Building Global Telematics System by using OSGi
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• Why does GST need OSGi?
Introduction to GST – The project

- (G)lobal (S)ystems for (T)elematics – integrated project from the EC's 6FP (DG INFSO)
- http://www.gstproject.org/
- Coordinated by Ertico
- GST Partners: car manufacturers, 1st tier (terminal) suppliers, system integrators, middleware developers network operators, insurance companies, public authorities, etc.
Introduction to GST – Project mission

• Mission - to create an environment in which innovative telematics services can be developed and delivered cost effectively and hence to increase the range of economic telematics services available to manufacturers and consumers.

• Philosophy - Open Systems are preferred to proprietary ones. Specifically, telematics platforms should conform to a set of openly available interface specifications in order to create a thriving market for telematics applications.
Introduction to GST – Project vision

 Ease of Market Access

 Service Provider

 Service Provider

 Service Provider

 Ease of Market Access

 Open Telematics Market

 End User

 End User

 End User

 Avoid unduly high barriers of market entry

 Freedom of choice in service consumption
Introduction to GST – Project structure

- Open Systems
- Security
- S-Pay
- Certecs
- Safety channel
- Rescue
- EFCD (Electronic Floating Point Data)
Results WP2 – GST Decomposition

GST System

Operational System
- Content Centre
- Service Centre
- Control Centre

Realization System
- Development Centre
- Certification Centre
- Client Device
Results WP2 – GST Context

Operational System

Vehicle
Communication Infrastructure
End User
Content Centre User
Control Centre User
Trust Centre/Certificate Provider
Service Centre User
Public Service Access Point
User Credential Manager

Realization System

Existing Standards and Specifications
Service Developer
Equipment Manufacturer
Vehicle Manufacturer
Certification Authority
Stakeholder Organisation
Test Laboratory

The world in which the system Operates

The world in which the system is Created

The commercial environment in which the system exists

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WP2 Results – Use cases (examples)

- Service Deployment
- Service Fulfilment
- Check for Resources
- Service Provisioning
- Authentication
- Service Payment
- End-User Authentication
- Service Platform Authentication
- Client System Discovery
- Service Certification

- Content Delivery
- Client System Management
- Service Development
- User Log-in
- Application Download
- Control Centre Discovery
- Authorization
- User Authorization
- Platform Authorization
- Service Authorization
WP2 Results – Requirement groups

- Service Deployment
- Client System Management
- Service Fulfilment
- Content Delivery
- Data Handling
- Billing and Payment
- Development

- Certification
- Security
- Communications
- Off-line Operations
- Performance and Scalability
- User Interface
- General
WP2 Results - Service deployment (Reqs.)

- The Control Centre should be able to offer services from multiple Service Centres at the same time
- A Service Centre should be able to deploy a service application on any GST compliant Control Centre
- Standard packaging format for service deployment should be defined
- A Service must be registered in the Control Centre, identified, and managed separately from an application implementing it
WP2 Results - Client system management (Reqs.)

- Any GST-compliant vehicle shall be able to connect to any GST-compliant Control Centre and use services from there
- Standard interface/protocol for discovery and registration of a Client System in a Control Centre
- Diagnostics of the Client System must be supported
- Life-cycle management of the Service Applications must be supported
- The Client System must be remotely manageable
WP2 Results - Service fulfilment (Reqs.)

- The Service Platform must keep information about the current version of all installed Service Applications and System Modules.
- The Service Platform must provide a way for describing the dependencies between the Service Applications.
- Downloading services on the Client System over various interfaces (e.g. over-the-air like WiFi, GPRS, Bluetooth or over USB, CD, DVD etc).
- Vehicle and user profiles must be supported.
- Matching the available resources of the Client System against the application’s requirements.
WP2 Results – General (Reqs.)

• The End-User shall be able to configure via external devices service applications installed on the Client System.
• Persistence Service for user data storage must be available
• Transaction mechanisms for the critical operations
• Update of the Service Platform must be supported
• The Client System must support multiple users
GST and OSGi – the need of open standards

- The goal of GST is to define an open environment for the delivery of telematics services
- This openness can be achieved by specifying:
  - Protocols, data structures and packaging formats
  - Abstract interfaces
  - Concrete interfaces / component models
GST and OSGi – the need of specified component model

- Simplifies the development and reduces the costs
- Provides better compatibility of the modules
- Reduces the redundancy of the code
- Uses the resources of the client devices efficiently
- OSGi is the most appropriate component model available today