

Isabel Distribution of the Madrid Global IPv6 Summit 2002 over an IPv6 Transition Network

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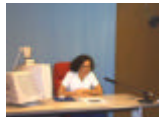
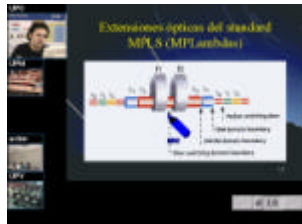
<http://isabel.dit.upm.es>



ISABEL



- Advanced multiconferencing system
 - Ported to IPv6 in the LONG IST Project
 - <http://isabel.dit.upm.es>
- To interconnect audiences or groups
 - With a **large number of endpoints/users**
 - Over the Internet (unicast and multicast)
- New service concept
 - Easy management of multipoint

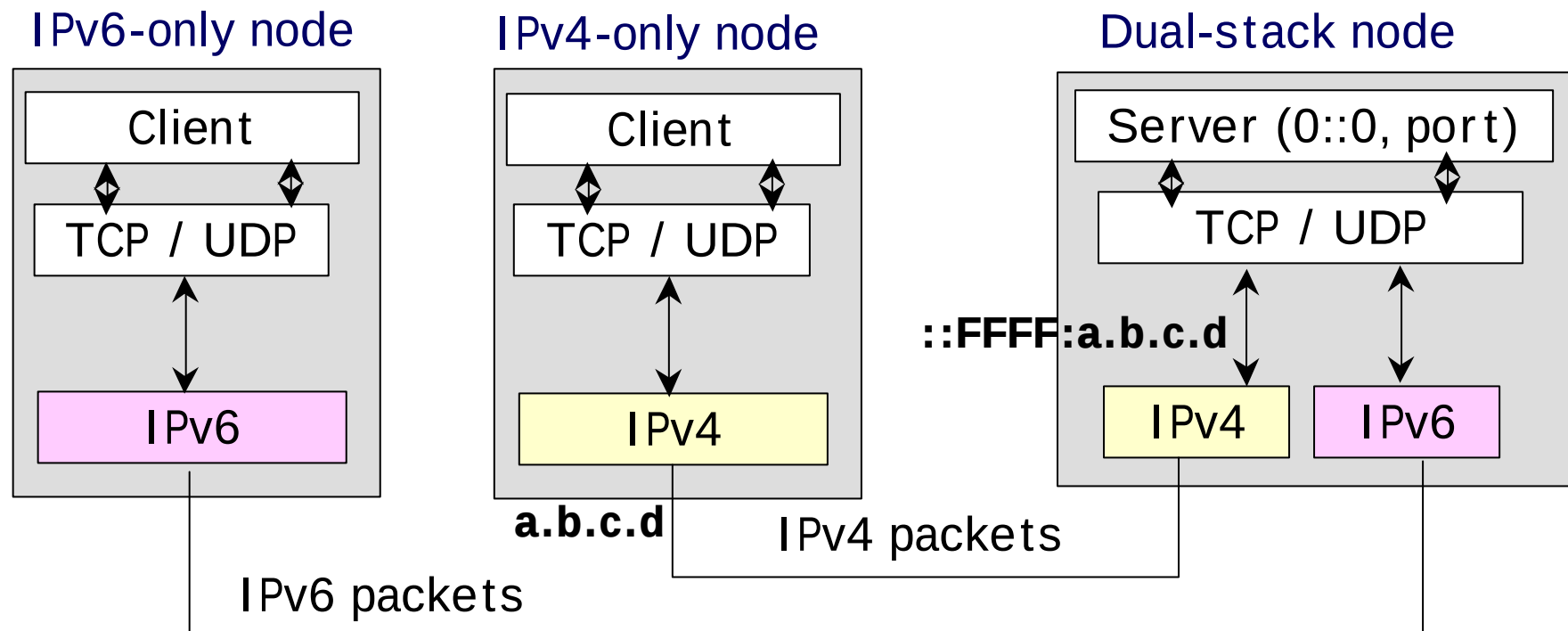


ISABEL Usage & Events

- RACE Summer Schools on ABC (93, 94, 95, 96)
 - ABC´93: 2 sites (Spain-Portugal)
 - ABC´94: 5 sites (Spain, Portugal, Switzerland)
 - ABC´95: 11 sites (Europe)
 - ABC´96: 20 sites (Europe & Canada)
- Distributed Congress (97-now):
 - Global 360, Telecom I+D, Internet NG, **HP-OVUA**, ..
- Industrial usage:
 - Telemeeting/work service for Ericsson
 - Between Madrid, Aachen, Alsjvo & Kista
 - Others: Airtel/Vodafone, Telefonica,
- Distributed courses (97-00):
 - PhD & graduate courses performed
 - Between Madrid, Barcelona, Valencia, Murcia, ...
- **Madrid Global IPv6 Summit 2002**
 - First congress **distributed over IPv6** with ISABEL

