

Introduction to Telematics

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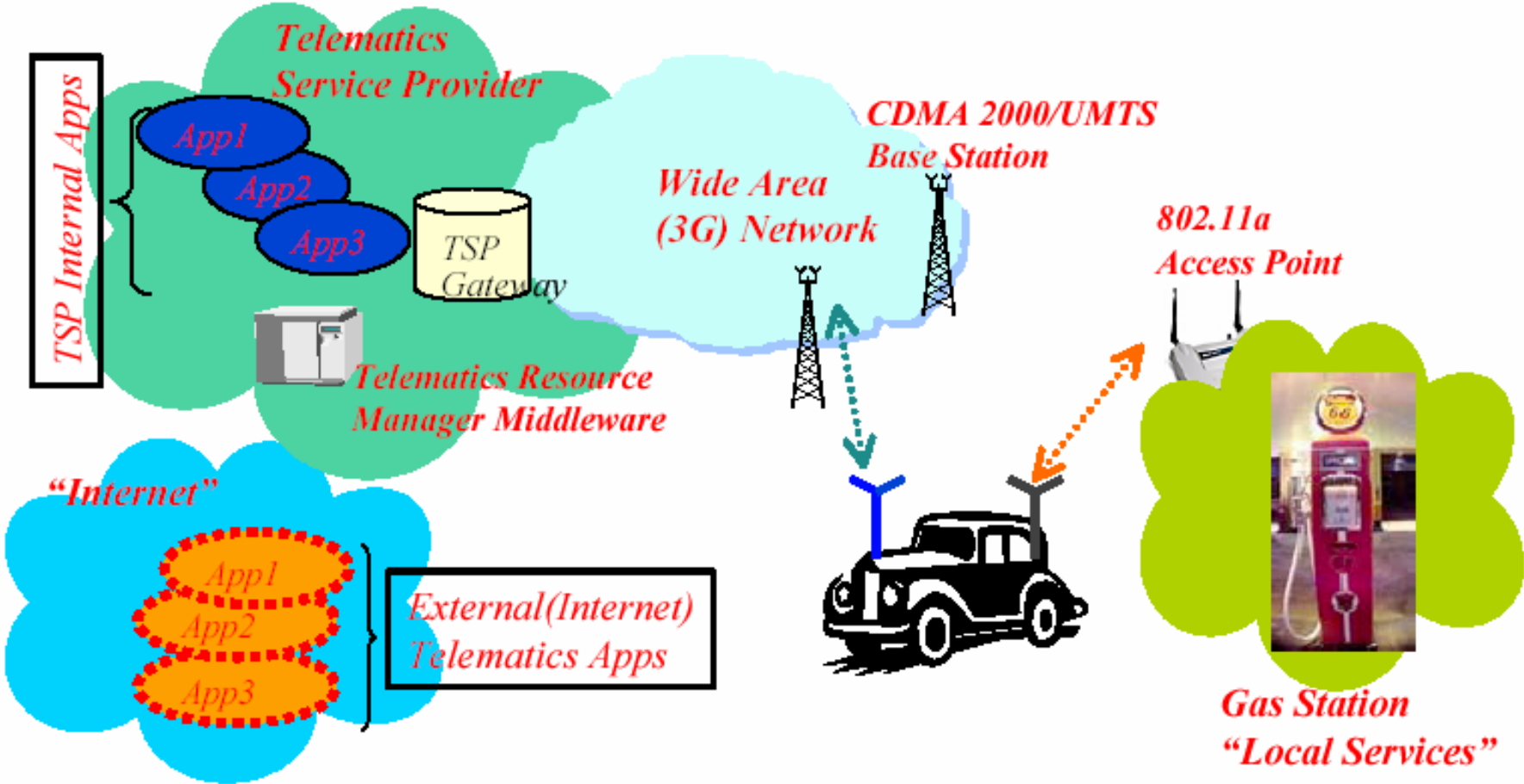
Outline

- What is Telematics?
- Architecture
- Services
- Technologies
- Market
- Case study
- Research Issues

