

## Berlin's Beyond-3G Testbed and Serviceware Framework for Advanced Mobile Solutions

Each wireless network access technology (WLAN, GSM, GPRS, UMTS) is good for specific, location-independent mobile use. However, when the user moves away from his home position, no transfer between the individual technologies is possible, although other network access technologies with better service qualities could be used. WLAN connections are broken; GPRS and UMTS connections can be maintained further, though the availability of an eventually existing WLAN would be ignored. Furthermore, the services accessed by mobile users do not take into account the user's wireless access technology. In some cases this causes the saturation of existing connections, and in others it leads to the under-use of the capabilities of the various wireless access technologies.

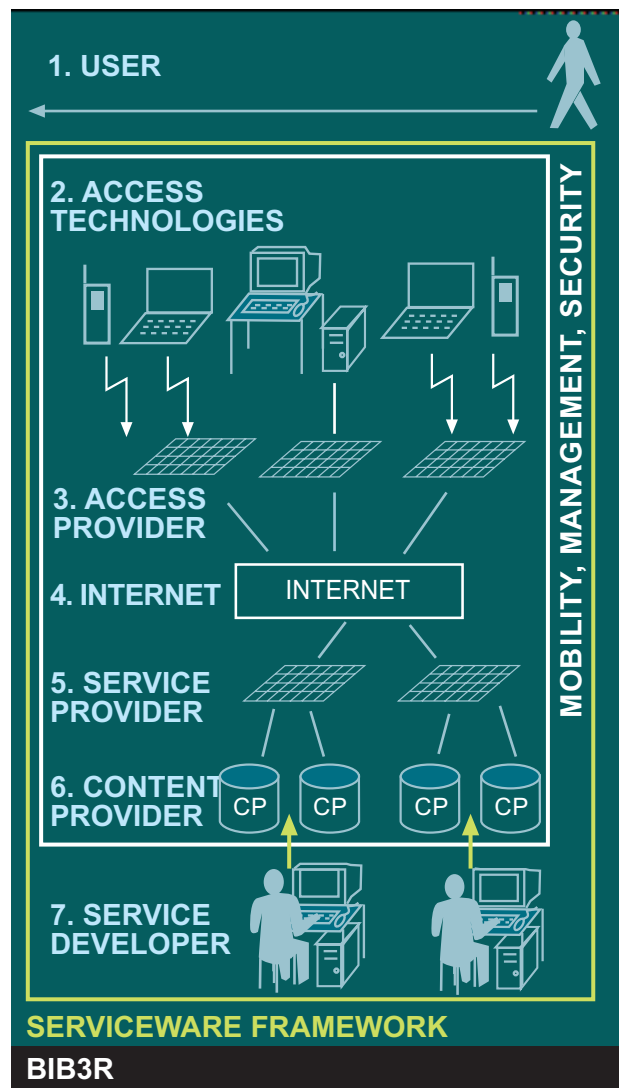
The primary concern of the project are ubiquitous services. Such services include those offered over the Internet, which may be used at any time and in any place. These services should especially support the mobility of users. In order to effectively organize and maintain service usage, reliable network management is necessary. Wireless network handover is an important aspect of network management.

To this end an agent-based service environment has been conceived and implemented, which allows mobile users in any place to take advantage of the best possible network access available to them and to roam between different wireless access technologies as they move from place to place. Therefore, work on both the network access level as well as the service provision level is necessary.

In order to implement and test network handover and ubiquitous mobile services a Beyond-3G network infrastructure for high-level mobility-supporting services has been deployed. These services simultaneously offer wired and wireless access and handover between technologies of both kind. This makes service access transparent to the user.

Furthermore, a service infrastructure has been deployed that supports device roaming. Services accepted by the market can be developed and introduced quickly and efficiently into the infrastructure. Such services will be personalizable, device-independent and location aware, support mobility, behave intelligently and be secure and maintainable. A Serviceware Framework for development and deployment of services in the infrastructure has also been constructed. Data transfers are optimized at the Serviceware level through utilization-oriented grouping, e.g. processed and possibly compressed for the specific end device. Methodologies for Service Engineering are applied in the development of services. These methodologies must be supported with tools.

A modern Beyond-3G testbed has been installed for the development of this infrastructures. The testbed supports emerging mobile access technologies, network components and mobile devices. The testbed is also connected to larger national and international infrastructure installations, so that sharing and transfers between domains can be investigated. Diverse and innovative demonstrations are used to validate the activities.



### Partners

Motorola	CISCO Systems
Sun Microsystems	Fraunhofer FOKUS
T-Mobile	Technische Universität Dresden
T-Systems	DAI-Labor (Koordinator)
Bundesministerium für Bildung und Forschung (BMBF)	
Deutsches Zentrum für Luft- und Raumfahrt (DLR)	

### Contact

Prof. Dr. Sahin Albayrak  
 Tel. +49 30 314-24943  
 sahin.albayrak@dai-labor.de  
 http://www.dai-labor.de