Challenges for Today's Automotive Manufacturer

Today, increasing consumer requirements for security and safety, customization and maintenance challenge the automotive industry.

Automotive original equipment manufacturers (OEMs) need a cost-effective solution that improves customer care, reduces development and maintenance costs and facilitates cooperation with suppliers. Automotive OEMs can save up to 20 percent of their future product design, development and lifecycle management costs with the OSGi Service Platform.

The need for strategic market differentiation pushes auto makers to design state-of-the-art, extensive devices into a variety of models, including costly remote diagnostics and maintenance features and teleservices such as directional information and web access. This involves a massive increase in system complexity, with software dominating both hardware and mechanics.

But with technology and service offerings changing rapidly, how can automakers "bridge the gap" with a car that they must support for an average of 10 years? The lifecycle mismatch between hardware and software makes automakers wary of new technology. Implementation risks and time-to-market pressures are high.
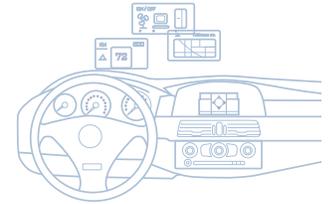
The automotive industry seeks fast integration of new functionality and dynamic services, with less proprietary hardware and "black box" components – all while looking to reduce development and maintenance costs. The industry needs to resolve the hardware/software lifecycle mismatch and separate these issues from the art of car manufacturing. If it were possible to dynamically and securely upgrade the complex software inside the car, remotely, with little or no involvement from the car owner it would be possible to "future-proof" a vehicle.

The OSGi™ Service Platform

The OSGi Service Platform specification boldly solves these lifecycle mismatch issues. As changes are necessary, manufacturers can remotely and dynamically upgrade automotive software, quickly, economically and securely. Innovative applications, not architecture, becomes king, allowing for cost savings and high rates of customer satisfaction.

The OSGi Service Platform was specifically designed to be:

- **Secure**, so you can trust it with your valuable data and programs
- **Reliable**, so there are no unnecessary support calls
- **Remotely manageable,** so that the platform can be adapted to the wishes of its owner without great cost
- **Universal**, so it is usable on a large variety of hardware and operating systems. Since Java technology provides a virtual machine environment, it means that the OSGi Service Platform can run on almost any operating system or processor in existence.

The automotive industry is looking for fast integration of new functionality, with less proprietary hardware and 'black box' components.

Flexible integration based on open standards that are modular, configurable, and scalable.

Automotive manufacturers need – and customer demands – cost-effective solutions for in-vehicle electronics. The OSGI Service Platform provides flexible integration based on open standards that are modular, configurable and scalable, with enhanced functionality on command. In addition, it provides standardized, service-oriented, Application Programming Interfaces (APIs) and basic libraries, reusable software, and the ability to introduce software for remote diagnosis and maintenance on an as-needed basis. There's less project risk through incremental improvements instead of bottom-up redesign for each project. Expensive recalls due to software defects can be eliminated.

The OSGi Service Platform Release 4.0 is enhanced with new Core Compendium and the coming Vehicle Specifications with new features and services support:

- Smooth integration of new product baselines with modularity provided in the new core framework
- Easier and cost-efficient development of applications offered by the Declarative Services specification
- Enhanced Security to allow the installation of trusted applications (bundles) on our platform and a fine-grained management of allowed actions
- Standardized power management service to allow any application to react on power changes
- Abstraction of vehicle device commands and states
- An easy and simple mechanism to provide and perform local or remote diagnostics

The OSGi Service Platform is increasingly adopted as the standard solution for secure remote and lifecycle management of multiple services from a broad variety of vendors. Many OSGi Alliance member companies have deployed the OSGi Service Platform in the automotive electronics space. These deployments include the BMW 5 series and the highly renowned Global System for Telematics project.

- Begun in March 2004, GST Project is a three-year European project that specifies a set of services and library components to assist Service Application developers in creating exiting new mobile applications
- The GST Application Runtime Environment allows a Client System to administer and monitor status and capture vehicle data (such as speed and location). Communication with a remote service and a GST Control Center using the GST mobile protocol is as well supported as the display information for the end-user based on the HMI Prototyping Suite. In addition to the specification, GST is offering a reference implementation using the OSGi Service Platform as the execution environment.

About the OSGi Alliance.

The OSGi Alliance is a worldwide consortium of technology innovators that advances a proven and mature process to assure interoperability of applications and services based on its component integration platform. The Alliance provides specifications, reference implementations, test suites and certification to foster a valuable cross-industry ecosystem. OSGi technology is delivered in many Fortune Global 500 company products and services. Member companies collaborate within an egalitarian, equitable and transparent environment and promote adoption of OSGi technology through business benefits, user experiences and forums. For more information on the non-profit technology corporation, visit **http://www.osgi.org**.

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