Showcase

F: Connected Vehicle Cloud based on oneM2M platform

oneM2M Showcase, 2014-12-09
Source: Ericsson

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ERICSSON

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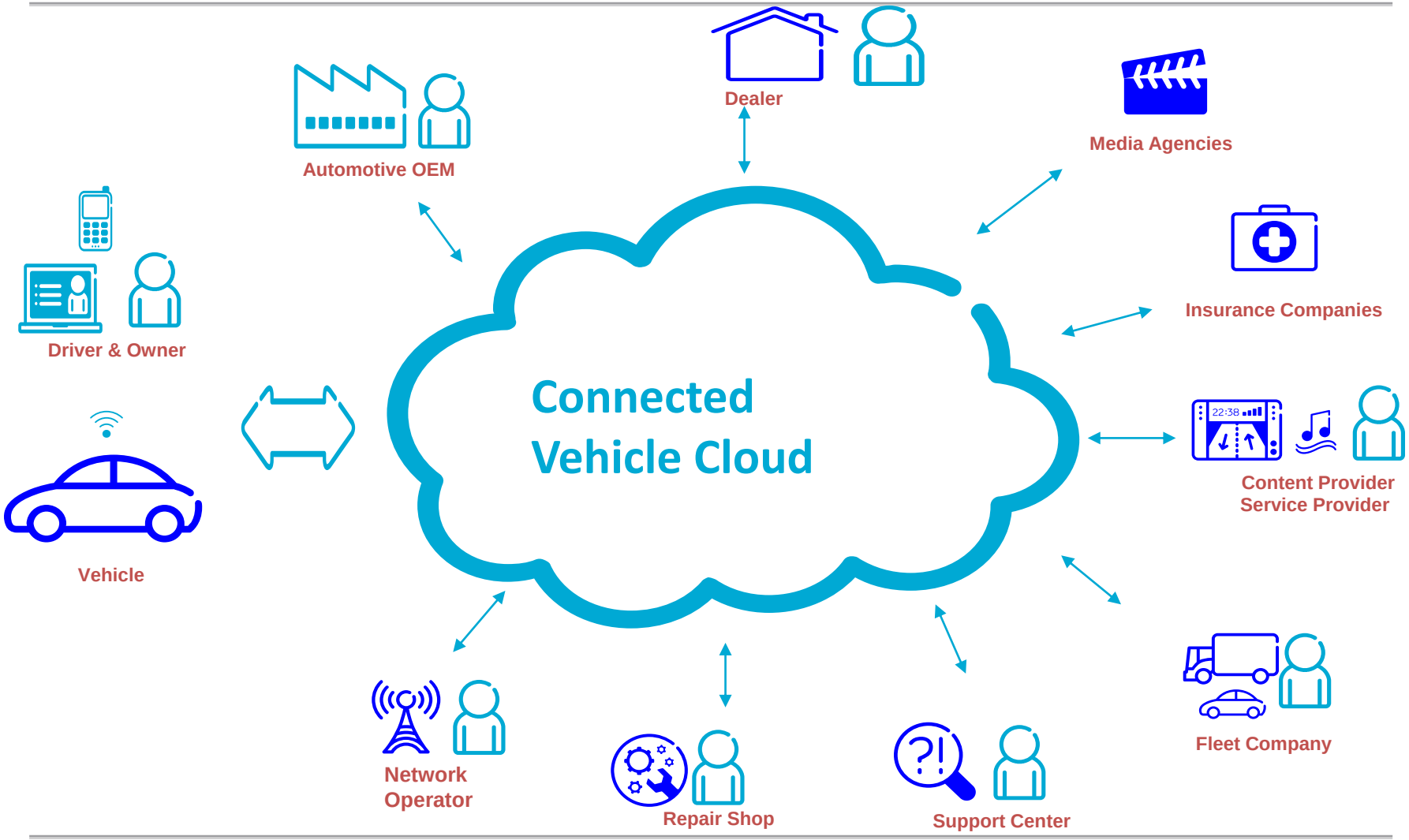
Connected Vehicle Cloud



Issues and Challenges

- In order to take advantage of the opportunities of the Connected Vehicles the Automotive OEM needs to overcome a number of technical challenges. Some of these are:
  - Managing protocol complexity
  - Continuous evolution of services and capabilities
  - Remotely manage and upgrade vehicle firmware

