IP Daidalos

The Daidalos Approach towards a "beyond triple play" Infrastructure

Hans J. Einsiedler, Christian Hauser, Jürgen Jähnert

Triple Play
Present

▸ Service bundling of

- Voice Service
- Internet connectivity
- Broadband access for audio and video

▸ Services for fixed and nomadic users

Triple Play
Vision

Future:

How is life?

Triple Play
Vision

Future:

How is life?

Mobile!

Quotation of the MobiLife project (World Wireless Initiative)

Triple Play
Vision

Future:

How is life?

Mobile!

Quotation of the MobiLife project (World Wireless Initiative)

… and pervasive!

Quotation of the Daidalos project

Daidalos
Vision

▸ Give customers a diverse range of **personalized services – seamlessly and pervasively** supported by the underlying technology

▸ Establish mobility via an open, scalable and seamless **integration of complementary heterogeneous network technologies** including broadcast, ad-hoc, moving and sensor networks.

▸ Empower network and service operators to develop **new business activities and provide profitable services** in an integrated mobile world.
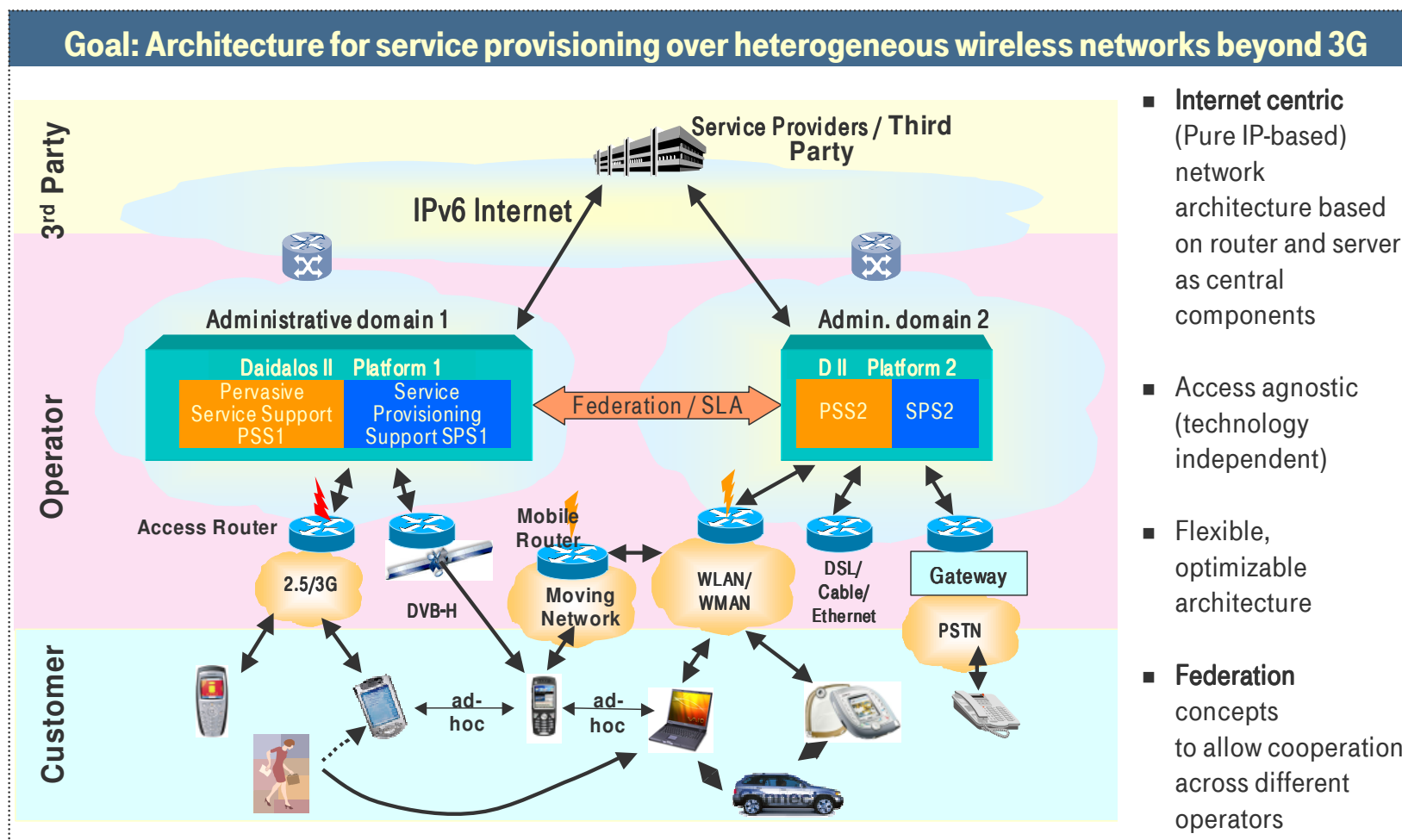
Tomorrow's Invisible Networks
Challenges

