



KEK-CCIN2P3 workshop



CCIN2P3 Network

jerome.bernier@in2p3.fr

November 2007

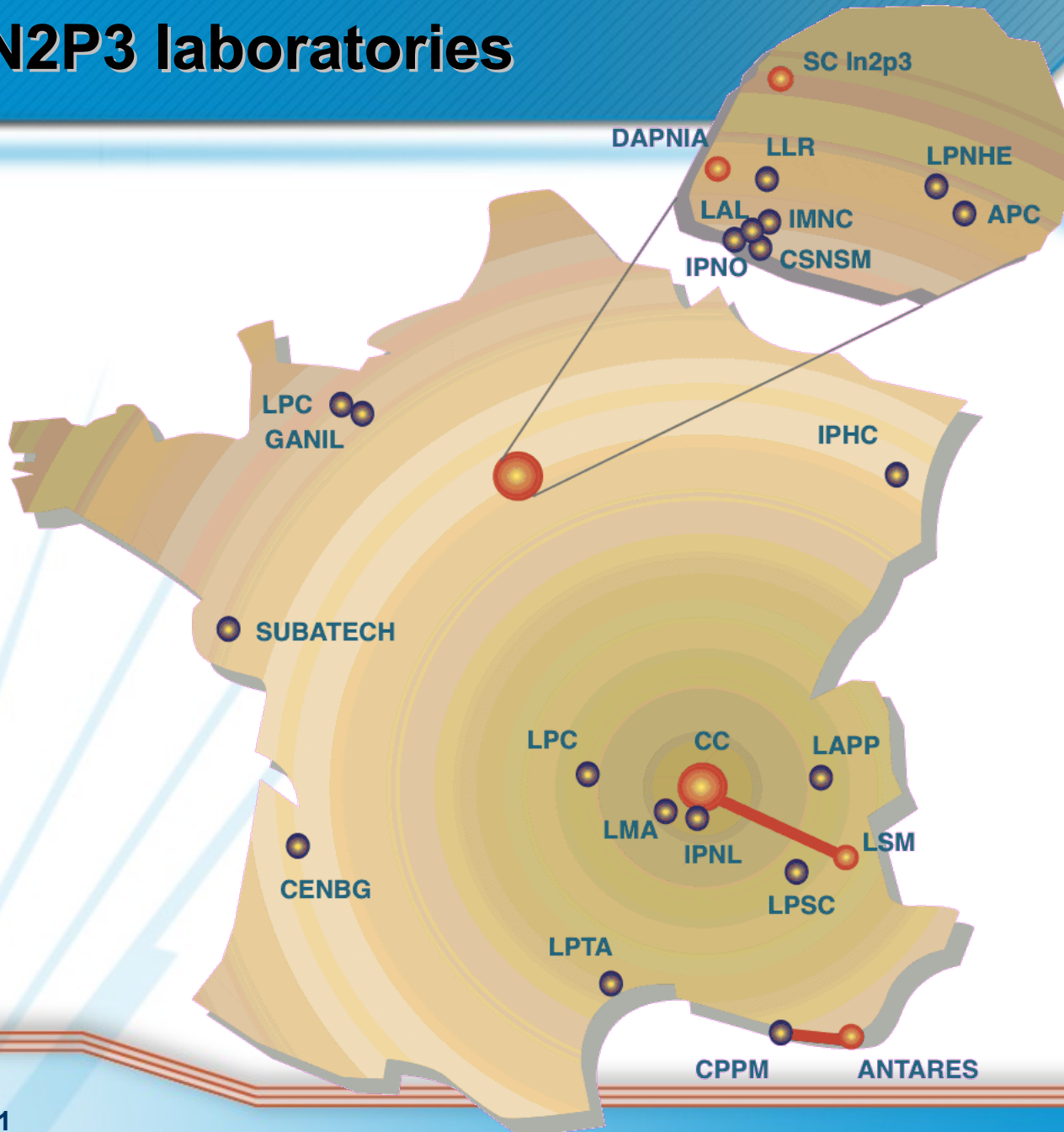
dapnia

cea

saclay



IN2P3 laboratories



RENATER4



SFINX
Global Internet eXchange, accès aux autres prestataires de service Internet en France

Connexion à l'Internet mondial

GEANT2: www.geant2.net
Connexion vers les réseaux de la Recherche en Europe, et les réseaux de la Recherche : des pays méditerranéens

de la zone Asie Pacifique

de l'Amérique du sud



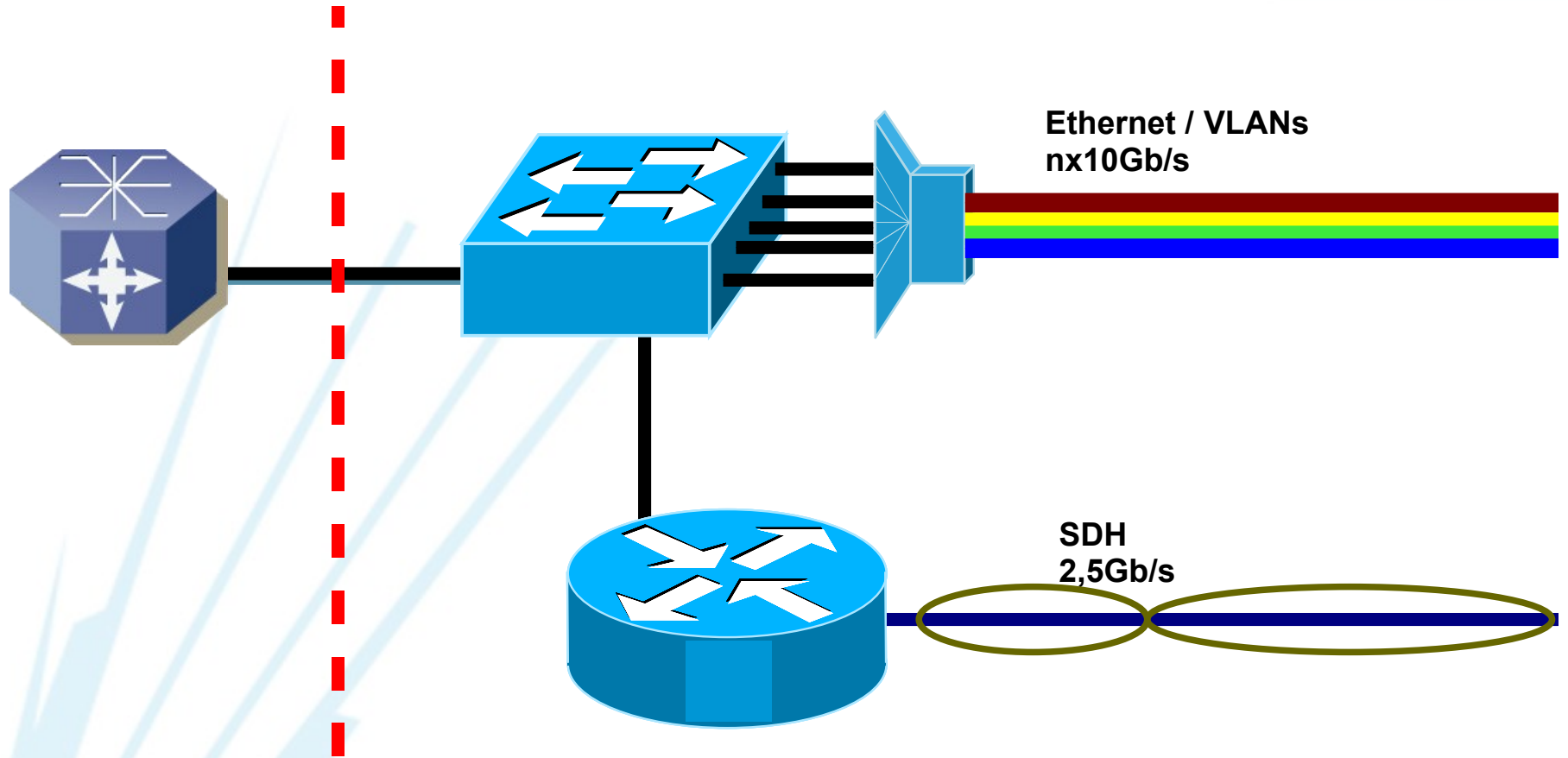
- Réseau en Ile de France
- 2,5 Gbit/s
- Liaisons projets de recherche
- NR
- NRI

