An NGI Sustainability Perspective: PL-Grid case study

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Where are we?

- 03.2010 - 03.2012 PL-Grid Project to establish the PL-Grid infrastructure
- 04.2014 – 03.2019 **obligatory period in which the PL-Grid services must be maintained**
- 04.2014 – 09.2015 PLGrid+ Project – new services and improvements

Fundamental questions

General goal:

Remain the main player on the national market.

Strategic objectives:

1. Maximize scientific results supported by infrastructure in national science and research
2. Maintain user satisfaction
3. Get sustainable funding

What are the services of NGI?

1. Enable users to access efficient computational and storage Resources

Note common: HPC, grid, clouds

Non-goals:

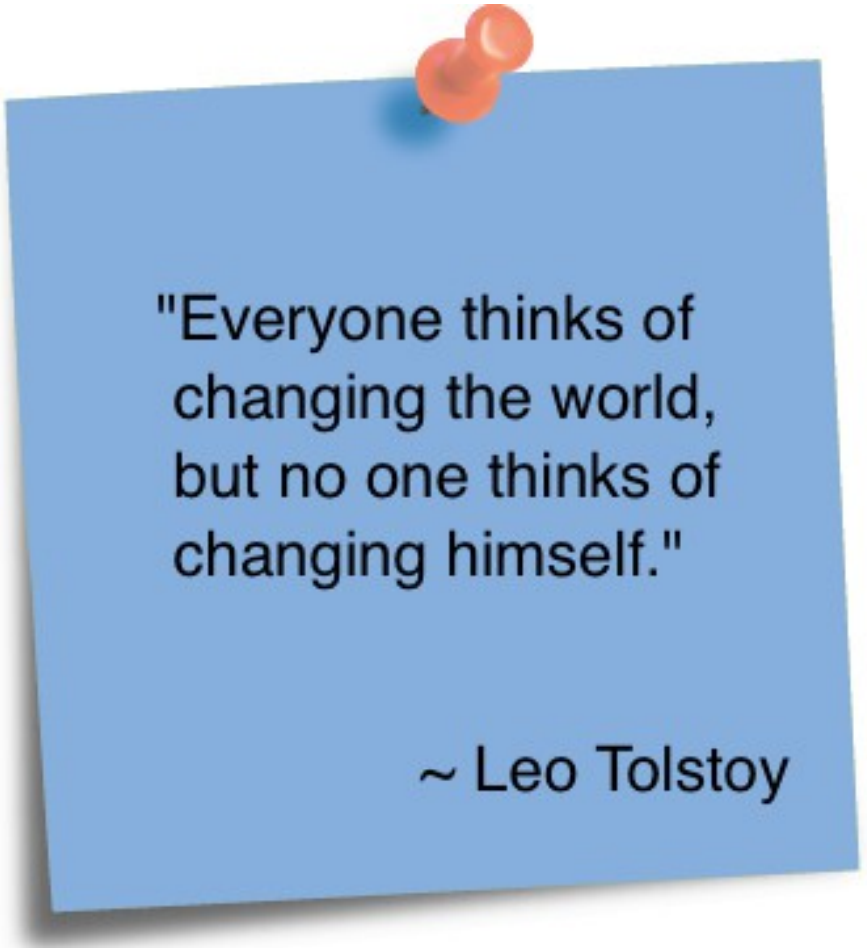
- migrate user to xxxx technology/middleware
- migrate a "local" user to a "grid" user
- keep any technology alive (if not needed needed)

What are the results of PL-Grid Project?

- All major computing centers integrated
  - Spirit of collaboration
  - Know-how shared and upgraded
- National contact point for users
- Improved mode of operations
  - Elements of SLM implemented
  - Interoperation, procedures, tools, etc.
- Improvements in policies, regulations
- >1000 users registered
- Integration with EGI
- Few technical as well ;-)

The environment analysis

- Crisis! New streams of funding not possible!
- The only (most) sustainable funding is for maintanance of computing centers
- Grid is not a buzzword anymore, but many communities still need it



