



European Grid Initiative



The EGI Blueprint: Grid Operations and Security

Migration to the next grid operations era

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Purpose

- Overview of EGI Blueprint v.2.3 D3.1
 - <http://www.eu-egi.eu/blueprint.pdf>
 - <http://www.eu-egi.eu/functions.pdf>
- Changes from previous version
- Issues and transition

Outline

- **Players**
- **Activities: EGI.org tasks and NGL international tasks**
- **Funding**
- **EGI Operations Model**
- **Effort**
- **Issues and transition**
- **Summary**

EGI Operations and Security

Players: EGI.org

- EGI.org:
 - coordination of operations and security across countries
 - central user support
 - operation/maintenance of central operational tools and services

EGI Operations and Security

Players: NGIs

- NGIs are expected to:
 - operate secure Grid infrastructures in the countries
 - coordinate Grid operations in the countries
 - collaborate to the definition of common operational procedures, policies, standards/specifications
 - adhere to standards/specifications to ensure interoperability
 - support users and operational problems

Federation of NGIs

- Operation of the European Grid infrastructure is currently guaranteed by the Regional Operations Centres (ROCs) – one ROC for several countries (NGIs) or corresponding to a single large NGI
- Increasing push towards increasing responsibility and autonomy of the NGIs, but **federation** continues to be a viable model in EGI for economy of scale
- **EGI independent of the NGI organizational model** (federation is possible but not required)

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EGL.org Tasks

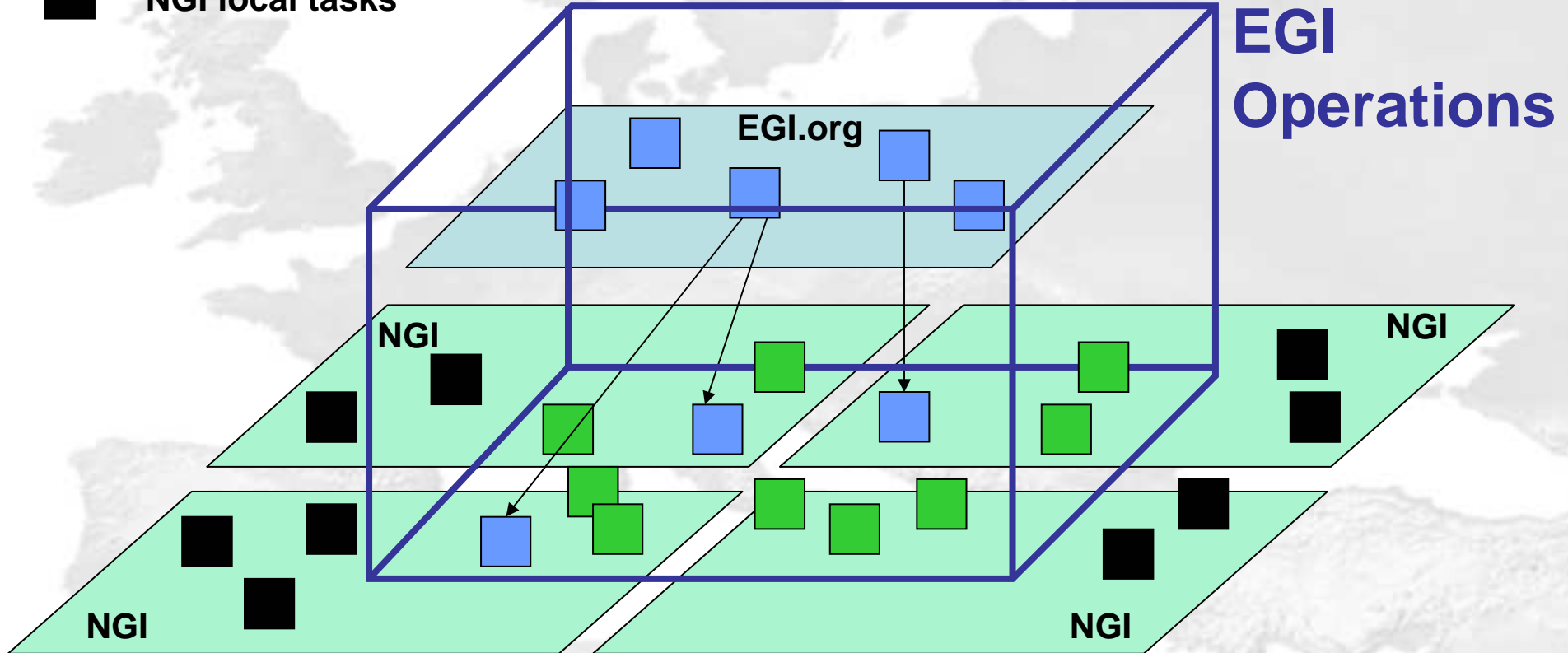
- NGI necessary tasks are needed to ensure:
 - inter-domain **interoperation** in the pan-European infrastructure, i.e. to keep a consistent operational model across European countries
 - **ease of access** and **effective usage** of the infrastructure by international user communities
- can be **delegated** to one or more NGIs or other organizations as deemed necessary: many critical services already under the responsibility of many Regional Operations Centres in EGEE
- EGL.org Operational Unit will be responsible of:
 - coordination
 - running those tasks requiring central operation is preferred (list to be defined)

