Enabling Grids for E-science in Europe

www.eu-egee.org

Cork meeting, 19-22 April 2004

Network Resources Provision

Jean-Paul Gautier
SA2 manager

EGEE is a project funded by the European Union under contract IST-2003-508833

Contents

Enabling Grids for E-science in Europe

- Objectives and approach
- Organisation
- Milestones/Delivrables

EGEE Activities

Enabling Grids for E-science in Europe

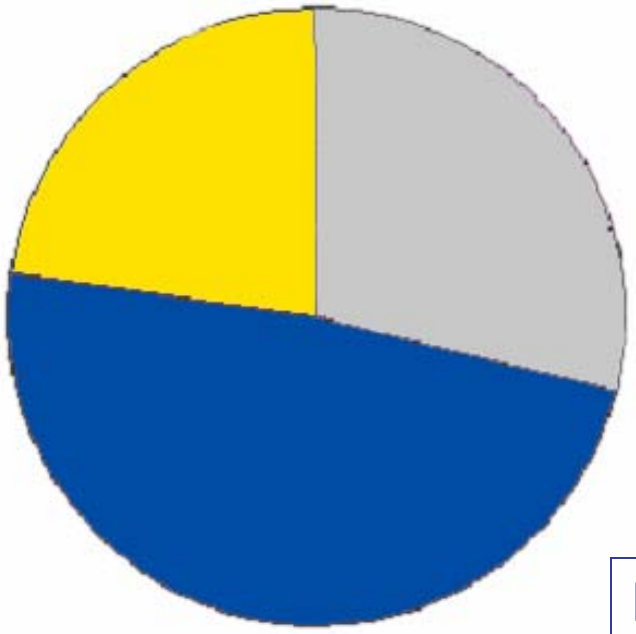
24% Joint Research

JRA1: Middleware Engineering and Integration

JRA2: Quality Assurance

JRA3: Security

JRA4: Network Services Development



28% Networking

NA1: Management

NA2: Dissemination and Outreach

NA3: User Training and Education

NA4: Application Identification and Support

NA5: Policy and International Cooperation

48% Services

SA1: Grid Operations, Support and Management

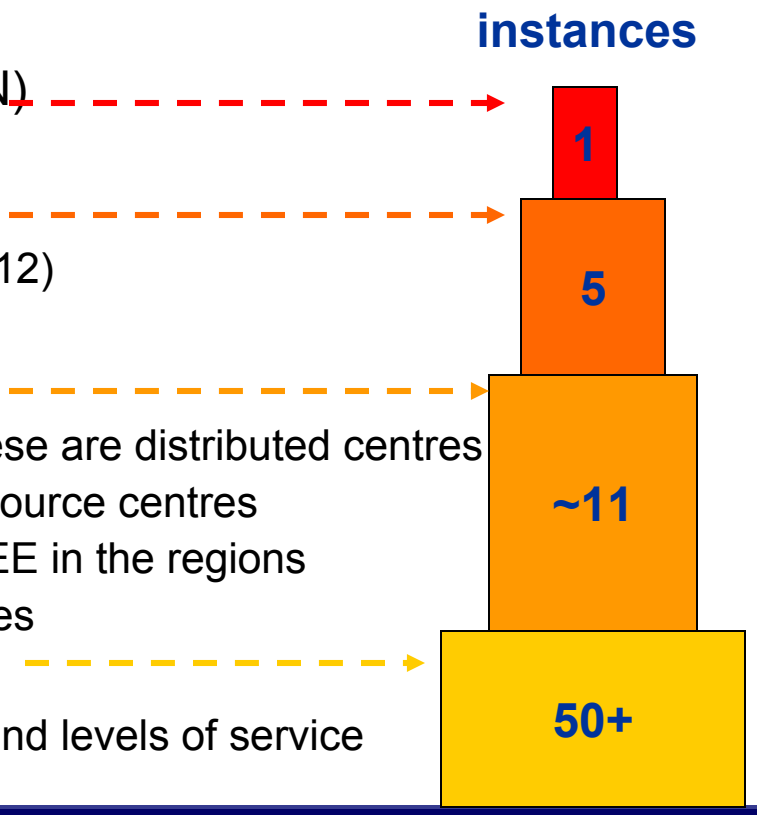
SA2: Network Resource Provision (1%)

Emphasis in EGEE is on operating a production grid and supporting the end-users

Operations Structure (SA1)

