



IPv6 Summit

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Next Generation Networking Initiative *Funding Opportunities for Industry*

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Presentation Outline

- **Next Generation Networking:
a Vision and its Challenges**
- **Working in Progress**
- **NGN-Initiative**
- **Opportunities & Priorities for 2001**

Next Generation Networking Defining Our Vision and Its Challenges

The New Economy and the Knowledge Society

Image © Ericsson Media lab

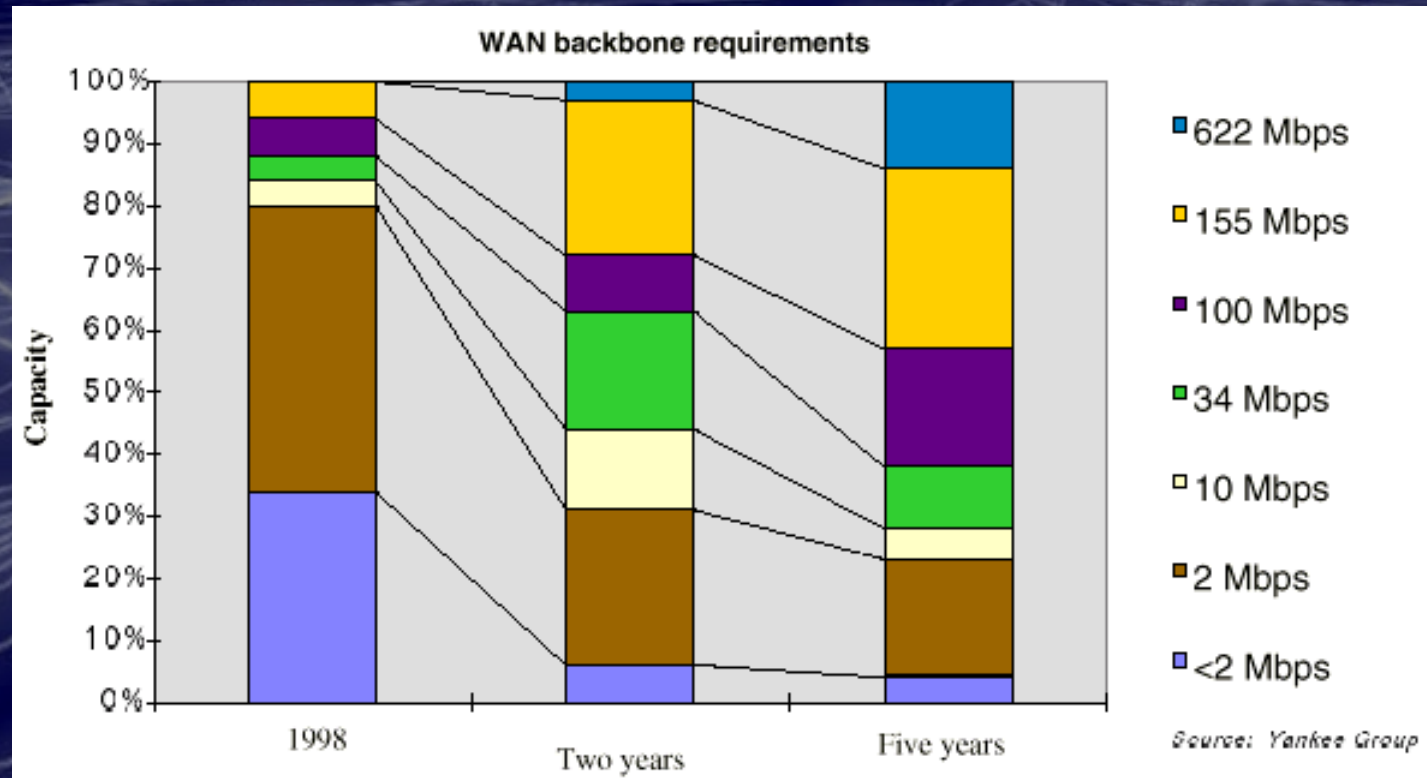


New technologies are driving the economy

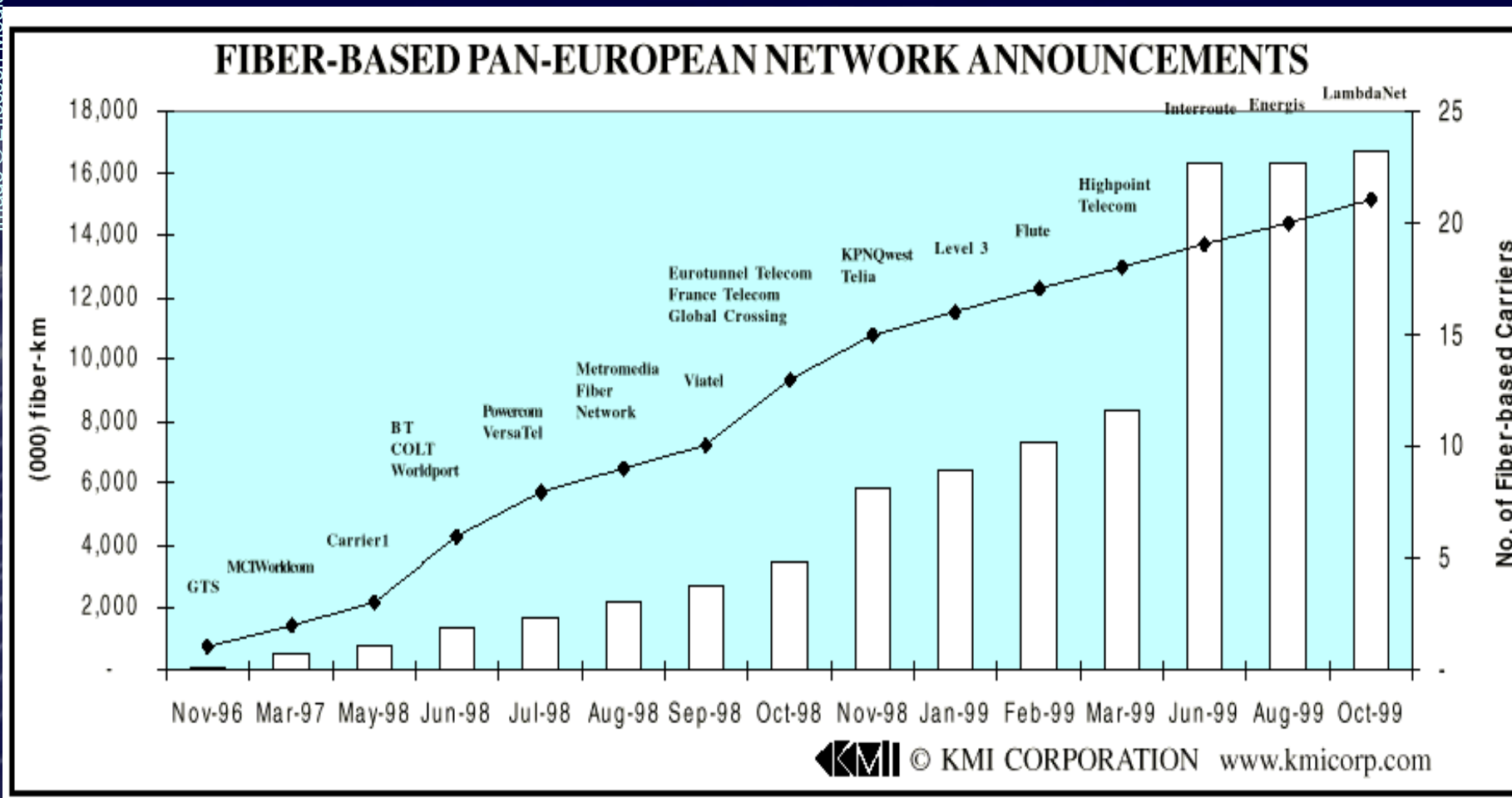
- all sectors
- all businesses
- increase productivity
- create new business
- open new markets

