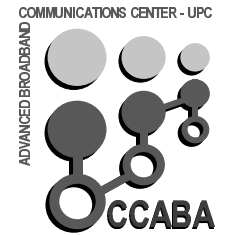




UNIVERSITAT POLITÈCNICA  
DE CATALUNYA



# LONG Laboratories Over Next Generation Networks

Jordi Domingo-Pascual  
Josep Manges-Bafalluy  
Advanced Broadband Communications Center (CCABA)  
Universitat Politècnica de Catalunya (UPC)  
[www.ccaba.upc.es](http://www.ccaba.upc.es)

# General Information (II)

- **LONG: Laboratories Over Next Generation Networks.**
  - **IST Program of EU: IST-1999-20393.**
  - **Participants:**
    - Portugal Telecom Inovacao (PTIN),
    - Telefónica I+D (TID),
    - Universidad Carlos III de Madrid (UC3M),
    - Universidade de Évora (UEV),
    - Universitat Politècnica de Catalunya (UPC),
    - Universidad Politécnica de Madrid (UPM),
    - Nortel Networks (NOR)
  - **Project Coordination: TID.**
  - **Start Date: 1/12/2000. Duration: 24 Months.**

# General Information (II)

- **Management, Coordination and Dissemination Work Packages:**
  - WP 1: Management and Coordination.
  - WP 5: Dissemination of the Results.
  
- **Technical Work Packages:**
  - WP 2: Network Design and Deployment.
  - WP 3: Collaborative Work Environment.
  - WP 4: System Trials and Evaluation.

