



The Technological Landscape of GÉANT2

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GÉANT2 focus



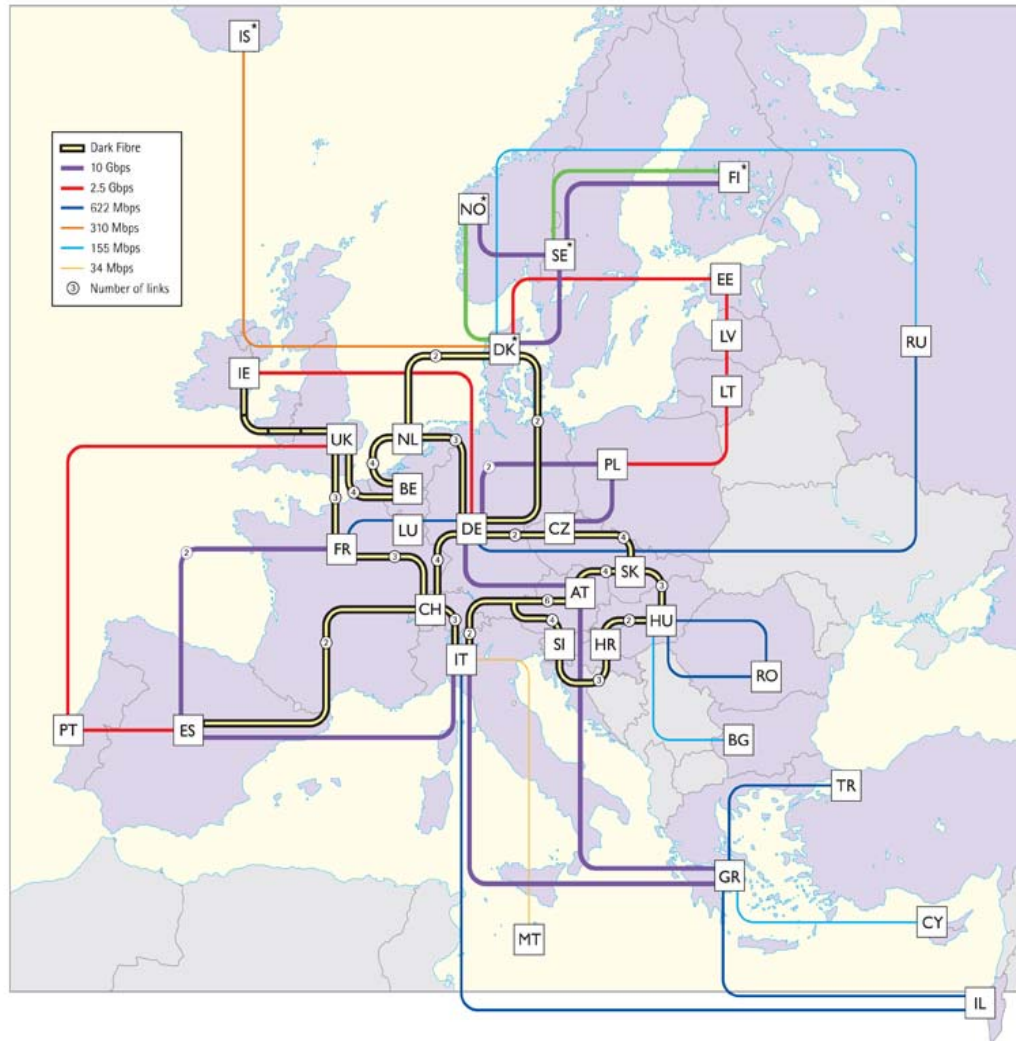
Connect. Communicate. Collaborate

- Make large amounts of capacity accessible(technically, economically) to users
- taking network services a step further:
 - Ethernet (GE and 10GE), as service and as access technology
 - Performance (monitoring and enhancement)
 - Security
 - Mobility