A networked economy is the key factor for growth, competitiveness and employment

Evolution of Needs in EU

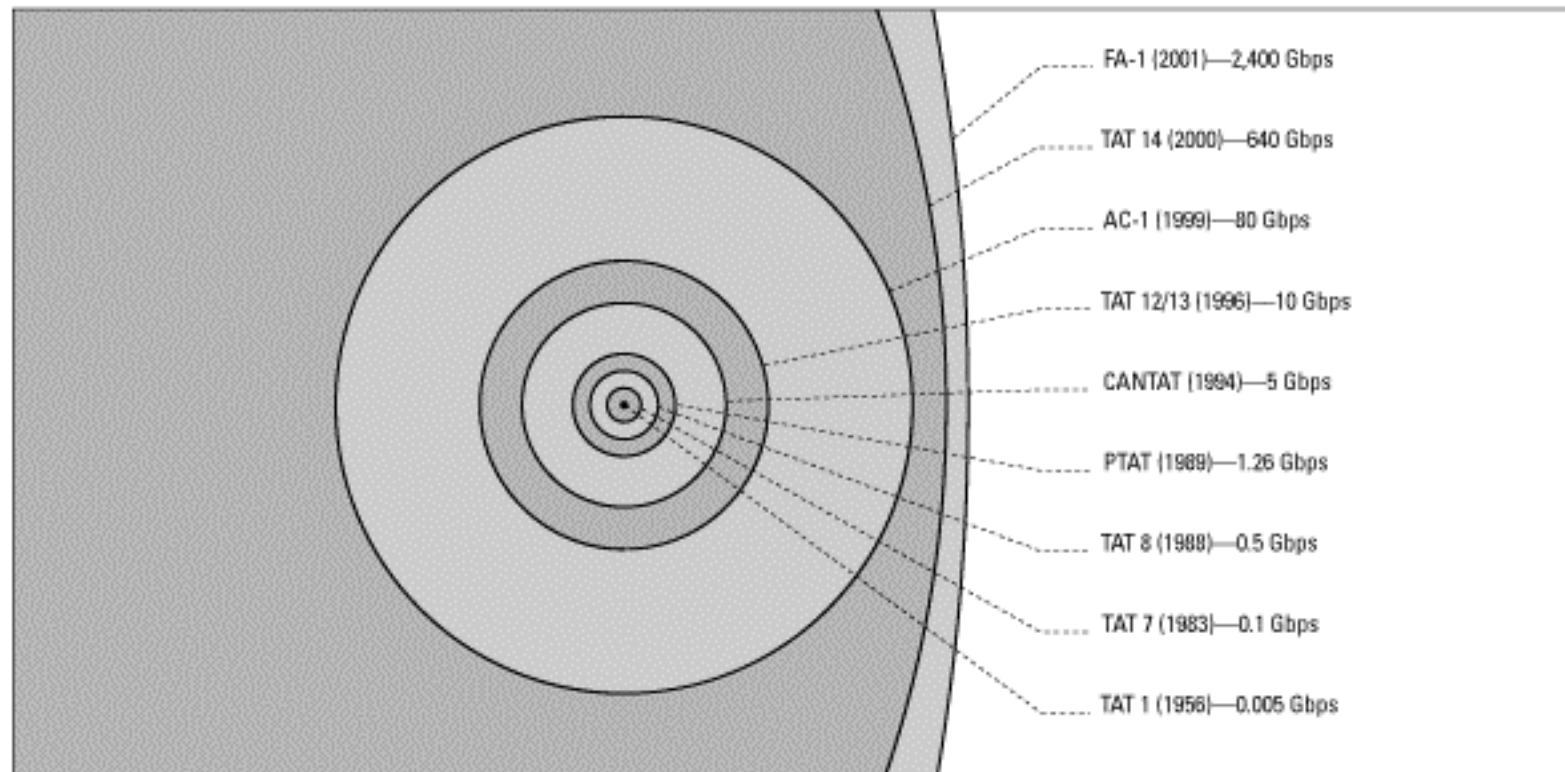


Optical Fiber Deployment in EU



Bandwidth Explosion

Figure 1. The Undersea Bandwidth Explosion



Note: Submarine cables are scaled to capacity when cable was put into service.

