

Isabelv6

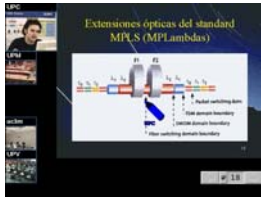
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(& the Isabel Group & LONG & Euro6IX)
<http://isabel.dit.upm.es>



ISABEL



- Advanced multiconferencing system
 - Developed at UPM since 1993 (RACE/ACTS/IST)
 - <http://isabel.dit.upm.es>
 - Industrialised by Agora Systems
 - <http://www.agoratechnologies.com>
- To interconnect audiences or groups
 - With a large number of endpoints/users
 - Effective multiconferences with up to 20 sites
 - Over the Internet (unicast and multicast)
- New service concept



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 360s, Telecom I+D, Internet NG workshops,
- Industrial usage:
 - Initialy: 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

Isabel Service Concept

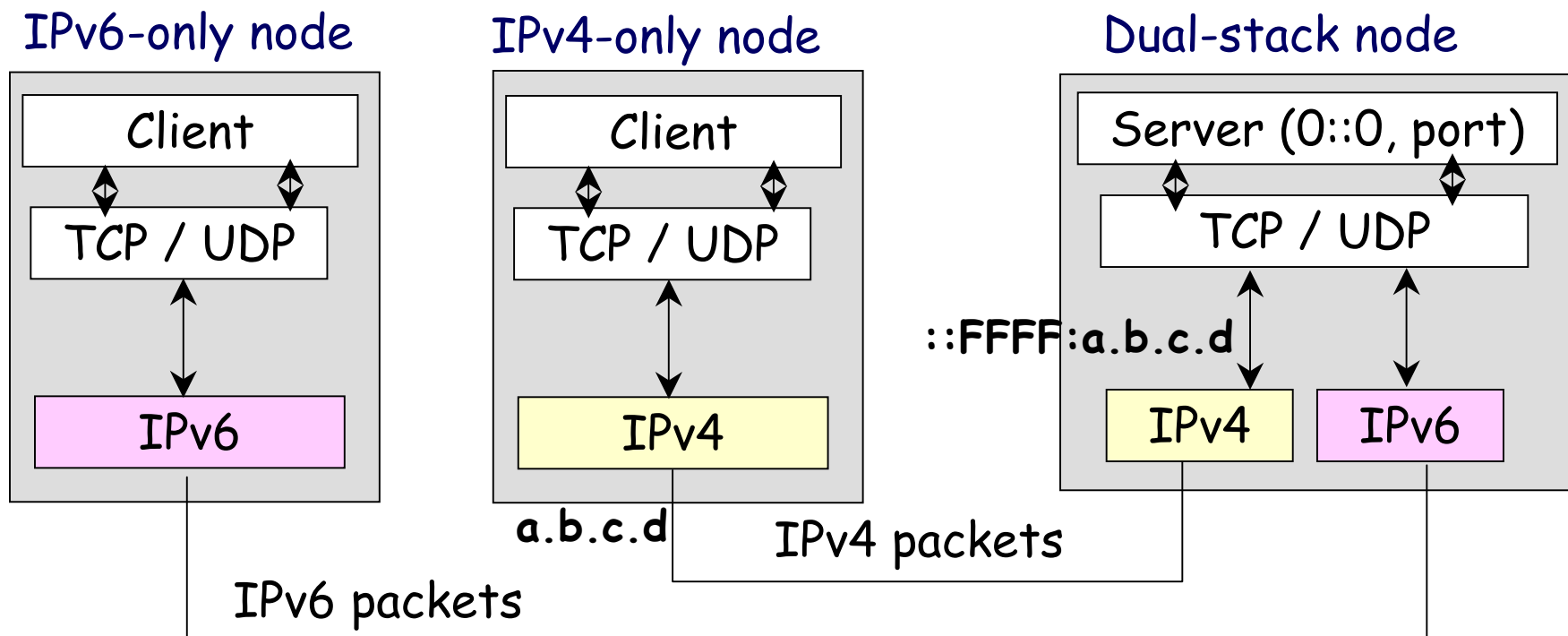
- Isabel is a meta-application
 - For designing new services
 - Service = { interaction modes } + management
 - Control panel: provides access to management function
 - Interaction mode:
 - Particular set-up of audio, video, shared workspace, ... supporting a particular type of collaboration
 - Each participant is assigned a particular role.
 - Examples: Presentation, questions, debate, demonstration,
- Distributed event = sequence of interactions
 - Selected during the event operation by means of the control panel.