▸ Customers must reach "their" **network everywhere** →
This is a service!

▸ While on the move: Your network is just there with the quality you need → **seamless mobility**

▸ You want "your" network provider to **take care of everything**
- Your trusted provider may be the provider of more than networks

▸ You do **not want to be limited to your own devices** for access →
Borrow a phone or laptop or use an embedded device in a hired car

▸ Customers want just **easy communication and access** to information

▸ For making business: The "big" can use the potential of the small →
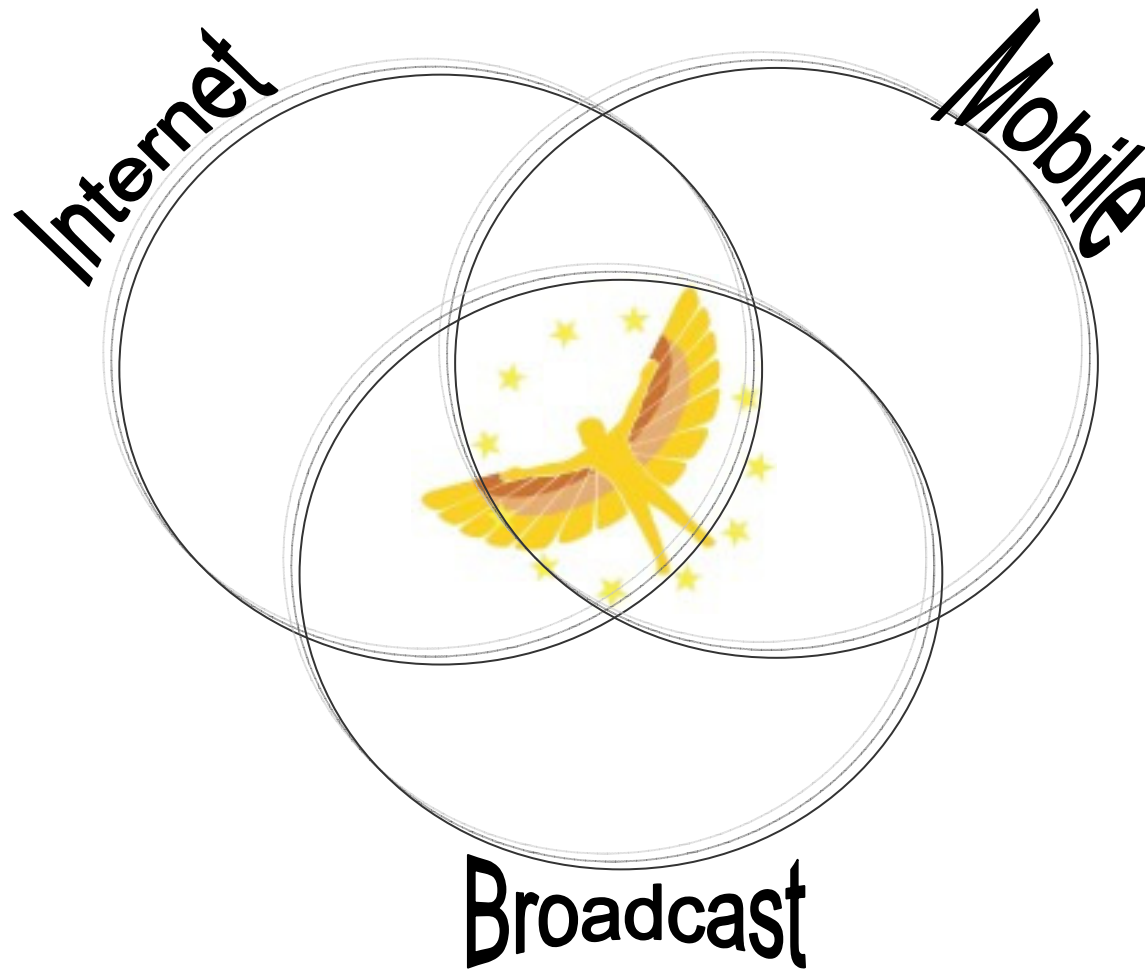"Power Sellers" (eBay-like) for networks
- **Better business for all**

