Network Report

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Introduction

SuperJANET5 – Status Report

Geant2 – Status Report

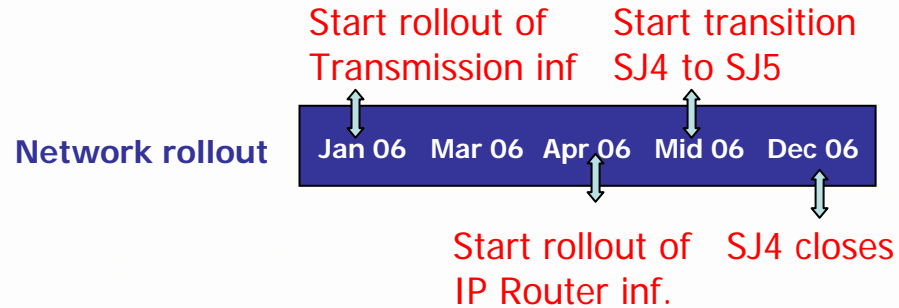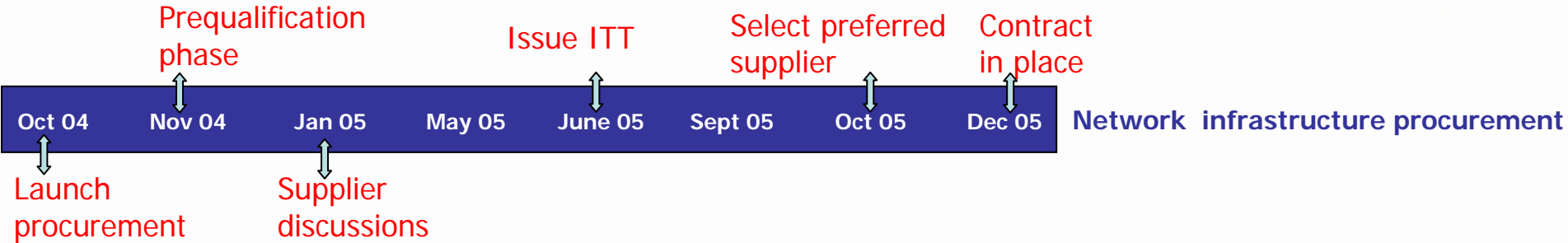LHC Optical Private Network

'Ten Easy Questions'

Discussion time

SJ5 Status

GridPP — UK Computing for Particle Physics

Prequalification phase

Issue ITT

Select preferred supplier

Contract in place

| Oct 04 | Nov 04 | Jan 05 | May 05 | June 05 | Sept 05 | Oct 05 | Dec 05 | **Network infrastructure procurement** |

Launch procurement

Supplier discussions

Launch procurement

Supply & Maintenance. Contract in place

IP router procurement

| Oct 05 | Mar 06 |

Start rollout of Transmission inf

Start transition SJ4 to SJ5

Network rollout

| Jan 06 | Mar 06 | Apr 06 | Mid 06 | Dec 06 |

Start rollout of IP Router inf.

SJ4 closes

| Requirement	Design Criteria
Reliability	Minimise single points of failure Reduce components and complexity
Scalability	UKERNA controls costs of adding large amounts of bandwidth when needed
Separability	Configure parallel purpose-built networks via control at the transmission level
Flexibility	UKERNA able to quickly change configuration of the network when needed
Visibility	Controlled access to network monitoring and measurement information by end users

The supplier is responsible for the operations, management and maintenance of both the fibre systems and the WDM transmission equipment.

UKERNA will continue to operate all other services above this layer, such as the JANET IP production network.

The SuperJANET5 network architecture is envisaged as a high speed core network, capable of operating using 10Gbit/s wavelengths and from the fourth quarter of 2008, a number of 40Gbit/s wavelengths.

