

# Red española de e-Ciencia

## **ES-GRID** **The Spanish National Grid Initiative** **Operations**

Dr. Carlos Fernández Sánchez (CESGA)

Spanish Deputy Coordinator  
Grid Infrastructure Area e-Science Network

Acción financiada por:

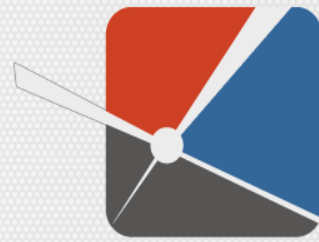


Entidad Coordinadora:



# Objectives of the Grid Operations

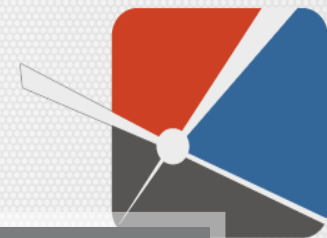
## Grid Infrastructure Area



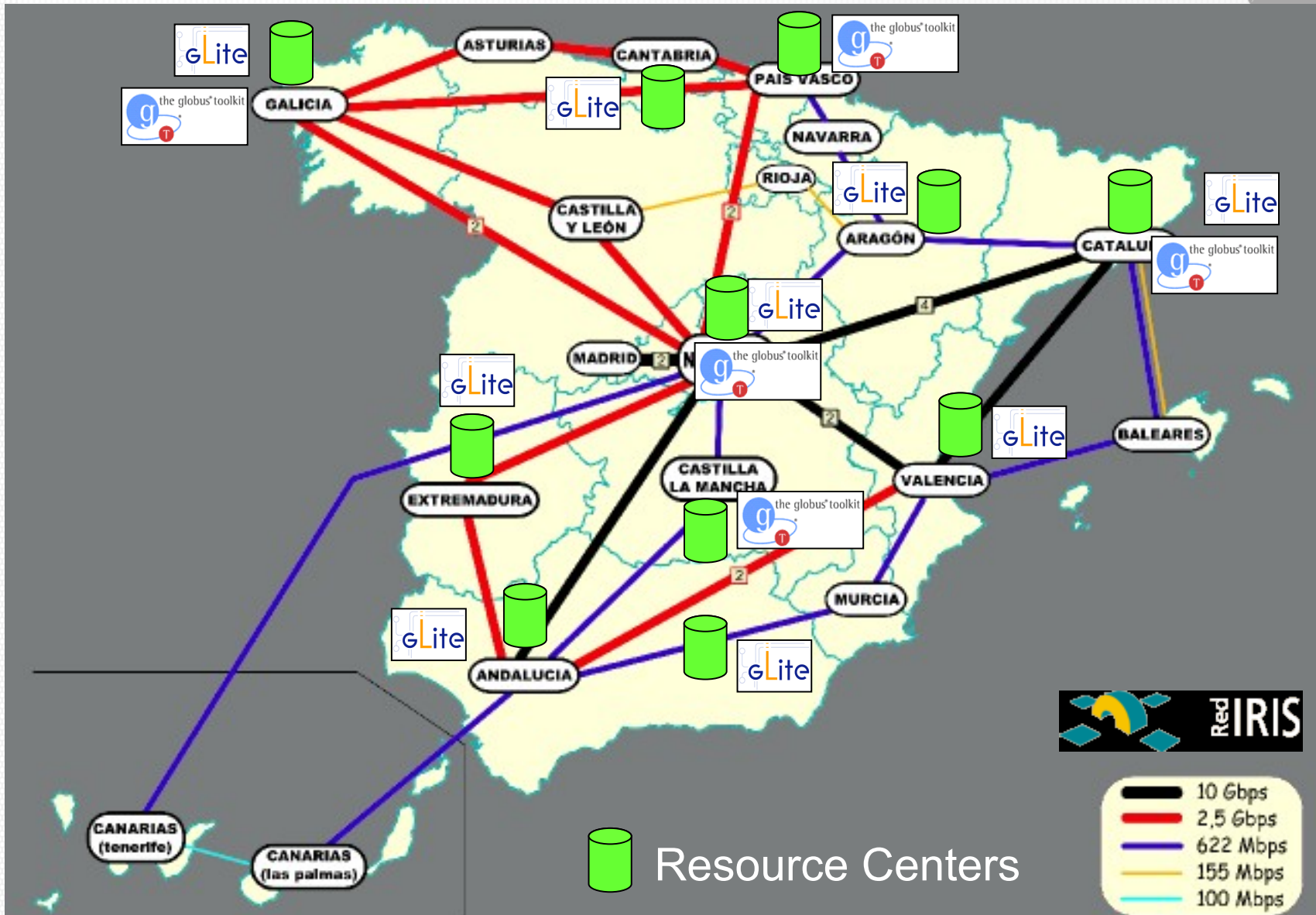
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- Mantener operativa una infraestructura de computación y almacenamiento de calidad con disponibilidad 24x7 al servicio de la comunidad científica de la NGI
- Garantizar el cumplimiento de las Tareas Operacionales de las International Tasks y el cumplimiento de las SLAs/MoUs
- Realizar la supervisión del servicio y el escalado de problemas
- Coordinar la migración de las operaciones de SWE al modelo NGI
- Apoyar las operaciones de WLCG
- Garantizar la fiabilidad de la contabilidad de utilización de recursos por los usuarios
- Dar soporte a los RCs en la instalación, configuración y resolución de incidencias
- Proveer un punto de encuentro entre usuarios y proveedores de infraestructura para el soporte de incidencias relacionadas con la utilización y disponibilidad de la infraestructura

