M10-M24 overview of Network Resource Provision activity (SA2)

All Activity Meeting

2005-03-11

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Guidelines

- **From the Technical Annex and the Network realities**
  - Network provision must itself be viewed as a class of Grid resource
    - As CE and SE,
    - Implies a network service resource provisioning architecture.
  - This resource is highly dependent of the network services provided by the NRENs.
    - Current services: Premium IP, Best Effort
  - To be aware of the future GN2 services which are in the process of definition
    - GN2 project started 6 months later than EGEE.
  - Network Activities work in a long term perspective
    - Most of the tasks started from scratch: SLA, TTS integration, NPM, BAR.
    - Except the WP7 monitoring tools

SA2 team

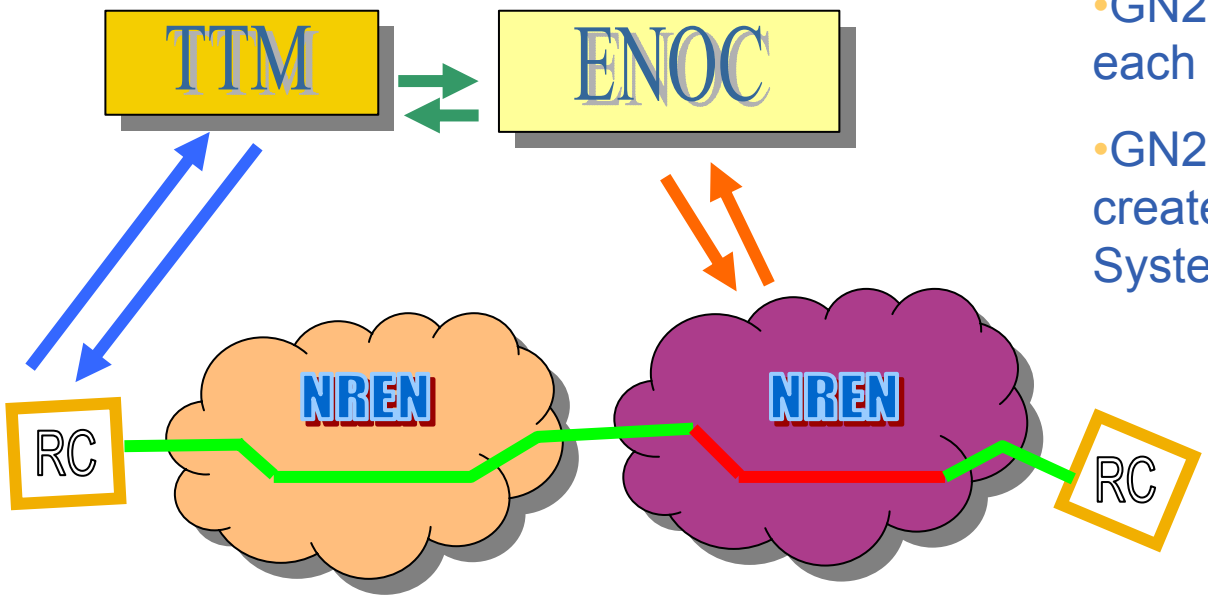
Collaborator name	Partner	Function	FTE	Since
Jean-Paul Gautier	CNRS	SA2 Manager	1	01/04/2004
Mathieu Goutelle	CNRS		1	15/05/2004
Afrodite Sevasti	Grnet		0,25	01/04/2004
Mikhail Boyarsky	RCC KI	RCC KI coordinator	0,5	09/06/2004
Veniamin Konoplev	RCC KI		0,5	09/06/2004
Alexander Ilin	RCC KI		0,25	09/06/2004
Anton Korotin	RCC KI		0,25	09/06/2004
Anton Teslíouk	RCC KI		0,5 + *0,5*	09/08/2004
Julien Guignard	CNRS		*0,5*	01/10/2004
Total effort			**5,25**	
Total from the TA			**4,25**	

