



# Connected Services and User Experience in Premium Vehicles

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**Skyships Automotive Limited**

# Agenda



Agenda



Introduction

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Interior  
Technologies



Connected  
Services Platforms



The way ahead



Q&A

# Introduction

- Design Engineer – Alstom Power and Transport (2006-08)
- Master of Science in Automotive Engineering – Coventry University (2008-09)
- IMechE Young Members' Panel Coventry
- Engineer – Skyships Automotive Ltd. (2009 - Current)
- IMechE Automotive Division Essex



# Skyships Automotive: Automotive Customers and Project Launches



SOP Q4 2019



SOP Q1 2020



SOP Q1 2020



SOP Q3 2021



Design & Development: Hardware Design, Software Development, HMI, Vehicle Integration































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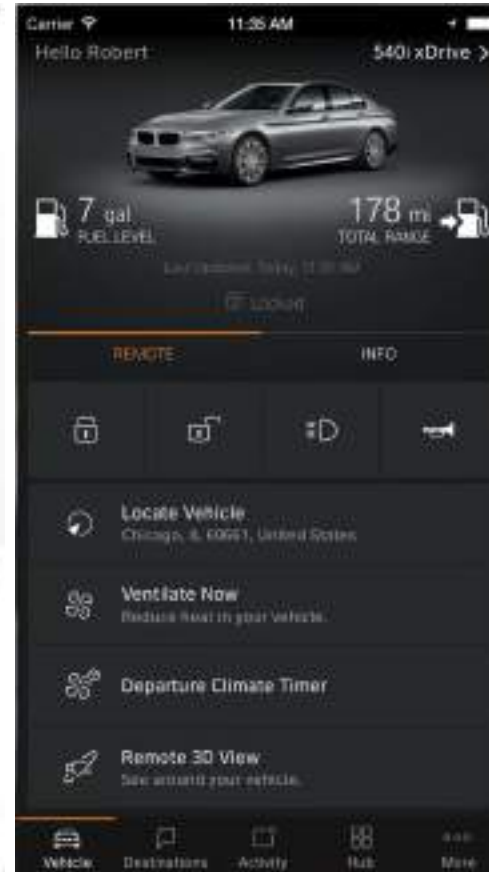
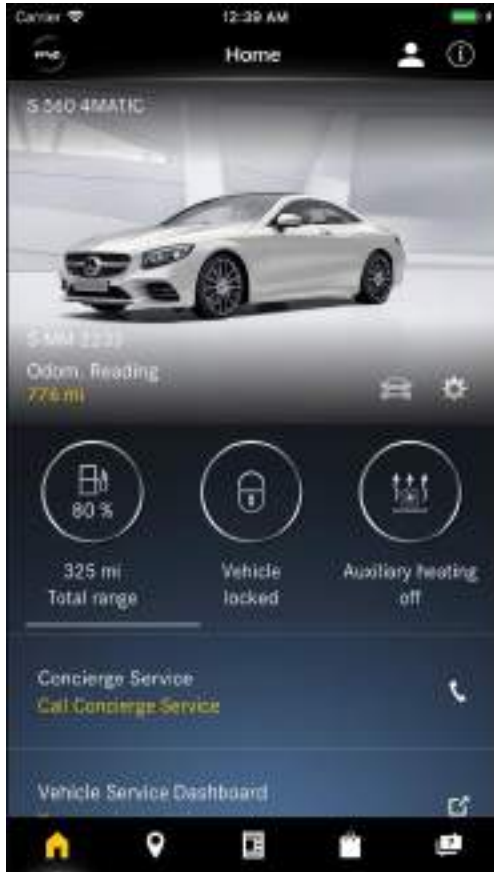
# Apple CarPlay