# Current Status of the Infrastructure



ola de  
ciencia



# Services of the Infrastructure

## Grid Infrastructure Area - Operational Tools

- NGI monitoring
  - <https://rnagios.ngi.cesga.es/nagios/>
- NGI accounting repository
  - <http://www.ngi.cesga.es>
- NGI ticketing, Regional helpdesk, First-line Support
  - <http://rt-ngi.rediris.es>
- National configuration repository (HGSM)
  - <https://rnagios.ngi.cesga.es/hgsm>
- NGI Grid configuration repository
  - Operation Tools: <http://devel.ifca.es>
  - Virtual Machines Storage: <http://ftp.rediris.es/e-ciencia/>

# The Consolidation of the Infrastructure

## Current Operations in SWE/NGI

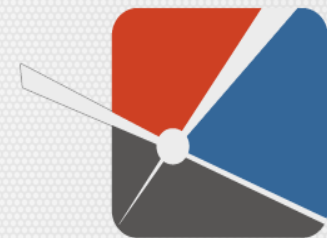


- Operational Tools

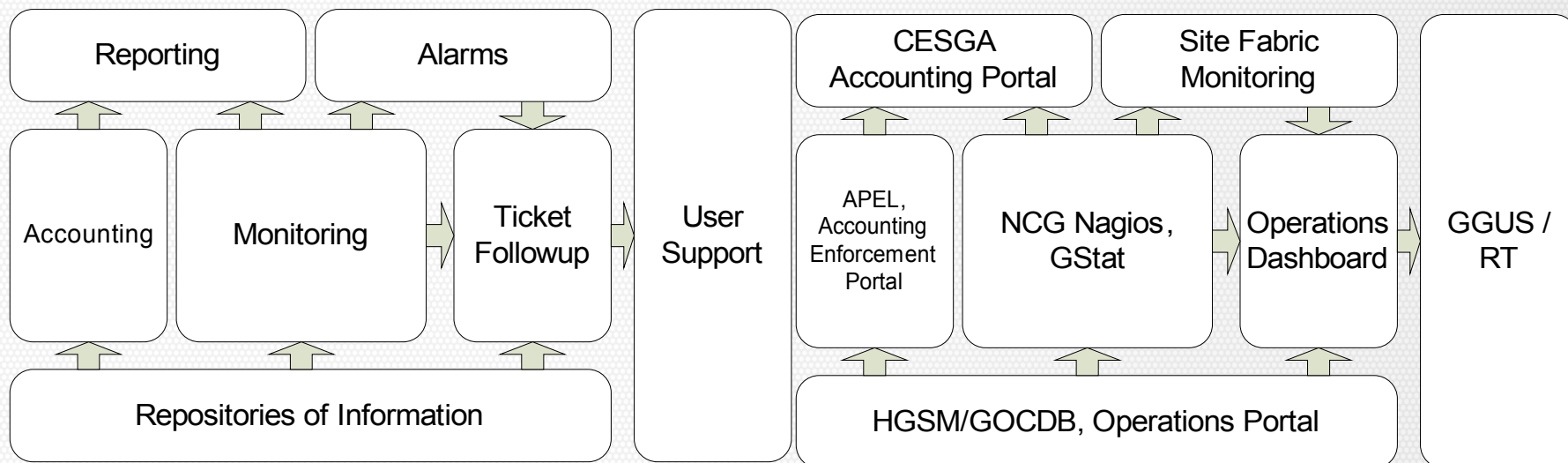
Tool	Description	Organisation
NCG Nagios	Monitoring	CESGA
SAM	Monitoring	Will be integrated in Nagios
GOCDDB/HGSM	Information System	CESGA
Metrics Portal	SLAs / MoUs supervision	CESGA (developers)
Accounting Portal	Accounting	CESGA (developers)
Accounting Repositories	Accounting	CESGA for NGI
CIC Portal	Operations Portal -> will move to Regops Operation Portal	None. TBD (Regops not ready until mid 2010)
RT	Ticketing / Helpdesk	RedIRIS / CESGA
Regional Dashboard	Dashboard regional	None. TBD (not ready until November)