Daidalos
Project Architecture

Goal: Architecture for service provisioning over heterogeneous wireless networks beyond 3G

- **Internet centric** (Pure IP-based) network architecture based on router and server as central components

- Access agnostic (technology independent)

- Flexible, optimizable architecture

- **Federation** concepts to allow cooperation across different operators

Daidalos
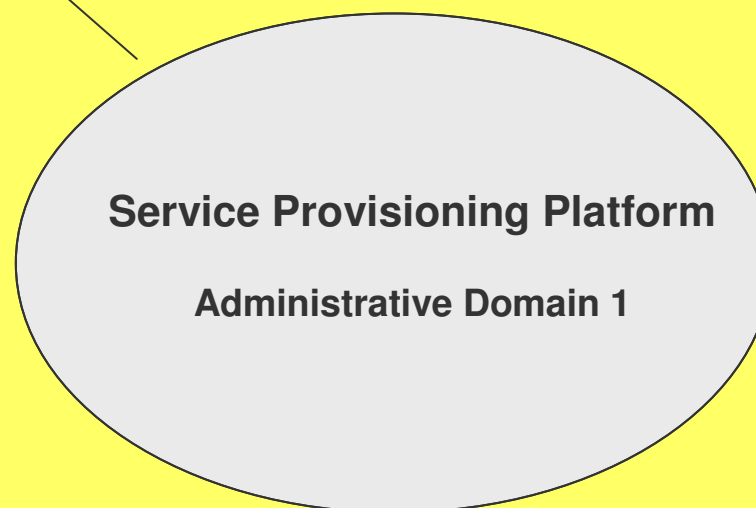## Internet, Mobile, Broadcast Convergence

Daidalos
Architectural components

- **Basis for Service & Network Management and Provision**
- A4C
- Key Distribution Center
- Measurement System
- Service Discovery Server
- Security Services
- Policy based Network Mgmt. System
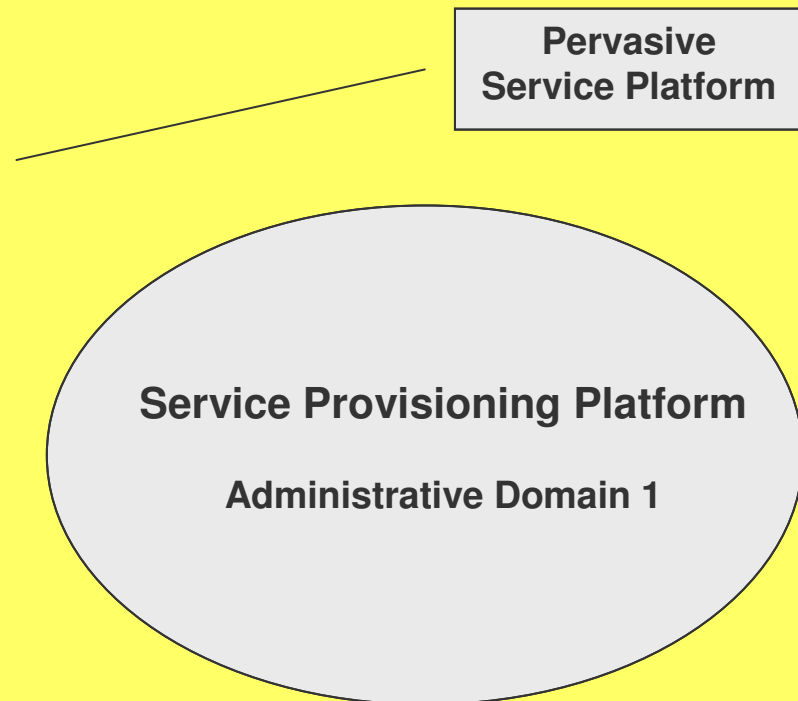- MM Service Provisioning Platform
- QoS Broker
- Home Agent