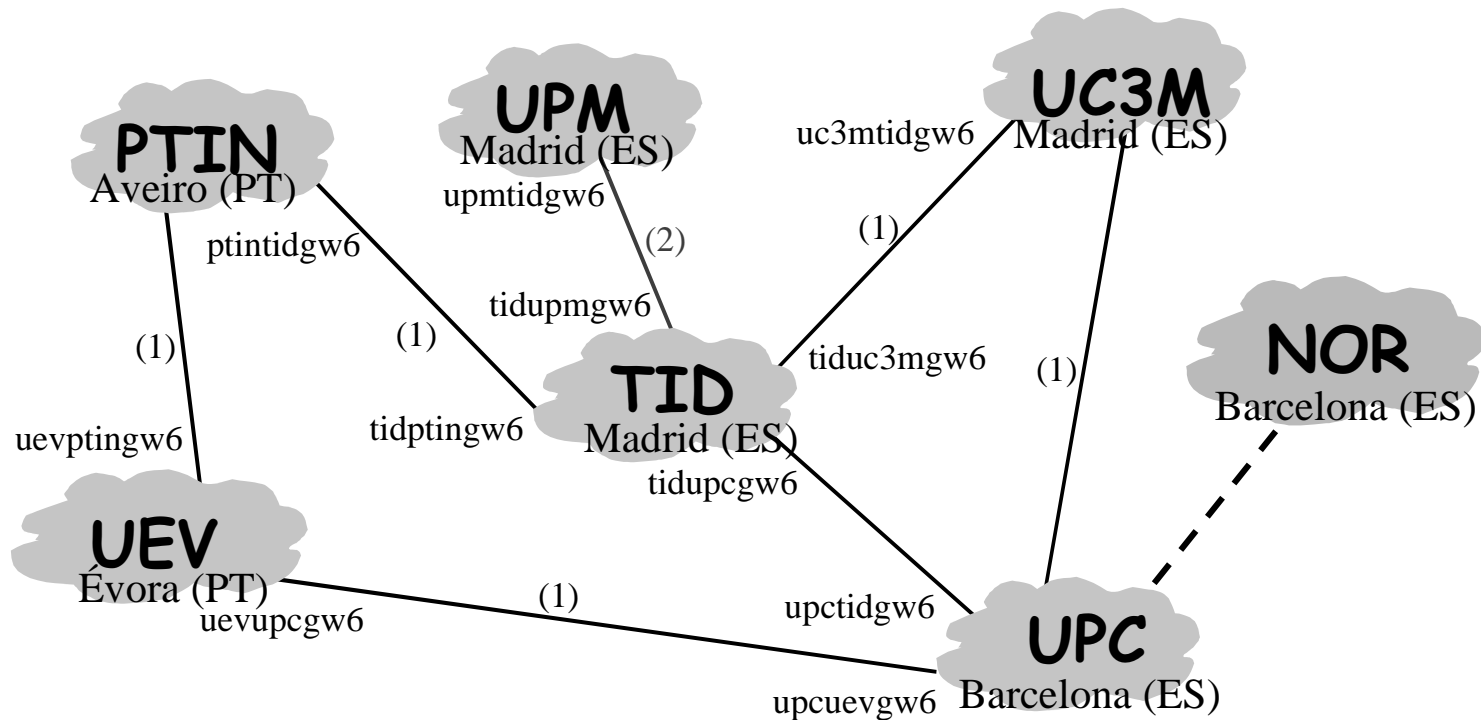
# WP 2: Network Platform

- **Main Activities:**

- **A2.1 Interoperability IPv4-IPv6 scenarios definition and transition strategies.** Apart from theoretical studies and combinations, we have focused on examining concrete actual networks and use transition mechanisms only when needed to access non-migrated services.
- **A2.2 Evaluate several access and transport technologies as well as their IPv6 interaction.**
  - State of the art of IPv6 over different access/transport technologies.
  - Practical experiments to perform functionality tests and evaluate standards compliance.
  - Tested technologies: Ethernet, GigabitEthernet, ATM, ADSL, CATV, ISDN, WLAN.
  - Planned Tests: POS, DWDM.
  - Different router vendors: Cisco, Ericsson-Telebit, 3COM.
  - Different OS for hosts: FreeBSD, Linux, Solaris and Windows (NT4.0/2000)

# WP 2: Network Platform

## ■ A2.3: Deployment of an IPv6 access platform and interconnection.



### Current Services

- Private DNS system: A/AAAA queries over IPv6 protocol.
- WEB Servers and FTP servers.
- BGP4+ peering (testing now)
- Network Statistics related to network stability (will be available in our WEB Server)