The GÉANT2 network



Connect. Communicate. Collaborate



The importance of Ethernet



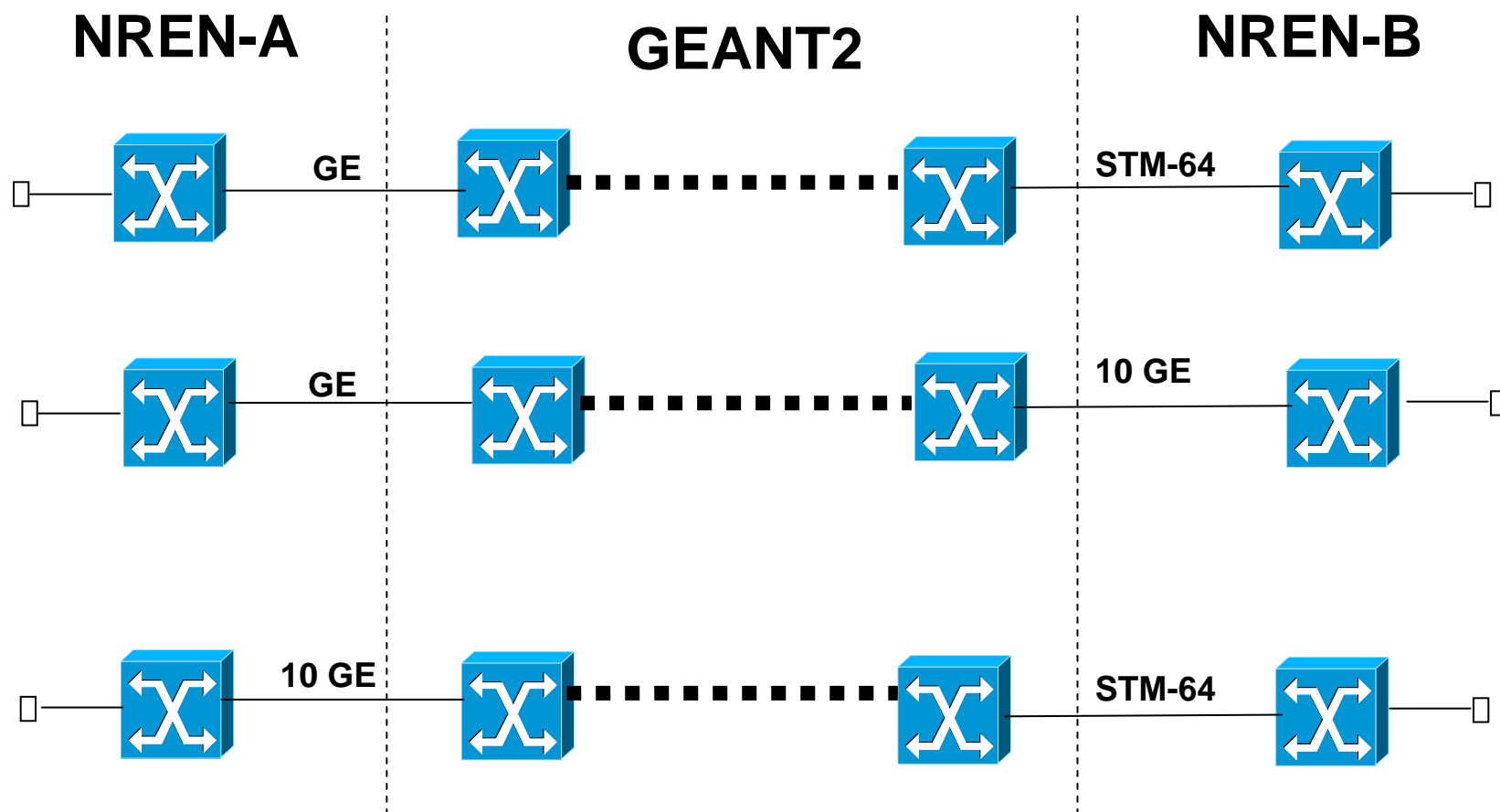
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- GE and 10GE with guaranteed quality
- 10 GE as service specification and access to GE service
- Challenge to GÉANT2, NRENs and equipment vendors

