AUTOMOTIVE IN OCF – OUR VISION & GOAL

June 29th 2016

Open Connectivity Foundation
Anti-trust Confidentiality Reminder

• This is a reminder that all Open Connectivity Foundation ("OCF") activities are subject to compliance with the Antitrust Compliance Policy for Open Connectivity Foundation (the “Policy”). Each individual participant and attendee at this meeting is responsible for complying with the Policy. Copies of the Policy are available within the Workgroup portal, or if applicable, may be immediately emailed to anyone in this meeting.

• Additionally, this is a reminder that all discussions and disclosures at this meeting are subject to the Confidentiality provisions of the OCF’s Bylaws.
# Agenda

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<thead>
<tr>
<th>Topic</th>
<th>Owner</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Introduction to OCF &amp; the need for automotive project</td>
<td>Moonki Hong (Samsung)</td>
<td>15 mins</td>
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<tr>
<td>Remove Vehicle Interaction (RVI) &amp; OCF-RVI bridge</td>
<td>JLR + Samsung</td>
<td>40 mins</td>
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<td>Data Model Mapping discussion</td>
<td>Michael Koster (SmartThings)</td>
<td>20 mins</td>
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<td>W3C Automotive</td>
<td>Paul Boyes (W3C)</td>
<td>20 mins</td>
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<td>OM Auto Incubator</td>
<td>Joel Hoffmann (OMA)</td>
<td>20 mins</td>
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<tr>
<td>Perspectives on vehicle developer community</td>
<td>Vinli</td>
<td>20 mins</td>
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<tr>
<td>JLR Automotive Incubator</td>
<td>JLR (TBD)</td>
<td>20 mins</td>
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**Demos**

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<th>Demo</th>
<th>Owner</th>
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<tr>
<td>SmartHome + Connected Vehicle</td>
<td>JLR + Samsung</td>
<td>30 – 40 mins</td>
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<td>OCF on Vinli devices</td>
<td>Vinli</td>
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<tr>
<td>W3C Automotive demo</td>
<td>W3C</td>
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INTRODUCTION TO OCF & THE NEED FOR AUTOMOTIVE PROJECT
Moonki Hong
Samsung Electronics
• Connected Vehicle is the next frontier for Automotive business.
  • Significant topic of CES 2016
    • http://www.cepro.com/article/control4_demos_smart_home_app_for_the_connected_car_at_ces_2016
    • http://www.ecommercetimes.com/story/82919.html
    • https://vimeo.com/150722672
    • http://www.slideshare.net/5throck/connected-car-smart-home-based-on-iot
  • Desired Features
    • Secure Personal Device Control / Secure Access to Vehicle Controls & Data
    • Driving assistance / Diagnostics & Maintenance
  • Dominated by Proprietary solutions ➔ Lack of standards is hurting innovation and adoption

Automotive will be a great potential domain for OCF in terms of business as well as technology, since one of the key promises of OCF is to guarantee the cross-platform/domain interoperability in enabling IoT.
The Open Interconnect Consortium (OCF) defines a common communication framework that connects and intelligently manages the flow of information among devices to address the emerging needs of the Internet of Things.

Regardless of form factor, operating system, vertical market, manufacturer or service provider.

Based on industry standard technologies.

OCF certifies products for interoperability and compliance with the OCF specifications.

OCF sponsors the IoTivity Project, an open source reference implementation of the OCF framework.

OCF promotes the goal of broad interoperability via collaboration with other organisations and standards.
Comms Framework - Simple IoT Layers Model

Applications & Services

Profiles, Data & Resource Models

Comms Protocols

Transports

What to talk about and how to describe it (which words in what order - grammar & spelling)

Language (French, Chinese, English)

Method of Communication (Letter, Phone, E-Mail)

Data & Control Points

Profiles, Data & Resource Models

Comms Protocols

Transports
## Current Consumer Radio-Based Standards

### Applications & Services
- Data & Control Points
- Profiles, Data & Resource Models

### Comms Protocols
- Wi-Fi
- Bluetooth® Low Energy
- BLE
- 802.15.4

### Transports
- IP
- 6LoWPAN

### Standards
- ZigBee
- Thread

**Note:**
- IP = 6LoWPAN
OCF Comms Framework

- Native OCF
- Translation Model

Applications & Services
Data & Control Points

OCF Comms Framework
(Single Resource & Data Model)

