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GÉANT2

Network Operations Centre

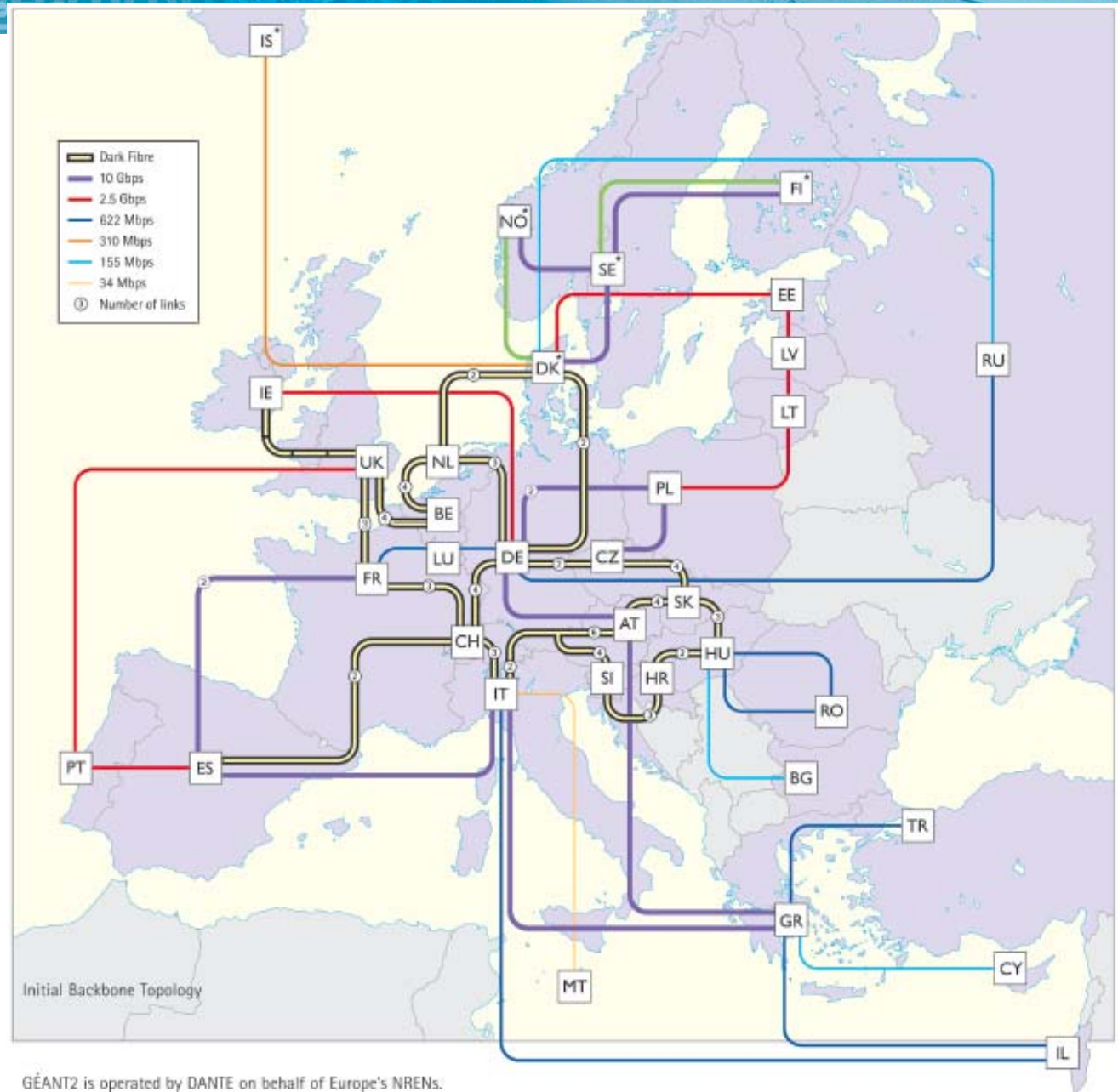
Silvère PRADELLA
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GÉANT2

- 34 countries in extended Europe
- 155Mbit/s to n x 10Gbit/s links
- Native IPv4 and IPv6, unicast and multicast, Ethernet switching, WDM
- Alcatel WDM tx & sw and Juniper IP routers equipments
- 3000 universities
- 3M R&E people



GÉANT2 is operated by DANTE on behalf of Europe's NRENs.