IPv6 Hosts with Dual-Stack

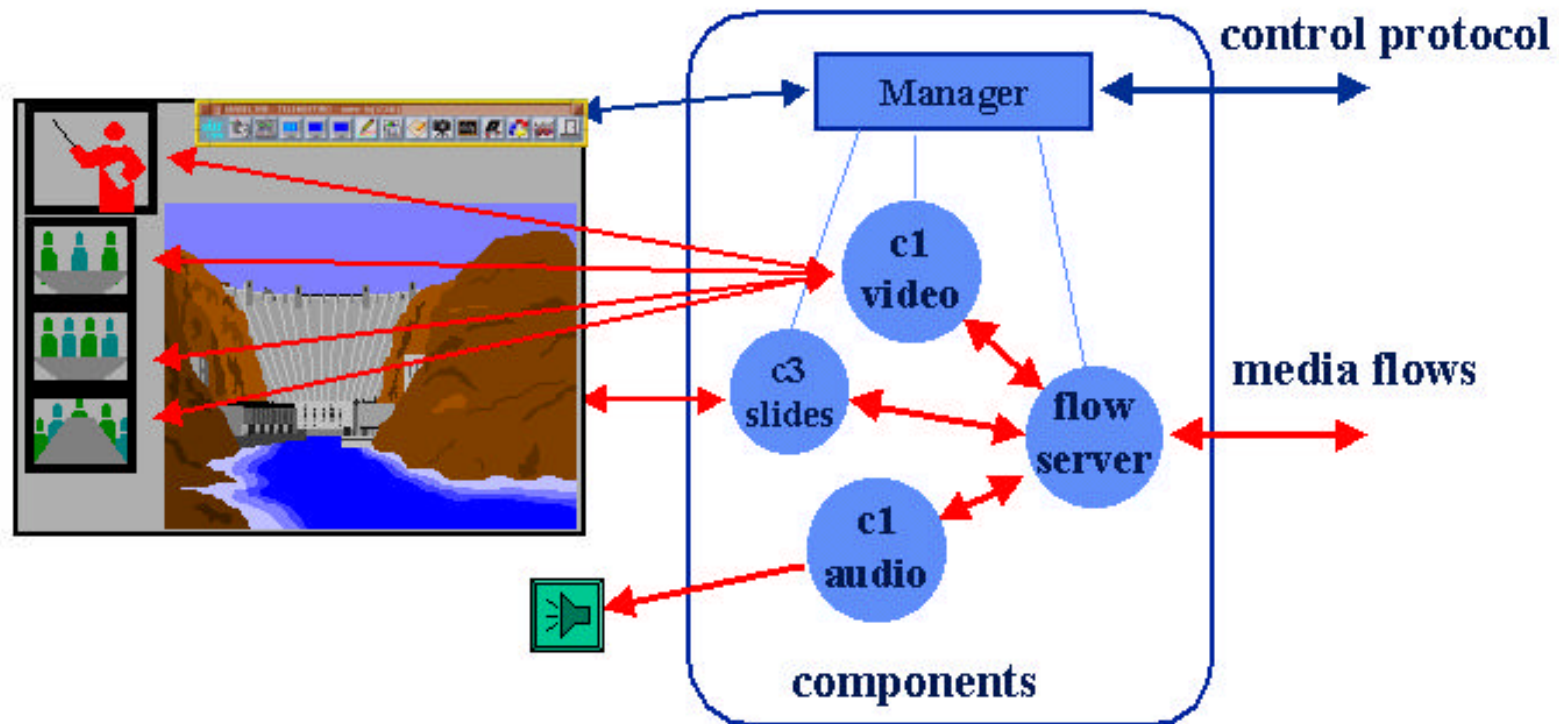
- * IPv6 hosts running on a dual stack host accept connections from IPv4 and IPv6 clients.