NGI International Tasks

- technical services under the responsibility of the NGI which are needed
 - to support **international** user communities
 - to ensure **cooperation** with EGI.org and other NGIs
 - to allow the **integration, operation and sharing of NGI resources** at pan-European and international level, as adherence to common policies and specifications/standards is highly needed in a distributed environment
- Note: NGI tasks to support local user communities and to satisfy local needs, are **out of the scope** of EGI

EGI Operations = EGI.org tasks + NGI international tasks

-  EGI.org tasks
-  NGI international tasks
-  NGI local tasks



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Funding

- EGI.org tasks:
 - Initially **fully** funded by the EC
 - after transition **also sustained by the NGIs** (for example via service charges)
 - EGI.org tasks are a service bundle which must be provided in year one of EGI
- NGI international tasks:
 - **EC and NGI co-funding** to promote the integration of NGIs resources into the European e-Infrastructure
 - NGI local infrastructure including national IT resources and user communities, and NGI management, is supported by national funding agencies
 - NGI funding: national funding body + fee-for-service contracts, ...
- “Project” activities → EU co-funding

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EGI Operations Model

- **Aims**

- Autonomy for NGLs → using a common infrastructure for local and international work for greater efficiency
- Sustainability
- Subsidiarity: do things at as local a level as possible (EGI.org pulls things together)
- Increased reliability through pushing responsibility down to sites
- Preserving current scalability in presence of more middleware stacks to be supported, more non-EGEE Grids integrated, ...

EGI Operations Model and EGEE III

- EGI model needs to be consistent with the evolution trend in EGEE III and at the same time, to satisfy the needs of some regional infrastructures only interested in best-effort quality level
- EGEE-III contains already the implementation of structural changes required to allow for a seamless transition from the current project-based EGEE model to a stable EGI model based on NGIs → **Roadmap and actions defined by the end of 2009?**