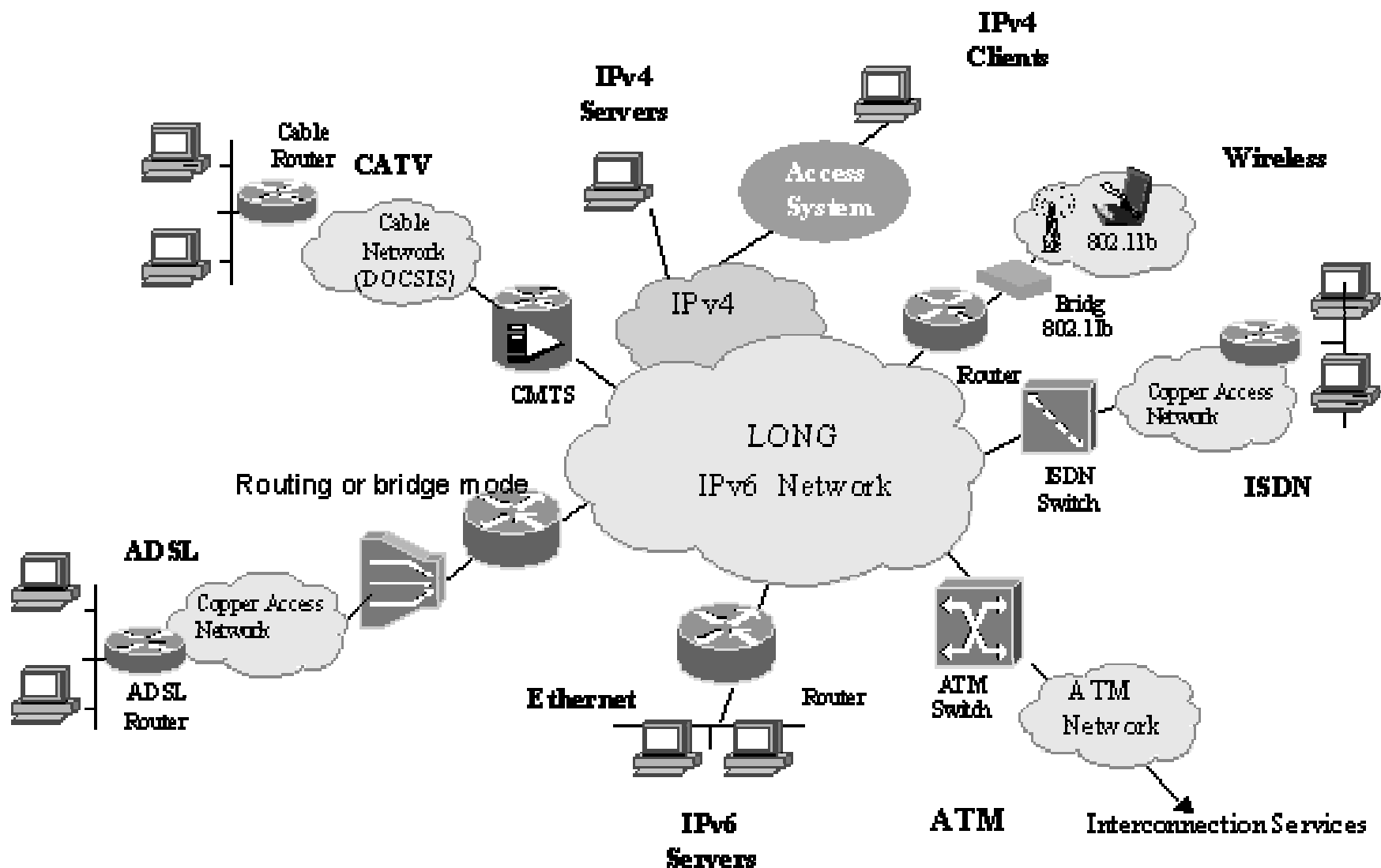
### Links

- (1) IPv6-IPv4 Configured Tunnel over Internet.
- (2) Native IPv6 over ATM (5 Mbps).

# WP 2: Network Platform

- **A2.4 Activities to be performed on this IPv6 Platform:**
  - Evaluate new services in next generation networks: QoS, Multicast, Mobility and Security.
  - To continue the activities of A2.1, A2.2 and A2.3 using the IPv6 platform facilities.
    - State of the art of IPv6 over different access/transport technologies.
    - Practical experiments to perform functionality tests and evaluate standards compliance.
    - Different router vendors: Cisco, Ericsson-Telebit, 3COM.
    - Different OS for hosts: FreeBSD, Linux, Solaris and Windows (NT4.0/2000)
  - Integration of IPv4/IPv6 networks and services.
  - Verify the real state of the art, support, standards compliance and IPv4 interaction strategies of IPv6 protocol.

# LONG Distributed IPv6 Test-bed Platform



# WP 3: Collaborative Environment (I)

- **Main Activities:**

- Adapt an application set from IPv4 to IPv6: ISABEL (CSCW), MGEN (traffic generator/analyzer), etc.
- Develop documentation about IPv6 application migration and the use of the new features.