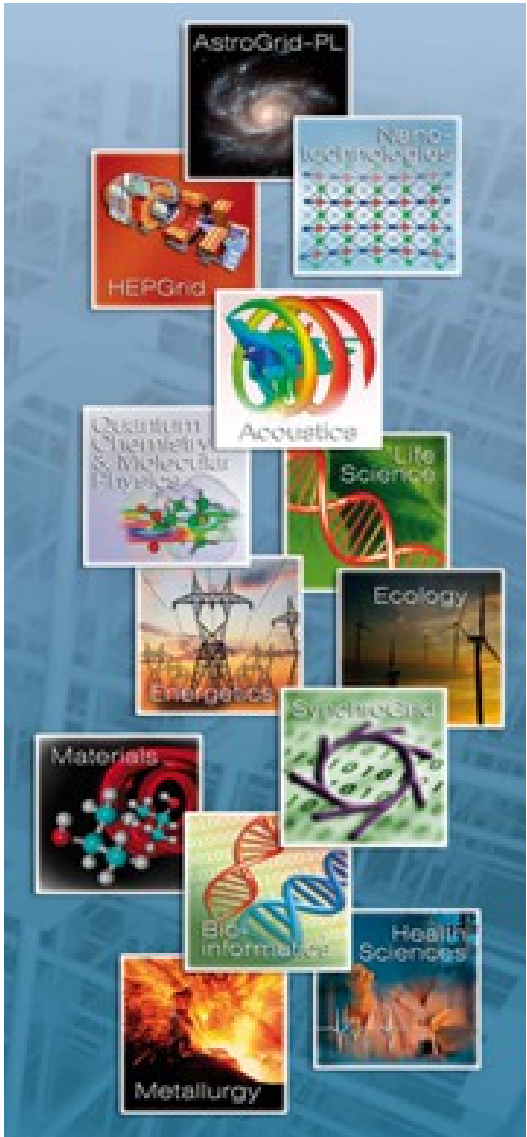
Changing ourselves: Integrate more

- Costs for adding essential NGI technical services: about 4-6FTEs, increase operational staff in centers by about 20%
  - Cost of grid and better quality, keeping trained staff, etc.
- Middleware-agnostic operation model
  - Including Service Level Agrements
  - Same pool of resources for all middlewares:
    - gLite, UNICORE, QCG, local access, *cloud*
- Encoragement for sites to integrate new resources
  - PL-Grid is careful on maintaining site autonomy on policy level
  - Sites take advantages of operations framework
  - This includes new types: like GPGPU, HPC set-up

... to remain main player on the national market

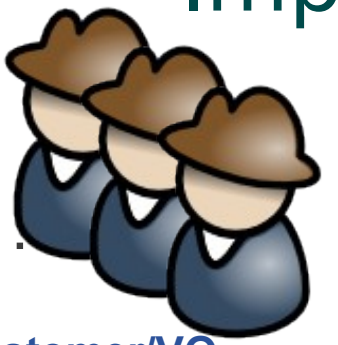
Development direction 1:
Expansion on the market

- Oportunity to build new project with commuties
- Goal: new services that will facilitate access to user groups whose needs are not covered by existing infrastructures
- Communities are funded to design and support implementation of new services for their collegues
  - Note: we do NOT fund usage
- PLGrid+ Project, 2 years, 20MEur
  - 13 domain-specific service platforms, new tools, improvements in operations, resources,
  - More on: plgrid.pl



... maximize scientific results supported by infrastructure in national science and research

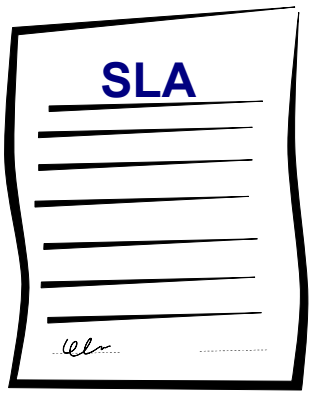
Development direction 1: Improving quality and value to users



Service Level Management is to properly manage relationships with customers (ITILv3)

Customer/VO

- VOs motivation
  - Need way to express their expectations related to resources and services they need
  - **Want to know capacity of resources allocated for them to plan experiments**



