



Enabling Grids for E-scienceE

EGEE III/SA2: Advanced Network Services

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www.eu-egee.org



- **Advanced Network Services (ANS) & SLAs**
- **Application of ANS to a Use Case Scenario**
- **Procedure and used tools for Use Case Scenario**
- **Dissemination work**
- **Future steps**

- **Interface between the EGEE infrastructure, the NRENs and GÉANT**
- **Offering e2e SLAs for network paths crossing different administrative domains (NRENs, GEANT, campuses)**
- **Search of applications interested in network SLAs**
- **Foster the adoption and use of Advanced Network Services (ANS)**
 - AMPS
 - AUTOBAHN
 - ...

- **Study of ways to provide advanced network services (e.g. AMPS, AutoBAHN...)**
- **Public web site at: <http://technical.eu-egee.org/index.php?id=352>**
 - **Publishes Advanced Network Services**
 - **Provides info to request SLAs for network reservations**



Advanced services

End-to-end **Network Service Level agreements** (SLAs) are a recent development and were not previously an operational reality. SLAs with the network providers enable EGEE users to use services for their applications in a more effective and reliable way. The benefit of using an SLA for an application is that a "contract" can be provided to the application users for the offered level of Quality of Service (QoS) and procedures, described in this "contract", will be followed to enforce this level of QoS.

In EGEE-II, an SLA establishment and monitoring procedure was described in [DSA2.1](#) and tested through a grid application scenario taken from the [GRIDCC project](#) (Grid enabled Remote Instrumentation with Distributed Control and Computation) which was targeted to perform remote control and monitoring of instrument elements distributed across the grid. The experiments, the results and the assessment of this work was described in [DSA2.2](#).

For EGEE-III and regarding the new advanced network services the focus will be:

- ➔ On the automation of SLA handling
- ➔ on the categorization of Grid application requirements and
- ➔ on the evaluation of Grid SLAs.

If you are interested in SLA do not hesitate to [contact us](#) about.