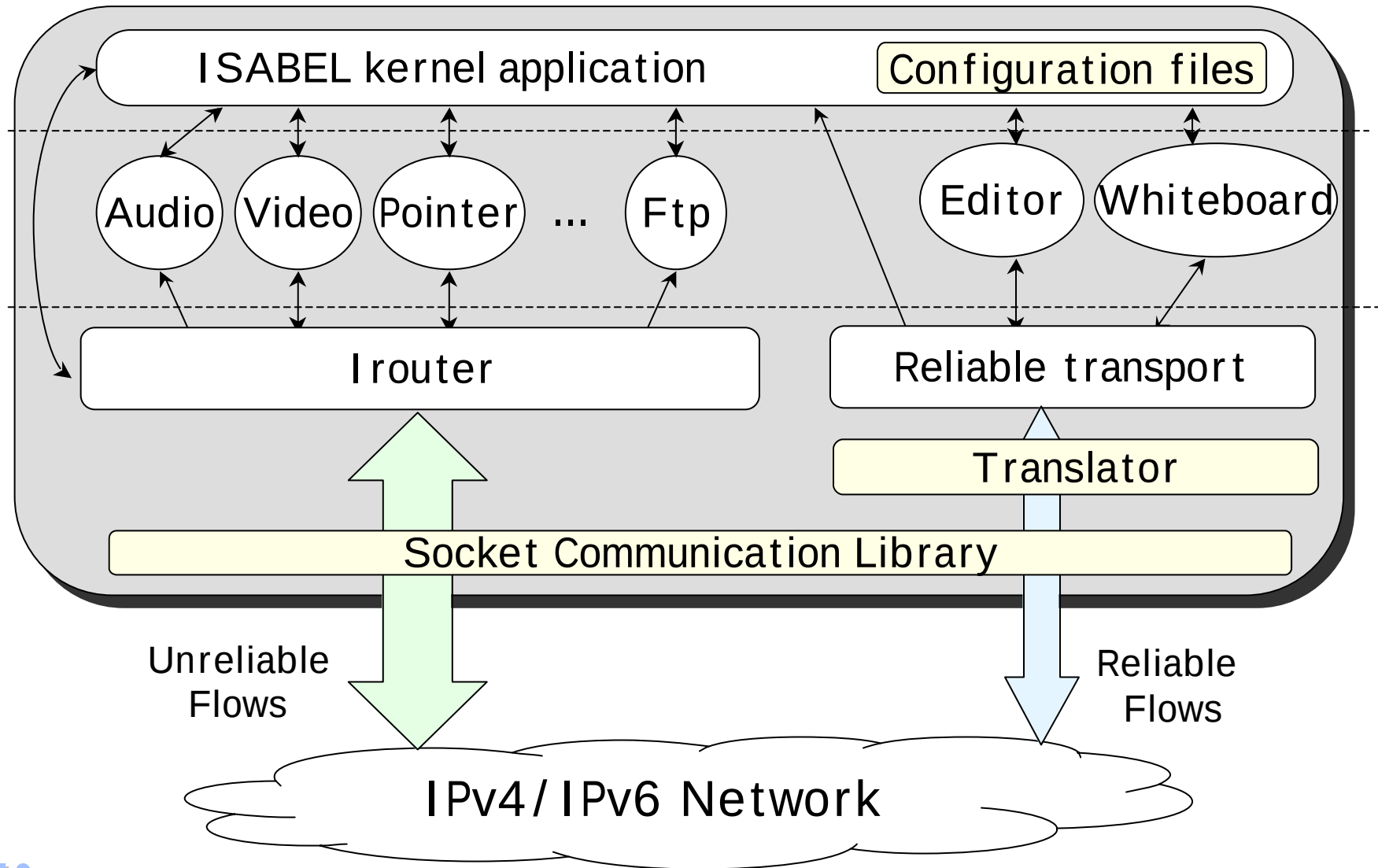
- * Kernel: from IPv4 to IPv4-mapped IPv6 address.