Service Provisioning Platform

Administrative Domain 1

Daidalos
Architectural components

▸ **Enabling pervasive services to the user**

▸ Service Discovery & Service Composition

▸ Context Management Subsystem

▸ Personalization Subsystem
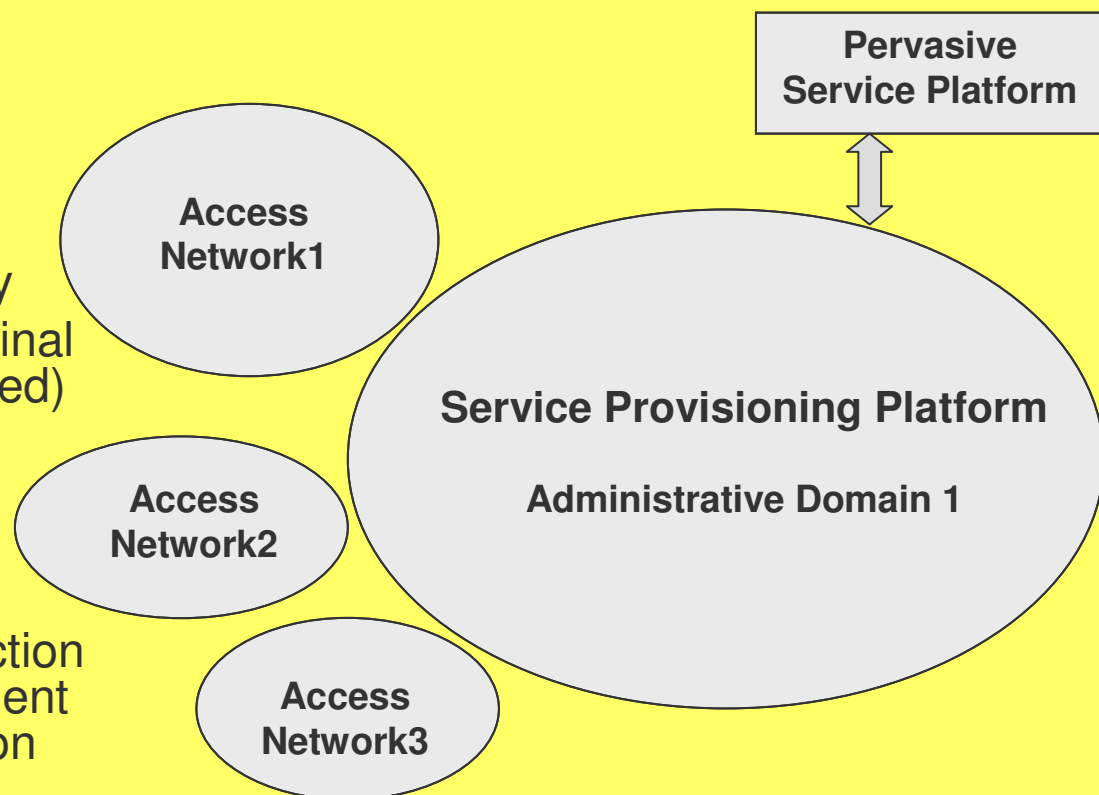
▸ Rules and Policy Subsystem

