
Service Oriented Architectures

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An Idea!

Motivation



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- ❑ To deal with tomorrow's transportation challenges, systems allowing vehicles to communicate with other vehicles and with the infrastructure, also known as co-operative systems, are needed
 - ❑ A pre-condition for the successful introduction of such co-operative systems is that **existing services can be extended and future services can easily be introduced on the same in-vehicle and roadside infrastructure.**

This calls for a common view on service-oriented architectures (SOA).

SOA



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- ❑ SOAs allow to achieve loose coupling among interacting software agents (a service is a unit of work done by a service provider to achieve desired end results for a service consumer)
 - ❑ SOAs use a small set of simple and ubiquitous interfaces to all participating software agents, using only generic semantics at the interfaces. Descriptive messages constrained by an extensible schema are delivered through the interfaces, prescribing no, or only minimal, system behaviour.
 - ❑ SOAs have a mechanism that enables a consumer to discover a service provider under the context of a service sought by the consumer.

Scope



- ❑ Service providers will be unable to understand requests if messages are not written in a format, structure, and vocabulary that is understood by all parties (*vehicle manufacturers, road operators as well as other key stakeholders in the transportation domain*)
 - Convergence on common standards for the vocabulary and structure of messages is therefore a necessity
 - Messages should be restricted while ensuring maximum scope for extensibility
- ❑ Also, services should be discoverable seamlessly without or with a minimum of human intervention
 - This needs a standardised format for synchronizing service availability between end-points. Interface layers between communicating devices provide information about available services to the peer entity
 - Automated service discovery calls for an extensive use of authentication, authorization and encryption technologies to prevent malicious use of information and services

Objective



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- ❑ Review the state-of-the art on SOAs and their possible use in the transportation domain
 - ❑ Identify and assess obstacles for convergence and deployment
 - ❑ Investigate the need to standardise service descriptors for ensuring automated service discovery processes
 - ❑ Investigate the security aspects related to automated service discovery
 - ❑ Draft a roadmap for deployment and make recommendations for issues to be addressed by the 7th Framework Programme

Constitution



Possible stakeholders/participants are representatives of:

- Vehicle manufacturers
- National authorities & road operators
- Telecom operators
- Suppliers
- Universities & research institutes
- Other stakeholders such as parking lot operators, gasoline distributors, ...

It is proposed that the group be co-chaired by a vehicle manufacturer and a road operator;

Launch date



If agreed, the Launch should not be before October 2006!

- ❑ Looking at exploitation issues is easier after dissemination and exploitation material is available from GST; the GST Forum will also play a useful role in the WG
- ❑ discussing the need for peer-to-peer extensions is easier in a CVIS/Safespot context where use cases will be examined
- ❑ Rather than duplicating existing activities, it is better to wait for their outcome and launch the WG in October, after the London ITS World Congress

For more information



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