RENATER4 Dark Fibers

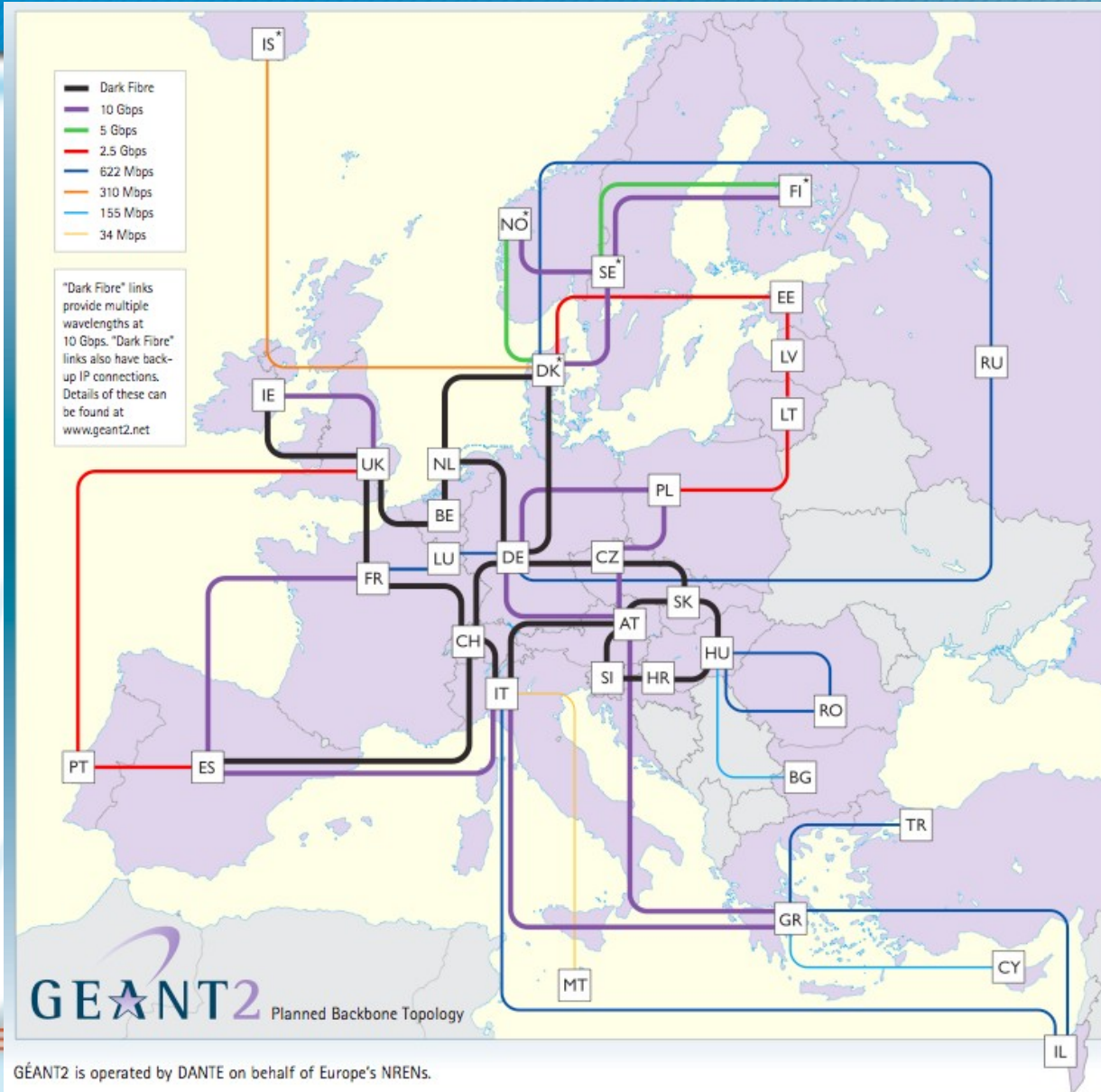




NR RENATER



GEANT2



GEANT2 is operated by DANTE on behalf of Europe's NRENs.

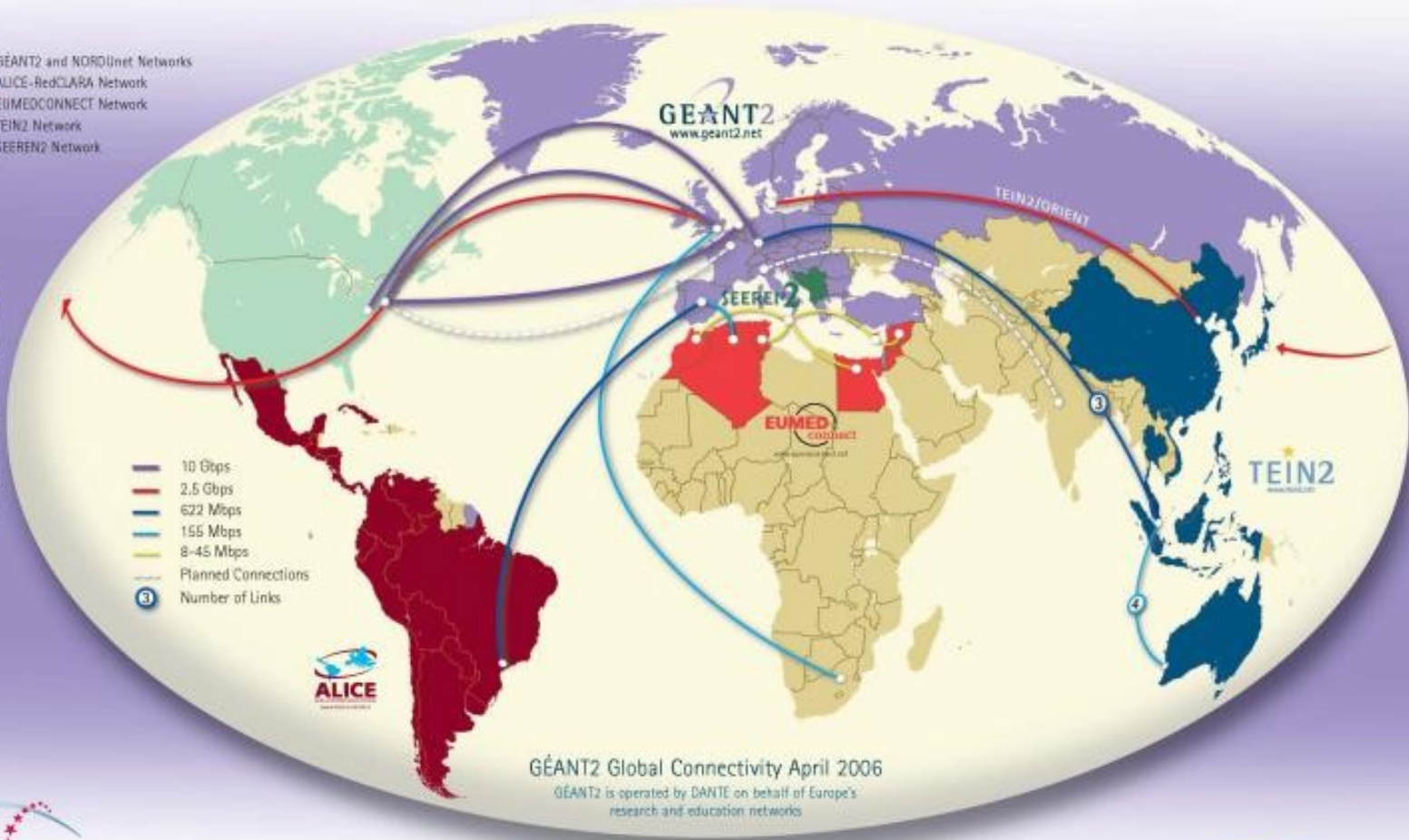
GEANT2



- GEANT2 and NORDUnet Networks
- ALICE-RedCLARA Network
- EUMEDCONNECT Network
- TEIN2 Network
- SEEREN2 Network