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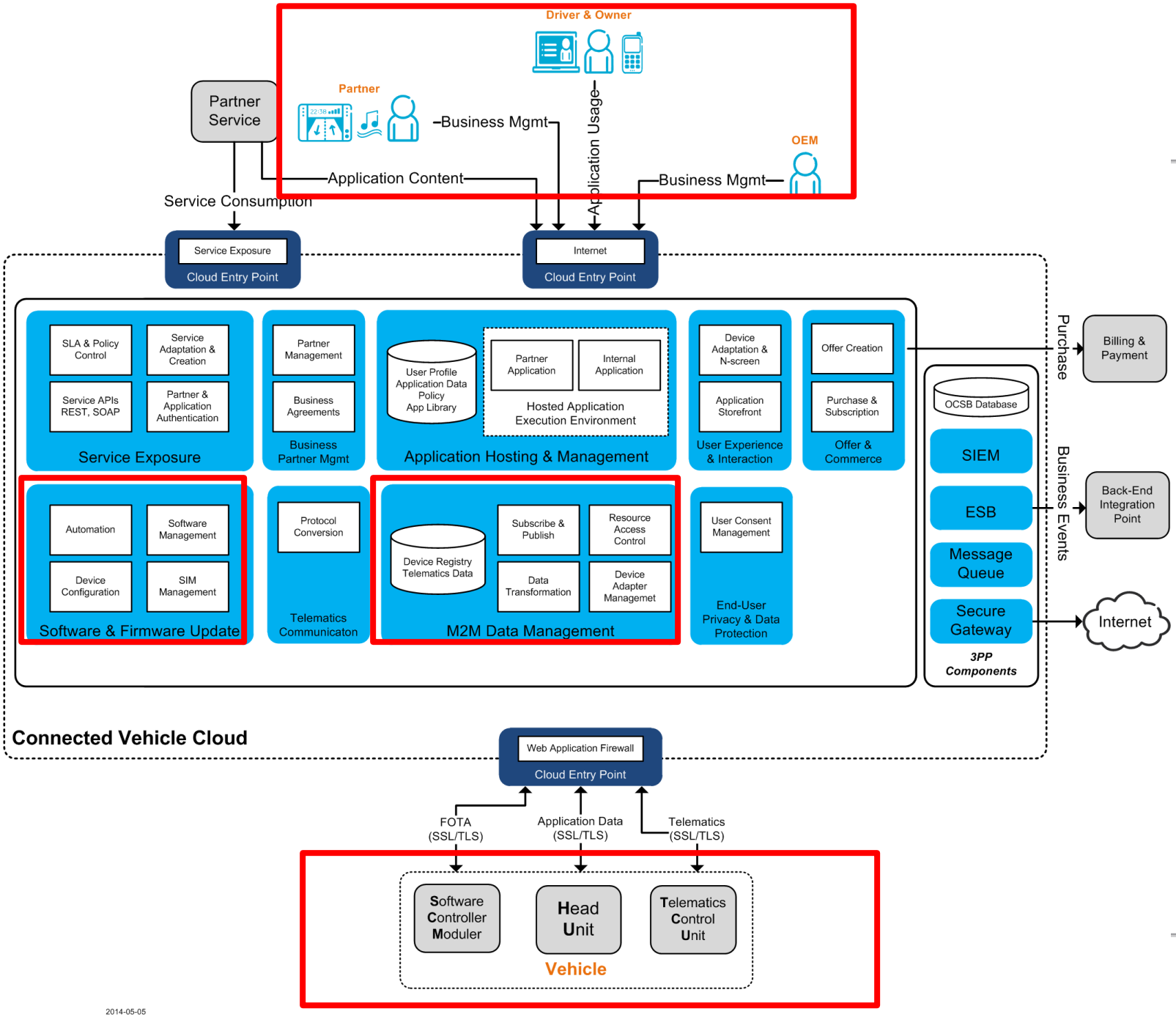
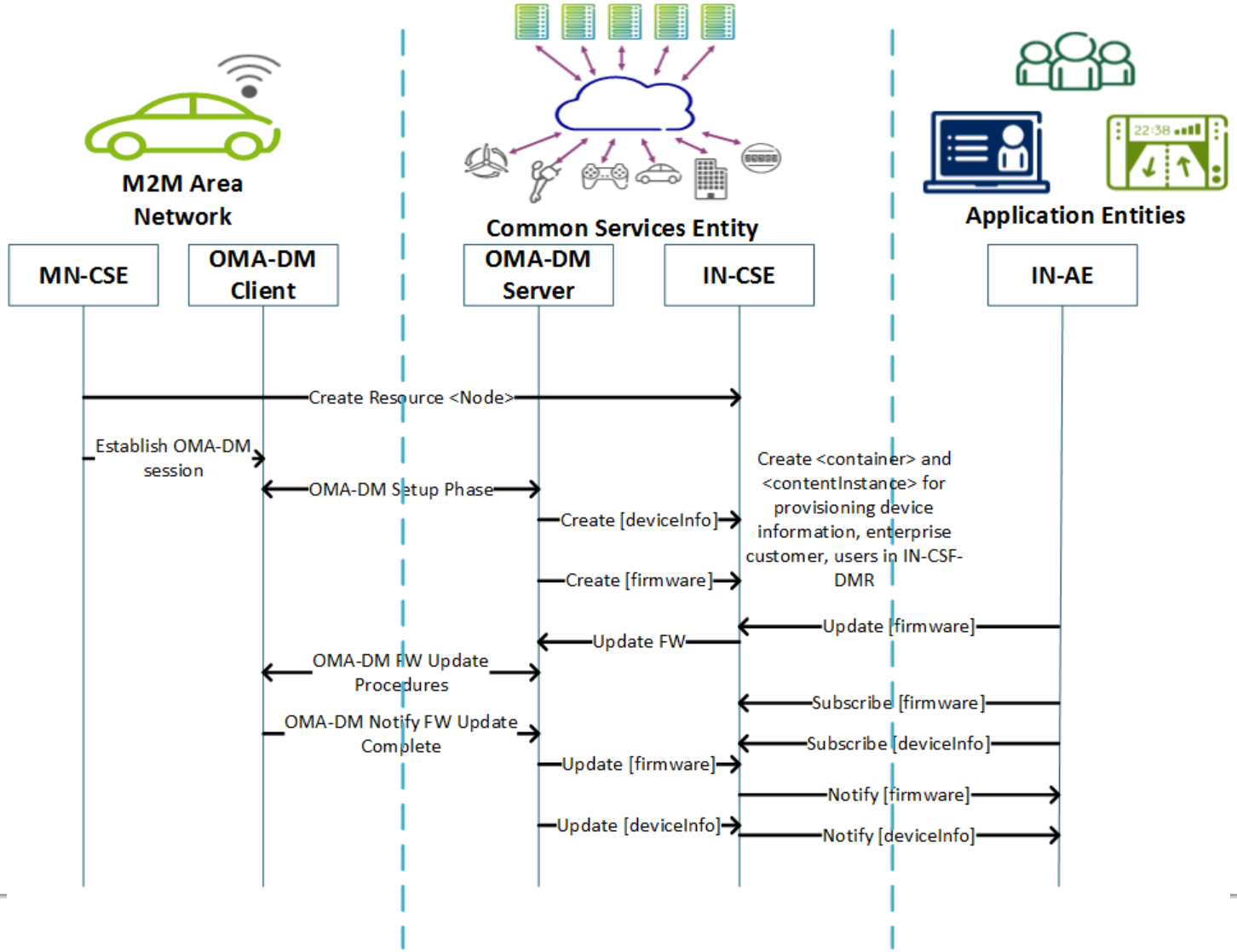