▸ Security / Privacy

Pervasive
Service Platform

Service Provisioning Platform

Administrative Domain 1

Daidalos
Architectural components
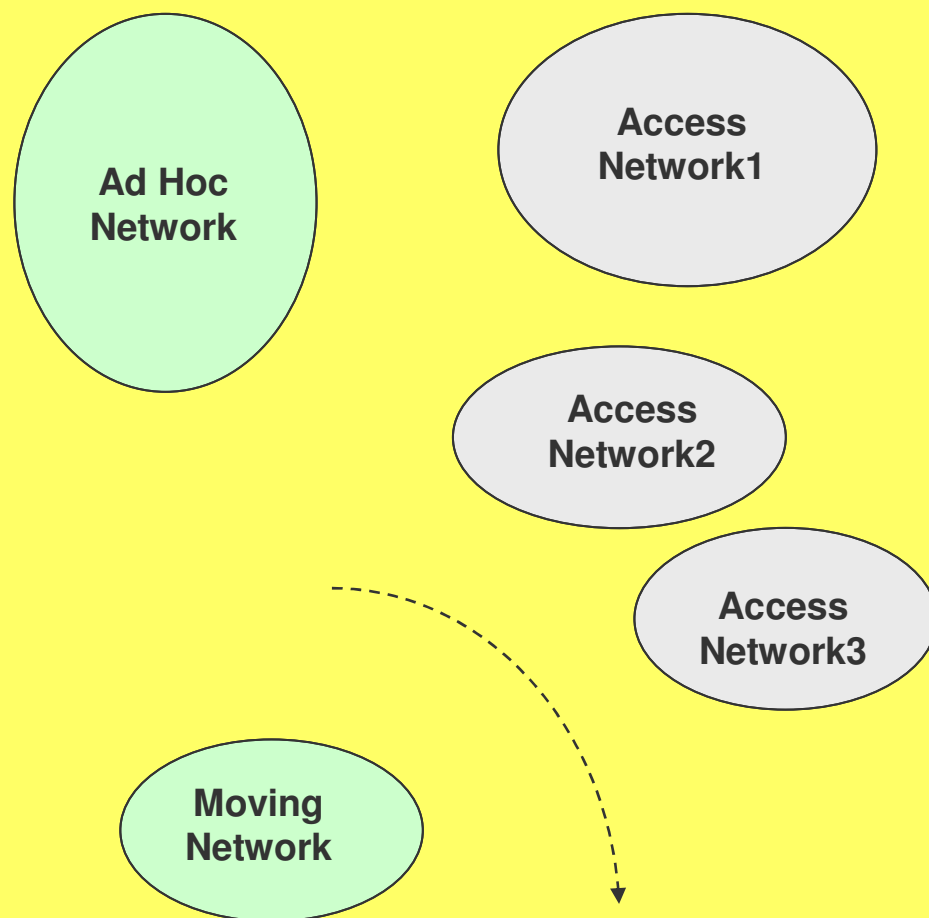
- **Integration of heterogeneous networks incl. Broadcast**

- Terminal mobility
- Handover (Terminal & Network initiated)
- context transfer mechanisms
- Access router discovery
- Interface abstraction layer incl. intelligent interface selection
- Multi homing
- Network-level QoS & Security
- Paging