# Android Auto



# Smartphone App Interface





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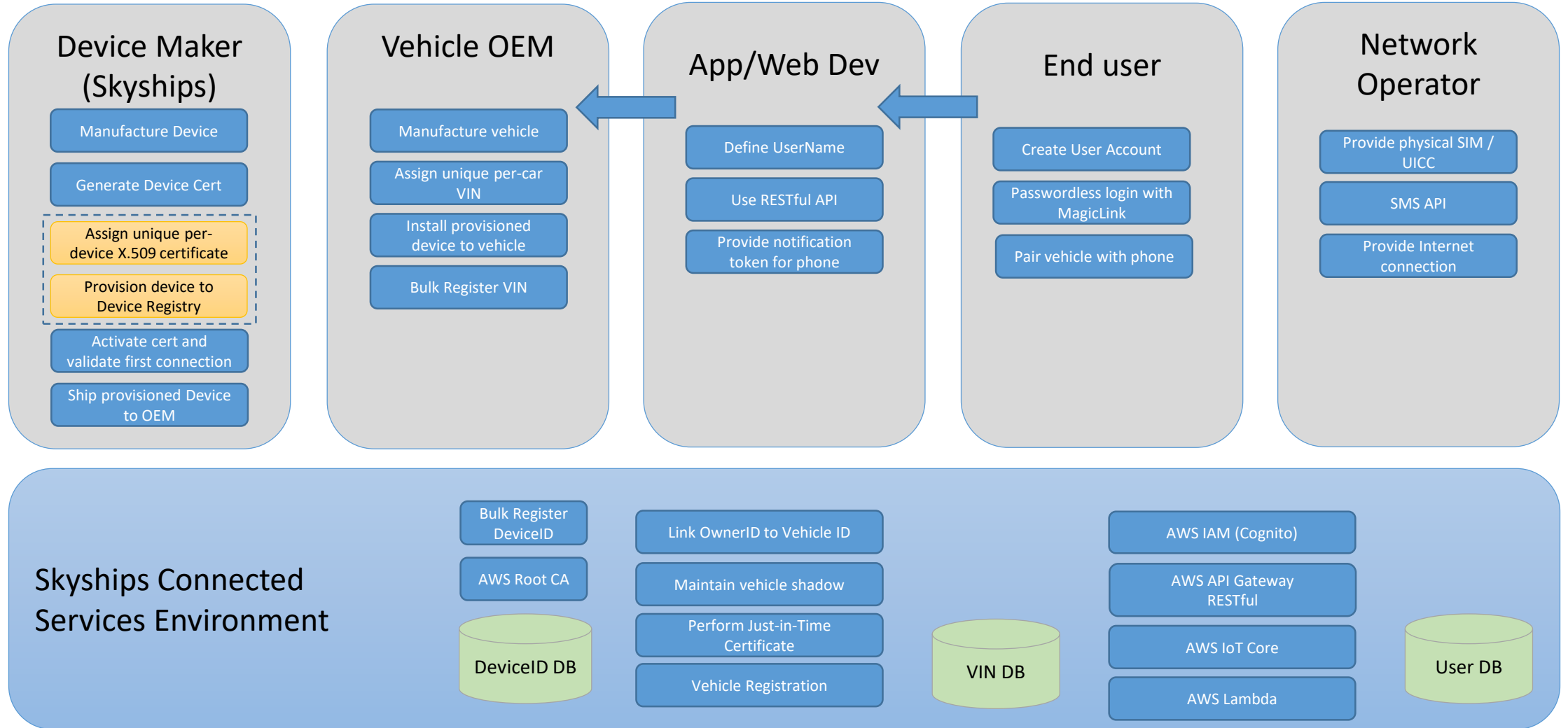