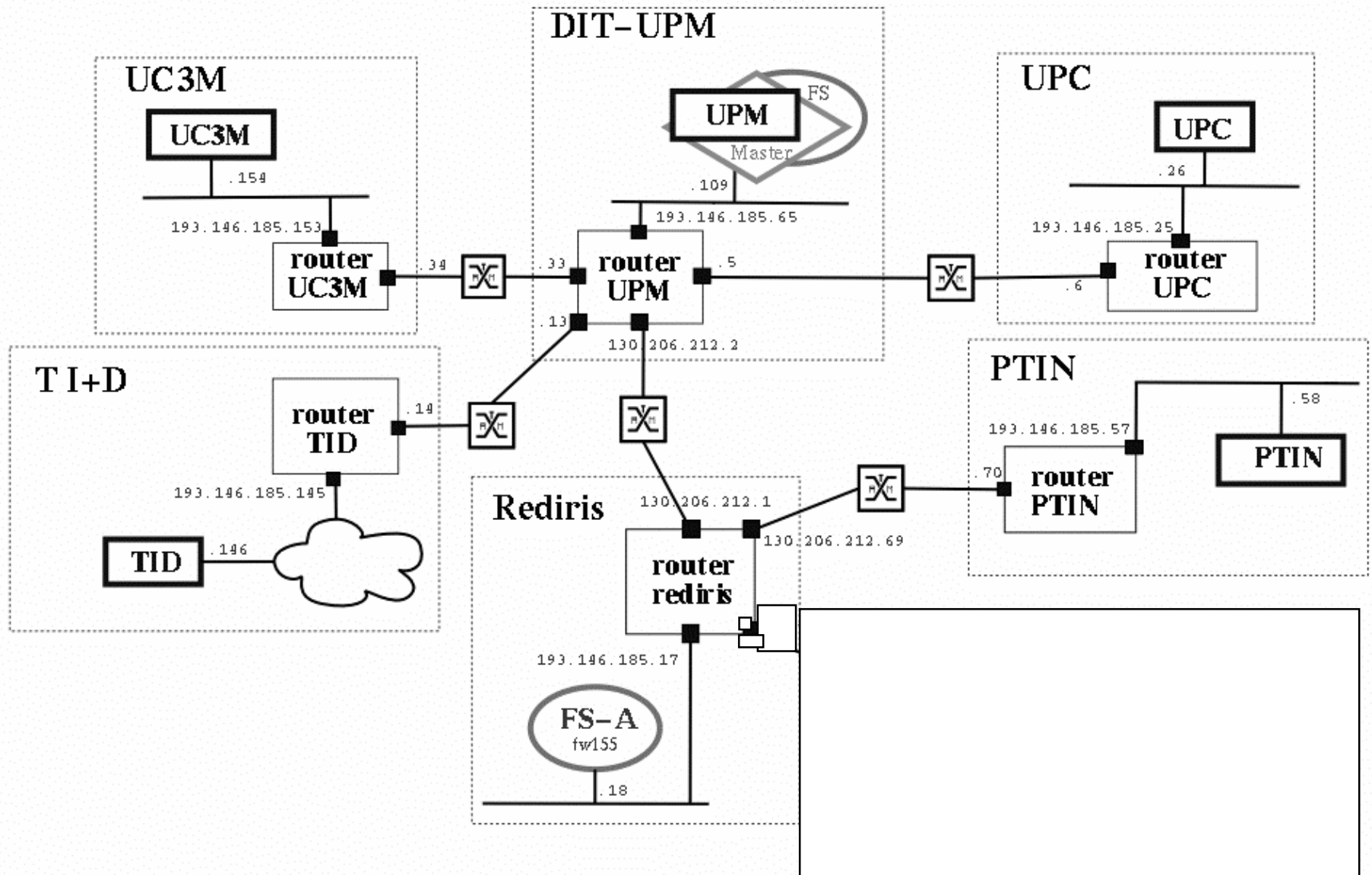
- **Status:**

- **Now:**

- Using ISABEL CSCW application (<http://isabel.dit.upm.es>) over IPv4.
- Most links are temporary links IPv4 over ATM.
- All project meetings (but the kick-off) were performed with this platform. We used REDIRIS, FCCN and DANTE Academic and Research networks
- This infrastructure was used to distribute IPv6 Global Summit (Madrid, Feb-2001) to nodes in Barcelona, Valencia, Murcia, Aveiro, Ljubljana and Ottawa.



