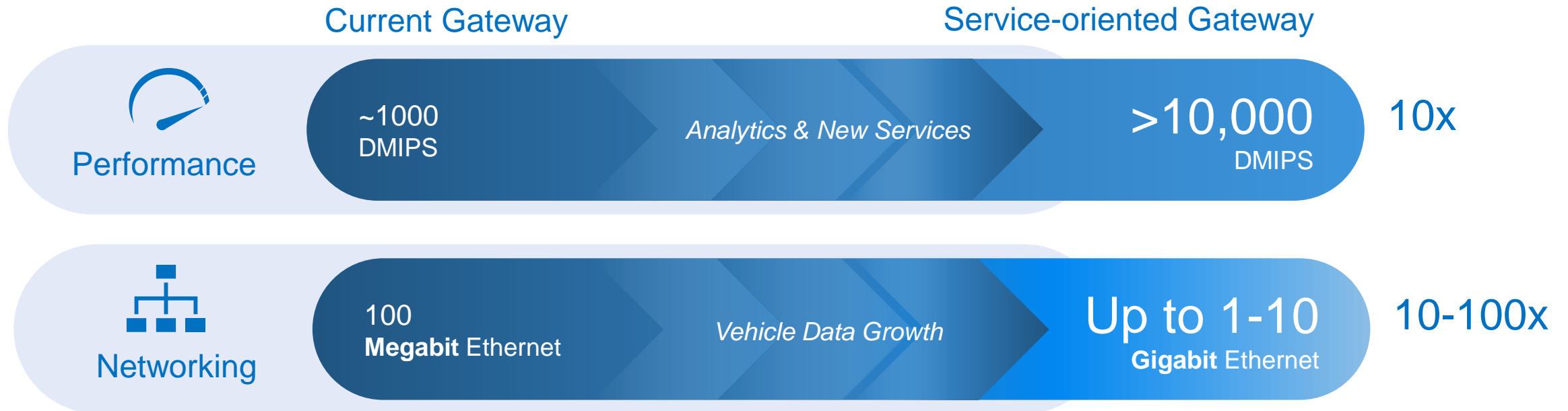
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Growth and New Opportunities



