

# Research Networks a Basis for the future *e*-Infrastructure in Europe

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"The views expressed in this presentation are those of the author and do not necessarily reflect the views of the European Commission"



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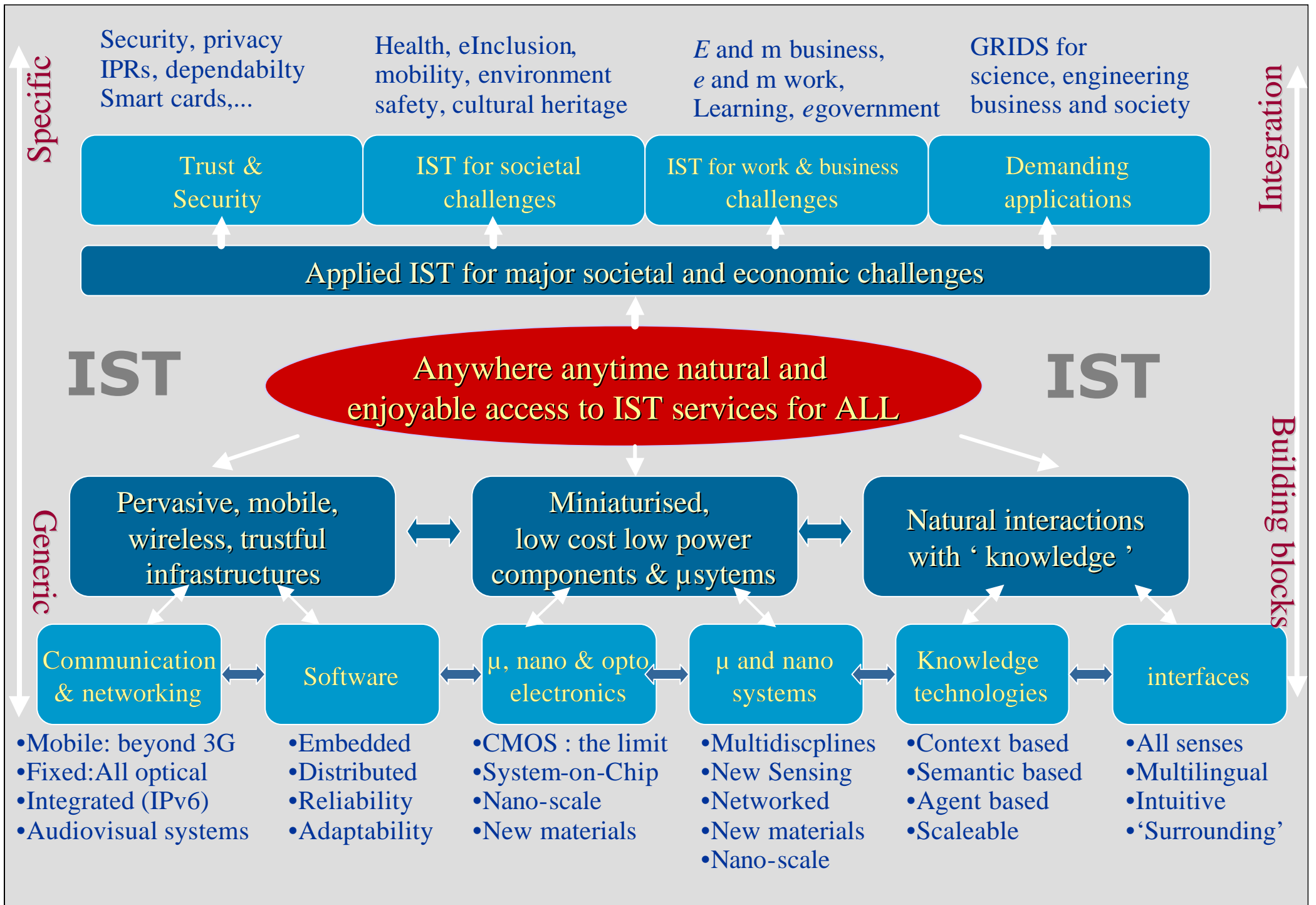
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# The Components of FP6

INTEGRATING EUROPEAN RESEARCH									
PRIORITY THEMATIC AREAS							ANTICIPATING S/T NEEDS		
Genomic and biotechnology for health	Information society technologies	Nanotechnologies, intelligent mat. new production processes	Aeronautics and space	Food safety and health risks	Sustainable development and global change	Citizens and governance in the knowledge society	Research for policy support	Frontier research, unexpected developments	
							Specific SME activities		
							Specific international cooperation activities		
							JRC activities		