The way ahead

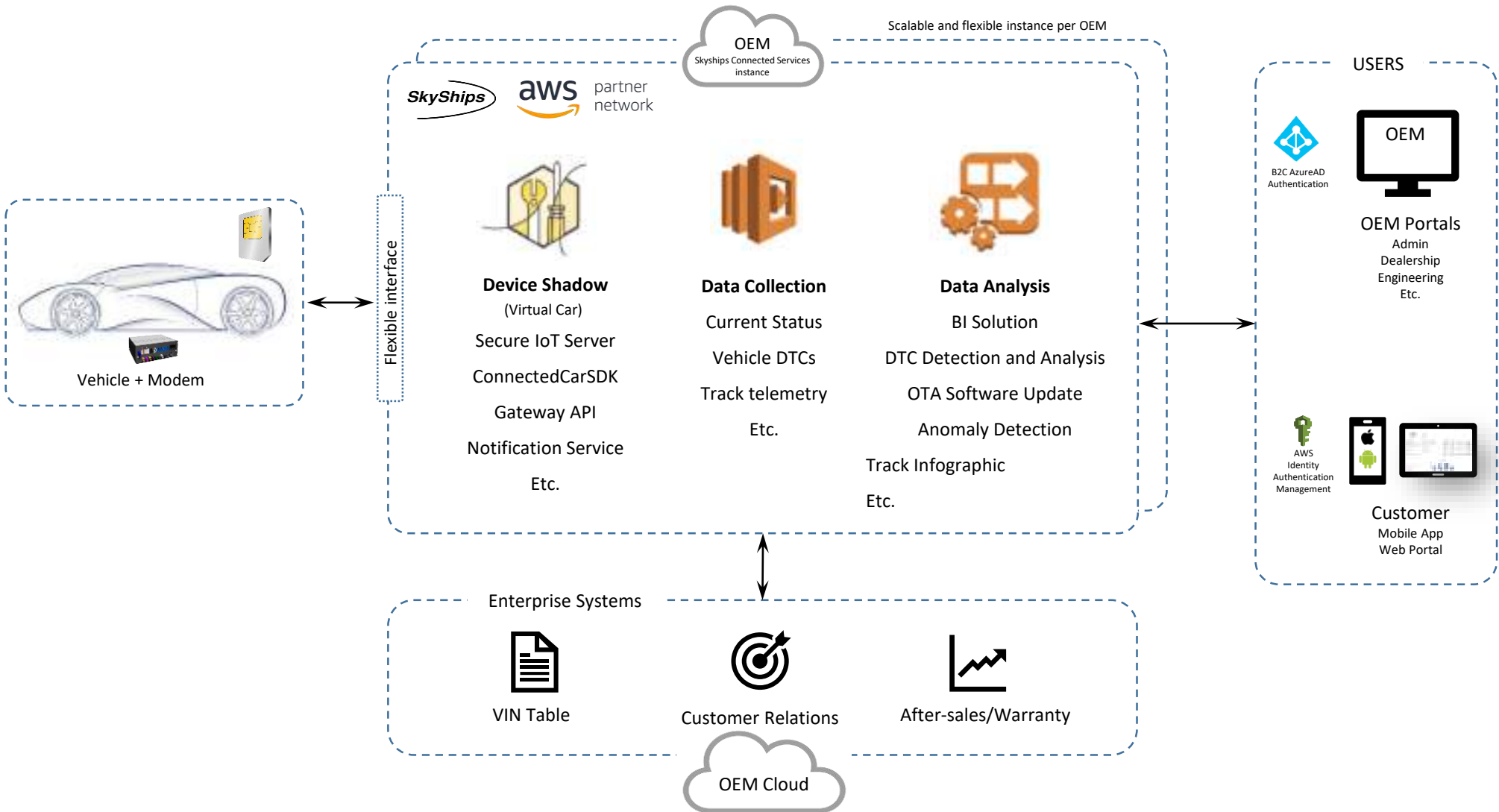


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# Skyships Connected Car Platform Overview



