

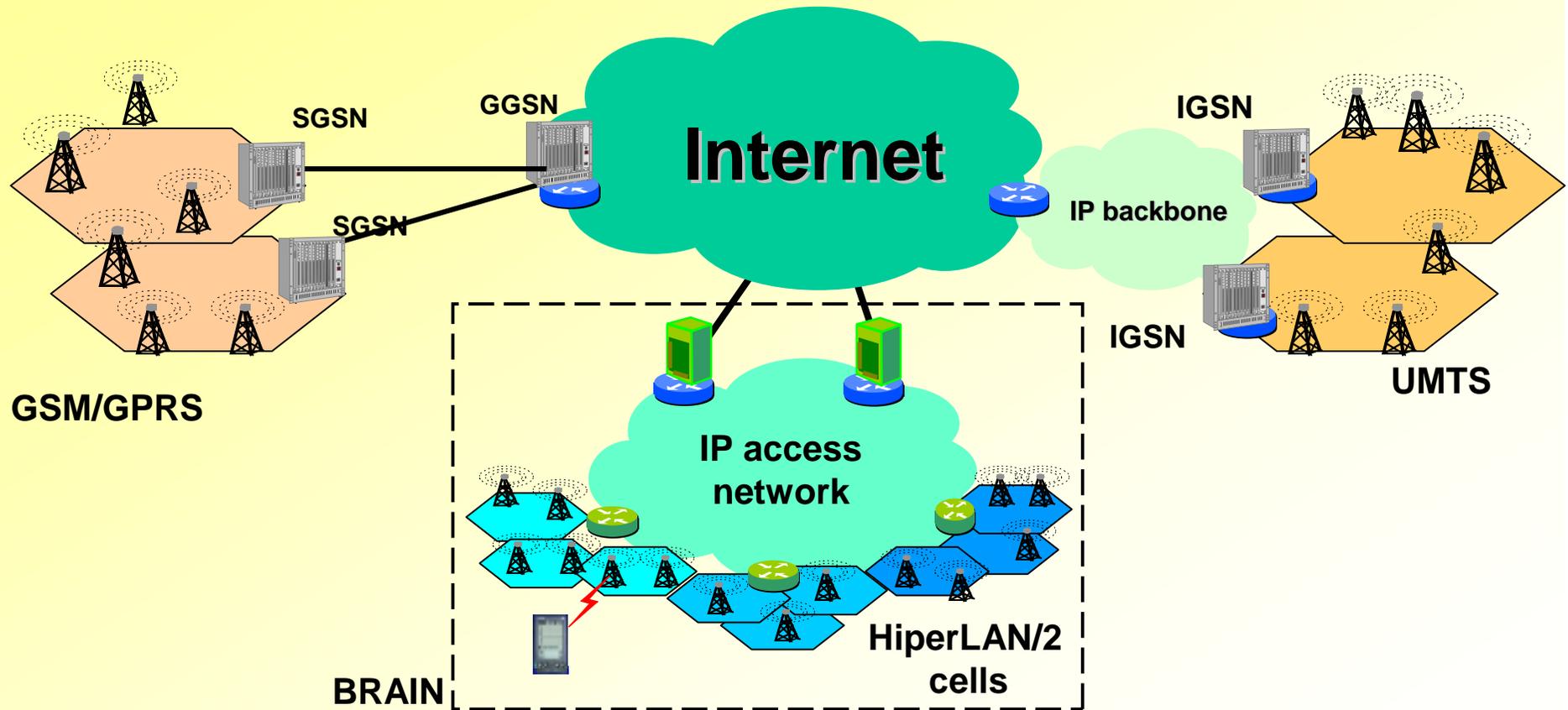
Wireless Access Network using IPv6: the BRAIN Approach