Pervasive Service Platform

Access Network1

Access Network2

Access Network3

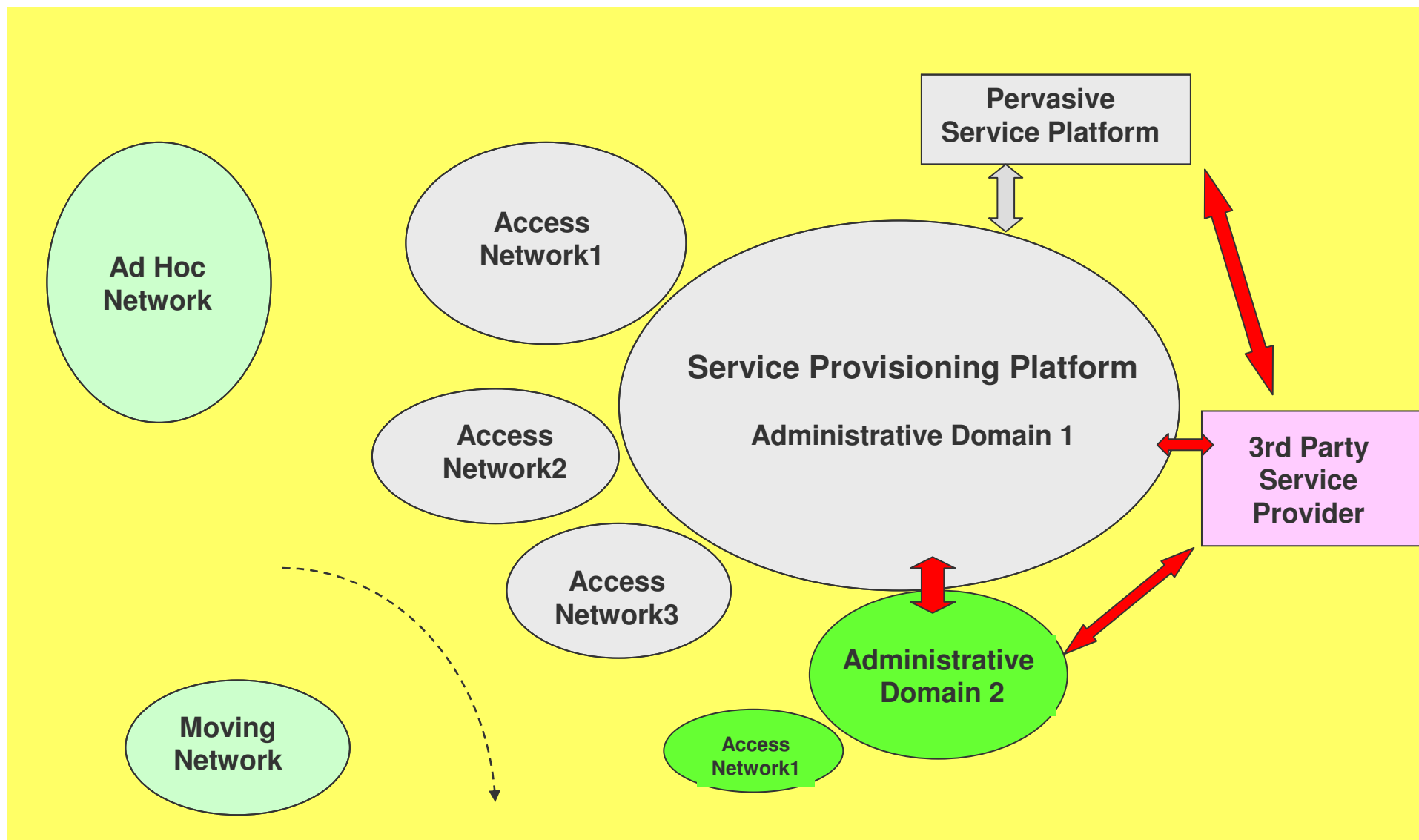Service Provisioning Platform

Administrative Domain 1

Daidalos
Architectural components

- **Ad Hoc Networks**
  - Gateway discovery
  - Address auto-configuration
  - Unicast/multicast
  - QoS in Ad Hoc Networks
  - Charging & rewarding
  - Metering