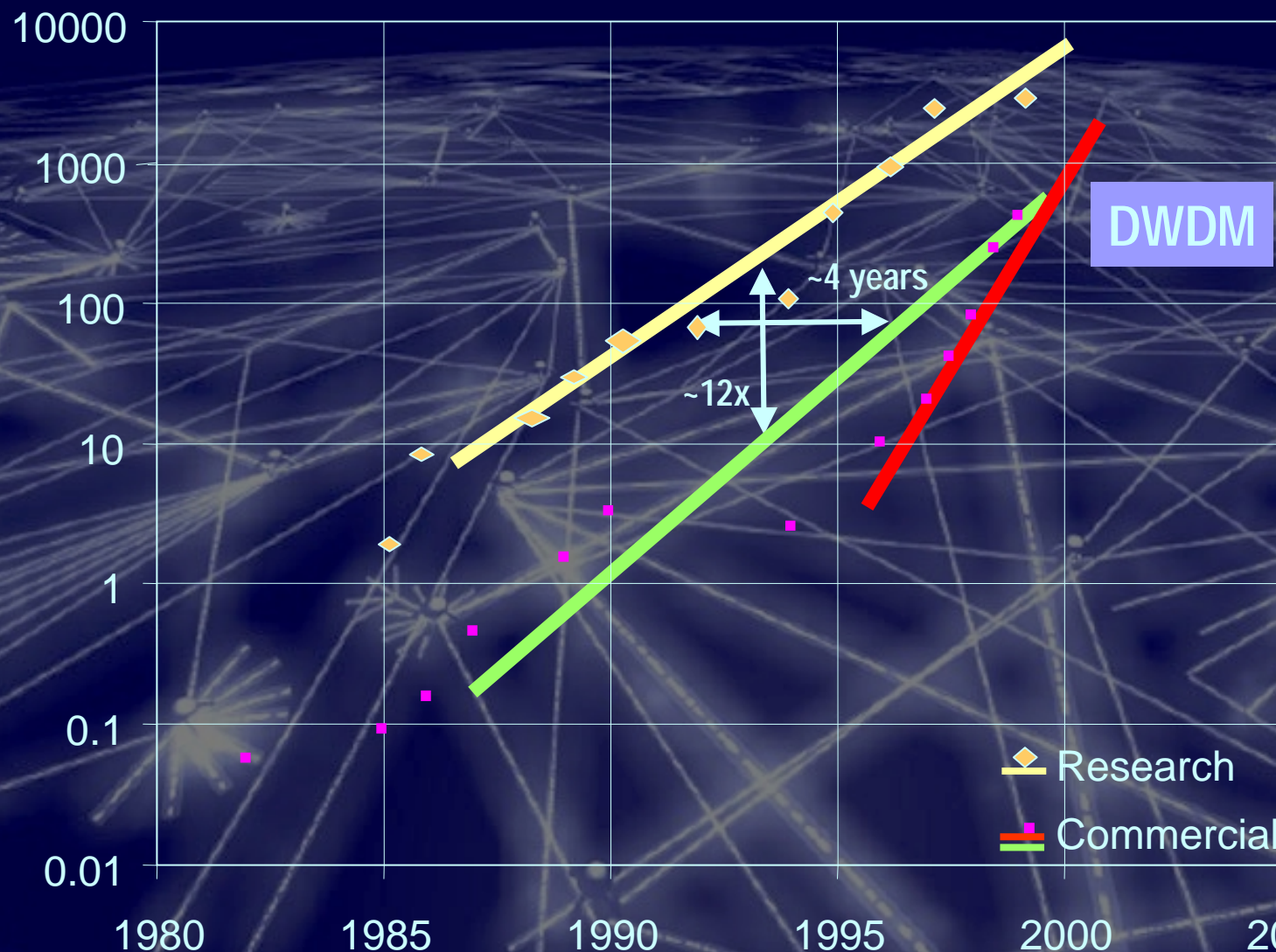
Source: TeleGeography, Inc.

© TeleGeography, Inc. 2000

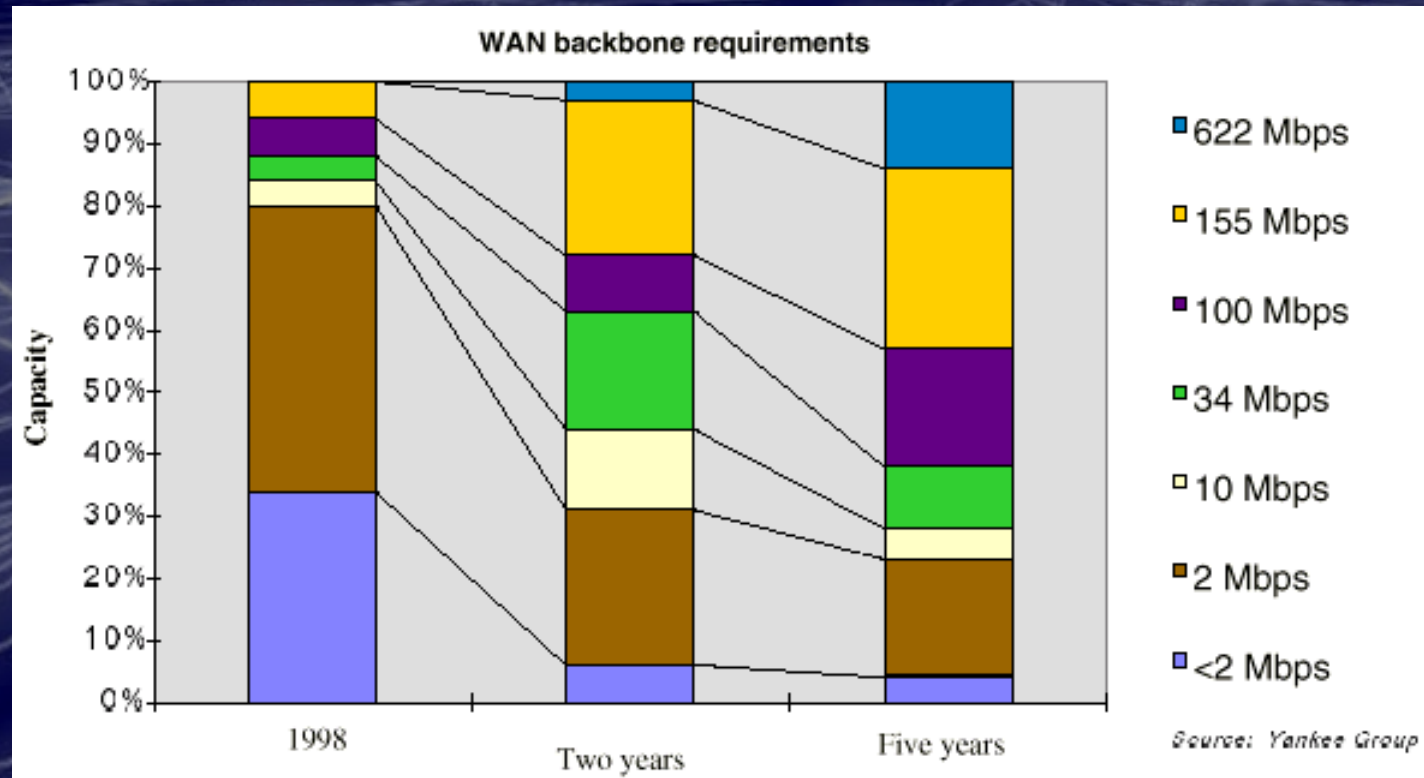
Photonics Technologies

Image © Ericsson Media lab

Transmission Rate Gbit/s



Can We Meet Those Needs?

