

# GN3: Future Prospects for GÉANT

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International eVLBI  
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# What is GÉANT?



- **The pan-European research and education backbone network**
- **A high-capacity internet reserved exclusively for research and education**
- **Connecting 38 countries in Europe**
- **Global connections to 90 networks in 82 countries worldwide**
- **Hybrid structure –shared IP and dedicated circuits**
- **Added-value services**



# The GÉANT Partnership



connect • communicate •  
collaborate

# GN3

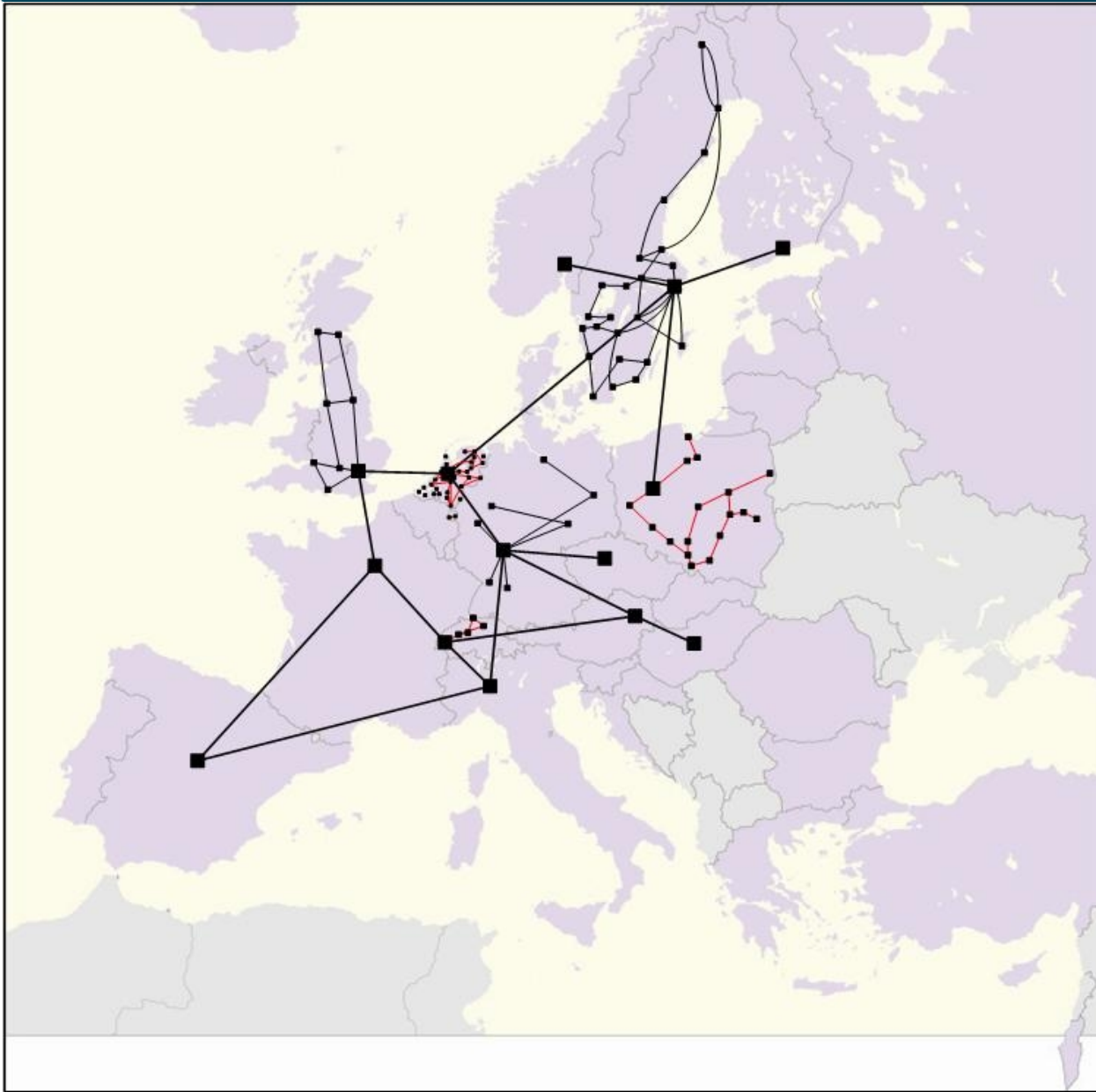
## Project Characteristics



- Total cost ca 182 M€ over 4 years
- Approximately 51% EC funding
- 38 project partners
- Ca 500 person years over 4 years for service development, research, and networking
- 450 individuals registered on project portal
- Grant contract pending
  