The multidomain challenge for GE



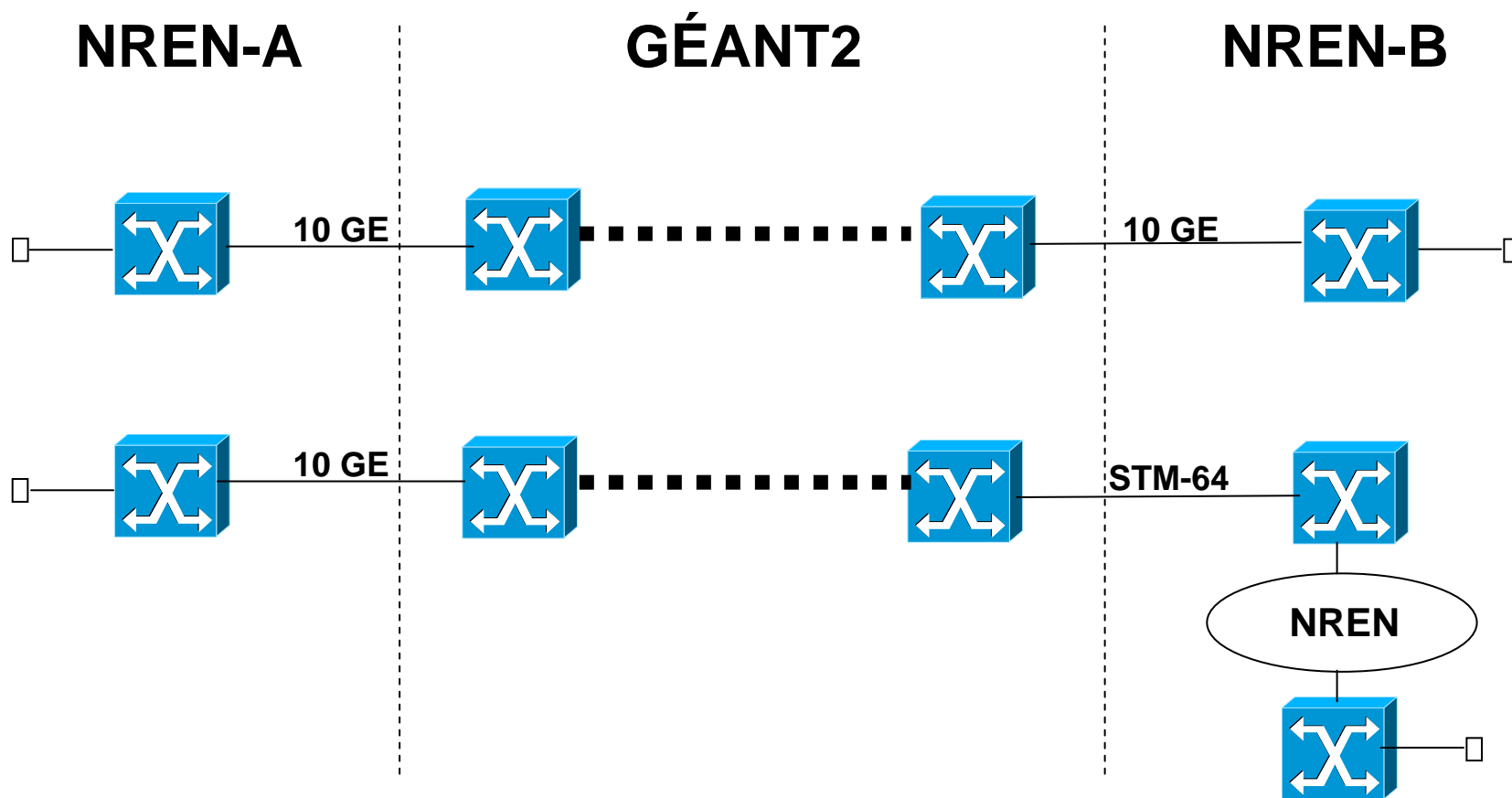
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The multidomain challenge for 10 GE



