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SLR, SLS and SLA issues

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Introduction

- Network resources are equally as important in the EGEE large-scale Grid

- They are the means to connect the providers of computing storage,instrumentation and application resources with user Vos

- SA2 will devise the methodology for modelling, operating and monitoring the provisioning of network resources

- It will provide the means for formal communication between users, application and network providers

SLRs in EGEE

- Service Level Requirements
- SLRs: Formulation of requirements from the network resource for each user VO and application provider within EGEE
- Requirements in terms of:
  - Bandwidth
  - Service end-points
  - Duration
  - Scheduling
  - Quality of service
  - Differentiation
  - Prioritization
  - Availability monitoring
  - Others?

SLSs in EGEE

- Service Level Specifications
- Technical specifications of the network resources provided
- Have to be detailed and tailored to each specific technology used to provide network services
- SLSs are the essential mechanisms for configuring, delivering, guaranteeing and evaluating network services in terms of QoS, availability
- It is critical to make sure that requirements stemming from SLRs can be mapped into SLS terms
- A chain or hierarchy of SLSs might be needed to cover multiple administrative domains
- Multi-point SLSs must be provided for

Premium IP SLS

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- Scope
- Flow description
- Performance guarantees
  - OWD, IPDV,OWPL, MTU, Available bandwidth
- Traffic Envelope and Traffic Conformance
  - Conformance to a shape and a limit of throughput/capacity
  - Conformance algorithm
  - Conformance parameters
- Excess treatment, service schedule, reliability

In the future: Lightpath SLSs

- Provisioning of dedicated high-speed circuits using optical technologies (lambdas, SDH channels, others?) and switching principles is becoming the trend in network resources provisioning for the Grid

- For this type of network service a different SLS will have to be devised

- A lightpath SLS could include:
  - Scope (NICs where lightpath initiates and terminates)
  - Bit Rate
  - BER
  - SES, ES
  - More ?

SLAs

- Service Level Agreement

- Operational, administrative and legal issues

- Defines the procedures and framework for the provision of the service that the SLA is established for

- Specifies:
  - Administrative and technical parties involved in network service provisioning
  - SLA duration
  - SLA availability guarantees
  - Monitoring procedures
  - Response times by the provider in cases of client requests for adjustment of the SLA
  - Fault handling-trouble ticket procedures
  - Quality and performance of support and helpdesk

SLAs (more)

- SLAs have to cover all interactions between two entities, e.g. an NREN and a user VO

- It is important to hide all the details and different levels of network resources provisioning from user VOs and application providers

- A hierarchy of SLAs between GEANT, NREN and last-mile network providers is necessary

- SLAs will provision for SLRs and will contain the SLSs necessary

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The challenges

- Provide a useful functional model

- Ease interaction, troubleshooting, monitoring

- Delegate responsibilities

- Cascading failures should be anticipated for

- Policies for resource allocation

- Reporting

- Adaptability and backward compatibility to new network services and requirements

- Provide an abstraction of the network service provided to users hiding technical details

- Efficient way to map requirements to specifications and agreements