ISABEL Architecture

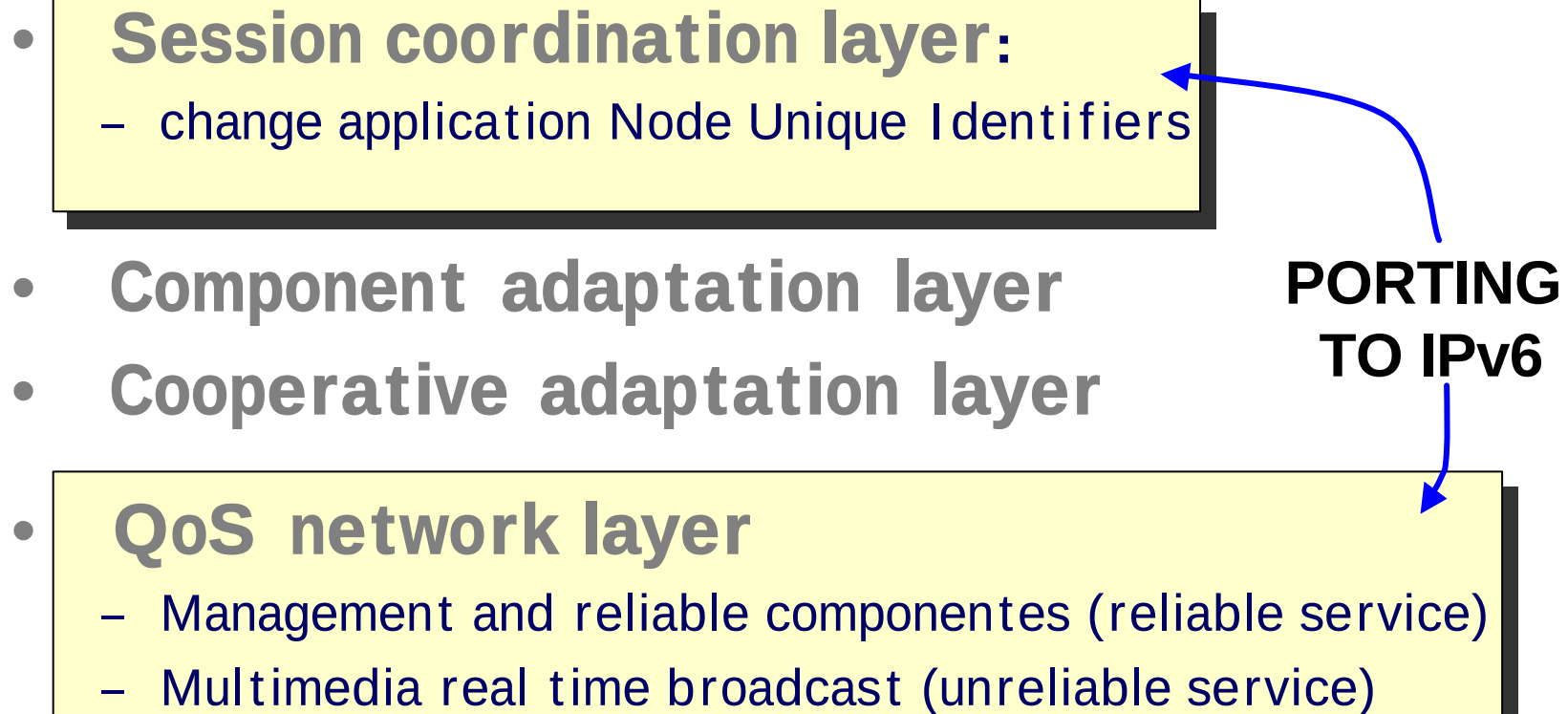
- Manager + media components + flow server