IP
Wi-Fi
BLE
802.15.4
Thread
Bluetooth Low Energy
Z-Wave
ZigBee

Applications & Services
Data & Control Points

OCF Comms Framework
(Single Resource & Data Model)

IP
Wi-Fi
BLE
802.15.4
Thread
Bluetooth Low Energy
Z-Wave
ZigBee

Translation Layers

Extensible

Bluetooth Low Energy
Z-Wave
ZigBee

802.15.4
OCF & IoTivity Structure

Board of Directors
- Core Tech. Work Group (Spec)
- Certification Work Group
- Open Source Work Group
- Strategy / Marketing / Etc...

Vertical Project

IoTivity Steering Group
- Projects
- Functions

Innovative coordination - Specs & Open Source ready simultaneously,
Time to market approach - Vertical Project harmonizing to all

Sponsored (funded) by OCF
Develops reference implementation of the OCF specification
OCF Automotive Project - Mission Statement

- OCF Automotive Project is launched to achieve this goal through...
  - Mining valid use cases
  - Representing promising demos
  - Delivering interoperable automotive specification and certification program
  - Releasing regarding IoTivity open source implementation
  - Recruiting more automotive industry players into OCF membership
  - Collaborating with existing standards bodies

- What does OCF Automotive Project not intend to do?
  - Avoid to only be trapped to define automotive data model that will be isolated (not interoperable and not adopted) from the existing automotive players’ technology/business

- Why is OCF the right place for this project?
  - OCF guarantees cross-domain/platform interoperability, so we make much bigger synergy not only in automotive, but also in combination with a variety of verticals, e.g. smarthome, healthcare, and industrial.
Use Case Example #1 (Vehicle from/to Smart Home)

- Control Smart Home devices from Vehicle Dashboard.
  - Control Vehicle parameters from Smart Home Devices.

- Trigger notifications on devices on certain events
  - Vehicle unlocked, location triggers, Point of Interest triggers

- Scene implementations
  - Vehicle arrives - smart home devices change state to be ready.
  - Vehicle leaves - smart home devices change state to save power.

- Vehicle customization based on user.
  - User wears an OCF wearable device and vehicle sets HVAC, audio accordingly

- Location based use cases
  - Start vehicle and set navigation to office route every weekday morning at 8 am
  - Start vehicle and set navigation to home route every weekday evening at 7 pm
  - Notifications when vehicle crosses a Geofence.
Vehicle to Smart home Interactions (via Home Gateway)

- HVAC
- Navigation
- Door Lock
- OCFGateway
- OCF Gateway
- OCF Translator
- OCF Wearable
- Window / Water Leak sensor
- TV
- Cleaner Robot
- Bulb
Vehicle to Smart home Interactions (via Gateway in the Cloud)

Private Cloud

OCF Gateway
Vehicle - OCF Translator
In Cloud

HVAC

Door Lock

Navigation

OCF Wearable

Window / Water Leak sensor

TV

Cleaner Robot

Bulb
Vehicle to Smart home Interactions (via OCF in Vehicle)
Use Case Examples #2 (with Web Services)

- Multiple vehicle management for big families or a neighborhood.

Contextual Vehicle Service

- Computes which vehicle is best suited for the ride.
- Location and fuel status.
- Weather for the destination.
- Tap to OCF Service.
- Request the contextually meaningful vehicle to serve you.
Use Case Examples #3

- Fleet management console for Car Sharing / Ride sharing services

Integrated Fleet Management
Mini Taxi Fleet / Large Family
Deliverable (Tentative)

- ~10 feasible use cases not only in automotive, but also a harmonization with different verticals
- Automotive promotion with products-based demos at the upcoming CES ’17 and others
- OCF Core / Security specification satisfying requirements gathered from automotive industry
- OCF Automotive data model release at oneIoTa
- IoTivity code release contributed by IoTivity Automotive Project
- OCF Certification Program for automotive
- +30 Automotive regarding membership recruitment
Demo 1: SmartHome + Connected Vehicle

Jaguar Land Rover, Samsung Electronics
Demo Topology

HVAC

Navigation

DoorLock

RVI

IO Tivity

OCF Gateway

Gear S2 app

Window / Water Leak sensor

TV

Bulb