Technical challenges for Connected Car Services

By leaving of a use-case, we will clear 6 technical domains to explain the stakes which we have to raise to connect our Product to the world of the Connected Services

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IoT & CVMP - Connected Vehicle Modular Platform
A simple UX provide through a complex end-to-end journey

The use case « I start my car with my smartphone »

1. I open my application
   I authenticate myself

2. I request the opening in one swipe

3. I wait

4. I enter in my car and I start
An first technical overview

1. MyMarque App
   - Customer ID

2. Connectivity & Firewall
   - Send of the order

3. Cybersecurity & Repositories:
   - Check ID, Rights, Services/Vehicles/Customer
   - Execution of the order
     + Customer Context
     Download (SDK + TCU + HeadUnit + BSI)

4. Virtual Car
   - "The Copy/Past of my car in real time"
   - Scheduler / Actuator
   - Publication of the order of opening

5. Connectivity
   - Send of the order

6. Data Storage & Monitoring
   - Records, traceability

7. Execution of the order
   + Customer Context
   Download (SDK + TCU + HeadUnit + BSI)
A simple UX provide through a complex end-to-end journey

Here is a more complete end-to-end Journey

The brand DS deploys a new service in a country for the new DS N°3

CRM application
authentication financial flow
compatibly assistance
activation information

A Customer purchase this service, for his leased car and chooses to pay per month

The customer’s spouse also used the service

authenticiation CRM+
compatibly application assistance

A customer’s friend ask to use the car just for one day

The customer changed bank without making the follow-up

Deactivating ?

After 2 years, the leasing period is ended. The car is sold in North Africa

Help ....
An IoT Automotive functional overview
IoT Automotive linked to a world of services

From an IoT Automotive functional overview ....
To a IoT Automotive technical platform

To Download a software update file (Head Unit, Module, ECU)

To Send/Receive information coming from vehicles - Identify workflow

To Create, Manage SDK, Framework, Frame Work,

To Secure communications Create and manage certificates, keys, an update

To Create, Manage SDK, Framework, Frame Work,

To Share the onboard connection, Data to our clients, our partners

To Develop an application, on portal, mobile

To Return Data to our clients, our partners

To Maintain a portal, an application, an IHM

To Control The use of Data, the services access

To Collect, Refine, Stock Data in our Data Factory

To Publish APIs, Web Services Develop links for IS

To Sell, pay, bill Online payment, stores, B2B

To Identify Presenting offers, Directory Services, Vehicle Compatibility/Services

To Count Traceability, log, analyze, monitored

To Authenticate clients, things, guarantee the traceability
IoT Automotive linked to a world of services

**Connectivity - OTA**
- **To Connect** The Car to the Cloud + Customer Devices, partners
- **To Share** the onboard connection
- **To Send/Receive** information coming from vehicles - Identify workflow
- **To Secure** communications Create and manage certificates, keys, an update
- **To Download** a software update file (Head Unit, Module, ECU)

**Software & Application**
- **To Create and Manage** SDK, Framework, Frame Work,
- **To Develop** an application, on portal, mobile
- **To Return** Data to our clients, our partners
- **To Qualify, Host**
- **To Maintain** a portal, an application, an IHM

**Big Data Factory**
- **To Collect, Refine, Stock** Data in our Data Factory
- **To Control** The use of Data, Services
- **To Publish** APIs, Web Services Develop links for IS

**Repositories**
- **To Activate/Deactivate** Onboard modules (headlight, klaxon, doors, ECU), Services
- **To Sell, pay, bill** Online payment, stores, B2B
- **To Manage/Assist** our clients Assistance tools and call center
- **To Authenticate** clients, things, guarantee the traceability Access to an embedded module
- **To Identify** Presenting offers, Directory Services, Vehicle Compatibility/Services
- **To Count** Traceability, log, analyze, monitored

**Virtual Vehicle**
- **To Collect**
- **To Refine**
- **To Stock**

**Cyber Security**
### IoT Automotive linked to a world of services

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Big Data Factory</strong></td>
<td>Production line to refine, normalize, standardize, publish the data collected for each car</td>
</tr>
<tr>
<td><strong>Repositories</strong></td>
<td>Data base reference for all modules, devices, and services per car subscribes for each customer</td>
</tr>
<tr>
<td><strong>Connectivity – OTA Up Grade</strong></td>
<td>Protocols, Modem, eUICC, OTA, Device Management, Awakening solution</td>
</tr>
<tr>
<td><strong>Software &amp; Application</strong></td>
<td>Protocols, Software Development Kit, API to reach the car in read or write, all module include the Head Unit</td>
</tr>
<tr>
<td><strong>Cyber Security</strong></td>
<td>All the rules / protocols / mechanisms for authentication of customers, module, file, application, flow, event, fully qualified, tested, monitor by PSA</td>
</tr>
<tr>
<td><strong>Virtual Vehicle</strong></td>
<td>Virtual representation of the customer vehicle, stored in real time in the IoT Automotive platform with its options and its services</td>
</tr>
</tbody>
</table>
IoT Automotive linked to a world of services

Should Genivi widen it’s scope and build IoT Automotive Standards?