B3G-SA Cluster
(Beyond-3G Systems Architecture)

Norbert Niebert

Georgios Kormentzas
Markus Muck
Constituent Projects

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

- DAIDALOS
  - WINNER
  - Aroma
  - Windect
  - Multinet
  - eSense
  - Magnet Beyond
Workshop 1: Mobility Technologies in the Internet

- ENABLE organised
- Keynote about PANA, 802.21 work and pre-authentication
- Presentations from ENABLE, DAIDALOS, Ambient Networks 2, UNITE
- Keynote on Market Opportunities for Mobility in the Internet
Mobility Workshop Conclusions

• Enable provided a very interesting overview about mobility mechanisms and issues
  – Policy issues and operator control remain issues
• Concerns shift from protocols and performance issues to multi-domain and security concerns
• Cross-layer interaction (L2-L3-App) for mobility and security
• A lot of focus on IEEE and IETF - 3GPP no longer a player in terms of mobility?
More Conclusions

• Mobility and security signalling and mechanisms are very much interrelated
  – Multitude of solutions for both these issues independently generated by IETF not necessarily the optimum solution

• Network and terminal initiated procedures – the operator role?
  – And the performance issues of pure mobile initiated handover
  – An abstraction layer is required for heterogeneous networks
Even more conclusions

• Handovers trigger policy re-evaluation
• Internet architecture (r)evolution will provide better embedded mobility and security
• Tests and testbeds are needed for the evaluation of the various schemes
• And consider that operators need to see a clear benefit to enable/allow mobility
Workshop 2: Policy Based Distributed Decision Making

• 2 Keynote Speeches
• Contributions from E2R2, Ambient Networks 2, UNITE, WINNER II
• Keynote Speeches by N. Alonistioti and M. Muck
  – The « wireless future » lies heterogeneous wireless systems of high complexity due to an ever increasing number of standards (IEEE 802.11a-y, IEEE802.16a-k, etc.).
  – Distributed decision making is key in order to i) handle the complexity, ii) guarantee fast reactivity of user devices and iii) keep reconfiguration overhead to a minimum

• « A Policy Management Framework for Ambient Networks » by B. Ohlman, AN
  – AN policy framework is presented
  – Emphasis on policy editing tools, e.g. XACML 2.0

• « From Reconfigurability towards Cognition: Distributed, Policy-Based Selection of Reconfigurations » by K. Tsagkaris, E²R
  – Concepts on RAT selection and/or spectrum selection are presented
  – RAT selection may be largely distributed, while spectrum selection requires more centralized functionalities
Notes (II/3)

- « A Novel System Concept for Heterogeneous Wireless Communication Systems based on Distributed Decision Making » by M. Muck & S. Gault, E²R
  - IEEE P1900.B Study Group Standardization effort is presented
  - Illustration of policy derivation in 2-users context
- « Logical and physical architecture of UNITE virtual Distributed Test-bed » by G. Kormentzas, UNITE
  - Illustration of test-bed plans and functionalities
  - UNITE declares interest to cooperate with IEEE P1900.B, since this provides a framework for the presentation of the test-bed
  - Ontology representation is presented
  - Reconfiguration Management plan is presented, evolution from E2R-I to E2R-II is discussed
Notes (III/3)

• « Mobility management schemes with a focus on the process of handover » by A. Mihovska, WINNER
  – Presentation of the WINNER approach
  – Distributed decision making and Vertical HO concepts in WINNER
  – Mobility Management Issues

• Conclusions and final remarks by M. Muck
Cluster Workshops

- **June 4, Mykonos:**
  - Distributed testbed and verification – requirements and experiences *(Unite, AN, E2R, Comet, Daidalos)*

- **October 3 Brussels:**
  - Mobility patterns and inter-system mobility *(Enable, AN, Daidalos, E2R, Unite)*
  - Policy based distributed decision making *(E2R, AN, Unite, WINNER)*

- Naming, addressing and identities *(AN, Daidalos, Enable)*
  tentative 4 Dec 2006

- **March 2007, Brussels:**
  - Network detection and heterogeneous radio resource management *(Adhocsys, AN, E2R, Unite, WINNER)*

- **June 2007, Glasgow or July 2007, Budapest:**
  - Convergence layers and functional planes *(Unite, AN, E2R)*
Inter cluster topics

✓ Mobile Service Platforms
  – The Network – Service interface

• Broadband Air Interface & Spectrum and Resource Management
  – Connection of converged networks and multimode broadband air interfaces
  – Multiaccess architecture and CRRM

• Broadcast and Multicast cluster
  – Overlay architecture for triple play

• Advanced Radio Network Topologies
  – Topological impact on the architecture
  – Gateway role

• Broadband for all
  – Fully Mobile Internet Beyond IP
  – Management and Control (EMANICS)
  – Identities

✓ Mesh & Sensor Networks
  – Security and trust
  – Gateway issues
Outputs

• FP6 conclusions on B3G
  – Cluster workshops
  – Abstracts enhanced with links for further reading on the B3G Website
  – Conclusion per workshop on one page
• Interactions with WWRF (System Architecture)
• Visit the Cluster Website
  http://www.wireless-world-initiative.org/B3G-SA
Additional topics for call for papers

- Policies and distributed decision making
- Co-operation models
- Network context management
- Identities, Adressing and Location
- Routing in ad-hoc and mesh networks
- Testbed experiences and trial results
- Mobility and Security
- AAA issues
- Cross-System optimisation and co-existence
- Deployment and interoperability
Retained topics

- Capacity Issues
- Radio Resource Management
- Call admission Control
- QoS & Scheduling
- Service Access & Mobility
- Multiple Access Techniques
- Network Architecture
- Cross-Layer Techniques & Optimization
- Cellular Networks
- Ad-hoc Networks
- Future Broadband Wireless Communication
- Software radio
- Applications & Business Models
- Strategies, Policies and Regulation
- End-to-End Reconfiguration
- Security