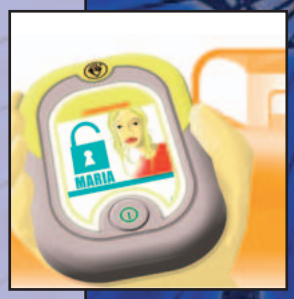
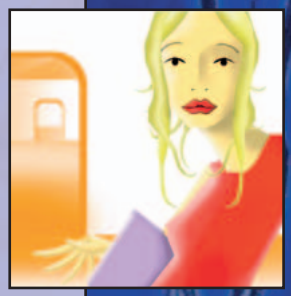
Daidalos

Designing Advanced network Interfaces for the Delivery and Administration of Location independent, Optimised personal Services





Information Society Technologies

www.ist-daidalos.org

What Daidalos is about

Daidalos is about radically improving the usability of European telecommunication technologies by integrating mobile and broadcast communications. Following a user-centred scenario-based approach, Daidalos will deliver ubiquitous end-to-end services across heterogeneous technologies.

Motivation

Mobility has become a central aspect of the lives of European citizens – in business, education, and leisure. This trend has been followed by an increased usage and diversity of multimedia communications, as the increased success of cellular phones with embedded cameras illustrates. In order to keep up with the resulting new communications needs, it becomes necessary to re-think existing network paradigms. Future networks should be able to support multiple business models with quite extreme company strategies – from network operators, service providers, broadcast companies, or cellular operators. These companies will function on a mixed competition-cooperation environment, where individuality will be required to surpass competition, but cooperation will be essential to improve the network value. Daidalos innovations will make real these trends even to telecommunication companies with different purposes and business models, allowing their smooth interoperation and providing an opportunity for new service developments. Furthermore, the resort to open technologies will support end-user centric service developments, such as peer-to-peer technologies.

Due to rapid technological and societal changes, there has been a bewildering proliferation of technologies and services for mobile users. This has created a complex communications environment for both users and network operators. For efficient interoperation, these novel network environments will need to integrate quality-of-service capabilities in mobile heterogeneous environments, under a common authentication, authorization, accounting, auditing and charging (A4C) framework, and provide a secure communication environment. The integration of all these technologies represents a major multi-disciplinary research effort undertaken in Daidalos.

Vision and goals

The Daidalos project aims at working towards an environment, where mobility is fully established through scalable and seamless integration of a complementary range of heterogeneous technologies and concepts, and providing the framework of integrating multiple existing technological, service and business paradigms. Daidalos is also committed to use open interfaces and technologies according to a vision of a future user-centric, fully-networked society. This environment will enable mobile users to enjoy a diverse range of personalized services – seamlessly supported by the underlying technology and transparently provided through pervasive interfaces. In Daidalos, information will reach the user through an "always best-connected" approach, taking in consideration network availability, user preferences and user/service contracts. Daidalos will develop and demonstrate an open architecture based on a common network protocol (IPv6), which in its iterations will increasingly approach the Daidalos vision.

Scenarios

The Daidalos approach is being detailed through a scenario-based design concept. A scenario is a real-life, user-centric description of communication-based activities, which we use in an iterative process to further refine the requirements for system and architecture design.

Two major scenarios are currently under consideration: the Daidalos Mobile University scenario and the Daidalos Automotive scenario. Together, both scenarios are highly representative for a broad variety of education, entertainment and business scenarios in the mobile world.

Mobile University

Key vision: Students, studying abroad, have access to their personal set of services and can dynamically discover local services and devices.

Building blocks

- Organization of daily life at the university (friends, appointments and reservations, classes, projects, exams, entertainment)
- Locating people and devices, checking availability, discovering local services
- Searching for best / cheapest available infrastructure
- Personal broadcasting, e.g. of classes and speeches

Dani arriving for the lectures

Automobile Mobility

Key vision: Mobility supporting services in and around the vehicle with aspects of personal multimedia, ad-hoc mobile networking and session mobility.

