



Enabling Grids for E-science

# EGEE III SA2

## Advanced Network Services

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[www.eu-egee.org](http://www.eu-egee.org)



- **Work in EGEE II**
- **Work in EGEE III**



Enabling Grids for E-science

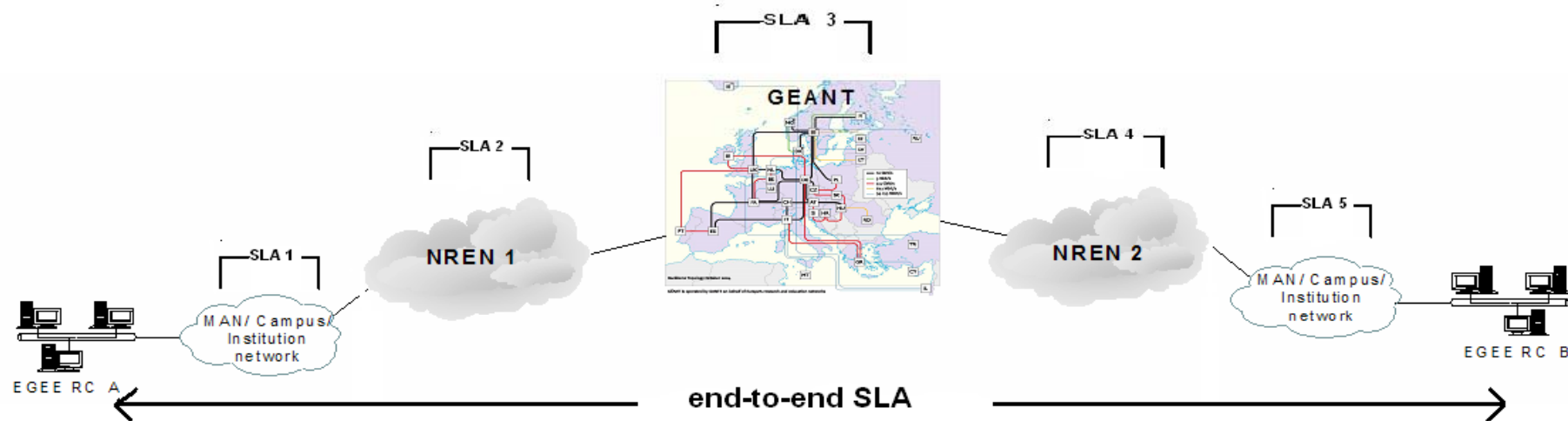
# Work in EGEE II

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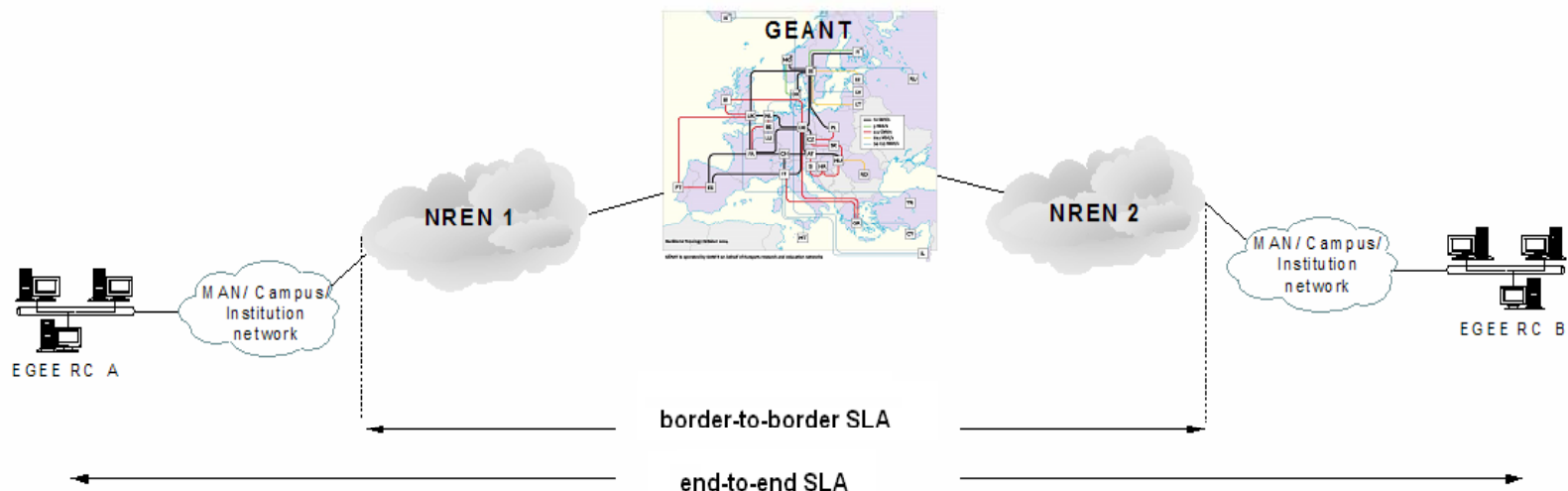
- **e2e Network SLAs**
- **SLA establishment procedure**
- **A GRID test**

- Defined network SLAs for e2e paths between EGEE Resource Centres
- Network SLAs provide technical and administrative details to perform:
  - Maintenance, Monitoring, Troubleshooting
- Synthesis of end-to-end SLA based on individual domain SLAs



