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LONG

Laboratories Over Next Generation Networks

<http://long.ccaba.upc.es>

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General Information (I)

- **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.**

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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.

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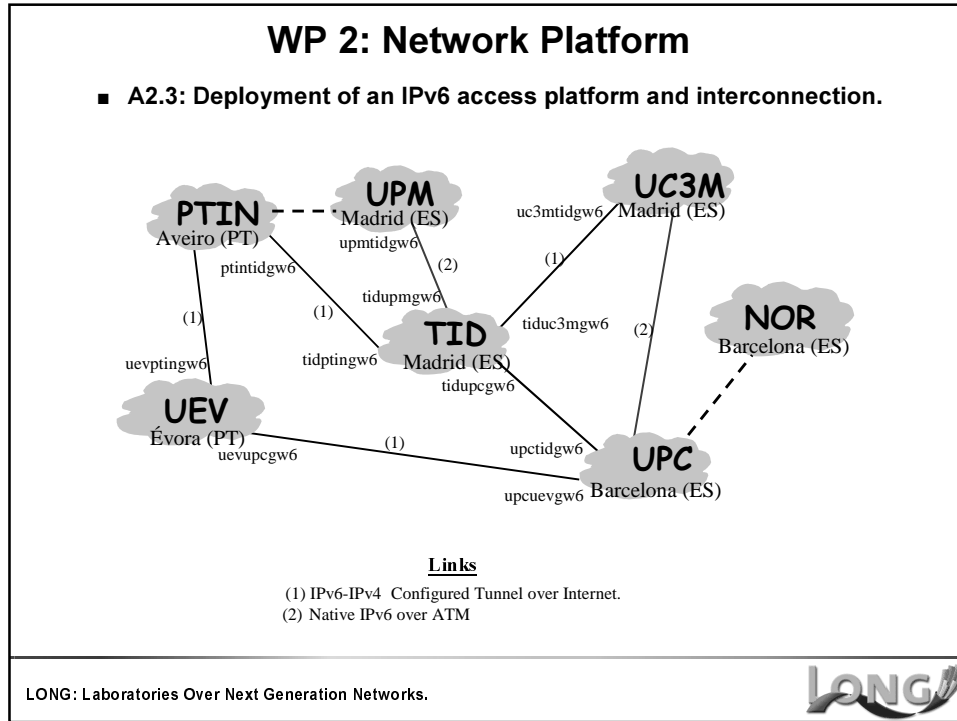


WP 2: Network Platform

- **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)

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- ### 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.
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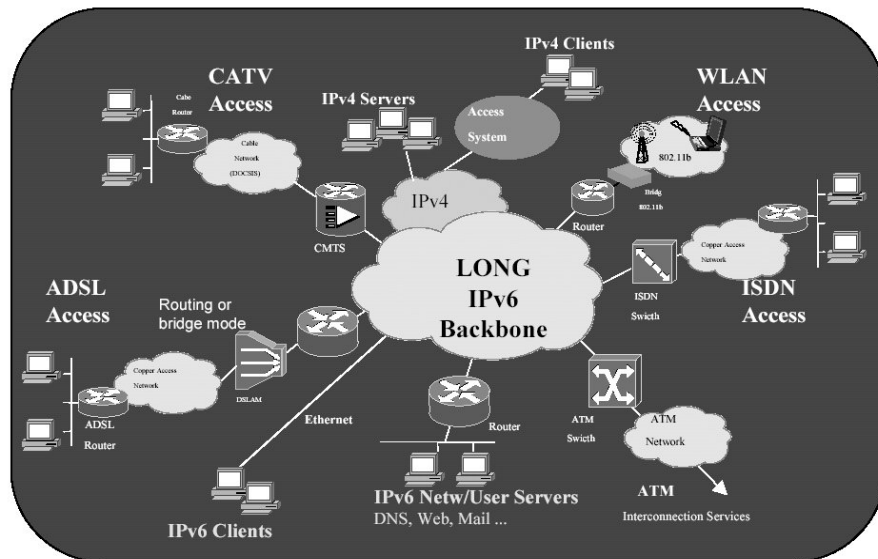
WP 2: Network Platform

- **Current services:**
 - Private DNS System: A/AAAA queries over IPv6 protocol
 - BGP4+ peering
 - Videoconferencing. ISABEL
 - Webtools (Network monitoring, mail, ldap, irc ...)
 - Servers: Web, FTP, IRC, NTP, LDAP, Mail, Proxy, News
 - Games
- **Future tests**
 - QoS – Diffserv
 - Anycast
 - Multihoming
 - Multicast
 - Mobility
 - Security
 - Others: DHCPv6, NFS, AAA with RADIUS