Resource/Service Providers

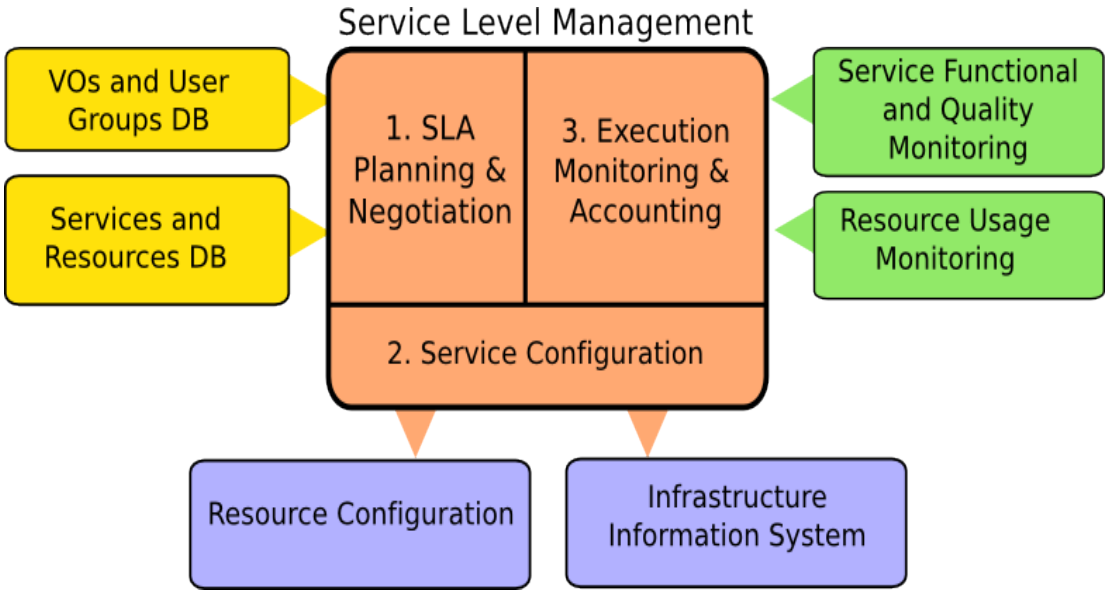
- Sites Motivation
  - remain **autonomous** in managing resource allocations for VOs
  - Need to know what are the customers expectations

PL-Grid

- NGI-PL (PLGrid) Motivation
  - **Keeps a role of single point of contact for nationals/internation VOs**
  - Coordinates and mediate in the resource allocation process

… to maintain user satisfaction

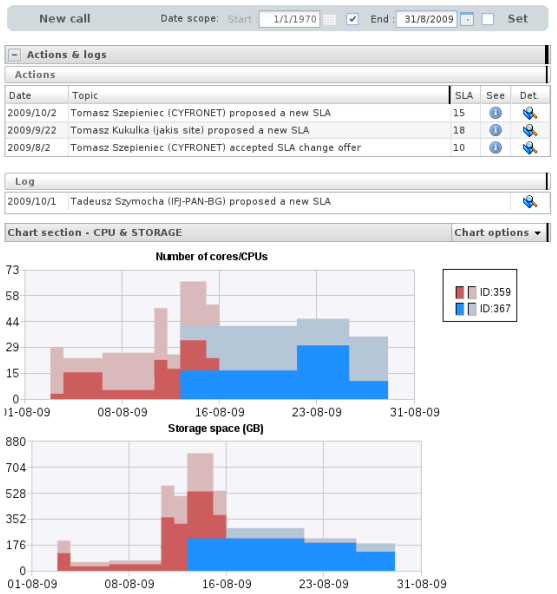
PLGrid SLA-aware operations model

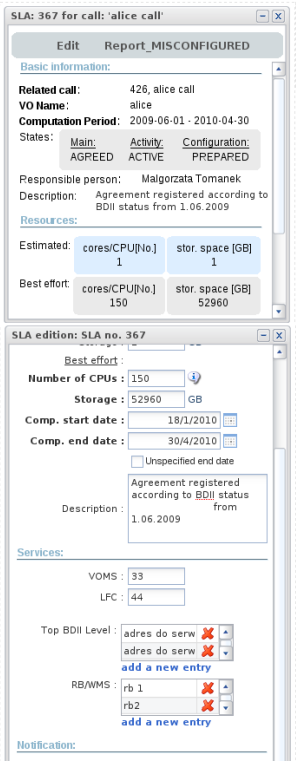


- SLA negotiation established in PL-Grid Project
- Consortium is converging in undestanding impact of SLM
- Automatic site configuration done for some set-ups
- SLA monitoring and accounting in progress

• Grid Resource Bazaar – a platform for traceable SLAs negotiations that enables efficient communication in the process; in production since June 2011