Driver & Owner
Partner
Partner Service
Business Mgmt
Application Usage
OEM
Application Content
Business Mgmt
Service Consumption
Service Exposure
Cloud Entry Point
Internet
Cloud Entry Point
SLA & Policy Control
Service Adaptation & Creation
Service APIs REST, SOAP
Partner & Application Authentication
Service Exposure
Partner Management
Business Agreements
Business Partner Mgmt
User Profile Application Data Policy App Library
Partner Application
Internal Application
Hosted Application Execution Environment
Application Hosting & Management
Device Adaptation & N-screen
Application Storefront
User Experience & Interaction
Offer Creation
Purchase & Subscription
Offer & Commerce
Purchase
Billing & Payment
OCSB Database
SIEM
ESB
Message Queue
Secure Gateway
3PP Components
Business Events
Back-End Integration Point
Internet
Automation
Software Management
Device Configuration
SIM Management
Software & Firmware Update
Protocol Conversion
Telematics Communicaton
Device Registry Telematics Data
Subscribe & Publish
Resource Access Control
Data Transformation
Device Adapter Managemet
M2M Data Management
User Consent Management
End-User Privacy & Data Protection
Connected Vehicle Cloud
Web Application Firewall
Cloud Entry Point
FOTA (SSL/TLS)
Application Data (SSL/TLS)
Telematics (SSL/TLS)
Software Controller Moduler
Head Unit
Telematics Control Unit
Vehicle

