COST272

PACKET-ORIENTED SERVICE DELIVERY via SATELLITE

http://www.tesa.prd.fr/cost272

Chairperson : Professor Gérard Maral

Vice Chairperson : Dr Erina Ferro

Secretary : Dr Laurent Franck

OBJECTIVES OF THE ACTION

For packet-oriented satellite communication systems :

Identify key requirements,

Design system architecture,

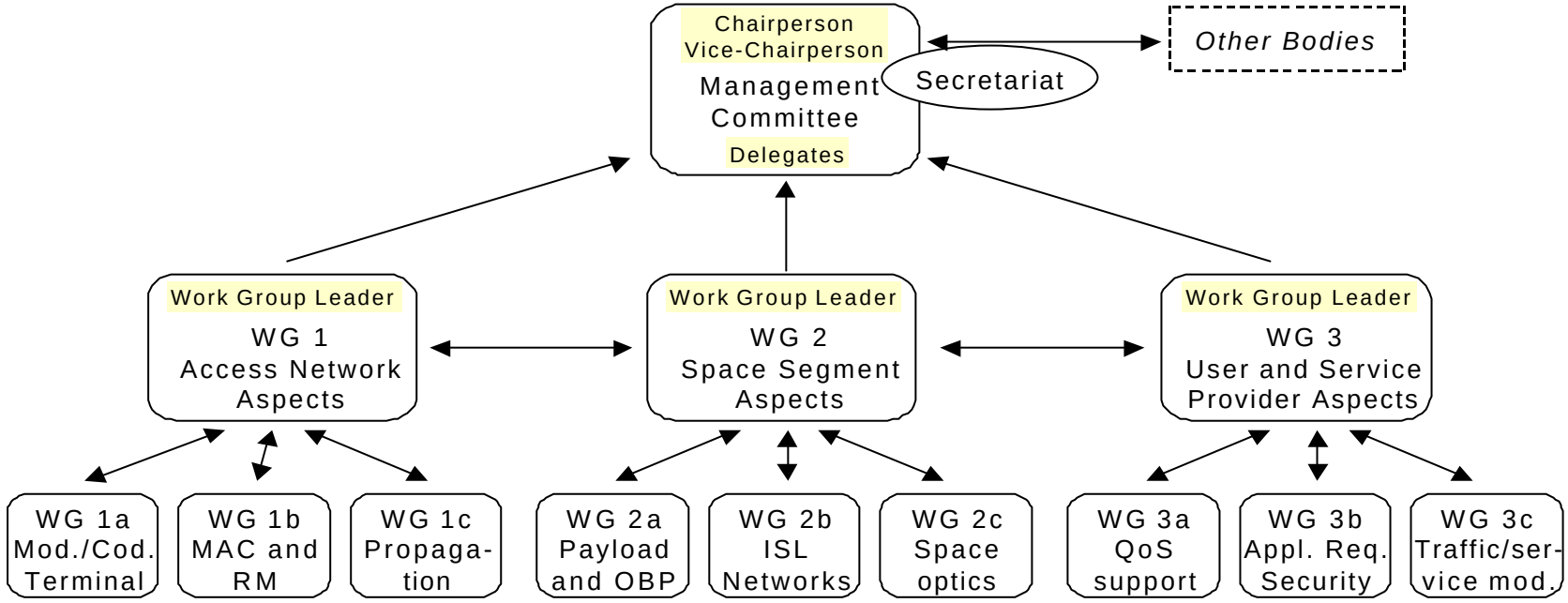
Specify protocols,

Evaluate system performance.

The Action focusses on Internet-type system concepts.

Disseminate ongoing research work and results obtained.

ORGANISATION CHART



WG1 Leader : Dr Luca Simone Ronga (Univ. of Florence/CNIT-Italy)
WG2 Leader : Mr Markus Werner (DLR-Germany)
WG3 Leader : Dr Haitham Cruickshank (Univ. of Surrey-UK)

INVOLVED PARTIES

WG1 Acess Network Aspects	WG2 Space Segment Aspects	WG3 User and Service Provider Aspects
CNIT CNUCE Institut Jozef Stefan Telenor University of Brussels University of Bradford University of Madrid Carlos III University of Sevilla University of Surrey	CNIT DLR Ecole Nationale Supérieure des Télécommunications Telecom Italia Lab University of Surrey University of Vigo	CNES CNIT CNUCE DLR Institut Jozef Stefan Telecom Italia Lab Telenor University of Bradford University of Surrey University of Brussels University of Madrid Carlos III University of Vigo