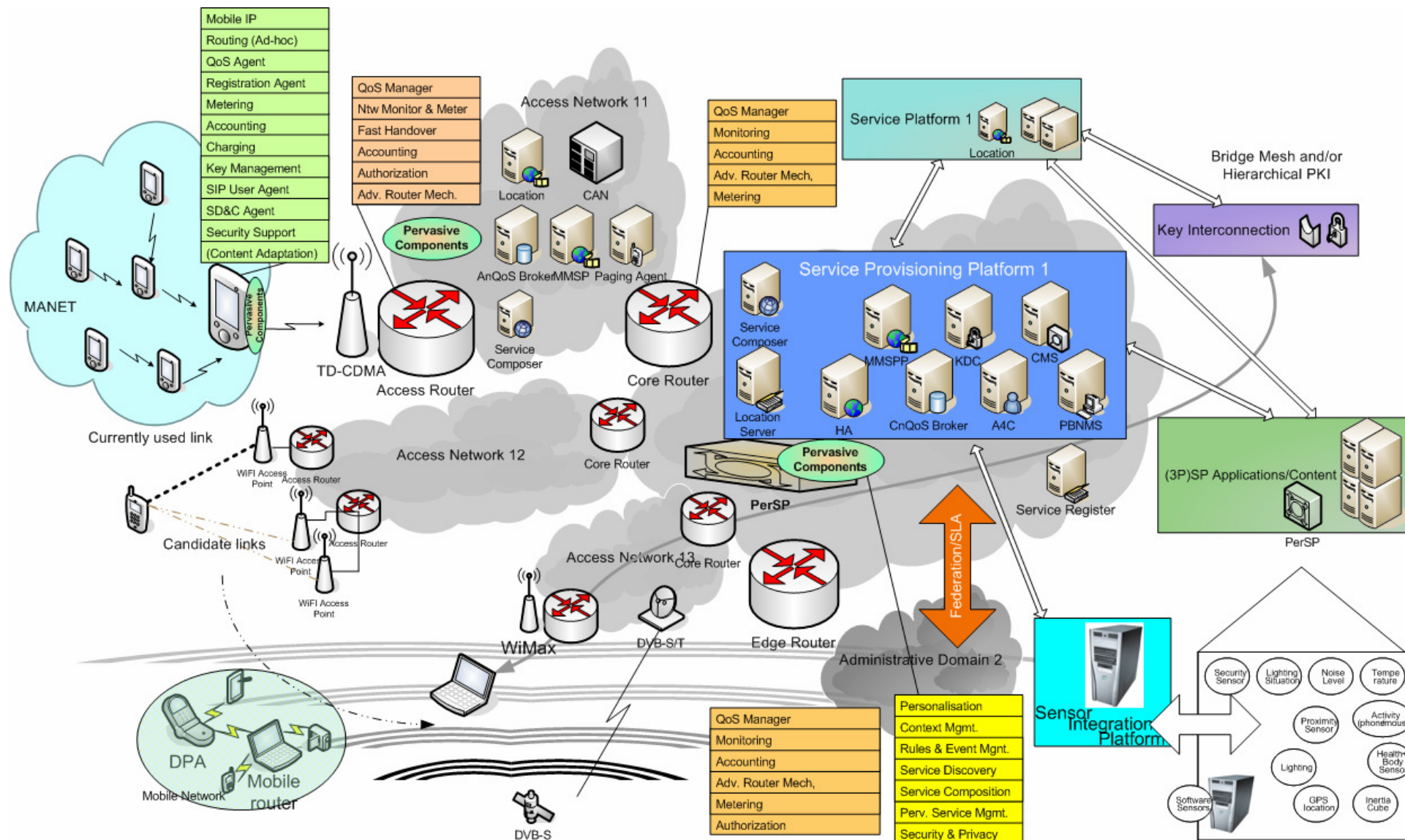- **Moving Networks**
  - Route optimization
  - Multicast management

Daidalos
Architectural components

Daidalos
Architectural physical description
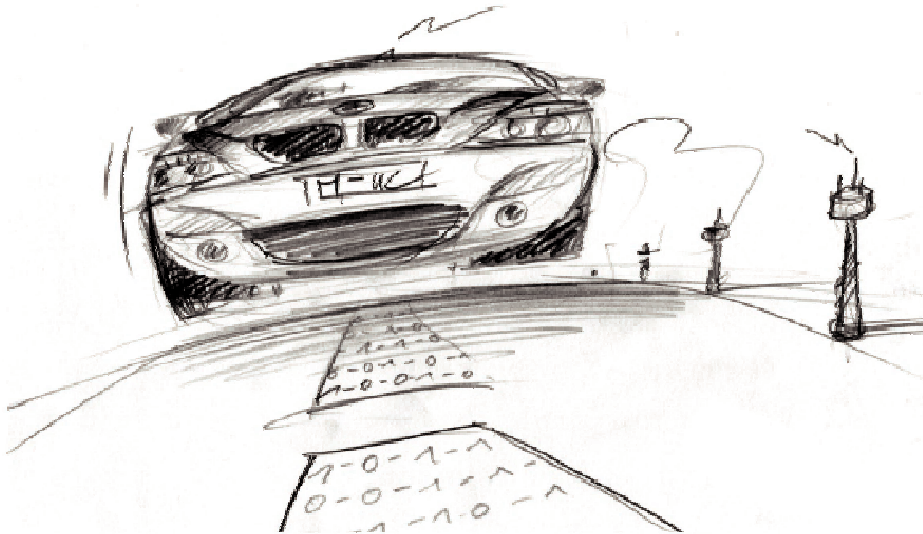
Daidalos
Key innovation and guiding concepts