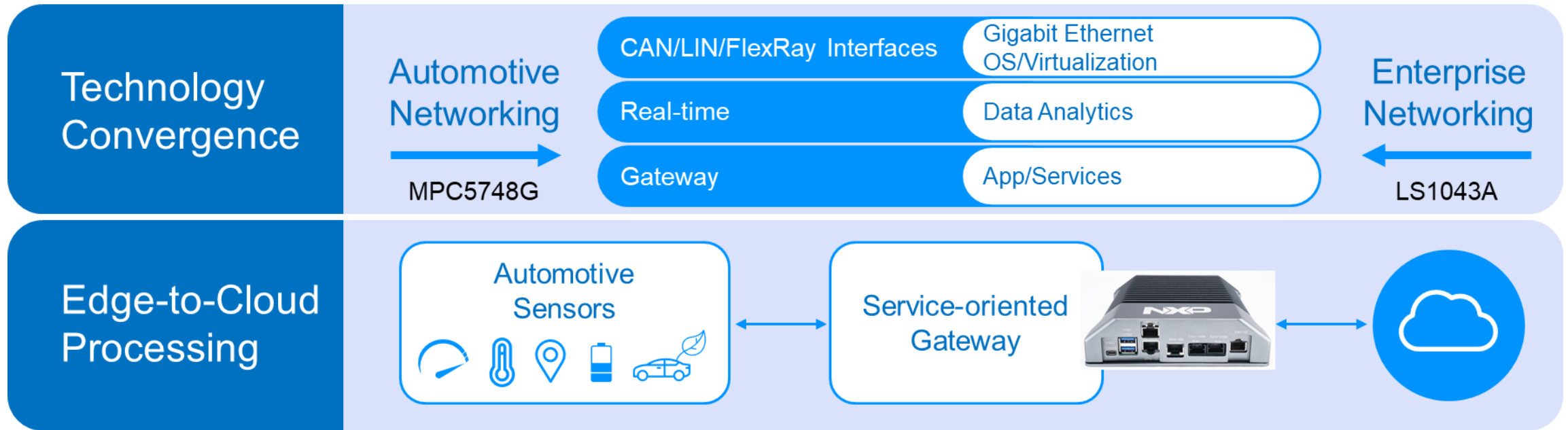
Service-oriented  
Gateway

# Gateway to Service-oriented Gateway Evolution



Service-oriented gateways require ~10x performance and networking

# Bringing Together Automotive and Enterprise Networking to Enable Disruptive Opportunities





# MPC-LS VEHICLE NETWORK PROCESSING CHIPSET

## MPC-LS Vehicle Network Processing Chipset for Service-oriented Gateways

### Heterogenous multi-core processing

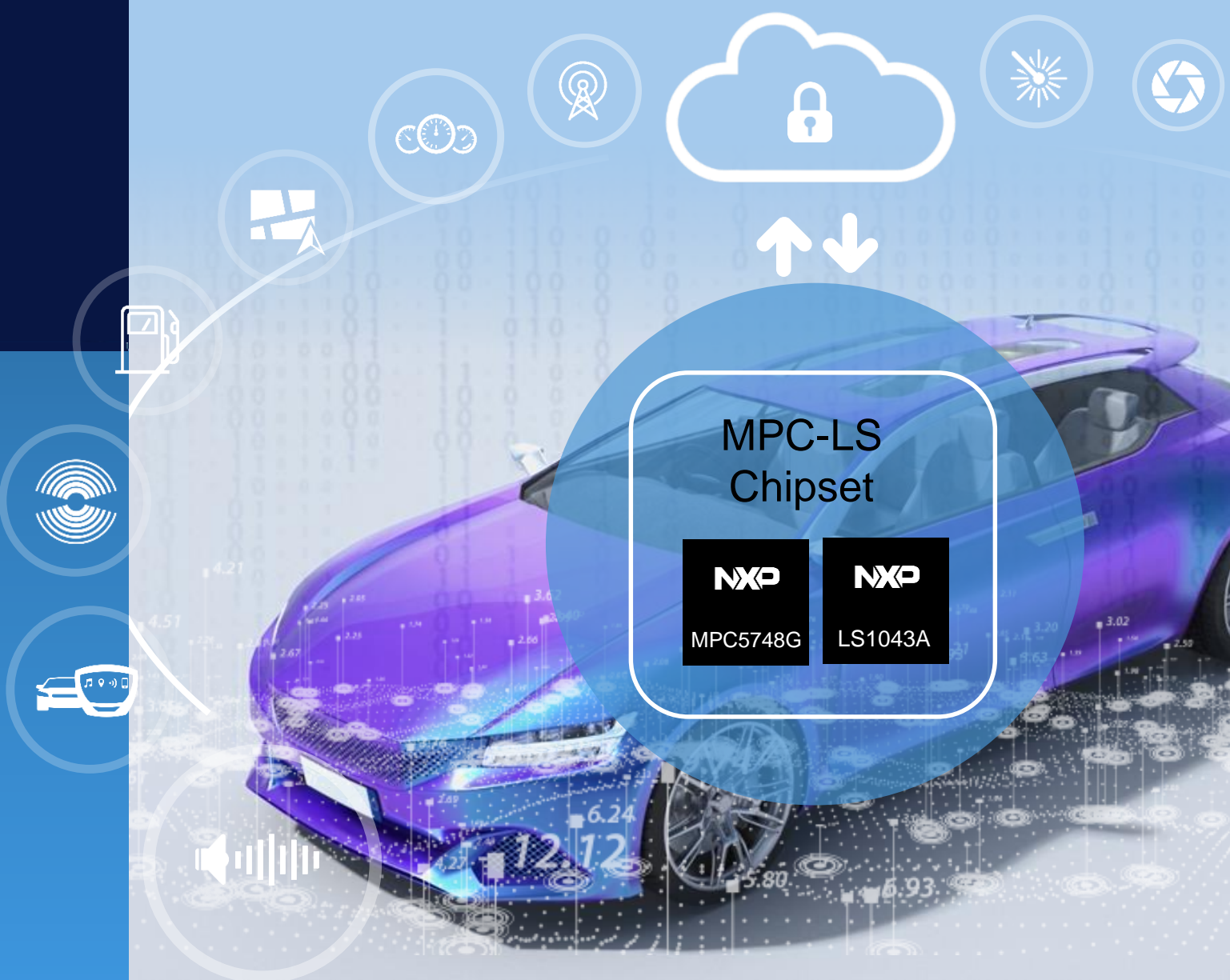
- Real-time + high-performance applications

### Automotive meets enterprise networking

- CAN FD, LIN, FlexRay™ interfaces
- Up to 10 Gigabit Ethernet with packet acceleration

### End-to-end security from vehicle to cloud

- Embedded Hardware Security Module for cryptography and secure key management





NXP Enables Service-Oriented Gateways  
for Automakers to Unlock Value of  
Connected Vehicle Data



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