Enhanced OSGi remote management

The centrepiece of an open telematics service provisioning chain

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Outline

- Telematics
- An OSGi-based approach for an open telematics market
- 3GT: enabling interoperability in telematics service delivery
- The 3GT implementation at the Munich test site
- Pushing the boundaries of OSGi Remote Management
- Field trials and interoperability testing
- Conclusions
What is Telematics?

- Telcos: Teleservice as opposed to bearer service
- Commonly: Telematics = Automotive Telematics
- Historically:
  - Voice amplified by some lightweight signalling and information transfer protocol
  - Examples: GATS, ACP
- Recently complemented by WAP and other online services
- Consumer not always the immediate end-point (cf. diagnostics)
- Evolving hybrid service delivery, i.e. involving both, on-board and off-board components

Services delivered to the mobile user with specific focus on, or particular added value in an automobile environment.
What is wrong with Telematics?

- First generation telematics:
  - Hardware-based dedicated single-service solutions
  - Standalone, vertically integrated units
  - Redundant designs, no synergies
  - (Almost) no standardization

- Second generation telematics:
  - Partial standardization, especially on the signalling protocol
  - Services tightly coupled with information transfer protocol
  - Standards suffering from low acceptance and penetration
  - Still high degree of proprietary system solutions
  - Closed, embedded in-vehicle platforms

While there clearly is a market for telematics, its potential remains limited due to lack of openness.
Creating an open market

Ease of Market Access

Avoid unduly high barriers of market entry

Freedom of choice in service consumption
Service Aggregator – the central role

Seeks to deliver services to all users

Defines „rules“:
- Entry of Service Providers
- Entry of Service Users
- Contractual/Legal
- Financial/Invoicing/Billing
- Cf. Telco Model

Seeks personalized service selection
Fragmentation in an evolving telematics value web

Open technical standards are absolutely critical.
Telematics: current market situation

Per-OEM vertical implementation.
Telematics Horizontal Market Evolution.

Further standardization will foster interoperability among 1st tier suppliers.
An OSGi-based approach for open telematics

Service Centers

Service Provisioning

Service Application Deployment

User Register

Software Repository

Service Application Deployment

Remote Management

OSGi Terminal

User

Service Provisioning

Service Execution

Service Consumption
3GT: ensuring interoperability for the delivery chain
3GT: in-vehicle service gateway personalization
Implementing 3GT: the Munich test site

3GT members:

BMW  ATX  Vodafone

Site contributors:

ProSyst  SECARTIS  softlab
3GT: extending OSGi Remote Management

- **BMW Control Centre**
  - Initial Provisioning
  - Remote Management

- **OEM Terminal**
  - Login
  - Service Discovery
  - Service Subscription
  - Application Install

- **BMW Terminal**
  - AAA, incl. Login
  - Service Discovery
  - Service Subscription
  - Application Sync’ing
  - Personal Token Mgmt.
  - User Profile Mgmt.

- **Other Control Centre**
  - Login
  - Service Discovery
  - Service Subscription
  - Application Install

- **Interface I2**

Switch CC
BMW: software distribution beyond 3GT
3GT Munich Site: prototype vehicles

Open architecture:

- Java and OSGi R2 with InitialProvisioning
- Integration into vehicle dashboard
- High usability through iDrive controller
- Secure personalization through token-based authentication and Multimedia Card storage
- Based on X5 vehicle platform
- Integrated into several other vehicles (7series, 5series, Mini)
3GT exemplary Use Case.
Subscribing to a navigation service.
3GT Field trials and interoperability experience
Conclusions

- Telematics still faces considerable horizontal market challenges and OSGi is a key enabling technology to address them.
- OSGi Remote Management is at the core of an end-to-end service delivery chain.
- 3GT has defined critical interfaces to ensure interoperability:
  - Deployment and provisioning of Service Applications
  - Remote user session (login) and Service Gateway personalization
  - Subscription and service object management
- 3GT specifications proven through extensive field trials.
- The 3GT Munich test site has extended the concepts with security, advanced personalization, vehicle management, and electronic payment features.

3GT results and specification available to OSGi to be considered for standardization.
Questions?