www.geant2.net

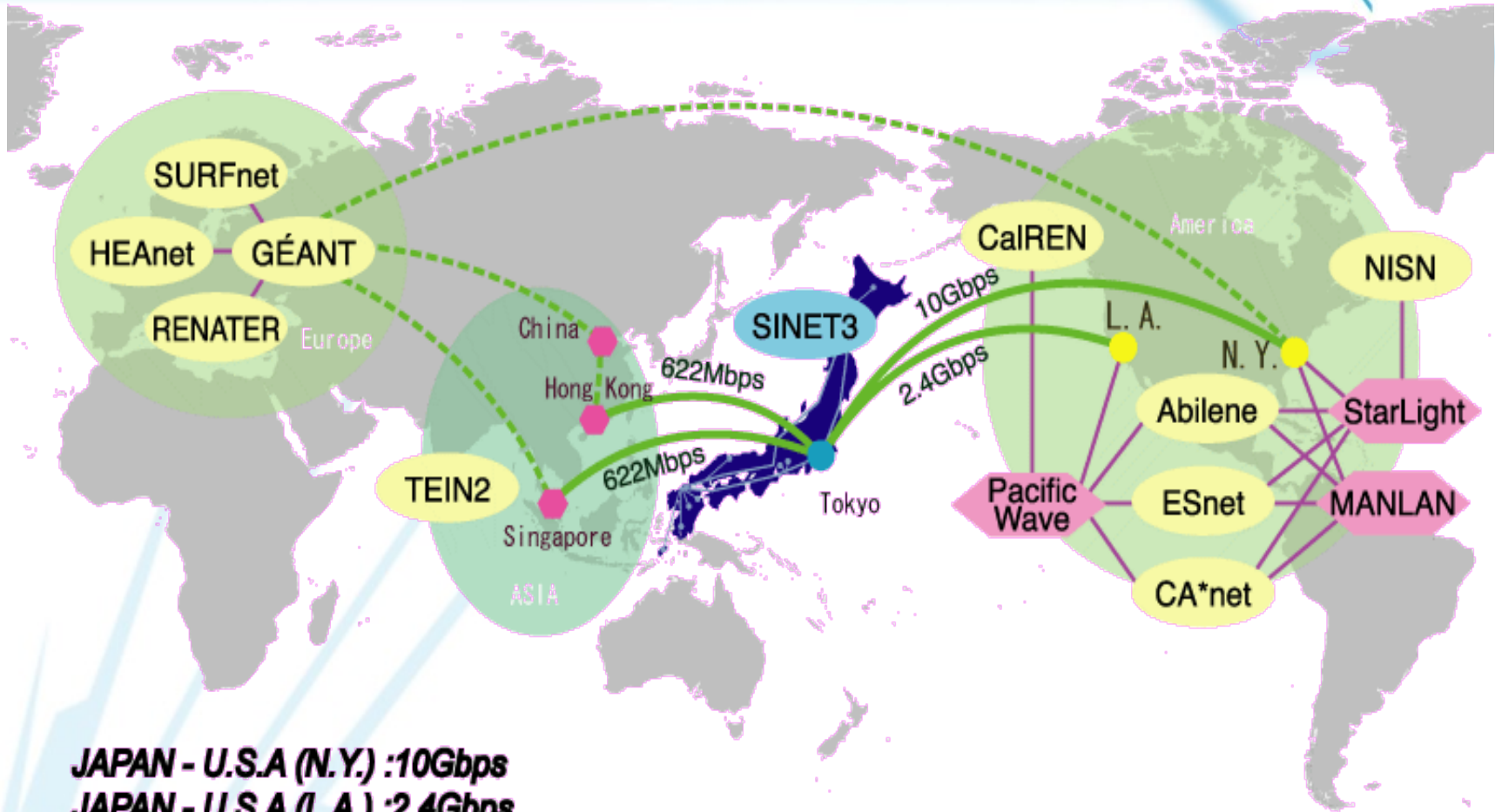
- 10 Gbps
- 2.5 Gbps
- 622 Mbps
- 155 Mbps
- 8-45 Mbps
- Planned Connections
- Number of Links



★ Connect ★ Communicate ★ Collaborate



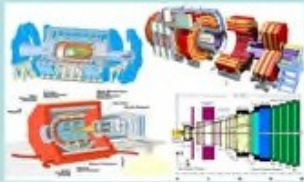
SINET3



JAPAN - U.S.A (N.Y.) :10Gbps
JAPAN - U.S.A (L.A.) :2.4Gbps
JAPAN - Singapore :622Mbps
JAPAN - Hong Kong :622Mbps