- **MARQS** (Mobility Management, AAA, Resource Management, QoS and Security)
  - functional integration for end-to-end services across heterogeneous technologies

- **VID** (Virtual Identities – personalisation at all levels)
  - separates the user from a device, enables flexibility as well as privacy

- **USP** (Ubiquitous and Seamless Pervasiveness)
  - enabling global pervasiveness across personal and embedded devices, and allowing adaptation to changing contexts, movement and user requests

- **SIB** (Seamless Integration of Broadcast)
  - at both the technology level, such as DVB-S/T-H, and
  - at the services level, such TV, carousels and datacast

- **Federation** ("*comperation*": competitors in cooperation")
  - allowing network operators and service providers to offer and receive services
  - allowing players to enter and leave the field in a dynamic business environment

Daidalos scenarios
Automobile Mobility

Roles:
– mobile worker,
– family,
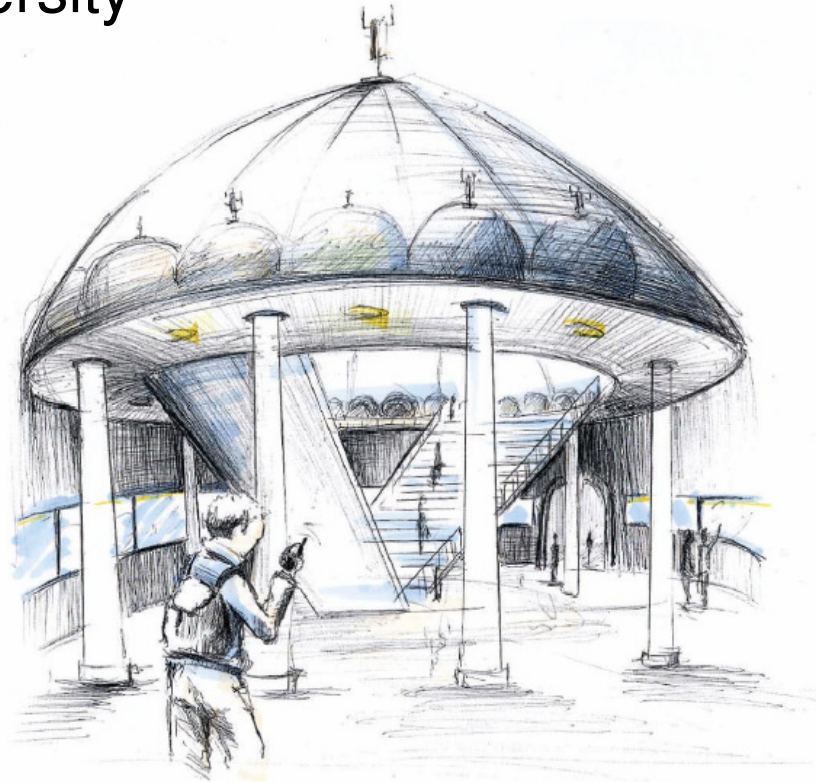– boss,
– business partner
– end-user perspective

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

Daidalos scenarios
Mobile University

Roles:
– students
– teachers
– end-user perspective

▸ **Key Vision**
- Students studying abroad, having access to their personal set of services and dynamically discovering local services and devices.

Daidalos
Integrated Project Consortium

Telco Operators

Industry, SME

Research labs, academia

Thanks for your attention!