The JANET Regional Networks are to have dual, diversely routed connections to this core network, which should be capable of 2.5Gbit/s and 10Gbit/s wavelength operation.
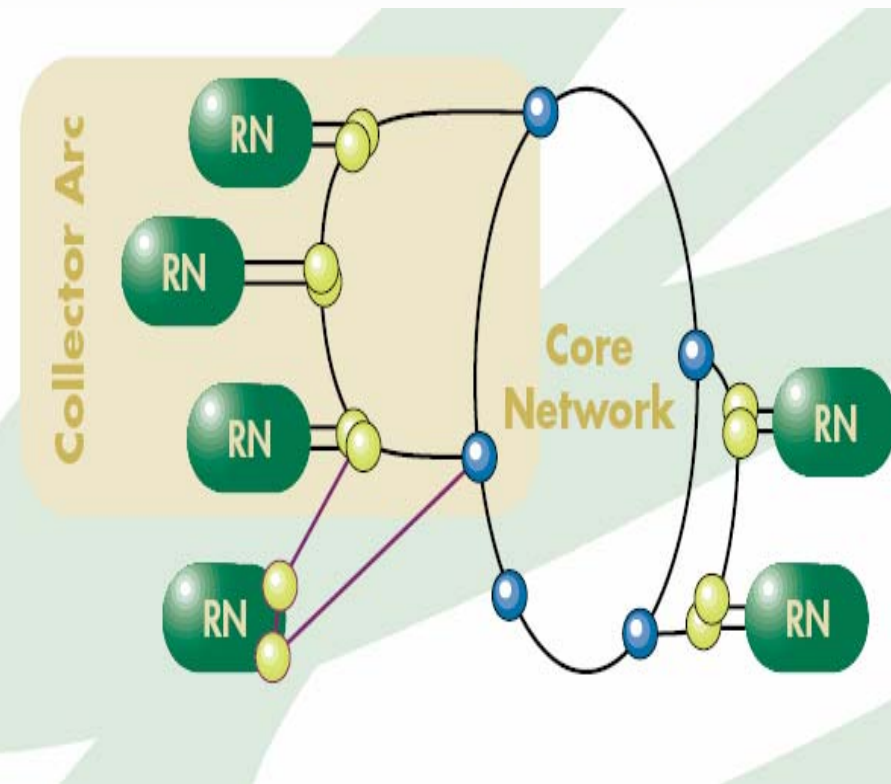
GÉANT2 is the seventh generation of pan-European research and education network

The GÉANT2 network will connect 34 countries through 30 national research and education networks (NRENs), using multiple 10Gbps wavelengths

The announcement of the initial planned topology for GÉANT2 was made at the official launch of GÉANT2 on 14-15 June. The network will have a total of 44 routes, using a mixture of dark fibre and leased circuits. 18 routes will be connected with dark fibre and 26 links will use leased circuits initially.

Network design for GÉANT2 is focused on maximising operational and service flexibility. Handling the evolution of traffic patterns will be crucial to the success of the network. In general, the network architecture will make use of a flexible structure based on a combination of routed IP and switched components.