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The technology challenge

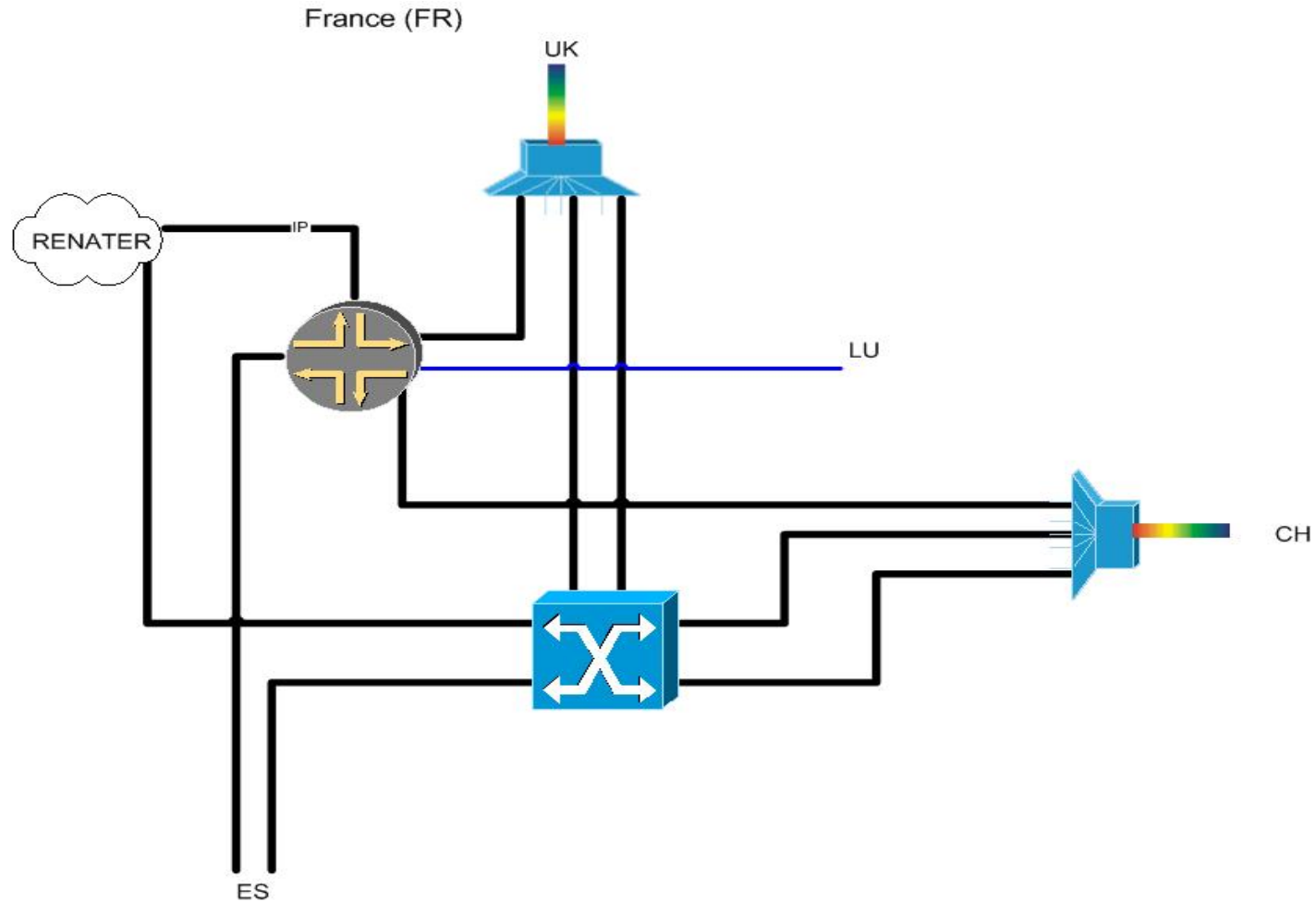
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- Mapping of 10Gigabit Ethernet to guaranteed QoS
 - Ethernet in the TDM domain
 - Development of next-generation SDH/SONET



GÉANT2 PoP example

Connect. Communicate. Collaborate





Development programme

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- Performance
- Security
- BW provision
- Mobility