# High-level Architectural Overview





# Dashboard for OEM Data Engineers – Vehicle Information



# Dashboard for OEM Data Engineers – MNO Information

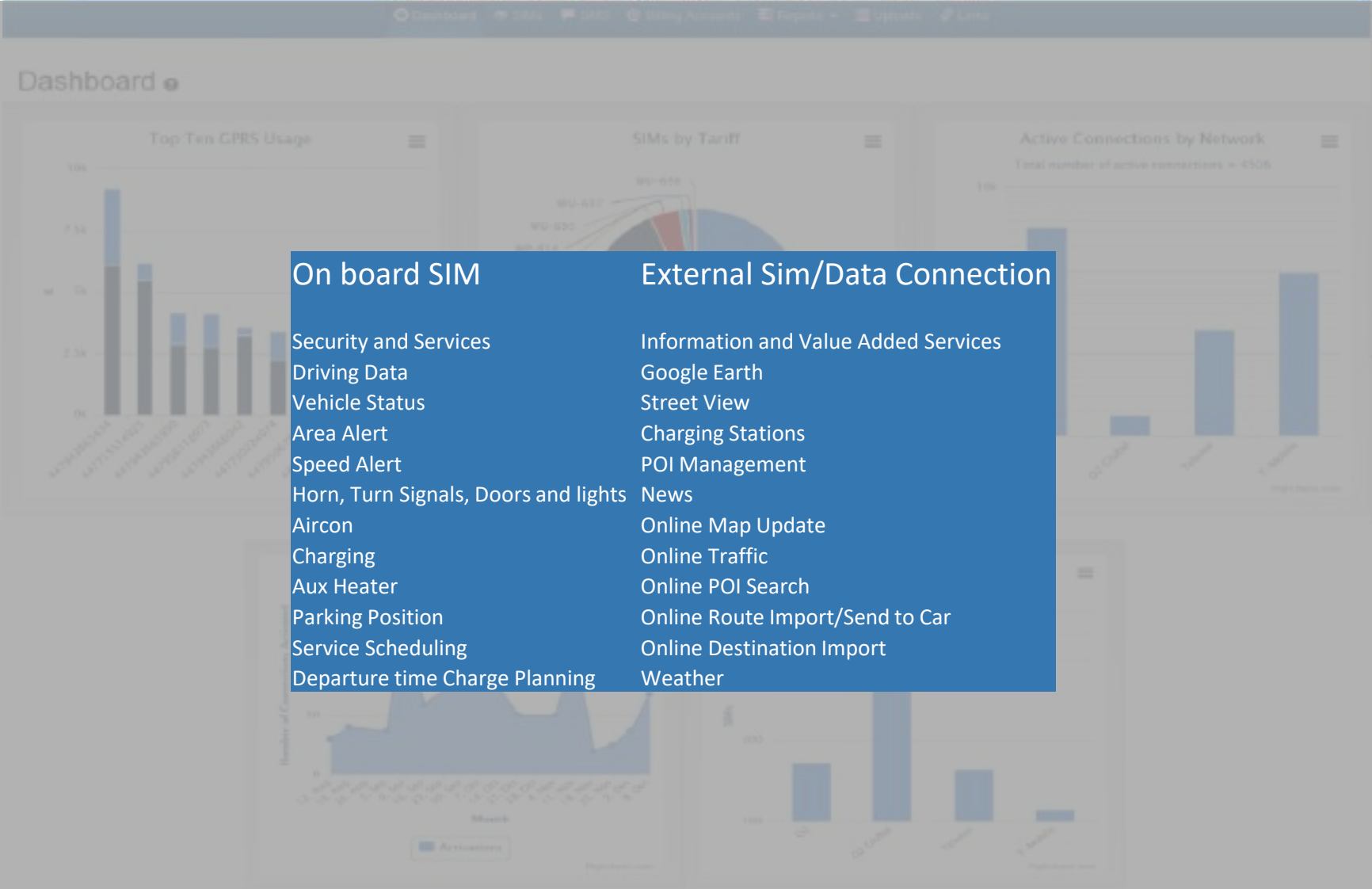


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# 'Seeing' What's Ahead