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LONG Distributed IPv6 Test-bed Platform




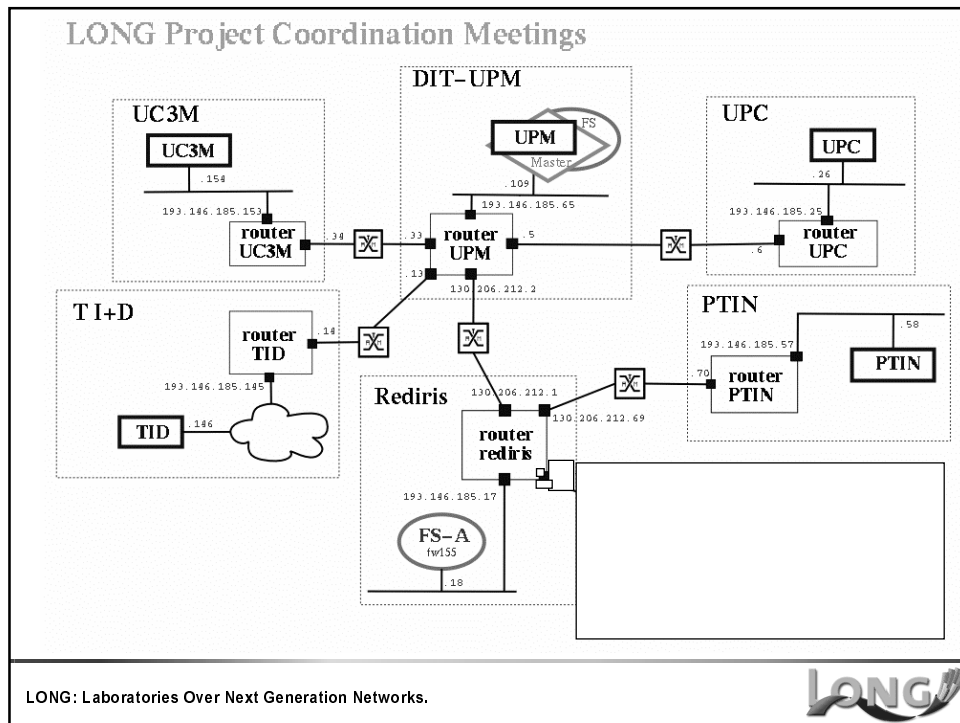
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WP 3: Collaborative Environment (I)

- **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.

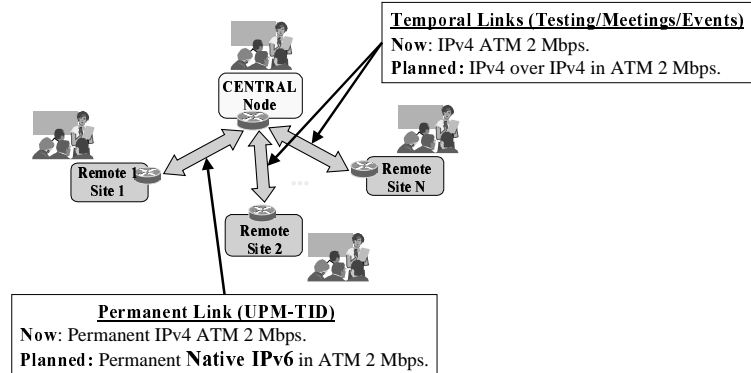
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WP 3: Collaborative Environment (II)

■ **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.



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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!).
 - Some tests carried out with Netperf
 - 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.**