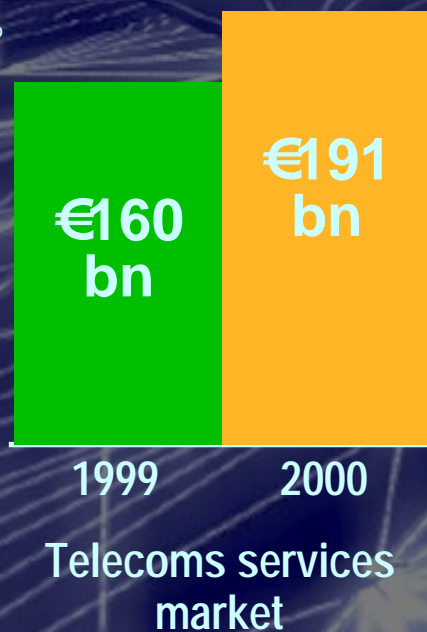




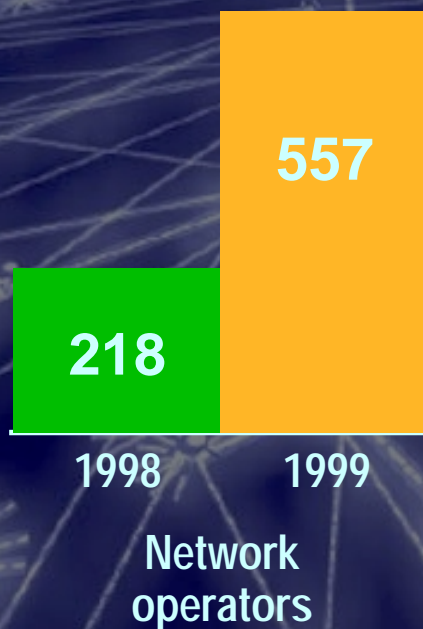
1998 Telecom liberalisation : Work in progress

Image © Ericsson Media lab

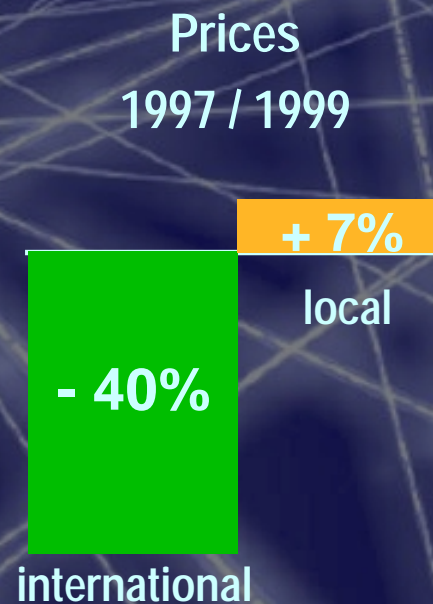
**Fast-growing
market**



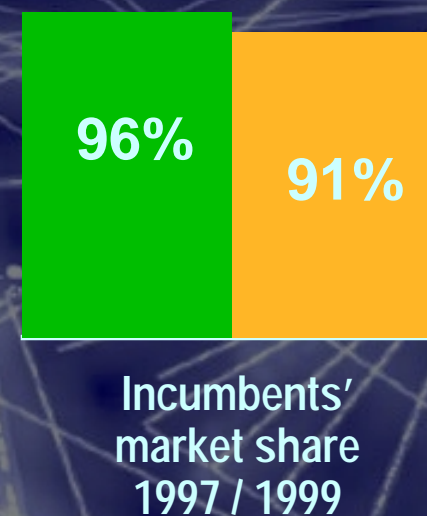
More choice



**Some prices
down**



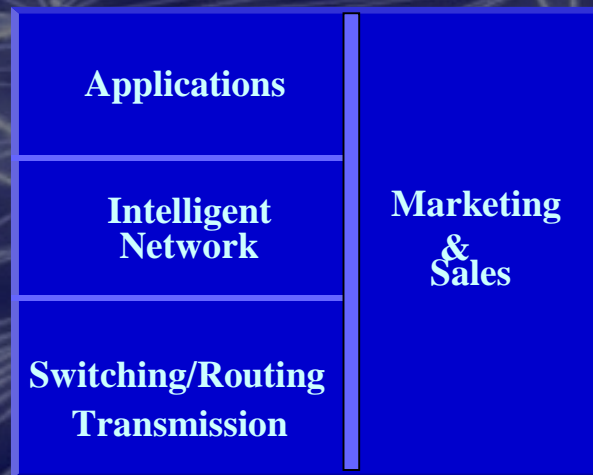
**Incumbents
still dominate**



The Communication Industry

- New Actors and New Business Models**

Traditional Communications (Vertical Integration)



NextGen Communications (Horizontal Integration)



Optical Networking Paradox

- Problem areas are non optical
- Optical hardware a decreasing problem
- Priority toward the higher layer



The rise of the stupid network

- Simple open network
- Third party innovation
- Distributed intelligence on the edges
- Smarter and more active than today's Internet
- Flexibility and scalability
- Optical core/varied access
- Premium for all



Remaining Challenges: Access Networks

Image © Ericsson Media lab

LOW COST - AFFORDABLE ACCESS!

Anyone, Anywhere, Anytime

- Efficiency & Technology Independence (wireless, xDSL...)
- Flexible Bandwidth Allocation
- Cheap and easy-to-use Access Gateways
- Always on

Challenges for MANs

- **Support All Services (Internet, Mobile, Broadcast)**
- **Flexible Bandwidth Allocation**
- **Flexible Equipment**
- **Interfacing with Higher Layers (IP)**
- **Interworking with other Networks**
- **Management System**
- **Protection and Restoration**

