

MUPPET

Multi-Partner European Test Beds for Research Networking

Proposal Overview

IST FP6 Proposal for 2nd Call, “Research Networking Test Beds”

NOC 2004

9th European Conference on Networks and Optical Communications

June 29 - July 1, 2004

Eindhoven

MUPPET: Project Objectives

- **Main Goal**

- integration and validation, in the context of user-driven large scale test beds, of state-of-the-art on-demand circuit switching techniques, and in particular of ASON/GMPLS, as enablers for future upgrades to European research infrastructures.

- **Objectives**

- To identify service/network requirements of high-end applications for European research environments;
- To define the ASON/GMPLS features matching the above requirements and enabling, the penetration of broadband services in Europe;
- To find and experimentally validate solutions for interoperability between different network domains;
- To assess the ability of ASON/GMPLS solutions to support demanding research applications, such as Grid computing, through lab and field trials with a large user community (including NRENs);
- To develop guidelines for the introduction of ASON/GMPLS technologies and ultra-broadband services in future European research infrastructures.

(note: ASON covers multiple transport technologies, such as WDM, OTH, SDH)

Consortium

- **Network Operators**

- Telecom Italia – TILAB (Italy)
- Deutsche Telekom - T-Systems (Germany)
- Telefonica I&D (Spain)
- MATAV (Hungary)

- **Equipment Manufactures:**

- Marconi (Germany, Italy); Project Co-ordinator
- Juniper (Ireland)

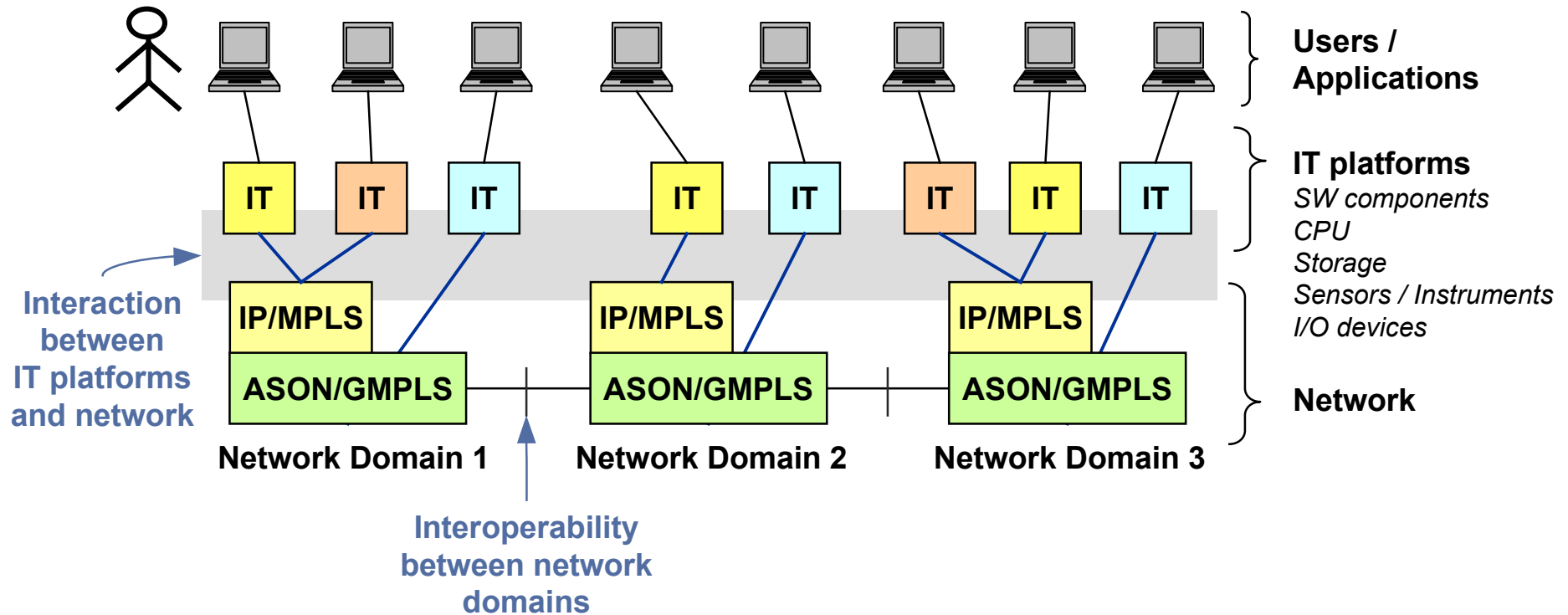
- **Research Centres:**

- ACREO (Sweden)
- TU Denmark (Denmark)
- CSP - Innovazione nelle ICT s.c. a r.l. (Italy)
- CoreCom (Italy)
- DFN-Verein (Germany)
- GARR (Italy)
- University of Erlangen-Nuremberg (Germany)
- CSIC/RedIRIS (Spain)
- PSNC (Poland)