- Challenges:
  - building a distributed virtual team
  - Flexibility and efficiency

# History

## 10 Gb/s August 2004



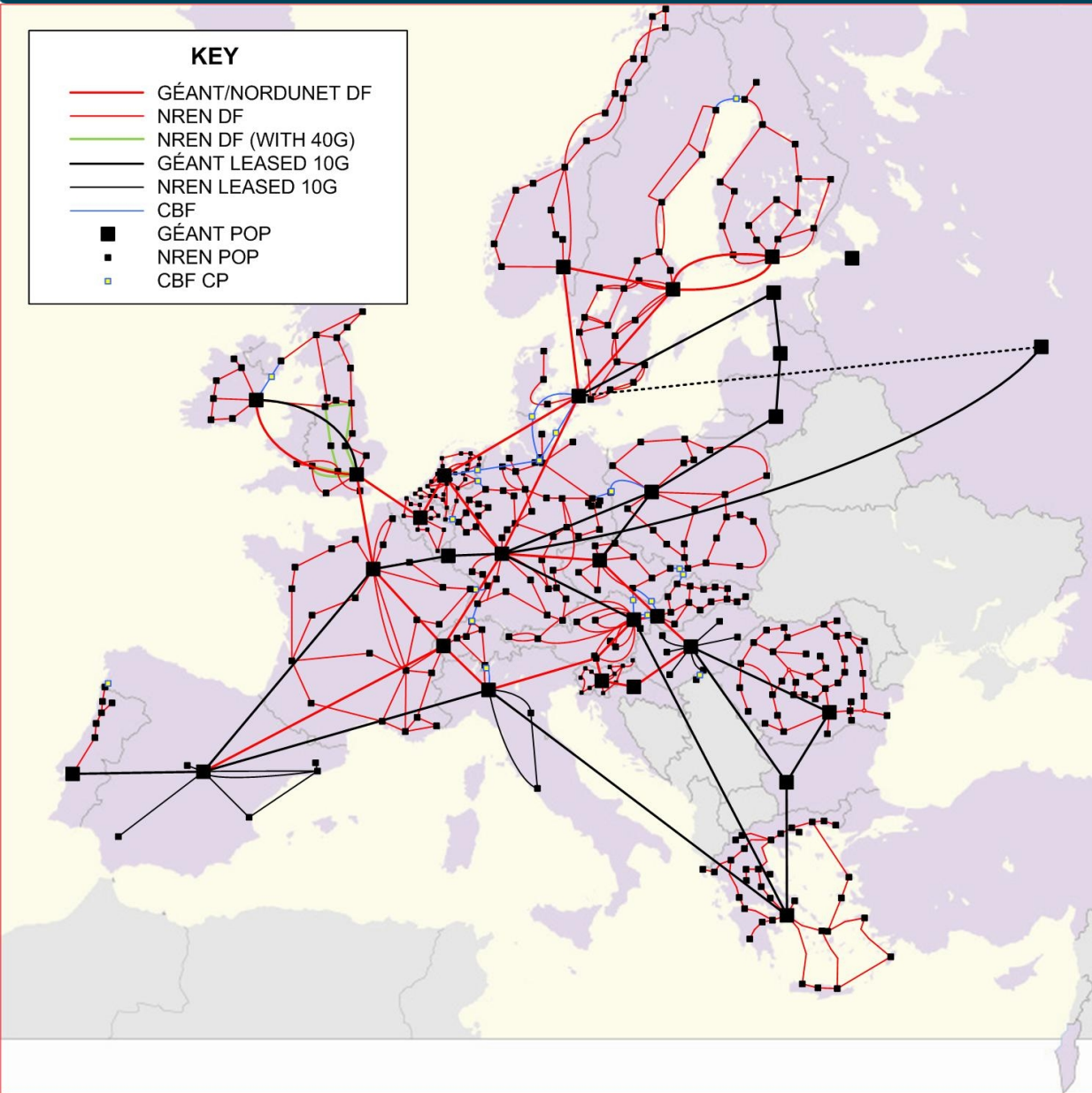
the combined effort  
of project and  
partners