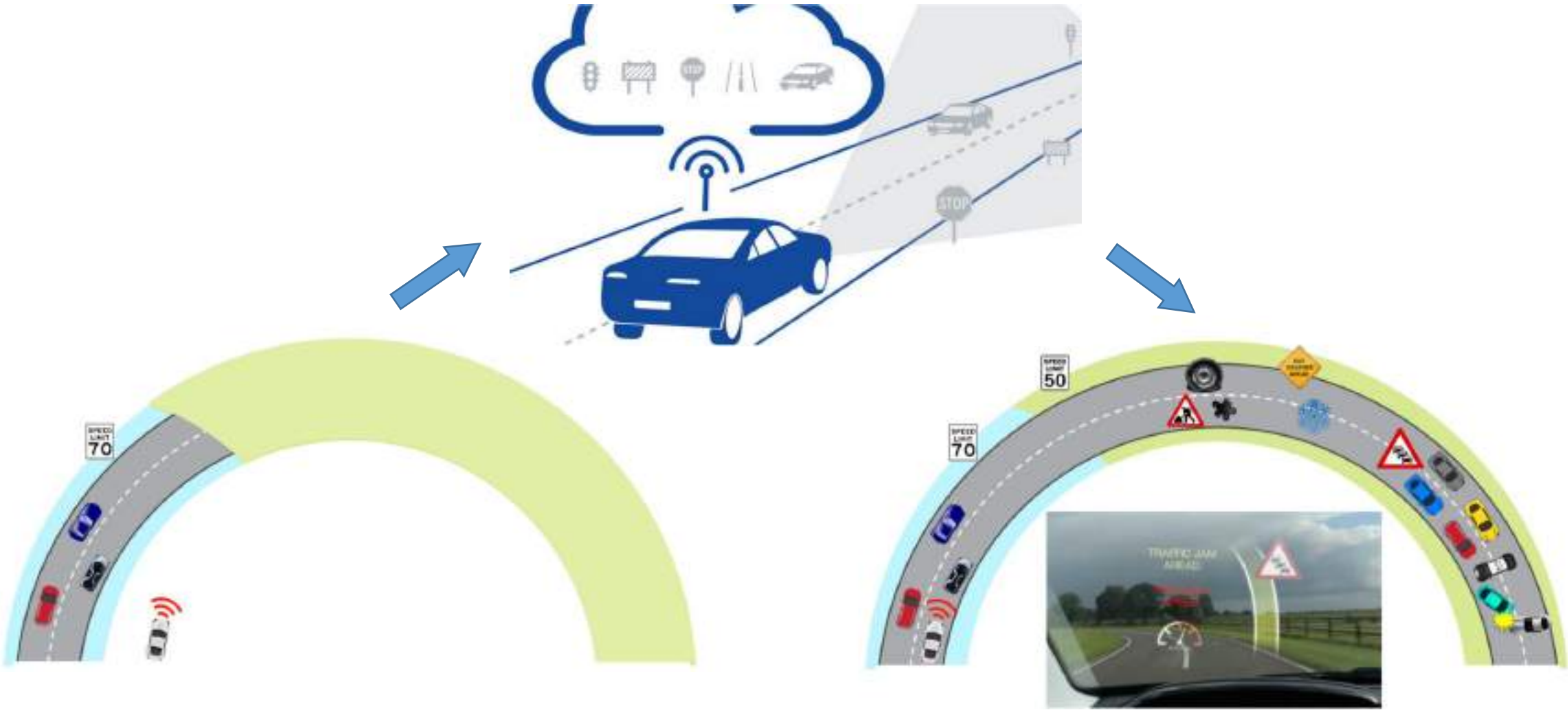


Image Courtesy: TomTom/EB/Here

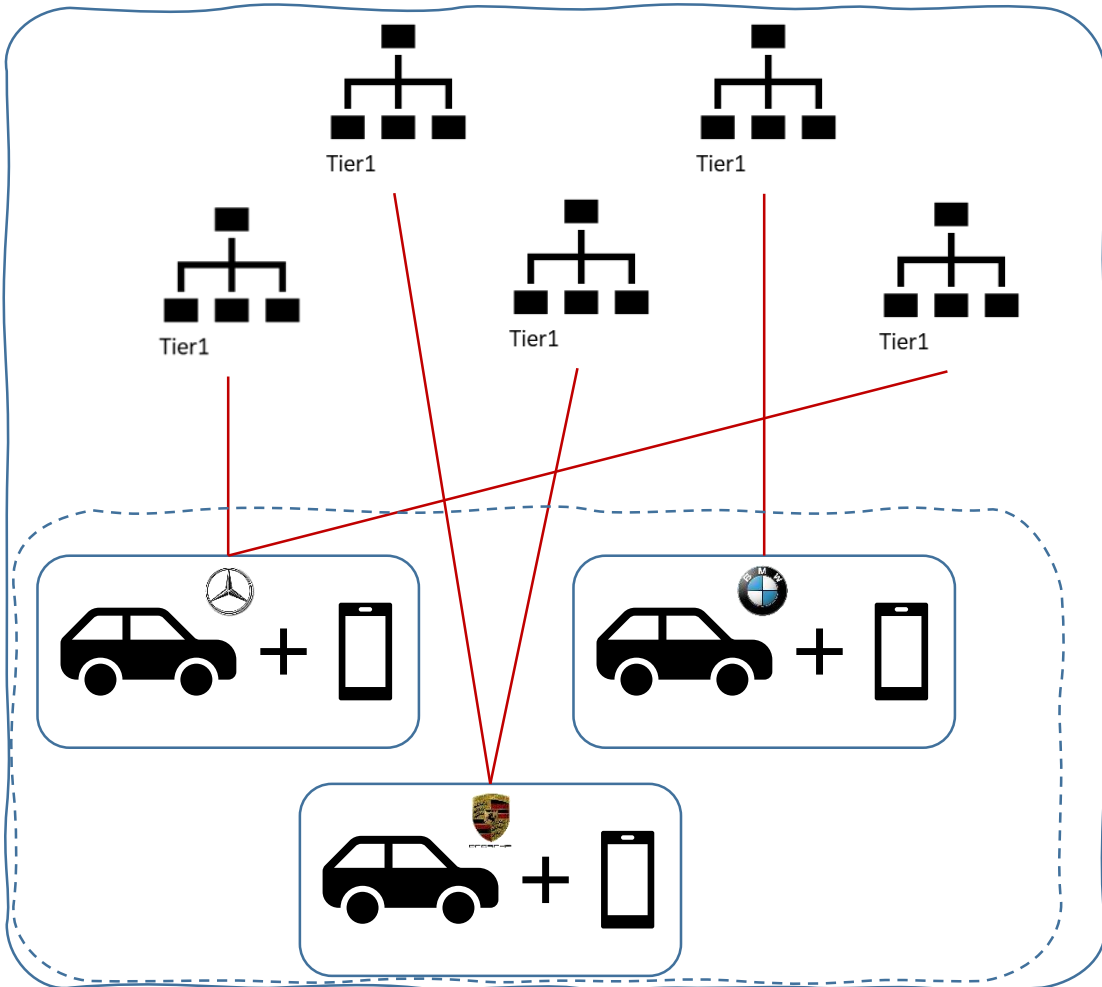
# Connected Services Use Cases in Premium Vehicles

- V2X – On the race track
- Track pack and datalogging
- Charge point finder / Journey planner
- Vehicle switching / subscription service
- Third party integration:
  - Airport Parking
  - Concierge Service
  - Valet Service
  - Parcel Delivery
  - Value Added features in Navigation/Mapping
  - (Voice Control)