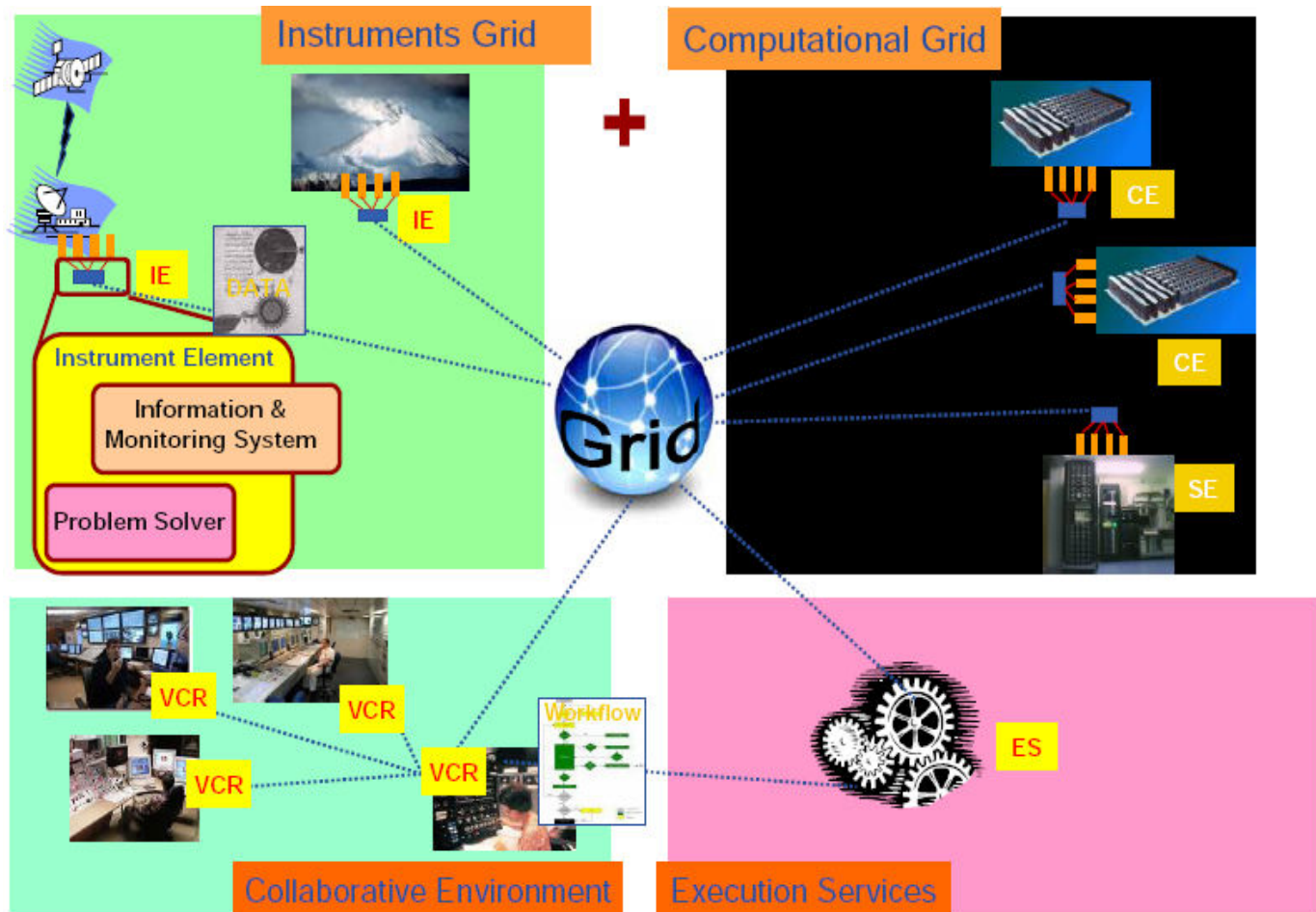


- Offer end-to-end SLAs in operational level
- Enforce level of service for applications requiring stringent QoS
- Applications
 - Remote control of scientific equipment (stringent delay)
 - Bulk Data transfers (stringent BW)
 - ...

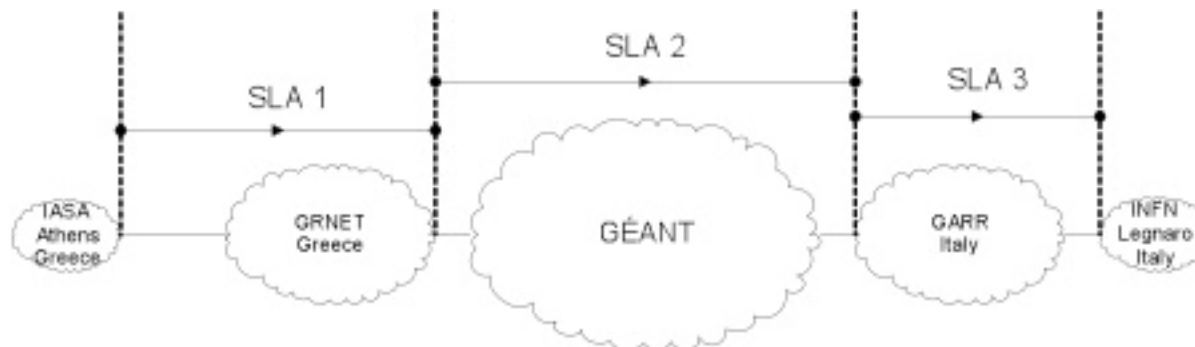
- Application from GRIDCC project
- Real time remote control of instruments distributed across the Grid

