

Multi-ECU Over-the-Air Software Updates for Connected Vehicles



Increasing Dependency and Complexity

An increasing dependency on software, electronic control units (ECUs), and microprocessors to power modern vehicle systems and features—combined with the rising intricacy and complexity of managing software updates and data collection for millions of vehicles around the world—calls for an automotive grade combination of high performance telematics processors backed by a robust over-the-air (OTA) software and data management solution.

Efficient, Secure, Scalable Multi-ECU OTA Software Updates

Airbiquity® and STMicroelectronics (ST) joined forces to make this a reality by integrating Airbiquity's OTAmatic® software and data management offering into ST's Smart Gateway Platform Board (SGP) serving as a primary ECU/OTA gateway for efficient, secure, and scalable multi-ECU software updates and data collection. This demonstration highlights the interoperability between Airbiquity's cloud-based OTA service delivery capability and ST's combination of performance MPU (Telemaco3P) and scalable MCU (SPC58) supporting multiple embedded ECUs for a variety of automotive software update campaign scenarios, and automaker and automotive supplier OTA use cases.



OTA Software and Data Management

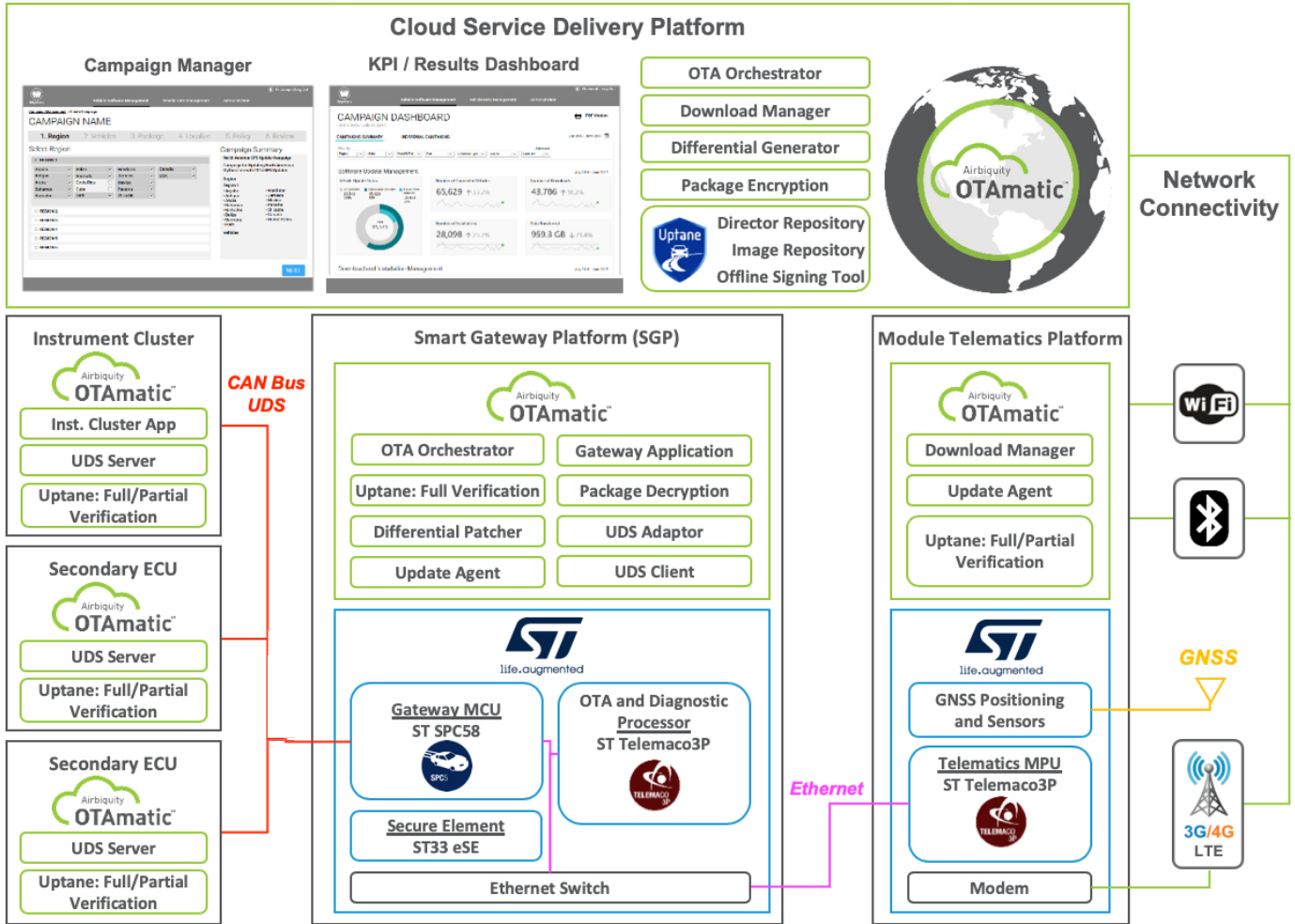
Airbiquity OTAmatic securely orchestrates and automates connected vehicle software update and data management campaigns from the cloud. OTAmatic provides a sophisticated back-end service delivery management capability with highly refined vehicle and device targeting, discrete policy and privacy controls, customizable consumer communications, and solution deployment option flexibility. OTAmatic also features an edge analytics framework supporting upgradeable data analytics modules and enhanced multi-layer cybersecurity protection via integration of the compromise-resilient Uptane Security Framework.

ST Smart Gateway Platform

ST SGP combines the strength of 2 families of automotive microcontrollers and microprocessors that support safety, strong security with eHSM, and qualified Automotive Grade 2 (-40/+105°C). ST's SPC58 scalable microcontrollers provide embedded RAM and NVM, high vehicle connectivity, and low power operations. Telemaco3P processors provide high bandwidth connectivity interfaces (ETH) and processing capability to handle wired and wireless data management and telematics. Telemaco3P processors also allow implementation of highly scalable systems throughout the wide variety of vehicle connectivity applications that require Linux and other Posix operating systems.



Airbiquity-ST Multi-ECU OTA Software Update Solution – Functional View –



- Single and Multi-ECU Software Updates
 - Unified Diagnostic Services (UDS) Updates for Secondary and Legacy ECUs
- Multiple Software Update Installations
 - ECU Firmware and Applications
 - Instrument Cluster HMI and Head Unit System
- Advanced OTA Software Update Orchestration
 - Preconditions, Priorities and Dependencies
 - Fault and Error Detection, Recovery and Rollback
- Standard-Based Security Integration
 - PKI, PSK, and TLS 1.2
 - Uptane-Based Security Design
- ST Smart Gateway Platform (SGP)
 - Primary ECU/OTA Gateway Controlling CAN, LIN, FlexRay, Ethernet
 - High Performance Security with Embedded eHSM
 - Functional Safety Support
 - Telemaco3P Linux Processor with Large Memory Support
 - Low Power SPC58 Microcontroller Running AutoSAR
- Customized Consumer Notifications
 - Head Unit and Smartphone Display HMI
- Back-End Service Management Portal
 - Step-by-Step Campaign Configuration Process
 - Separate Software and Data Management Campaign Tracks
- Comprehensive Campaign Reporting

For Additional Information



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Contact Your Local ST Representative
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