Enabling Science & Education in a Globalized economy

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Do you want to GO LARGE ?

”Quoted from your friendly BK waiter down on the corner”

Do we have a choice ?

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Scoping the challenge:

- **"The Global Information Grid will need to store and access exabytes of data on a realtime basis by 2010"**
  - Dr. Henry Dardy, Optical Fiber Conference, Los Angeles, CA USA, Mar 2006
- **"Each LHC experiment foresees a recorded raw data rate of 1 to several PetaBytes/year"**
  - Dr. Harvey Neuman (Cal Tech)
- **"US Bancorp backs up 100 TB financial data every night – now."**
  - David Grabski (VP Information Tech. US Bancorp), Qwest High Performance Networking Summit, Denver, CO. USA, June 2006.
- **"The VLA facility is now able to generate 700 Gbps of astronomical data and will reach 3.2 Terabits per second by 2009."**
  - Dr. Steven Durand, National Radio Astronomy Observatory, E-VLBI Workshop, MIT Haystack Obs., Sep 2006.

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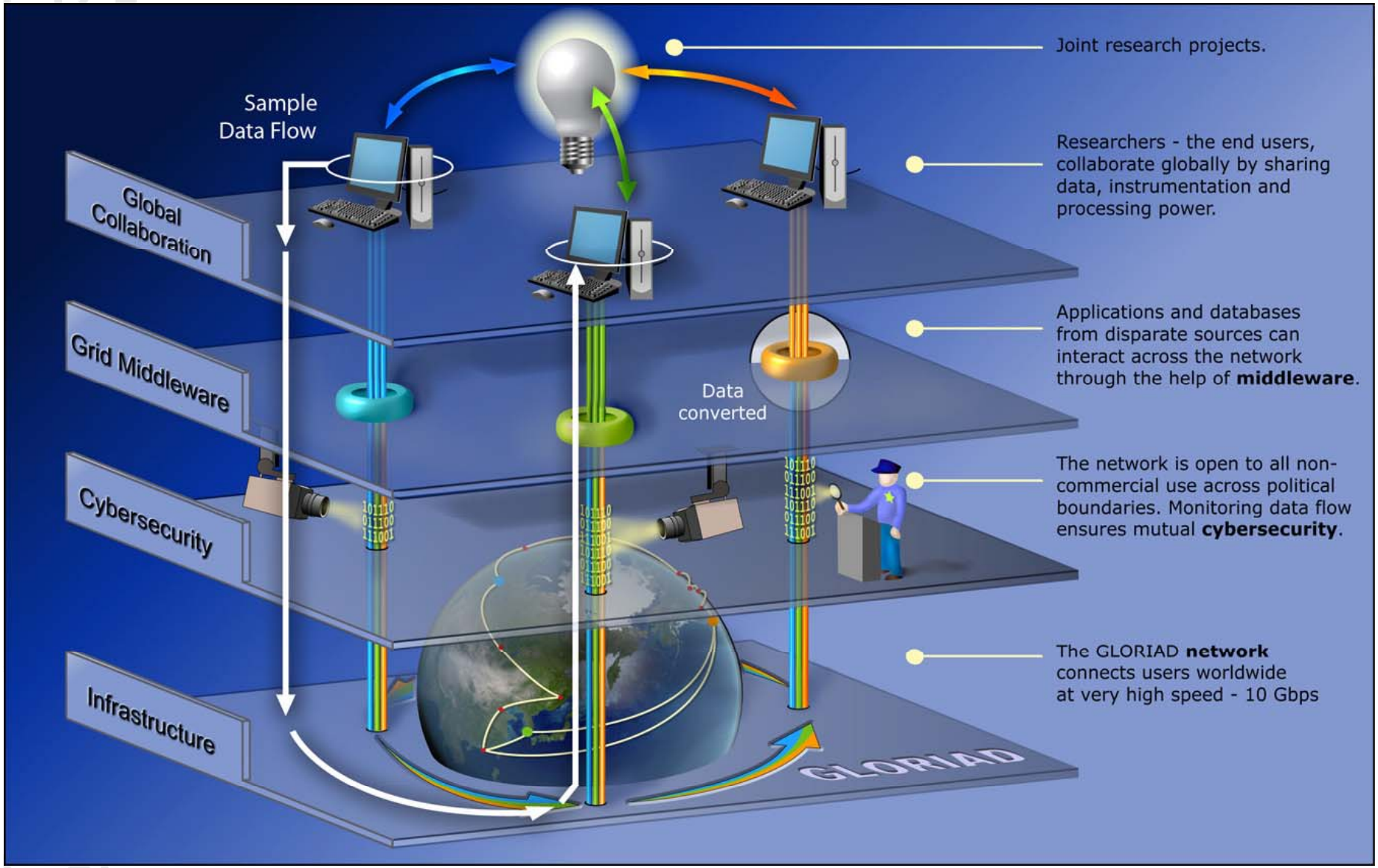
1+1+1 = ?