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



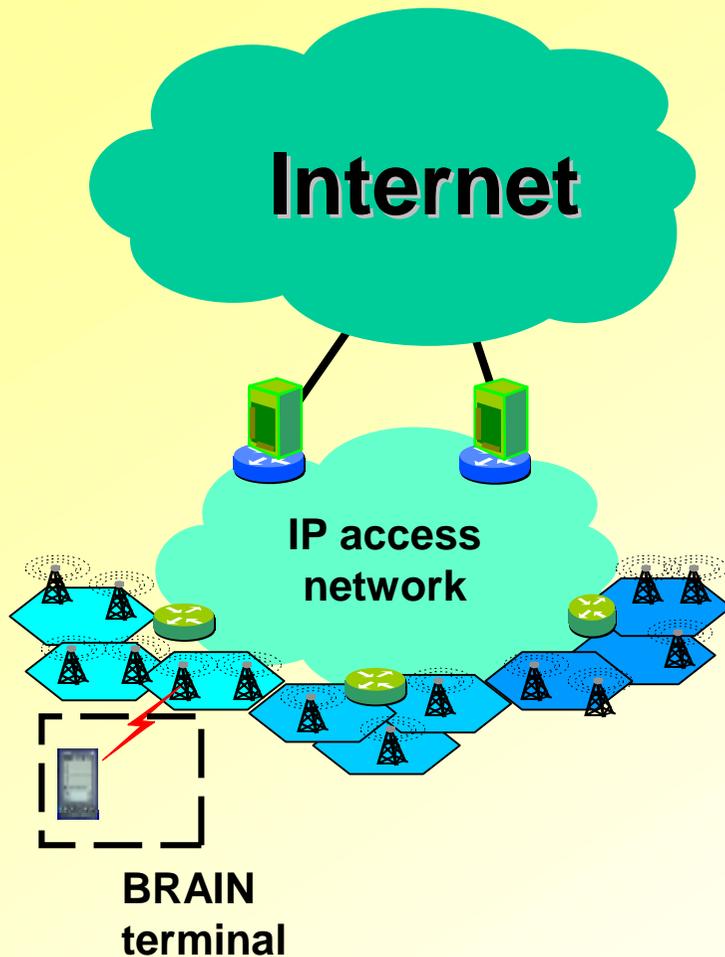
Broadband Radio Access for IP based Networks IST BRAIN