DIMENSION OF THE ACTION (1)

PARTICIPATING COUNTRIES

- Greece *03/04/2001*
- Belgium *06/06/2001*
- Croatia *17/05/2001*
- Slovakia *intending to sign*
- Italy *30/04/2001*
- Slovenia *05/04/2001*
- Spain *04/04/2001*
- France *04/04/2001*
- United Kingdom *04/04/2001*
- Germany *11/04/2001*
- Norway *21/05/201*

DIMENSION OF THE ACTION (2)

- Started on October 2001.
- 2 to 3 meetings per year (management committee, no separate working group meetings).
- about 15-20 delegates per meeting.
- tight contact among delegates through e-mail between meetings.

1ST YEAR MAJOR ACHIEVEMENTS

- INTERCONNECTION OF TWO SATELLITE NETWORKS (in Italy and in France) via an IP-IP tunnel.
- VIRTUAL MEETINGS : COST…. at no cost.
- EXPRESSION OF INTEREST for the 6th PCRD : OSMOSISNET

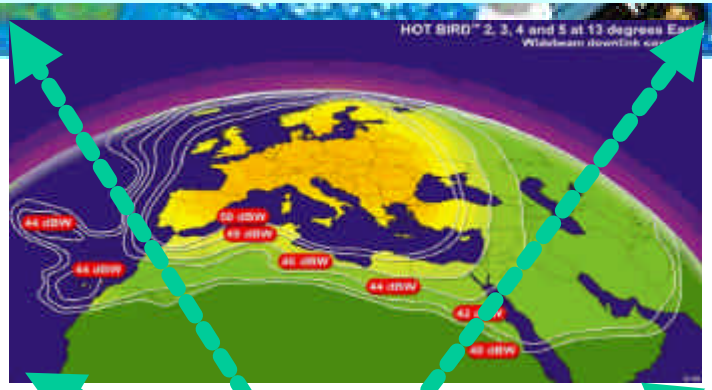
THE INTERCONNECTION

- The goal was to use a minimum amount of resources, by exploiting existing testbeds and equipment. We verified the possibility to start by interconnecting the CNIT networking infrastructure with the Toulouse site of CNES, which has an earth station transmitting over the Ku band with DVB-S. The CNIT network was a mixed cabled and satellite IP network, with the satellite portion operating in Ka band over 2 Mbps channels, with an operating center located at the CNIT National Multimedia Communications Laboratory in Naples.
- The “Teledottorato” lectures have been multicast over the CNIT network.

THE INTERCONNECTION

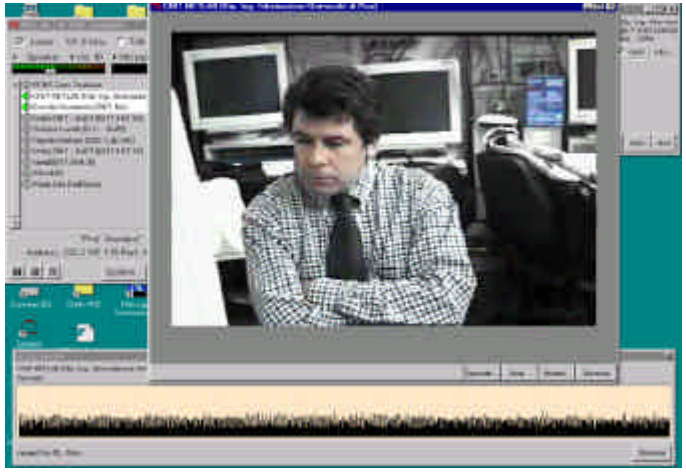
- After Toulouse has become a member of the multicast group, it has operated in real time on the flows received (audio, video and MPPT (Multicast PowerPoint) slides), in two ways:
  - ♦ By decoding the flows up to the application level, re-encoding in MPEG and sending over DVB in Ku band;
  - ♦ By directly encapsulating the IP packets (after extraction from the tunnel) in the DVB frame and sending them over the Ku band.
- This allowed us in Naples to receive back the flows also in two ways:
  - ☞ In TV mode, either through a normal decoder or the DVB-IP board operating in TV mode;
  - ☞ In IP mode, by joining in the multicast group with the machine hosting the DVB-IP board, operating in IP mode.