International network collaboration

LHC Large Hadron Collider



Trigger and Data Acquisition System



Tier-0

10 Gbps links
Optical Private Network

Tier-1

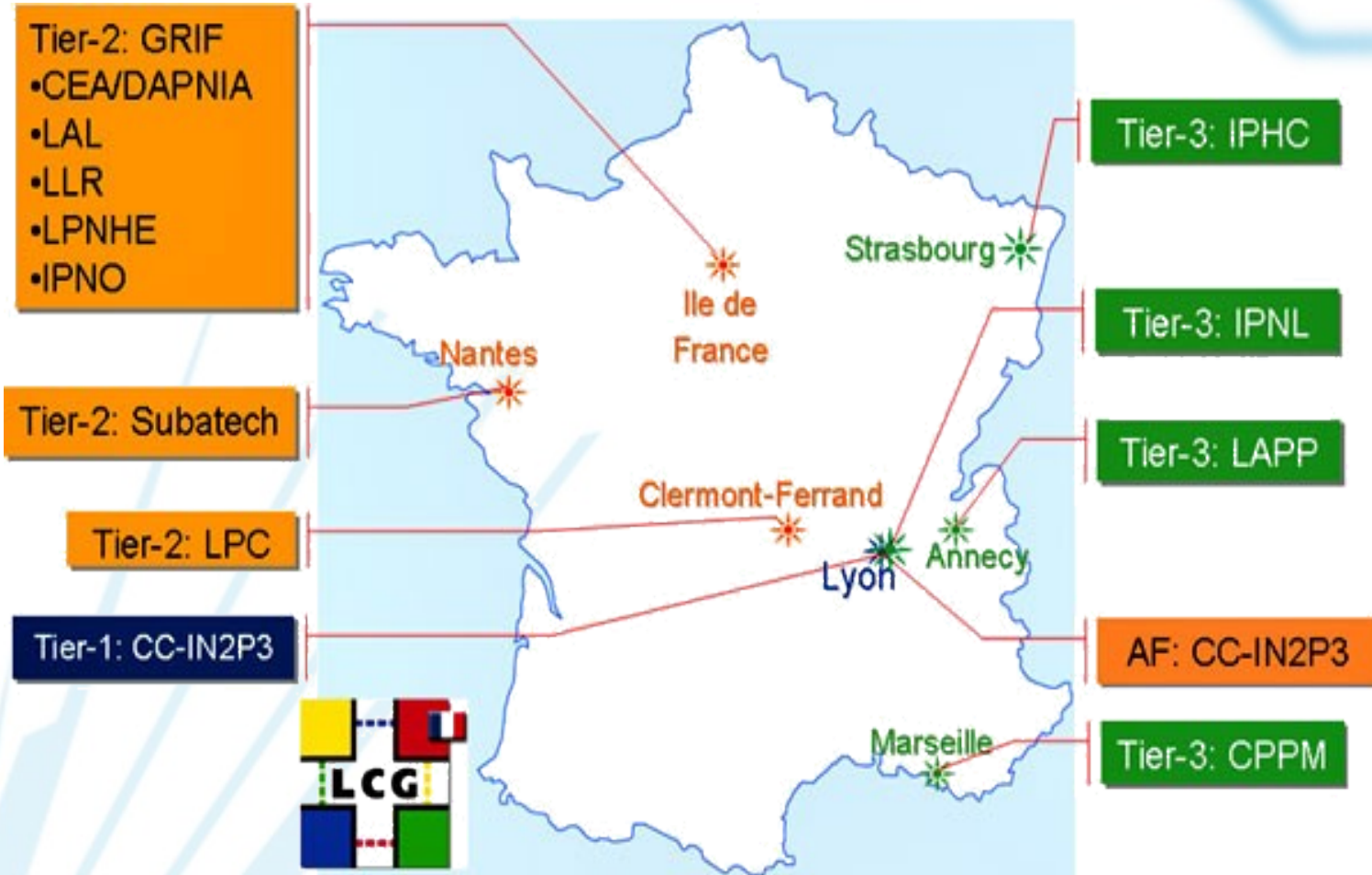


General Purpose/Academic/Research Network

Tier-2



LCG LHC Computing Grid

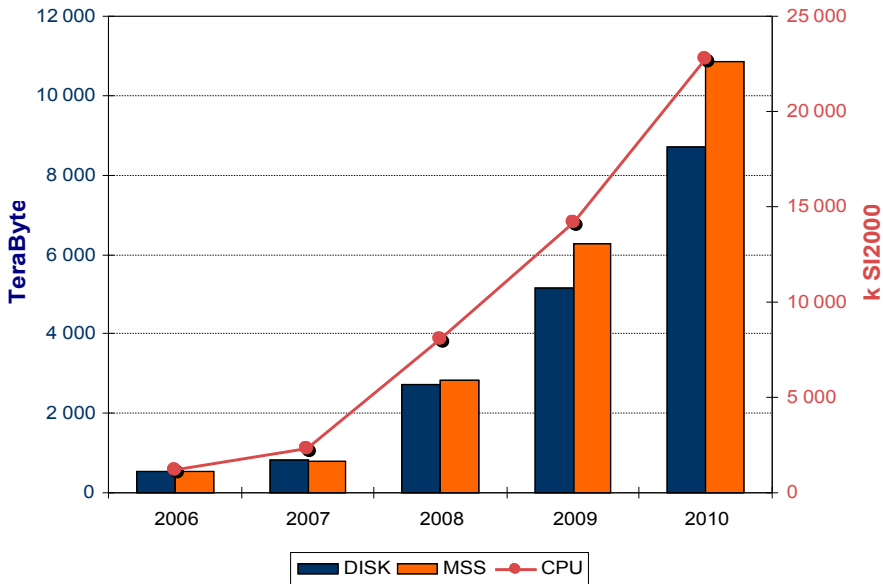


+ Foreign Tiers2 : Belgium, Romania, Japan, China

Tier1 CCIN2P3



Tier-1 & Analysis Facility Resource Deployment



The CCIN2P3 Tier1 must double each year its computing power and disk capacity between 2006 and 2010 !

- For 2007 we will install
 - . 700 computing servers
 - bi-processor quad-core
 - . 2 Peta bytes of disk space
 - and the hundred of disk servers associated



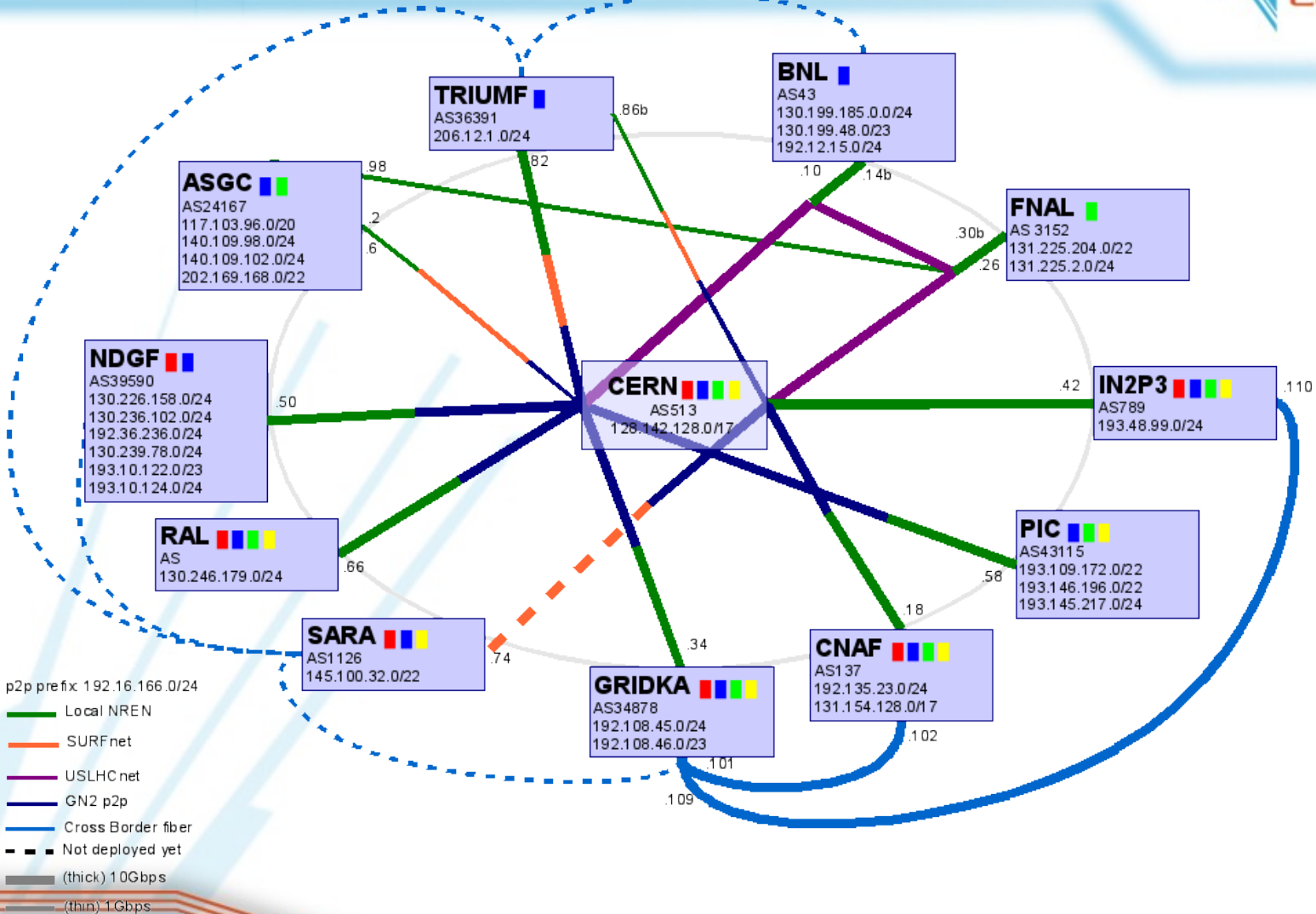
CCIN2P3 network needs



network infrastructure needs for LHC	CCIN2P3
CERN	4 Gb/s
Tier1s	5 Gb/s
French Tier2s	1 Gb/s
Foreign Tier2s	3 Gb/s