# The Consolidation of the Infrastructure

## Operational Tools Interactions and mapping



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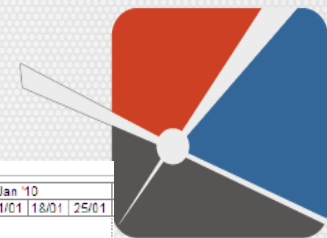


Interactions between different tool areas

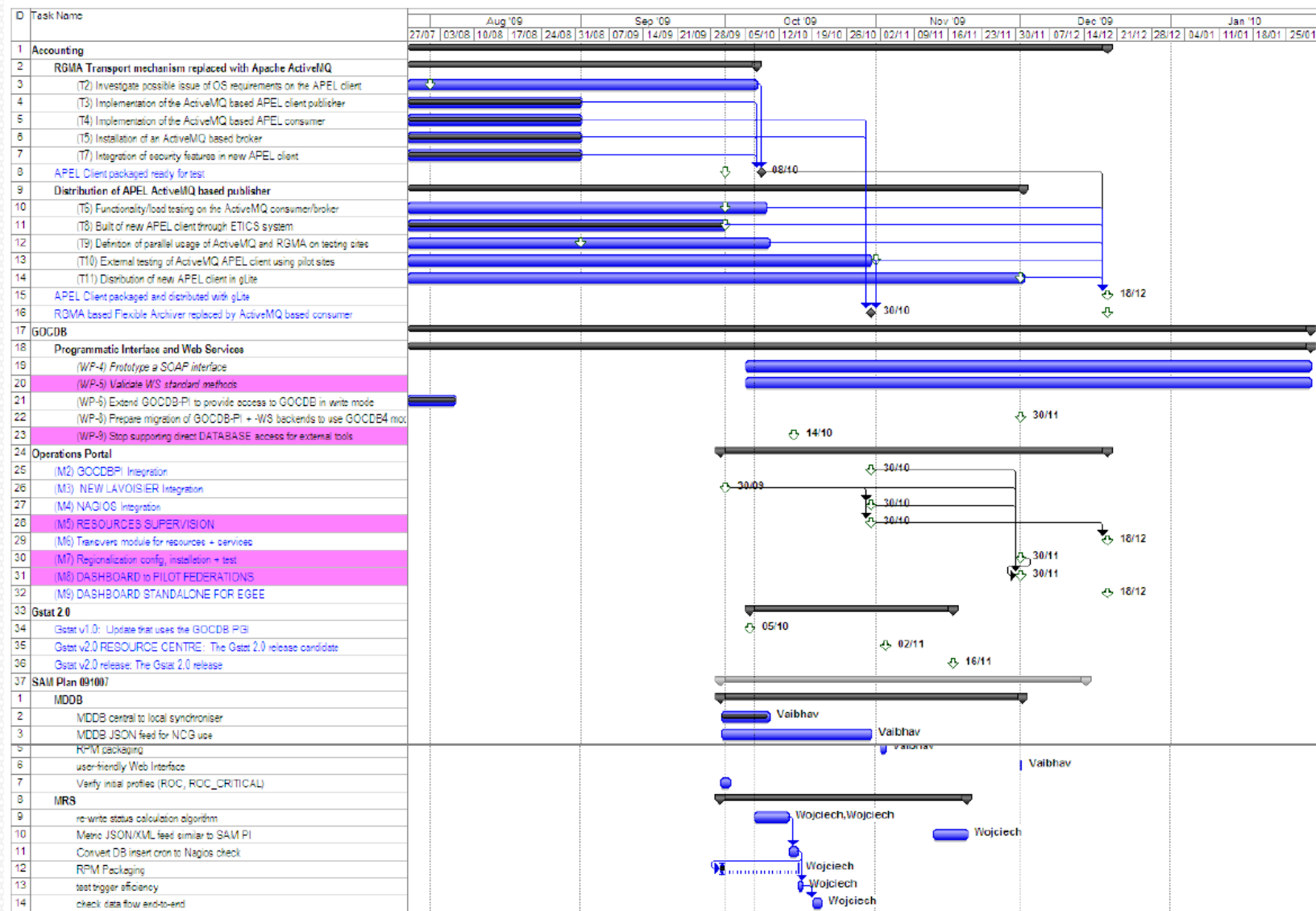
Mapping of operational tools into functional areas

# The Consolidation of the Infrastructure

## Operational Tools Roadmap for Regionalization (EGEEIII plan)



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# The Consolidation of the Infrastructure Information System - HGSM