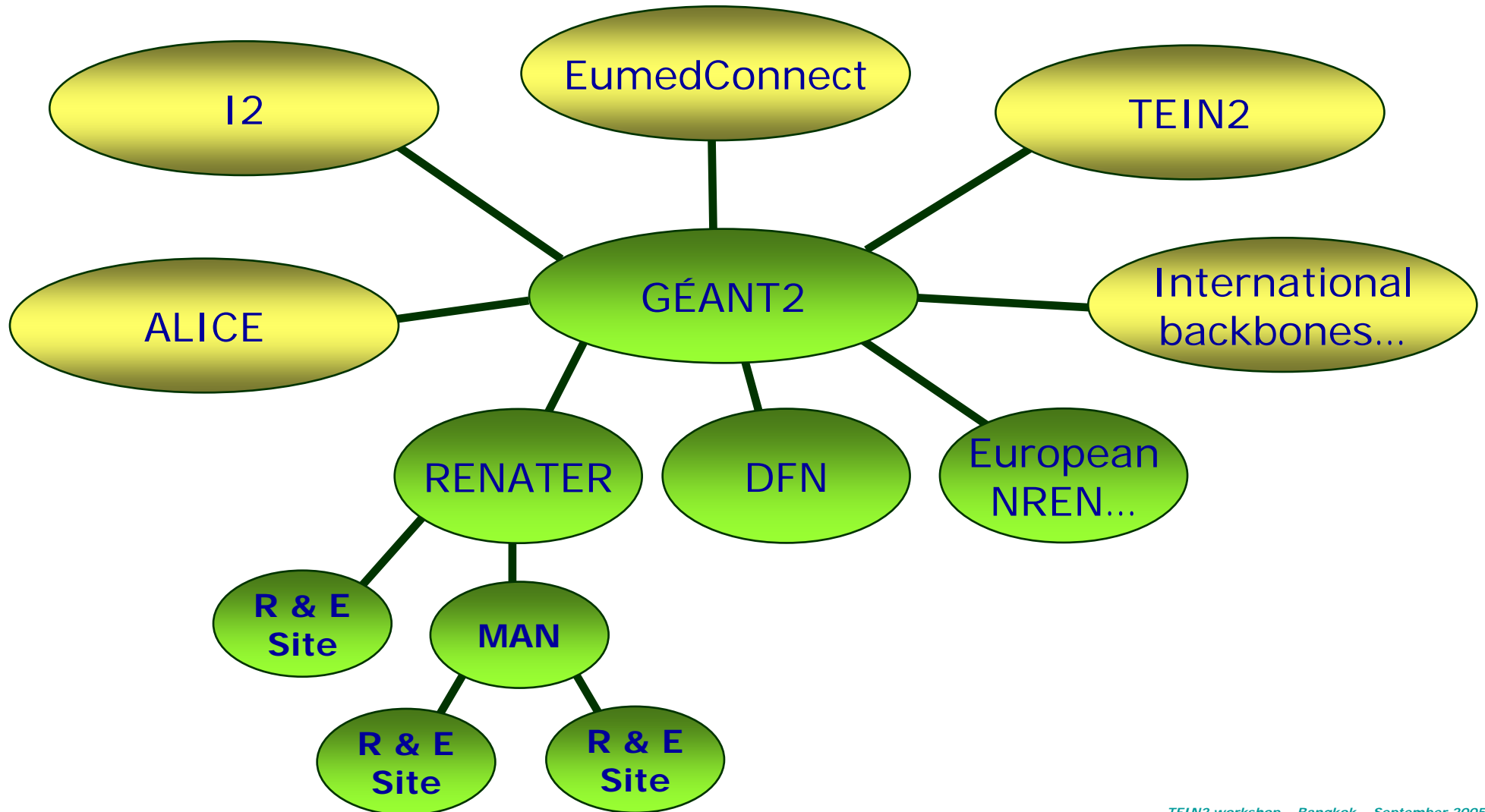


GÉANT2

- **USA R & E interconnexion**
 - 2 x 2.5Gbit/s sub Atlantic links
- **Commodity Internet traffic access**
 - 6 x 2.5Gbit/s links; 2 ISP
- **EumedConnect**
 - 9 countries on the Mediterranean border connexion planned
- **ALICE**
 - 1 x 622Mbit/s link to south America
- **TEIN2**
 - 2 x 622Mbit/s links to Asia