# History

## 10 Gb/s June 2009



| KEY |                    |
|-----|--------------------|
|     | GÉANT/NORDUNET DF  |
|     | NREN DF            |
|     | NREN DF (WITH 40G) |
|     | GÉANT LEASED 10G   |
|     | NREN LEASED 10G    |
|     | CBF                |
|     | GÉANT POP          |
|     | NREN POP           |
|     | CBF CP             |

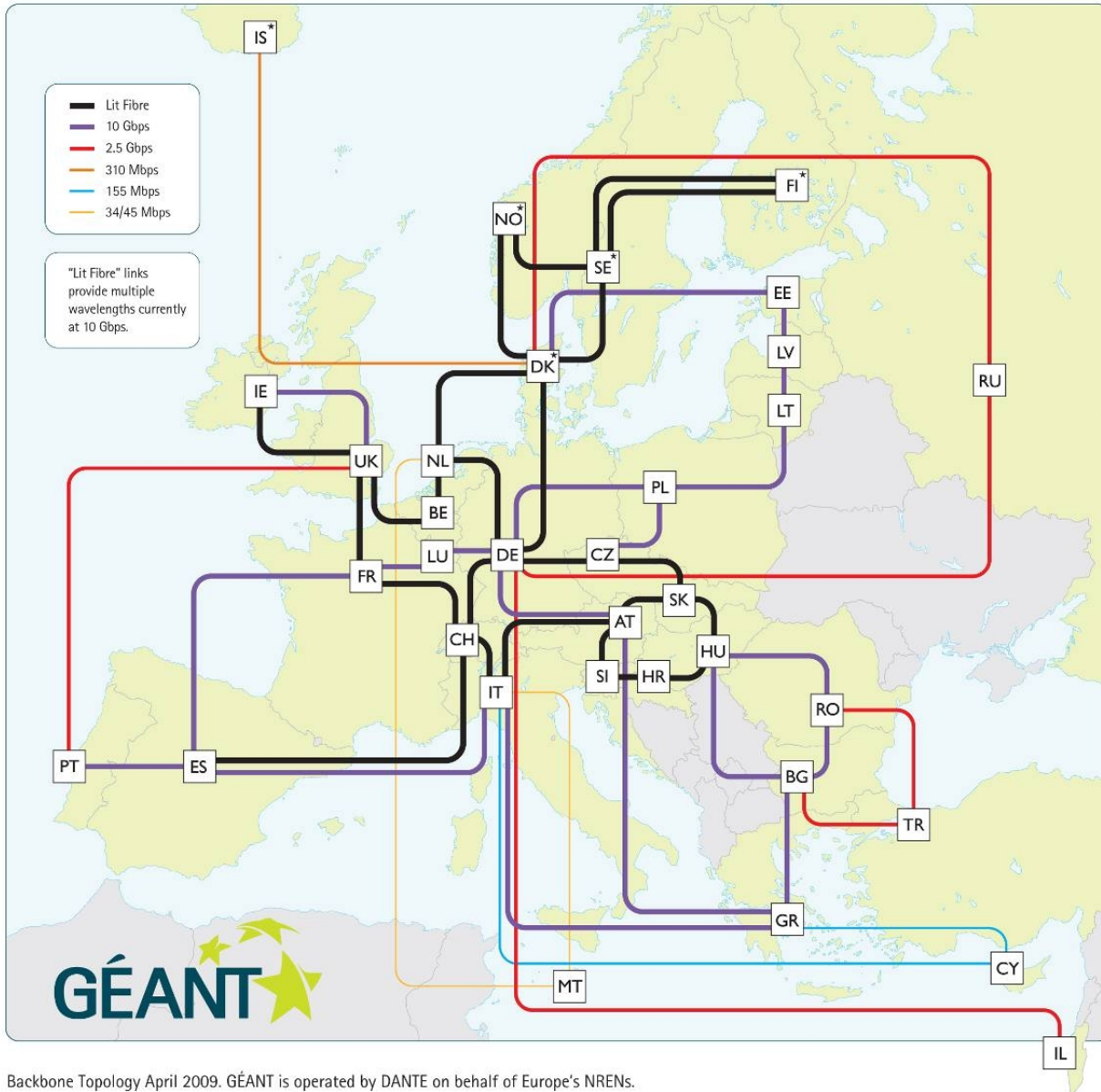


the combined effort  