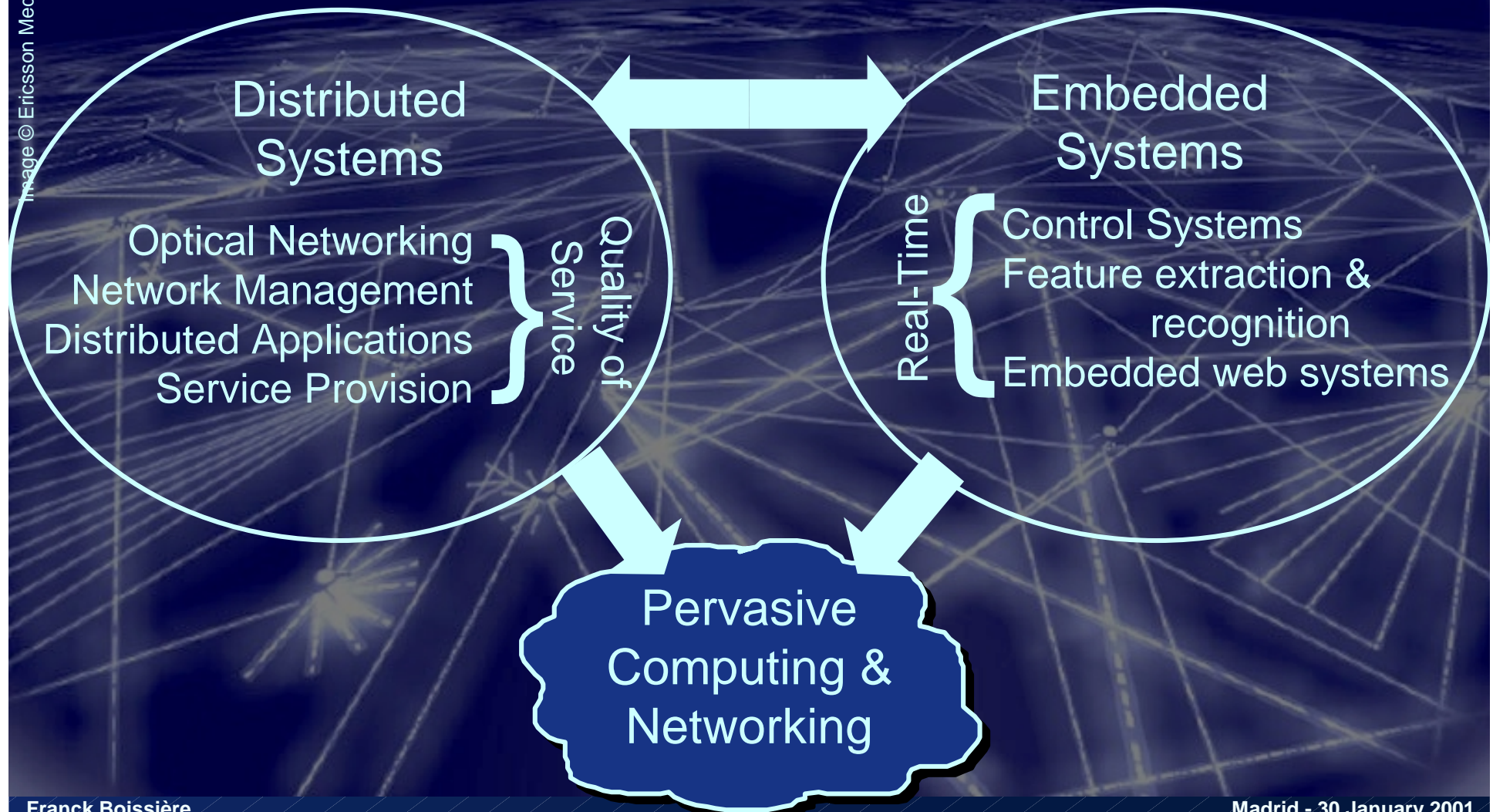
Portfolio of Work in Progress

Combined Efforts of 3 Units:

- Computing & Networking
- Mobile and Personal Communications
- Research Networking

Computing and Networking

Image © Ericsson Media lab



Distributed Systems Functions and Enablers



CORPORATE
NETWORKS
VPNs

COMPUTING

BACKBONE
NETWORKS

PHOTONICS

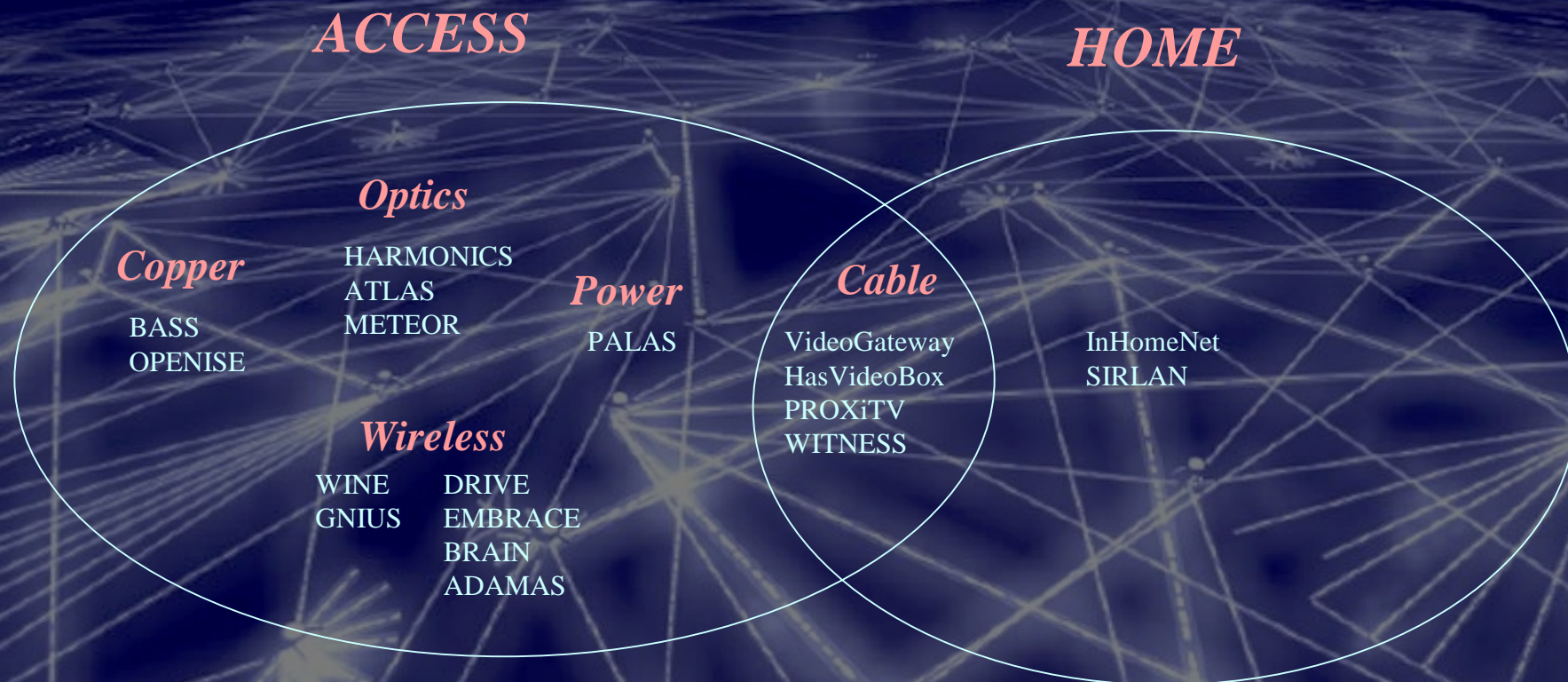
INDIVIDUAL ACCESS/
HOME NETWORKS
MOBILE/FIXED

MICROELECTRONICS

Networking
Integration
(protocols)

