

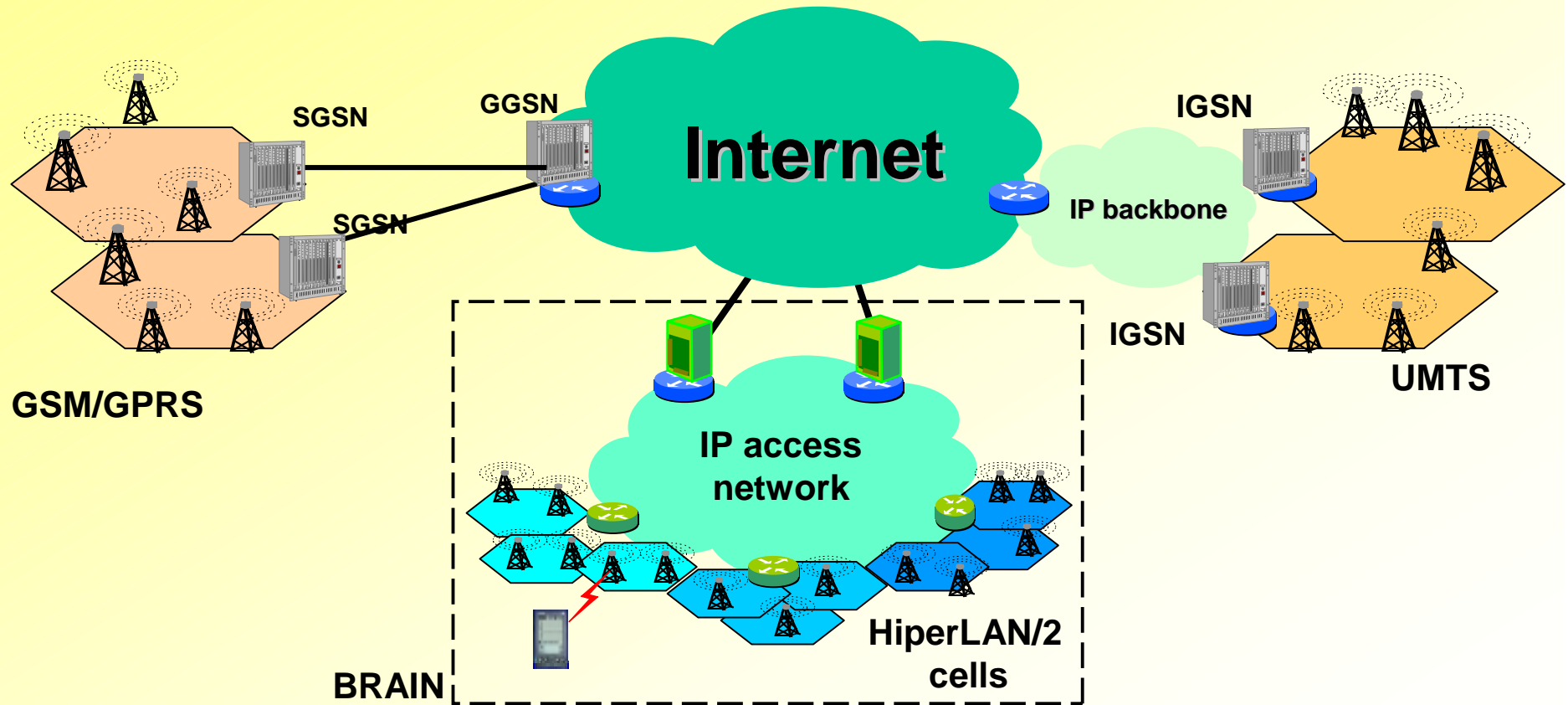
Wireless Access Network using IPv6: the BRAIN Approach