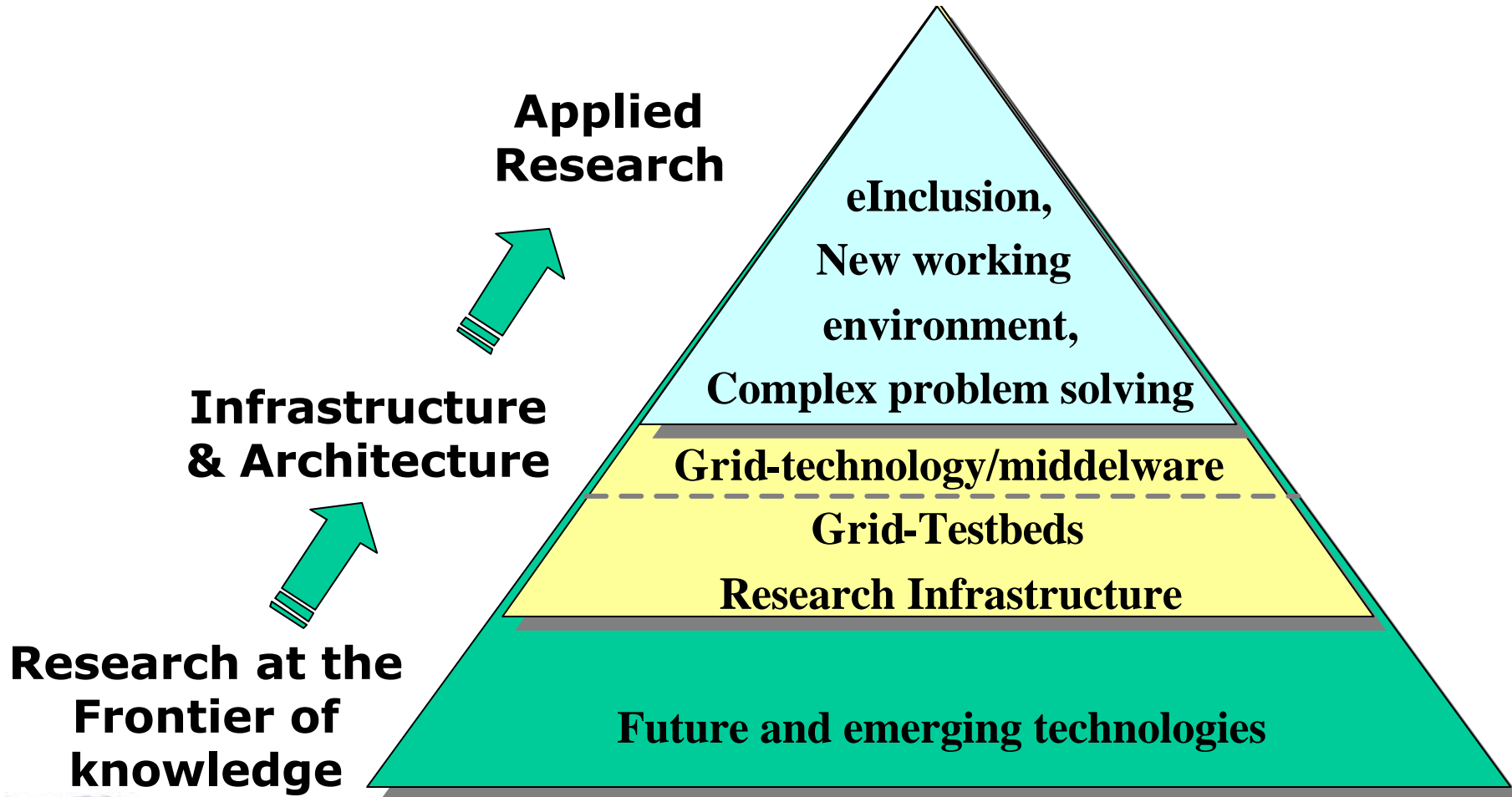
STRUCTURING THE ERA			
Research and innovation	Human resources & mobility	Research infrastructures	Science and society

STRENGTHENING THE FOUNDATIONS OF ERA	
Coordination of research activities	Development of research/innovation policies