of project and  
partners

Maps by Michael Enrico  
Network Engineering & Planning Team  
DANTE



# GÉANT topology



GÉANT topology -  
April 2009

# Expand the European Reach



New members

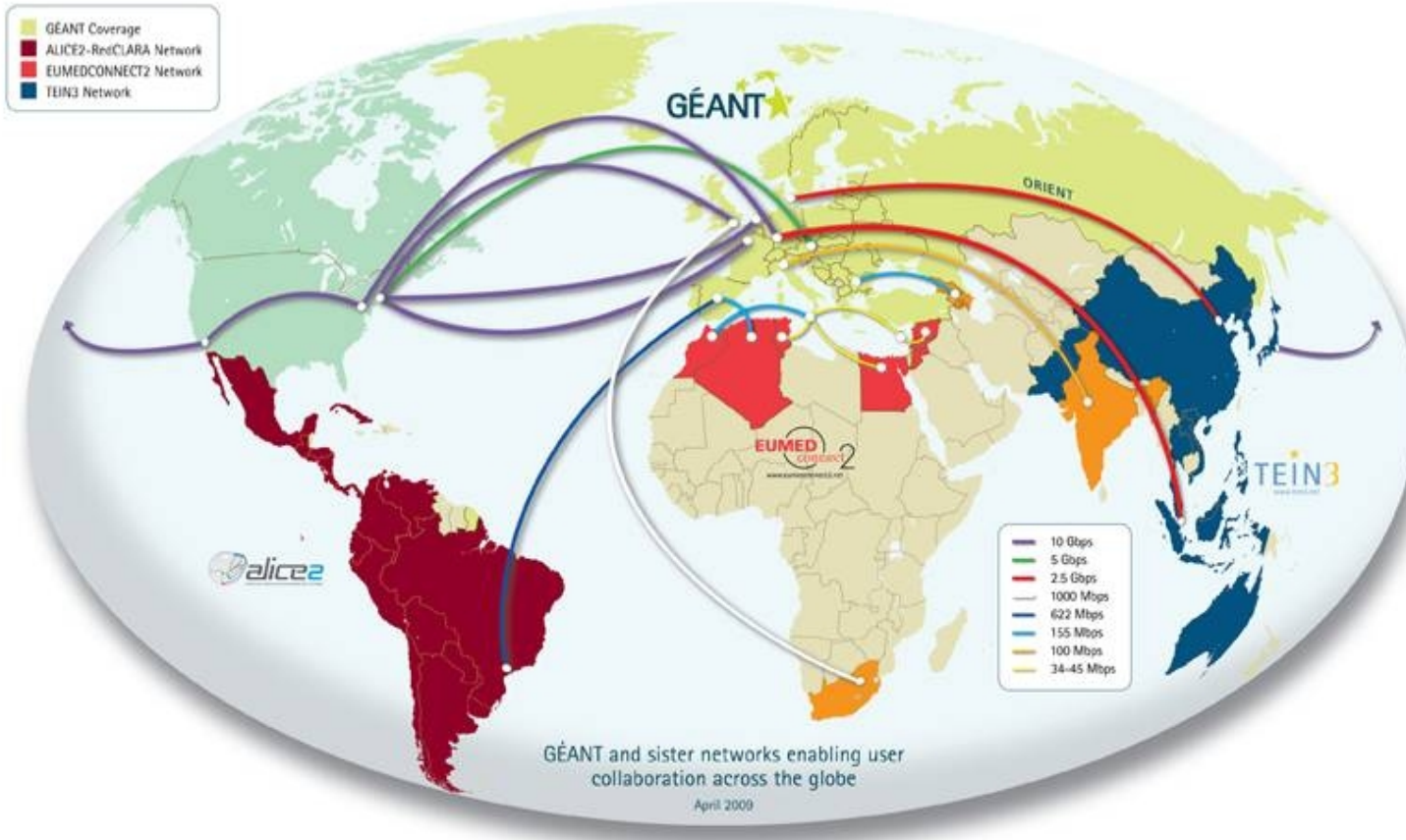
AMRES  
MARNET  
MREN

New special  
members

BASNET  
URAN  
RENAM



# Expand the Global Collaboration



IP and circuit services

Collaborate with other world regions

Example DICE ...