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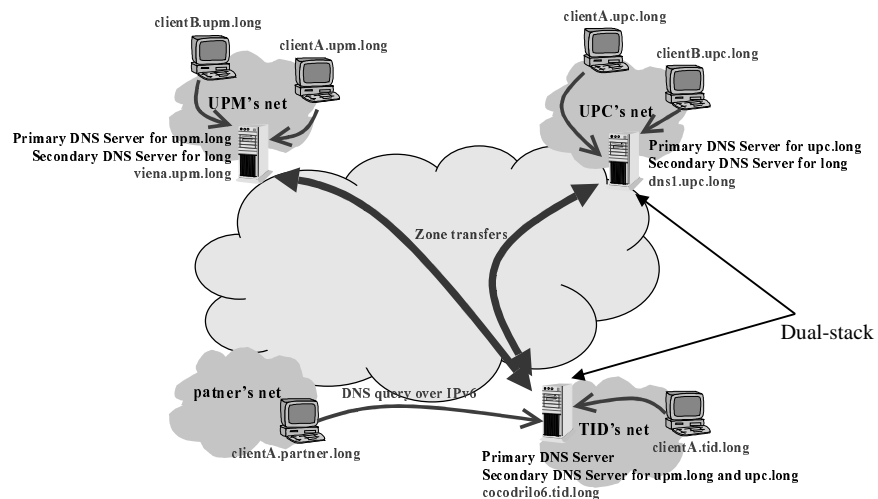
Transition Mechanisms

- **Dual-Stack nodes**
- **Tunneling Mechanisms**
 - Configured Tunneling
 - Automatic Tunneling
 - 6to4
 - Tunnel Broker
 - DSTM (Dual Stack Transition Mechanism)
- **Translation Mechanisms**
 - NAT-PT (NAT Protocol Translation)
 - Socks64
 - BIS (Bump-In-the-Stack)
 - TRT (Transport Relay Translator)

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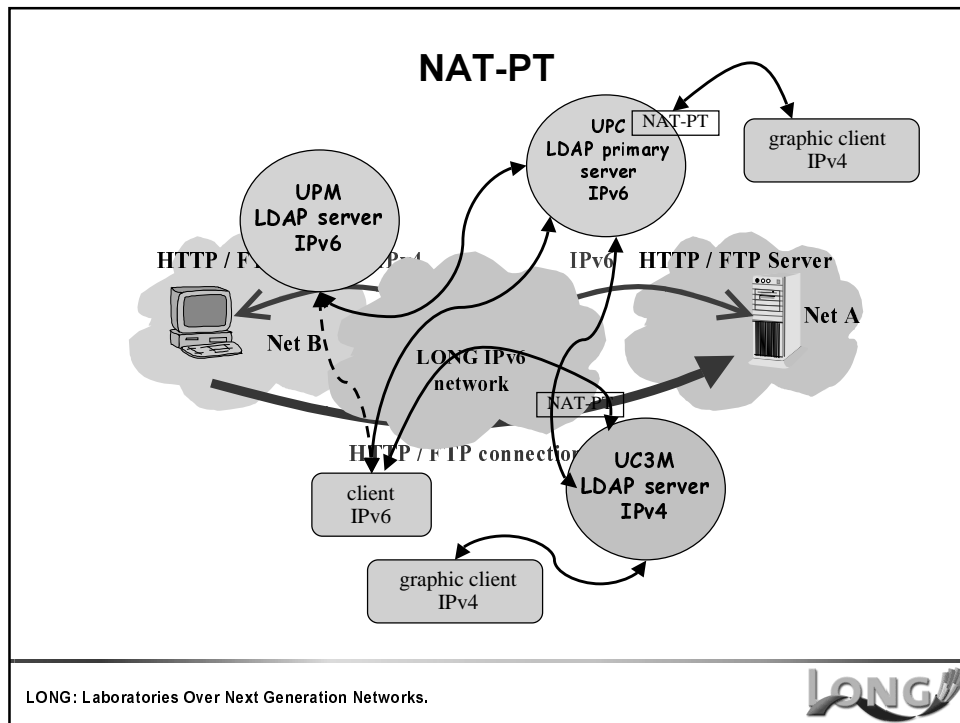
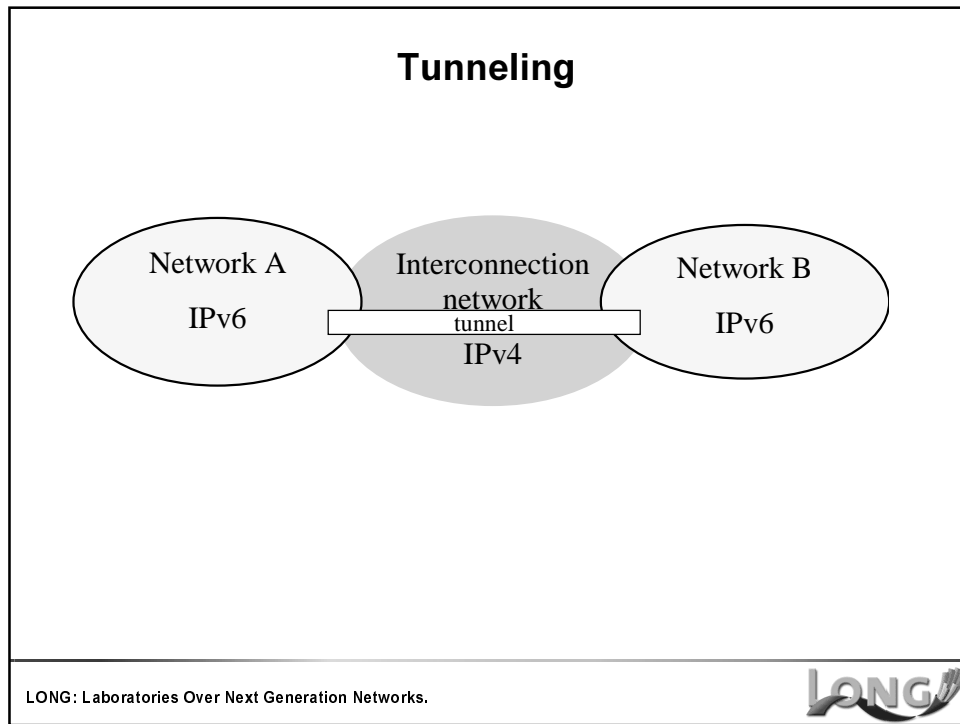