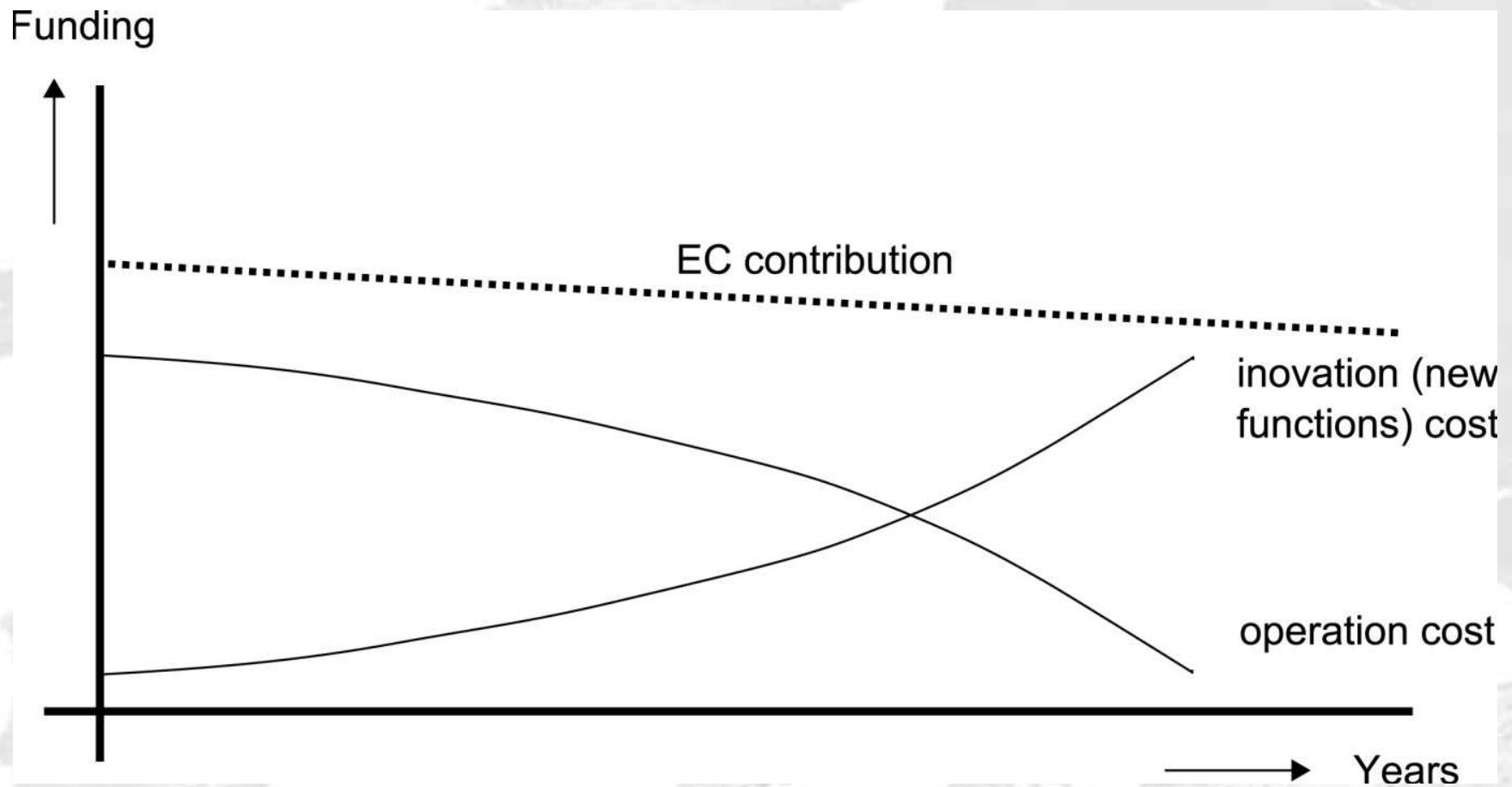
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Resource estimates 1/2

- Effort estimated to cope with the EGI transition phase
 - Efficiency after a few years might reduce the staff requirement
 - we expect this to be matched in part by the requirement for new services to meet the evolving requirements of new communities
- the purpose of the EC contribution will change, the operational aspects of the international infrastructure will be better understood and become part of the standard national operations and funding, and **EC contribution will be more and more focused to support innovations**

Resource Estimates 2/2



EGI.org Tasks

- **Five categories:**
 - operation of tools and services;
 - user support;
 - other tasks;
 - security;
 - development

EGI.org tasks: Operation of tools and services

Tasks	FTEs	Number in D3.1
Operation of the Grid configuration repository	1	O-E-1
Operation of the accounting repository	1	O-E-2
Operation of the repositories for performance monitoring and SLA compliance, publishing of statistics, preparation of NGI reports	2	O-E-3
Operation of the Operations Portal	0.5	O-E-4
Grid operation and oversight (detecting problems, ticket followup until resolution, solution of general operational problems)	1	O-E-5

EGI.org Tasks: User Support Services

Tasks	FTEs	Number in D3.1
Maintenance and Operation of ticketing for Grid and network end-to-end problems	2	O-E-6
Triage of incoming problems: assignment of tickets to the 2nd line support units, ticket escalation end ticket follow-up	2	O-E-7
Gathering of new requirements for user support tools, support process taking input from NGIs and VOs, interoperations of ticketing systems (coordination)	0.5	O-E-8

EGI.org Tasks: Others

Tasks	FTEs	Number in D3.1
Coord. Middleware deployment and support, coordination of testing and certification facilities	1.0	O-E-9
Coord. of resource allocation and of brokering support for VOs	0.5	O-E-10
Coord. of interoperations between NGIs and with other Grids	0.5	O-E-11
Network support (network operation design, network assessment and improvement, linking with network operations)	0.5	O-E-12
Coord. of definition of best practices, operations procedures, operations requirements	0.5	O-E-13
Operation of production Grid core services, catch-all services for global VOs, catch-all CA	1	O-E-14

EGI.org Tasks: Security and Development

Tasks	FTEs	Number in blueprint
Coord. of security policy development and maintenance	0.5	O-E-15
Security and incident response	1	O-E-16
Security vulnerability of mw and its deployment	0.5	O-E-17
Development		
Coord. of development and maintenance of operational tools	1	O-E-18