Key Data of Proposal

- **Planned duration:**
 - 3 years
- **Consortium:** 16 partners from 8 countries
 - Denmark
 - Germany
 - Hungary
 - Ireland
 - Italy
 - Spain
 - Sweden
 - Poland
- **Available Test-beds:**
 - 2 ASON/GMPLS focussed test-beds (TILAB, T-Systems)
 - 1 broad-band end-user focussed test-bed (ACREO)
 - 2 IP/MPLS focussed test-beds (Telefonica, PSNC)
 - variety of ultra-broadband users and applications → User Community
 - interconnection of test-beds

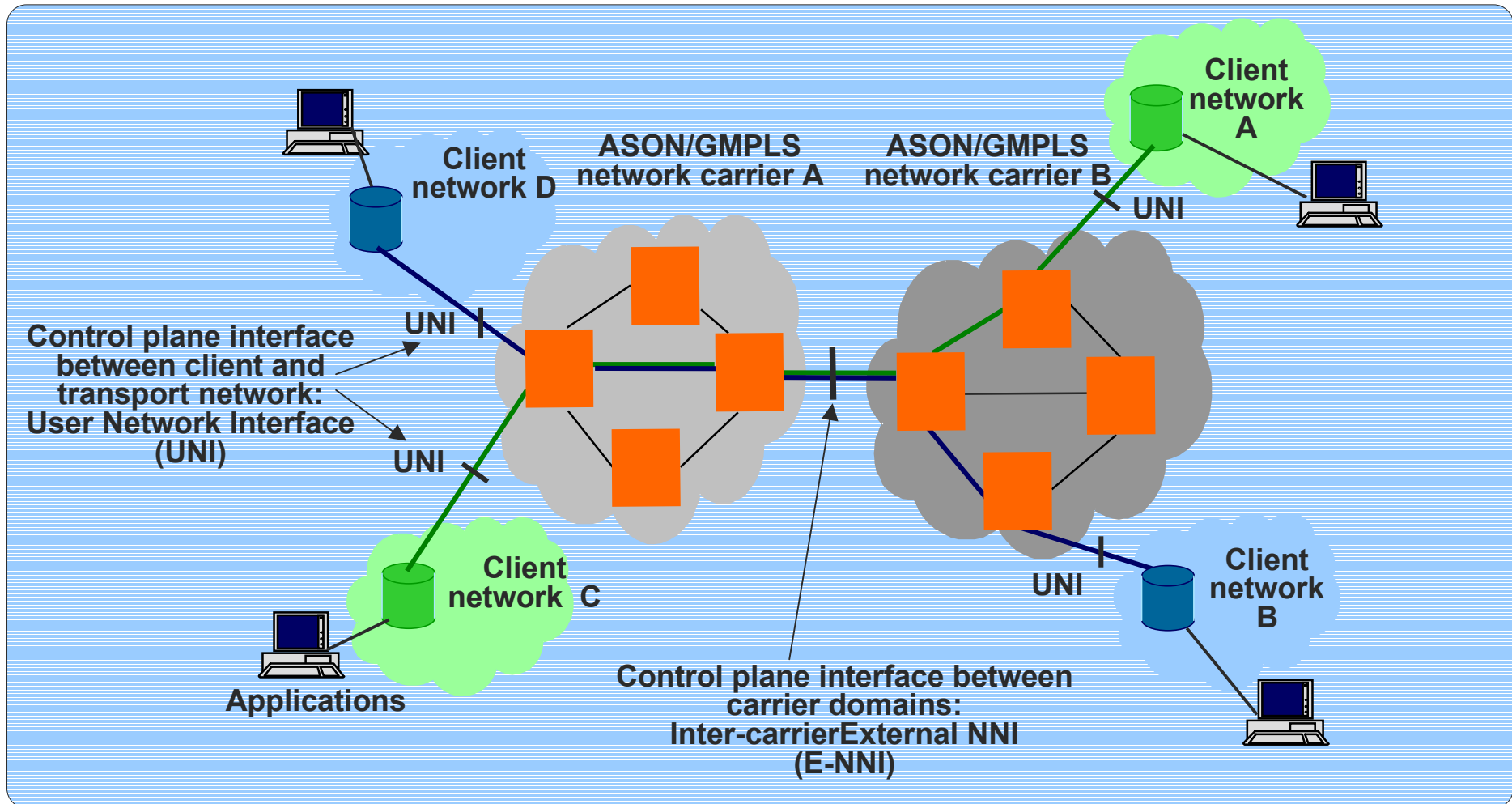
