

Ambient Networks Project Overview

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End-to-End QoS in the Internet

1



Outline

- ❖ The Ambient Networks project
- ❖ Current trends in networking
- ❖ The Ambient Networking concept
- ❖ What is an Ambient Network?
- ❖ AN Architecture
- ❖ Examples
- ❖ What are the benefits of the AN technology?



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2



The Ambient Networks project

- ❖ EU 6th Framework Program Integrated Project
- ❖ Brings together a strong industry led consortium of leading operators, vendors, SMEs, and research organisations
- ❖ Part of Wireless World Initiative (WWI)



Current trends in networking

- ❖ Utilization of multiple devices, multiple networks and multiple access technologies in an integrated fashion
- ❖ Support for a rich service layer that relies on enhanced and consistent QoS from the network
- ❖ IP-based communications control

- ❖ But there is a **lack of a common control plane**:
 - Different control environments are established to facilitate services like VPNs, security, mobility, QoS, NAT, multicast
 - The control of such services is becoming increasingly fragmented

The Ambient Networking concept

- ❖ In this scenario, a **uniform control plane** would enable the assurance of inter-network QoS requirements, aiming to guarantee end-to-end QoS
- ❖ The concept of Ambient Networking supports the creation of:
 - A uniform control plane for heterogeneous networks in order to provide a homogeneous view of such networks
 - An intelligent ambient in which network technologies would be transparently handled



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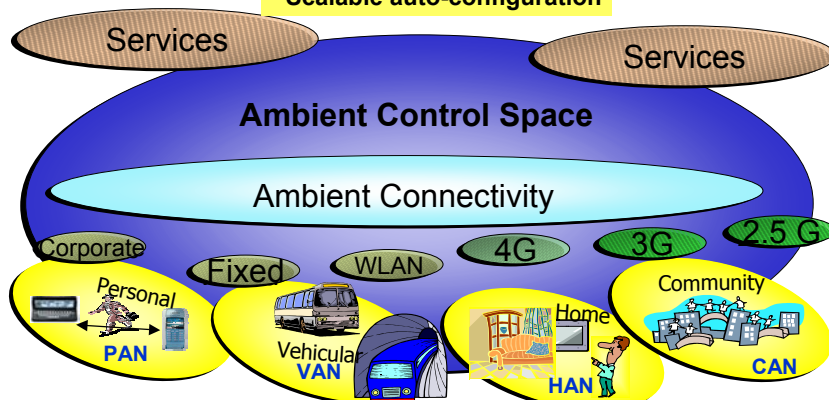
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5



The Ambient Networking concept

Ambient Networks:
- Common Control Services
- Networks at the edge
- Scalable auto-configuration



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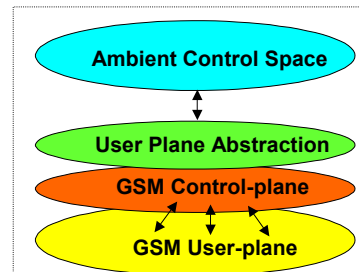
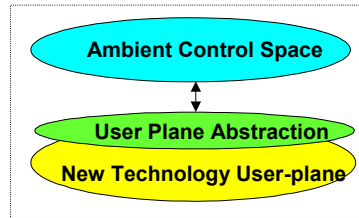
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6

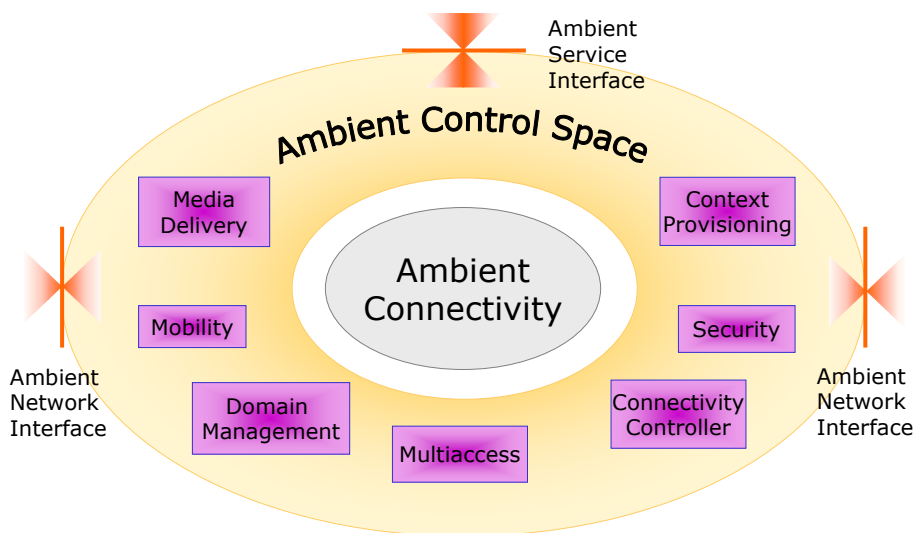


Ambient Control Space (ACS)

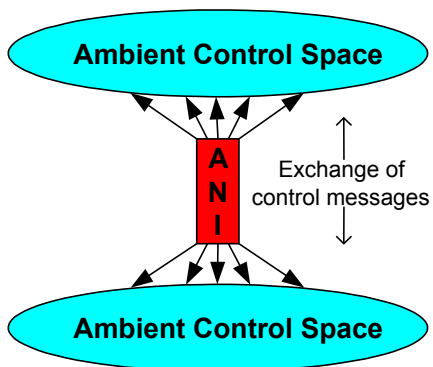
- ❖ Insulates Ambient control functions from connectivity details
- ❖ Abstracts user plane
- ❖ Similar integration of legacy networks