# Mission of DG INFSO Directorate F

**Policies: eInclusion, eEconomy**



# A European Model for Co-operation



**Global**

**New levels of cooperation**  
**@LIS, EUMEDIS**



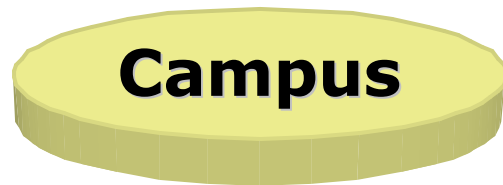
**European**

**EU + NRENs**  
**GÉANT**



**National**

**NRENs**



**Campus**

**Universities**

**National funds**

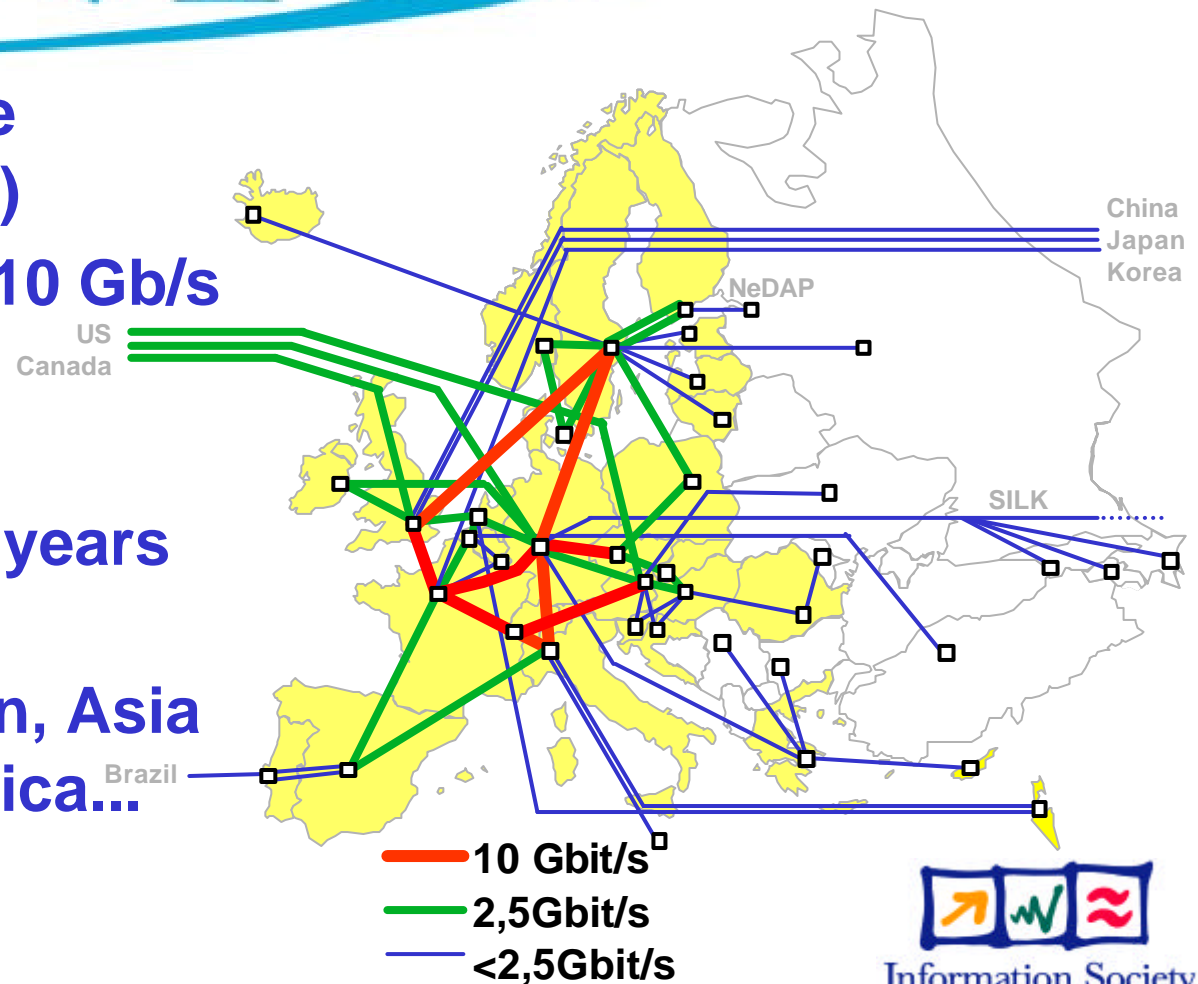
**EU funds**

**Other funds**

# Research Networking



- Pan-European coverage (32+4 Countries/NRENs)
- Gigabit connectivity at 10 Gb/s
- Linking more than 3100 Universities
- Total 200 MEuro over 4 years (80 MEuro from EU)
- Extend to Mediterranean, Asia Pacific Rim, Latin America...