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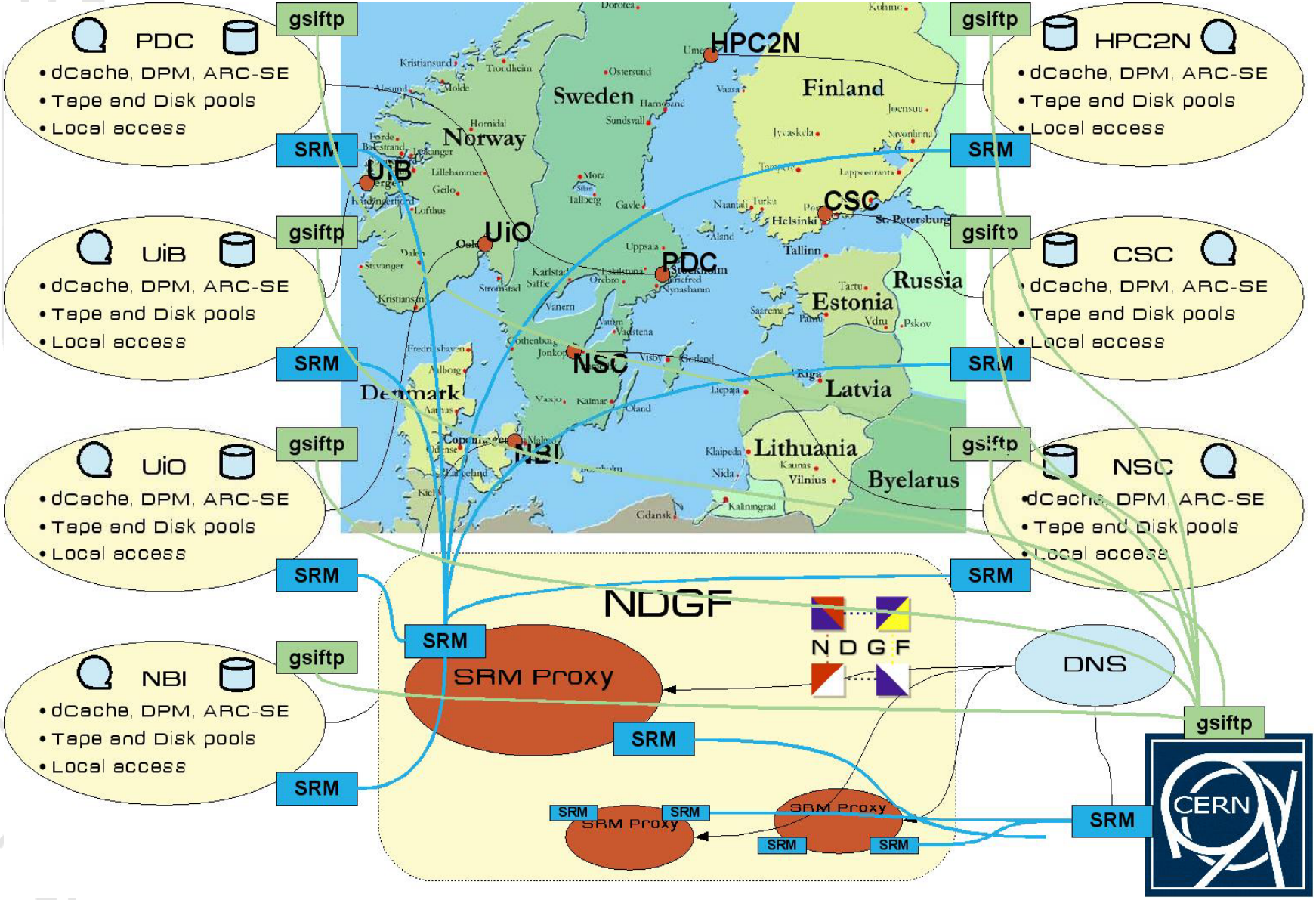
Example NDGF Tier-1