- Transfer of data produced from the instruments to processing grid nodes

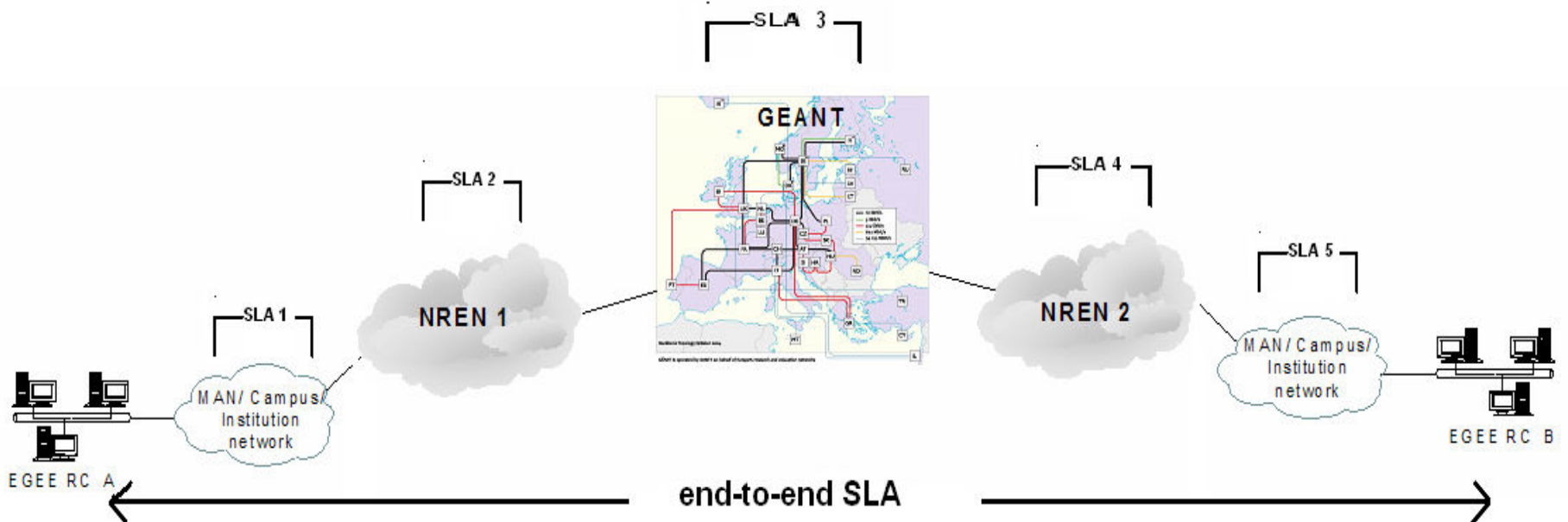
- Stringent delay and BW requirements



- Remote control of instruments located in Legnaro (GARR) and transfer of produced data to a storage node in IASA (GRNET)
- E2e path between INFN and IASA:
INFN-GARR-GEANT-GRNET-IASA

