Realising the Software-Defined Vehicle

British Motor Museum, Gaydon | Thursday 11th July 2024
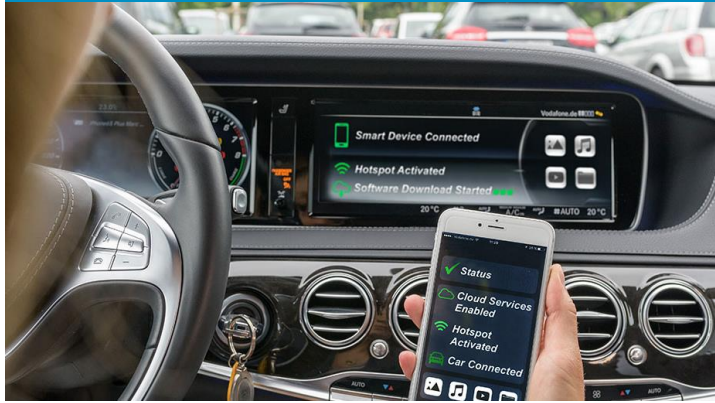
VECTOR >

AESIN
AUTOMOTIVE ELECTRONICS INNOVATION
Conference 2024

Collaboration
in a technology
rich era
Gaydon 11th July 2024
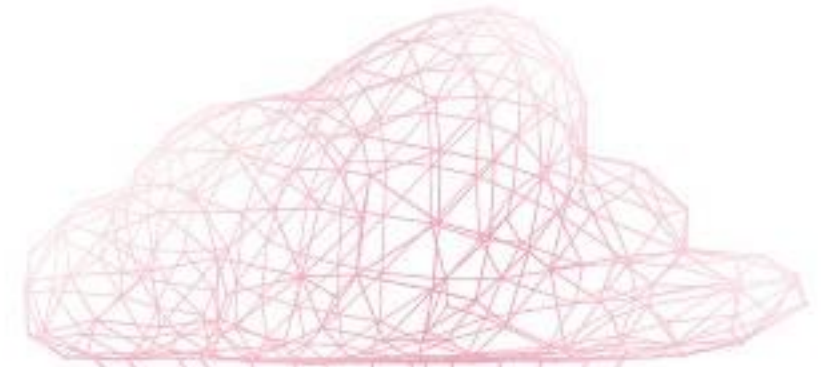
Where is the Software-Defined Vehicle going? And how does it get there?
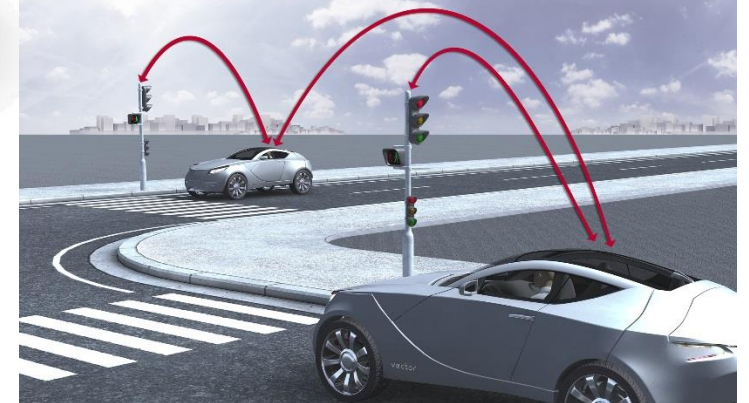
Connected

Automated

Electrified

Shared

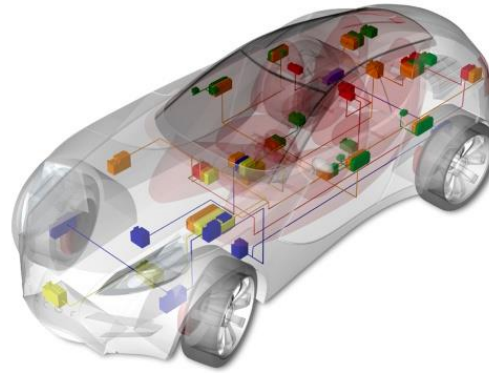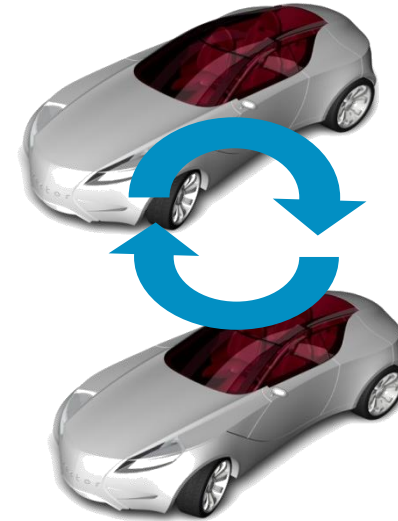***NEW* Driver features installed and started during runtime**

What's Under The Bonnet?