EGI.org Tasks: overall Effort

ACTIVITIES	FTEs
Operation of tools and services	5.5
User Support	4.5
Other tasks	4
Security	2
Development	1
Total	17

NGI International Tasks (1/2)

International Tasks	Number in D3-1
NGI Grid configuration repository	O-N-1
NGI accounting repository	O-N-2
NGI repository for SLA compliance and performance monitoring	O-N-3
NGI Operations Portal	O-N-4
NGI Grid Oversight	O-N-5
NGI Ticketing System	O-N-6
NGI Help Desk	O-N-7

NGI International Tasks (2/2)

International Tasks	Number in blueprint
Grid core services and catch-all services for global VOs, catch-all CA (<i>optional</i>)	O-N-8
Operations Coordination at the NGI level (security and incident response, roll out of mw, resource allocation, interoperation with regional Grids)	O-N-9

EGI.org Catch-all services for NGIs

- NGIs free to choose the most suitable provisioning model for the requested international tasks:
 - under the responsibility of the NGI (or a federation of NGIs)
 - devolution to a third party
 - service purchased from EGI.org (catch-all)
 - to facilitate NGIs, especially during the **transition phase**
 - **economy of scale**: number of FTEs needed by EGI.org to run catch-all services scales well with the number of NGIs requesting it

NGI Resource Estimates

- Small → NGI 3-6 FTE
- Medium → NGI 7-10 FTE
- Large → NGI 16-18 FTE
- 16 FTEs for a large NGI are based on the resource estimation carried out per-ROC during the preparation phase of the EGEE III project for the SA1 activity (Operations)
- Hardware resources needed for the realization of the NGI e-Infrastructure are funded via national funding sources (i.e. no EC co-funding is expected)

Man Power Behind Operations

(L.Matyska)

- The services are necessary, but
- The FTEs are illustrational, represent some average man power as currently deployed in EGEE
 - If we believe EGEE is not as efficient as possible, a lot of improvement and reduction of provided FTE numbers is possible
 - However, given the EGEE experience, we opted for conservative approach (higher FTEs)

Major changes from previous version

- Tool development and operation of testbed facilities: moved from Middleware Function to Operations (+1 FTE at EGI.org)
- Operation of CA by the NGL: removed explicit mention
- Collaboration with non-European ROCs
- Rearrangement of FTEs for user support tasks
- Network assessment and liaison with NRNs
- Removed references to any technical solution regarding tool deployment strategies (central vs distributed)

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International Collaborations

- While the primary purpose of EGI is to stabilize the Grid infrastructure in Europe (EU), it must interact with Grid infrastructures outside this region
 - direct international collaboration between EGI (represented by EGI.org or through some NCI or NCIs) and the target region
 - participation to specific projects (support actions) when appropriate
 - (in the future) membership fee but with limited membership rights → more study needed

Open issues

- Tool development is a “Project” activity
 - still to be negotiated with the EU
 - how much manpower and what tools will need further development and maintenance at the end of EGEE III? → input needed (OAT?)
- *Production vs best-effort*
 - SLD vs SLA
 - the NGI still needs to include sites offering best-effort services if this acceptable by the supported VOs → NGI-site SLDs defined according to the VO requirements, they are not imposed by the NGI
 - is certification always needed?
 - less operations activities and lower costs for best-effort infrastructures

Transition 1/3

- GOCDDB: what inter-domain implementation model: centralized, distributed, or a mix of the two?
- Accounting: what inter-domain exchange protocol?
- Operations portal: a central one pointing to regional instances?
- Oversight in the region (r-COD): what dashboard?

Transition 2/3

- Trouble ticketing system:
 - Increasing complexity to make the NGI system interoperable with both the central one and other systems adopted by regional Grids in the country → a three-level hierarchy?
 - Do GGUS and TPM scale with the number of users and NGIs in EGI?
- What tools to support dynamic resource allocations to VOs requesting this service to the NGI?
- What future for the tools developed by non-EGI partners?
- ...

Transition 3/3

- Deliverable DNA1.4:
 - “Plan for transition to a sustainable infrastructure “
 - project month 6
- Main topic for discussion in December during the face to face meeting?

Summary

- EGI Operations: a joint effort of NGIs and EGI.org
- Funding:
 - full EC funding for EGI.org tasks, co-funding for NGI international tasks
- Effort: EGI.org: 17 FTE
- Transition: what roadmap?