Sample Flow


M2M Area Network
Common Services Entity
Application Entities
MN-CSE
OMA-DM Client
OMA-DM Server
IN-CSE
IN-AE
Create Resource <Node>
Establish OMA-DM session
OMA-DM Setup Phase
Create [deviceInfo]
Create [firmware]
Create <container> and <contentInstance> for provisioning device information, enterprise customer, users in IN-CSF-DMR
Update [firmware]
Update FW
OMA-DM FW Update Procedures
Subscribe [firmware]
OMA-DM Notify FW Update Complete
Subscribe [deviceInfo]
Update [firmware]
Notify [firmware]
Update [deviceInfo]
Notify [deviceInfo]

How oneM2M addresses issues

- oneM2M addresses much of the complexity and provides scalable future proof solution.
  - RESTful interfaces, focus on minimizing the payload
  - Support for Device Management mappings: OMA-DM, TR-069 and LWM2M
  - Support for multiple bindings: HTTP, CoAP and MQTT
  - Definition of Reference Points, Resources and Attributes allows easy integration and inter-operability

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Connected Vehicle Cloud Demo

- In this demo we show examples of:
  - Device Management capabilities (Firmware Over-The-Air)
  - Data Management & Repository capabilities
  - Device Management and Data Management & Repository capabilities interworking