Initial Backbone Topology

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

GridPP
UK Computing for Particle Physics
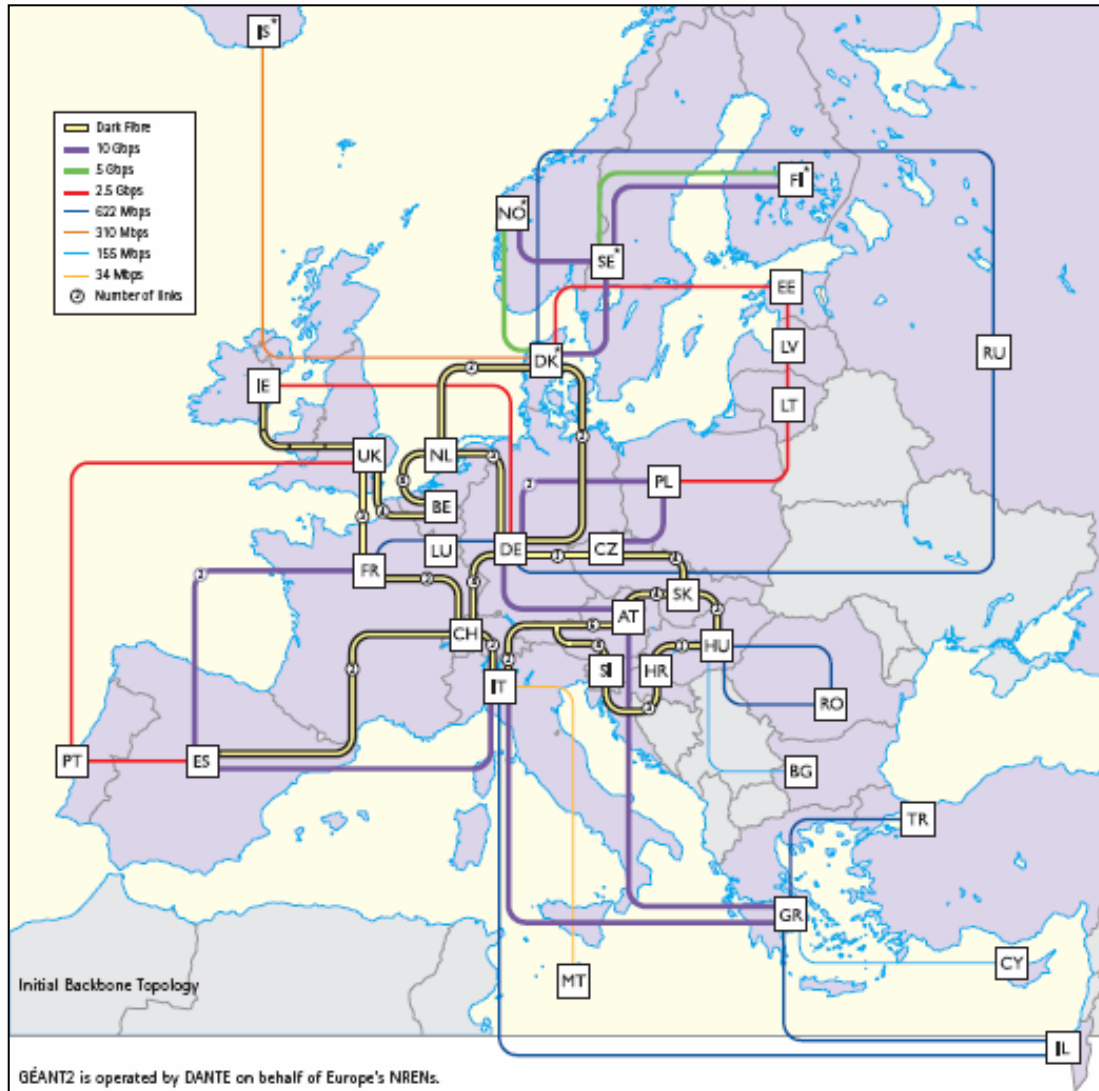
CERN/NRENs/Tier1 Meetings :