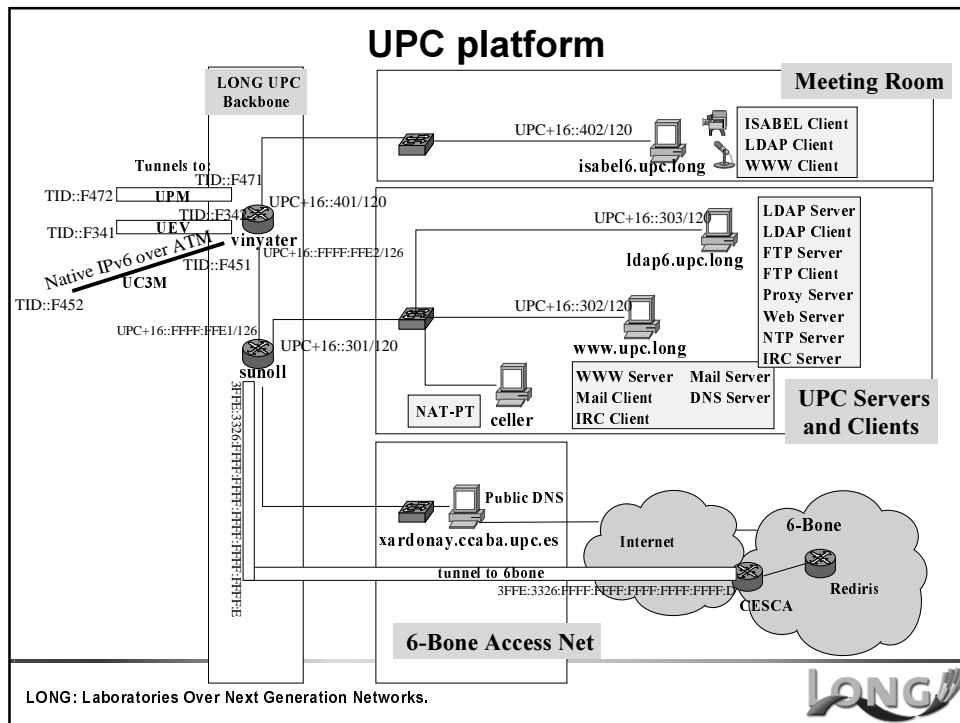
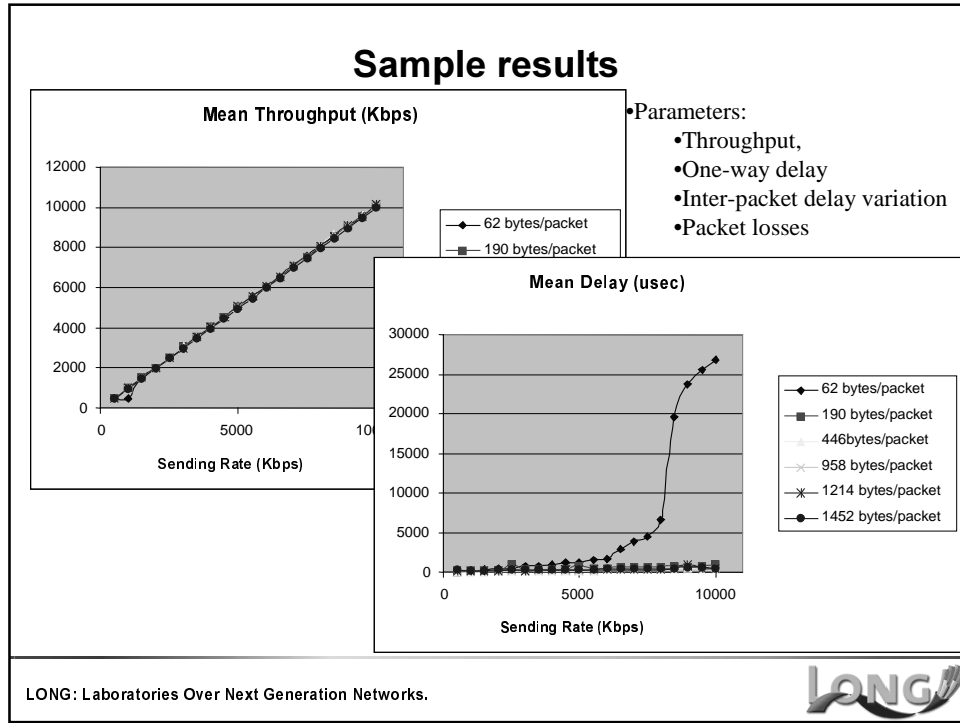
Dual-Stack Nodes