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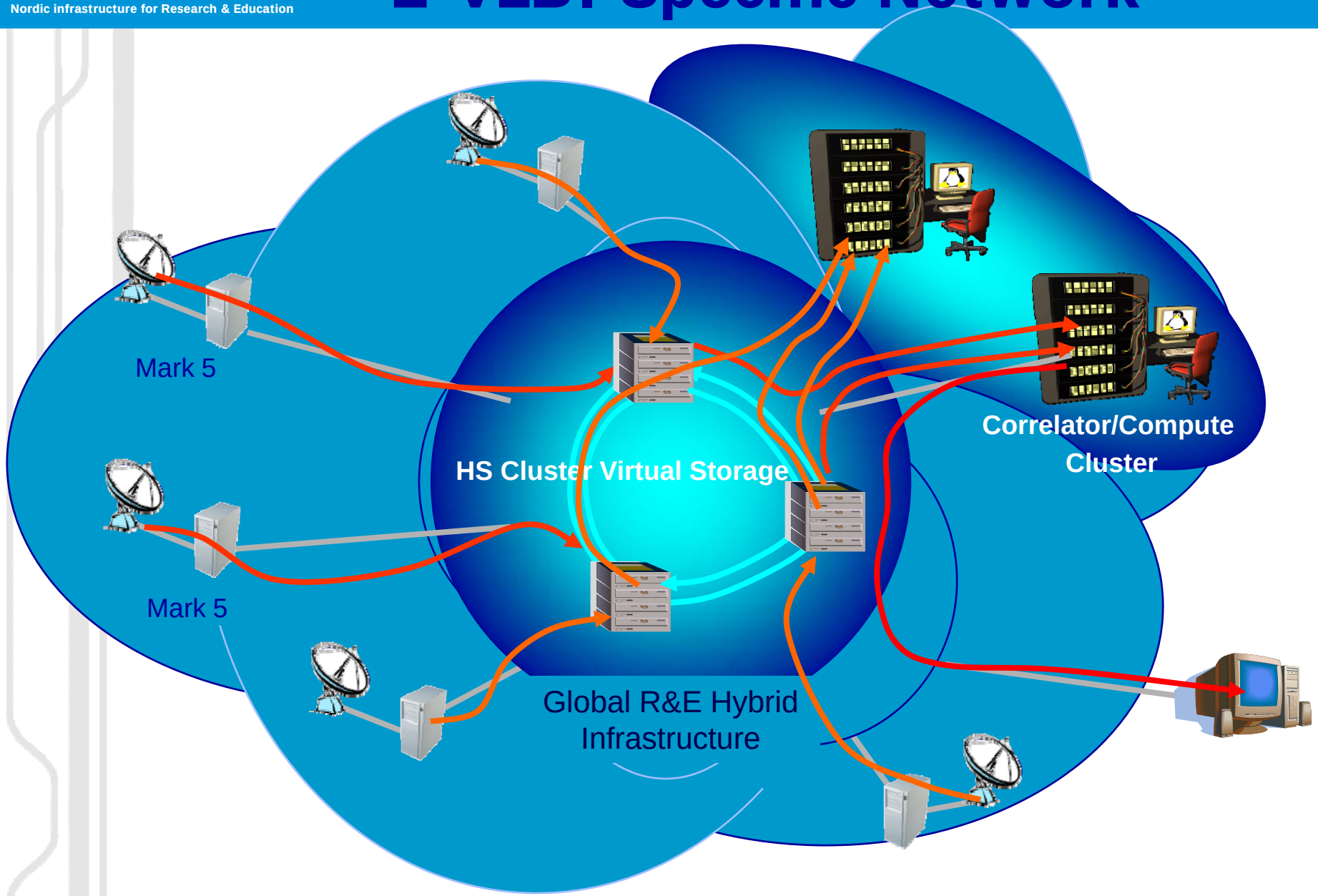
E-VLBI Specific Network



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A Citizen in the Global Village

Research:

- Global research project participation
- Access to expensive scientific instruments
- Access to Global knowledge

Education:

- Access to highly qualified lectures
- Knowledge sharing
- Remote classroom

Community:

- Access to core specialists (Health care, Environment ...)
- Prevent “Brain Drain”
- Information access
- New ideas & Products