Basic reference architecture



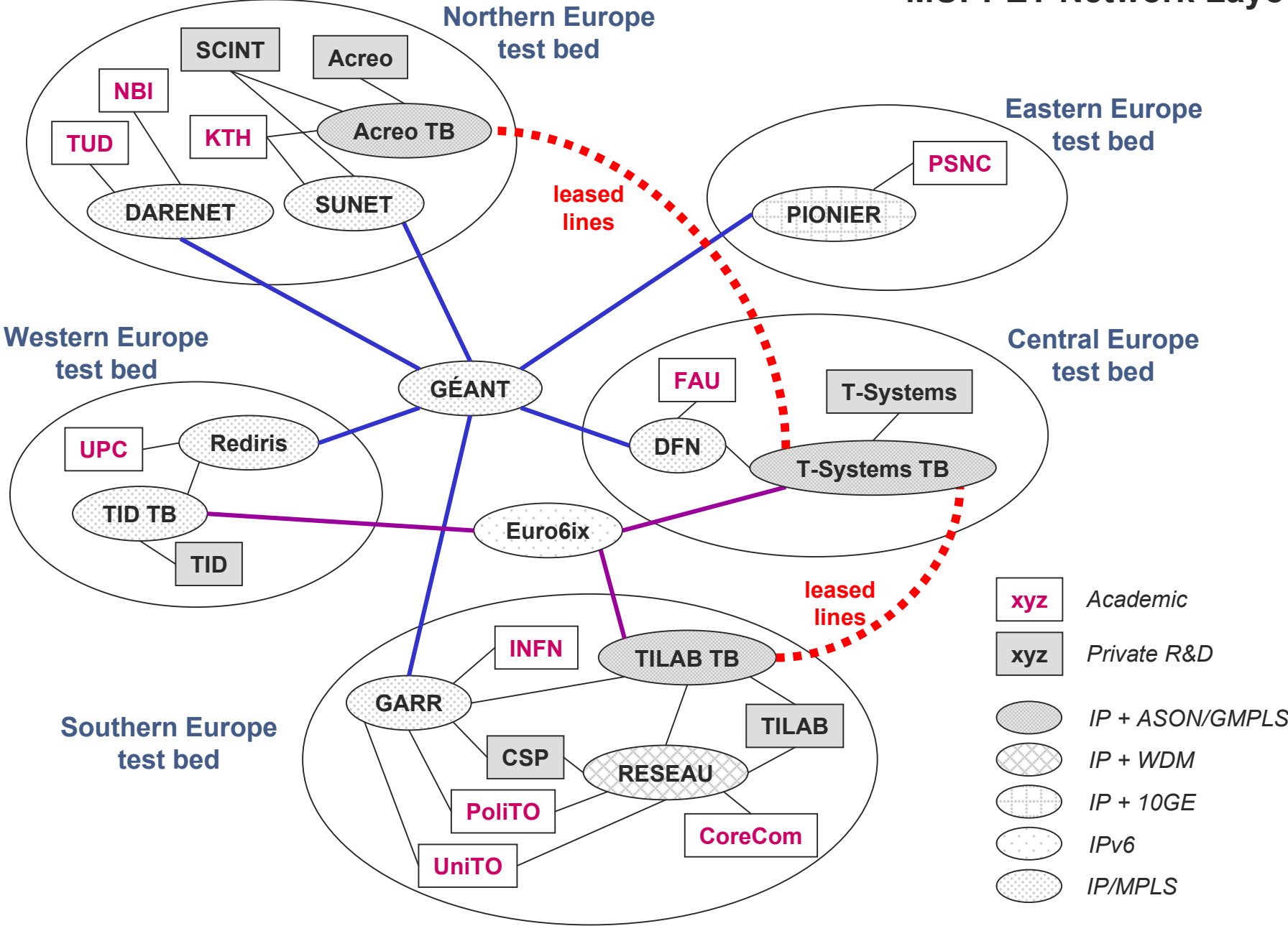
- The Project will create a large experimental environment that will be used to assess the network solutions under investigation, and that will be offered as an open test platform to other European research projects and users.
- The test bed will represent a multi-layer network based on IP/MPLS and ASON/GMPLS technologies, equipped with a unified control plane and designed to support the highly demanding applications of the European research community