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



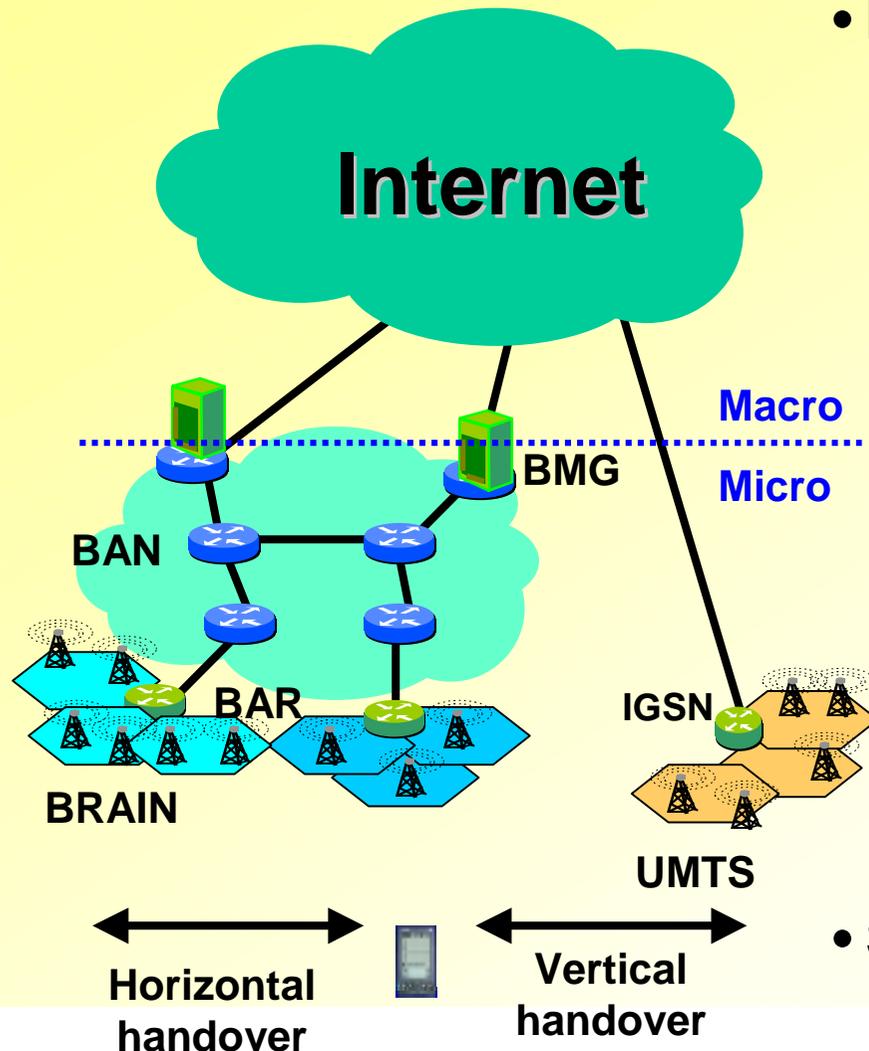
BRAIN terminal key features



- **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**



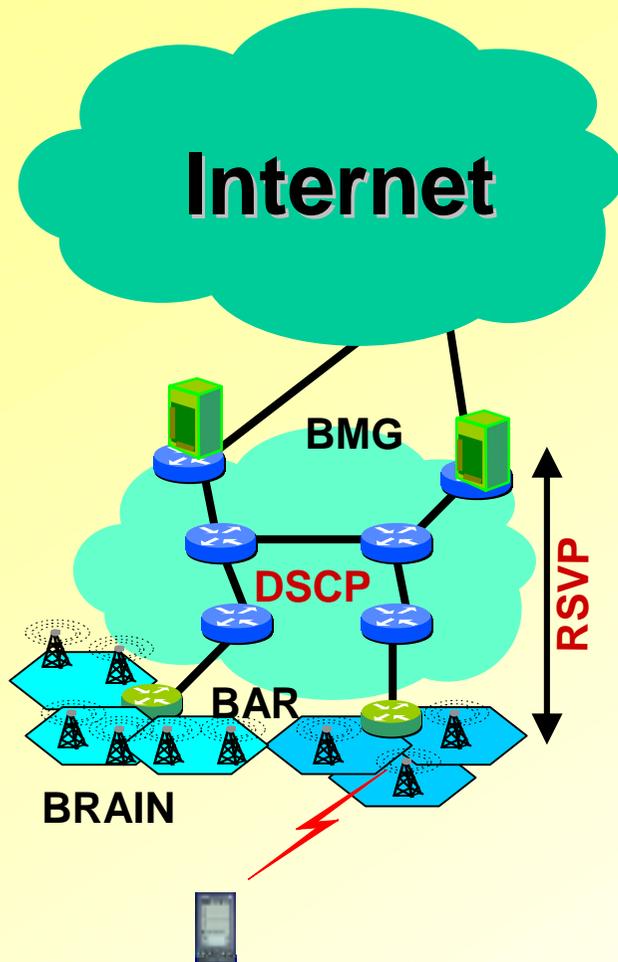
Mobility support



- 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



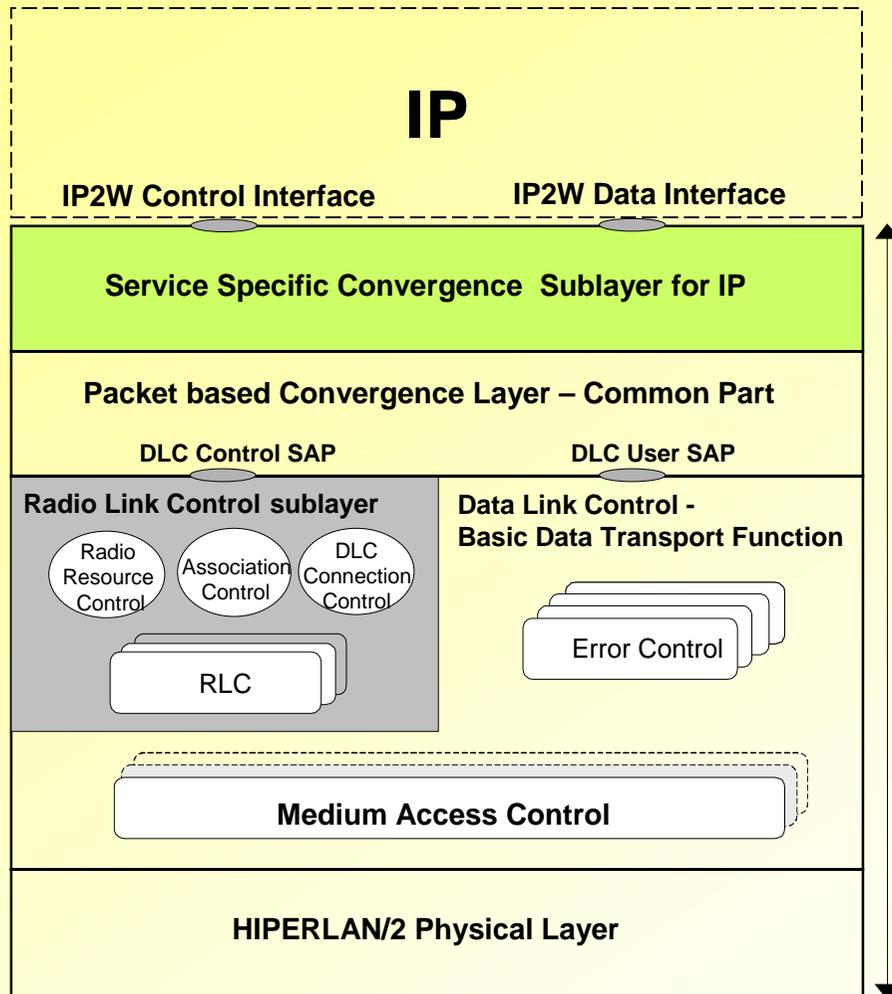
QoS provision



- 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



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

Scope of the BRAIN
Air Interface

Source: H2GF



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



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