from experiments requirements for 2009

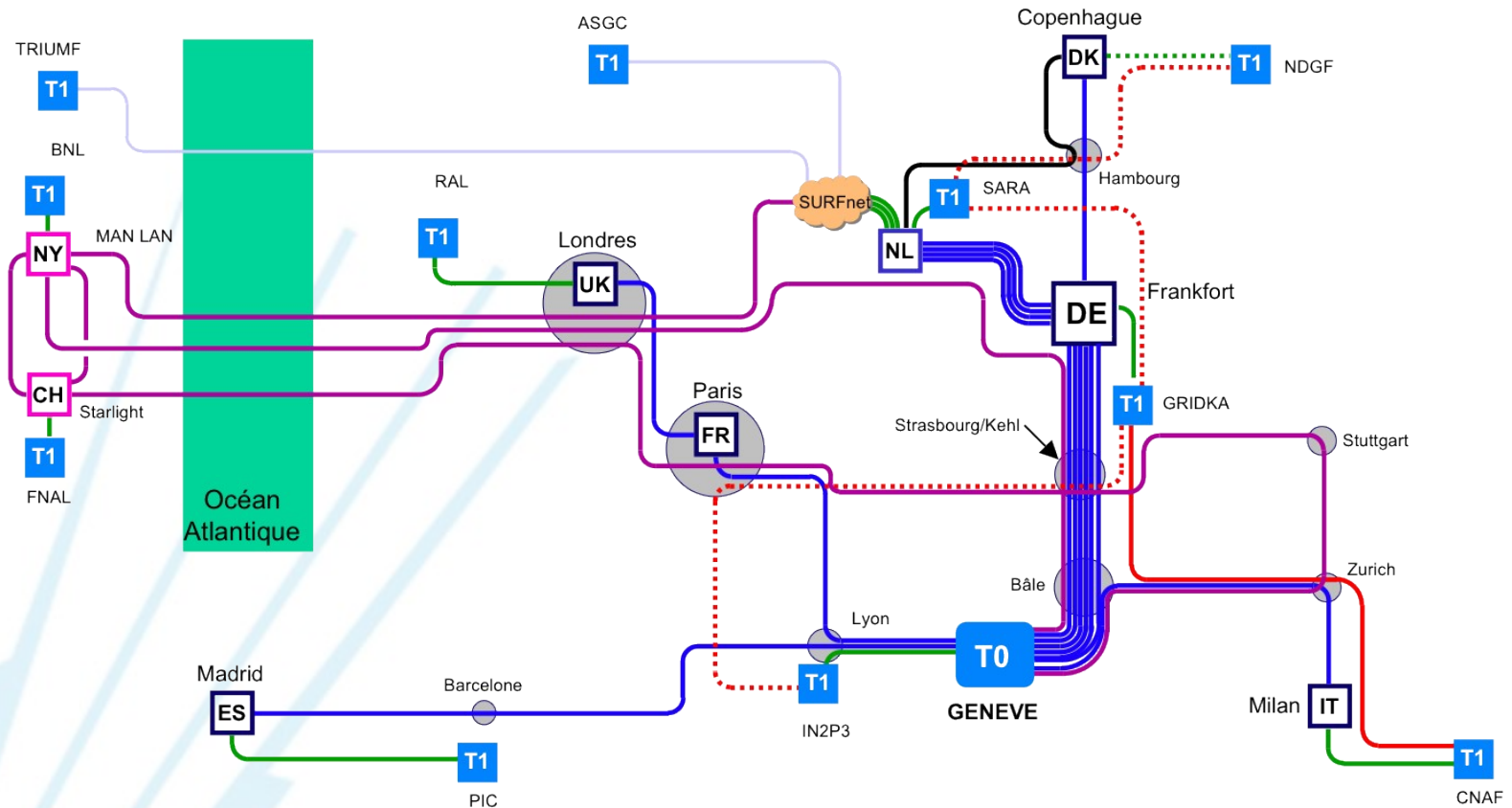
LHCOPN LHC Optical Private Network



p2p prefix 192.16.166.0/24

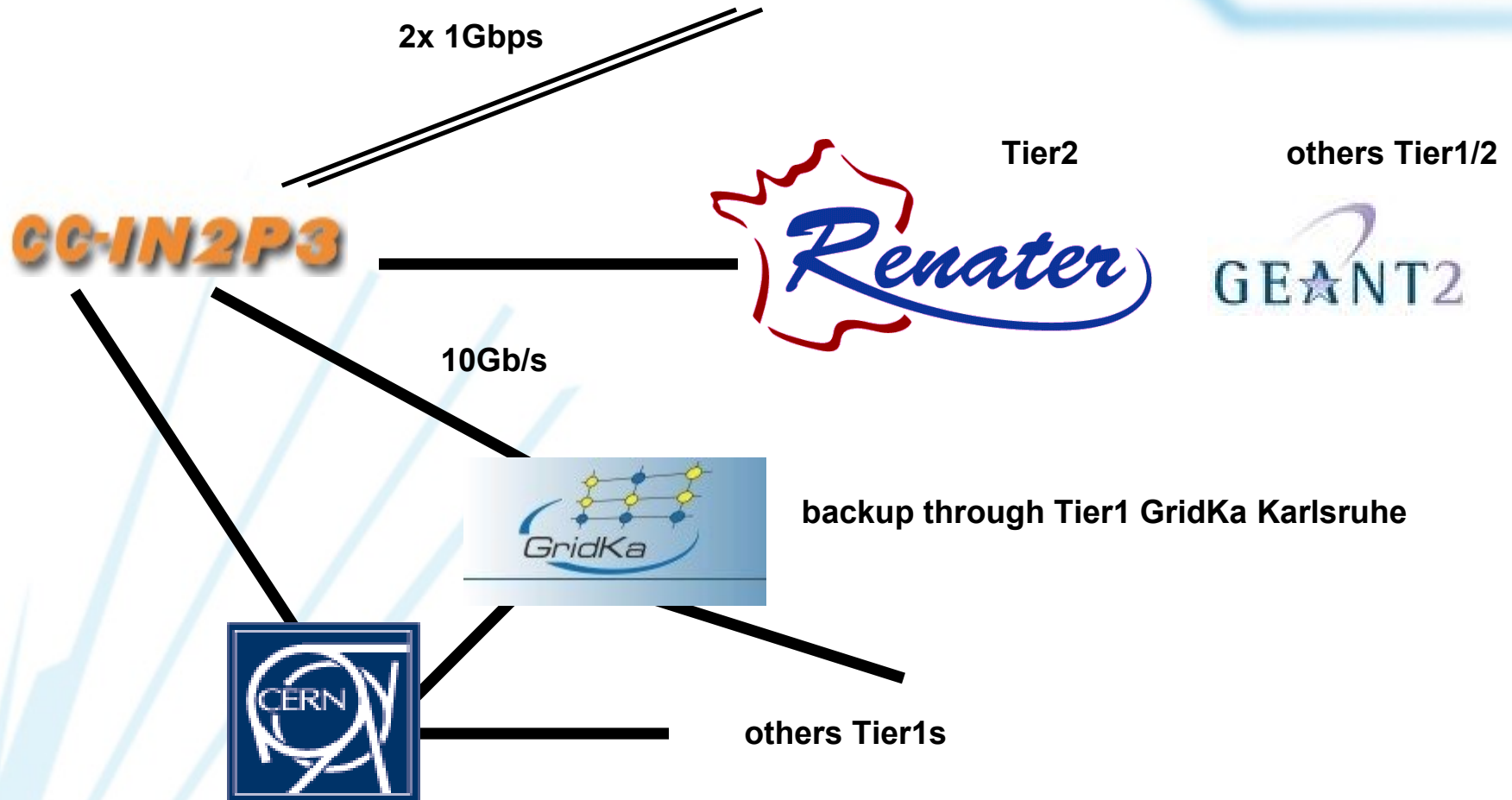