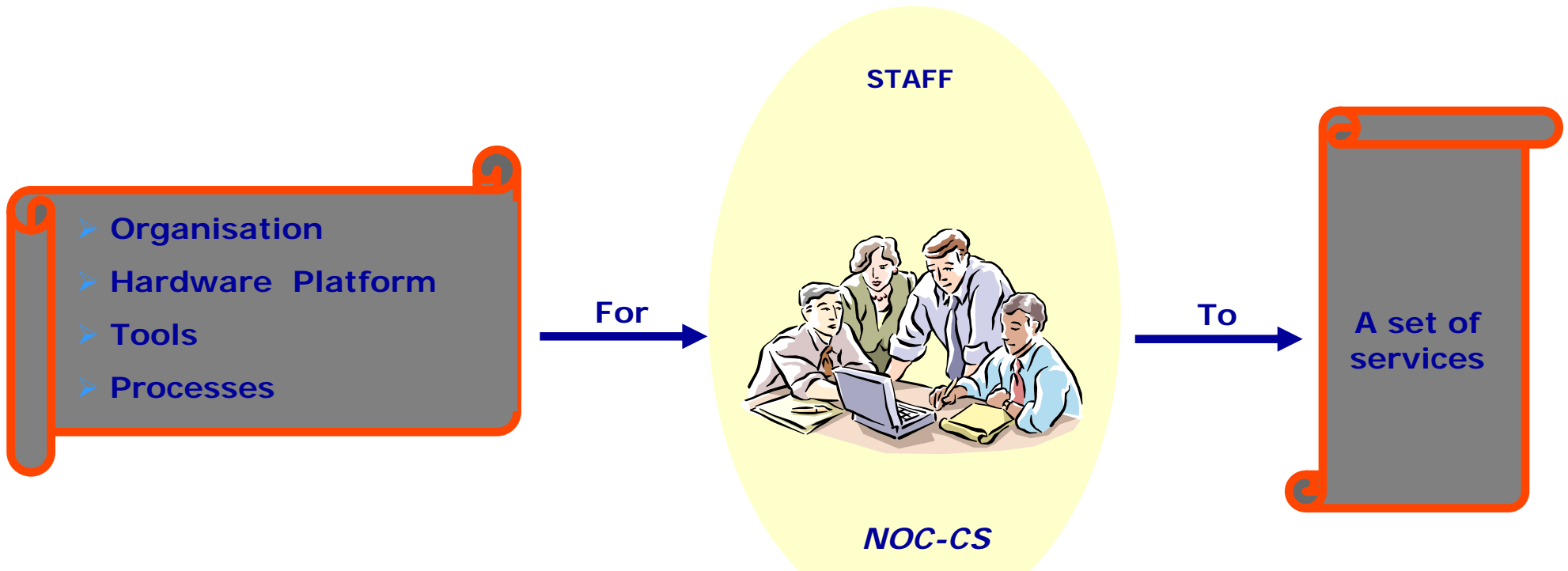


GÉANT2 network hierarchy





GÉANT2 NOC : Network Operation Centre CS





Network and Services management

- **Personalised services for private enterprises or public entities, operation and management of critical communication services (voice and data)**
- **Value added services compared to classical network integrators and operators (independent, multi-provider, wider area)**
- **Flexible services, according to Client needs and scale**
- **Service level commitments on faults resolution or changes realisation delays**
- **Service level commitments based on process and methods: Time to Repair, Availability, Security**