ISABEL changes

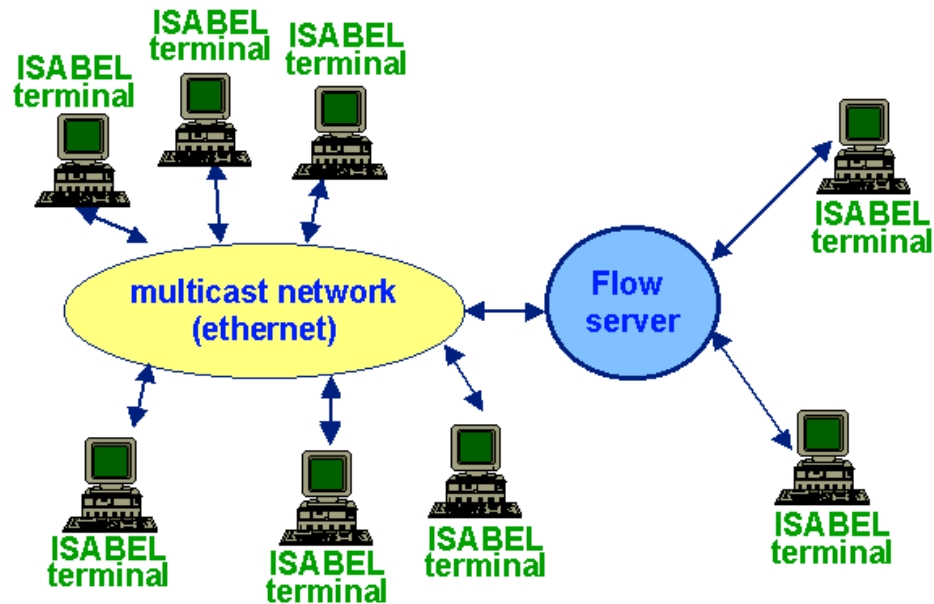


ISABEL Architecture

- **Session coordination layer:**
 - change application Node Unique Identifiers
 - **Component adaptation layer**
 - **Cooperative adaptation layer**
 - **QoS network layer**
 - Management and reliable componentes (reliable service)
 - Multimedia real time broadcast (unreliable service)
- PORTING TO IPv6**
- 
- The diagram illustrates the ISABEL Architecture with four layers listed on the left. Two layers, 'Session coordination layer' and 'QoS network layer', are highlighted with yellow backgrounds. A blue arrow originates from the text 'PORTING TO IPv6' on the right and points to the 'Session coordination layer'. Another blue arrow originates from the same text and points to the 'QoS network layer'.

IPv4 & IPv6 interoperability

- Isabel over IPv4
 - Unicast tree topology
 - With Flow Servers
 - Multicast topology
 - Combination of both
- Isabel over IPv6
 - Unicast tree topology
 - With Flow Servers
 - Multicast topology
 - Combination : unicast + multicast islands
- Isabel over IPv4/IPv6
 - Unicast tree topology
 - With Flow Servers
 - Combination : unicast + multicast islands
- Isabel also tested via NAT-PT and 6to4