Building blocks

- Access to personal information and services inside and outside the vehicle.
- Locating and detecting presence.
- Service and content adaptation based on QoS across network and operator boundaries.
- Session mobility between terminals (incl. vehicles), and across organizational and operational domains.
- Broadcast services for entertainment, inter-vehicle safety, and regional traffic information services.

Presence detection for automobile mobility applications

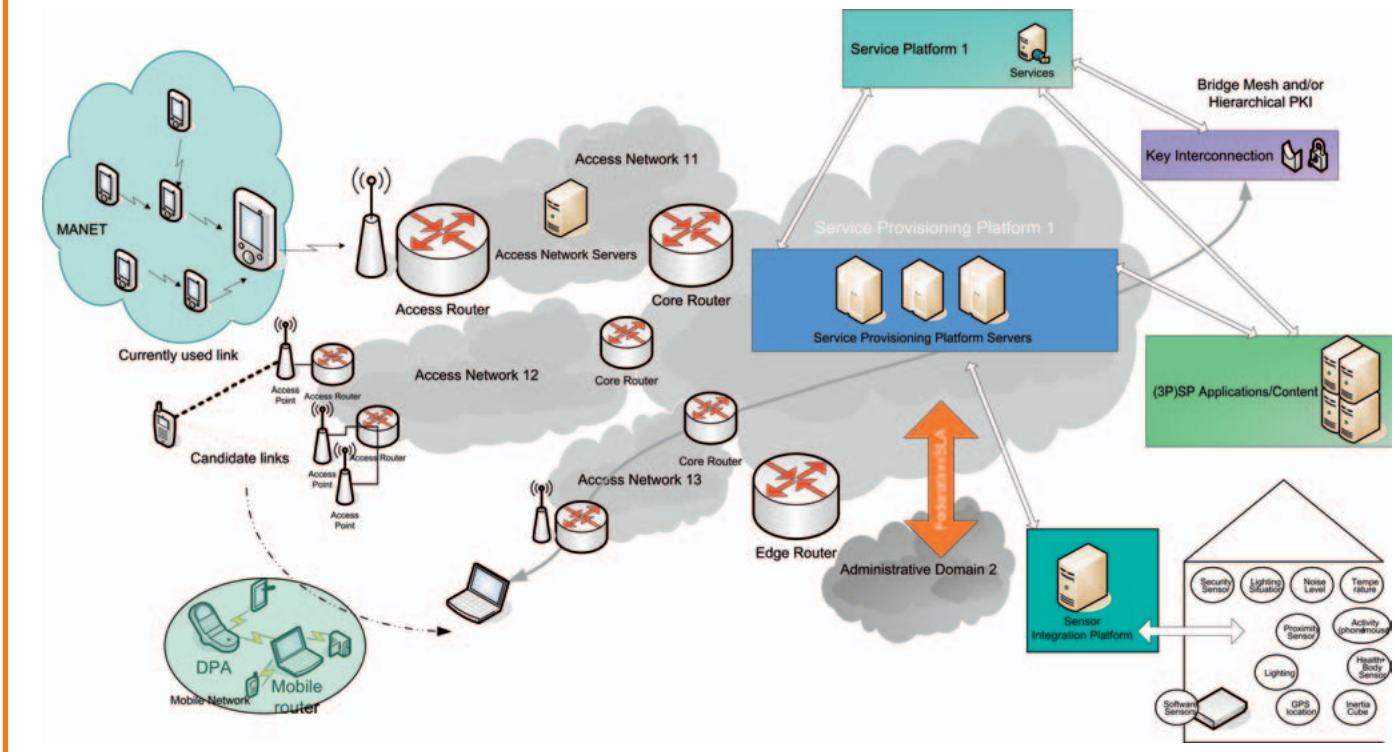
Technical approach

The overall architecture design is based on multiple requirements, including the user point of view, business models for operators and content/application providers, and technical requirements. This architecture and the overall design choices for the project are passed to the technical activities that will develop and implement the required components for the Daidalos architecture. All these components will be later delivered to an integration activity, which will instantiate proof-of-concept designs. With the feedback from these instantiations, new refinements will be promoted at the architecture level.

