

The GEANT2 logo consists of a purple swoosh above the text "GEANT2". The letter "A" is replaced by a purple five-pointed star.

GEANT2

**GN2-SA3
(End-to-end Quality of Service)**

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PACE

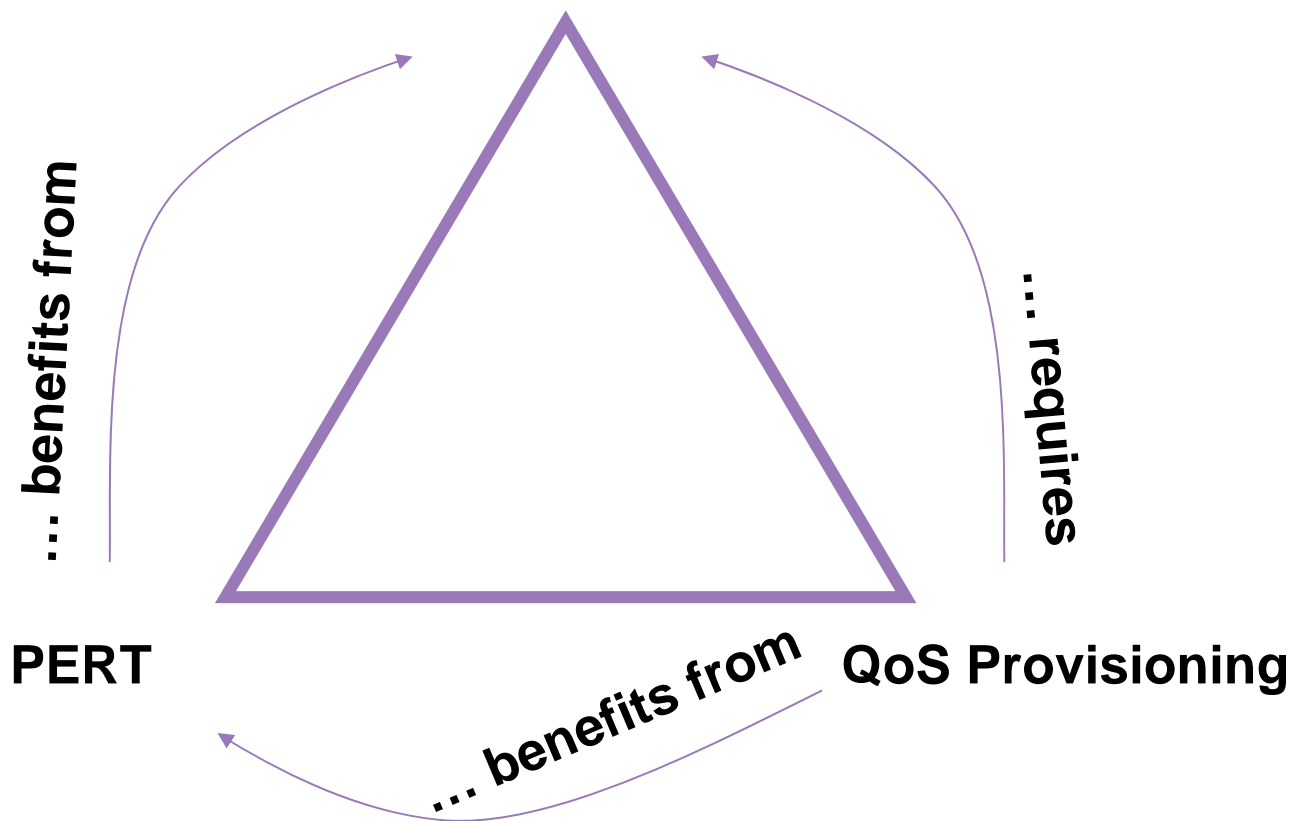
Performance and Allocated Capacity for End-users

The 3 Elements of PACE

- Network Performance Monitoring infrastructure
- Performance and Enhancement Response Team (PERT)
- QoS Provisioning

The PACE Triangle

Performance Monitoring Systems



Performance Monitoring

- SA3 WI-07 'Evaluate & Initial Deployment of Performance Monitoring Equipment' - DFN
- SA3 and JRA1 agreed to select jointly a set of preferred tools, which SA3 would deploy operationally and JRA1 would use for development and testing
- Preferred tools selected
 - DFN-IPPM for delay measurements (OWD, OWDV)
 - iperf/bwctl (plus SUNET developed front end) for AB (Achievable Bandwidth) measurements
 - [For passive monitoring, SCAMPI being evaluated]

Performance Monitoring

- 4 DFN-IPPM devices (part of GN1 pilot scheme) and 2 bwctl servers already deployed and operating in GEANT
- SA3 waiting until new GN2 PoPs are confirmed before ordering new equipment (10-14 devices)

PERT – Performance Cases

- Pilot phase ended, “production” started 1 Apr 2005
- Issues: customer contact, measurements, CM work
- Currently active issues:
 - Throughput issue with some eVLBI sites
 - Asymmetric throughput between ESTEC and ESRIN
 - [Weird delays in IPPM graphs]
- PERT work can be followed on PERT Diary
 - <http://diary.pert.switch.ch/>
 - Case discussions on pert-discuss@geant2.net list
- Looking for “Subject Matter Experts” (SMEs) – contact us!

PERT - Tools

Pilot Tools installed by DANTE/SWITCH

- Pilot PERT Tracker (Roundup)
- Pilot PERT Knowledge Base (TWiki)
- Pilot PERT Diary (TWiki)

Production Systems developed by PSNC

- Prototype PERT Ticket System (PTS)
- Prototype PERT Website
- New Knowledge Base under development

PERT Documentation

- PERT Knowledge Base TWiki - <http://kb.pert.switch.ch/>
 - Starting to get useful
 - More input from experts (you!) always welcome
 - Just register in the TWiki and add/correct away!
- Meta-documentation such as PERT Policy etc.

Coming soon:

- PERT Web Site

QoS Provisioning

- Building on the work of project SEQUIN
- SA3 WI-09 'Develop Policy for the Allocation of Premium IP' – GRNET
- SA3 WI-10 'Develop Provisioning System' - DANTE

WI-09: Develop Policy for the Allocation of PIP

- Project deliverable 'Policy for the Allocation of Premium IP' complete and available on GN2 website
- Notable points
 - Individual networks are responsible for approving specific PIP requests, but guidelines given as to what users should be allowed what
 - The policy distinguishes between the early phases of the GN2 PIP service (when service guarantees are limited) and later phases, when enhancements to the Provisioning System and monitoring systems mean more accurate SLAs can be offered
- No further significant work planned (Work Item complete)

WI-10: Develop Provisioning System

- The Provisioning System (one per participating network) will receive, check and rule on individual requests for use of Premium IP, in order to ensure that the total amount of PIP across any given network link does not exceed some pre-defined figure (typically 30%)
- The PS software will be offered to all networks which wish to participate in the PIP service, but its use is not obligatory. Other systems may be used, as long as they respect the defined PS interfaces

WI-10: Develop Provisioning System

- Development behind schedule
 - Initial target date 1 Jun 05
 - Expected date approx 1 Sep 05
- Initial system to be very basic
 - Simple routing assumed (no multi-homing of networks)
 - All router configuration preformed manually by NOC staff (not automatically by PS)

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Questions?