Thematic Grouping of Projects

Image © Ericsson Media lab



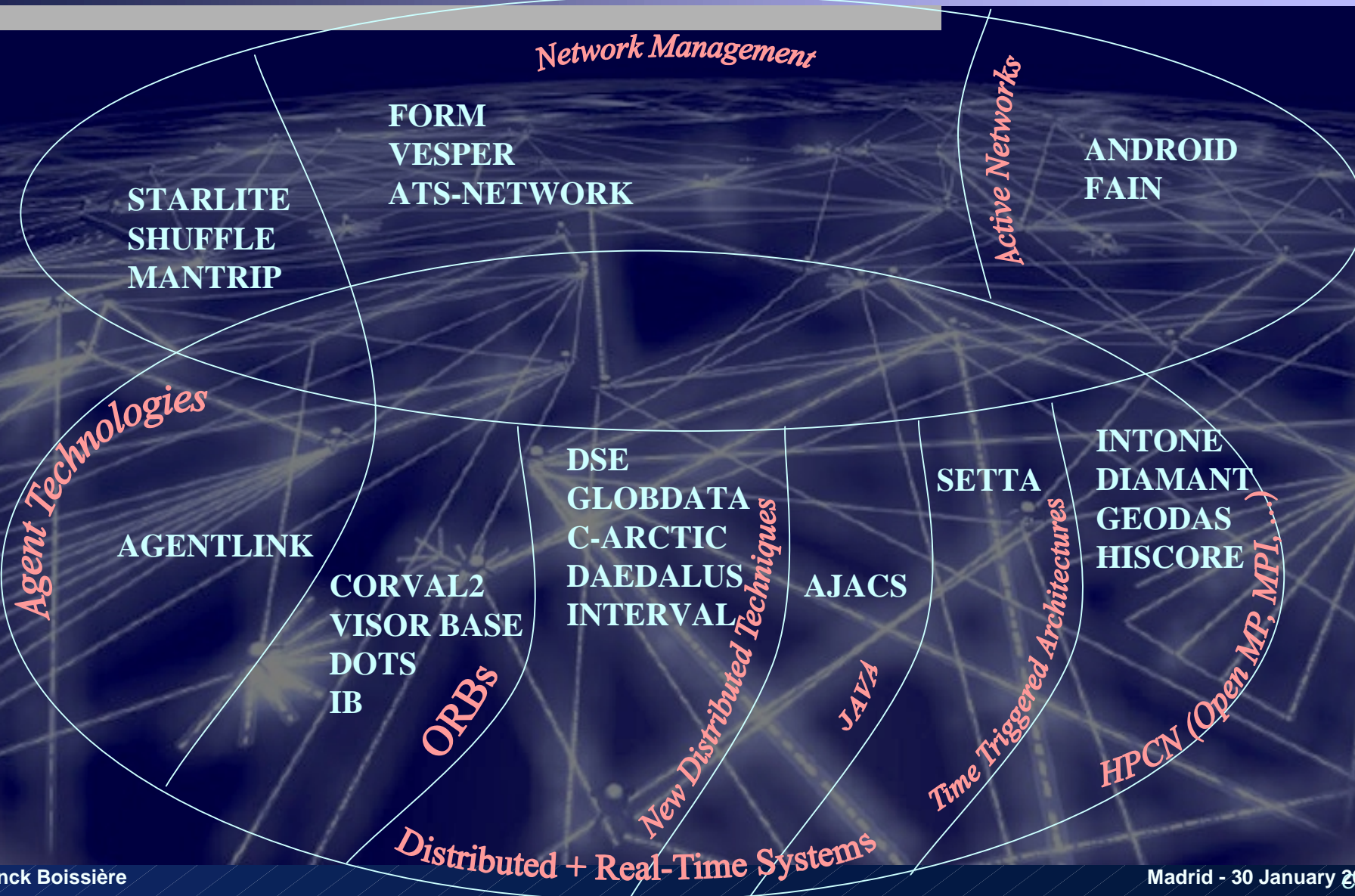
Thematic Grouping (2)

Image © Ericsson Media lab



Thematic Grouping (3)

Image © Ericsson Media lab





Our Response: A New Initiative & Further Targeted Opportunities

Image © Ericsson Media lab





NGN-I: Mission

**Pull Existing and Future Efforts
Together to Build a
Critical Mass Able To:**

- To resolve issues that create barriers to deployment
- To achieve interoperability, compatibility and/or commonality



NGN-I: Approach

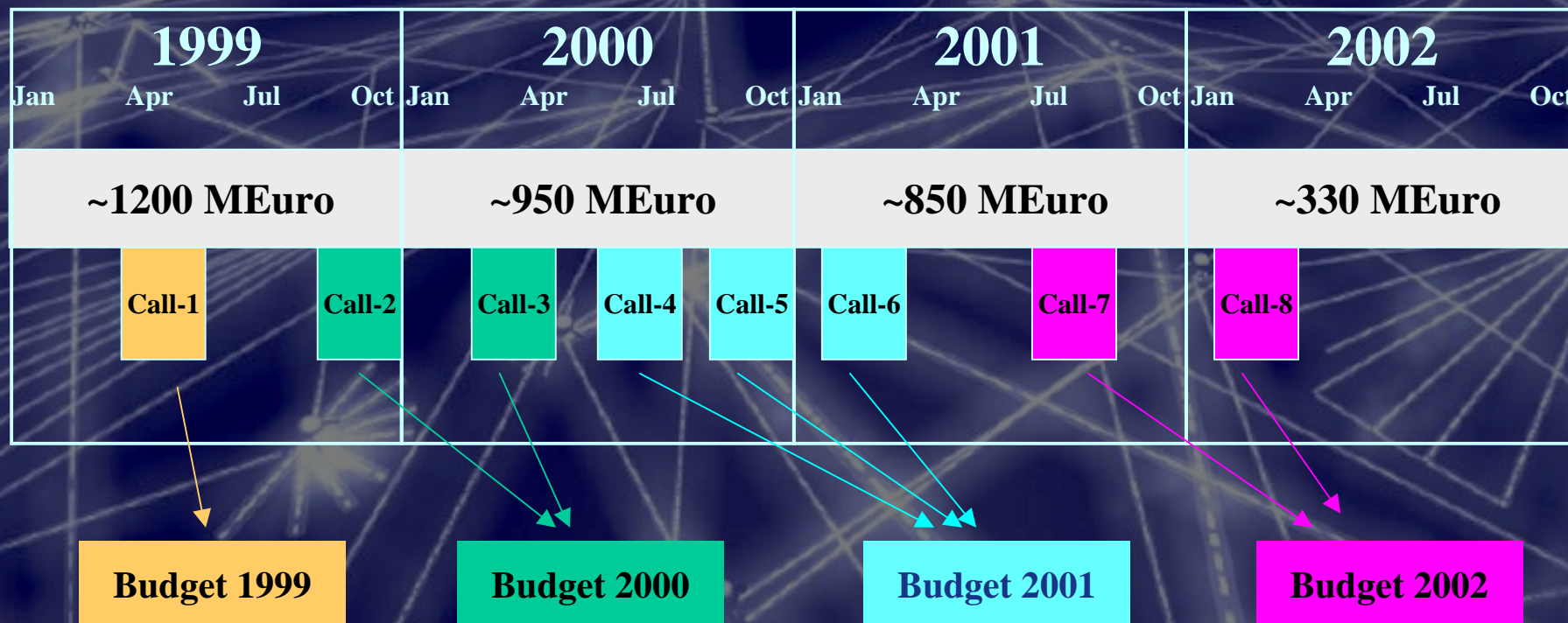
- “Clustering” of R&D efforts.
- Co-ordination of standards contributions
- Technology benchmarking
- Roadmaps