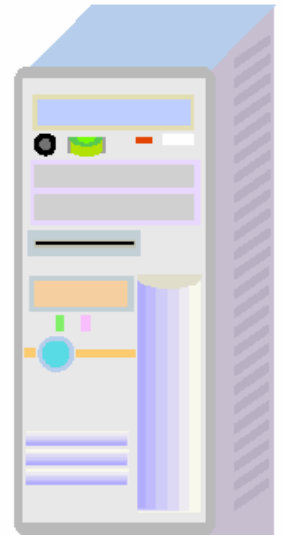
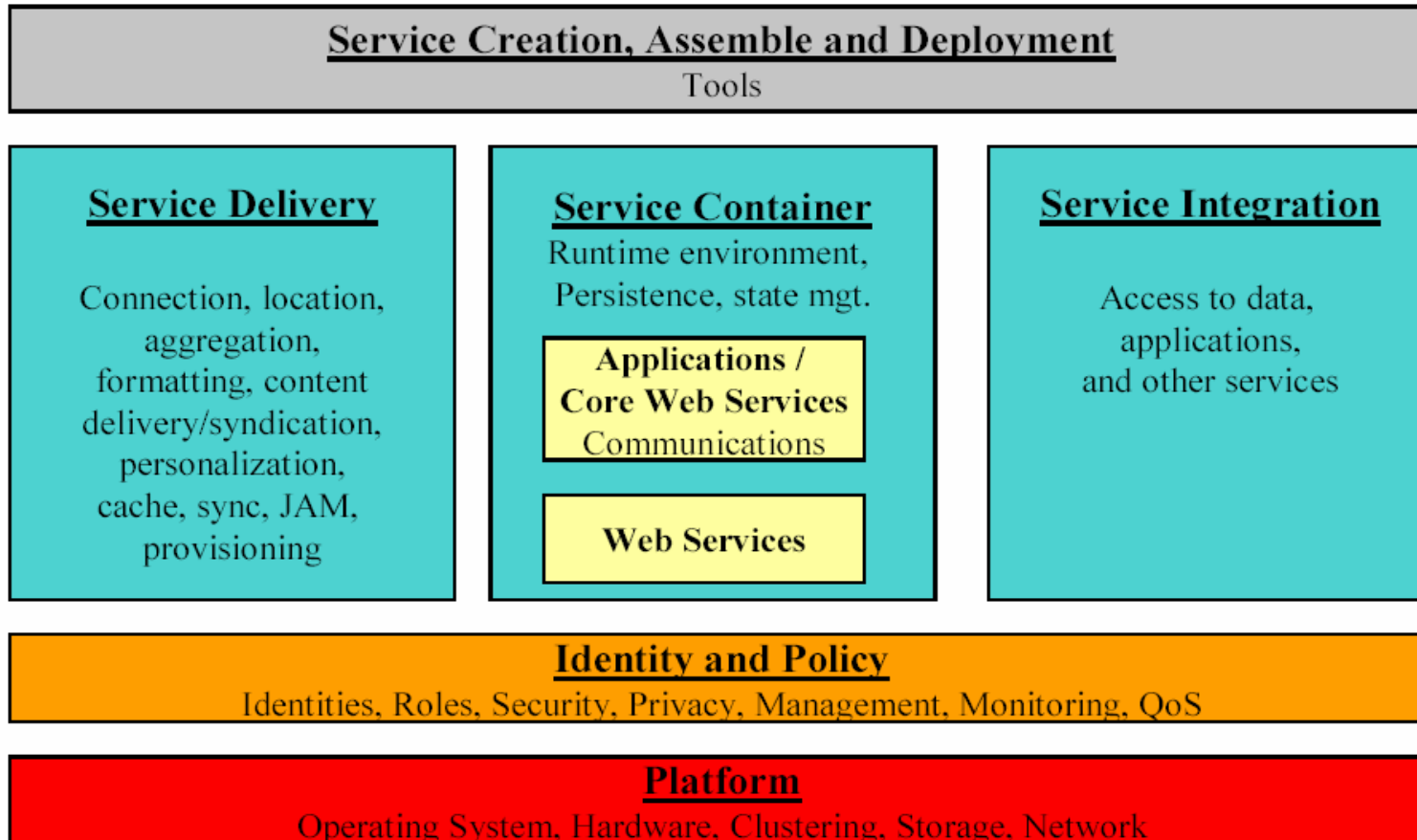
What is Telematics?

- Telematics
 - Telecommunication + Information
 - Provide information into the car by using telecommunication
 - Key application of mobile computing

