OSGi Vehicle Expert Group – Eindhoven
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Business Fields PTV AG

PTV AG

Traffic

Mobility

Logistics
Technical Context

PTV Scalable Map Architecture
> geographical representation of street networks and maps
> PTV is member of the Physical Storage Initiative (PS-I)
  > automotive, navigation system developers, map data providers
  > Goal: define physical standard format (PSF) for navigation system maps

PTV RoadRunner
> C++ component system for (mobile) geographical information systems
> platform independent

PTV Mobile Client Framework
> OSGi based framework for Mobile Applications
PTV Scalable Map Architecture (SMA)

Two Base principles

Geographical partitioning
Tiling

Logical partitioning –
Leveling and Layering
MCF (OSGi based) and NaviPlatform Components (C++)

NaviPlatform demonstrator application (based on MCF)

- Geocoding Module
- Map Matching Module
- Positioning Module
- Guidance Module
- Routing Module
- SMA GeoAccess Module
- SMA Map-on-Demand Module
- SMA GeoDataBase
- Map Rendering Module
- Traffic Advice Module
- Speed Advice Module
- Toll Advice Module
- POI Advice Module

MCF low level modules (GPS, mobile network, ...)

Integration unit (software library)
Integration point (API)
Mobile Client Framework – MCF Construction Kit

Application
- TourAssistant
- SpeedAdvice
- GST
- ...

Modules
- TourManagement
- SpeedAdvice
- Navigation
- EFCD
- ...

Components
- Log
- Messaging
- Update
- Persistence
- Scanning
- UI
- Communication
- Authentication
- MDM
- Imaging
- Locating
- ...

Services
- WireAdmin
- HttpService
- StartLevel
- Position
- Measurement
- DeviceAccess
- Preferences
- UserAdmin
- PackageAdmin
- PermissionAdmin
- ConfigurationAdmin
- ...

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OSGi in PTVs Commercial Products

> Tour Assistant
  > mobile client for transport management
  > application for mobile job processing
  > synchronization of tours between the headquarter and the mobile devices
  > new orders can be dynamically sent to the mobile suppliers

> Map Matcher
  > development of a map matcher for toll collecting use cases
OSGi in EU-funded Research Projects I

> SpeedAdvice
  > Provisioning of quality assured road data.
  > Our work: architecture and RI (using OSGi / MCF)
  > Consortium: 10 companies

> GST / EFCD
  > The EFCD framework allows generating traffic related messages (by using an in-vehicle sensor interface) and sending them cost-efficiently to e.g. a service centre.
  > Our work: architecture and RI
  > Role: sub-project leader for EFCD
  > Consortium: > 50 companies
OSGi in EU-funded Research Projects II

> ASK-IT
  > The ASK-IT user will have access to relevant information primarily for travelling. One of our user groups are disabled people.
  > Our work: Locating and User Guidance (using OSGi / MCF)
  > Role: sub-project leader for „Tools for all“
  > Consortium: > 40 companies

> FeedMAP
  > Feasibility study of map data feedback (detection of invalid map data) by using a standardized mechanism for delivering incremental map updates.
  > Our work: architecture and RI (using OSGi / EFCD)
  > Consortium: 12 companies

> CVIS
  > Increase of quality and reliability of information available to the drivers about their immediate environment, the other vehicles and road users, improving driving conditions.
  > Consortium: 60 companies
PTVs Service Developments for OSGi

> Locating Engine
  > JSR179 integration for OSGi
  > support of different location sources (GPS / DGPS, EGNOS, MOTES, ...)

> MapMatching Engine
  > for toll collect related applications and navigation systems

> Webservice Support
  > kSOAP based webservice framework
  > AXIS based webservice framework (Jabba for UML / MDA)

> Communication Manager
  > for switching between different communication channels

> Persistence – Service
  > database integration (using JDO with transactions)

> UI – Service
  > for the integration of new SWT-based applications
PTV – first class transportation.
PTVs Know-How in OSGi

> Hardware Platforms
  > PDAs, OBUs / Car PCs, Desktop PCs

> Operating Systems
  > Windows / CE, (Embedded) Linux, QNX

> Java Runtime Environments
  > Sun VM, IBM J9 (for embedded usage)

> OSGi Runtime Environments
  > Knopflerfish (MCF bases on KF)
  > ProSyst mBedded Server (OSGi R3)
  > IBM SMF (OSGi R3)
  > (Oscar and Equinox)

> Current used OSGi Release: R3 (going to R4)
  > We are also tracking the work made in the JSR232 and JSR291