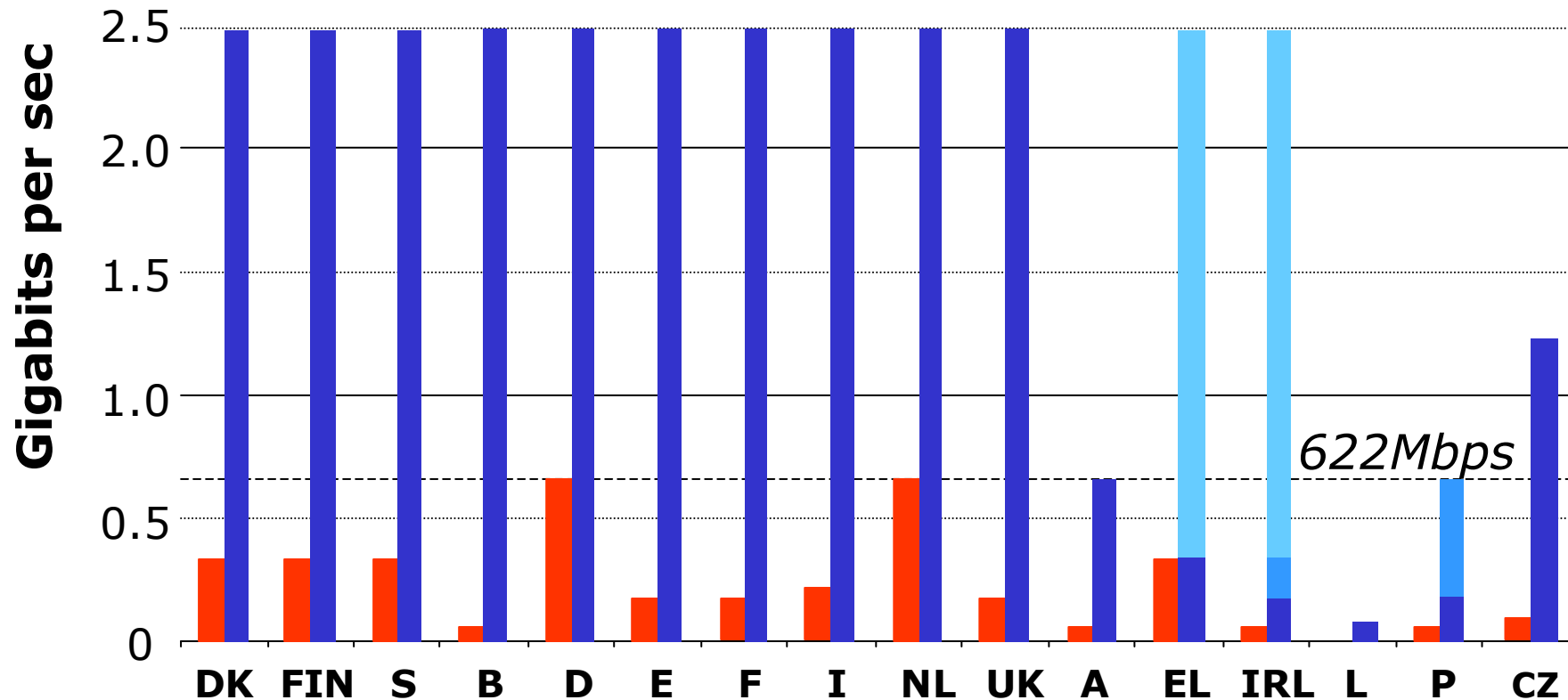


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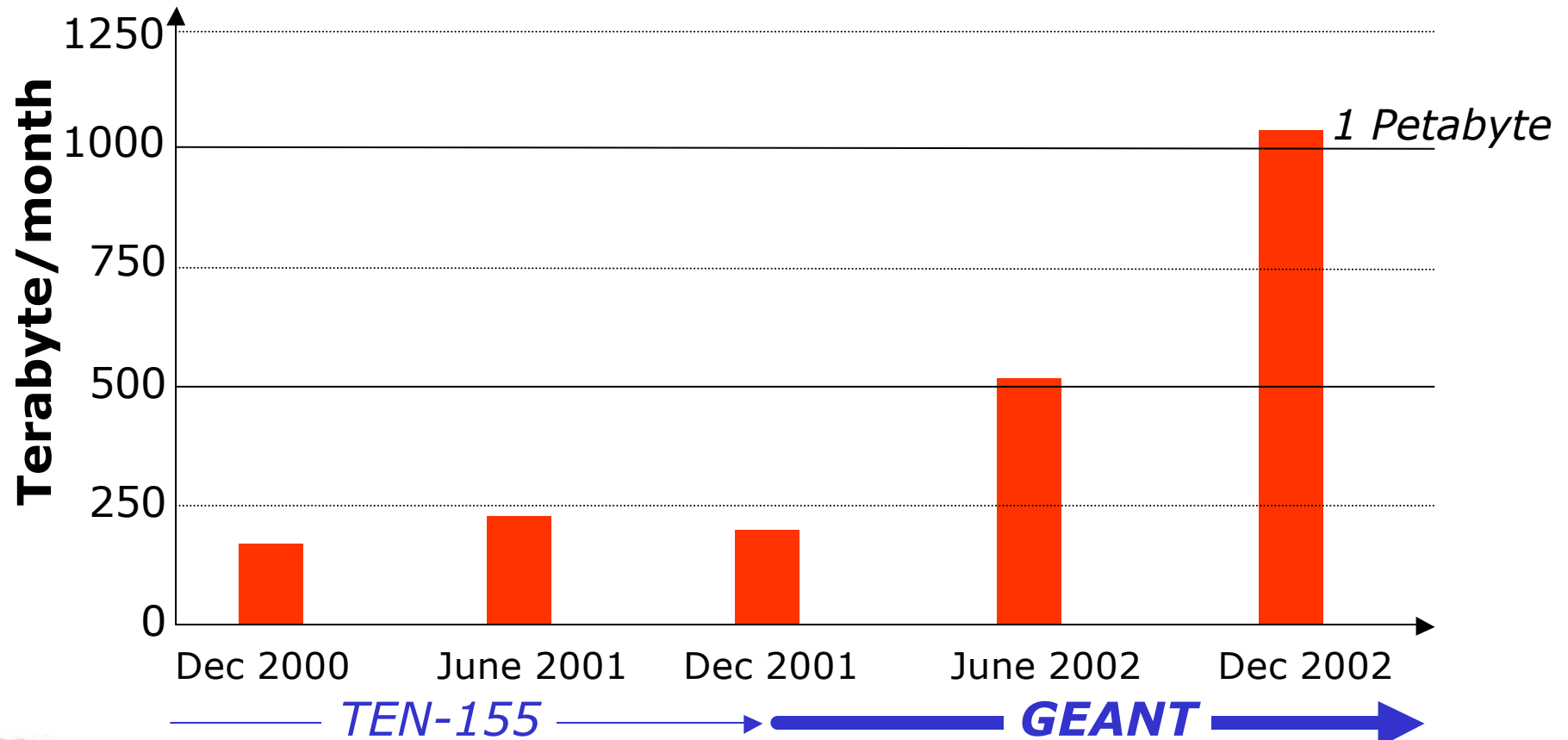
# GEANT: The Most Advanced Research Backbone