Porting problems & Guide

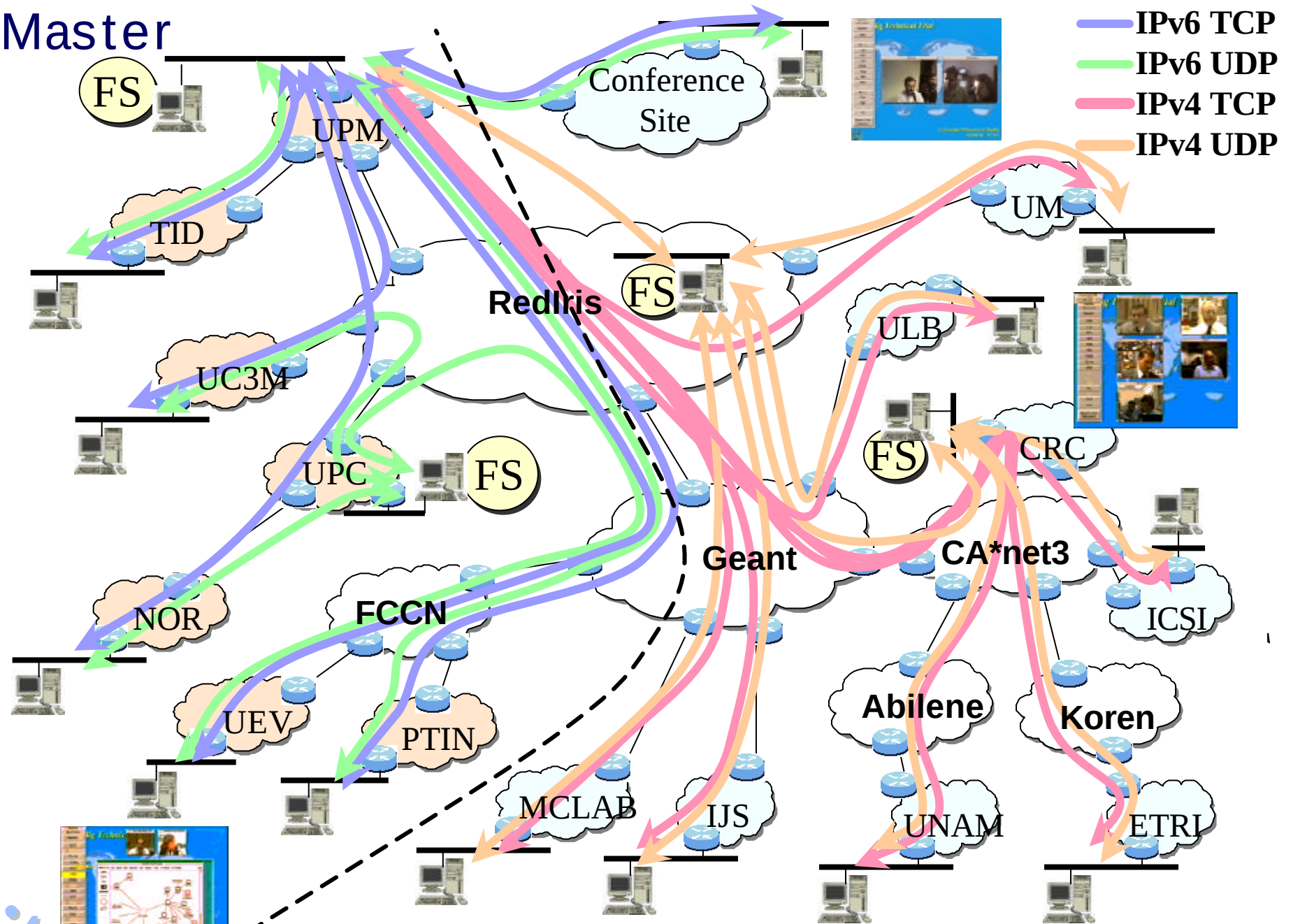
- Use IPv4/IPv6 configurable data structures for addresses
- IPv4/IPv6 configurable socket API
- IP address management
 - Fully Qualified Domain Names should be used
 - Remove application dependencies on the IP addresses
 - Use network independent identifiers
- IP address parser
 - IPv4_address:port
 - Literal IPv6 addresses in URLs specifications (RFC-2732)
 - `http://[2001:720:1500:1::A100]:80/`
- Dual treatment of IPv4/IPv6 loopback communication
- Size of Application Datagram Payload (MTU)
 - Fragmentation managed by application