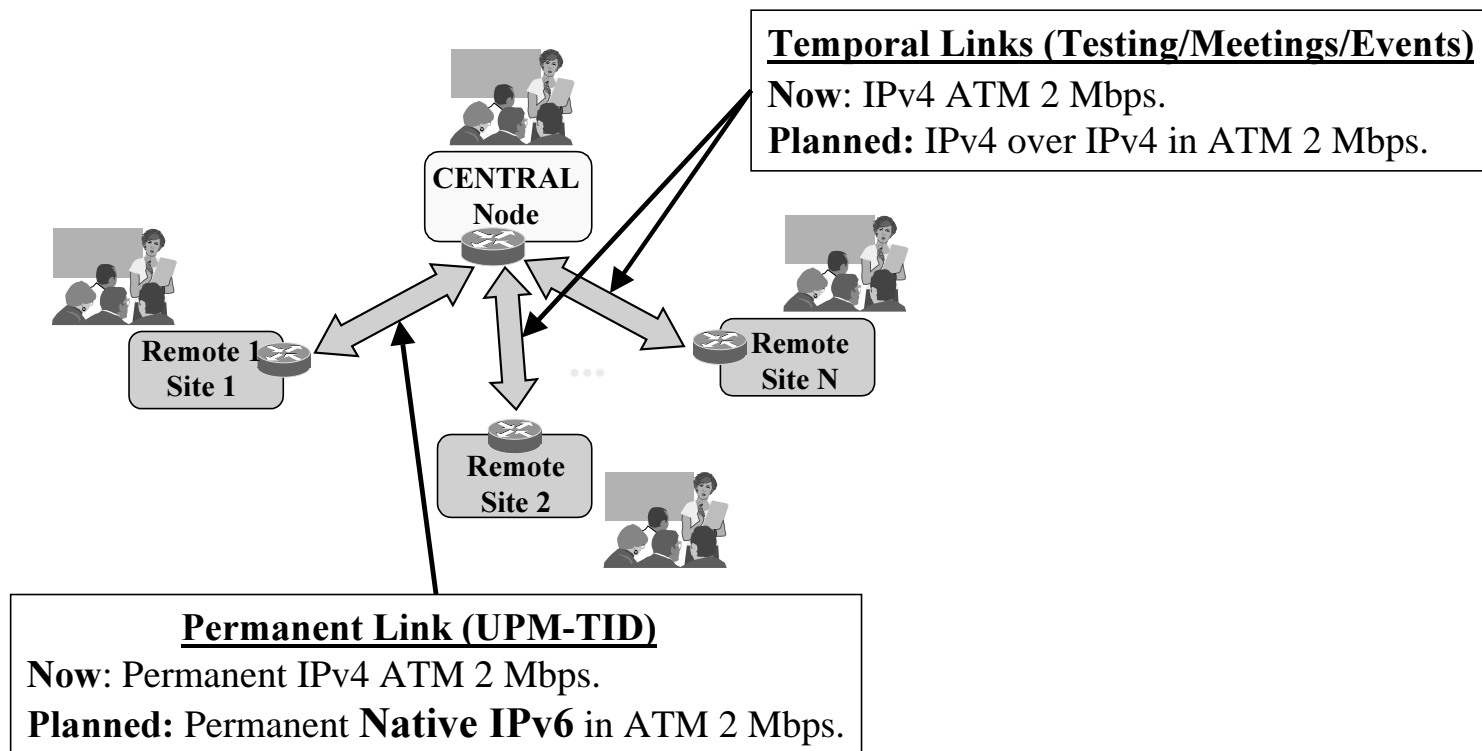
# LONG Project Coordination Meetings



# WP 3: Collaborative Environment (II)

## ■ Next Step:

- ISABEL IPv6 enabled: all partners will be connected with 2 Mbps IPv6 links when testing and distributing meeting/events. At least one link will be native IPv6 over ATM. Other links will be IPv6 tunnels over IPv4/ATM.
- We plan to distribute one wide event using IPv6 technology during next year.



# WP 4: Experiences and Tests

- **Main Activities:**

- **A4.1 Carry out tests: configuration, stability and capabilities of network components and network mechanisms.**

- Since Functionality tests are done in WP2 context, here we make performance tests of:
  - Access Technologies: ADSL, ISDN, WLAN, CATV.
  - Transport Technologies: ATM, GE, POS.
  - Transition Mechanisms: Tunnels (configured, automatic, 6to4), NAT-PT and Socks.
- These tests are made with MGEN migrated to IPv6 (get it now in our WEB server!).
- We plan to perform tests related to:
  - Routing protocols stability and performance.
  - Advanced services support and performance.

- **A4.2 Fulfill tele-meeting experiences and/or tele-conference to evaluate in an accurate way the defined platforms and perform real traffic measurements.**

# SEQUIN Workshop

- **QoS requirements for the LONG Network**
  - **LONG project coordination meetings**
    - Videoconferencing (ISABEL). 2 Mbps between all the partners
  - **Multi-partner IPv6(/IPv4) diffserv tests**
    - IPv6 over IPv4 Tunnels
    - Native IPv6 links with guaranteed QoS. Is it possible?
    - Diffserv tests defined at the end february
  - **Collaboration**
    - Joint diffserv tests with SEQUIN

# Collaborations

- **Possible Synergies and Collaboration with:**

- “Next Generation Networks” development teams.
- Advanced IPv6 Applications development groups.
- Collaborative Work Applications development groups.