- Testbeds



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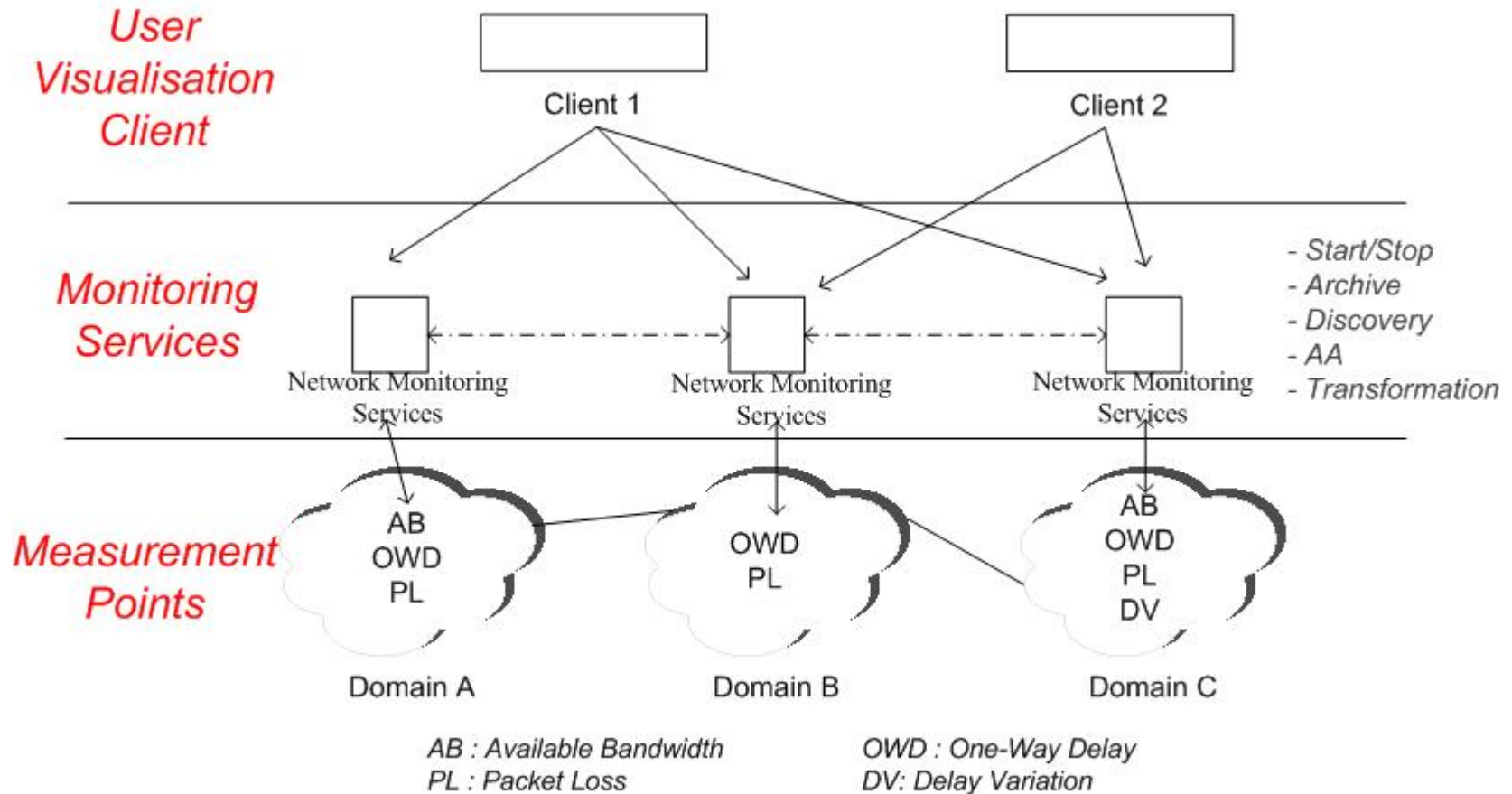
Performance enhancement

- A dual development program:
 - Help end users make the most of the network, via the PERT (Performance Enhancement Response Team)
 - Relies on multi-disciplinary experts
 - human-on-the job *at all times* (the *case manager*)
 - Knowledge-base and trouble tickets
 - Provide detailed, end to end performance measurement data
 - Measurement probes scattered throughout the network
 - Multidomain operation

Performance measurement



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Service provision

- Automate provision of service
 - For existing services (Premium IP)
 - Available single domain, in progress for multidomain
 - For new services (point to point 10/GE)
 - A key development activity for GÉANT2
 - Start with a static single domain approach
 - Target dynamic, multidomain approach
 - G-MPLS, UCLP,....



Security

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- Strengthen security of network elements and services
- Tools for anomaly detection and network forensics
- Strengthen operational co-ordination and co-operation between GN2 partners for incident handling and resolution



Mobility

- AAA
- Roaming
- Single sign on

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Conclusions

- The investment in dark fibre is the enabler for access to and management of large amounts of capacity
- The mixed (routed + switched) network architecture is the enabler for service provision
- The development programme is focussed on enhancing the traditional network services