Architecture

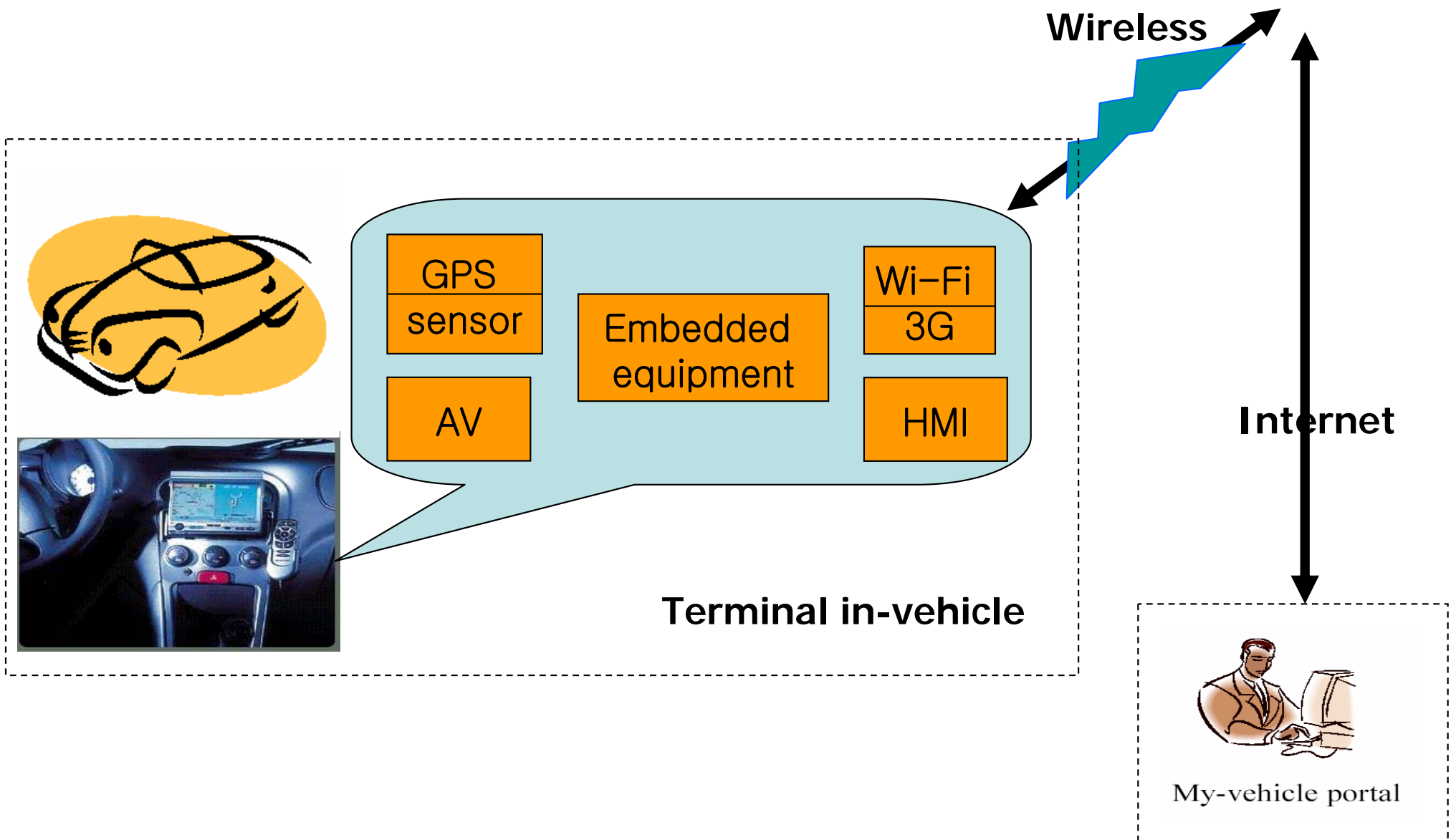


Architecture (server side)



Source: Sun ONE

Architecture (client side)



Services

- Security Service
 - Emergency rescue with 911
 - Car location tracing (thief-proof)
- Information service
 - Navigation assistant (real-time traffic information)
 - Weather, stock information
 - Entertainment and M-Commerce
- Context-Aware and Event-base service
 - Vehicle Diagnostic Service
 - Car Insurance based on driving statistic

Technologies

- Wireless Network
 - Wide Area Network (CDMA2000 1X EVDV, 3G): 100kbps
 - DSRC (Dedicated Short-Range Communication)
 - DAB (Digital Audio Broadcasting)
- Terminal
 - Embedded Operating System
 - OSGi (Standard)
 - LAN in the car for unit control
 - Bluetooth™, MOST, 1394, CAN
 - AMI-C(Standard)
 - HMI (Human Machine Interface)
 - Speech Recognition, TTS
 - GPS or sensor