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<http://www.ist-brain.org>

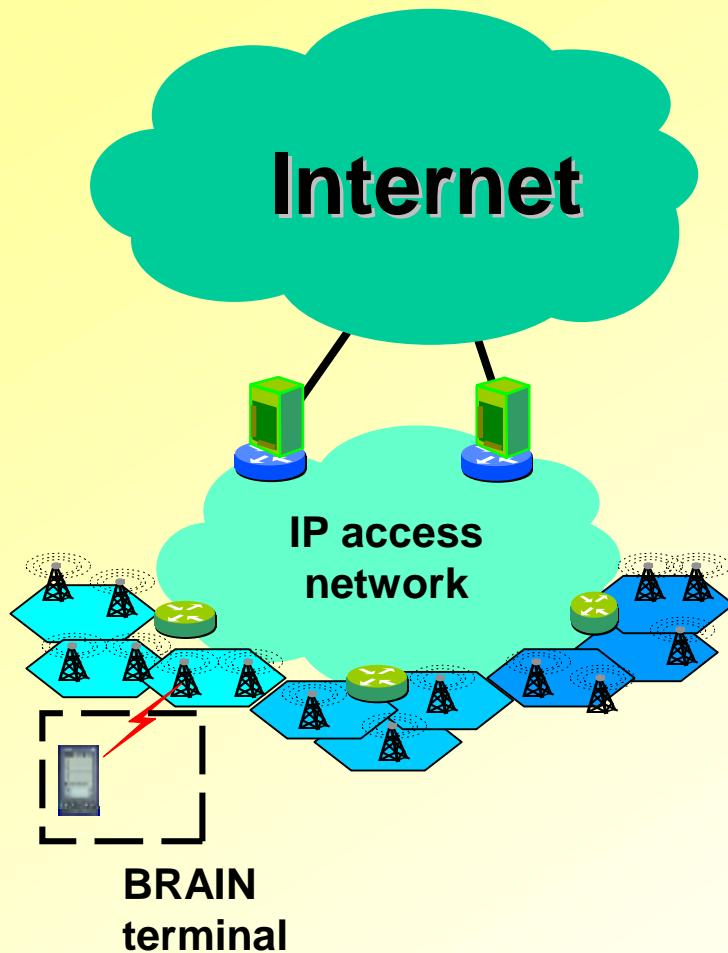


Broadband Radio Access for IP based Networks IST BRAIN



Seamless IP based service provision combining broadband wireless systems with UMTS and GSM to enable full coverage

BRAIN terminal key features



- **Multihomed terminal**
 - Wireless & wired interfaces
 - TCP/IP based communications
- **The need for IPv6**
 - scarcity of IPv4 addresses
 - different network operators
 - stateless autoconfiguration
 - network discovery
 - integrated security
 - better IP mobility support
- **BRENTA:**
 - QoS aware terminal architecture



Mobility support

- Roaming: when visiting networks
 - autoconfiguration and IP security
- Mobility: maintain connections

- Mobile IPv6 (macro)

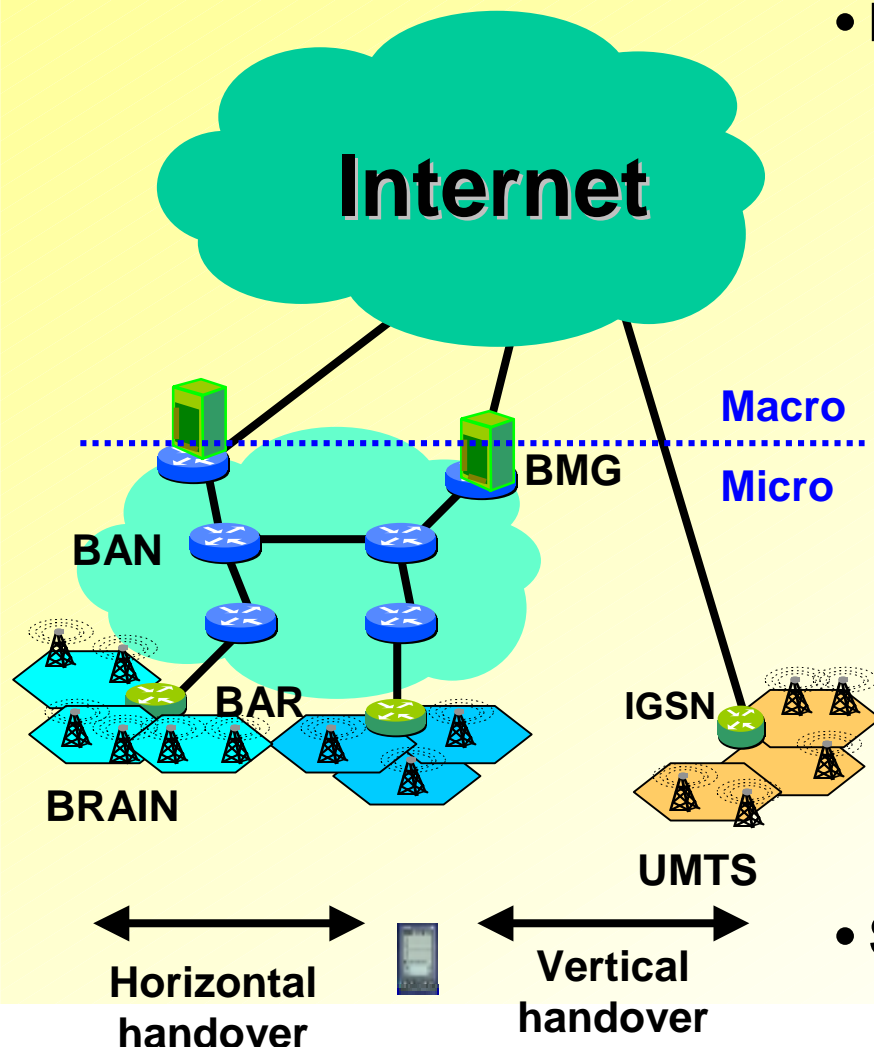
- Destination Address HE
- No need for Foreign Agent
- Optimised routing