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
 - Tomas de Miguel, Joaquín Salvachúa, Eva Castro, Alberto López Toledo, Santiago Pavón, Javier Sedano, Elena Apolinario, Maria Jose Perea, Juan Antonio Fernández

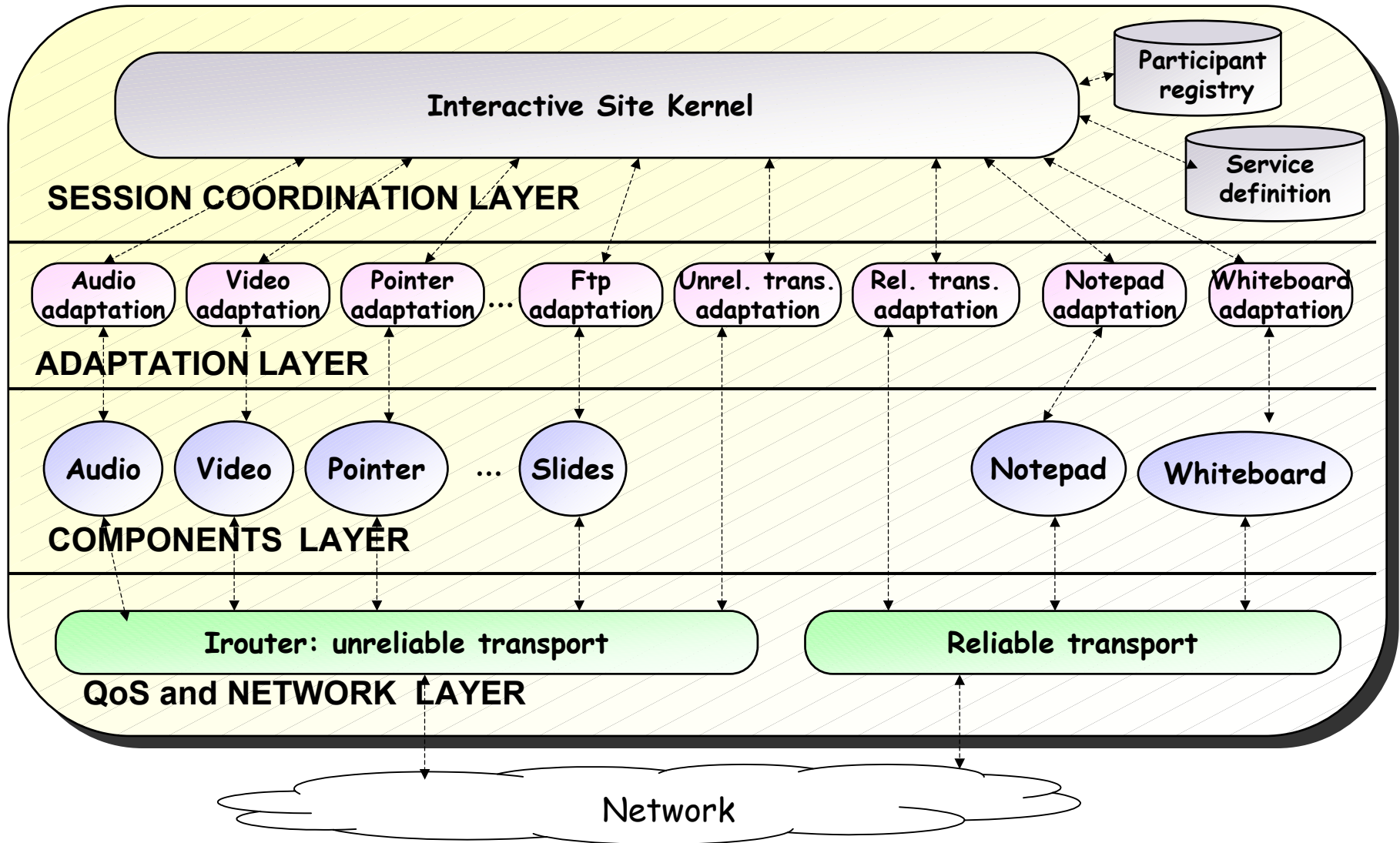
IPv6 Server on Dual-Stack

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



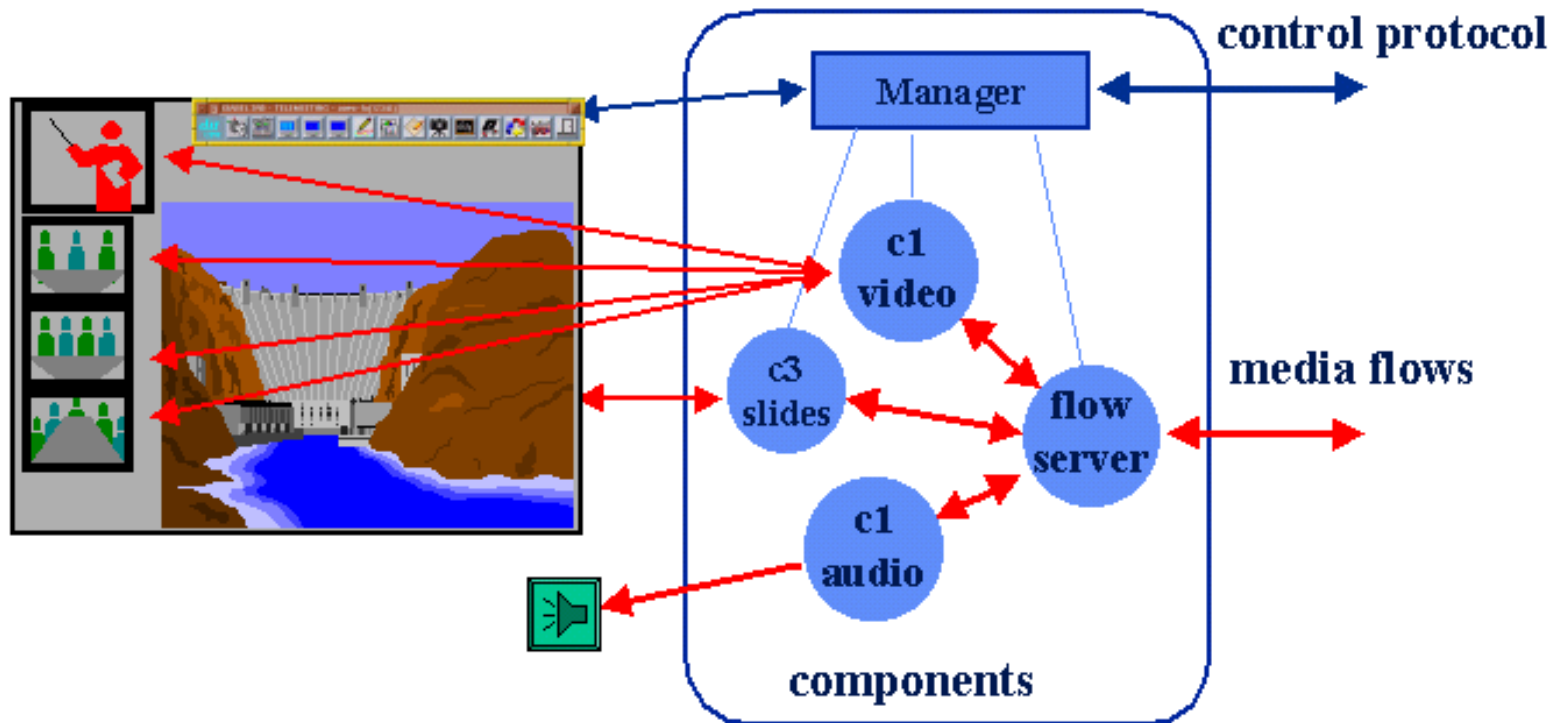
- * Kernel: from IPv4 to IPv4-mapped IPv6 address.