# Competitive Landscape Driven by Connectivity



Consumer today



Consumer c.2030

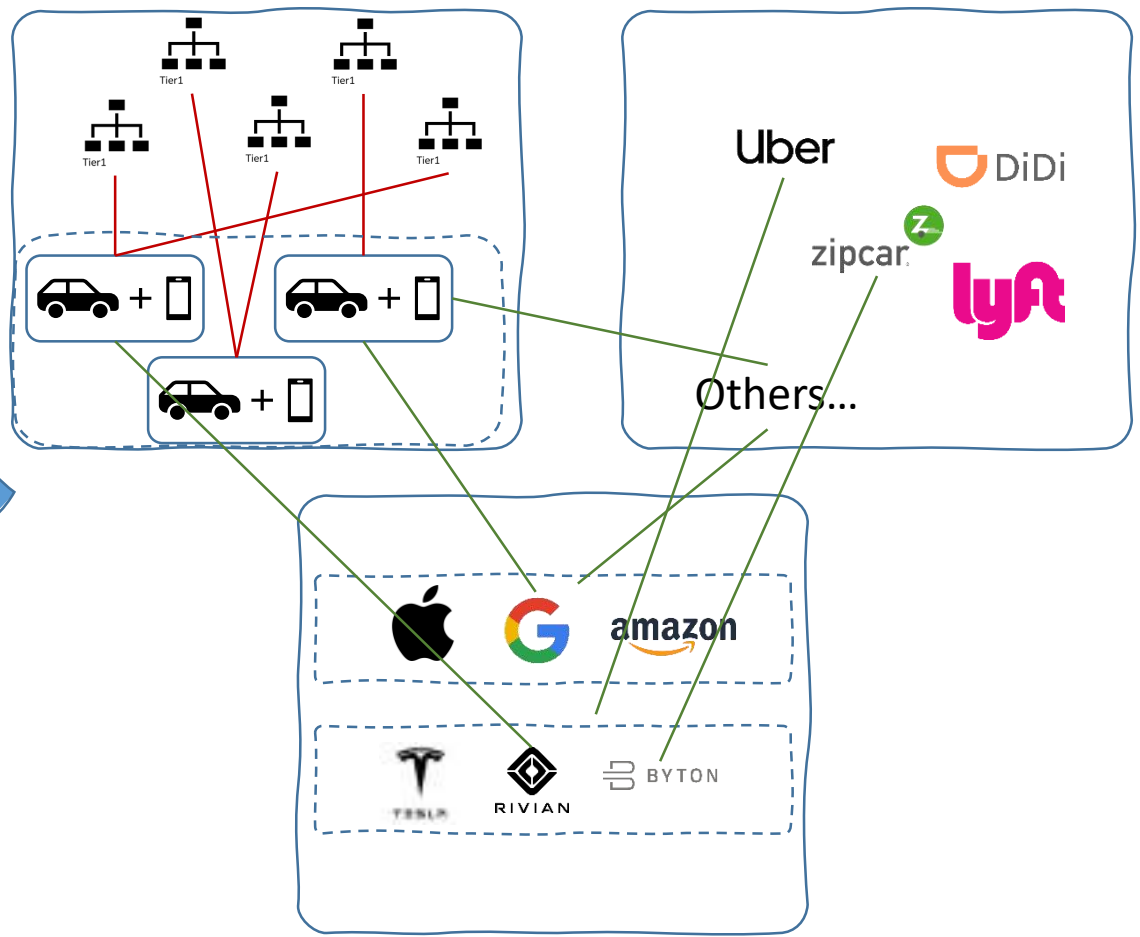


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## Takeaways

- Premium vehicles provide an opportunity for OEMs to integrate services and offer enhanced comfort features to their customers
- User interfaces and technologies such as V2X that are part of the safety path call for standardisation
- Interaction with vehicles in more ways with internal user facing sensors will continue
- Safer, more efficient, more convenient = More electronics, software, integration and complexity

## Ways Ahead

- The tech giants have more data about users than any single OEM which gives them a considerable advantage
- Vehicle ownership paradigms will continue to see a shift in urban populations
- On-demand services will further combine personal and public transportation with customer at the centre
- We will spend a lot of time in multiple modes of transport perhaps but it is unlikely we will be driving them...



# Q & A



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We're hiring.  
Get in touch!