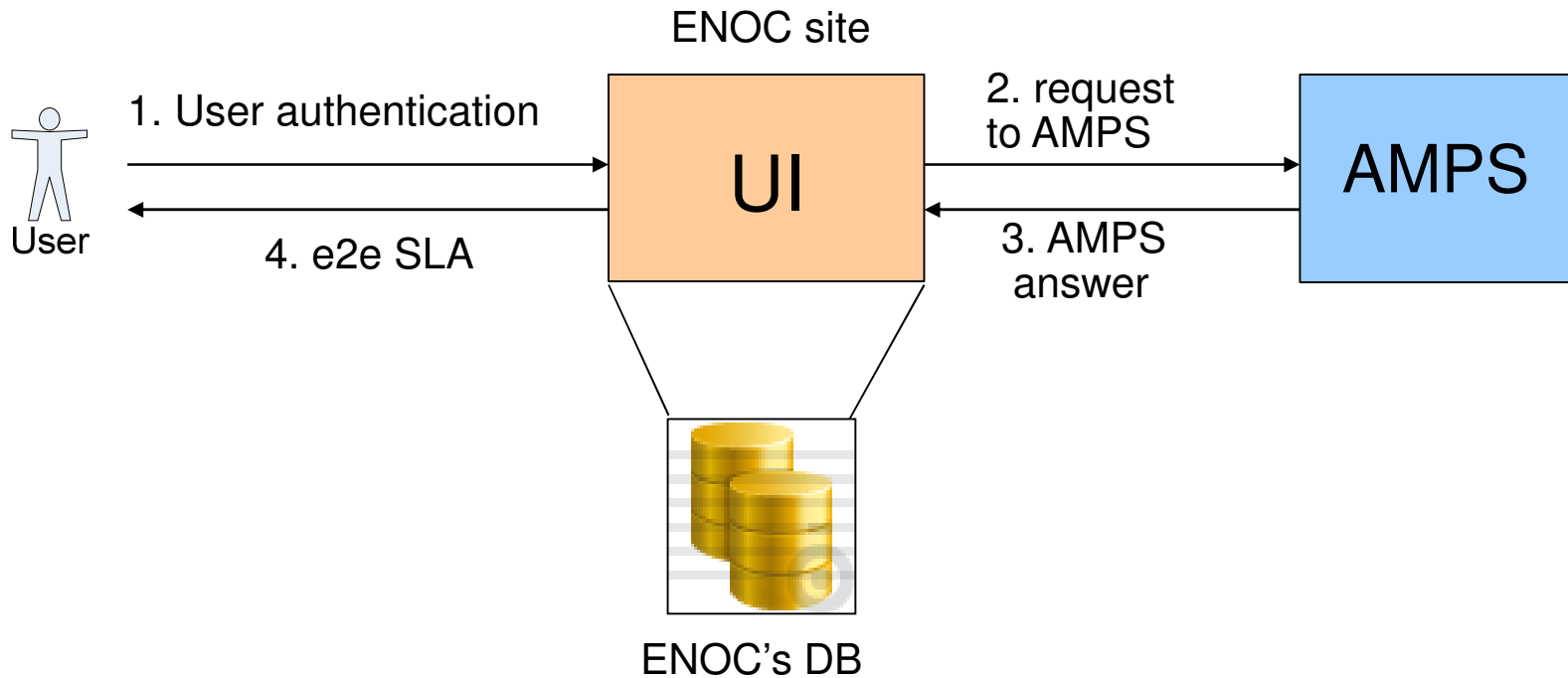


- Follow network SLA establishment and monitoring procedures for e2e paths between grid RCs (EGEE II-DSA2.1: Network Service Level Agreement (SLA) Implementation)
- Provision of e2e SLA from merging of per-domain SLAs



- **Use of AMPS (Advanced Multi-domain Provisioning System) to facilitate SLA establishment by their automation tool**
- **Development of User Interface (UI)**
 - Store and manage the EGEE users' SLA requests

- **Useful for EGEE users to have only one UI to deal with multiple Advanced Network Services (AMPS, AutoBAHN...).**
- **EGEE UI allows EGEE users to make reservations for multiple advanced network services (ANS) (AMPS, AutoBAHN etc).**
- **Contains 2 parts: user and admin**
 - **User part: Form that the user will fill in his data and request an SLA**
 - **Admin part: Gathers user data, stores it to ENOC's DB and can manage it in order to forward it to reservation tools**



1. EGEE user logs in to ENOC site and makes his SLA request by filling in the corresponding form.
2. ENOC will act on behalf of the user, so the user request will be stored to the ENOC and then the ENOC admin will authenticate to the AMPS system with the credentials of the ENOC and will submit the user request.
3. If request accepted an e2e SLA will be returned.

Welcome, to the EGEE reservation site!

In this site you can submit your reservation request by clicking the reservation tab and filling in the requested fields.

New Reservation

[\[Reservation List\]](#) [\[Manage Reservation\]](#)

Fields with * are required.

User Id

Source Ip *

Dest Ip *

Start Date *

End Date *

Bandwidth * Mbps

Managing Reservation

[\[Reservation List\]](#) [\[New Reservation\]](#)

Id	User Id	Service Id	Source Ip	Dest Ip	Start Date	End Date	Status	Actions
5		0	195.251.54.7	62.40.126.10	15/05/2009	15/12/2009	0	Update Delete



The ENOC admin contacts AMPS UI where he is able to fill in the user's request, wait for the request to be accepted/rejected and if accepted return the SLA.



Home Reservation NIS Pathfinder

Create AMPS home > Reservation > Create

Query

Cancel **Reservation page**

User's Group

Source Address *

Destination Address *

Start Date *

Start Time

End Date *

End Time

Direction

Ingress [What's this?](#)

