

Over-the-Air Software and Data Management with Upgradable Analytics

Increasing Dependency and Complexity

Connected vehicles are increasingly dependent on software, electronic control units (ECUs), sensors, microprocessors, and data analytics to power advanced driver assistance systems, vehicle-to-everything integrations, autonomous systems, and expanding services and monetization models. Combined with the rising intricacy and complexity of executing software update and data management campaigns for millions of vehicles simultaneously, automakers need a secure and highly scalable over-the-air (OTA) solution with dynamically upgradable data analytics and the flexibility to balance cloud and in-vehicle data processing.

Software, Data, and Analytics Management for the Future of Mobility

Airbiquity® and Arity are preparing for the future of mobility today by integrating Airbiquity's OTAmatic™ software and data management offering with Arity's driving behavior modules for secure and highly scalable multi-ECU software updates and data management supporting both cloud processing and in-vehicle "edge" data analytics. This demonstration highlights the interoperability between Airbiquity's cloud-based OTA service delivery capability and Arity's driving data analytics platform technology including the integration of Airbiquity back-end service delivery management and Arity driving data and analytics reporting portals.



Over-the-Air Software and Data Management

Airbiquity OTAmatic securely orchestrates and automates multi-ECU OTA campaigns with policy-driven dependency, rollback, and recovery; certification, authentication, and encryption; dynamic data collection and upgradable analytics; intelligent network selection, data caching, and transfer; customized consumer notifications, prompts, and consent; and campaign creation, approval, reporting, and administration. OTAmatic can also be deployed via Airbiquity's Choreo™ cloud, public clouds, or on-premise data centers to best meet automaker and supplier management, security, and business needs.



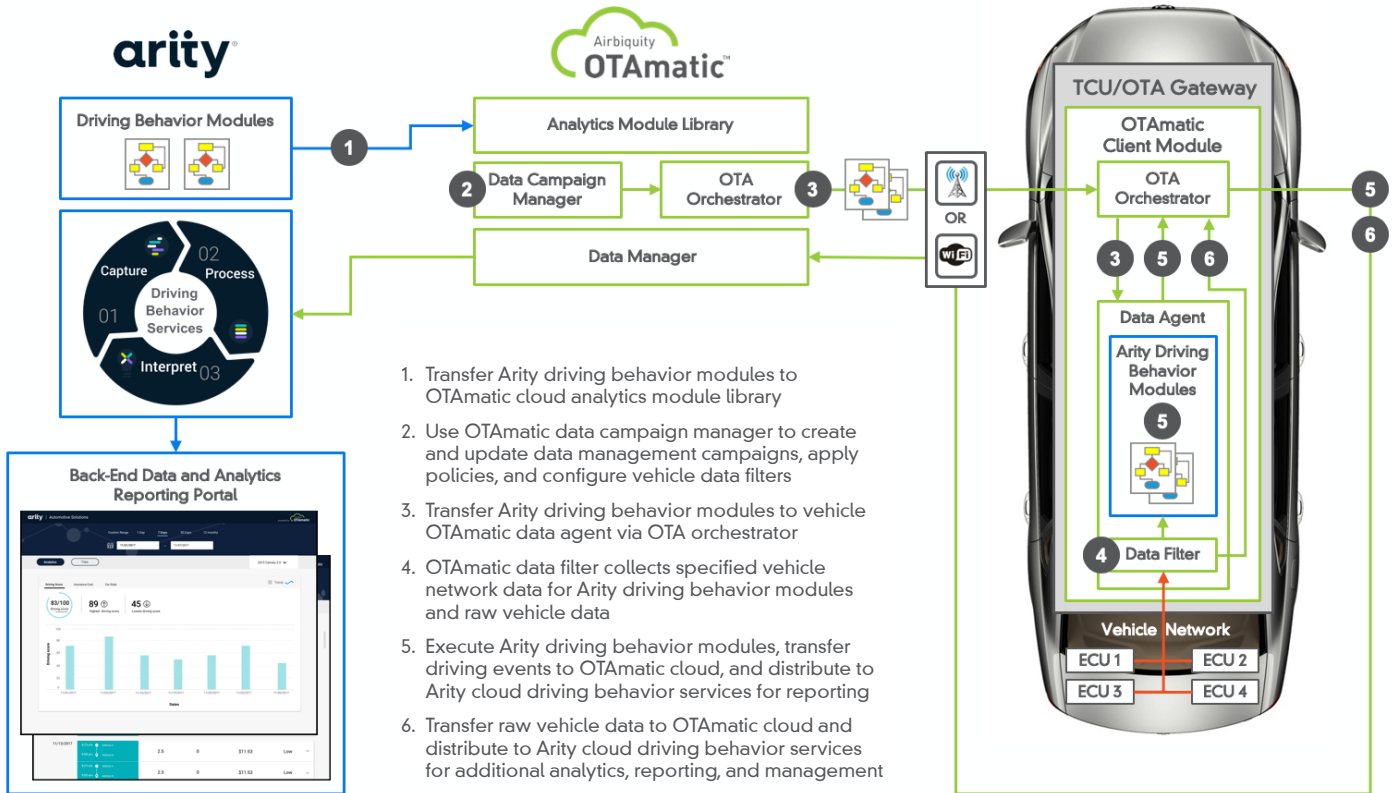
Predictive Analytics and Transportation Solutions

Arity's driving behavior modules provide driver, vehicle, and contextual analytics for a variety of use cases, including usage based insurance, driving behavior, accident prediction, shared mobility analytics, and many others. Arity makes transportation smarter, safer, and more useful by collecting and analyzing massive amounts of data to help partners better predict risk and understand how people move. By balancing edge analytics and cloud processing, Arity is able to capture, process and draw actionable insights from the vehicle in real-time without overburdening data transmission volumes.



Airbiquity OTA Software and Data Management with Arity Upgradable Analytics Demonstrator

Airbiquity OTA Software and Data Management with Arity Upgradable Analytics — Functional View —



- Single and Multi-ECU Software Updates
 - Unified Diagnostic Services (UDS) Updates for Secondary and Legacy ECUs
- Multiple Software Update Installations
 - Firmware, System, Application, and HMI
- Dynamic and Flexible Data Management Framework
 - Definable Collection: Frequency, Triggers, Logs, DTCs
 - Multiple Bus Support: CAN, Ethernet, MOST, FlexRay
 - Upgradeable In-Vehicle Edge Analytics
 - Data Transfer from Car to Cloud to Analytic Resources
- Advanced OTA Software Update Orchestration
 - Pre-Conditions, Priorities, and Dependencies
 - Fault and Error Detection, Recovery and Rollback
- Campaign Specific Consumer Notifications
 - In-Vehicle Displays and Smartphone Application HMI
- Back-End Service Management Portal
 - Step-by-Step Campaign Configuration Process

- Arity Driving Behavior Modules
 - Vehicle CAN Bus Data Processing
 - Real-Time Driving Event Detection
 - Driving Data Packaging for Transmission
- Arity Automotive Solutions Web Portal
 - Driving Scores
 - Estimated Insurance Costs
 - Vehicle Driving Statistics
 - Individual Trip Insights
 - Road Risk Level of Trips
- Defense In-Depth Security Approach
 - Standards-Based Certification, Authentication, and Encryption: PKI, PSK, TLS 1.2
 - Compromise-Resilient Uptane Software Security System
- Comprehensive Campaign Reporting
 - Summary and Campaign Specific Results
 - Analytics Module Performance Metrics

For Additional Information

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arity

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