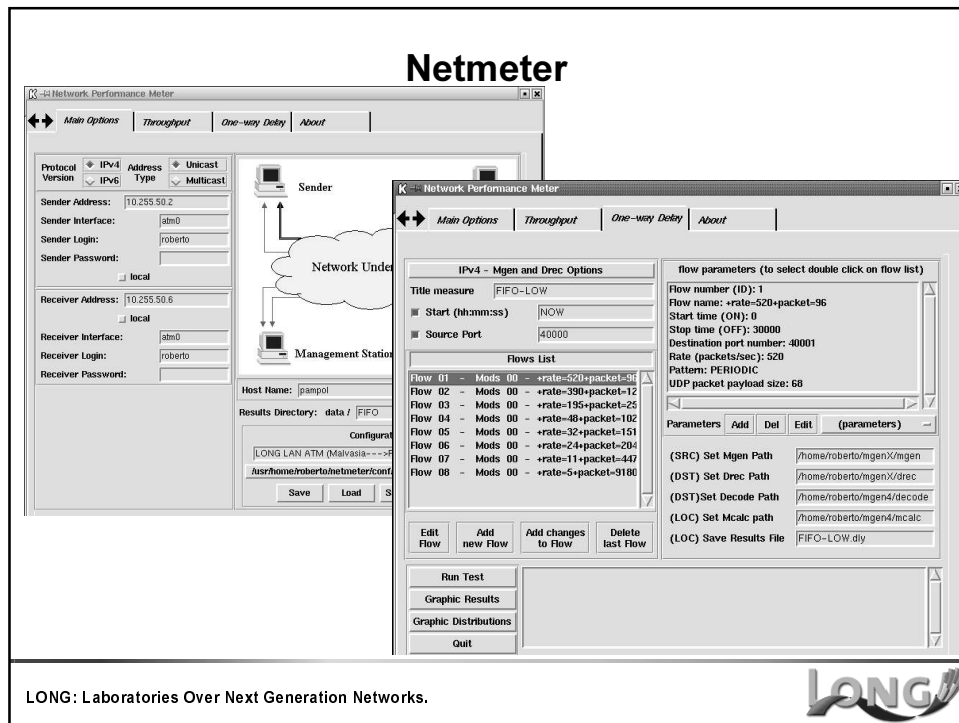
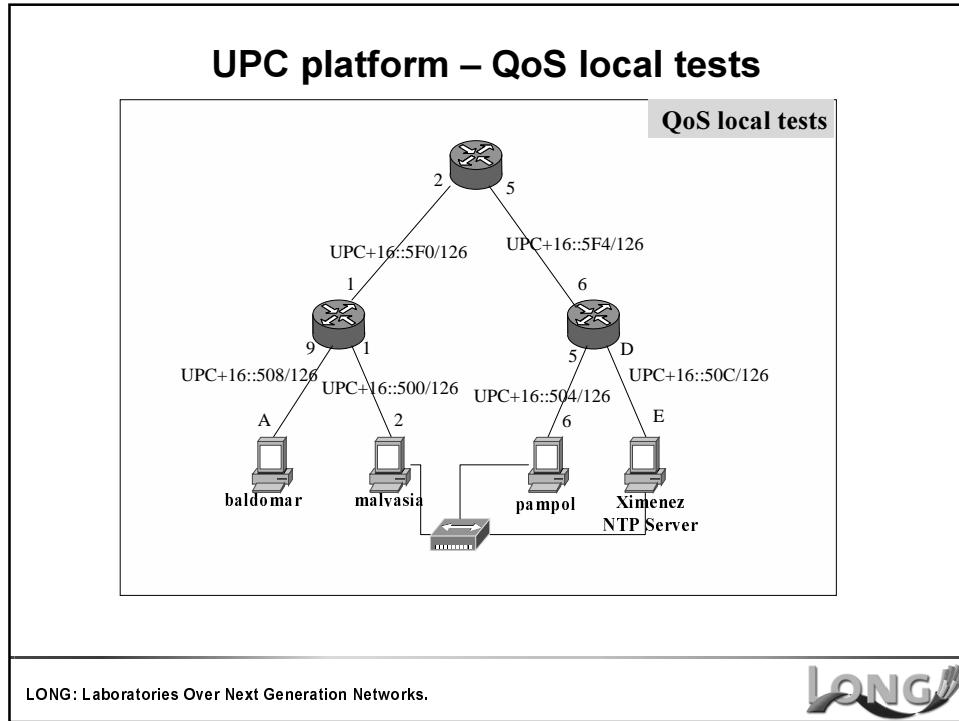