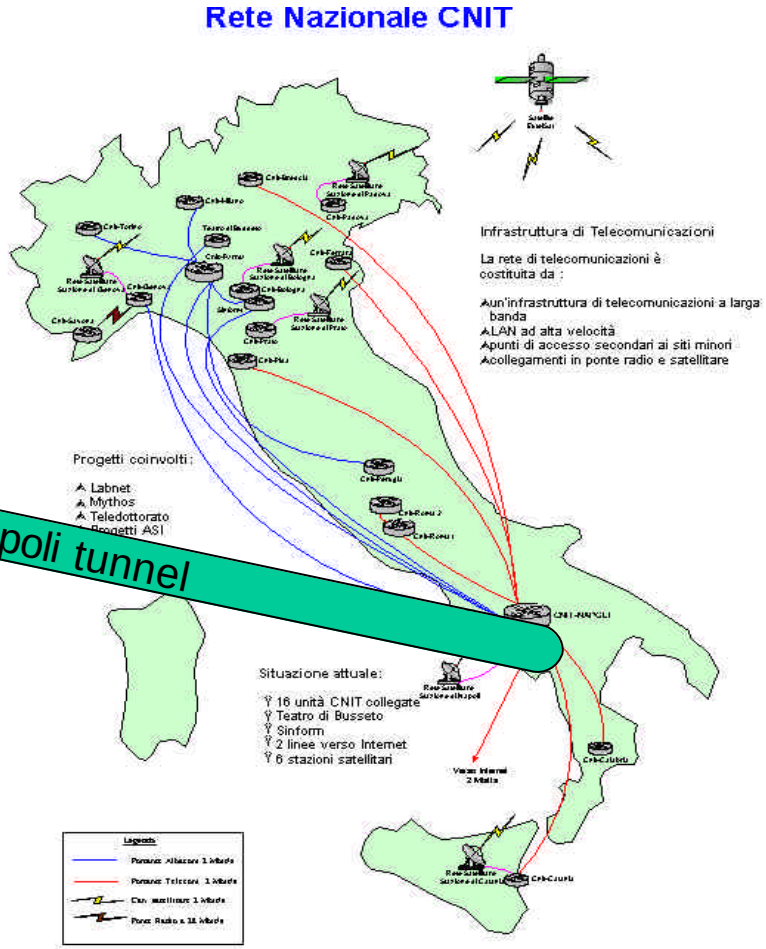
INTERCONNECTION of TWO SATELLITE NETWORKS via IP-IP tunnel (Naples-Toulouse)