Image © Ericsson Media lab

Workprogramme 2001 Opportunities & Priorities

Entering the Last Rounds



(Some) DEADLINES

Apr 2001

- Real-time Distributed Systems
- Network and Services Interoperability

Oct 2001

- Terabit Optical Networks
- Application Services Provision
- Next Generation Networks





IV.2.2 - Network and services interoperability interworking and mgt

April 2001 Deadline

- To increase bandwidth, QoS, and functionality
 - FOCUS: network gateways and protocols
- To support service interworking and network management
 - FOCUS: active and dynamically reconfigurable networks



V.1.6. - CPA 6 : Next-Generation Networks

October 2001 Deadline

- **Objective**
 - foster deployment of an “open” modern networking infrastructure supporting industry driven large-scale experimentation
- **Focus**
 - **technology validation** - Fixed - mobile interworking, Management across different network layers, Higher and lower layer protocols (e.g. IP over WDM, MPLS), Mobile IP, Access/core networks interoperability, IPv6, etc.
 - **full service demonstration** - Scalability, Security, Availability, Accounting/Settlements, QoS, etc.
 - **usability testing** - Application requirements in specific domains

V.1.6. - CPA 6 : Usability Testing

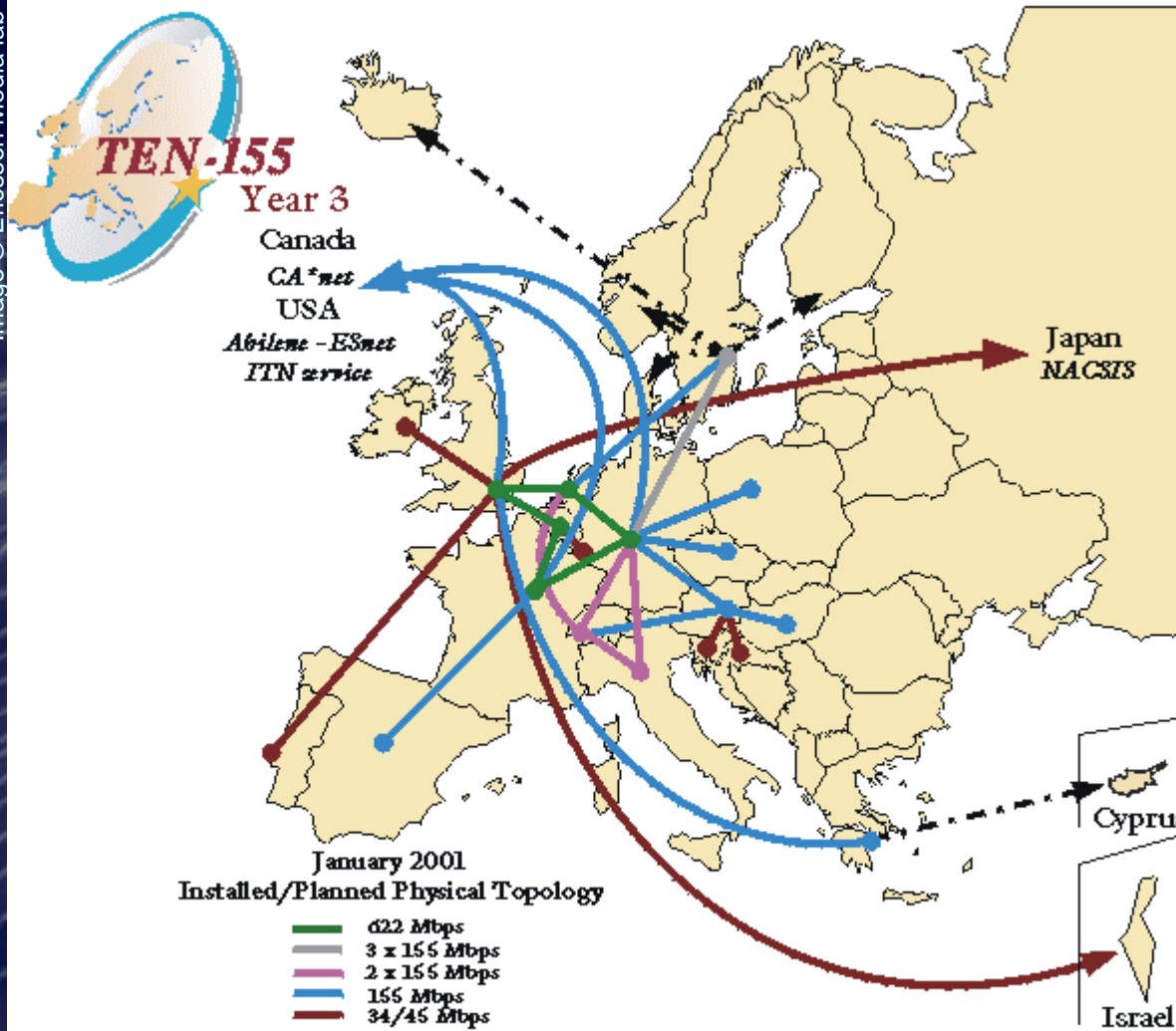
- **Application requirements in specific domains**
 - Virtual Museums (Semantic Web)
 - Distributed Engineering
 - Collaborative Working (VR)
 - Unified Messaging
 - Virtual Home Environments

V.1.6 - CPA 6 : Next Generation Networks

Remark

- “Next Generation” refers to **NETWORKS** not applications
- “Next Generation” refers to **NETWORKS** not components

NGN Examples: Building on GEANT



80M€ Funding

over 4 years

Start from TEN155

For all R&D

TF-NGN



NGN Examples: Building on GEANT

Image © Ericsson Media lab





NGN Examples: Building on GEANT

Image © Ericsson Media lab

**Access/Edge Technologies
(10GE, Broadband wireless, ...)**





NGN Examples: Building on GEANT

Image © Ericsson Media lab

**Sub-IP Technology Test Beds
(MPLS, MPλS, Traffic Engineering,...)**

AC
(10GE, BIC)





NGN Examples: Building on GEANT

Image © Ericsson Media lab

End-to-End Networking Testbeds (Multi Domain mgt, QoS, ...)