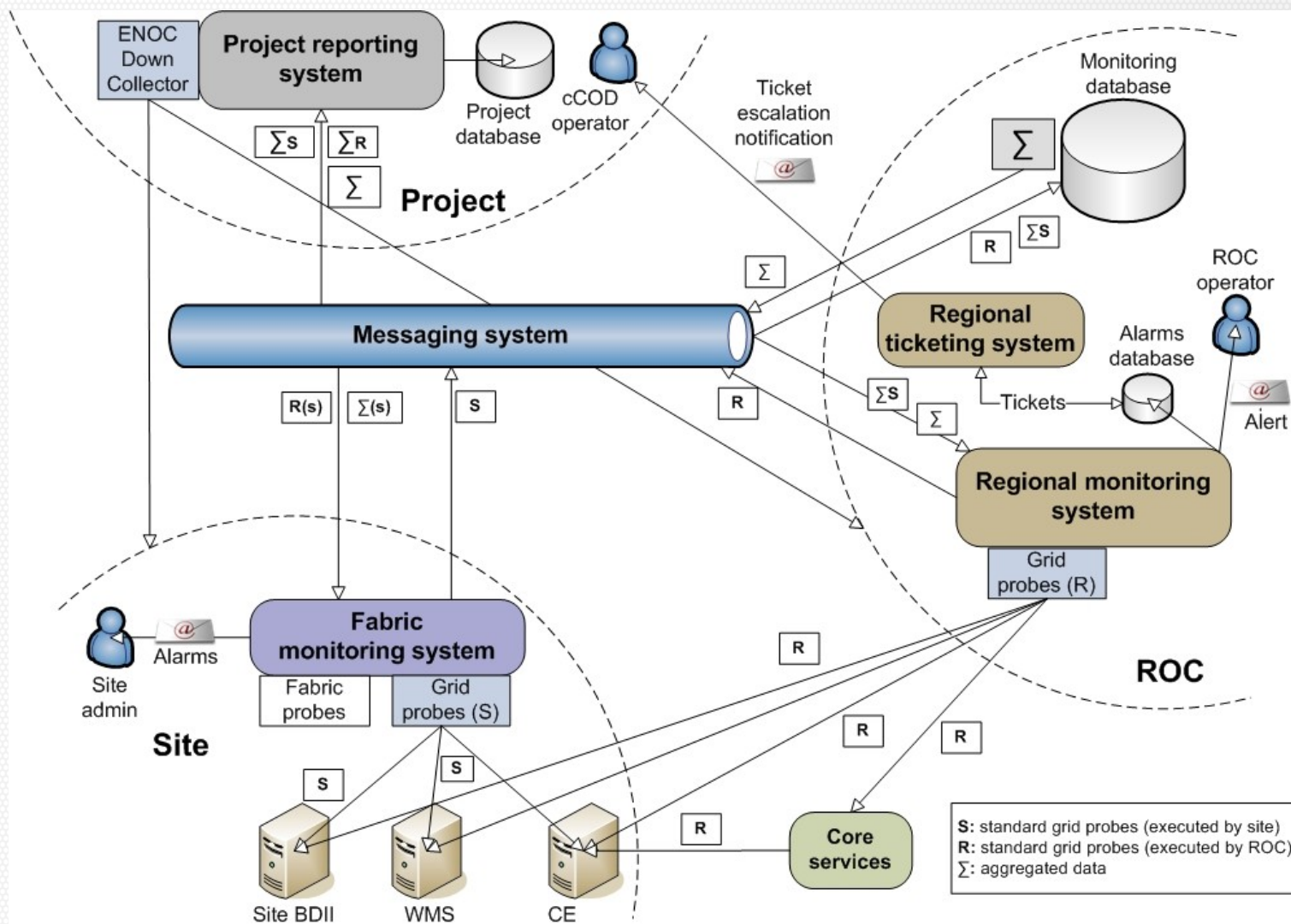


- HGSM is a replacement for GOCDB
- Is regionalized (GOCDB will soon)
- Now can push data to GOCDB
- Synchronisation ready in January 2010 (HGSM to GOCDB)
- GOCDB to HGSM will have to be implemented (not needed?)  
using GOCDB-PI