**NRENs\* Access Capacity to the GEANT Backbone  
(2001: June, December ; 2002: June, December)**

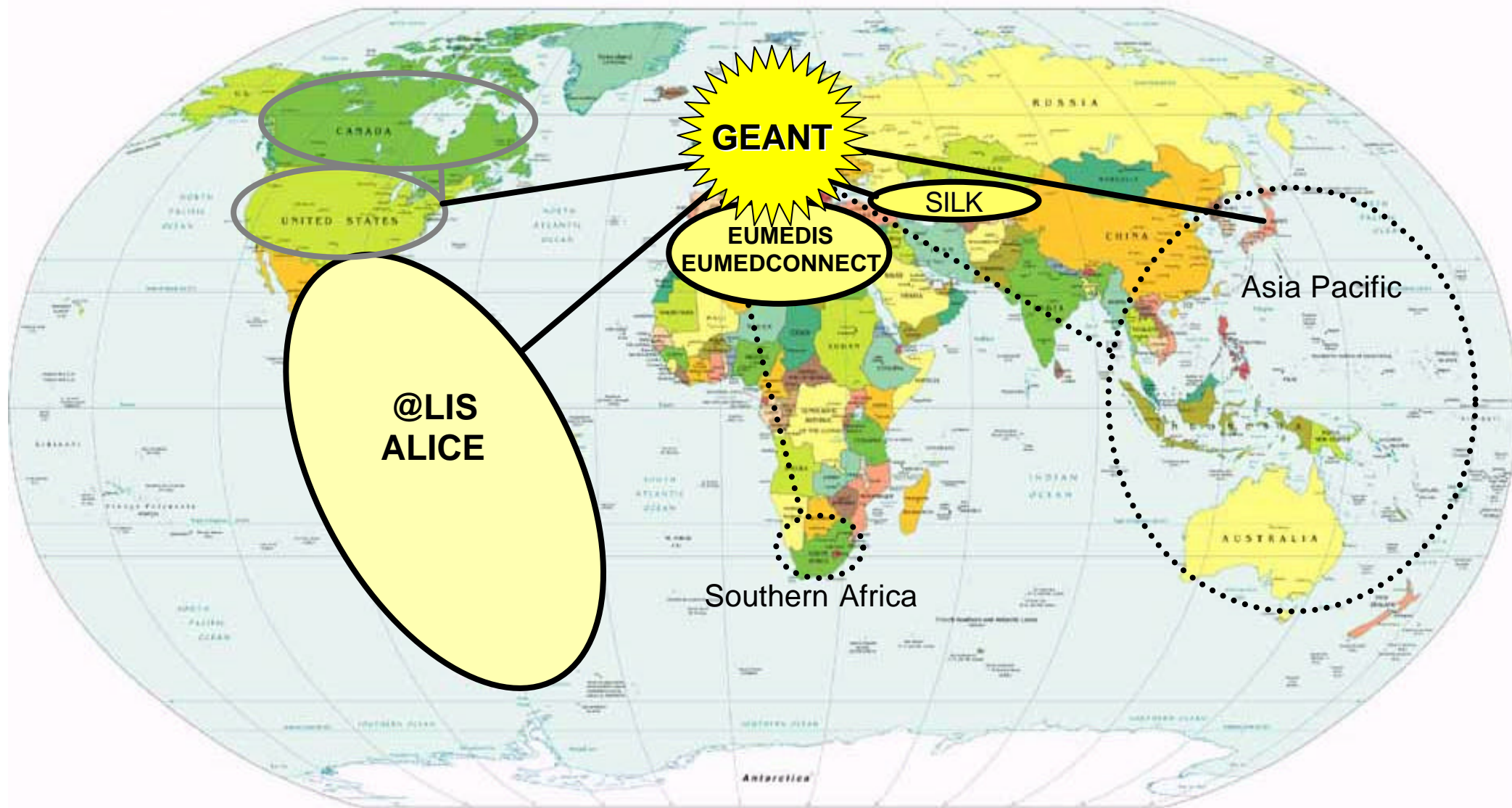


# GEANT Performance Figures

Transfer Volume in the European Backbone Network  
before and after the introduction of GEANT



# GEANT a Global Player



# GEANT: The Flagship of Networking Activities in Europe

**GÉANT - creating the pan-European network infrastructure to explore developments in telecommunications technology**

- ➔ **Network Services for National Research and Education Networks (NRENs)**
- ➔ **Platform for testing - IPv6, GRIDs,...**



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# Extensive European-wide IPv6 Test-beds

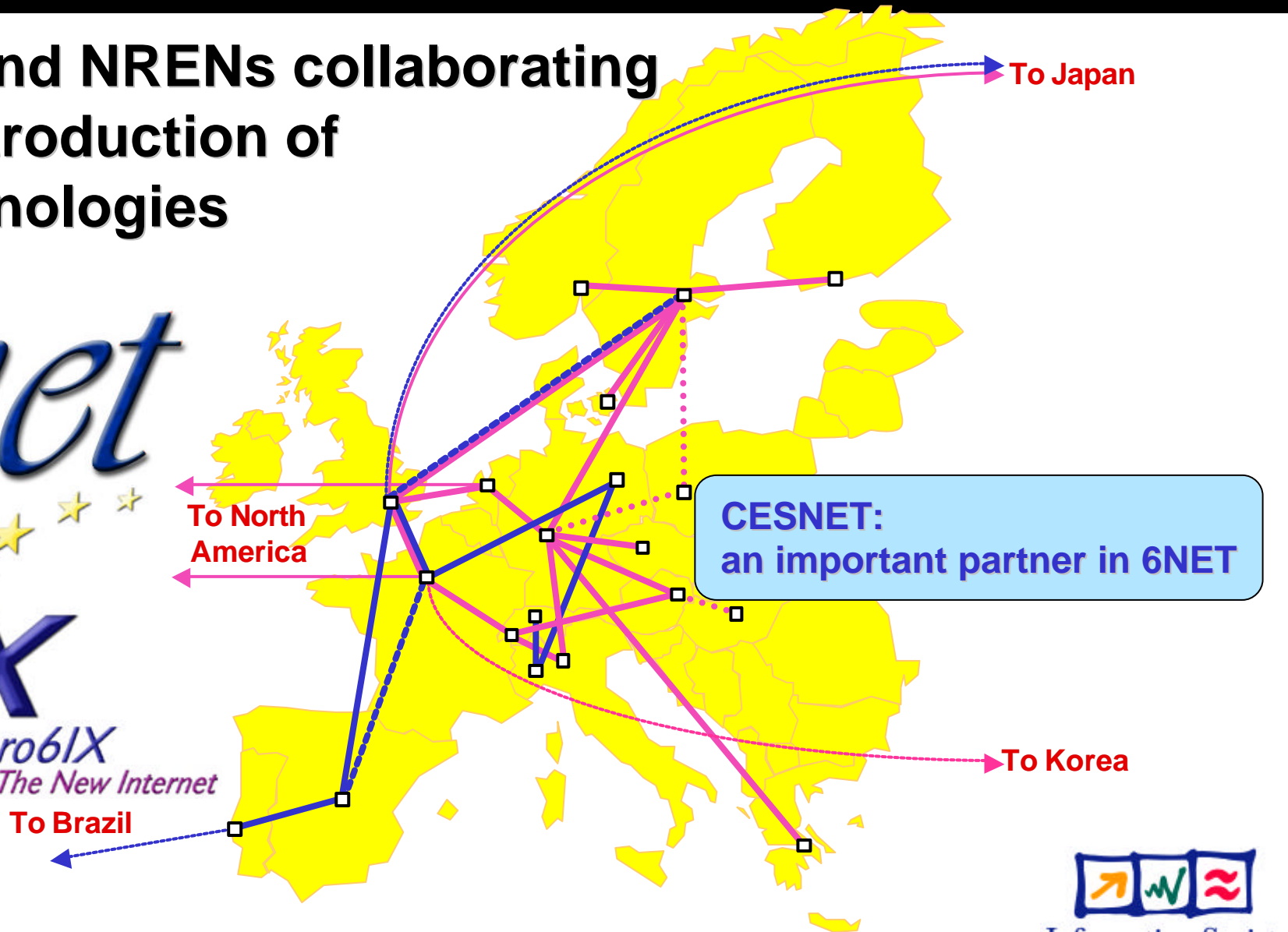
GEANT and NRENs collaborating on the introduction of new technologies

