Middleware for Mobile Adaptive Services

Workprogramme objectives
Main objective: 2.3.2.3 Open development Platform for software and services
Additional objective: 2.3.2.6 Applications and Services for the Mobile User and worker
Activity type: STREP (Strategic Targeted Research Projects)

Motivation
When people are moving around while using handheld networked devices, significant variability is introduced in the operating environment for the provided services. The network environment, such as network access points, or shared I/O devices, changes as people move in and out of buildings or vehicles. The richness and availability of services vary. Requirements on user interface change, for instance because light conditions and background noise change drastically. Although the operating environment of the mobile user constantly changes, users want services that maintain availability and value and that behave in a consistent manner. In order to achieve this, platform support is absolutely necessary.

Main goal and research focus
The goal of the project will be to provide an open platform (middleware) for the management of dynamic adaptivity: Mobile services result from the cooperation of distributed components. Adaptivity is not the property of a single component, but requires co-ordination between the components involved in the provided services. The project will investigate the idea that adaptivity can be managed by the platform. A service specification should describe a set of alternative components that participate in a service, a set of alternative configurations, and a set of rules for context adaptation. In response to context changes, the platform has the responsibility to identify whether or not the changes may alter the provided services, to determine how an eventual adaptation should be performed and to control adaptation. Different forms of adaptation will be considered such as user interface adaptation, functional richness adaptation and deployment adaptation. The open platform should be supported on a variety of devices included mobile phones, PDAs and application servers. The project will take an experimental approach and develop a series of research prototypes in order to demonstrate the adequacy of the proposed solutions.

Delimitation of scope
Context modeling and monitoring is not under the scope of the project. Context changes will be simulated in the experimentation.

SINTEF profile
SINTEF’s core business involves the development of solutions for industry and the public sector based on research in technology, natural sciences, medicine and social sciences. SINTEF Telecom and Informatics possesses a wide range of expertise within various disciplines such as data technology, telematics, electronics and acoustics.

Simula profile
Simula Research Laboratory conducts basic research in selected areas within information and communication technology. The research area of the Networks and Distributed Systems Department is Quality of Service (QoS) management for future distributed applications and services. The long term goal of the department is to determine the next generation of QoS enabled architectures and platforms for open, dynamically adaptable distributed systems.

Profile of requested partners
Middleware suppliers (industrial technology providers)
Technology users e.g. service providers

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