# The Consolidation of the Infrastructure

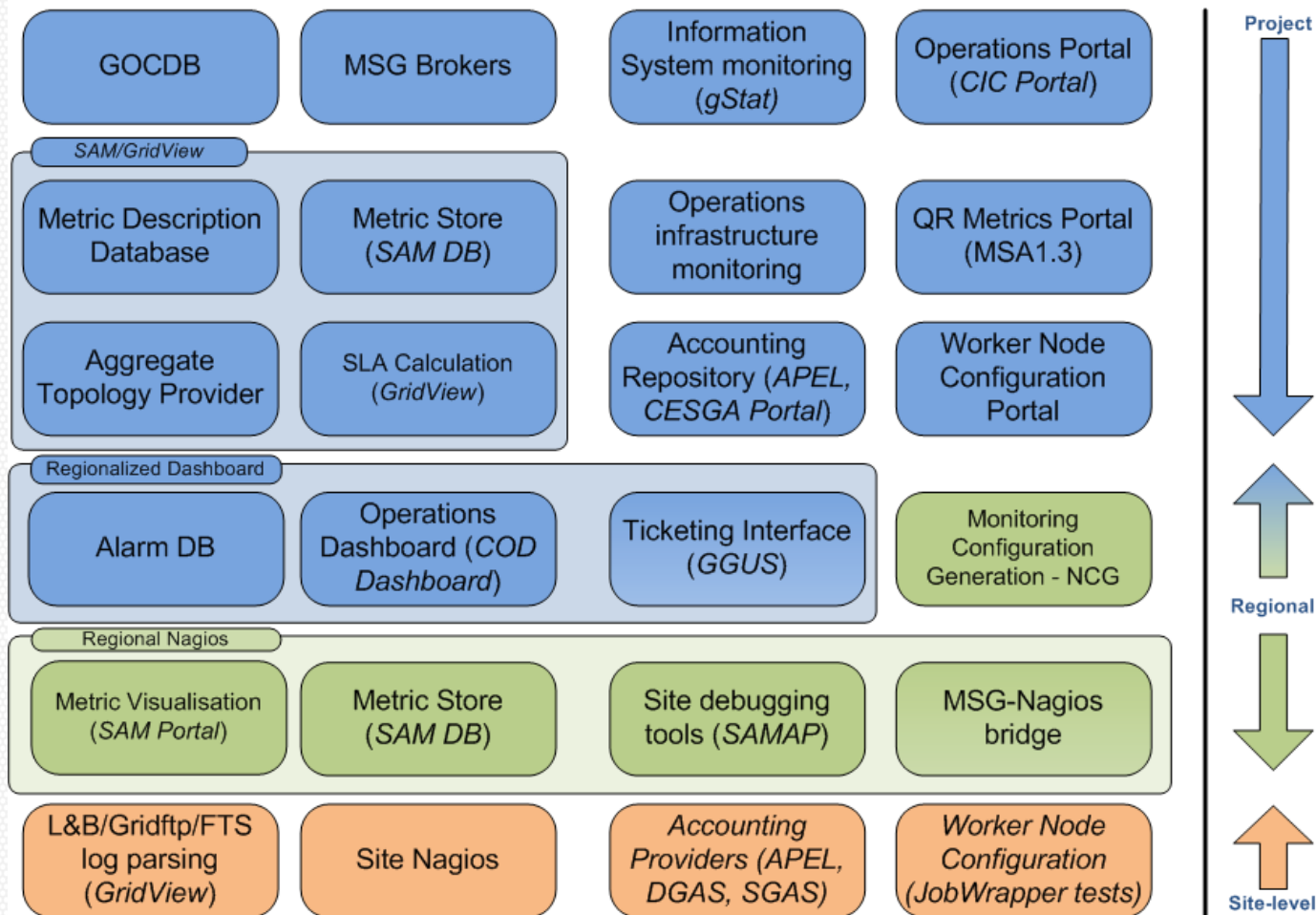
## Interactions between site, regional and central monitoring