Operational Interface

- **Define interactions and operational models between EGEE and Geant/NRENs (MSA2.3 M12)**
  - SLA agreements processing, SLA monitoring,
  - Trouble Ticket system & reporting procedures.
  - To control, to organize the information flow which is coming from the NOCs and is going to the network from EGEE.
    - To have a global relevant information for the "EGEE network"
      - *For reliability assessment, the capability to provide robust services by example.*
    - Does not replace the actual interactions between a site and its NREN.
- **Network Operation Centre (NOC) operational procedure study on GEANT and NRENS**
  - Selection among a group of NRENs:
    - GARR, DFN, GRNET, PIONER, RENATER, SWITCH, JANET, SURFNET,
    - RBNet and Runnet which connect all Russian RCs.

Operational Interface (cont)

- **To have a schema approved by the partners in MSA2.3**
  - Mainly we work with the prospect of having a single user support in EGEE (GGUS by FZK) including the network and a convenient interface with GEANT/NRENs



- GN2 agrees to email a copy of each GEANT TT,
- GN2 accepts that TTM/ENOC creates a TT in PERT Ticket System (PTS)

Operational Interface (cont.)

- **To implement the operational model in order to have a mature network operational interface (M24)**
  - Integration in GGUS in 2005,
  - Organization in SA1 if needed,
  - Some selected NRENs based on voluntary participation,
  - SLA processing and monitoring.

- **EU recommendation**
  - *« Identify performance limitations of the networking part and the extent to which performance bottlenecks will be experienced in the network rather than the end systems. Make a preliminary plan to address these performance bottlenecks. »*
  - Grid operations monitor performance using monitoring tools, if and when bottlenecks become apparent then they will be signalled to the TNLC and NRENs through a procedure.

QoS experiment

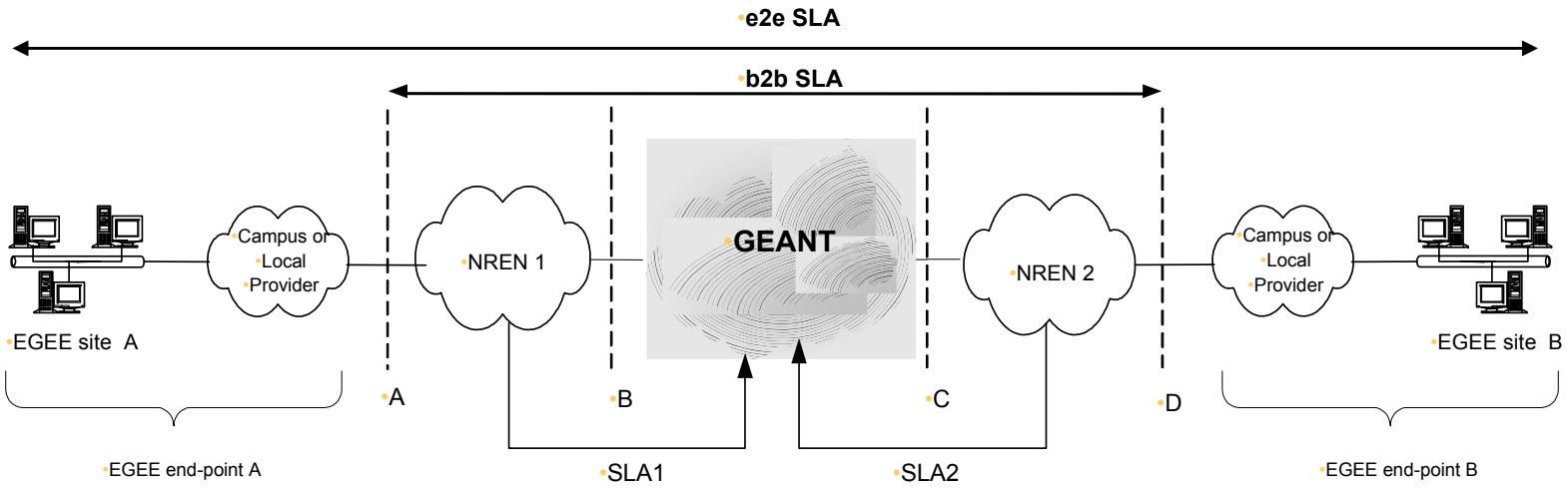
- **Not in the TA but linked to the QoS access for users & applications**
- **A real network QoS use case in EGEE:**
  - Applications: GATE, gPTM3D in a near future
  - NRENs involved: Renater, RedIris, GEANT, Grnet.
  - Aim:
    - To have a better approach for the SLAs processing,
    - To get better specifications for network requirements to the middleware (JRA4, JRA1),
    - To allow JRA4 to validate the Bandwidth and Allocation model.
- **Status:**
  - In the process of validating the experiment on a local testbed:
    - Validation of the modification of the middleware,
    - Validation of the experimental protocol.
  - Further, test on a larger scale:
    - Firstly, in the same administrative domain (Renater),
    - Secondly, tests involving three different networks.
- **Deadline: end of M13 (april).**
  Partial reporting during the 3rd EGEE conference.

