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Title: CMCC Wireless Mesh Trial Network Introduction

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Abstract: Brief introduction of EU-MESH

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Content

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Introduction

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- EU-MESH: Enhanced, Ubiquitous, and Dependable Broadband Access using MESH Networks
- EU-MESH (FP7 ICT, project no. 215320) is a 30 month collaborative project which started January 2008, and is funded by the European Commission under Call 1 of ICT (Information and Communication Technologies) in FP7 (7th Framework Programme), targeting the objective “The Network of the Future” of Challenge 1: Pervasive and trusted network and service infrastructures.
- EU-MESH's goal is to develop, evaluate, and trial a system of software modules for building dependable multi-radio multi-channel mesh networks with QoS support that provide ubiquitous and ultra-high speed broadband access.
- Web site: <http://www.eu-mesh.eu>



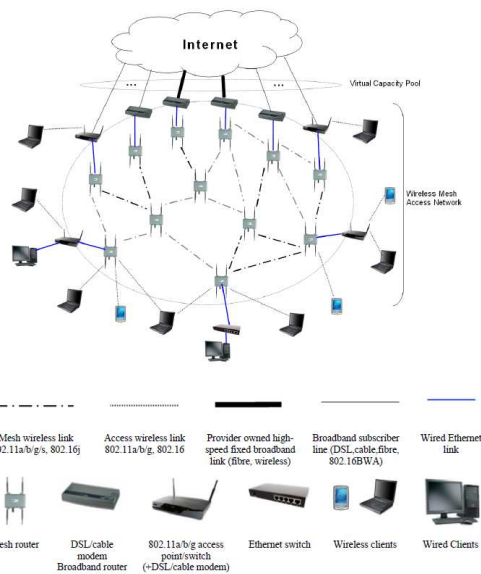
The EU-MESH Consortium



1. Foundation for Research and Technology – Hellas (FORTH), GR: *Coordinator*
 2. National Research Council (CNR), IT
 3. Technical University Berlin, DE
 4. SUPSI, CH
 5. Budapest University of Technology & Economics (BME), HU
 6. Proximity Poland, PL
 7. Thales, FR
 8. Hellenic Telecommunications and Telematic Application Company (FORTHnet), GR
 9. Ozone, FR
- } Research/Academic
- } SME, wireless mgmt software
- } Systems integrator/manufacturer
- } Telecom/hotspot provider



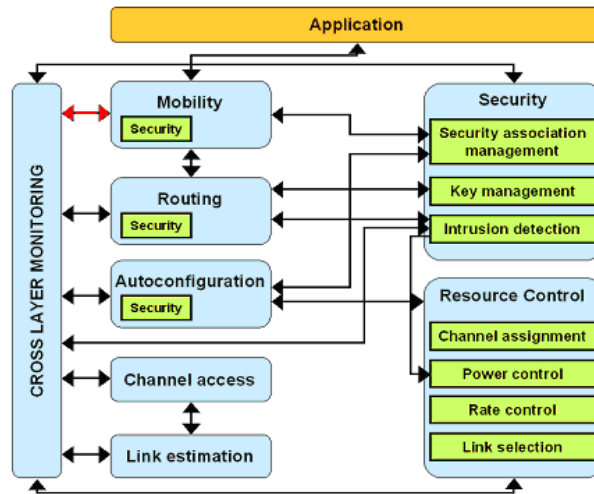
EU-MESH Data Plane Architecture





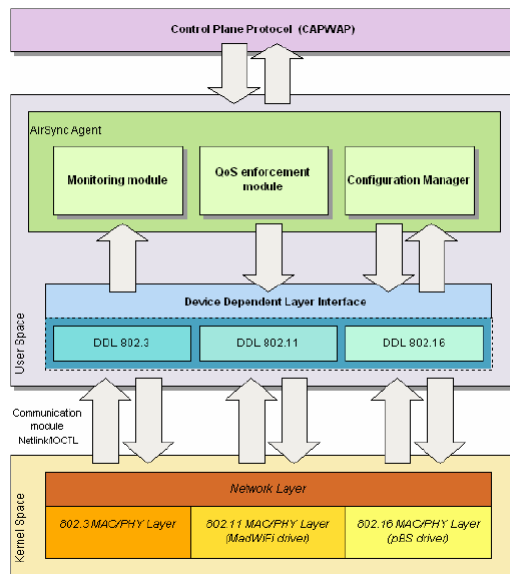
Architecture model of the node

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Cross layer Architecture

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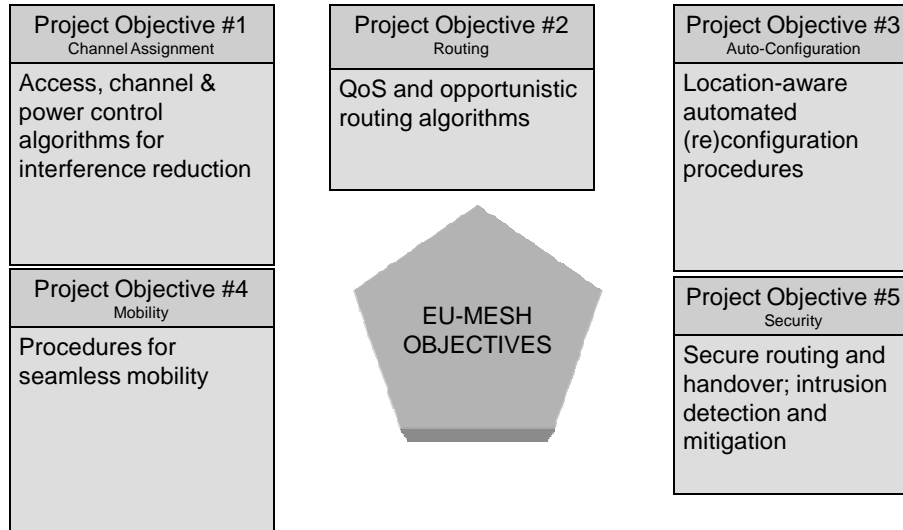