The **Optical Private Network** has been discussed with increasing detail

Started summer 2004

Routing Task Group – led by Edoardo Martelli, CERN

Operations Task Group – led by Roberto Sabatino, DANTE

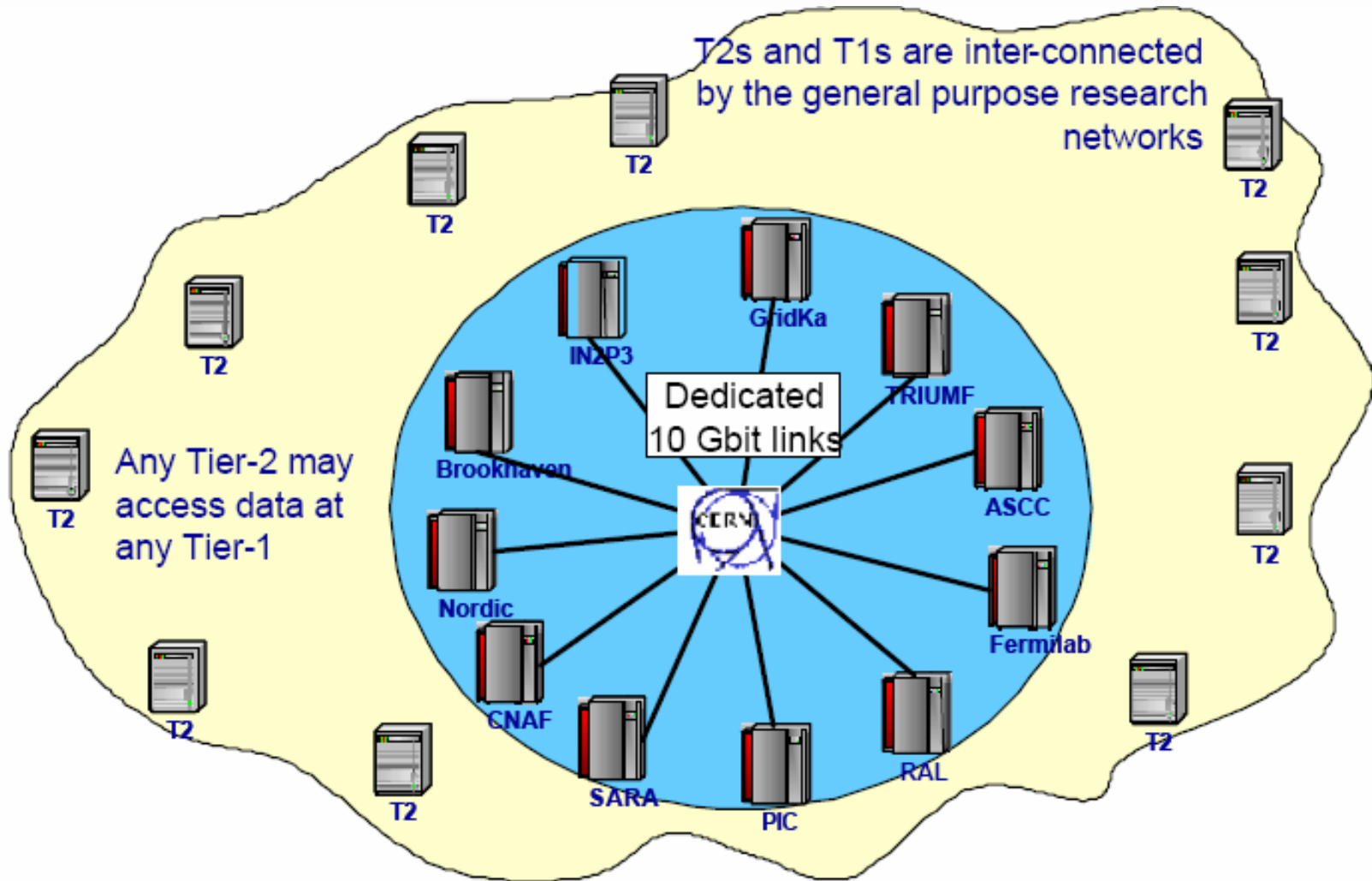Security Task Group – led by Robin Tasker, CCLRC

Detailed planning in above areas well advanced and hope for final Task Group reports by January 2006 ready for implementation

As ever the devil is in the detail

So You Think You Know Your Network?

Question 1
Provide the name and contact details of your local (Departmental) and Institutional network support staff.

Question 2
Provide details of the responsibilities, together with the demarcation
of those responsibilities, of your local and Institutional network support staff.

Question 3
What is a Regional Network Operator (RNO), and why does this matter to you?

Question 4
What is SuperJANET4? And more importantly what is SuperJANET5?

Question 5
Draw a simple diagram showing your local (Departmental) network and sufficient of your Institutional network such that you can trace a line from *your* end-system to the connection from your Institutes network into the RNO infrastructure.

Question 6

On the diagram produced in answer to Question 5, show the capacity of each link in the network and provide a note against each link of its contention ratio.
[Hint! Just how many 100Mbits/s links are being fed into that 1Gbits/s uplink?]

Question 7

On the diagram produced in answer to Question 5, colour and distinguish the switches and routers and for each device provide a note of its backplane capability.
[Hint! Just how many [frames per second | packets per second] can the backplane shift?]

Question 8

What is the average and peak traffic flow between your local (Departmental) network and the Institutional network?
What is the average and peak traffic flow between your Institutional network and the RNO?
What is the total capacity of your Institutional connection to the RNO?
What are the upgrade plans for your local (Departmental) network; your Institutional network and the network run by the RNO?

Question 9

Do you believe in IS Security? Does your Institute believe in IS Security?
Do you believe in firewalls? Does your Institute believe in firewalls?
On the diagram produced in answer to Question 5 colour in the firewall(s)
(or other security devices).
Provide information of how changes are made to the rule set of the firewall.
Provide a note of the capacity of this device and what happens when that capacity
is exceeded.

Question 10

What is the best performance you can achieve from your end-system to an
equivalent system located in some geographically remote (and friendly!) Institute?
For your end-system:
    Do you understand the kernel, the bus structure; the NIC; and the disk system?
    Do you understand TCP tuning and what it can do for you?
    Do you understand your application and what it can do to your performance?

Happy to discuss…