QoS Experiment

- **EU recommendation**
  - *« Specify the expected capabilities of the end-system to complement limited network adaptability to provide projected user requirements. »*
  - This recommendation is not clear for us, SA2 does not deal directly with the end system unless SA2 provides some recommendations to the applications/middleware:
    - **Capability to tag the IP packets by example.**

Institution of Service Level Agreements

- **SLAs definition**
  - Based on the previous works and the responses from EGEE and GN2 to some open issues (procedures, demarcation point…),
  - Definition in cooperation with GN2 (DSA2.2 for M12),



- **EGEE end-to-end SLA template**
  - Definition of an end-to-end SLA for each EGEE service provisioning instance will be provided based on the per-domain SLAs

Institution of Service Level Agreements

- **Implementation:**
  - Institution of SLAs between the involved parties.
  - How do SLAs fit in the operational procedures defined in MSA2.3?
    - Creation of SLAs
    - Monitoring of SLAs → Work with JRA4
    - Fault reporting and troubleshooting of SLAs → Work with SA1

- **Revised SLAs in the 2nd year of EGEE (DSA2.3 for M24)**
    - Improvement with a real implementation

- **EU recommendation**
  - *« Clarify the extent to which GEANT/NRENs can be modified to support the projected functionality. »*
  - For new services required by applications/projects which are not provided by GEANT/NRENs, theTNLC deals with this topic on an individual basis.

Network Service Provisioning Architecture

- **To define this architecture is a key issue to promote the Network as a Grid resource.**
  - Convergence between the gLite reservation and allocation architecture (JRA1) and the GN2/NRENs resource management architecture,
  - JRA1, JRA4, SA2 are bringing their competences in this task.
- **Status:**
  - GN2 is currently defining the architecture of the reservation mechanisms:
    - *Based on inter-domains SLAs,*
    - *Prototype (yet based on manual intervention) due beginning of next year.*
  - Ongoing work inside EGEE between involved activities:
    - *To converge on a agreed terminology and a common view,*
    - *To glue GN2 and gLite architectures in order to meet the application requirements.*

Network Service Provisioning Architecture

- **EU recommendation**
  - *« Even though the sophisticated network provisioning functions are beyond the scope of the current contract, ensure that decisions and actions taken in the project at present will not create conflicts and potentially undermine future requirements. »*
  - The network service provisioning architecture must be an evolutionary architecture.

Conclusion

- **No direct consequence of the EU review on SA2 tasks.**
- **For M10 to M24 the work has to be followed:**
  - To get a new class of Grid resource with network provisioning
  - To implement an Operational Interface (Milestone?)
  - To implement and improve the SLA institution (DSA2.2)
- **To provide a WBS for the M12-M24 period.**
  - A timescale for each task and the SA2 partner appointment.