# The Consolidation of the Infrastructure

## Multi-Level Monitoring

Components in multi-level monitoring by deployment location\*



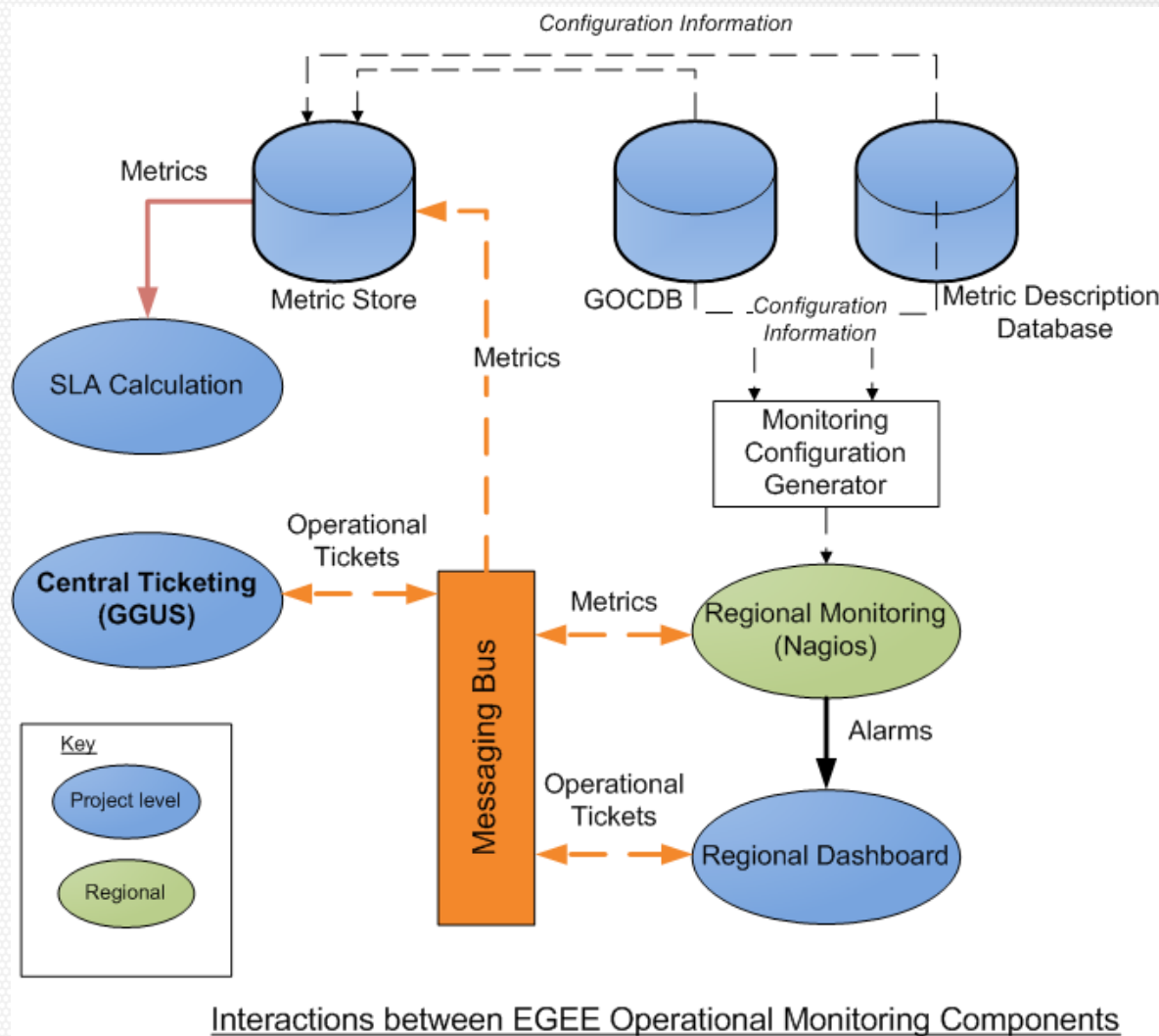
Deployment location : ● : Site-level ● : Regional ● : Project

V1.7, James Casey, 18<sup>th</sup> Feb 2009

\* Items in ( .. ) refer to similar components that exist and are deployed centrally at this moment.

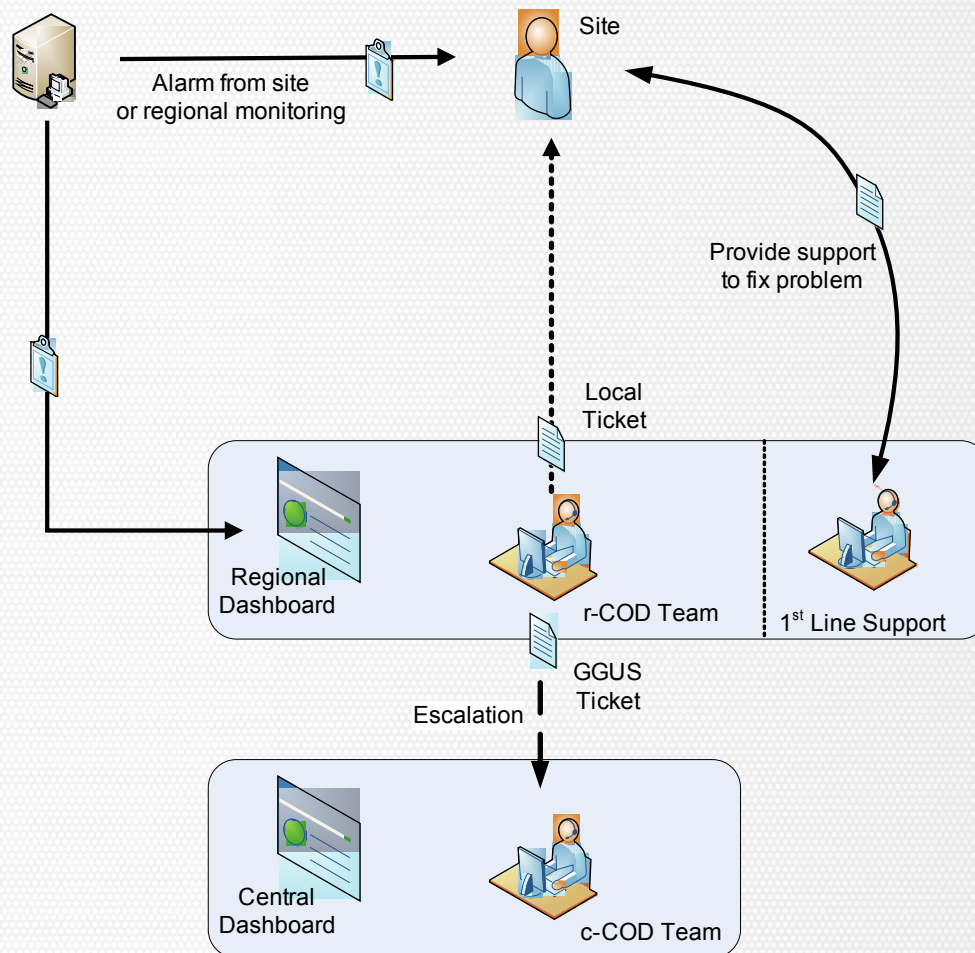
# The Consolidation of the Infrastructure

