

# Ethernet-based access network solution for fixed mobile convergence (Subproject C)



This access network solution was initially developed during Muse Phase I and then further improved, in particular with respect to nomadicity and session continuity in Phase II. The nomadism prototype was demonstrated at the Networks and Optical Communications (NOC) conference in Kista, Sweden, in June 2007 and the session continuity addition will be evaluated in Q1 2008.

## Key Features

### End User

- Easy Subscription to New services - Self-Provisioning Portal
- Services from several competing providers at the same time – Multi-Service
- Access to Personal Service Portfolio Everywhere – Nomadism
- Increased QoE – Resource Reservation (incl. LQ&M)

### Service Provider

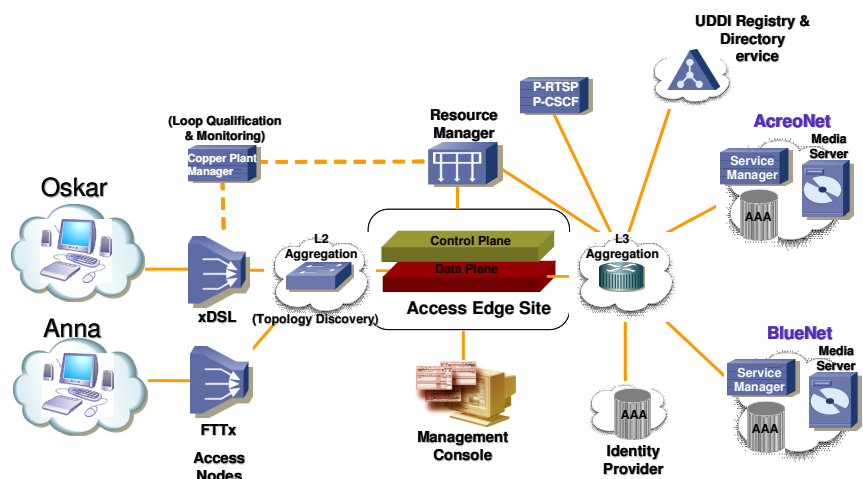
- Guaranteed QoS for your services – happy (and more) customers
- Possibility to adapt the service to access BW - Dynamic Resource Negotiation
- Easy signing up customers and sell more services – Self-Provisioning Portal
- Added value in Nomadic Service Access

### Access Network Provider

- Easy to manage Multiple service providers – Multi-Service support
- Easy to manage Multiple access technologies – Multi-Access
- Possibility to offer QoS guarantees to service providers
- Efficient use of network scarce resources, reduce CAPEX
- Decreased OPEX due to automated network and service management

## Nomadism

The SPC platform solution is a public Ethernet-based access network featuring high quality of service guarantees by means of resource negotiation. The key element of the architecture is the resource manager, the element responsible to keep track of used and available resources in different parts of the access network. It performs access control functionalities. By interacting with the Access Edge Node it is also capable of configuring the network elements to provide the needed QoS. On the service provider site the Service Manager is responsible for translating client requests to access a service into network resources that are demanded from the Resource Manager.



One of the key concepts of the architecture is the support for equal access, which means that subscribers have the ability to select the network service provider or the application service provider independently of the access type or access domain to which they are connected. This allows network and application service provider to broaden their offers to new areas, reaching subscribers independently of the access domain they are connected to.

The services delivered through the platform can have different QoS parameters such as guaranteed bandwidth or just best effort shared bandwidth. This is done through the negotiation of connection parameters with the resource manager, performed at service subscription and/or execution time. In case the resources are not available for a given customer in a given time he will be denied the access to the service.