Single electronic
systems

Complex internal
control systems

Complex external
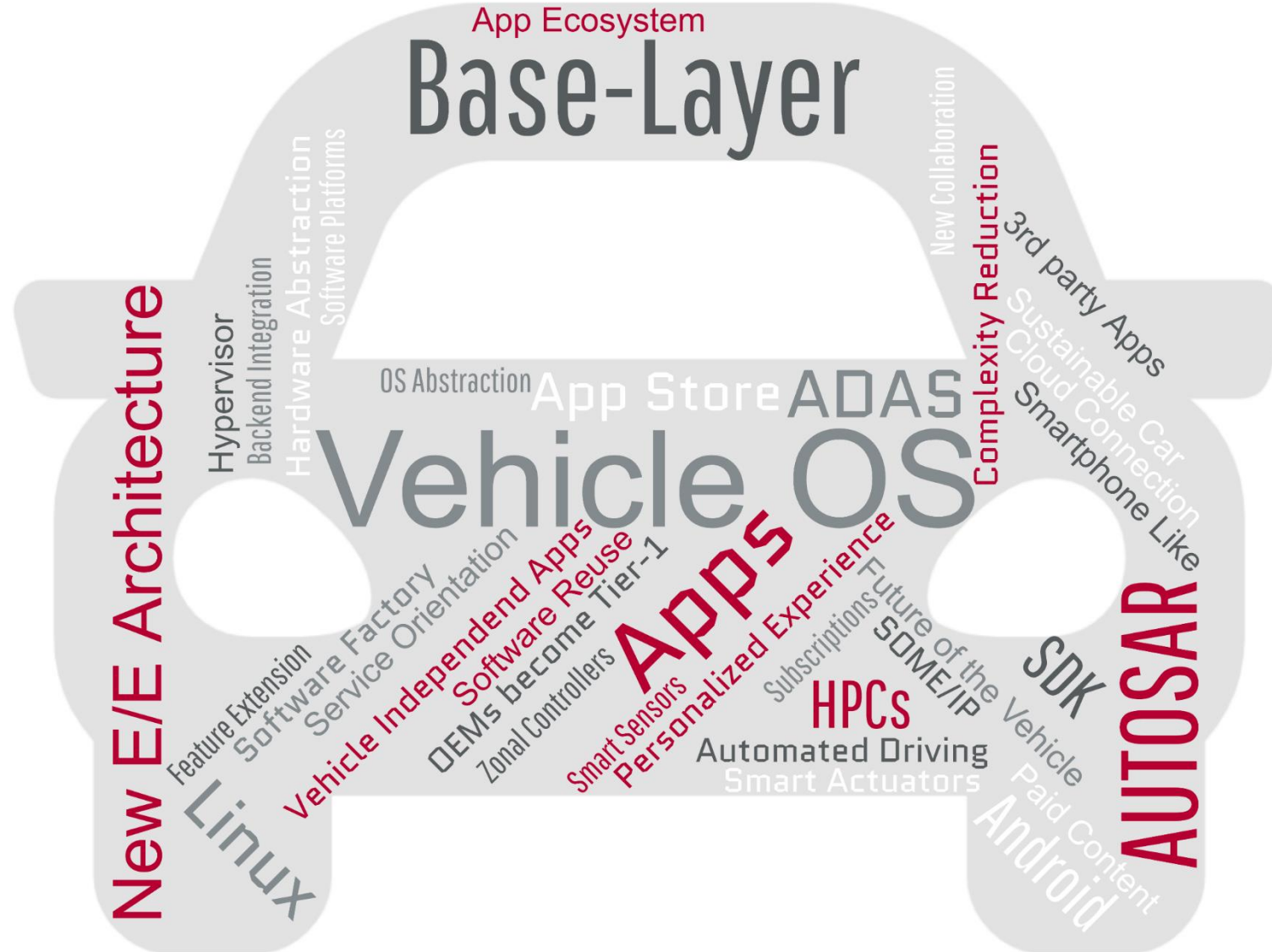networks: V2V, V2x

1990	2010	2020+

1 ECU ➜ 5 ECUs ➜ 25 ECUs ➜ 50 ECUs ➜ 100 ECUs ➜ **Less?**

Evolving E&E Architecture ➜ Functional Domains ➜ **Zonal Domains**

CAN ➜ MOST ➜ LIN ➜ FlexRay ➜ Eth/IP ➜ **SOME/IP**

4 bit ➜ 8 bit ➜ 16 bit ➜ 32 bit ➜ **Multi-Core**

What is a Software-Define Vehicle? Beyond the Buzzwords!

VECTOR >

What is a Software-Define Vehicle? Old Skool vs. New School

Traditional Vehicle

▶ **Business:** A model encouraging purchase of the latest model every few (~3) years

▶ **Ecosystem:** Single dimension value network from suppliers to end customer product (Component Supplier → Tier-2 → Tier-1 → OEM)

▶ **Architecture:** Deeply integrated E&E architecture optimised for minimal BOM cost. Focus on freezing at POS then "big-bang" release each MY

▶ **Processes:** Dictated by mechanical and infrastructure constraints. High effort on planning and predication to minimise later costs due to late changes and quality issues

▶ **Driver Features:** Locked in at design and delivered at production. Innovation delivered "off-the-line" via styling, power, look-and-feel

Software Defined Vehicle

▶ **Business:** Constant value delivery through new services; expectation of continuous improvement

▶ **Ecosystem:** Multi-dimensional business network with multiple avenues of revenue through further products, services, data and other assets

▶ **Architecture:** Modularised E&E architecture with redundancy for possible future use-cases and continuous evolution and release

▶ **Processes:** Fast feedback loops facilitated by continuous deployment and evaluating response (CI/CD, DevOps). Focus on experimentation (even in-field) and continuous learning

▶ **Driver Features:** Improved over the vehicle lifetime via OTA updates. Innovation via new features delivered to ADAS, Infotainment, Security etc.

Download the **AESIN** whitepaper @ https://aesin.org.uk/aesin-whitepaper-may-2023/

More Information!
Visit our Website for:
> Products
> Demo Software
> Support
> Workshops
> Contact Addresses

www.vector.com

Author:
Stephen Waldron
stephen.waldron@vector.com
Local Product Line Manager, Vector GB