## Regional Monitoring with Nagios



# The Consolidation of the Infrastructure

## Future model of regional operations support and ticketing



# ES-GRID as a model for integration & cloud computing

## The interoperation layer

### Information System

[topbdii01.ifca.es](http://topbdii01.ifca.es)  
[bdii.egee.cesga.es](http://bdii.egee.cesga.es)

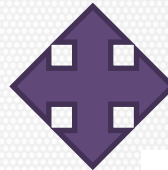


### PKIRISGRID as Certification Authority

<http://www.rediris.es/pki>

### Operation of Virtual Organizations

<https://voms01.ifca.es>  
<https://voms.egee.cesga.es>



### Information Service

[mds-ngi.rediris.es](http://mds-ngi.rediris.es)

Job Brokerage Services  
[gridxb01.ifca.es](http://gridxb01.ifca.es)  
[wms01.ific.es](http://wms01.ific.es)  
[wms01.egee.cesga.es](http://wms01.egee.cesga.es)

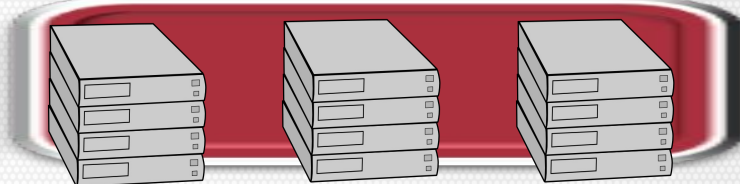


GridWAY Metascheduling  
[gridway-ngi.rediris.es](http://gridway-ngi.rediris.es)

OpenNebula (VIM)

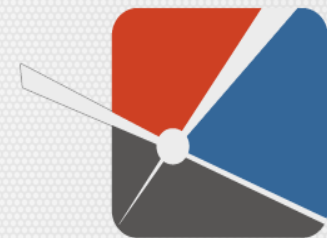
OpenNebula (VIM)

Resource Centers



# The Consolidation of the Infrastructure

## Current Services in SWE



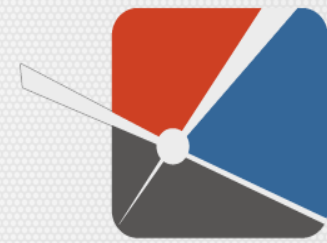
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- Central Services

Service	Description	Organisation
Top BDII	Information System	Many ( 4 )
LFC	File Catalog	Many ( 3 )
MyProxy	Certification temporary storage	Many ( 9 )
FTS	File Transfer Service ( LHC and other HEP )	PIC
FTM	File Transfer Monitor ( LHC and other HEP )	PIC
RGMA	Accounting Registry, will change to ActiveMQ	CESGA
WMS/RB	Jobs Broker	Many ( 5 )
VOMS	VO management	Many ( 6 )

# The Consolidation of the Infrastructure

## Current Services in SWE



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- Local Services

Service	Description	Organisation
CE	Computing Element	Many ( 27 )
Mon	Local Accounting	Many ( 26 )
DCache, Castor, Storm	Data Storage	CIEMAT, IFAE, PIC, LIP
DPM/SE	Storage Element	Many ( 27 )
siteBDII	Information System	Many ( 27 )
VOBOX	Services specific to VO	Many ( 4 )
UI	User Interface ( available as VM )	Many ( 16 )
AMGA	VO metadata catalogue	ESA-ESAC

# The Consolidation of the Infrastructure

## International vs. Global Tasks

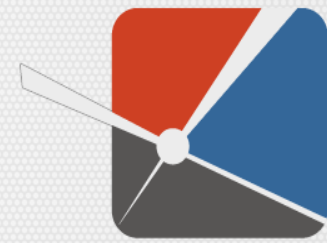


- **EGI Global Tasks** (O-E-\*, U-E-\*, M-E-\*) part of EGI.eu, central tasks (only one instance) but not located at EGI.eu. In production use by EGEE and its collaborators. The hosting of the EGI Global tasks within EGI will be selected from a call within those NGIs that are part of the EGI project.
- **International Tasks** are necessary for the functioning of any NGI, and are the responsibility of the NGI which must support the costs of this task (eligible for EC co-funding).