Enabling Grids for E-science in Europe

- **Implement the objectives to provide**
  - Access to resources
  - Operation of EGEE as a reliable service
  - Deploy new middleware and resources
  - Support resource providers and users
- **With a clear layered structure**
  - **Operations Management Centre** (CERN)
    - Overall grid operations coordination
  - **Core Infrastructure Centres**
    - CERN, France, Italy, UK, Russia (from M12)
    - Operate core grid services
  - **Regional Operations Centres**
    - One in each federation, in some cases these are distributed centres
    - Provide front-line support to users and resource centres
    - Support new resource centres joining EGEE in the regions
    - Support deployment to the resource centres
  - **Resource Centres**
    - Many in each federation of varying sizes and levels of service
    - Not funded by EGEE directly



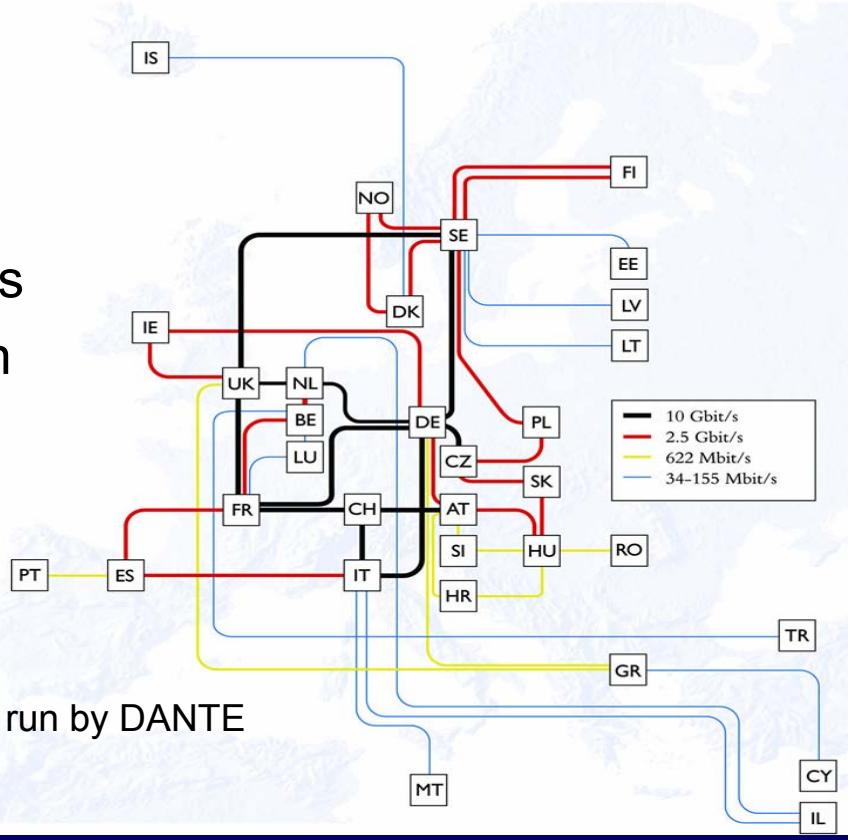
SA2: Network Resource Provision Goals, Objectives and Approach

Enabling Grids for E-science in Europe

- **Ensures EGEE access to network services provided by GEANT and the NRENs to link users, resources and operational management**

  Do this by managing the relationship between EGEE and GEANT

- Tasks
  - Definition of requirements
  - Specification of services
  - Definition of network access policies
  - Monitoring of service level provision



GEANT High-speed pan-European backbone linking NRENs run by DANTE
NRENs National Research and Educational Networks
DANTE Not-for-profit company that manages GEANT

SA2 Approach : Network services

Enabling Grids for E-science in Europe

- Definition through standard modelling process :
  - Filling of SLRs (Service Level Request) by end users and applications
    - Ex : Bandwith allocation
      - Flow classification, MPLS VPN (L2, L3), GMPLS, Lightpath.
  - Definition of SLSs (Service Level Specification) by SA2, to be implemented by GEANT and the NRENs, in conjunction with JRA4 activity
  - Signature of SLAs (Service Level Agreement)
    - Client : Operations, Applications, Virtual Organizations ?
    - GEANT/NRENs