Guide Transition scenarios

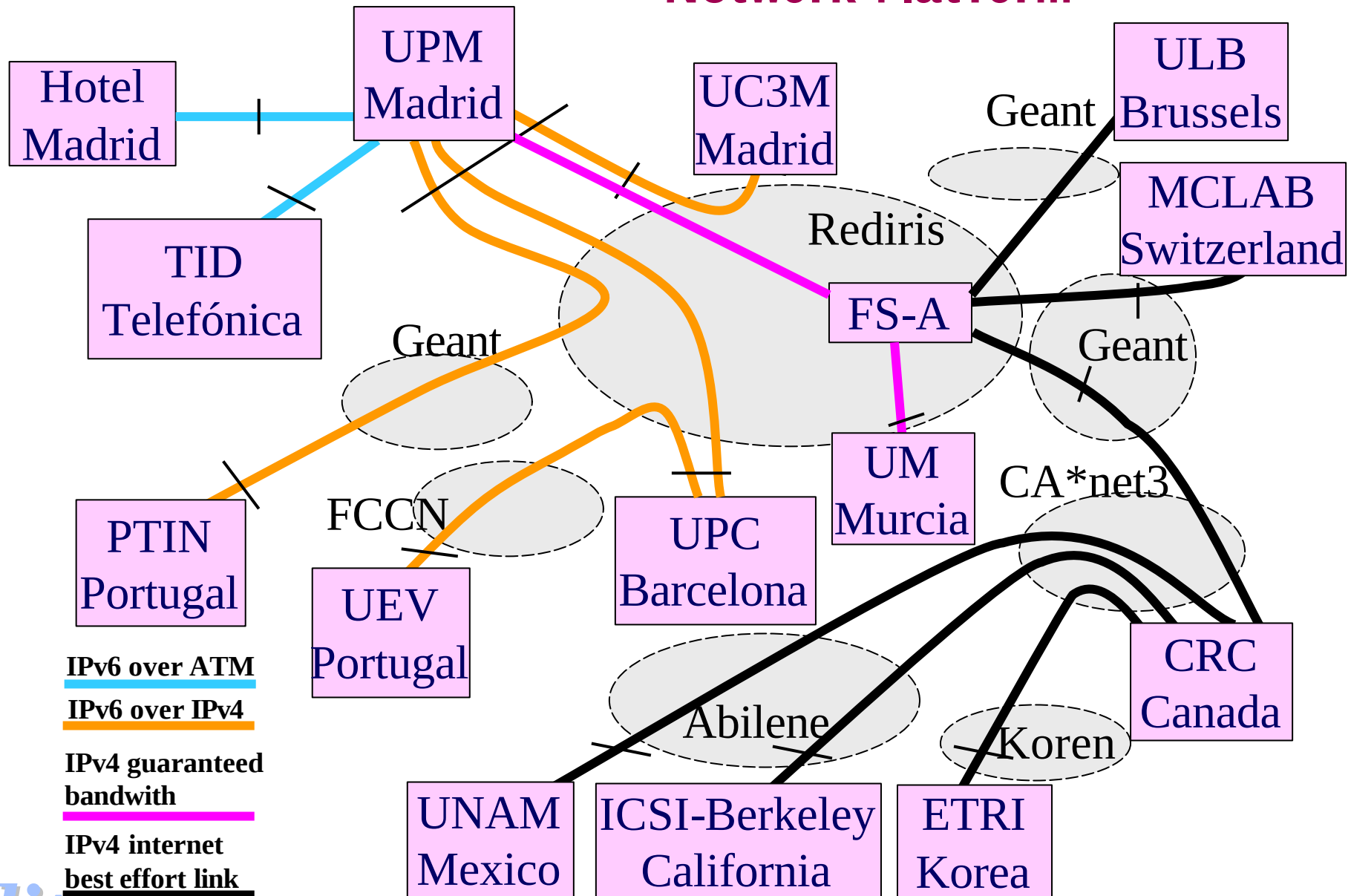
Application	Using	to IPv4 node		to IPv6 node	
		IPv4 net	IPv6 net	IPv4 net	IPv6 net
IPv4	IPv4	IPv4	?	Fail	?
	IPv4 / IPv6	IPv4	tunnel	Fail	translator
	IPv6	?	tunnel	?	translator
IPv4 / IPv6	IPv4	IPv4	?	translator	?
	IPv4 / IPv6	IPv4	translator	translator	IPv6
	IPv6	?	translator	?	IPv6
IPv6	IPv4	Fail	?	tunnel	?
	IPv4 / IPv6	Fail	translator	tunnel	IPv6
	IPv6	?	translator	?	IPv6