# Ethernet-based access network solution for fixed mobile convergence (Subproject C)



## Session continuity

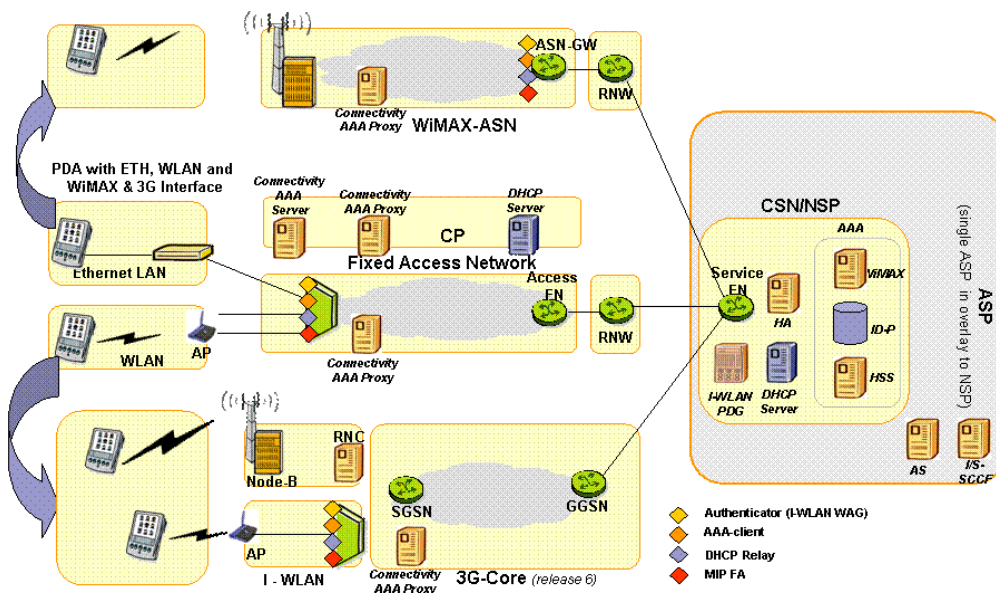
The last deliverable of sub-project C, "Solution for session continuity between heterogeneous networks including FWA access capability in a single operator scenario" (DC1.7) has extended the platform to be able to handle session continuity.

The solution is built on a heterogeneous reference network architecture consisting of fixed access network and mobile WIMAX networks run by a single operator as described in the reference network architecture below

Therefore, applications are not aware of the mobility event, since this is handled transparently at the network layer.

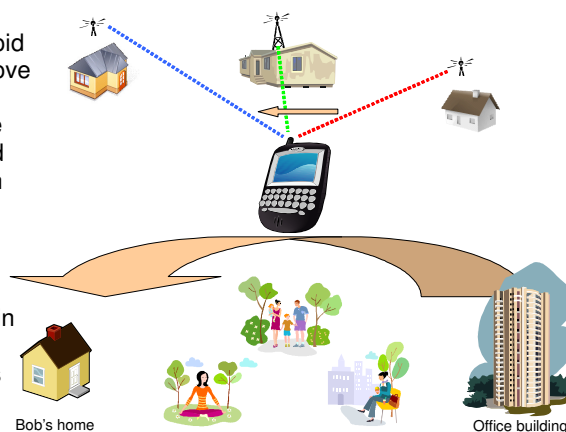
One example of session continuity is given in the use case in the figure to the left: Bob works for a company that has customers all over the world. Bob can do most of his work at home, but sometimes he prefers to be at the company office for face-to-face meetings with colleagues or customers. This afternoon he and a colleague had an appointment with a customer to discuss a new project.

After the meeting Bob returns home. While walking through the park towards his home, he starts a VoIP phone call, and makes a long conversation on his WiFi enabled multimedia device. He achieves this by connecting to an available WiFi network, as some of the houses nearby provide public access. He has a premium subscription so his call is transmitted in a traffic class having high priority. As the radio signal becomes weak, his equipment automatically connects to another access point providing public access, During the transition, the phone call is not disconnected neither suffers any significant quality degradation.



Support of session continuity requires that the Handover (HO) delay of sessions be minimized in order to avoid sessions being timed out as users move between different attachment points. The HO delay is closely related to the delays of connection provisioning and user Authentication and Authorization (AA) delays in the new attachment point.

The final lab trial evaluation of the implementation of session continuity in the SPC platform will be done in Q1 2008. The solution in the lab set up is based on a Dual Stack Mobile IPv6 implementation. The architecture solution hides the physical network interface from the transport layer, creating an always-up virtual interface with a fixed network layer address.



**MUSE is a European consortium of vendors, operators and universities, active from January 2004-March 2008. The aim is cooperation on research and development of future, low cost, multi-service access networks.**

**MUSE is partly funded from the FP6 programme of the European Commission.**

**More information on MUSE and on this subproject can be found on the MUSE website:**

[www.ist-muse.eu](http://www.ist-muse.eu)

December 2007