SA2 Approach : Operational Interface

Enabling Grids for E-science in Europe

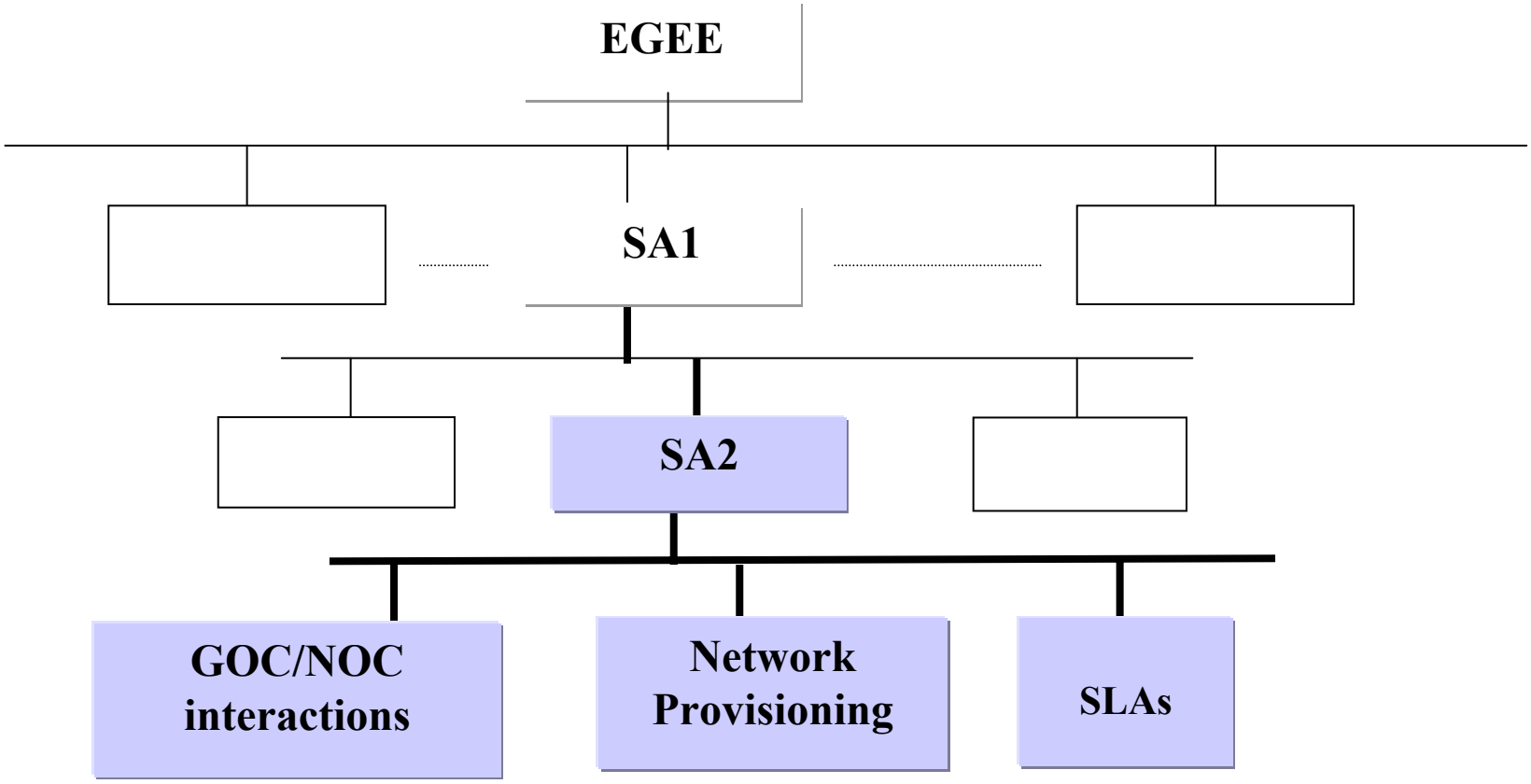
- Network Operation Centre (NOC) operational procedure study on GEANT and NRENS
  - To select NRENs
    - In EGEE : GARR, DFN, GRNET, CESNET,
    - Outside EGEE : SURFNET, RENATER, UKERNA ...
- Incremental integration with EGEE GOCs
  - Trouble Ticket systems study.
  - Define interfaces.
    - Homogenous system at the EGEE level.

SA2 Approach

Enabling Grids for E-science in Europe

- Outside the scope of EGEE to provide connections for any user or resource site
  - Sites must have adequate bandwidth & performance to join the production grid facility.
  - EGEE can help a particular site to improve its connectivity.
- Go beyond existing best effort IP service to meet the needs of a production level grid network.
- Network provision can itself be view as a class of Grid resource.