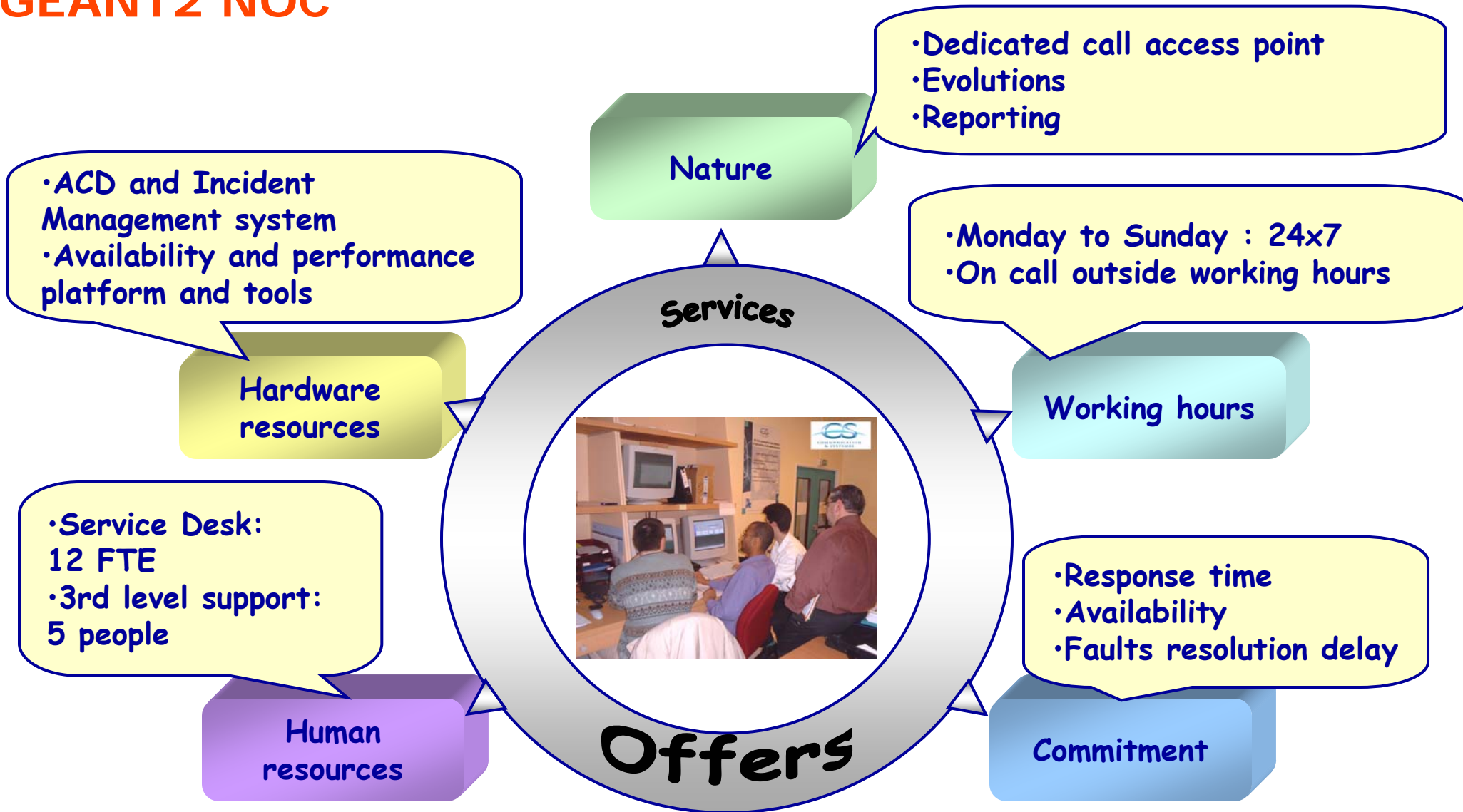


Long term partnership, including upper layer services

- **Evolutions and new technologies/services deployment support**
- **Experience in multi-network interconnexion**
 - Multi-service networks, multi_level networks (harmonisation, segmentation, delegation, collaboration)
 - VLAN, VPN, GIX (relations, routing)
- **Services operation / inter or intra network gateway**
 - Security (firewall, antivirus, IDS, ...)
 - Internet (DNS/DHCP, eMail, web, proxy, ...)
 - ...