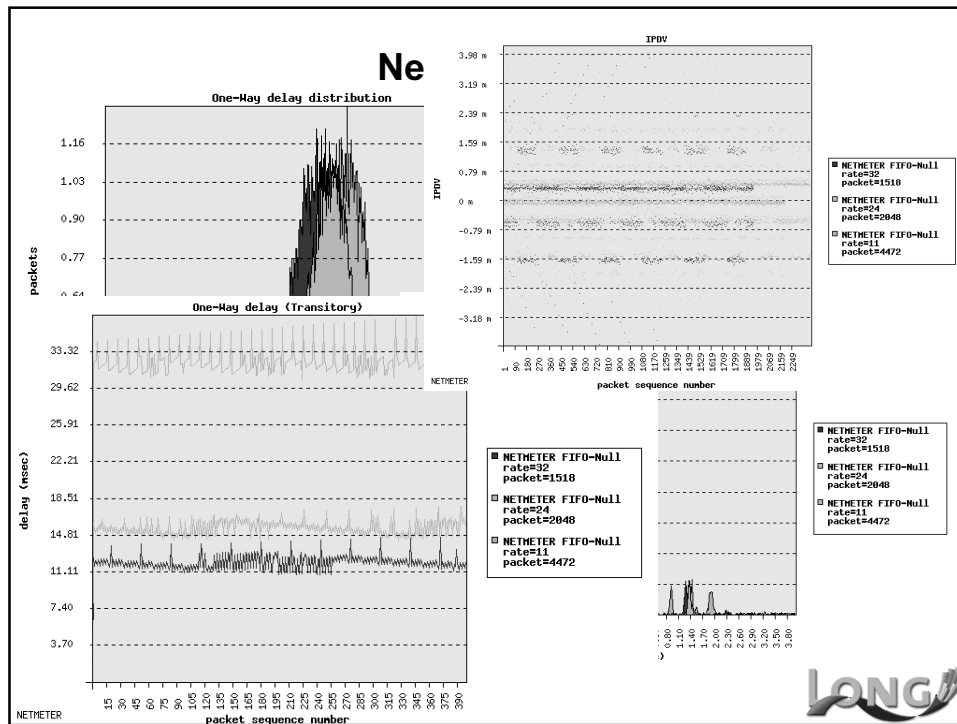
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Collaborations

- **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
- Jordi Domingo-Pascual: (WP5 Leader) jordi.domingo@ac.upc.es
- Carlos Ralli Ucendo: (Co-ordinator) ralli@tid.es

- **Public WEB Site:** <http://long.ccaba.upc.es>
 - Deliverables available
 - Webtools