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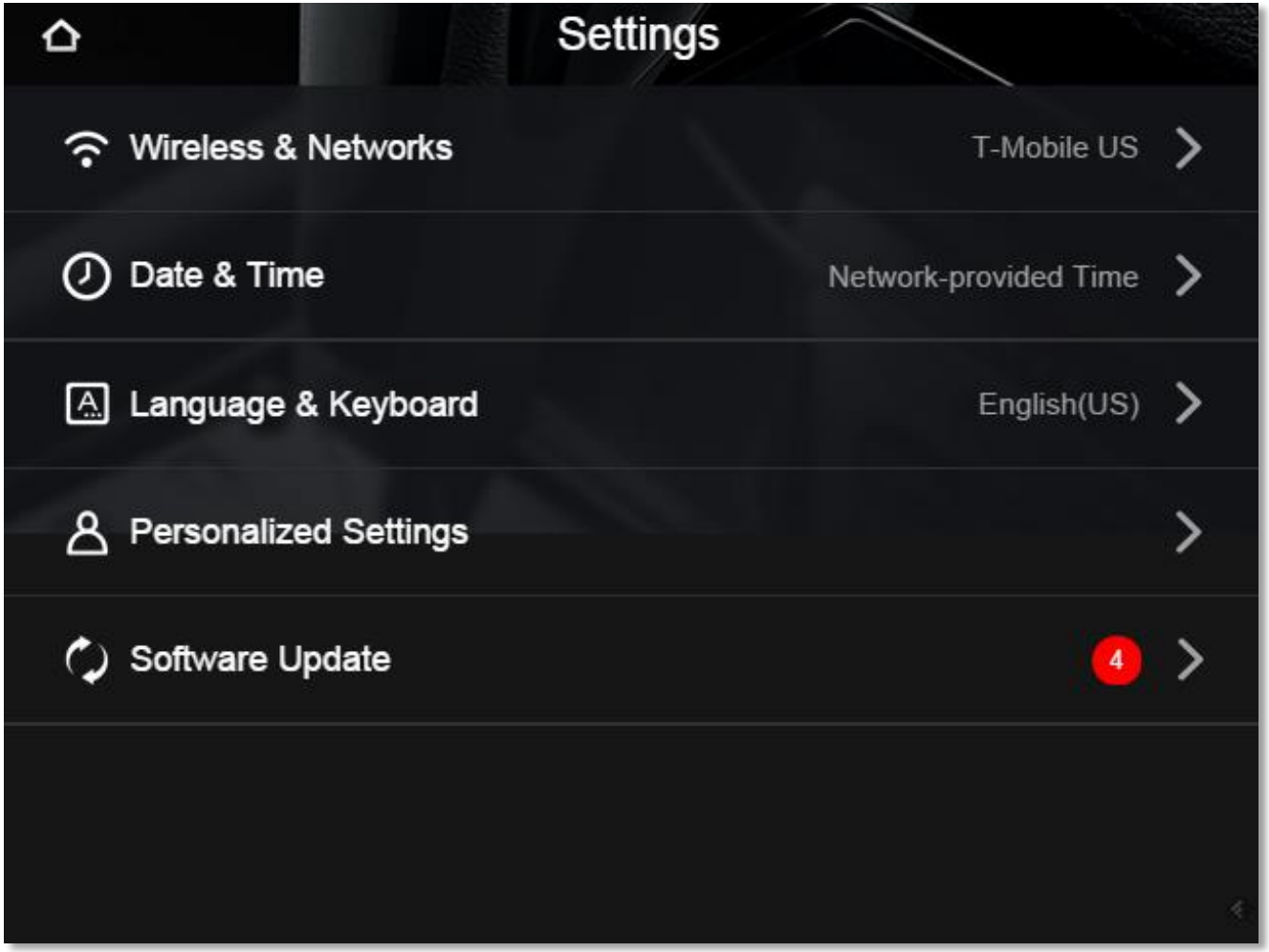
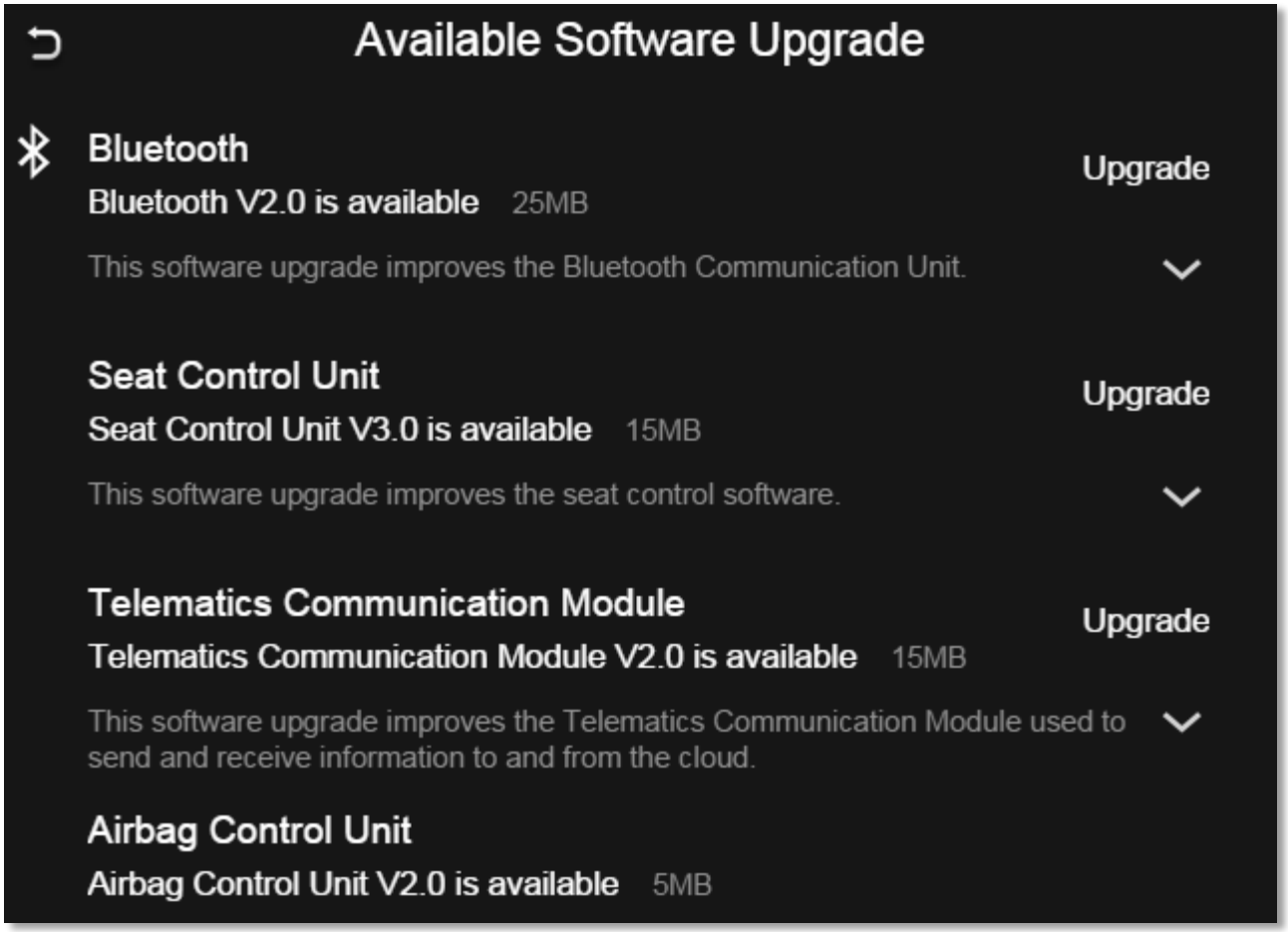
Update Notification on App