6net

6IX  
Euro6IX  
IPv6: The New Internet



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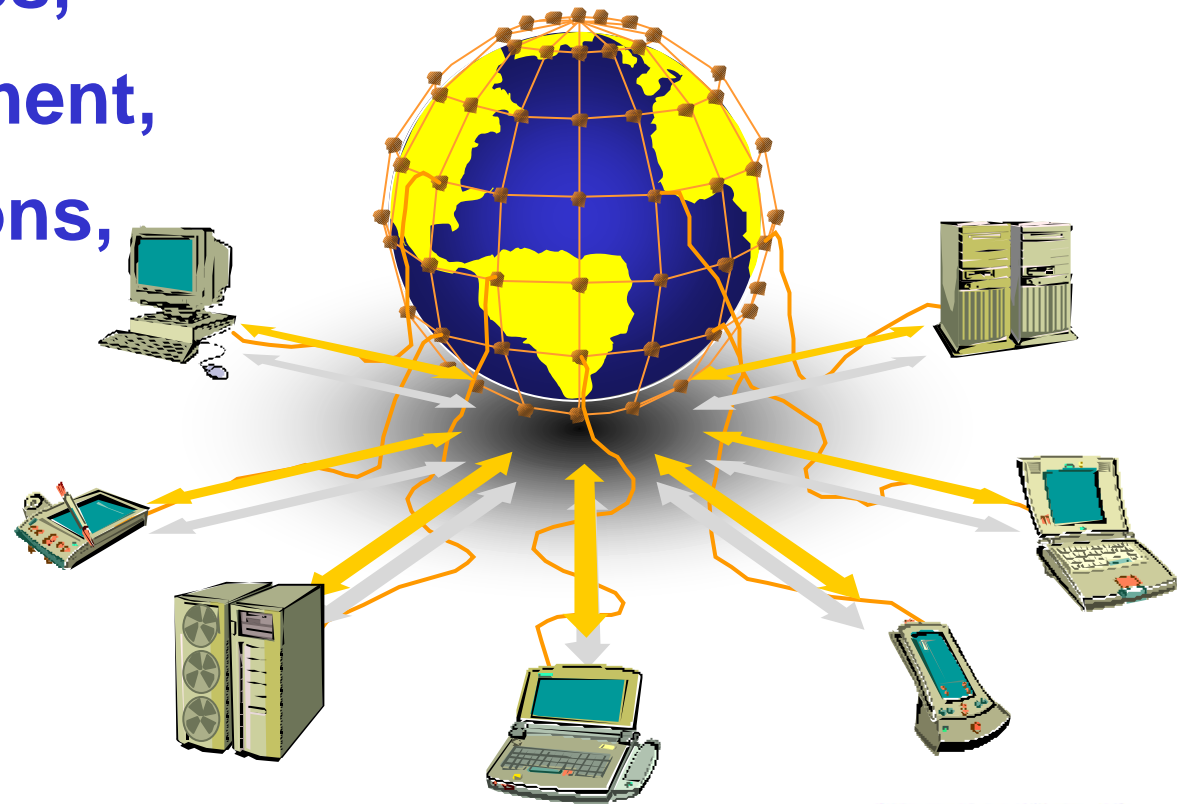
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# Grids: From Laboratory into Real World

## Several application areas:

- ➔ High energy physics,
- ➔ Earth and environment,
- ➔ Industrial simulations,
- ➔ Biology, etc.