MUPPET: ASON/GMPLS Network Scenario

Dynamically configurable, client oriented, multi-carrier domain networks



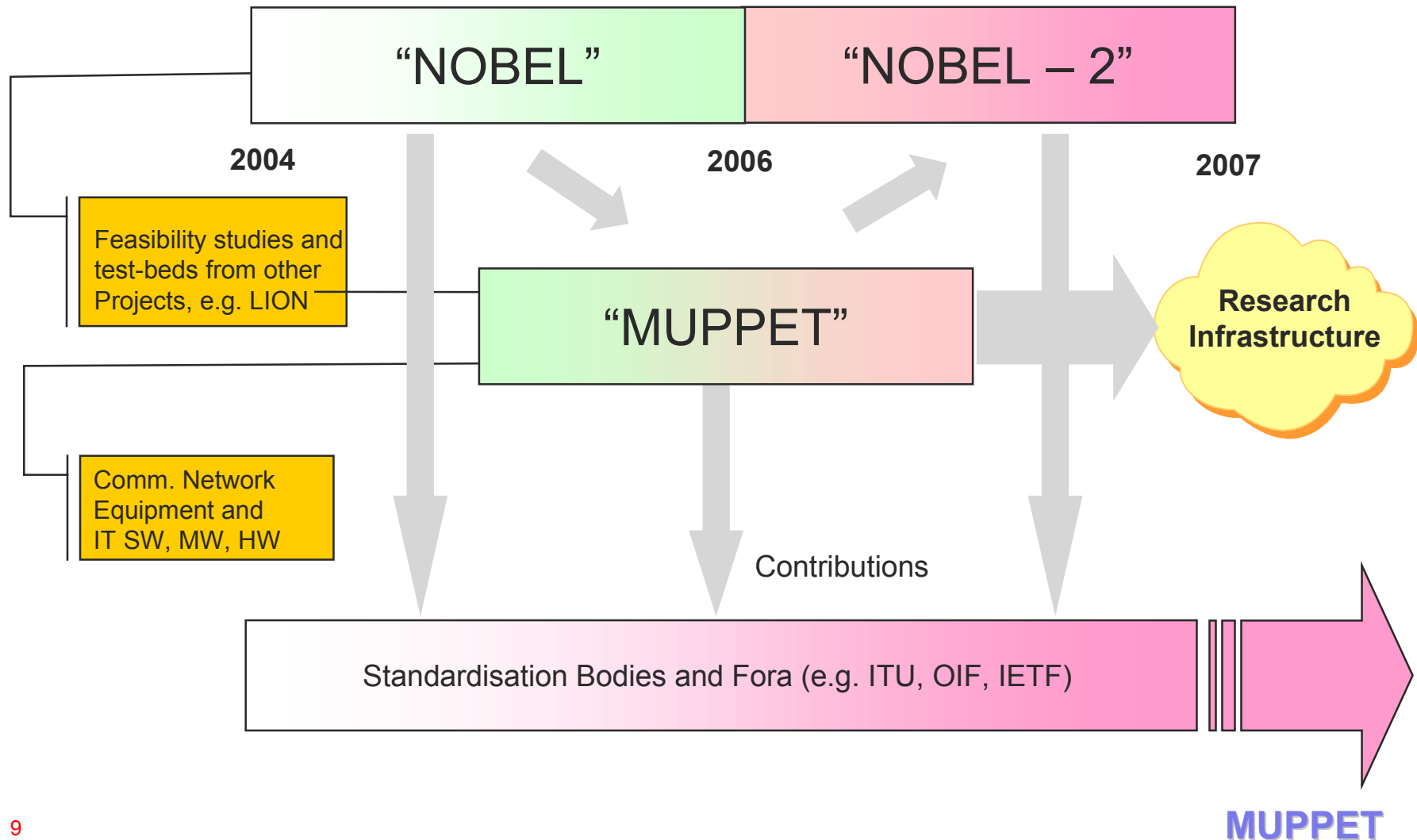
MUPPET Network Layout



Key Strengths of MUPPET Proposal

- leveraging on outstanding testbeds that are already available
 - TILAB (LION)
 - T-Systems (GSN)
 - ACREO
 - Telefonica I&D
- strong inclusion of NRENs and (ultra-) broadband users
- a strong consortium composed by European leading operators, vendors and NRENs
- leveraging on and closely cooperating with a strong IST IP:
 - NOBEL
- full vertical coverage: from application/services to transport
- the envisaged solution will provide a “service open” approach (i. e. will not be restricted to a limited set of services only)
- solution offered to “User Community” beyond consortium

Relationships with other Activities & IST Projects



Summary

- Benefits from MUPPET for:
 - customers
 - user control of network resources (VPNs)
 - flexible broadband on demand services including QoS guarantees
 - applications with stringent requirements
 - very high bandwidth with low delays
 - high “Quality of Service” level (high availability, ...)
 - network providers
 - simplification of operational processes
 - efficient network solutions leading to cost savings
 - open platform which is flexible to support services not foreseen beforehand (service neutral approach)
 - end to end services in an environment based on different domains which are operated autonomously
 - network requirements
 - network functions supporting the application requirements
 - inter-operability between vendors and operators domains to be able to build a pan-European research backbone
- Prove of solutions and dissemination of results

Further Information

NOBEL:

- Web: <http://www.ist-nobel.org/>
- Mail: antonio.manzalini@tilab.com

MUPPET:

- Web: <http://www.ist-muppet.org> *[to come soon ...]*
- Mail: Jan.Spaeth@Marconi.com