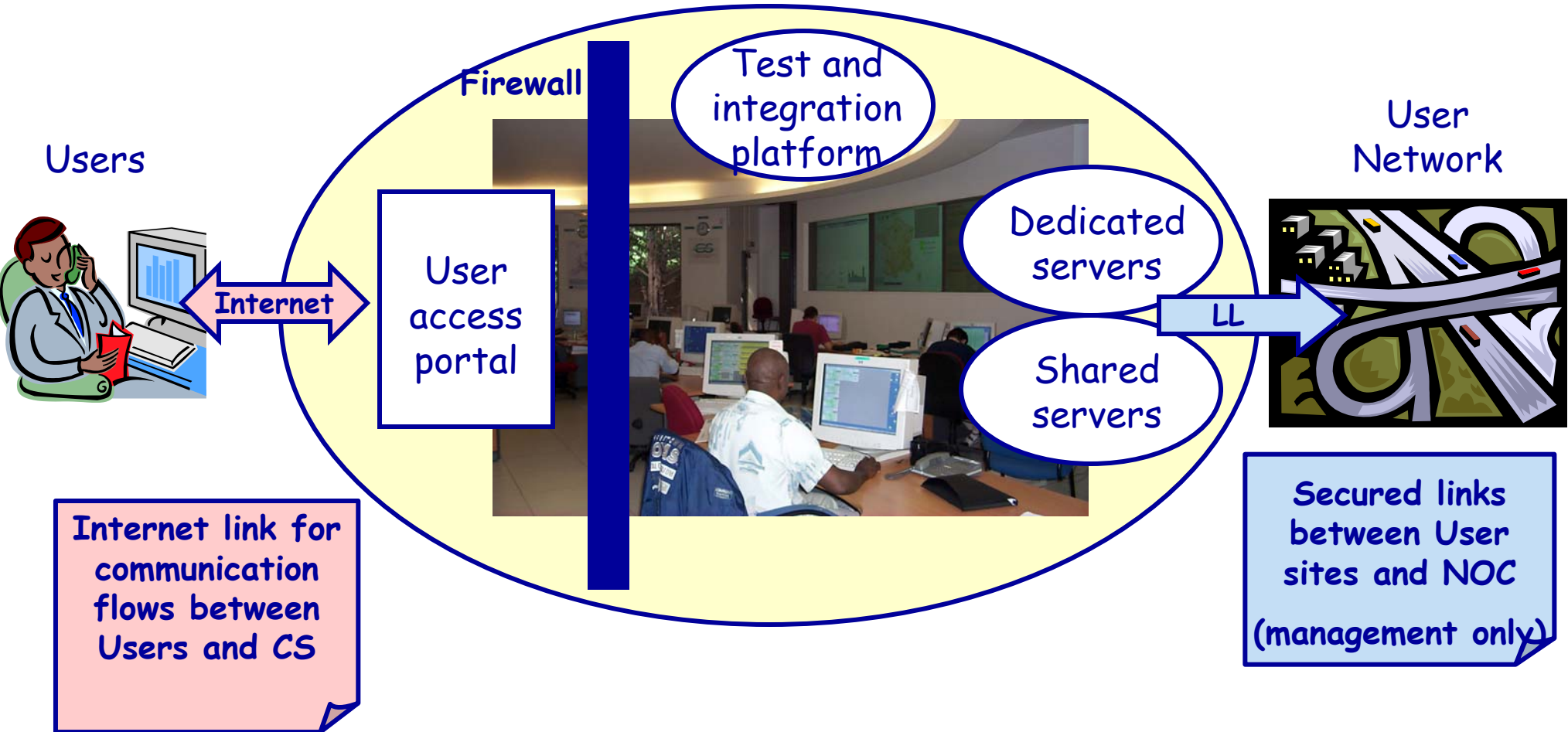
GÉANT2 NOC





CS NOC platform

NOC





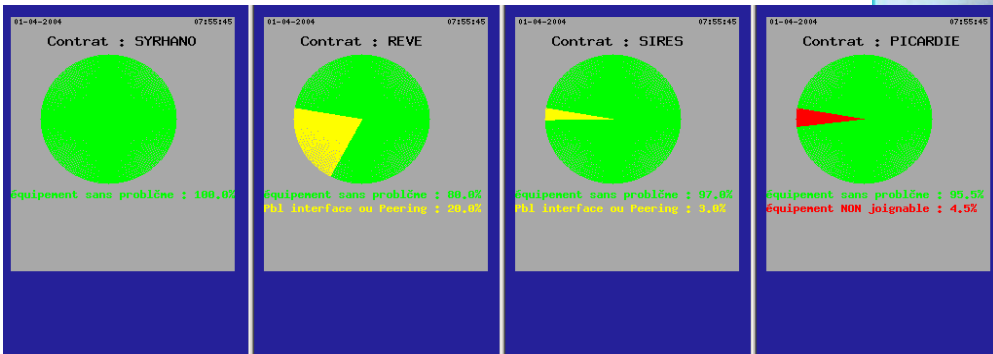
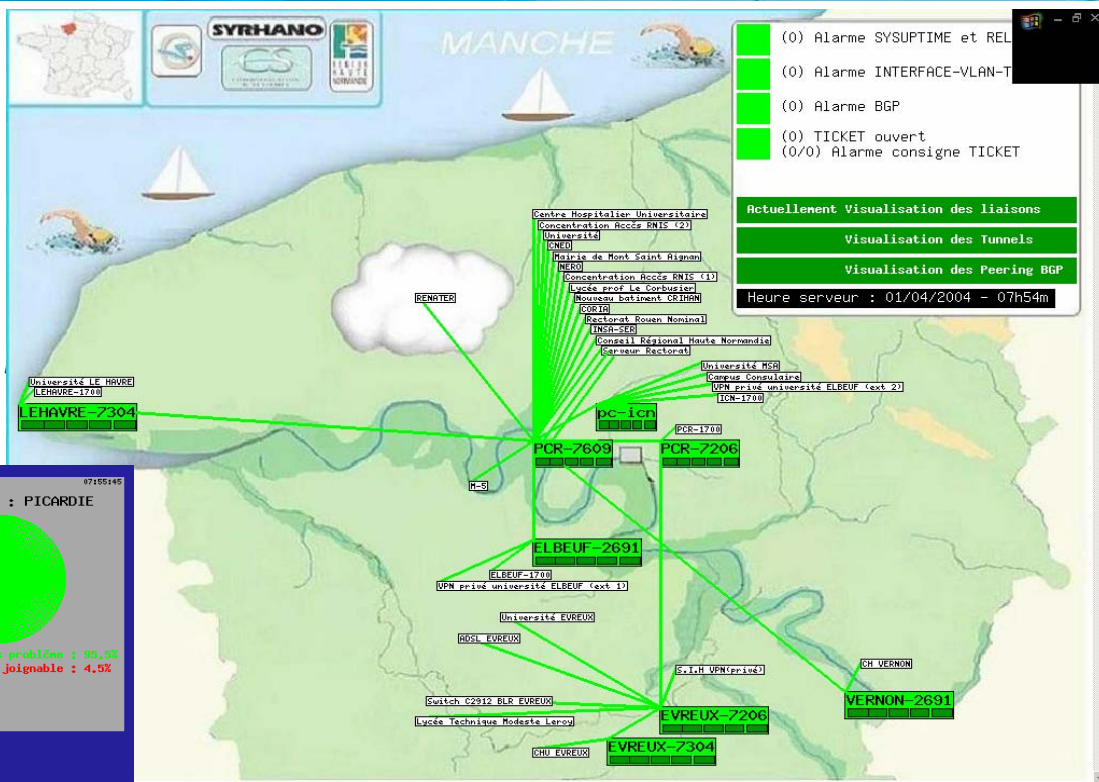
CS NOC tools

- **Service Desk, incident management**
 - Dedicated access for Clients, personalised phone support (PABX+ACD)
 - Trouble Ticketing System CS WebP@C
- **Availability management (pro-activ)**
 - Nagios with CS monitoring plugins and extensions
- **Performance management**
 - Infovista, RRDtool, NetFlow, ... etc.
- **Reporting**
 - Apache WEB Portal, iPlanet Mail system
 - MS Office, PageMaker
- **Security management**
 - FW, SSH, PGP, VPN, VLAN, ...
 - Backup server, backup site, backup out-of band access links, ...



Network monitoring

- CS tools:
 - Network maps
 - Events log
 - Network load monitoring (links, CPU delays, ...)



