Wind River Edge Sync

Delivering Comprehensive Software, Firmware, and Data Management Technologies

Wind River® Edge Sync is a robust over-the-air (OTA) update and software lifecycle management solution that enables original equipment manufacturers (OEMs) to securely and remotely maintain the integrity of embedded systems and apply performance and feature enhancements, while collecting critical data across the entire lifecycle of the vehicle, both pre- and postproduction.

HIGH-LEVEL FUNCTIONAL ARCHITECTURE

Edge Sync's modular architecture enables customers to deploy each component independently or as an end-to-end solution.
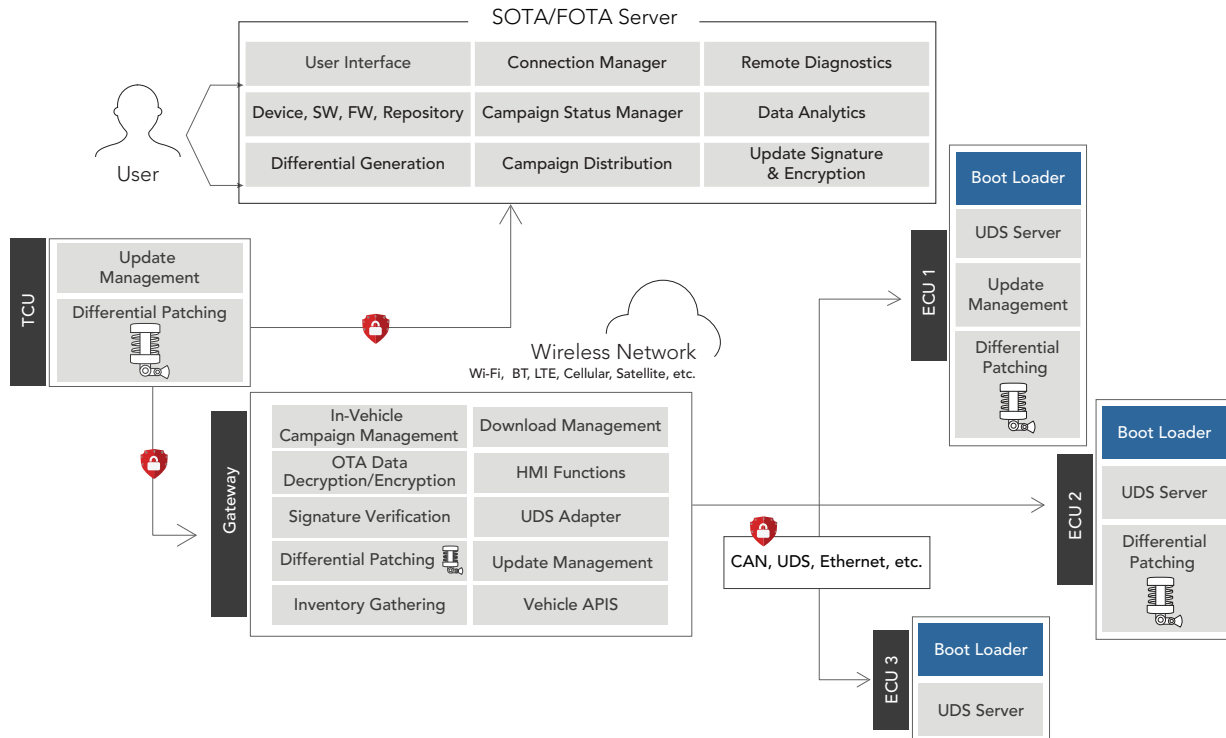

Figure 1. One of many ways an OEM can integrate and deploy the Edge Sync solution as part of an end-to-end OTA update and security strategy

THE EDGE SYNC ADVANTAGE

Edge Sync offers several key benefits:

- **Suitable for automotive**
  - Optimized to run in resource-constrained environments
  - Supports multi-ECU dependency and version management
  - Supports pause and resume, rollback and recovery

- **Easy integration and modular design**
  - Offers exposed REST APIs to enable easy integration with OEM proprietary infrastructure or third-party connected applications
  - Includes update agents designed to interoperate with OEM proprietary or third-party technologies

- **Flexibility**
  - Provides support for multiple in-vehicle and cloud-to-car protocols
  - Supports public cloud, private cloud, and on-premise deployments

- **Customizable campaign management parameters**
  - Designed to accommodate auto-specific use cases (scheduling and prioritization of updates, preconditions, etc.)

  - Provides intelligent network selection, data caching, and transfer
  - Includes customized consumer notifications, prompts, and consent

- **Edge Sync differential generation and update**
  - Supports A/B updates, patching in place, and patch streaming
  - Reduces the time and complexity needed for testing in the factory before production deployment

- **End-to-end security**
  - Features standards-based certification, authentication, and encryption

- **Optimization for resource-constrained environments**
  - Provides low memory–footprint update agents for in-vehicle update processing, patching, data collection, and reporting

CORE FUNCTIONALITY
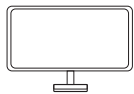
Sophisticated back-end management portal, enabling OEMs to efficiently execute multi-ECU software update and data campaigns at scale, with highly refined vehicle and device targeting, discrete policy and privacy control, and consumer alerts

Collection and reporting of the full repository of all hardware and software part numbers, associated versions, and dependencies within remotely managed vehicles

Proprietary differential system for the creation and application of differential updates, enabling quick patch time and low-memory footprint
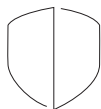
Preconfigured security features to ensure integrity, confidentiality, availability, and authenticity through the updates process

Highly portable operating system— and hardware-agnostic in-vehicle clients for the download, verification, and installation of updates, providing flexibility to best suit the memory availability and update requirements of the target device

Constant system monitoring, plus collection and reporting of critical vehicle and update data