ISABEL Architecture

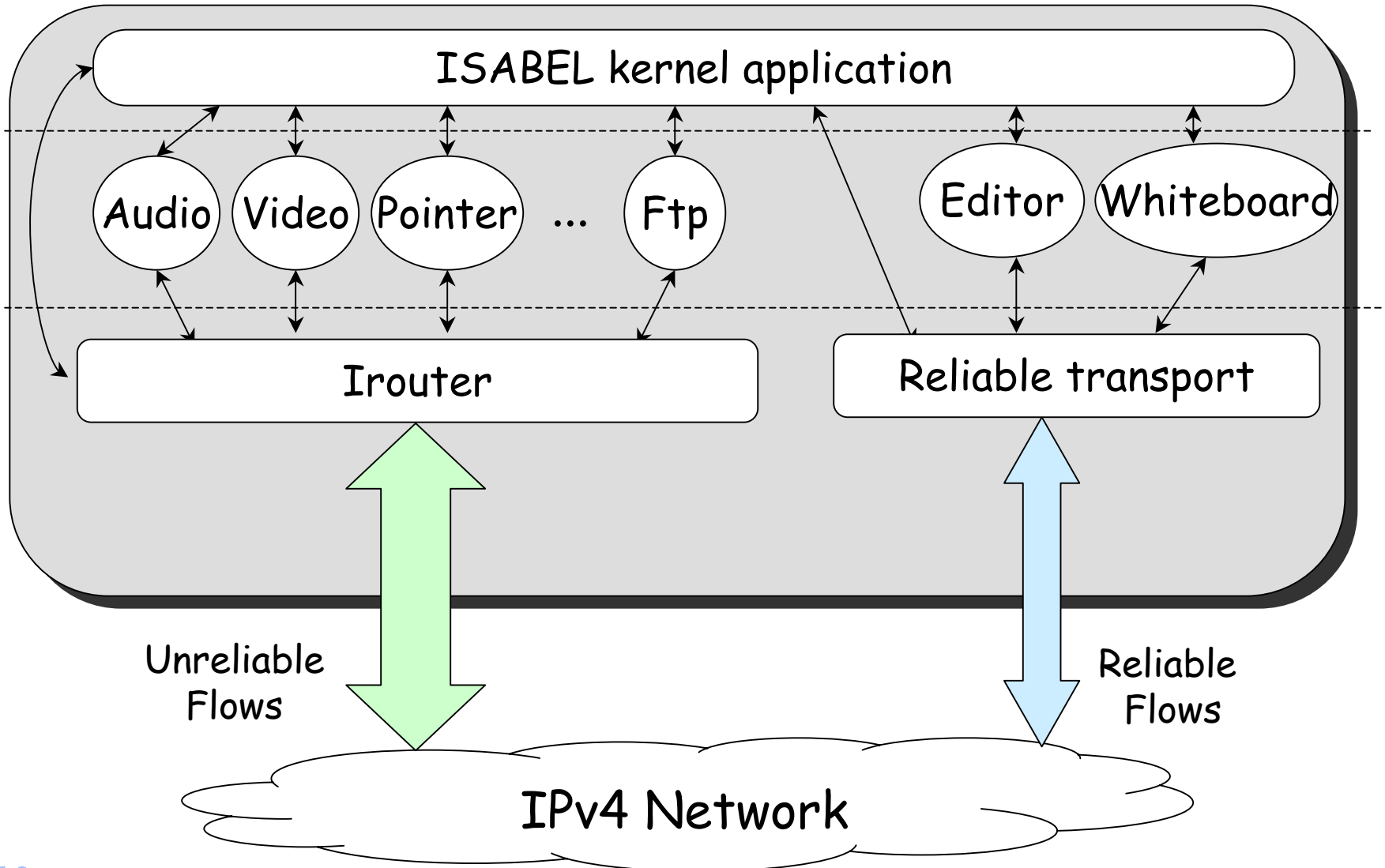


ISABEL Architecture

- Manager + media components + flow server



Case Study: ISABEL



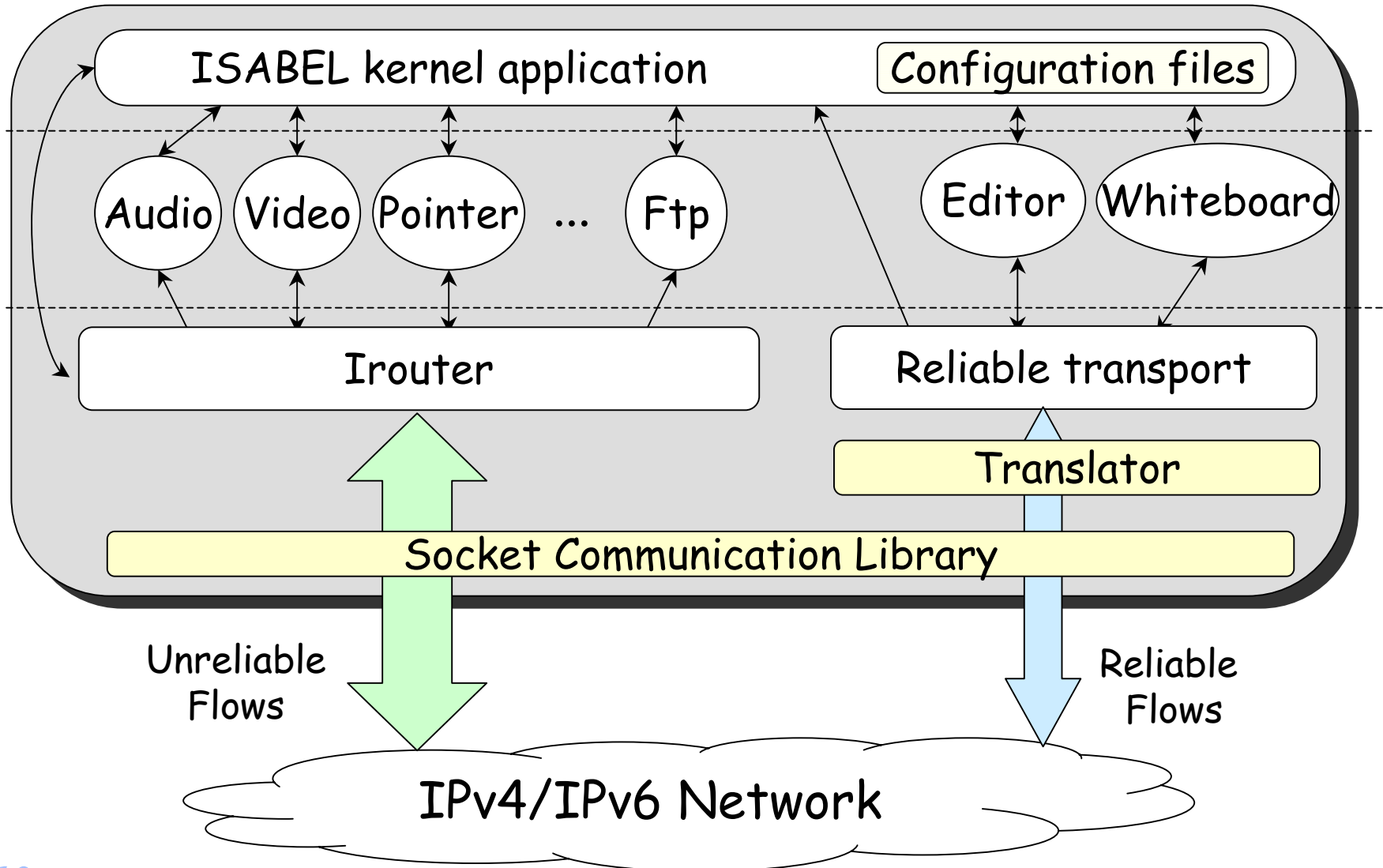
ISABEL Architecture

- **Session coordination layer:**
 - change application Node Unique Identifiers
- **Component adaptation layer**
- **Cooperative adaptation layer**
- **QoS network layer**
 - Management and reliable comp. (reliable service)
 - Multimedia real time broadcast (unrel. service)