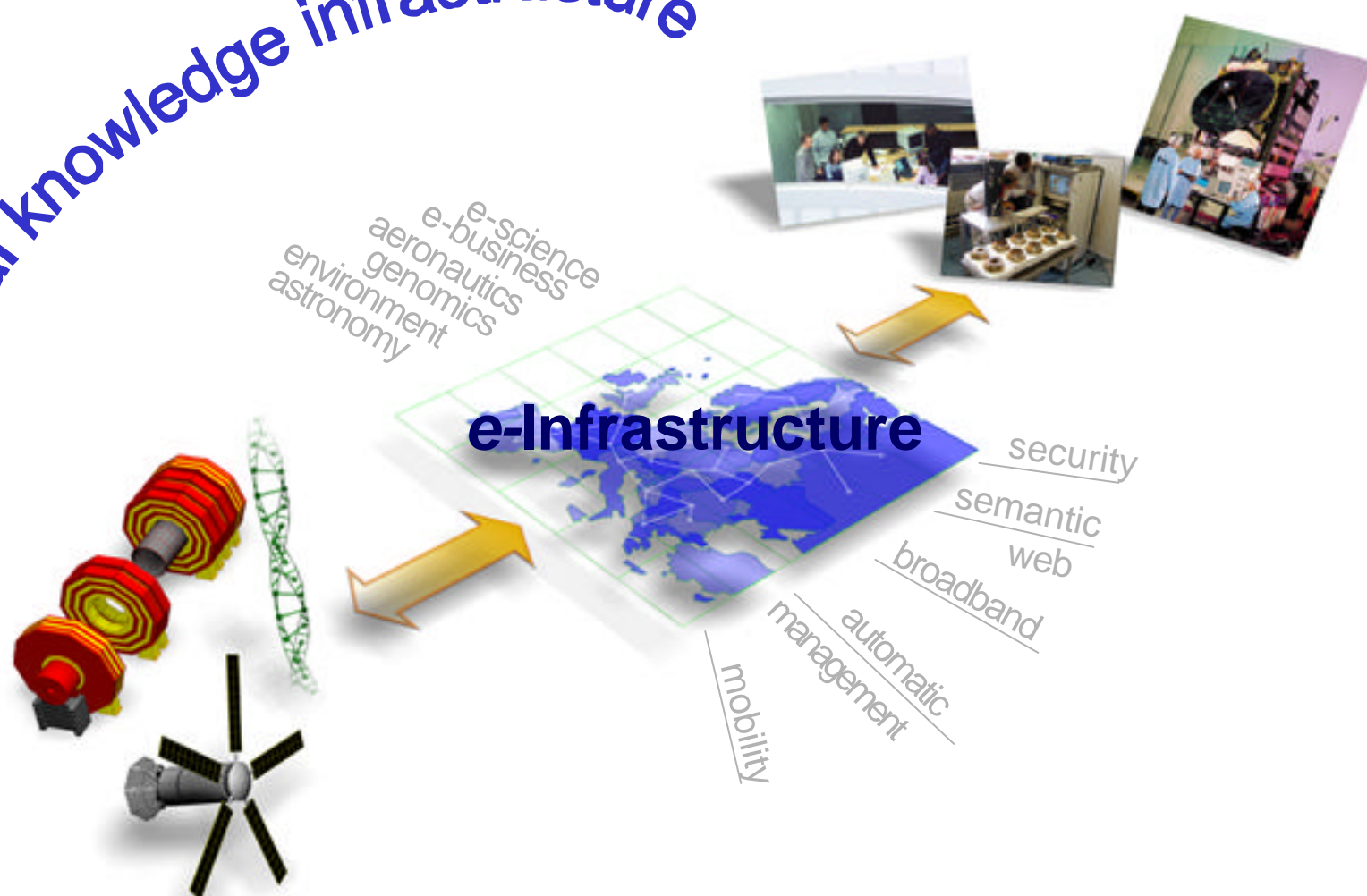
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# Vision: Create an e-Infrastructure

