New Automotive Applications, Services and Use Cases Enabled by the OSGi Service Platform

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OSGi In the Automotive Arena – Why?

- Market view
- Infotainment / Telematics Products - Lifecycle Issue
- Need and Benefit of Reuse of Applications
- Flexibility – Preconfiguration of in car devices
- Telematics Use Cases enabled by OSGi
- Transfer of applications between domains
- Connecting to a consumer world – Seamless Mobility
- Standardization - GST
Market View

- Low Standards/Regulations
- End-Customer acceptance: High
- Weak
- Connected Markets
- NICHE MARKETS
- REGULATED MARKETS
- Established
- Standards/Regulations

OSGi Alliance

Motorola
intelligence everywhere
Infotainment / Telematics Products

- Integration of Sub-components:
- Cellular network access devices (GSM, CDMA, UMTS, WCDMA ...)
- Bluetooth
- Wireless LAN (802.11)
- GPS

These components are driven by the consumer market!
Life Cycle / Roadmap

Automotive Life Cycle

Dev. ~3y → Product life cycle > 5y → Product maint. > 5y

versus

Mobile Phone / Consumer Product Life Cycle

Gen 1 → Gen 2 → Gen 3
Why is Re-use essential in Telematics?

- Infotainment / Telematics devices need more frequent update than other in car devices → shorter life cycle
- Reuse of Applications is essential in order to reduce development cost
- Applications can be used on tiered devices
Flexibility:
Preconfiguration of in-car Devices

• Telematics services are different per region → Local flavour of services
• Service Provider acting locally
• Customer signs up for services after the car got shipped to the dealer
• Load the car with services on demand of the customer (aftersales business)

OSGi allows downloading / removing of services in a secure manner
Remote Diagnostics

Why is there a demand?

- Increasing Amount of SW in the car
- Increasing Problems in the field
- Increasing Complexity of electronic devices
- Faster innovation cycles
Remote Diagnostics

1. Send Breakdown message to the server
2. Download test SW to the client device
3. Run Test Scenarios on the client device
4. Return test results to the server
5. Send SW update to the client device in the car
Off-board Navigation: VIAMOTO™

1. Destination Request
2. Route Planning
3. Preferences

- Destination
- Origin
- Preferences

- POIs
- Roads
- Traffic
- Prefs

4. Tiered Delivery to Device(s)
5. Delivery to Consumer

- Directions
- Waypoints
Offboard Navigation – VIAMOTO™

VIAMOTO move to the TCU
Remote Access to the Car

- Open / Close the doors
- Close the sunroof
- Close the windows
- Activate heating
- Activate air ventilation
- Turn lights/indicators on (car finder)
- Background data synchronization (addressbook, calendar,...)
- Route download

The in-car unit needs to be prepared for future applications
Seamless Mobility

Connecting the Mobile Phone

Get into your car and automatically connect the mobile phone to the car via Bluetooth

- Continue your phone call in handsfree mode
- Synchronize your addressbook with the car HMI
- Synchronize messages
Consumer Device Connectivity

• Flexibility needed in terms of covering different wireless technologies
  – Bluetooth
  – WLAN (802.11)

• Compatibility to a huge number of devices

• Needs to be open for new applications like
  – MP3 download
  – Audio streaming
Why Connect Consumer Devices?

I wish my mobile phone could turn on the lights in my home.

I wish my car could talk to the nearest gas station.

I wish my alarm clock could talk to my car.

I wish my mobile phone could talk to my home thermostat.

I wish my mobile phone could talk to my home phone.

I wish my home phone could talk to my mobile phone.

I wish my TV/DVD could talk to the video rental store.

I wish my PC could talk to my home theater or car stereo.

I wish my mobile phone could locate other active phones in the network, much like the way IM works.

I wish my home security camera could talk to my mobile phone.
Global System for Telematics (GST)

- **Easy market access**
- **Open Telematics Market**
- **Easy service access**

- Low barriers for market entry
- Broad service spectrum for user selection

Service Provider

Service Provider

Service Provider

Service User

Service User

Service User
Global System for Telematics (GST)

- Openness is key for the project – based on Java/OSGi
- Open for different bearers (P2P, Broadcast)
- Service contest planned
- Will consider the certification aspect
- Covers security issues
- Works out Rescue and Safety Channel Applications
- Specifies Payment and Billing mechanism
Thank You