Product breakdown structure



- CERN
- Central Europe (Austria, Czech Republic, Hungary, Poland, Slovakia, Slovenia)
- France
- Germany and Switzerland
- Ireland and UK
- Italy
- Northern Europe (Belgium, Denmark, Estonia, Finland, The Netherlands, Norway, Sweden)
- Russia
- South-East Europe (Bulgaria, Cyprus, Greece, Israel, Romania)
- South-West Europe (Portugal, Spain)

Applications (NA4)

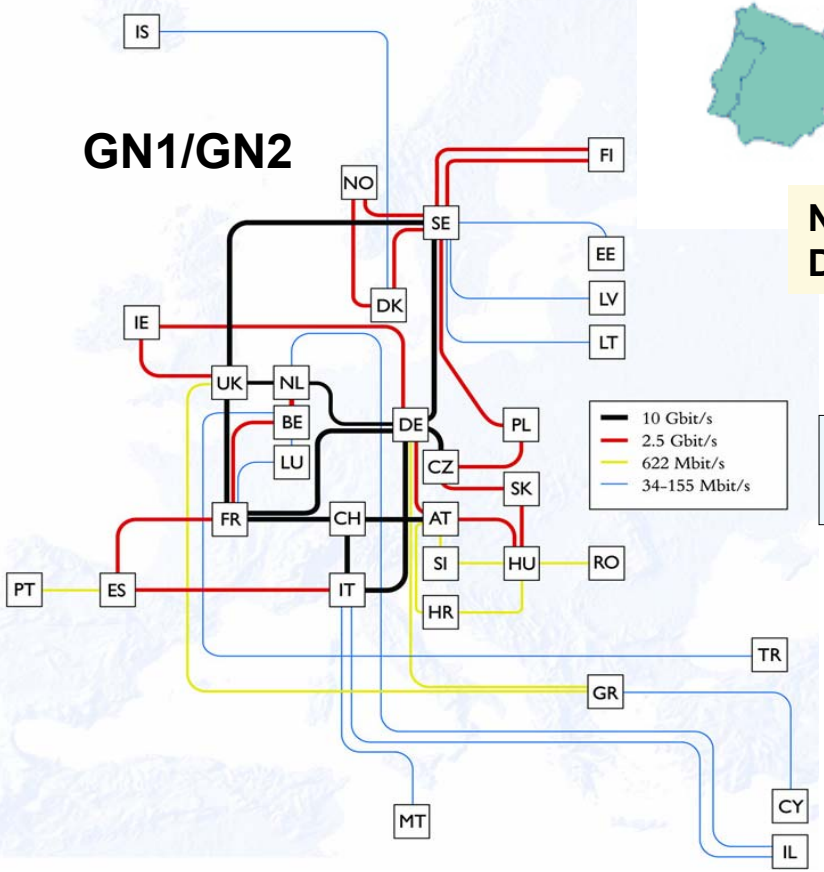
Operations (SA1)

Network Services Development (JRA4)

Network Resource Provision (SA2)

- **Collection of requirements**
- **Specification of services**
- **Network access policies**
- **Monitoring of SLA adherence**

GN1/GN2



DANTE

GEANT NOC

NREN

NRENs NOC

SA2 Team

Enabling Grids for E-science in Europe

UREC will manage SA2 and oversee both SA2 and JRA4 activities, and will be responsible for DANTE and the NRENs liaison

Participant	Description of Role	FTE (EU funded + unfunded)
CNRS/UREC	Network Co-ordinator overseeing both service (SA2) and research activities (JRA4); responsible for DANTE and the NRENs liaison. Network resource provision requirements SLR/SLS/SLA definitions Operational model	Jean-Paul Gautier Mathieu Goutelle
RCC KI	Network resource provision requirements SLR/SLS/SLA definitions Operational interface between RDIG, Russian network providers and EGEE.	Sergei Teryaev X
GRNET	Network resource provision requirements SLR/SLS/SLA definitions	Afrodite Sevasti

SA2 Milestones and deliverables

Enabling Grids for E-science in Europe

PM	Deliverable or Milestone	Item
M3	**Milestone** MSA2.1	First meeting of EGEE-GEANT/NRENS Liaison Board
M6	**Deliverable** DSA2.1	Survey of pilot application requirements on networks, initial SLRs and service classes.
M9	**Milestone** MSA2.2	Initial requirements aggregation model, specification of services as SLSs on the networks,
M12	**Milestone** MSA2.3	Operational interface between EGEE and GEANT/NRENs.
M12	**Deliverable** DSA2.2	Institution of SLAs and appropriate policies.
M24	**Deliverable** DSA2.3	Revised SLAs and policies.