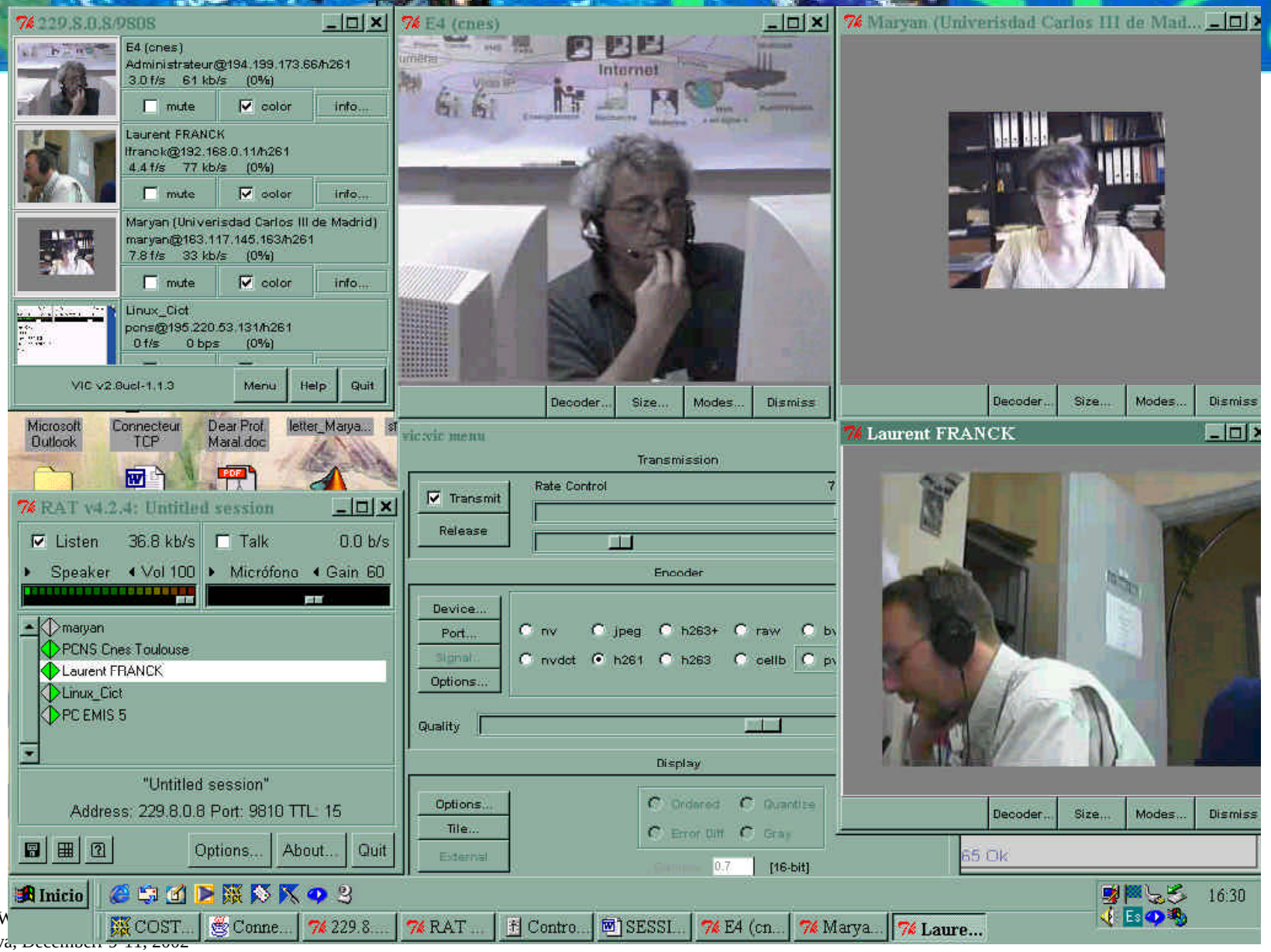
PCNS

Toulouse-Napoli tunnel

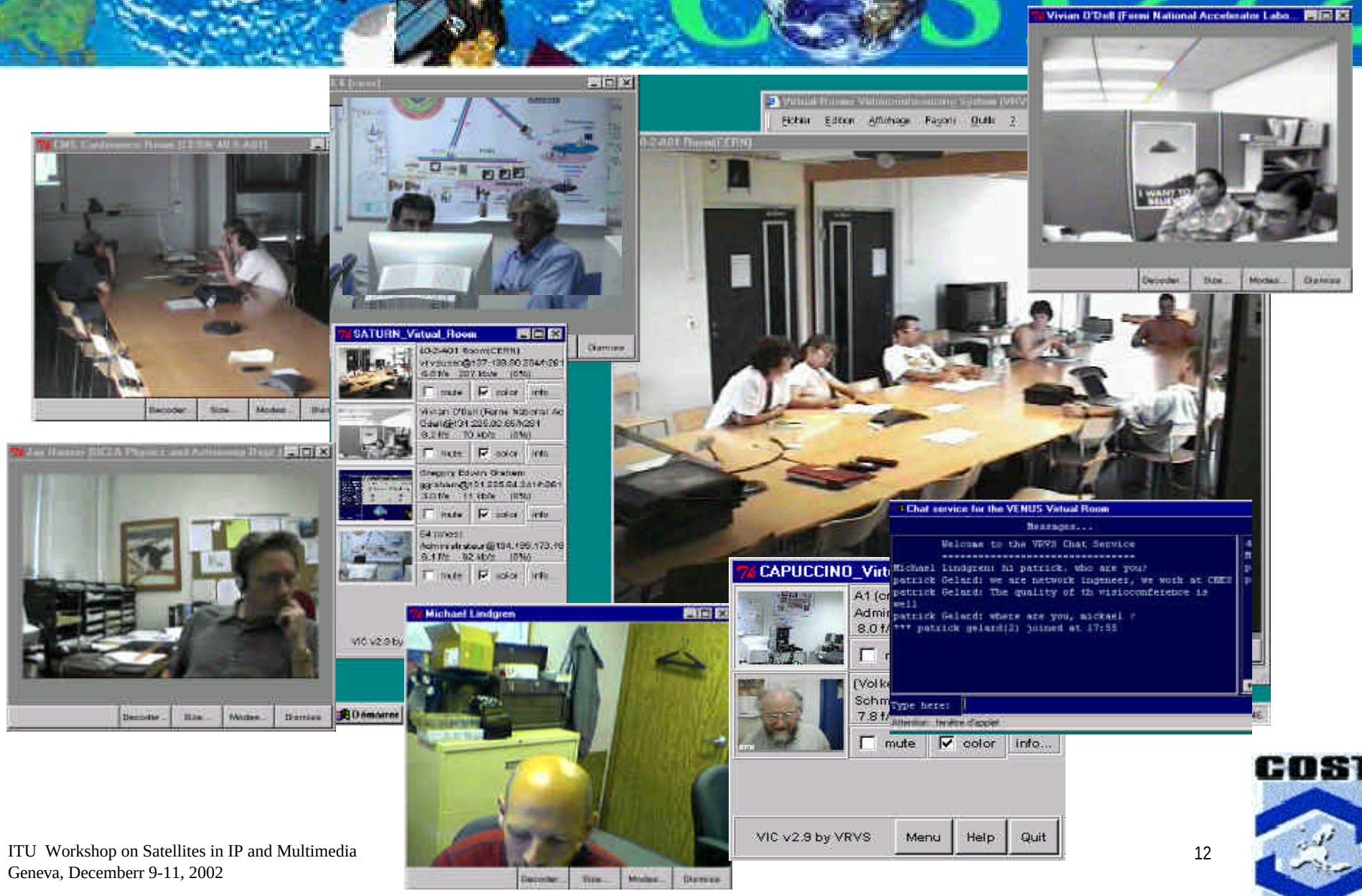




Virtual meetings (3 sites):



Objective: Pan-European virtual meetings



EXPRESSION OF INTEREST IN THE FRAMEWORK OF THE 6th PCRD

EXPRESSION OF INTEREST (EoI)

OSMOSISNET: Open Sky Meeting for Scientific Investigation and research NETtwork

A communications network to support cooperative work within future Networks of Excellence

Prepared by COST Action 272 participants:

CNR/CNUCE Institute, Italy
CNIT, Italy
Telecom Italia Lab., Italy
CNES, France
GET-ENST, France
TeSA, France
University of Surrey, England
University of Bradford, England
University Carlos III of Madrid, Spain
University of Vigo, Spain
University of Thessaloniki, Greece
German Aerospace Center (DLR), Germany
Institut Jozef Stefan, Slovenia
Université libre de Bruxelles, Belgium
Telenor R&D, Norway

With the inclusion of:

Telespazio S.p.A., Italy
ALCATEL Space, France
GET-Eurécom, France
ALCATEL Espacio, Spain
Polytechnic University of Cartagena, Spain
Telefonica R & D, Spain
Euroskills , Greece
Fraunhofer FOKUS, Germany
INESC Porto, Portugal

The present EoI aims at developing knowledge in satellite communication technologies and promoting the implementation of a communications network for supporting day-to-day cooperative work among both the researchers involved in the network of excellence in communication technologies and other Networks of Excellence in different thematic fields.