Architecture

The Daidalos architecture introduces in an Internet-centric manner pervasive personalized services and mobility enabled broadcast. It is based on IPv6-technologies, and addresses mobility, authentication, authorization, accounting, auditing, charging (A4C), security and QoS issues. The architecture is access technology independent, and specific support for broadcast media is being developed. In reality, broadcast media and broadcast services are separated in this architecture, and different combinations of these two different concepts can be supported.

The generic service provider / consumer implemented allows a flexible and optimizable architecture. The federation concept is being used not only to exchange variable details of user data, but also to implement a variable set of operator related information. Thus, although well defined interfaces exist at the service platform level, multiple service platforms can be integrated in several aspects, reducing implementation costs and providing for better service provision and network management.



The Daidalos architecture introduces pervasive personalized services and mobility enabled broadcast

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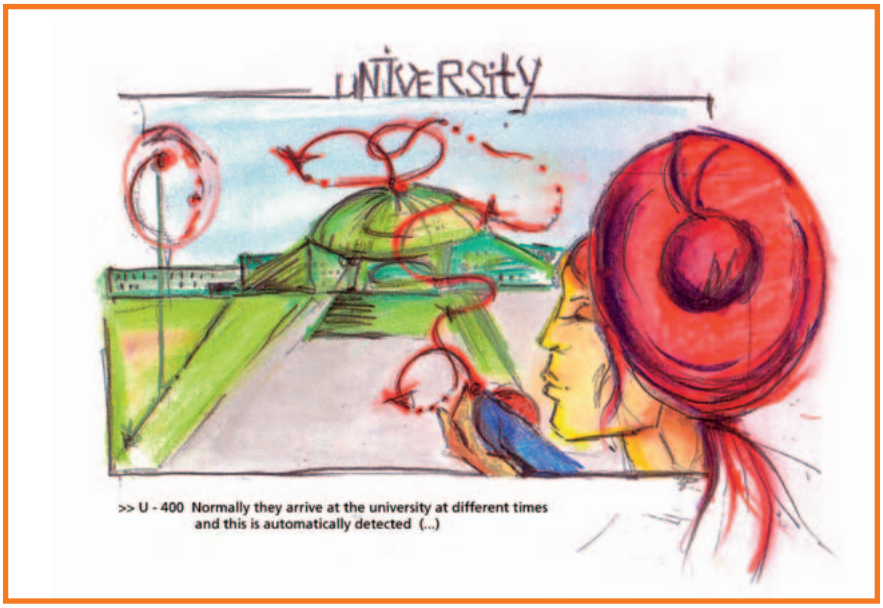
Business models

Daidalos explores business models oriented towards future communication operators' needs, both mobile and broadcast-based. These operators may have very different scales: national operators, small communities, application providers, etc. but will all use the same basic technologies.

The basic assumptions are:

- Traditional operators outsource OSS or service provision
- 3rd Party service providers supported with variable QoS over open APIs
- Intelligence at the network VS multi-mode-terminals
- Converged mobile / media operators under EU licence
- End-user / communities as service provider
- Dis-integration of network functionality is enabling service providers



About DAIDALOS

DAIDALOS is an Integrated Project under EU Framework Programme 6 dedicated to the design of advanced network infrastructures and access technologies for location-independent, personalised communication services. The main objectives of Daidalos is to develop a future network operator architecture for System beyond 3G based on Mobile IPv6 with optimisation of mobility between different access technologies for the same end-device, Quality of Service, charging, security including authorisation and authentication.

46 partners from industry and academia are involved in the project, which has a duration of 2.5 years.

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