GÉANT global connectivity – April 2009

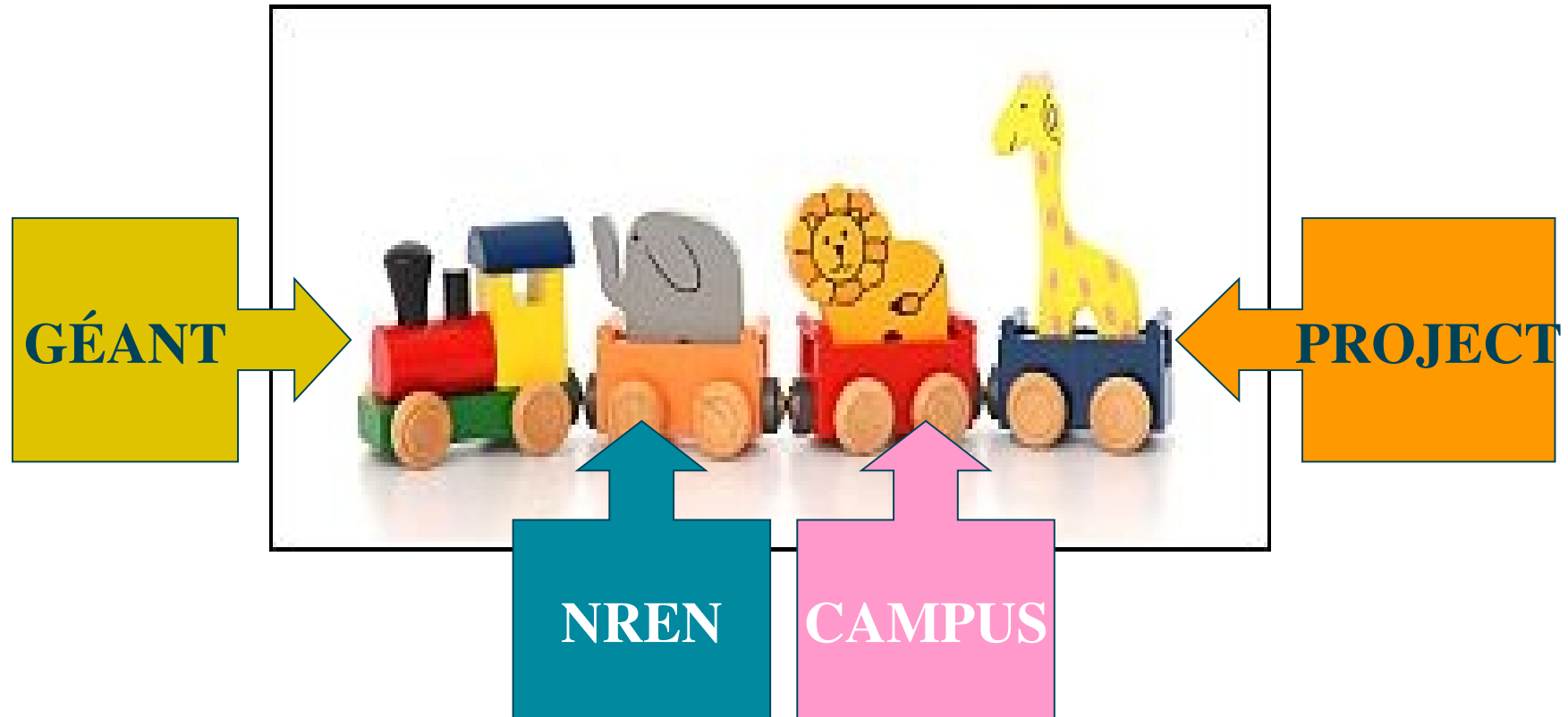
connect • communicate • collaborate

# Why Support Projects?



- **GÉANT is an enabling resource**
  - making the most advanced services stable and ubiquitous is essential for scientific competitiveness
- **GÉANT is the global leader supporting LHC, eVLBI etc**
  - need to build on this and engage new 'big science' projects
- **Developing strong relationships in new areas**
  - tomorrow's 'killer applications'
- **GÉANT is publicly funded**
  - societal benefit must be clear