■ = Alice ■ = Atlas ■ = CMS ■ = LHCb

Fiber paths

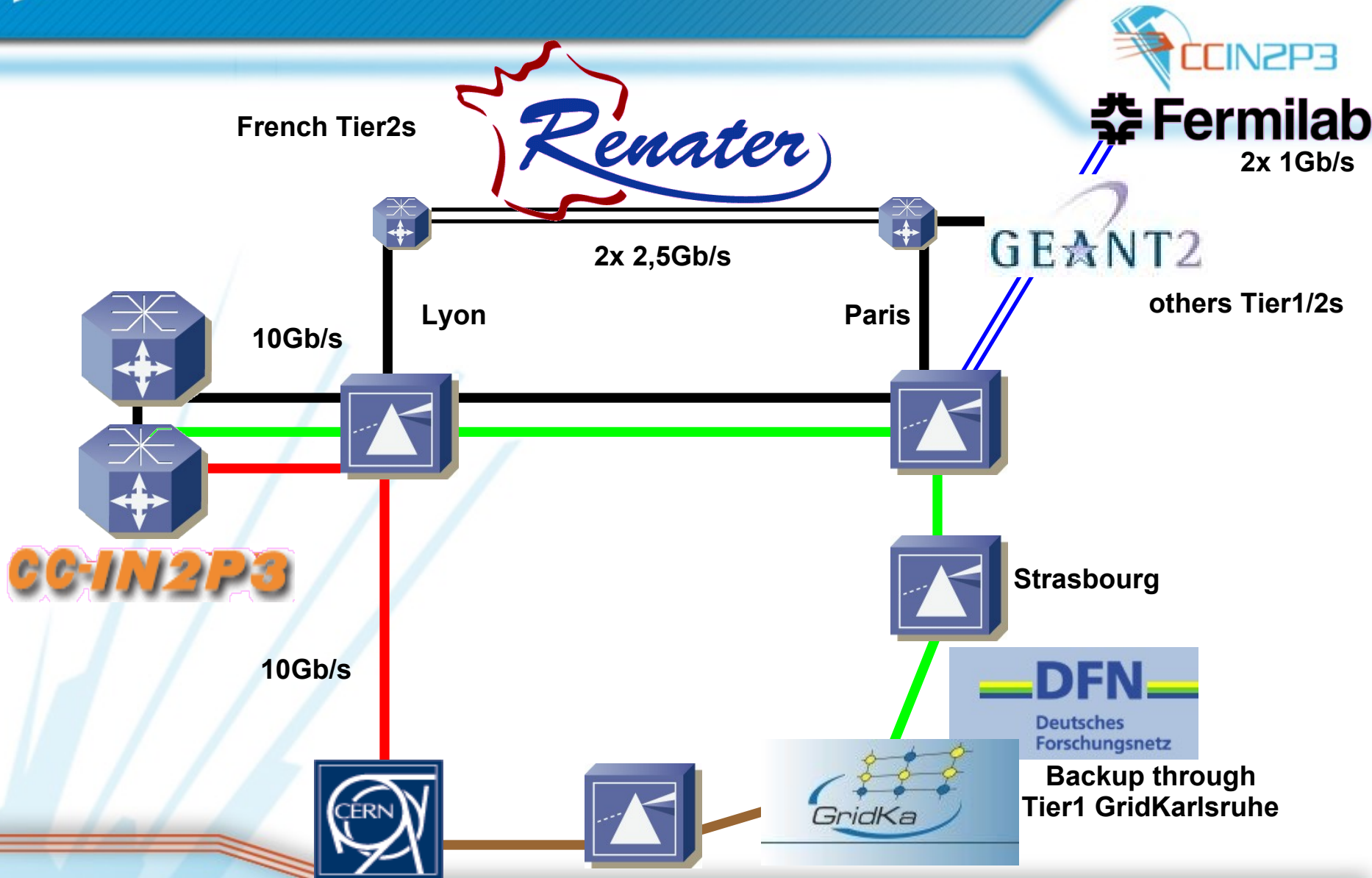


Michael Enrico - DANTE - 2007-07-27

CCIN2P3 logical infrastructure