- **ALO (Administrative Level Object)**
  - Contacts
  - Duration
  - Availability
  - Response times
  - Fault handling procedures
- **SLO (Service Level Object)**
  - Service instance scope
  - Flow description
  - Performance guarantees
  - Policy profile
  - Excess traffic treatment
  - Monitoring infrastructure
  - Reliability guarantees: max downtime (MDT), time to repair (TTR)

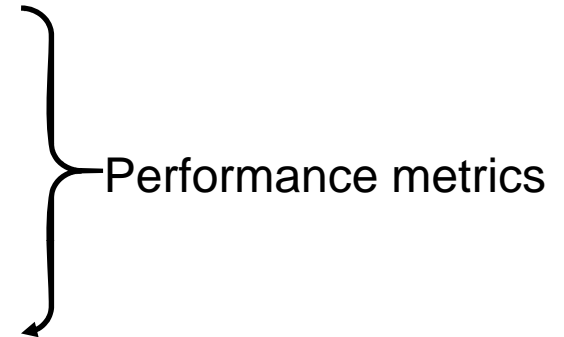
- **Stage 1: In the Service Reservation (SR) stage:**
  - Service reservation in extended QoS network
  - border-to-border SLA (GEANT/NRENs SLAs)
  
- **Stage 2: In the Service Activation (SA) stage :**
  - Configuration of the routers in the last mile network
  - end-to-end SLA (b2b SLA + NREN client domains' SLAs)



- **A Grid application scenario from the GRIDCC project was realized to test the SLA establishment and monitoring procedures**
- **Scenario targeted at remote control of grid instruments**
- **The assessment of this work was presented in the EGEEII DSA2.2.**



- **Automatic service reservation through AMPS (Advanced Multi-Domain Provisioning System)**
- **Manual SLA gathering from involved domains**
- **SLA monitoring:**
  - e2e Metrics:
    - OWD (One Way Delay)
    - RTT (Round Trip Time)
    - Packet Loss
    - Bandwidth
  - Monitoring procedure
    - Frequent e2e monitoring of performance metrics (e.g. every 10') in agreed service availability period
    - Measurements gathered in RRD diagrams
    - Checking of RRD (Round Robin Database) diagrams for metric violation



# Work in EGEE III

- **SLA automation through GEANT2/AMPS (Advanced Multi-Domain Provisioning System)**
- **Pose of SLA Monitoring Requirements**
- **Web interface for SLA service usage**
- **Categorization of GRID application requirements**
- **Evaluation of SLA in GRID applications (projects)**
- **Time Table of the work**
- **Dissemination Work**

- The SLA establishment procedure in the EGEEII tests was not so effective due to the lack of automated mechanisms
- SLA mechanisms are being implemented in AMPS in a multi-domain environment
  - Use these mechanisms to make the SLA procedure more automatic
  - Integrate EGEE SA2 SLA with SLA module of AMPS
  - In case AMPS is not available in all domains in e2e path
    - Merge SLA of AMPS with individual per domain SLAs

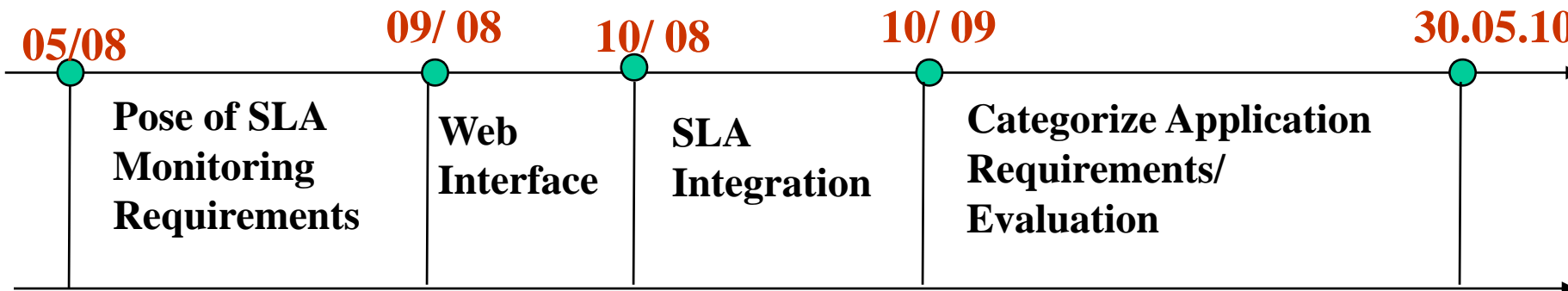
- **SLA monitoring in EGEE 2 through the perfSONAR**
- **Lack of triggering mechanisms to automate the procedure and generate alarms**
- **Collaborate with GN2/JRA1 people to provide monitoring requirements needed for mechanisms to:**
  - Set thresholds on metrics
  - Generate violation alarms

- **Creation of a web interface for SLA service usage**
- **Description of SLA service**
  - Procedure
  - Metrics
  - Links to AMPS interfaces for automatic reservation

- **Collaborations with various projects**
  - Clermont (User Forum)
- **Interest for SLA service**
- **Categorize their requirements for SLA metrics**

- **Collaboration with other projects**
- **Test of SLA service in project applications**
- **SLA evaluation for different application scenarios**





- **Past dissemination work in EGEEII**
  - EGEE '07 session “what the network can do for you?”
  - EGEE User Forum '08, Clermont
- **Future dissemination work in EGEEIII**
  - Advertise to projects what the network can offer to their applications
  - Web page with SLA description in EGEE SA2 site
  - Participation in relative conferences