# Facilitating the GÉANT Supply Chain



- Delivering an advanced multi-domain international service portfolio
- Liaison between networks –delivery and operation of services
- Applications 'Guru'
-

## **GÉANT will focus direct user support on:**

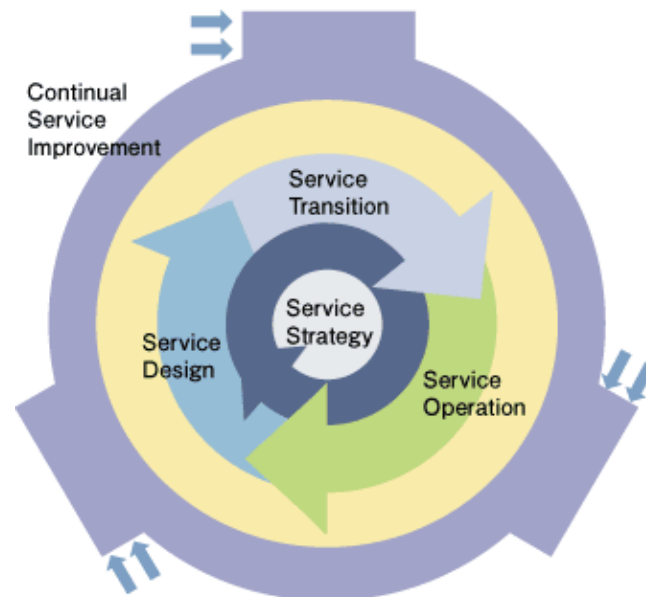
- ESFRI (European Strategy Forum for Research Infrastructures) projects
  - “e-Infrastructures are critical to all projects...” ESFRI Roadmap 2008
- Earth science projects –GEO, EUMETSAT, THEOS already engaged
- Global flagship projects – ITER, LHC, SKA, EIT etc
- Future Internet projects –providing testbed environments
- New digital disciplines –arts, biomedical etc