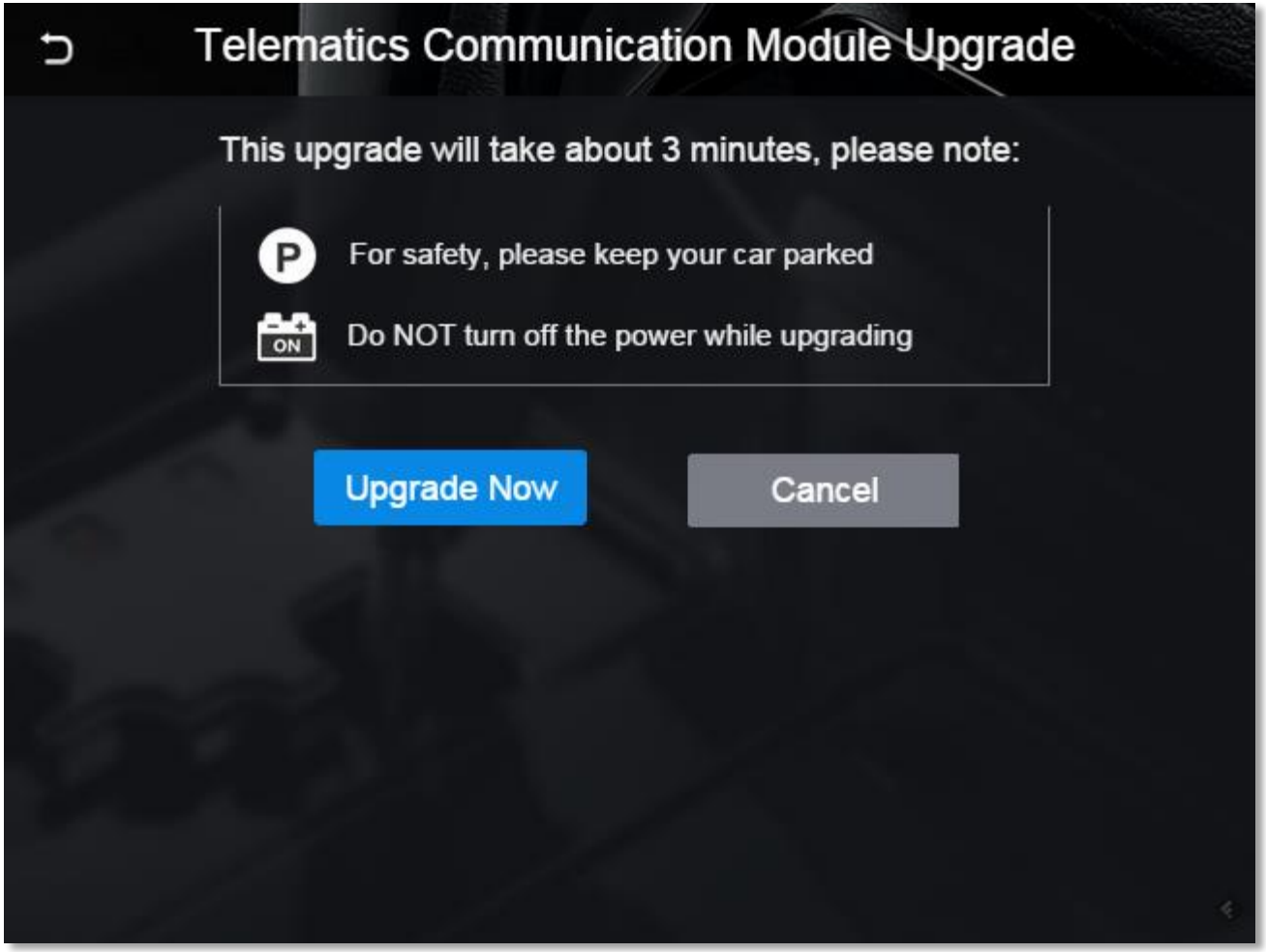
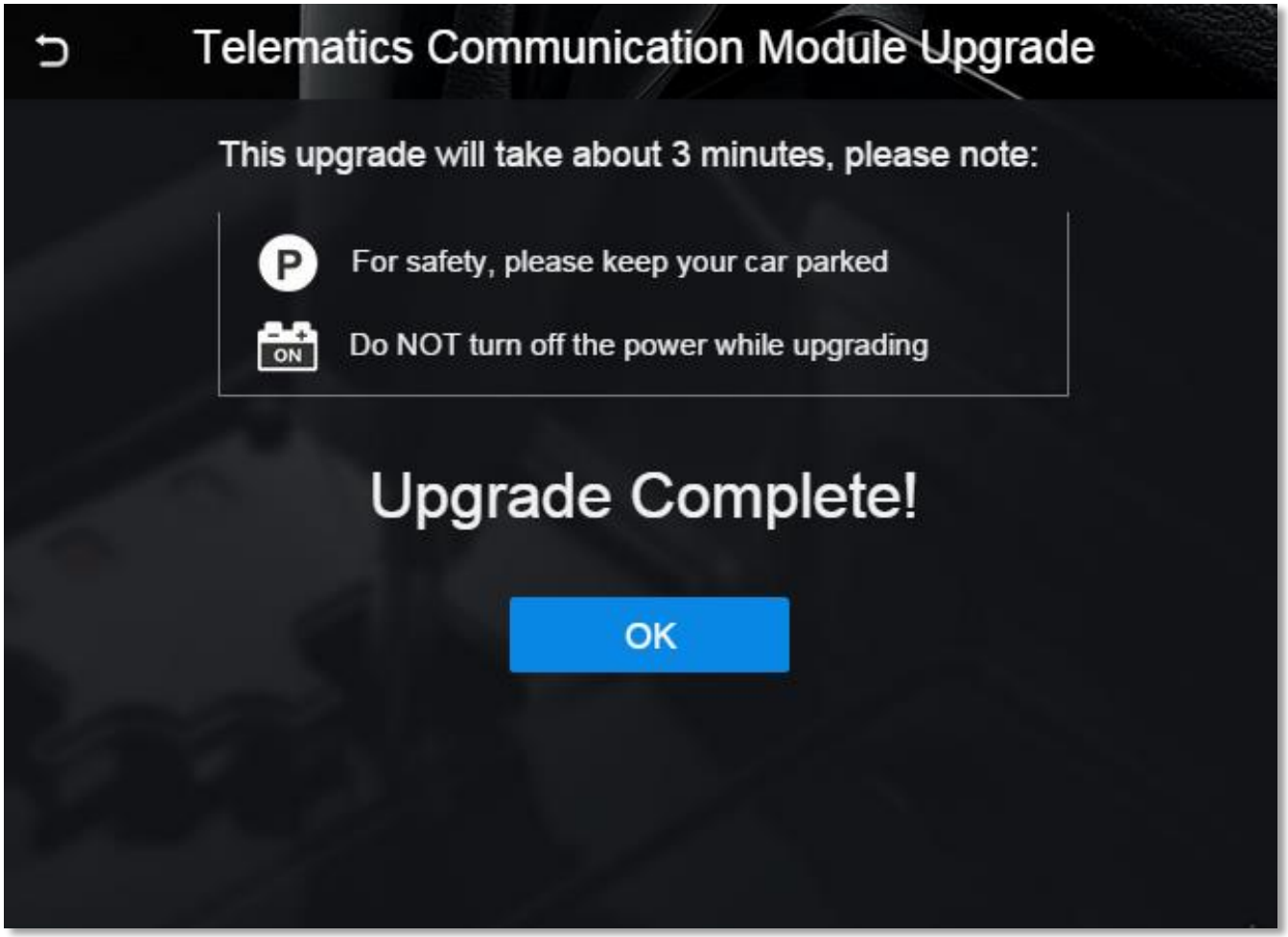
Software updates available



Available software upgrade



Telematics Comm. Upgrade



Telematics Comm. Upgrade