Advanced Testbeds
(10GE, Broadband, ...)





Beyond NGN Examples: Building on GEANT

Image © Ericsson Media lab

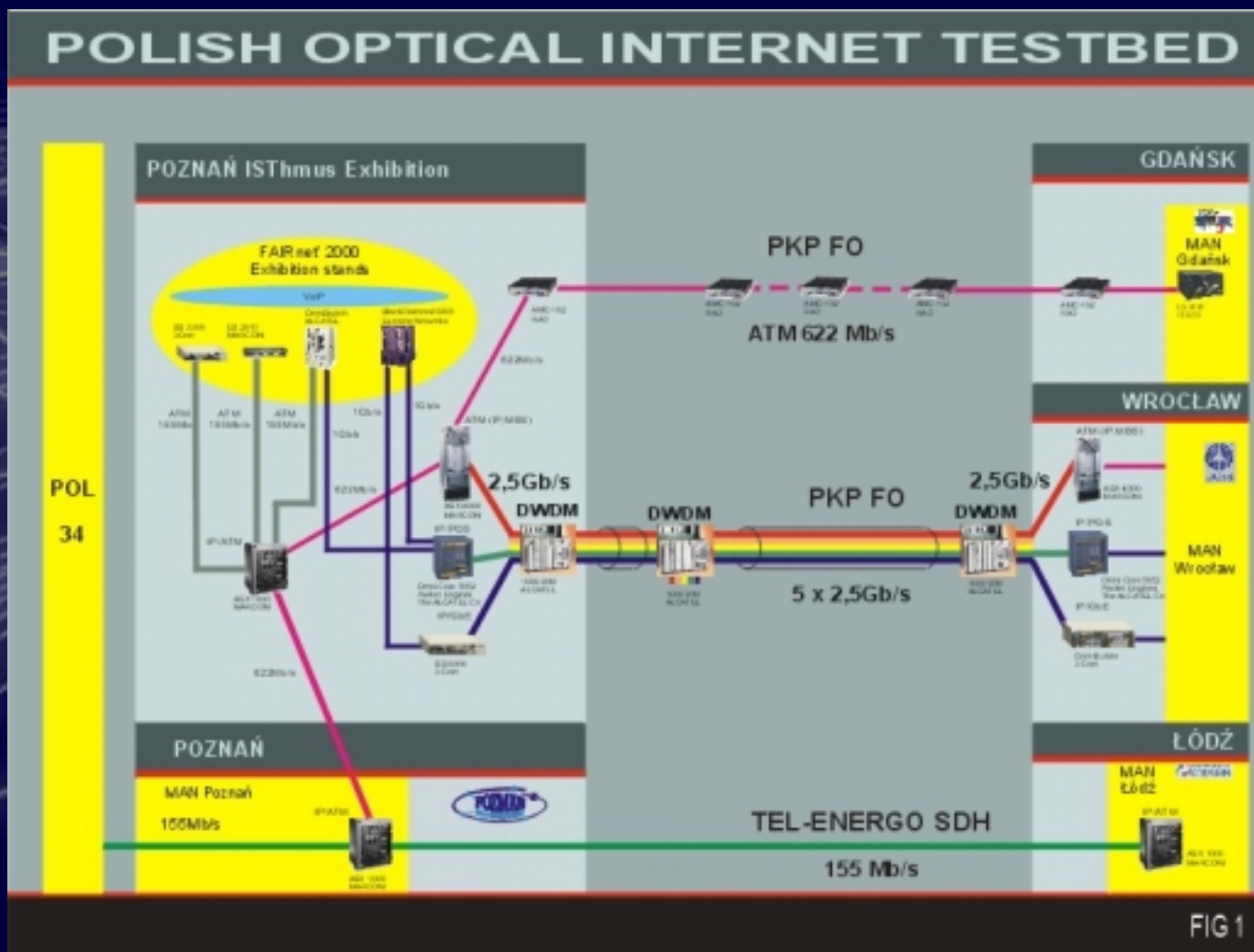
Application & Research Communities
(Grids, Virtual Enterprises, e-Education, ...)

Technology Test Beds
(MPLS, MPAS, Traffic Engineering,...)



NGN Examples: Building on National Facilities

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Important details - official texts

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Draft IST Call Text – for publication OJ on October 1, 1999

DRAFT

second step is given in relation to those successful in the 1st.

Call for proposals for indirect RTD actions under the specific programme for research, technological development and demonstration in a user-friendly information society (1998 to 2002) (The IST Programme)

1. In accordance with the Decision of 4 Parliament and of the Council of December 1998 concerning the 5th framework programme for research, development and demonstration (RTD) set period 1998 to 2002² (hereinafter referred to as the Decision), and with the Commission Decision of January 25, 1999, adopting the specific programme for research, technological development and demonstration in a user-friendly information society (1998 to 2002) (hereinafter referred to as the specific programme), the European Commission hereby invites proposals for indirect RTD actions under the specific programme.

In conformity with Article 5 of the specific work programme³, specifying detailed objectives, priorities and an indicative timetable for implementation, was drawn up by the Commission to serve as the basis for the specific programme. The objectives, priorities, budget and types of indirect RTD actions, this call notice correspond to those set in the programme.

2. This call relates to:

— Proposals, specified under Part 1 of 2

Information Society Technologies

A programme of Research, Technology Development & Demonstration under the 5th Framework of European Research

2000 Workprogramme
Workprogramme



www.cordis.lu/ist

European Commission



THE FIFTH FRAMEWORK PROGRAMME
The Fifth Framework Programme focuses on Community activities in the field of research, technological development and demonstration (RTD) for the period 1998 to 2002.

GUIDE FOR PROPOSERS

INFORMATION SOCIETY TECHNOLOGIES
IST PROGRAMME
(USER-FRIENDLY INFORMATION SOCIETY)

PART 1



European Commission



THE FIFTH FRAMEWORK PROGRAMME
The Fifth Framework Programme focuses on Community activities in the field of research, technological development and demonstration (RTD) for the period 1998 to 2002.

MANUAL OF PROPOSAL EVALUATION PROCEDURES

<http://www.cordis.lu/ist>



Do Not Hesitate To Contact Us

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