Ambient Interfaces



Ambient Network Interface (ANI)



❖ **Composition:** Two ANs negotiate (“plug-and-play”) through ANI and, if an agreement is reached, they compose:

- Mobility management protocols and who handles what
- Security agreement
- QoS, resource optimisation
- Discovery
- etc



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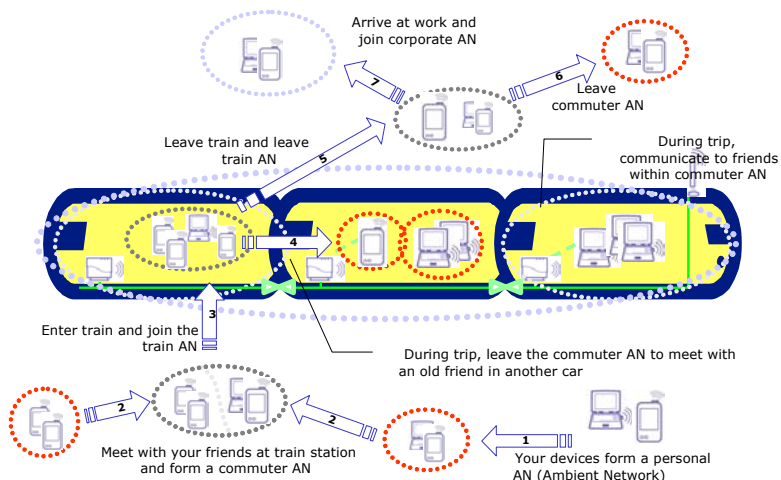
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9



Example: A moving AN



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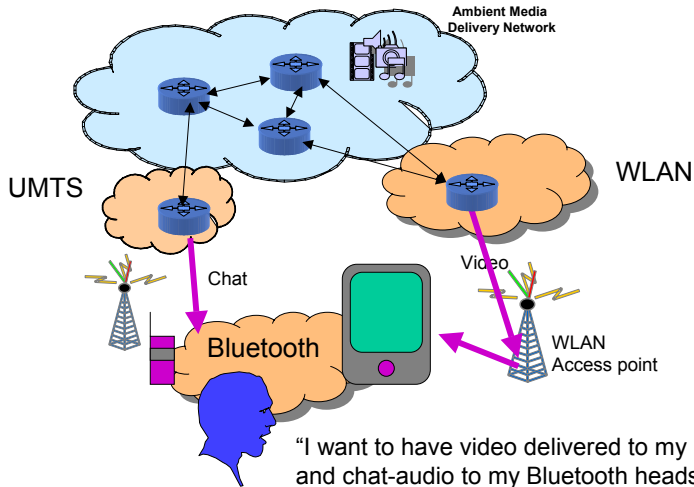
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10



Example: Media routing to different devices



What are the benefits of the AN technology?

❖ For the users

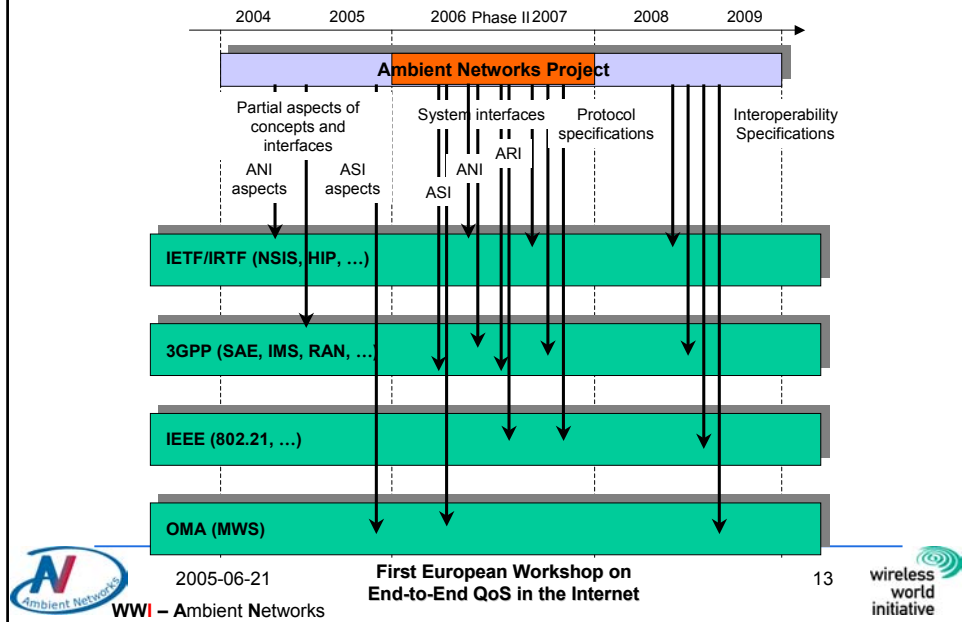
- Easy to manage, cost efficient, adaptable and permanent connectivity in the best possible manner.
- New roles, more players and competition
- Better coverage & quality
- Communication component for ambient intelligence
- Low cost infrastructure

❖ For service providers, network operators, manufacturers

- A set of interfaces which ease deployment of new services in a co-operative manner
- Decoupling of network innovation from radio and application
- Possibility for new and diversified roles
- Easy to deploy and maintain

<http://www.ambient-networks.org>

Standardisation roadmap



Disclaimer

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Any questions?