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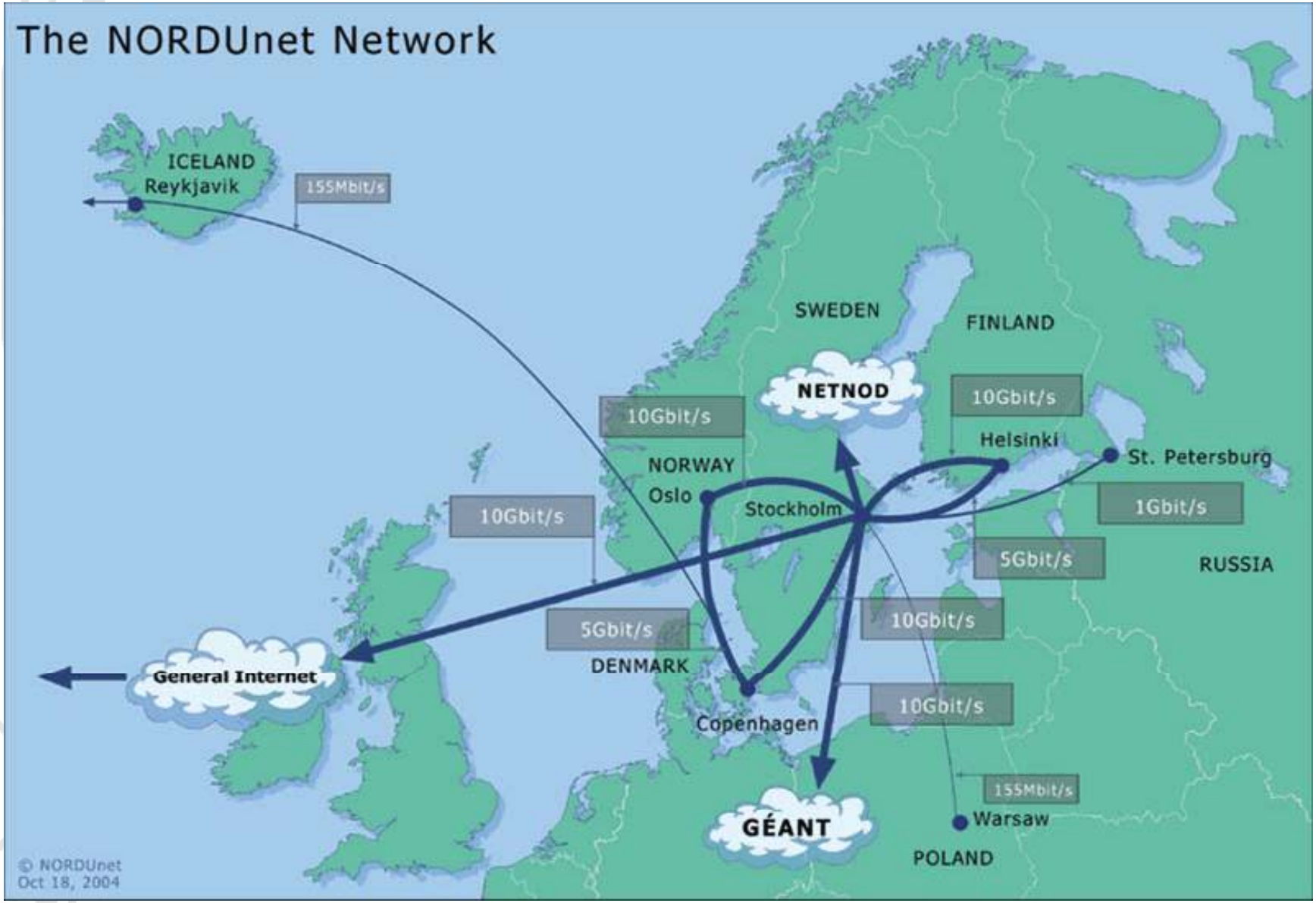
NORDUnet Network Q4 2006