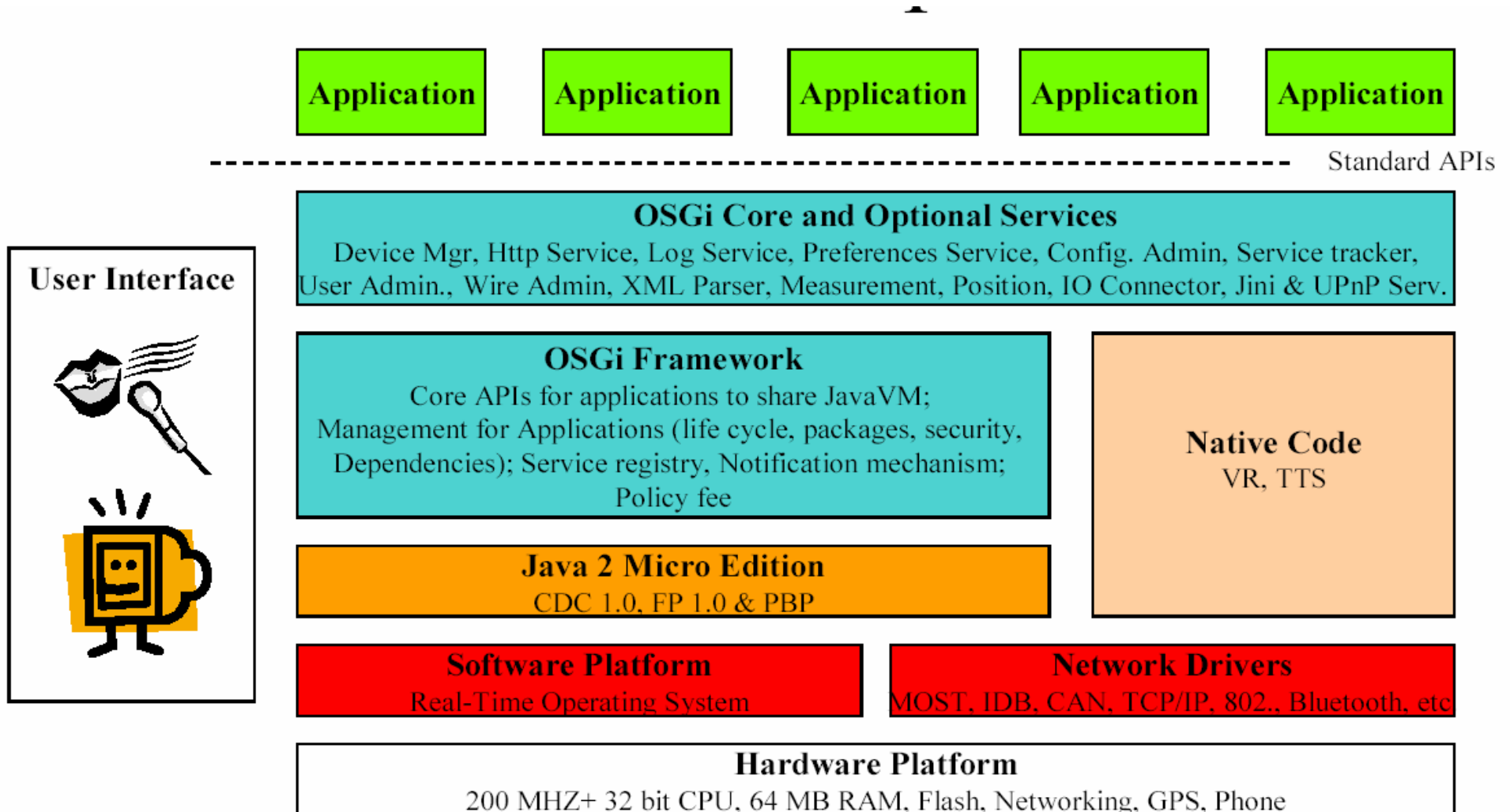
Standards

- Open Services Gateway Initiative (OSGi)
 - Open specifications for the delivery of managed broadband services to networks in homes, cars and other environments.
 - Architecture and specifications for core platform, vehicles, devices, remote management and security
 - Release 3 due March 2003
 - Reference: www.osgi.org
- Automotive Multimedia Interface collaboration (AMI-C)
 - Organization of motor vehicle manufactures created to facilitate the development and standardization of automotive multimedia interfaces to motor vehicle communication networks.
 - Specifications for physical network interfaces, network protocols and In-vehicle software interfaces (telematics and local)
 - Release 2 specifications due Dec. 2002
 - Reference: www.ami-c.org
- Java Community Process (JCP)
 - Embedded Java VM.s with bolt on components and APIs
 - Reference: www.jcp.org

OSGi - Overview

- Direction towards de-facto standard for 3rd generation platforms
- Operating system feature
 - Standard abstraction from HW w/Auto centric APIs.
 - Life cycle management for dynamic service deployment
 - Multi-tasking/function
 - Remote management
 - Java component model, security
- Integrates with back-end infrastructure.
- Faster time-to-market
 - Reduction in platform implementation and sustaining costs.

OSGi - Overview



AMI-C

- Characteristic
 - Vehicle control: Low-speed wired communication
 - Information system: High-speed wired communication
- Current spec
 - Low speed : IDB-CAN
 - High speed : IDB-1394 vs. MOST

