Efficient Implementation of Over-The-Air Applications

Vector Connectivity Symposium – Stuttgart, 2019-04-04
Automotive OTA – Use Cases

Software Update

Data Collection

Live Diagnostics
Automotive OTA – Success Factors

- Security & Privacy
- Robustness
- Efficiency
- Responsiveness
Automotive OTA – Security
Automotive OTA – Security
Automotive OTA – Backend Scalability
Automotive OTA – Complexity
Automotive Components – Reuse Reduces Test Effort
Domain Oriented Vehicle Network Topology

- Multiple Domain Controllers
- Functions assigned to distinct ECUs
- Embedded C-Code
- Static configuration at development time
Backbone Vehicle Network Topology

- Few High Performance Computing Platforms (HPC)
  - POSIX OS
- Functions centralized on HPC
- Middleware and applications developed in C++
- ECUs for Sensors and Actors
- Service Oriented Architecture
Reuse of Components and Data

Offboard Tooling

Sequences & Data

PC
- GUI
- Diagnostic Runtime

Portable Components

Common APIs

HPC (POSIX)
- Orchestrator
- Diagnostic Runtime

Vehicle

Connectivity Unit
Professional Development of Diagnostic Sequences

- Development of diagnostic sequences in C# using a professional IDE on PC
- Offering features like IntelliSense, Code Analyzers, Debugging, Unit Tests and Mocking Framework
- Automatic conversion to LUA
- Resource efficient interpreter for in-vehicle use
- Foundation is the VDS library that offers the same API on each platform with appropriate language bindings
OTA Framework – Architecture

Backend Platform

- Software Update
- Data Collection
- Live Diagnostics
- Customer Application

Vehicle Platform

Communication & Security API
OTA Framework – Architecture

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**Communication & Security API**
OTA Framework – Architecture

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Vehicle Platform
vConnect – The Automotive OTA Solution
We look forward to your OTA projects!