B3G-SA Cluster
~ Beyond-3G Systems Architecture ~

http://www.cordis.lu/ist/directorate_d/cnt/proclu/c/beyond3g.htm
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Agenda 20 March 2007

• 10:00  General update on projects on the cluster

• **Projects should prepare contributions for the summary of results.**

• A potential Budapest meeting during the IST mobile summit

• B3G cluster special session at PIMRC2007

• Workshop topic for the September meeting

• A.O.B.

• *Lunch*

• 13:30 Workshop **Network Detection and Heterogeneous Radio Resource Management**
Constituent Projects

- AMBIENT NETWORKS
  - Enable
  - E2R2
  - Unite
  - Motive
  - Comet
  - Adhocsys

- DAIDALOS
  - WINNER
  - Aroma
  - Windeect
  - Multinet
Compiling a common document

• Results and lessons learned
• And an outlook on what should be solved in FP7
• WWI System Architecture paper as starting point
  – Looking for the commonalities
• Norbert to provide the WWI paper
• Each B3GSA project to provide max. 2 pages on main lessons learned
  – Focus on results independent of project terminology
  – Main project results to be delivered until end May
  – In June editing into a common document (Norbert, Markus, George, Ricardo)
  – Output to (non-technical) IST book as well as a more technical available for distribution at next concertation meeting
  – Budapest meeting for final editing!
New views

- IP not the end of communications
- Fixed-Mobile convergence more serious now than in the beginning of FP6
- More self-management and distributed approaches needed
- Enabling services as an offer of the network
- Work on business modeling in technical systems to be continued – taking more diversity and fragmentation into account
- New experimental facilities needed
- Pervasiveness and ambience of services are the new goals
- Net neutrality debate not foreseen in IST current dimension
- Users want to use different accesses to reach the provider that takes care of him/her
- Usability issues of personal profiles that enable user awareness of the networks and services
Schedule

- Concertation Mar: Kick-off
- Mobile Summit 06: Verification and testbeds (Unite)
- Conc. Oct 06: Mobility (Enable) & Policies (E2R2)
- Conc. Mar 07: Network Detection and heterogeneous RRM (ANII)
- Mobile Summit 07: Editing the conclusions (1/2 day) in Budapest
- PIMRC 07 special B3G session: Experimental paradigms in Athens (Unite, E2R2, ANII) & Network Security in the B3GSA (Daidalos, ANII, WINNER, Enable..) ½ days each and short cluster meeting
- Conc. Sep 07:
B3G and SRM Cluster Workshop on
Network detection and heterogeneous radio resource management

March 20th, 2007 in Brussels, Belgium,
Avenue de Beaulieu 33, room 0/54

Jens Gebert
J.Gebert@alcatel-lucent.de
Workshop Overview

• Get a comprehensive understanding of advances and technologies developed within EU projects in the area of
  – network detection
  – heterogeneous radio resource management
  – multi radio access architecture

• Workshop organised by
  – IST Ambient Networks Project funded by EU FP6 program
  – in collaboration with the commission and within the activities of the
  – Beyond 3G-System Architecture (B3G-SA) cluster and the Spectrum & Resource Management Cluster (SRM)
Introduction

• Today there are many different heterogeneous access technologies that differ in their support of data rates, mobility, coverage, quality of service, and possible business models.

• In the future, additional technologies are expected with other characteristics supporting new challenging networking scenarios, but most likely not replacing the existing technologies.

• Coordinated use of different radio access technologies, so called multi-radio access, can potentially yield significant gains for both providers and end-users of wireless networks.

• Improvements are expected for example in total effective capacity, total coverage, radio resource usage efficiency (better battery life time), mobility support, service availability, flexibility in deployment alternatives, and cost.

Easier integration of new technologies due to common functionalities, thus reduced development
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<tr>
<th>Time</th>
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<td>13:30 – 13:45</td>
<td>Welcome and Workshop Opening</td>
<td>Jens Gebert (Alcatel-Lucent)</td>
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<td>14:05 – 14:25</td>
<td>Ambient Network Advertisements for Attachment</td>
<td>Joachim Sachs (Ericsson)</td>
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<td>14:25 – 14:55</td>
<td>Management of Radio Resources in reconfigurable/cognitive heterogeneous B3G infrastructures</td>
<td>Panagiotis Demestichas (University of Piraeus)</td>
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<td>14:55 –</td>
<td>Coffee Break</td>
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<td>15:10 – 15:30</td>
<td>MIH mechanisms for fast IPv6 handover procedures</td>
<td>Wenbing Yao (Brunel University)</td>
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<td>15:30 – 15:50</td>
<td>End to Edge Architecture and QoS management for IP RANs</td>
<td>Ramon Ferrús (Technical University of Catalonia -UPC)</td>
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<td>15:50 – 16:10</td>
<td>Techno-economic aspects of the RRM techniques in Heterogeneous Networks</td>
<td>Andrea Barbaresi (Telecom Italia)</td>
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<td>16:10 – 16:30</td>
<td>Workshop Conclusions</td>
<td>Norbert Niebert (Ericsson)</td>
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Conclusions from Workshop on Network Detection and Heterogeneous RRM

- Multi-access means often also multi-operator
- Right abstraction will allow the right access decision in a hierarchical fashion
  - Connectivity, link, resource
  - Some sort of convergence layer is useful (like a uniform Ambient Resource Interface)
- Beware: Access selection costs battery
Conclusions from Workshop on Network Detection and Heterogeneous RRM (2)

- Network attachment procedure is chatty and lengthy today (up to 20 messages)
- Optimised Network Attachment Protocol has been developed (ANAP with 4-way handshake with security by default)
- Find out early if you cannot use a network
- Network advertisements become more important and should be access independent
Conclusions from Workshop on Network Detection and Heterogeneous RRM (3)

- Spectrum selection is increasing the problem complexity for access selection
- If RAT reconfiguration is taken into account up to 60% improvement is possible – but you need to know the user requirements in detail
- 802.21 offers a generic framework for media independent handover
  - Authorisation hierarchy essential to be built in
  - Information Server not yet specified in this framework but is an essential element to speed-up handover
Conclusions from Workshop on Network Detection and Heterogeneous RRM (4)

- Drivers for heterogeneous RRM research
  - IP and RAN integration
  - Radio and transport coordination
- Techno-economics play an important role
  - Following the traffic maximises the revenues
  - Radio over Fibre gives additional flexibility
  - Both CAPEX and OPEX can be optimised using a flexible micro-cell layer
  - WiFi micro cell layer is economical for hot-spot traffic but QoS specifications still missing