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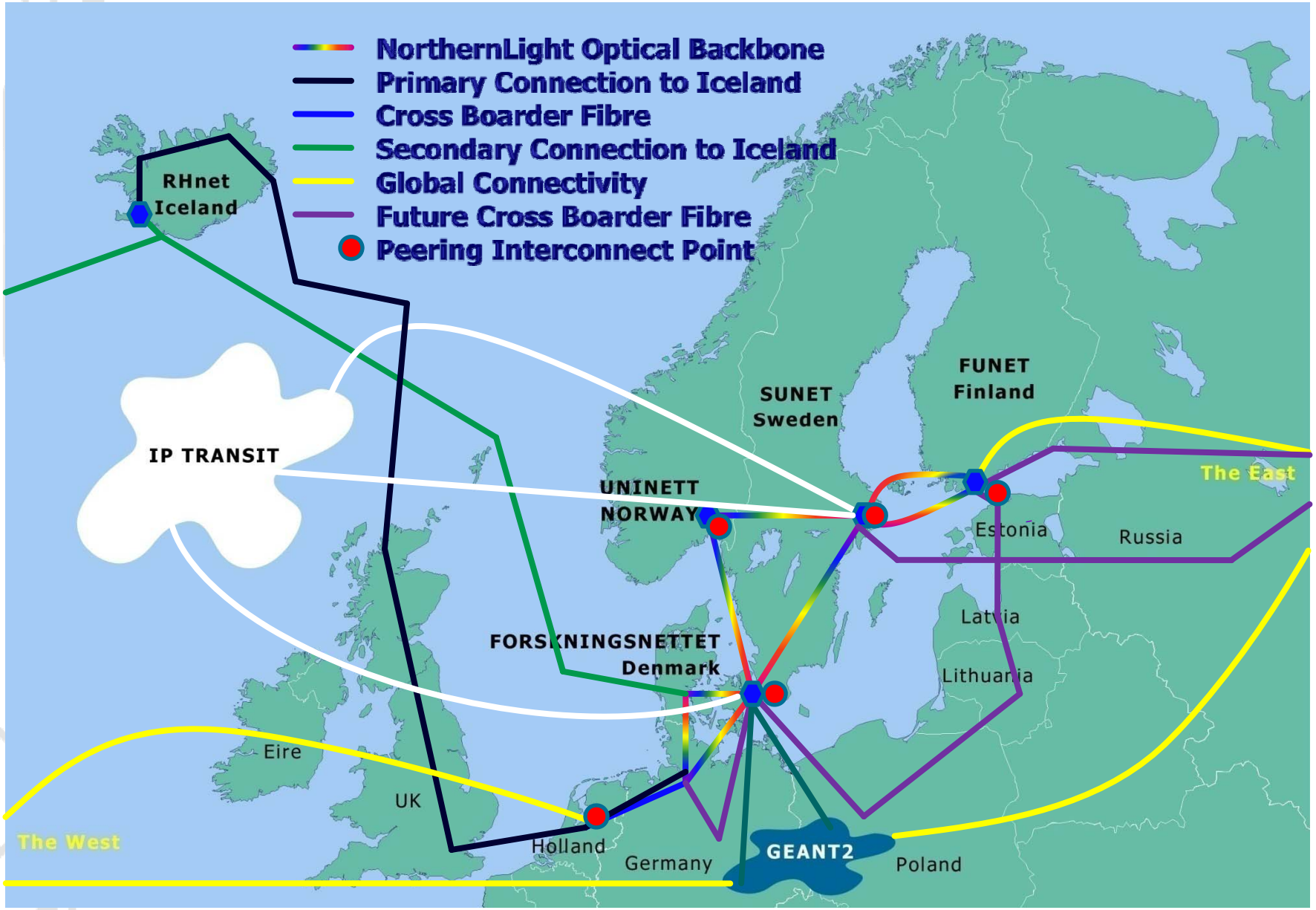
NORDUnet Infrastructure Q4 2007