? Has no sense

Master

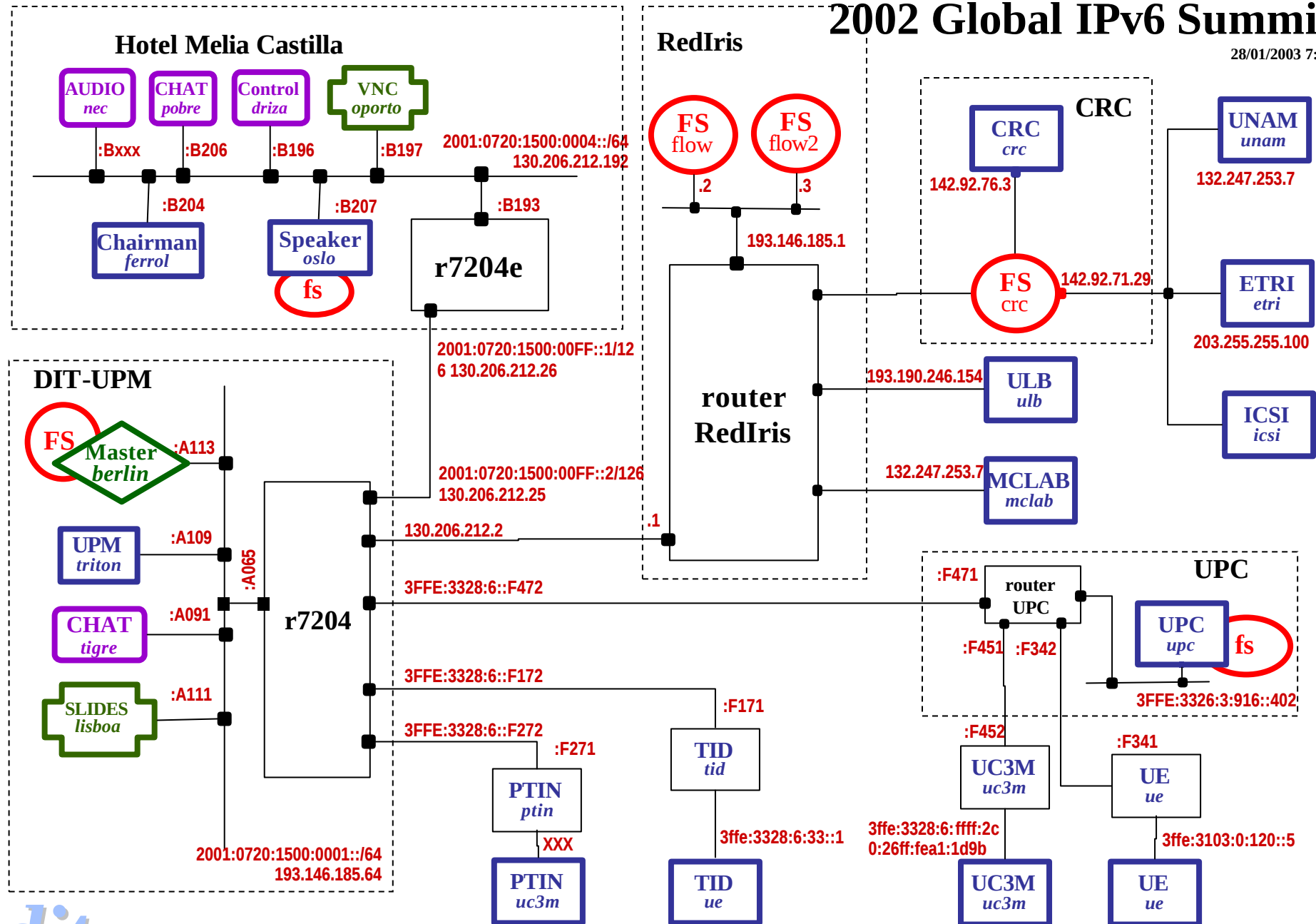


Network Platform



2002 Global IPv6 Summit

28/01/2003 7:52



LONG: Participants

- Portugal Telecom Innovacao
 - Vasco Lagarto, Francisco Fontes, Jacinto Vieira, T. Barata, F. Morgado
- TELEFONICA I+D
 - Pedro Lizcano, Carlos Ralli, Ruth Vazquez, Sheila Escribano, Cristina Peña
- Universidad Carlos III de Madrid
 - Arturo Azcorra, Alberto García, Carlos Manuel Pérez, Juan Ramón Hernández
- Universidad de Evora
 - Joaquin Godinho, Miguel Ramos, Mario Filipe
- Universidad Politécnica de Barcelona
 - Jordi Domingo-Pascual, Josep Sole, Josep Manges, Albert Cabellos, René Serral
- Universidad Politécnica de Madrid
 - Juan Quemada, Tomas de Miguel, Santiago Pavón, Tomas Robles, Gabriel Huecas, Joaquín Salvachúa, Eva Castro, Alberto López Toledo, Javier Sedano, Maria Jose Perea, Juan Antonio Fernández, ...

Conclusions

- Porting of Isabel to IPv6
 - Needed a reasonable effort: 3-4 mm
 - Effort was used to clean up the application
- A porting guide produced
 - Submitted to IPv6 Forum & Technical Directorate
 - Isabel was a sufficiently rich application to serve as guide
- Huge increase in IPv6 maturity (2001->2002)
 - Next 2003 Madrid Global IPv6 Summit (12-15 May)
 - Next evaluation of progress achieved
 - Contact Juan Quemada if interested in the Isabel distribution
- ISABEL architecture proved sound
 - Was ported fairly easily
 - With similar multipoint scenarios
 - Easy deployable
 - Cheap software technology for the PC based
- Euro6IX will maintain the IPv6 Porting Guide