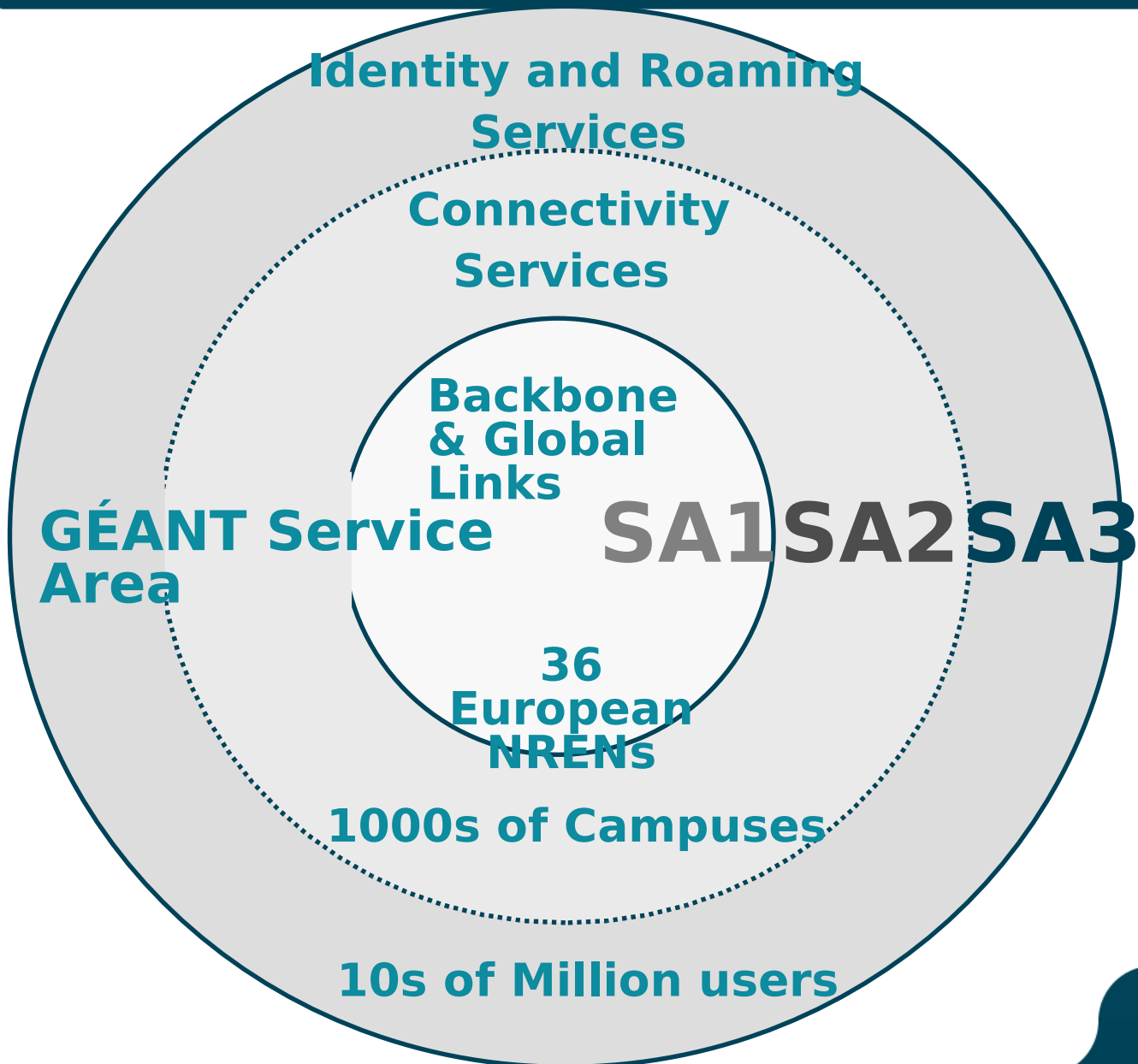
## **...and helping address the most common user issues:**

- Pan-European coordination
- Application tuning
- Dissemination of information and evangelising

# Service Orientation

- Paradigm shift from GN2 to GN3
  - GN2: research – transition to service
  - GN3: service concept – development
- The business case, operations-aware
- Continuous service development:







# Summary: GN3 Project Challenges



- Regional differences and geographic divide
- Common service concept in the GÉANT Service Area
- Balancing service delivery and continuous innovation
- Shaping the new GN3 architecture
- Providing a common support interface for European and global organisations
- Defining appropriate identity service components and trust models for remote access and distributed virtual organisations

# Summary: the GN3



- A dependable component of the European eInfrastructure
- Bridging the digital and geographic divide in Europe
- GÉANT a global hub in R&E networking
- The GÉANT Service Area
- A network management architecture
- An enabler for network research, a network factory
- Identity services for remote access and VOs
- Contribute to standards and the public domain
- Innovation and technical leadership for R&E

# Summary: Project Support



GÉANT will support projects through a coordinated range of activities...

- Providing the digital environment for research to thrive
- Developing and supporting the most advanced service portfolio for science
- Liaison for multi-national solutions
- Support for applications –dedicated expert advice

**Ensuring that Europe's scientists have unparalleled access to the world's more powerful e-Infrastructure!**

# Herding Cats?



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collaborate