- **Contact:**

- Contact mailing list: [long-committee@ac.upc.es](mailto:long-committee@ac.upc.es)
- Jordi Domingo-Pascual: (WP5 Leader) [jordi.domingo@ac.upc.es](mailto:jordi.domingo@ac.upc.es)
- Carlos Ralli Ucendo: (Co-ordinator) [ralli@tid.es](mailto:ralli@tid.es)
  
- Public WEB Site: [long.ccaba.upc.es](http://long.ccaba.upc.es)
- Deliverables available

# Other projects related with IPv6 and QoS provisioning

- **I2CAT**

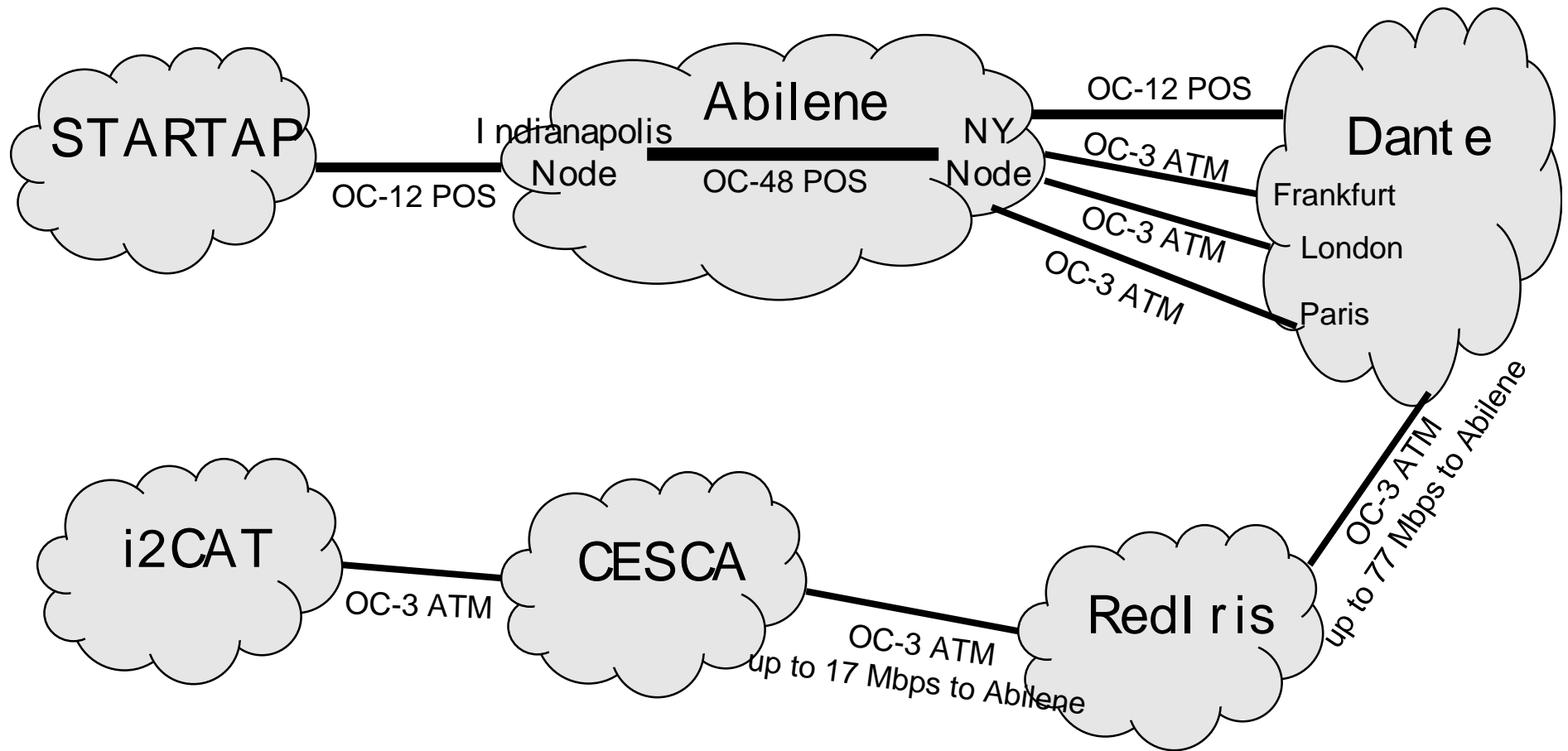
- Next generation networks in Catalunya
- <http://www.i2cat.net>
- <http://gigacat.ccaba.upc.es>

- **CARISMA**

- DWDM ring connecting sites around Barcelona



# i2CAT



Last update: May 2001



# CARISMA