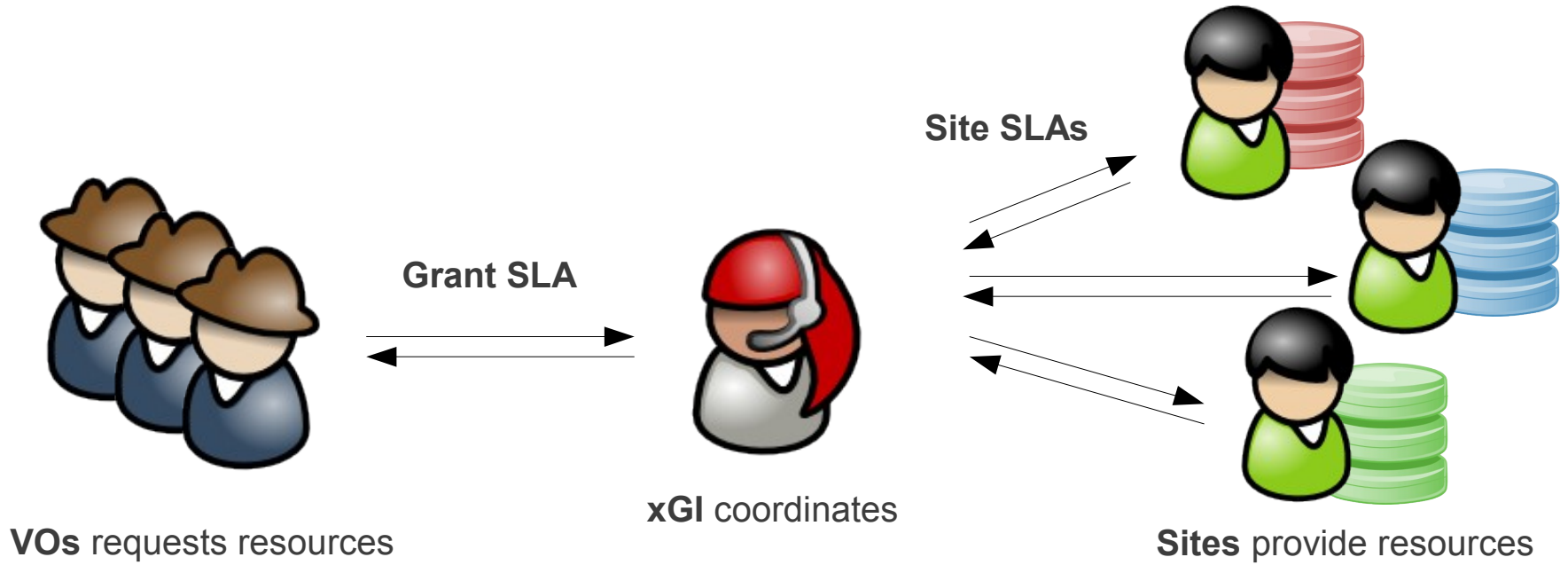
• Tools for automatic configuration of sites according to SLAs, in preparation





grid resource BAZAAR

User groups SLAs



- Currently running in non-obligatory mode:
  - users can run jobs without SLA association
  - with SLA you can have allocation in the site configuration

- Snapshot statistics:
  - 79 active GrantSLAs, 153 active SiteSLAs
  - About 15 requests monthly
  - >5000 average cores allocation
    - not including HEP
  - 59M core-hours in GrantSLAs, 67M core-hours in SiteSLAs

Support: Projects gSLM and FedSM

- Theoretical background:
  - see: http://gslm.eu/roadmap
- xGI assesment tool

- Future FedSM: not only Service Level Management
  - PLGrid is involved as a *client*

Assesment of PL-Grid SLM

gSLM Maturity Analyser v2.2
Maturity Dashboard

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gSLM Service Delivery and Service Level Management in Grid Infrastructures

SLA based Use Cases

Name	Current level
Register new VO as a "customer" of a GI	3
Request a New Service	3
Publish Service / Add to Service Catalogue	3
Negotiate and Sign SLA	3
Monitor SLA fulfillment	4
Evaluate and report on SLA fulfillment	3
Notify VO of SLA Violation	1
Early Warning Notification to GI	2

OLA based Use Cases

Name	Current Level
Register new Site as resource provider within a GI	2
Register new GI as member of a higher level GI	3
Register new service element / component to GI	2
Negotiate and Sign OLA	3
Monitor OLA fulfillment	2
Evaluate and report on OLA fulfilment	0
Notify site or lower level GI on OLA violation	1
Early Warning Notification to GI or Higher Level GI	1

Provided by the gSLM project - www.gslm.eu
Data from 'gSLM Grid infrastructure maturity level analyser 1.0 beta' and compatible surveys
The gSLM project is co-funded by the European Commission under contract number 261547

Level 0: Non existent;
Level 1: Initial / ad hoc;
Level 2: Repeatable but intuitive;
Level 3: Defined;
Level 4: Managed and measurable;
Level 5: Optimized

Federation empowers us to achieve more

Mission to find:

- New roads to people
- Improving techniqes and quality