- BRAIN Micro mobility

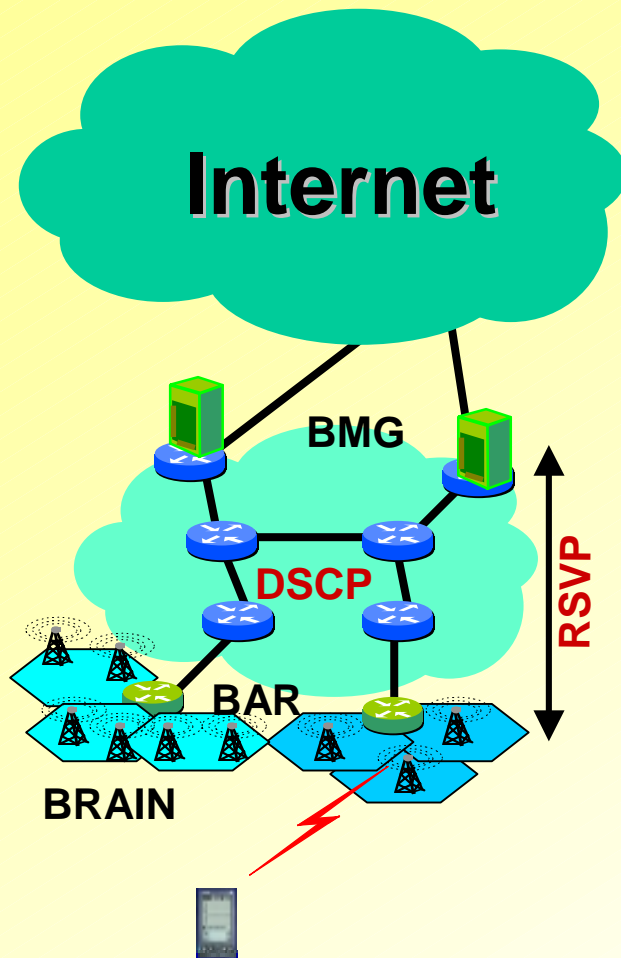
- BAN (Brain Access Network)
- Seamless broadband handover
- Idle mode and Paging
- Extensive usage of IPv6 features

- Support for handovers:

- vertical: different technology
- horizontal: same technology



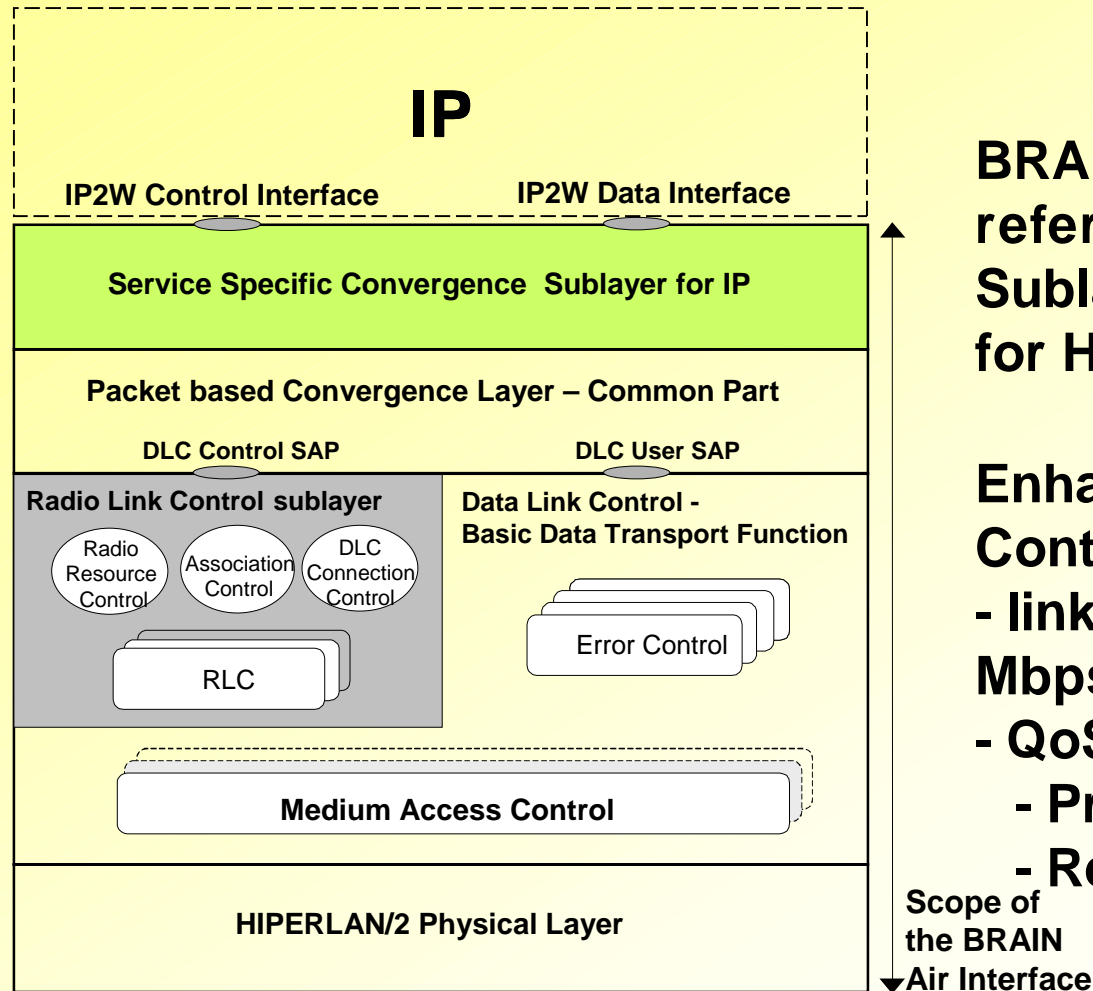
QoS provision



- **Objective:**
 - Maintain the QoS in wireless mobile hosts
- **Basic architecture:**
 - Based on Integrated Services over DiffServ (IETF ISSLL charter)
 - e2e reservations carried by RSVP packets
 - Prioritisation services based on DSCP
- **Benefits of using IPv6:**
 - Predefined DiffServ Code Points
 - Flow identification for supporting reservations
 - Advantages on mobility performance



IP over HiperLAN/2



Source: H2GF

BRAIN specifies a reference IP Convergence Sublayer implementation for HIPERLAN type 2

Enhancements to Data Link Control layer:

- link adaptation: up to 54 Mbps
- QoS types support
 - Prioritised traffic
 - Reservation



Conclusions

- **BRAIN design made extensive usage of new IPv6 features with success**
 - No new features required
 - It is an IETF protocols based design
- **Results of the project will be made available soon**
 - <http://www.ist-brain.org>
 - Project ends March 31st
- **New IST project will further elaborate this work**
 - MIND (Mobile IP based Network Developments)
 - There will be testbeds and trials
 - Relevant results will be contributed to standardisation bodies



Acknowledgements

This work has been performed in the framework of the IST project IST-1999-10050 BRAIN, which is partly funded by the European Union. The authors would like to acknowledge the contributions of their colleagues from:

- Siemens AG
- British Telecommunications PLC
- Agora Systems S.A.
- Ericsson Radio Systems AB
- France Télécom – R&D
- INRIA
- King's College London
- Nokia Corporation
- NTT DoCoMo
- Sony International (Europe) GmbH
- T-Nova Deutsche Telekom Innovationsgesellschaft mbH