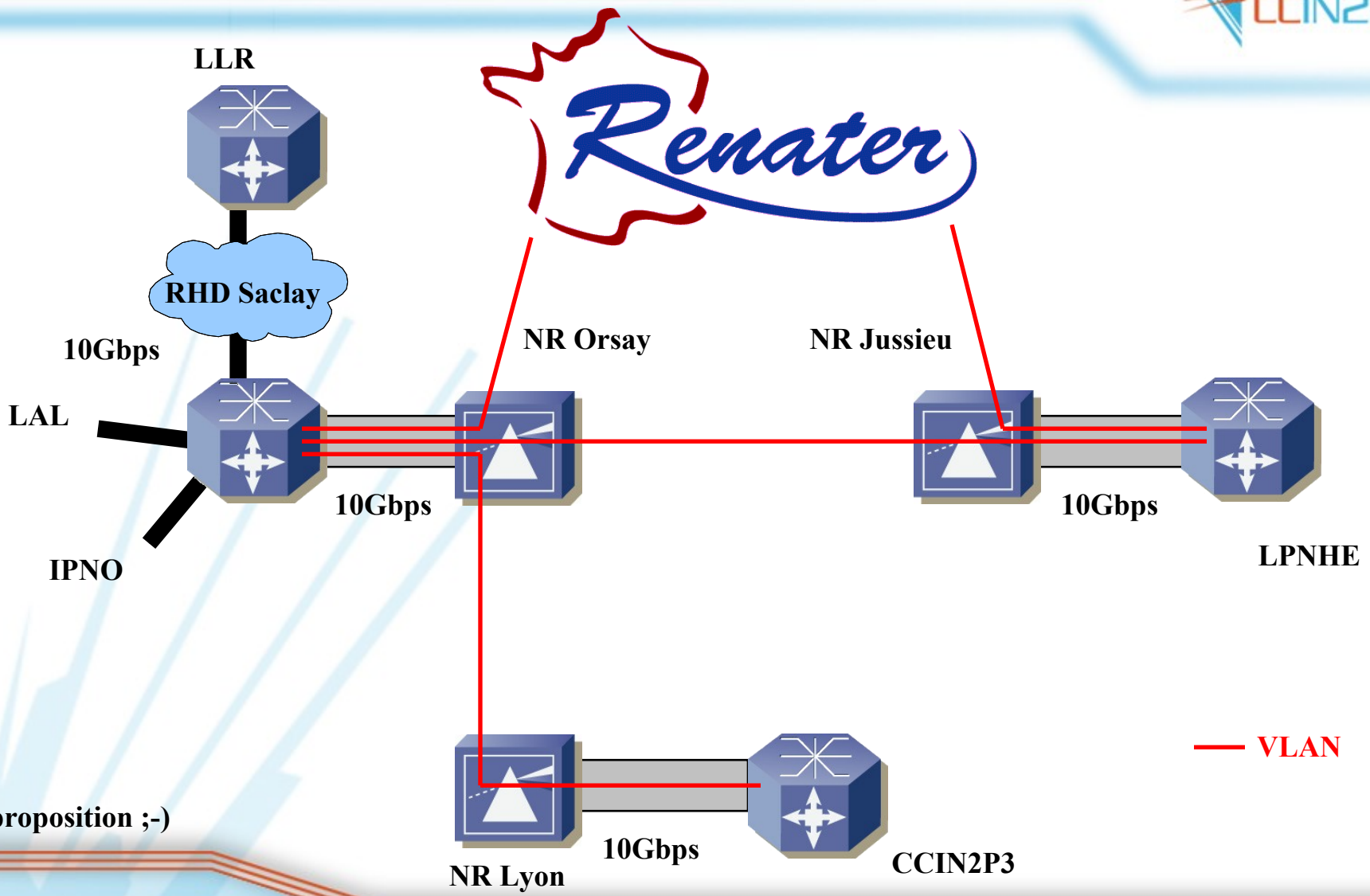


CCIN2P3 physical infrastructure



Tier2 GRIF

Grille de Recherche Ile de France



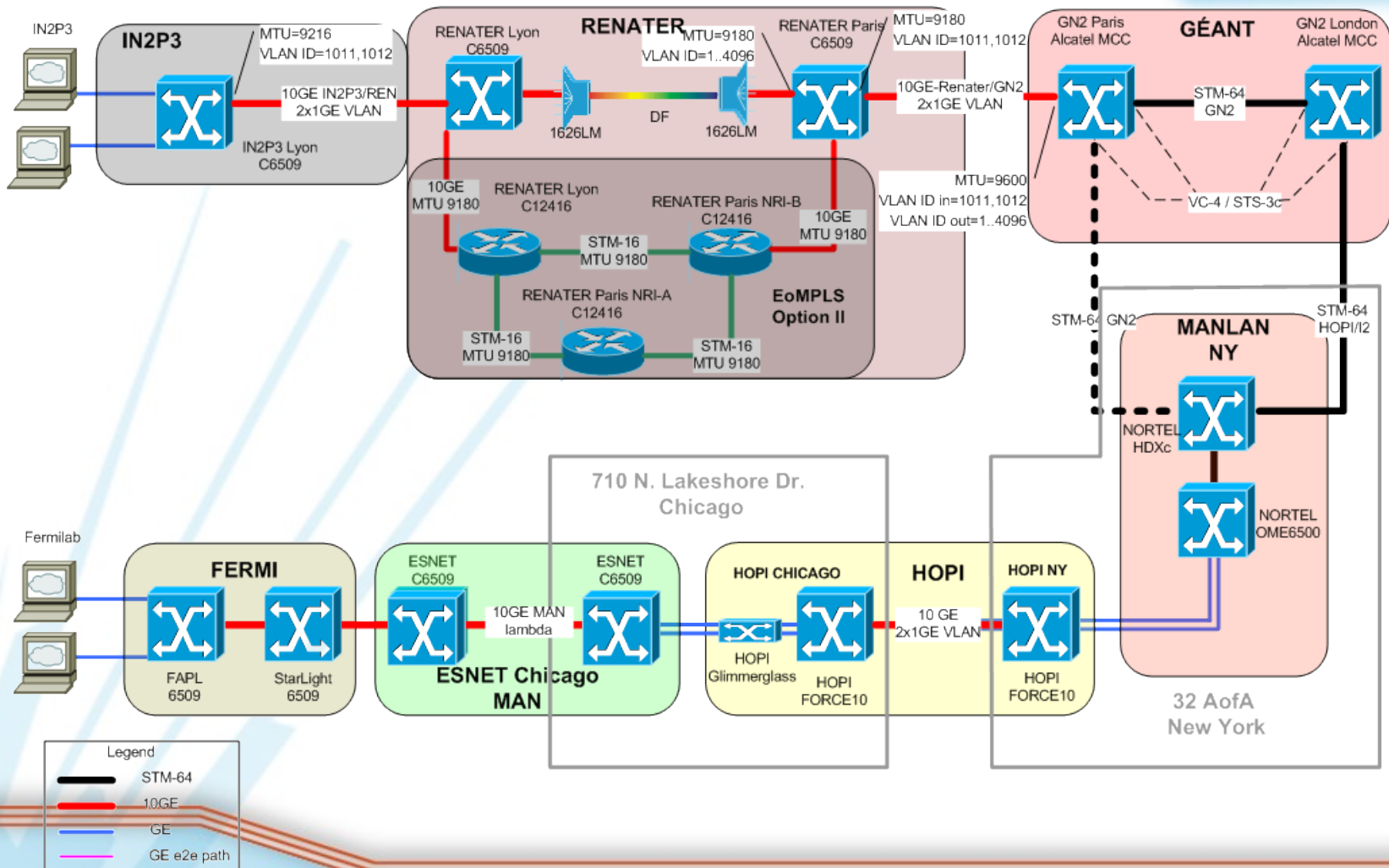
proposition ;-)