**PORTING
TO IPv6**



ISABEL changes



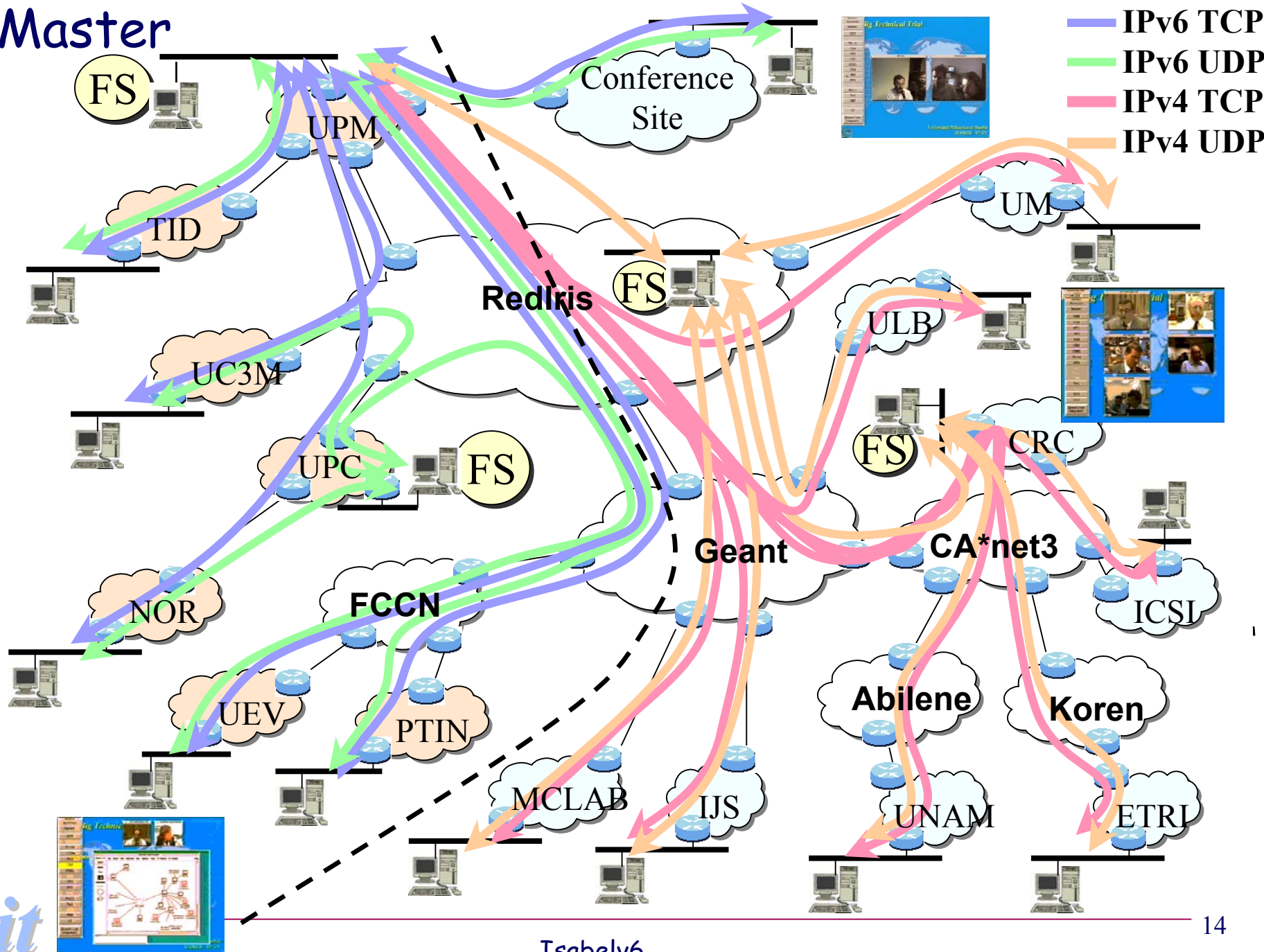
Port of Isabel to IPv6

- Port to IPv6 obliged to redesign
 - Some Isabel modules
 - Reason: IPv4 conditioned architecture
 - Redesign leads to a more consistent architecture
 - Amount of work invested was reasonable
- Work still needed to take advantage of IPv6
 - Security, QoS, mobile IP, etc