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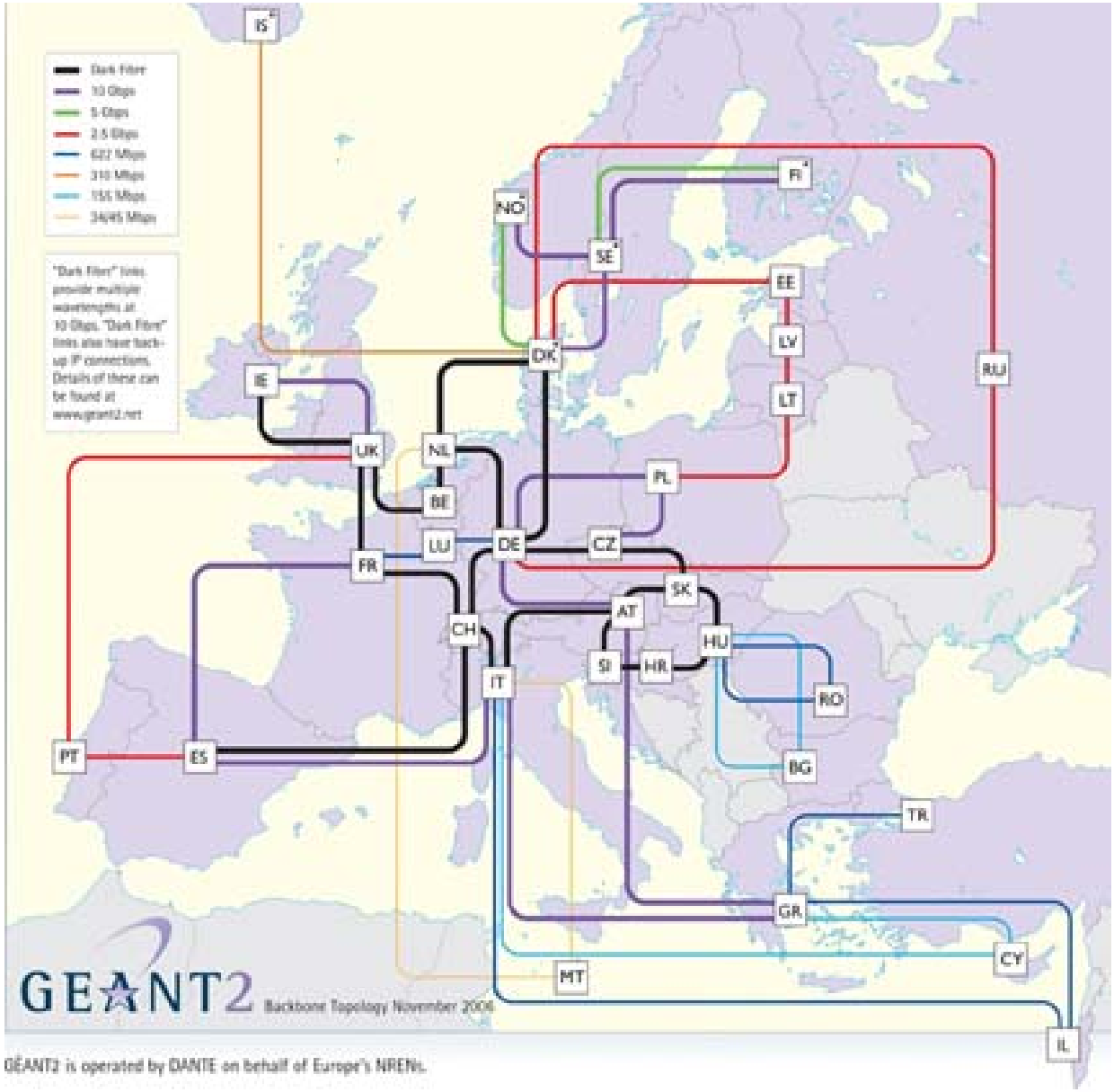
GEANT2



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GLORIAD

NORDUnet Vision

Concurrent Synergies

Concurrent, the simultaneous execution of multiple interacting tasks

Synergy (from the Greek s*ynergos*, meaning working together) refers to the phenomenon in which two or more discrete influences or agents acting together create an effect greater than that predicted by knowing only the separate effects of the individual agents.

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Infrastructure for Research & Education

- **NORDUnet NorthernLight**
  - Pan Nordic Redundant Dark Fibre Optical Infrastructure
- **NORDUnet IP**
  - Pan Nordic Redundant IPv4 & IPv6 Infrastructure
- **NORDUnet NOX** (NorthernLight Optical X-Change)
  - Distributed Open Optical Exchange
- **NORDUnet NUNOC**
  - 24x7 eInfrastructure operation centre.
- **NORDUnet PORTAL** (portal.nordu.net)
  - WIKI and WWW Community services for Research & Educational projects
- **NORDUnet Meeting**
  - Meeting & AV Conferencing host facilities in Copenhagen & Stockholm
- **NORDUnet Training**
  - Workshops and Training on Network & Computer Technologies.
- **NORDUnet3** (www.nordunet3.org)
  - Four year Internet Research Program
- **NDGF – Nordic Data Grid Facility** (www.ndgf.org)
  - Pan Nordic High Performance Computing GRID & Pentabyte Storage

In a Globalized world National Boundaries has no meaning

Can we afford to be left behind ?

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