IGTMD Interopérabilité des Grilles de calcul et Transferts Massifs de données



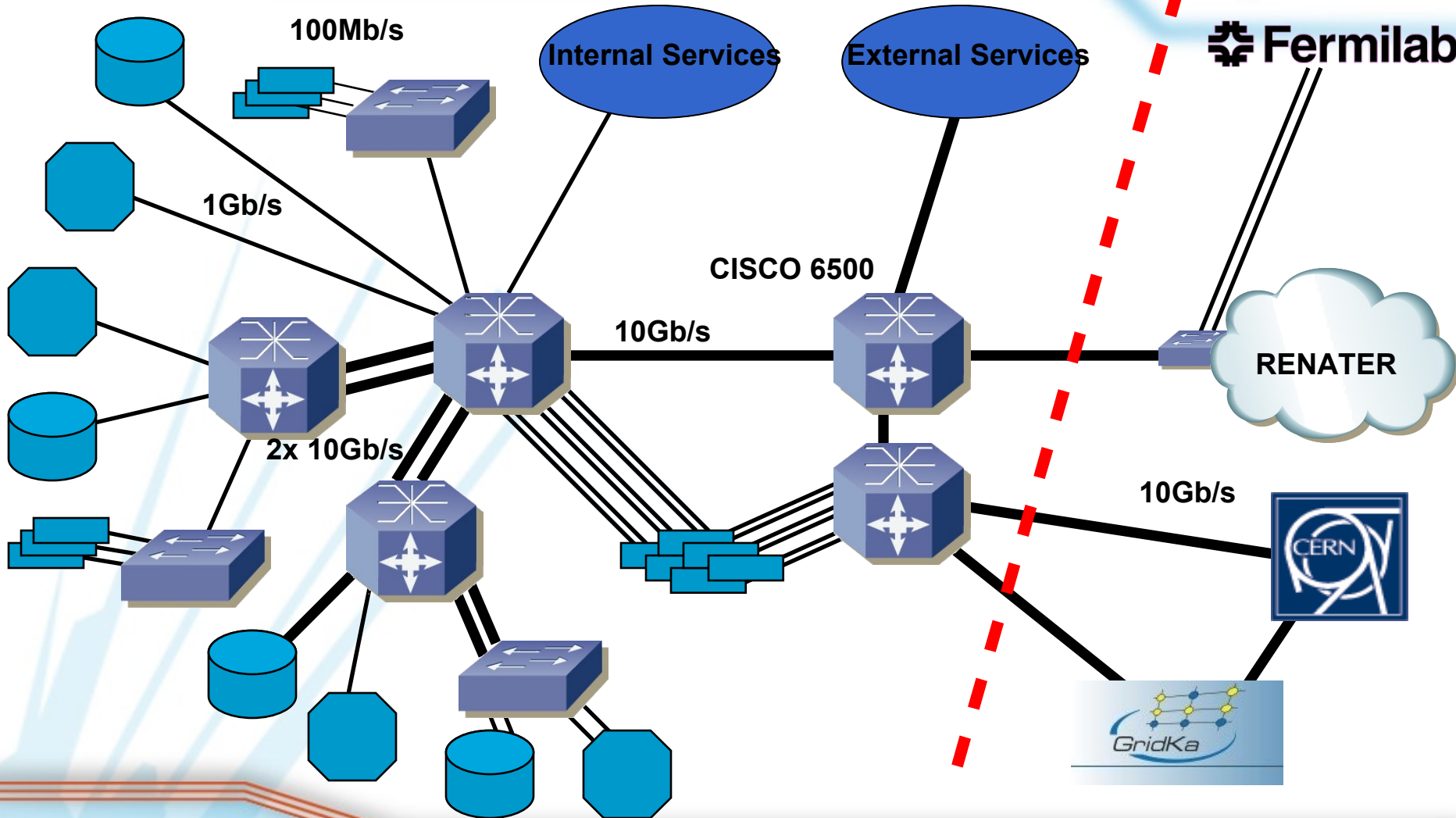
IN2P3-FERMI Lab 2xGE

Path setup



LAN CCIN2P3

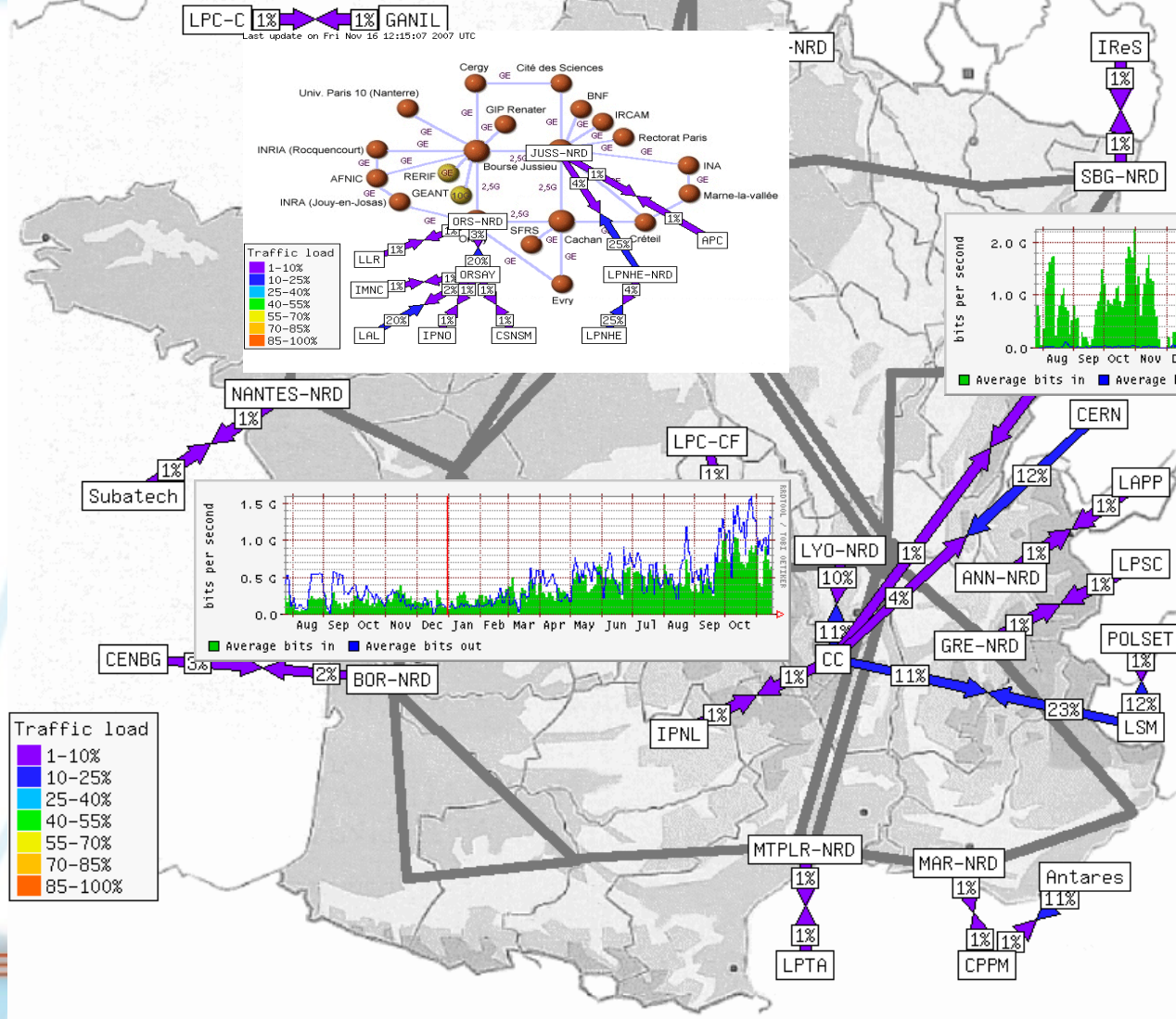
- > 1500 computing servers
- > 2 PB disks
- > 6 PB tapes



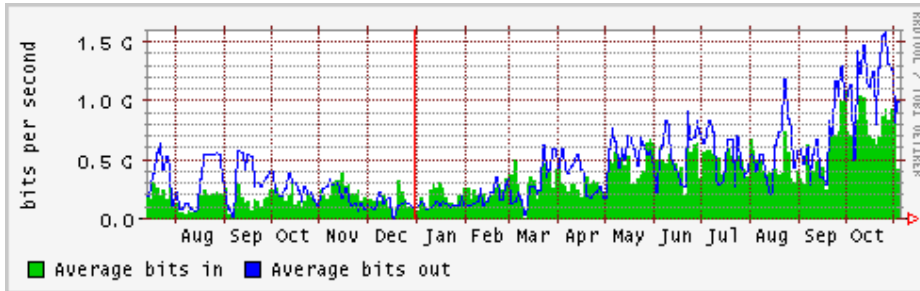
Network Statistics IN2P3

Last update on Fri Nov 16 12:15:11 2007 UTC

<http://netstat.in2p3.fr>

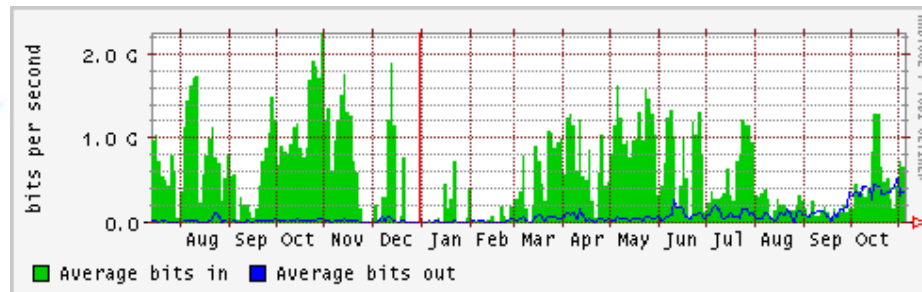


<http://netstat.in2p3.fr>

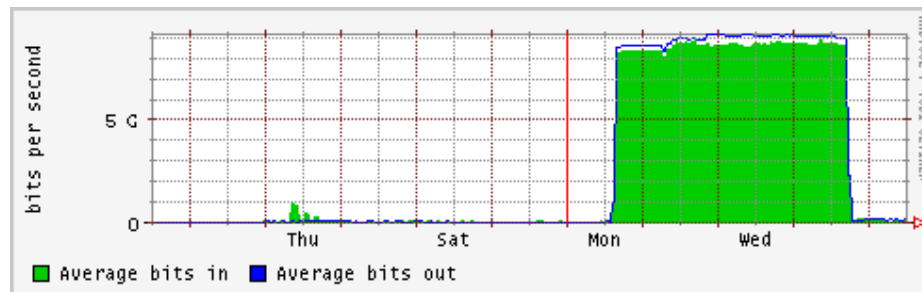


CCIN2P3-RENATER

CCIN2P3-CERN



CCIN2P3-GRIDKA



KEK-CCIN2P3 network tests



- ✓ network tests made in 01/2007 by Soh Suzuki, Yoshimi Iida, Laurent Caillat and others
- ✓ good results around 400Mb/s
- ✓ some asymmetric results not explained
- ✓ it was even before we have our direct 10Gb/s link to GEANT
- ✓ up to the application to use this bandwidth ;-)