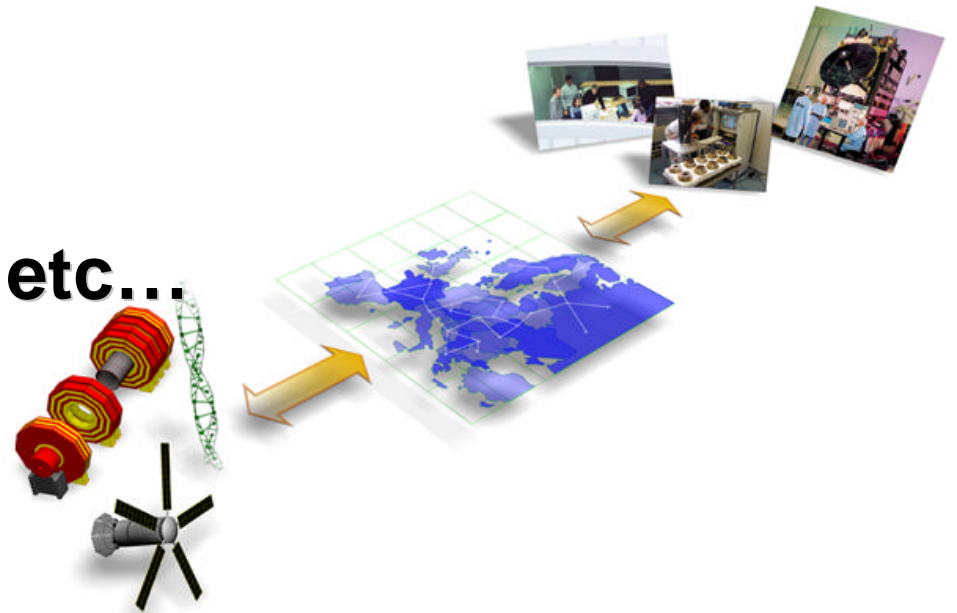
Global knowledge infrastructure



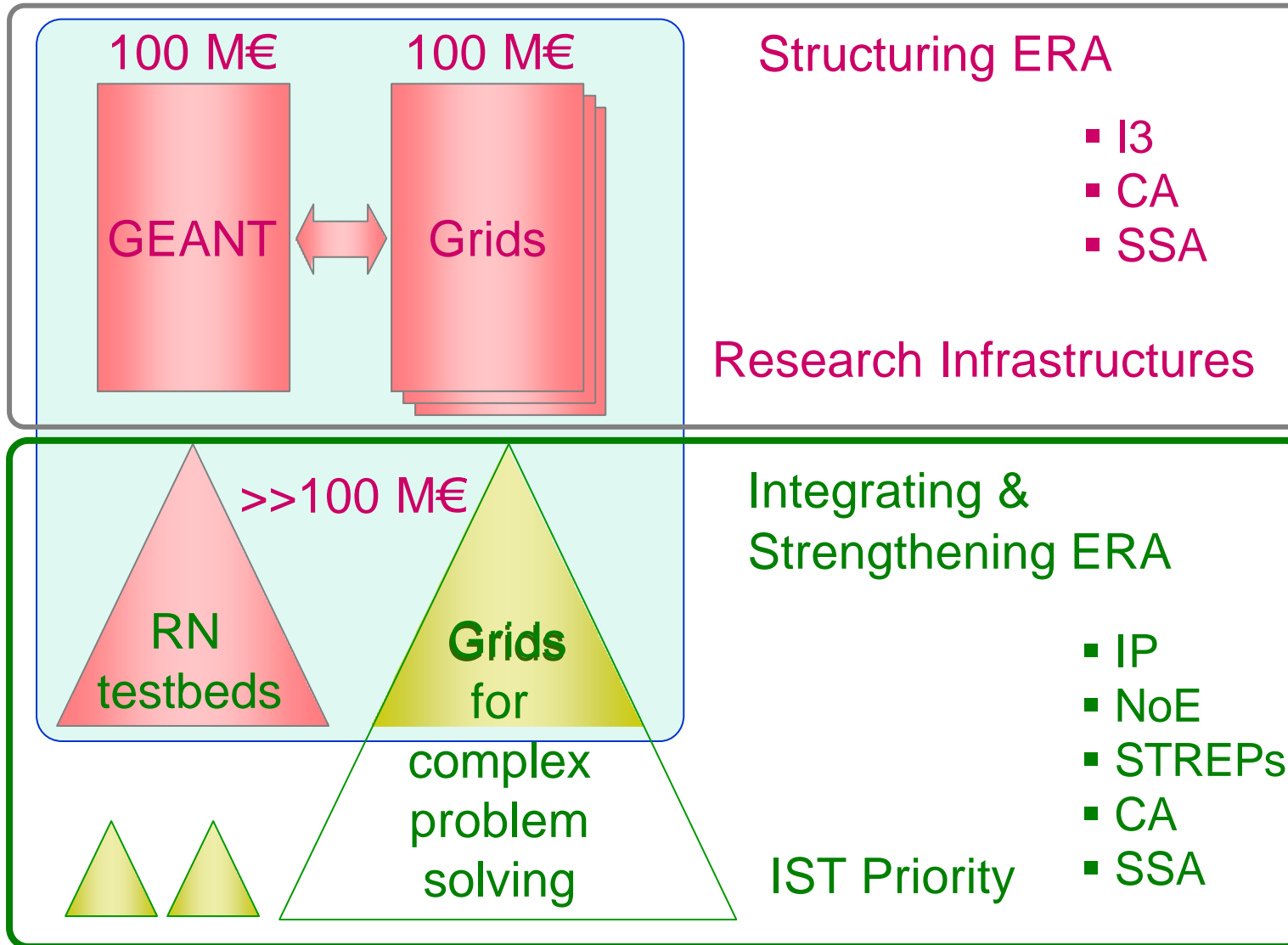
# Policies

## Research e-Infrastructures:

- ➔ “corner-stone” of ERA
- ➔ “spear-head” of an “eEurope Infrastructure” (e.g. broadband plus)
- ➔ “integrator” of National Infrastructures
- ➔ powerful “instrument” for International Cooperation
- ➔ ... cohesion, cooperation, etc...



# FP6: Resources and Objectives



# FP6: Research Infrastructures (RI)

➔ In the Specific Programme on  
"Structuring the European Research Area"

➔ **2.3. Communication Network Development**

*"The objective of this scheme in support of existing research infrastructures is to create a denser network between related initiatives, in particular by establishing a high-capacity and high-speed communications network for all researchers in Europe (GÉANT) and specific high performance Grids and test-beds (GRIDs)."*



# WP: Research Infrastructures

## ➔ 2.3. Communication Network Development

focus on:

### ➔ **Grids**

Deployment of advanced Grids-empowered infrastructures. These infrastructures should exhibit production-level performance capabilities and constitute themselves distributed facilities at gigabit/terabit scales

### ➔ **GEANT (GN2)**

### ➔ **Test-beds (with IST priority)**



# WP (RI): Infrastructures

- ➔ **1<sup>st</sup> Call on Grids (DL 6 May 2003)**  
**Integrated Infrastructure Initiatives (I3s)**  
**CAs and SSAs**
  - ➔ **Evaluation in early June**  
**Projects to start in late 2003**
  - ➔ **50 MEuro Funding available in this Call**
- ➔ **2003 Call on GEANT**  
**DL September 2003; I3 for 100 MEuro**
- ➔ **2005 last Call**



# IST: Test-beds

➔ **Extensive Test-beds in FP5 on IPv6 and Grids**

➔ **IST WP2003:**

## **2.3.5 Research networking test-beds**

*“To integrate and validate, in the context of user-driven large scale test-beds, the state-of-the-art technology that is essential for preparing the future upgrades in the infrastructure deployed across Europe.”*



# IST WP2003: 2.3.5 Test-beds

- ➔ **Addressed in 2<sup>nd</sup> IST Call**  
**DL 15 October 2003**  
**Evaluation in early November**
- ➔ **Projects to start mid 2004**
- ➔ **20-30 MEuro Funding available in this Call**  
**(50 MEuro in total for Test-beds in IST)**
  - ➔ **Large multidisciplinary consortium with many actors from different sectors to be involved**
  - ➔ **Addressing large scale issues (like in the past the introduction of IPv6 in Europe/NRENs)**



# FP6 – Focus on GÉANT

- ⇒ **GÉANT – maintain and capitalise on worldwide leadership on Research Networks**
- ⇒ **FP6 GÉANT network will represent a significant step forward in terms of**
  - **services,**
  - **communities served,**
  - **geographical scope,**
  - **bandwidth**
  - **and pionering new technologies**

# FP6 – Focus on Grids

- **Grids – moving from experimental pilots to stable provision of services**
- **Deployment of Grids-empowered infrastructures to the Research Community in all scientific disciplines**
- **These infrastructures should exhibit production-level performance capabilities and constitute themselves distributed facilities at gigabit/terabit scales (in terms of computing, storage and communication power)**



# Conclusions

- ➔ **With the support of the IST Programme and in the context of the eEurope action plan, a new generation backbone for research has been launched - GEANT**
- ➔ **The EU is investing in FP6 in GRIDS, IPv6, Photonics to support highly demanding user community**

**The provision of an e-Infrastructure is fundamental for the realisation of the European Research Area (ERA)**