NOC CS
Pôle Mutualisé
version 1.a

CS
COMMUNICATION & SYSTEMS

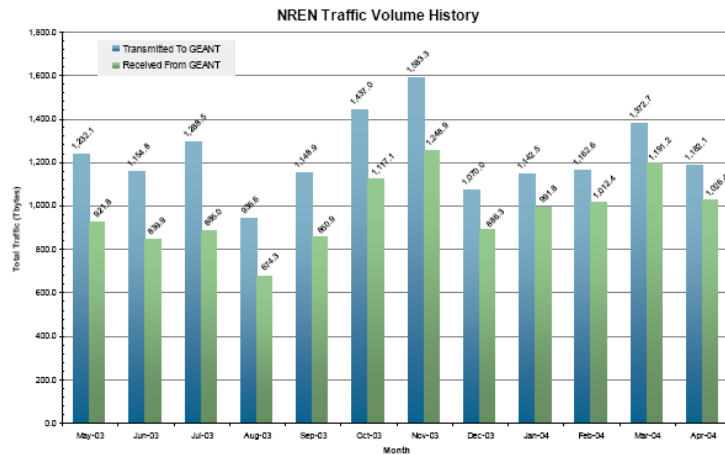
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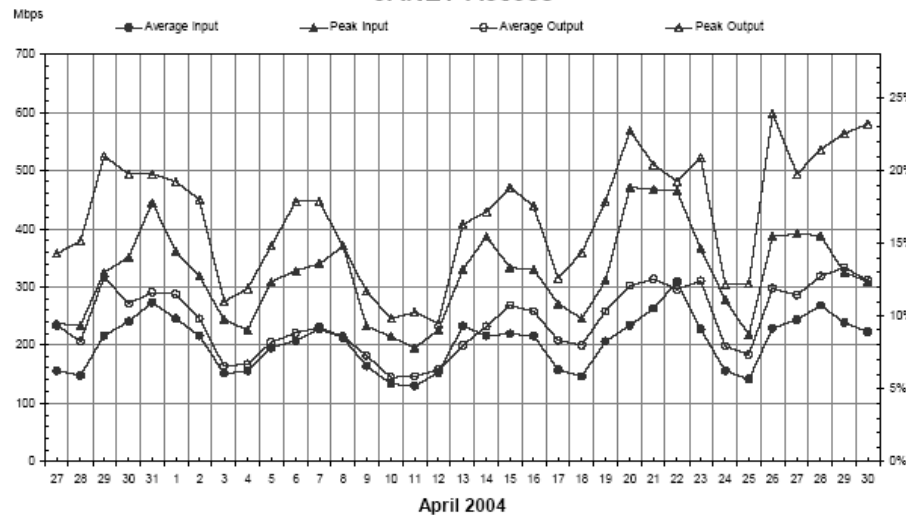
Report samples

PERFORMANCE REPORT

ACCESS PORTS



JANET Access



Performance Overview		See Page
Top 3 NRENs (Average Traffic)	GRNET	26
	HUNGARNET	
	NORDUNET	
Top 3 Trunks (Average Traffic)	AT - CH	76
	AT - HU	
	DE - NL	
NREN Access loaded 0-10%	15	26
NREN Access loaded 10-50%	14	
NREN Access loaded over 50%	0	
Fault Overview		
Number of Tickets	96	16-17
Number of Line Faults	25	
Number of Escalations	0	
NREN Availability > 99.95%	27	20
NREN Availability 99% - 99.95%	2	
NREN Availability < 99%	0	
Volume Overview		
NREN Accesses	1,182.1 Tbytes	26
Interconnect Circuits	249.9 Tbytes	60
= Total Amount of Traffic	1,432.0 Tbytes	
Trunks	2,002.7 Tbytes	76
IPv6 Volume Overview		
NREN Accesses	9,645 Gbytes	116
Interconnections	554 Gbytes	118
= Total Amount of Traffic	10,200 Gbytes	