IPv6 porting problems

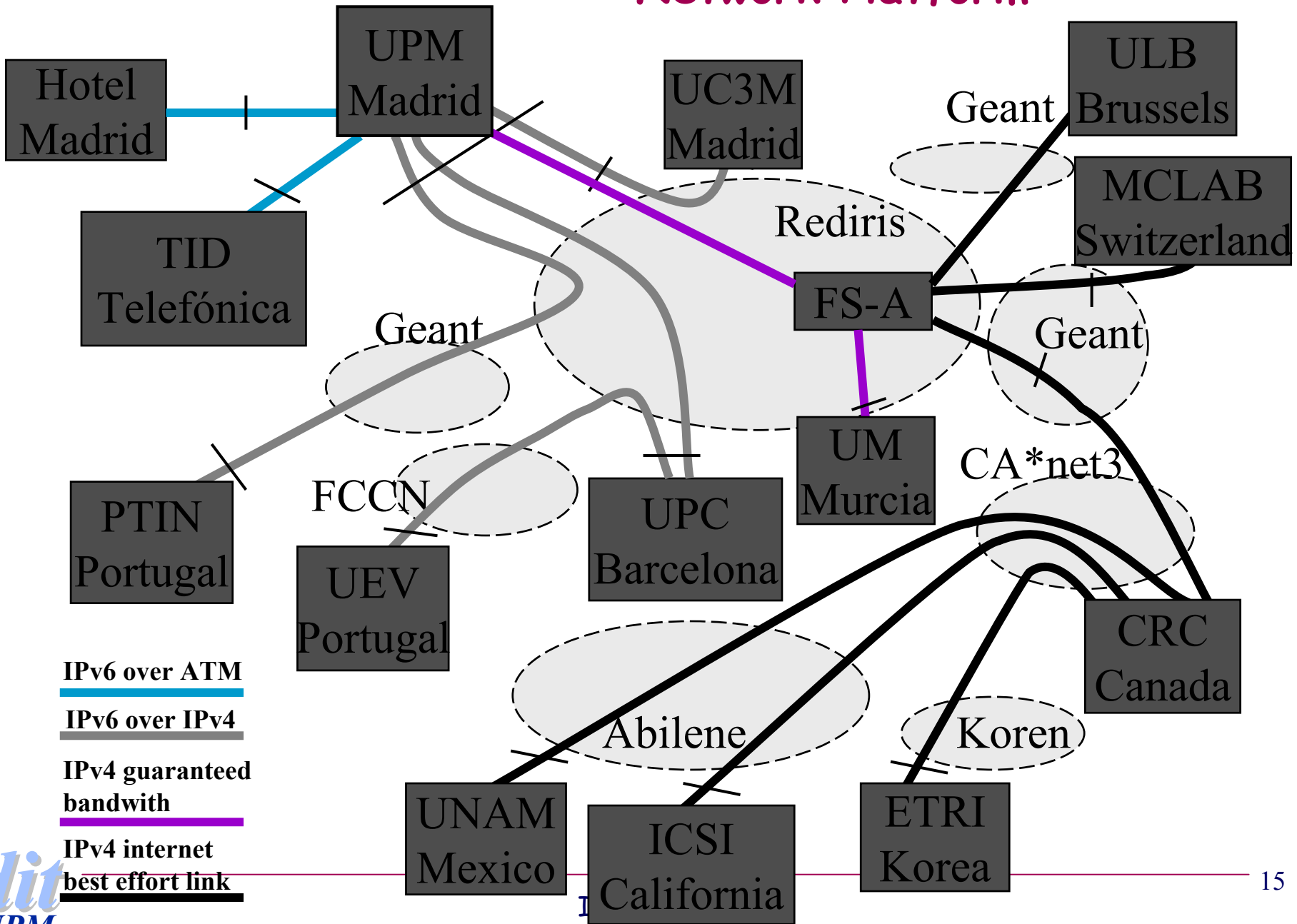
- Allocate enough memory for new structures
- Portability of System Socket API
- IP address management
 - Fully Qualified Domain Names should be used
 - Remove application dependencies on the IP addresses
 - Use network independent identifiers
- IP address parser
 - IPv4_address:port
 - Literal IPv6 addresses in URLs specifications (RFC-2732)
 - `http://[2001:720:1500:1::A100]:80/`
- Allow correct lookback (::1) communication
- Size of Application Datagram Payload (MTU)
 - Fragmentation managed by application

Master



- IPv6 TCP
- IPv6 UDP
- IPv4 TCP
- IPv4 UDP

Network Platform



Conclusions

- The Isabel distribution of the IPv6 Summit
 - Realistic validation of an IPv6 transition scenario
 - IPv6 product maturity has improved very significantly
 - From Madrid 2001 Global IPv6 Summit
- Port of Isabel to IPv6 was achieved in a reasonable time
 - Software for Real time videoconferencing
 - Very demanding: stability, performance, etc
- Isabel Service Concept
 - Has proven sound for a transition scenario
 - Isabel is based on a
 - Network independent component coordinator