Future Vehicle EE and Software Architecture (GENIVI 2018+)

Roadmap E/E architecture

Up to now
Future Vehicle EE and Software Architecture

Vehicle centralized E/E architecture
Derived Concept

Cross domain **Zone ECUs** as zone specific I/O masters which act as an neural network for central ECUs

**Cross Zone Communication**
High bandwidth communication with Ethernet backbone

**Vehicle Computer/Central ECUs** as central calculation units (brains) and information provider
Future Vehicle EE and Software Architecture

E/E Architecture is changing to centralization

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In-vehicle network config evolution

Now

2021~

2023~

Central Gateway Modular Architecture

In-vehicle Server Domain Architecture

In-vehicle Server Zone Architecture

HW Centralization

SW Centralization

• Large number of ECUs
• Secure communication
• CAN FD communication
• (CAN Matrix)

• Introduction of Domain Controller Units (DCU)
• Reduced number of ECUS
• Centralized high-speed ethernet communication
• Over-the-air update capability
• Secure gateway to the cloud

• Gigabit ethernet communication
• Software processing moving to zone server
• Higher integration for cost reduction
• Reduced harness weight

Simple EV system configuration leads to the evolution of the vehicle network