EU-MESH cross layer architecture is based upon Proximetry AirSync platform



Project Objectives

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Experiments

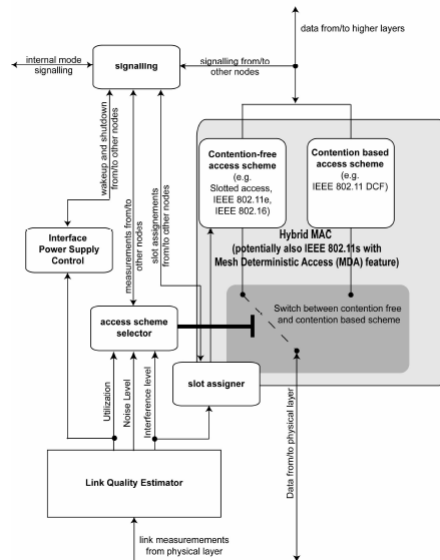
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- Flow splitting experiment
- Channel assignment in metropolitan network
- Anomaly-based intrusion detection
- Hybrid Channel Access for Interference Mitigation in WLANs
- Route and Gateway Selection
- Rate Adaptation Experiment
- Coverage area approximation using mobile users
- Fast Client Authentication
- Secure (multi-path transport) Routing
- Seamless Vertical handover (including WiFi and WiMAX)



Channel access functions in EU-MESH nodes

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Trails

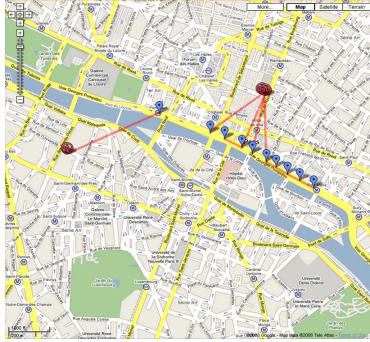
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- Auto-configuration
- Channel assignment
- Seamless handover optimization
- Seamless horizontal handover
- Secure routing
- Gateway Aggregation

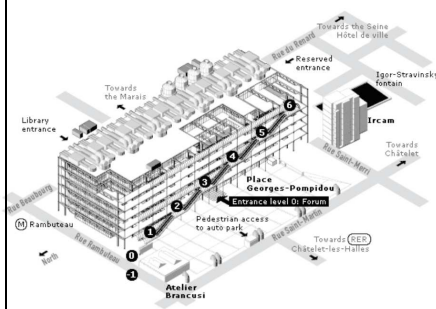


OZONE's networks for trials

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Zone 1, Paris city center, 12 Lampposts deployed, backhaul through Wireless links.

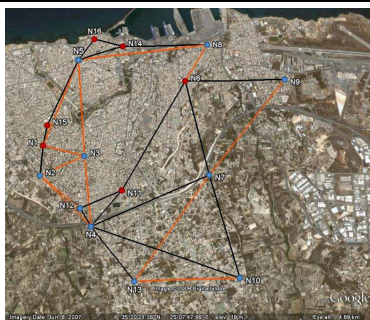


OZONE/Proximetry wifi mesh network (Centre Pompidou, Paris)

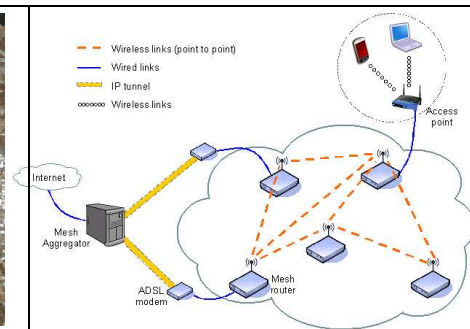


Forthnet's networks for trials

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Forthnet MESH Network at Heraklion



Network operational model



Trails deployment details

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	Components	TRIALS	OBJECTIVES
OZONE's museum network	Mikrotik 532 Routerboard, CM9 Wifi Cards, Dual Band Omni- antennas	Emphasize the proof of concept of the solution within a fully operated network. (TRIAL A.1)	CHANNEL ASSIGNMENT, AUTO-CONFIGURATION, SECURITY
		Demonstrating that the functionality of the routing with the security extension proposed in [Eu-Mesh D5.1] has the same level as without security extension (TRIAL A.5)	
		Indoor network are subject of many unpredictable interferences. This will stress the need of efficient channel assignment to improve the network performances. (TRIAL A.2)	
OZONE's lampposts network	Mikrotik 532 Routerboard, CM9 Wifi Cards, Dual Band Omni-	Investigation of seamless handover with cross-layer mechanisms (TRIAL A.3)	MOBILITY
		Optimization of seamless handover based on WiOptiMo improvements (TRIAL A.4)	
Forthnet's ADSL network	ADSL modem (Thomson ST 536 v6 PSTN), Multi-radio mesh router (mini- ITX GW2358-4	Evaluation of performance gains of channel assignment under real conditions in an operated outdoor network. (TRIAL B.1)	CHANNEL ASSIGNMENT, ROUTING
		Aggregation (TRIAL B.2)	



Future Contributions

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- EU-MESH trails and experiments will be completed by end of June 2010
- EU-MESH is planning to submit contributions to IEEE 802.21 meeting in July 2010, in San Diego, addressing the following:
 - Use cases
 - Lessons learned with heterogeneous mesh networks
 - Recommendations

Please contact Walter Buga (Proximetry) with question and suggestions at

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