COST Action 272 participants are the official presenters of this EoI, but other European Institutions joined them in supporting the idea. The presenters believe that it is time to pick the fruits of past experiences, and to utilize them, together with the already existing platforms, as the starting point for setting up a heterogeneous networking environment, including GEO satellite networks, which interconnects as many sites in Europe as necessary. This will allow the realization of a *European common testbed* for: 1) providing European institutes with means to carry out day-to-day cooperative work; 2) extending already existing local applications to a European level; 3) experimenting with new applications; 4) carrying on new joined research activities which can be tested on a common test-bed; 5) providing a training and supportive platform for young researchers to exchange research ideas and information in relevant research areas.. The cooperation between the organizations involved (universities, research centres, enterprises, etc.) will be strongly improved by a ***Network of Excellence aimed at developing knowledge and promoting the implementation of a communications network for day-to-day cooperative work. Such a communications network would incorporate both terrestrial and satellite links.*** By constituting this Network of Excellence, the cooperative work in the telecommunication field would be supported by open-sky meetings, by using software applications such as the Internet Mbone tools like VIC (for video) and RAT (for audio), which are already present in many sites.

DIFFICULTIES ENCOUNTERED DURING FIRST YEAR

»The MAJOR DIFFICULTY : insufficient funding to hold the required number of meetings.

Therefore :

- The Action is orienting itself towards remote cooperative work,
- experiments have been set up to validate the concept,
- if successful the tools could be available to other Cost actions.