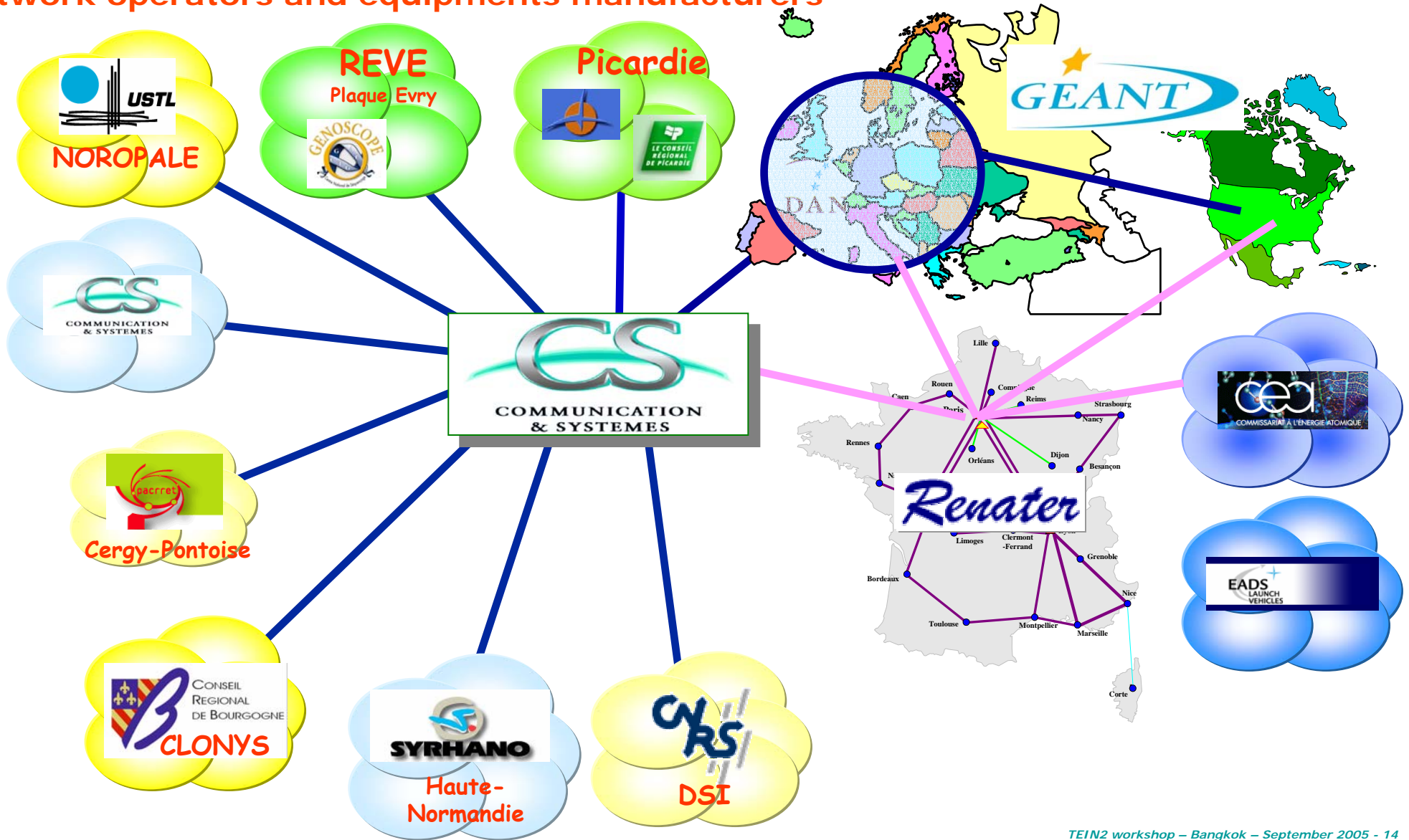
CS network management: a real experience

- **More than 30 Clients, mainly in France**
- **More than 100 points presence in 40 pays, in Europe but also in America and Asia**
- **More than 100 operators or providers in direct relationship for network operation/management**
- **More than 2500 core network equipments managed**
 - Routers, from Cisco C800 to C12416, Juniper M-160, with up to 6000 lines configuration per router
 - Switches, C29xx up to C65xx/C76xx
 - Security and Internet server



DESIGNER INTEGRATOR & OPERATOR OF MISSION CRITICAL SYSTEMS

A unique knowledge and experience in network management, independent from network operators and equipments manufacturers





DESIGNER INTEGRATOR & OPERATOR OF MISSION CRITICAL SYSTEMS

THE END

Thank you for your attention