Bandwidth *



Home Reservation NIS Pathfinder

Create AMPS home > Reservation > Query

Query

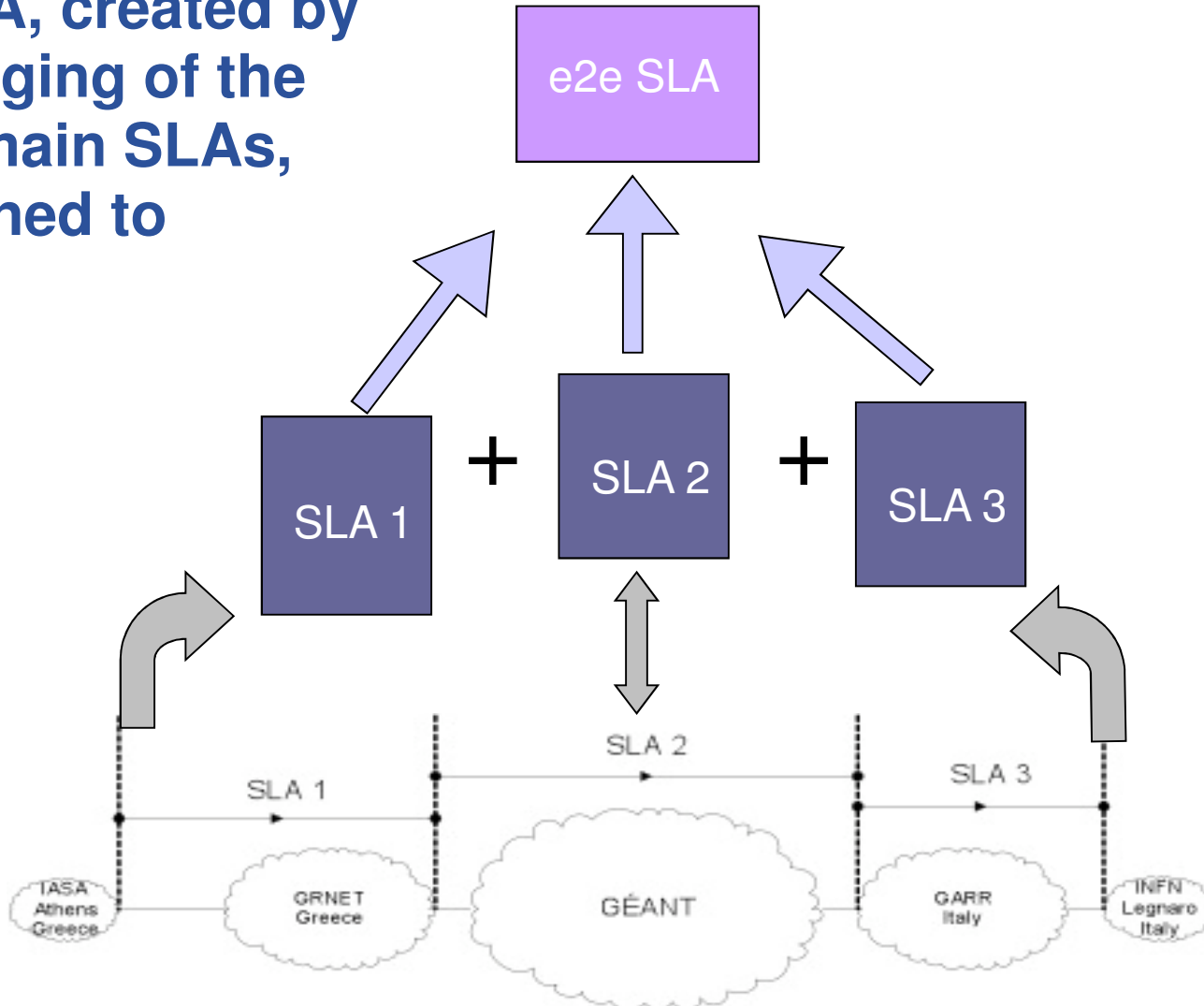
Cancel **Querying success**

Your service's reservation is ACTIVE

Your service ID is: s64@amps.geant2.net
 Your transaction ID is: unknown
 User's group is: unknown group

Message is:
 Source Addresses are: 195.251.54.1
 Destination Addresses are: 62.40.126.10
 Ingress is:
 Reservation starts: 02/11/2009 00:00
 Reservation ends: 30/11/2009 23:59
 Bandwidth is: 100.0 Mb/s

E2e SLA, created by the merging of the per domain SLAs, is returned to the End User.



- **Work on testing the e2e SLA establishment and monitoring procedures through a remote control application scenario**
 - **Included in EGEE II-DSA2.2: Assessment of the network SLAs in EGEE II**
 - **Submitted in Journal of Grid Computing**

Inform projects and people about advanced network services

- **EGEE User Forum**
- **EGEE conferences (e.g. EGEE07, EGEE08)**
- **Participation in OGF**
- **Participation in QoS&SLA WG of ECSS (European Community for Software & Software & Services)**
 - **Outcome: whitepaper with SLA work of participating projects, including EGEE**

- **Continue in disseminating to projects what the network can offer to their applications.**
- **Continue collaboration with other projects to find applications that need network SLAs.**
- **Study of new advanced network services (usefulness for EGEE, availability, deployment, standards etc) - AUTOBAHN, FEDERICA**
- **Extend participation in relevant WGs and technical organizations (e.g. OGF, QoS&SLA WG of ECSS...)**

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DEMO LATER!