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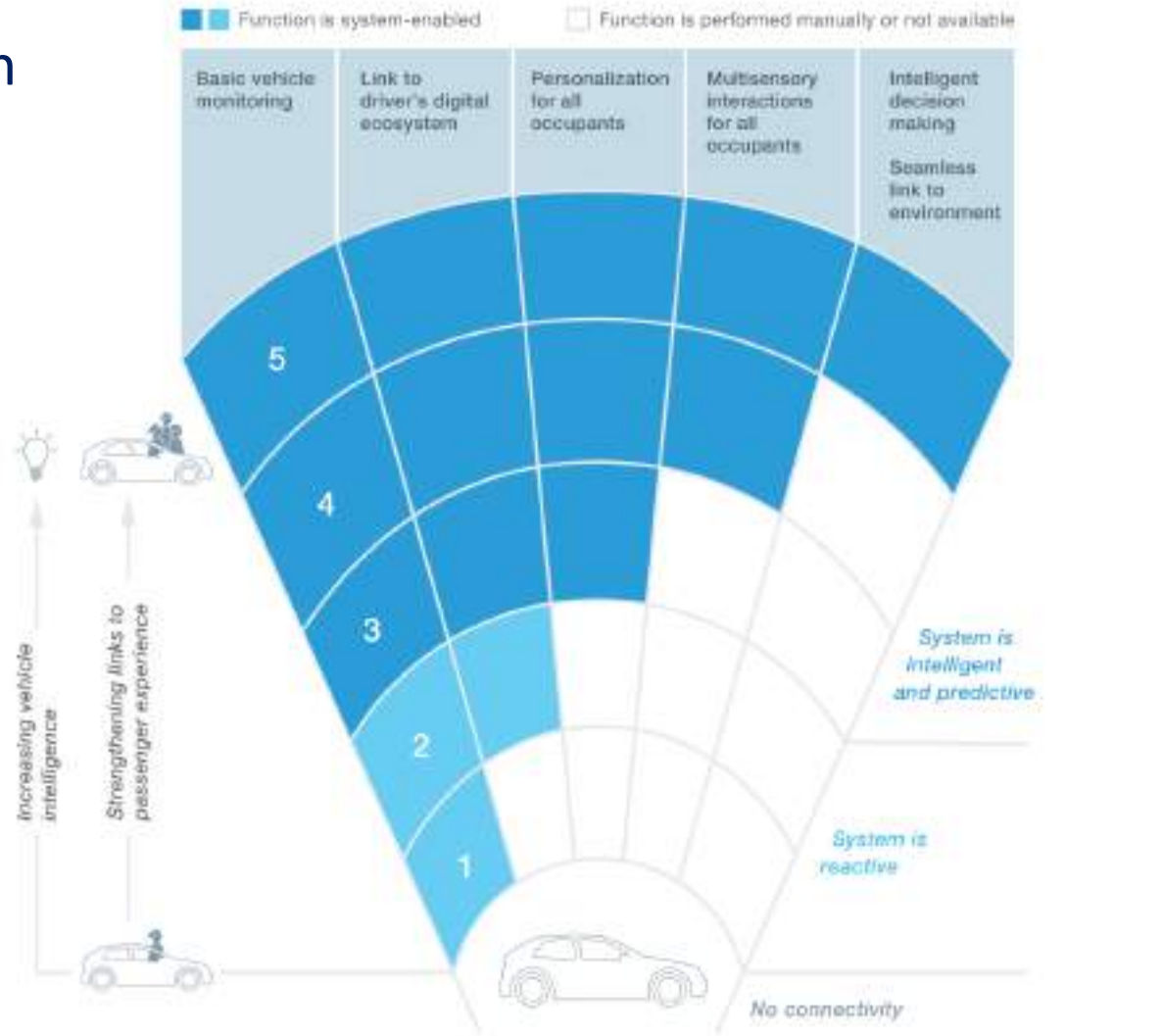


# Call for Integration

Electrical/electronic architecture is evolving toward a centralized setup.

Architecture type	Generation	High-level architecture	Main features
Distributed	1		<ul style="list-style-type: none"> <li>Independent engine-control units (ECUs)</li> <li>Isolated functions</li> <li>Each function has its own ECU (1:1 connection)</li> </ul>
	2		<ul style="list-style-type: none"> <li>Collaboration of ECUs within 1 domain</li> <li>Domains: body/comfort, chassis, power train, and infotainment</li> <li>3 or 4 independent networks</li> <li>Limited communication among domains</li> </ul>
	3		<ul style="list-style-type: none"> <li>Stronger collaboration via central gateway</li> <li>Cross-functional connection</li> <li>Ability to handle complex functions (eg, adaptive cruise control)</li> </ul>
Domain centralized	4		<ul style="list-style-type: none"> <li>Central domain controller</li> <li>Ability to handle more complex functions</li> <li>Consolidation of functions (cost optimization)</li> </ul>
Vehicle centralized	5		<ul style="list-style-type: none"> <li>Virtual domain</li> <li>Limited dedicated hardware</li> <li>Ethernet backbone</li> <li>High-complexity, high-computing functions</li> </ul>

# Call for Standardisation



**1 General hardware connectivity**  
Driver able to track basic vehicle usage and monitor technical status

**2 Individual connectivity**  
Driver uses personal profile to access digital services via external digital ecosystems and platforms

**3 Preference-based personalization**  
All occupants enjoy personalized controls, their own infotainment content, and targeted contextual advertising

**4 Multimodal live dialogue**  
All occupants interact live with vehicle and receive proactive recommendations on services and functions

**5 Virtual chauffeur**  
All occupants' explicit and unstated needs fulfilled by cognitive AI that predicts and performs complex, unprogrammed tasks

# Connected Car - General Use Cases



Image Courtesy: Ericsson