# The Consolidation of the Infrastructure

## Grid Infrastructure Area - EGI Proposal, Global Tasks (Operations)



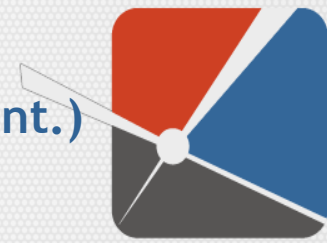
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- IBERGRID: Submitted O-E-2, O-E-3, O-E-7 & O-E-9

Task	Description	Organisation
O-E-1	GOCDB	UK
O-E-2	Accounting Repositories	UK & Spain
O-E-3	Operation of Grid Monitoring Repositories	CERN+GRNET+SRC
O-E-4	Operations Portal	France
O-E-5	Grid Operation & Oversight	Netherlands & Poland
O-E-6	Operation of a helpdesk	Germany
O-E-7	Triage of Incoming Problems	Spain & Portugal
O-E-8	User Requirements	Germany

# The Consolidation of the Infrastructure

## Grid Infrastructure Area - EGI Proposal, Global Tasks (Operations, cont.)



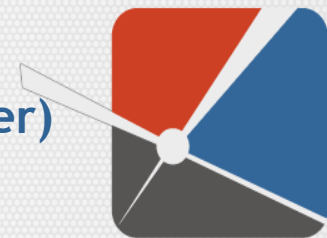
Red Española de  
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- IBERGRID: Submitted O-E-2, O-E-3, O-E-7 & O-E-9

Task	Description	Organisation
O-E-8	User Requirements	Germany
O-E-9	Middleware Rollout	Spain & Portugal
O-E-10	Resource Allocation	Poland
O-E-11	Interoperation	Sweden
O-E-12	Network Support	Italy
O-E-13	Best Practices	Finland
O-E-14	Core Grid Services	Greece
O-E-15	Security Policy	UK & Netherlands
O-E-16	Security Incident Response	UK & Netherlands

# The Consolidation of the Infrastructure

## Grid Infrastructure Area - EGI Proposal, Global Tasks (Middlew. & User)



- IBERGRID: Submitted U-E-5, M-E-1 & M-E-3

Task	Description	Organisation
U-E-1	User Forum	EGI.eu
U-E-2	Coordination of SSCs	EGI.eu
U-E-3	Event Organisation	EGI.eu
U-E-4	Grid Planning & MCB	-----
U-E-5	User Technical Services	Spain & Portugal
U-E-6	Informational & High-level tools	Greece
U-E-7 & 8	Documentation Review and training	EGI.eu
U-E-9	New Communities & Front Desk	EGI.eu
E-E-1	Dissemination	EGI.eu
E-E-3	Industry Uptake	EGI.eu
E-E-4	External Relations	EGI.eu
M-E-1, M-E-3	Document & Quality Criteria	IBERGRID (O-E-9)
M-E-2, M-E-4	Support tools & repositories of certifi. UMD	GRNET, CESNET

# The Consolidation of the Infrastructure

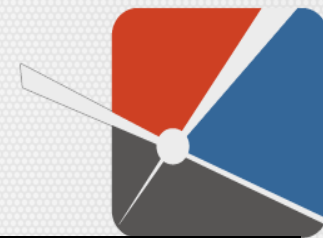
## Grid Infrastructure Area - International Tasks



- O-N-1: Operations of the NGI Grid topology and configuration repository
  - HGSM (GOCDB) -> CESGA
- O-N-2: Operation of the NGI accounting repository
  - (APEL + Accounting Portal) -> CESGA
- O-N-3: Operation of monitoring and performance repositories
  - (NAGIOS + metrics portal) -> CESGA
- O-N-4: Operations of the NGI Operations Portal
  - CIC portal
- O-N-5: NGI infrastructure oversight
  - Operators on duty, etc...
- O-N-6: Operations of the NGI ticketing system and gathering of new requirements
  - RT / GGUS -> RedIris
- O-N-7: Regional Helpdesk
  - RT / Helpdesk interacción con GGUS. -> RedIris / CESGA
- O-N-8: Operation of production core services for international VO's, catch-all CA,...
- O-N-9: Operations Coordination at the NGI level

# The Consolidation of the Infrastructure

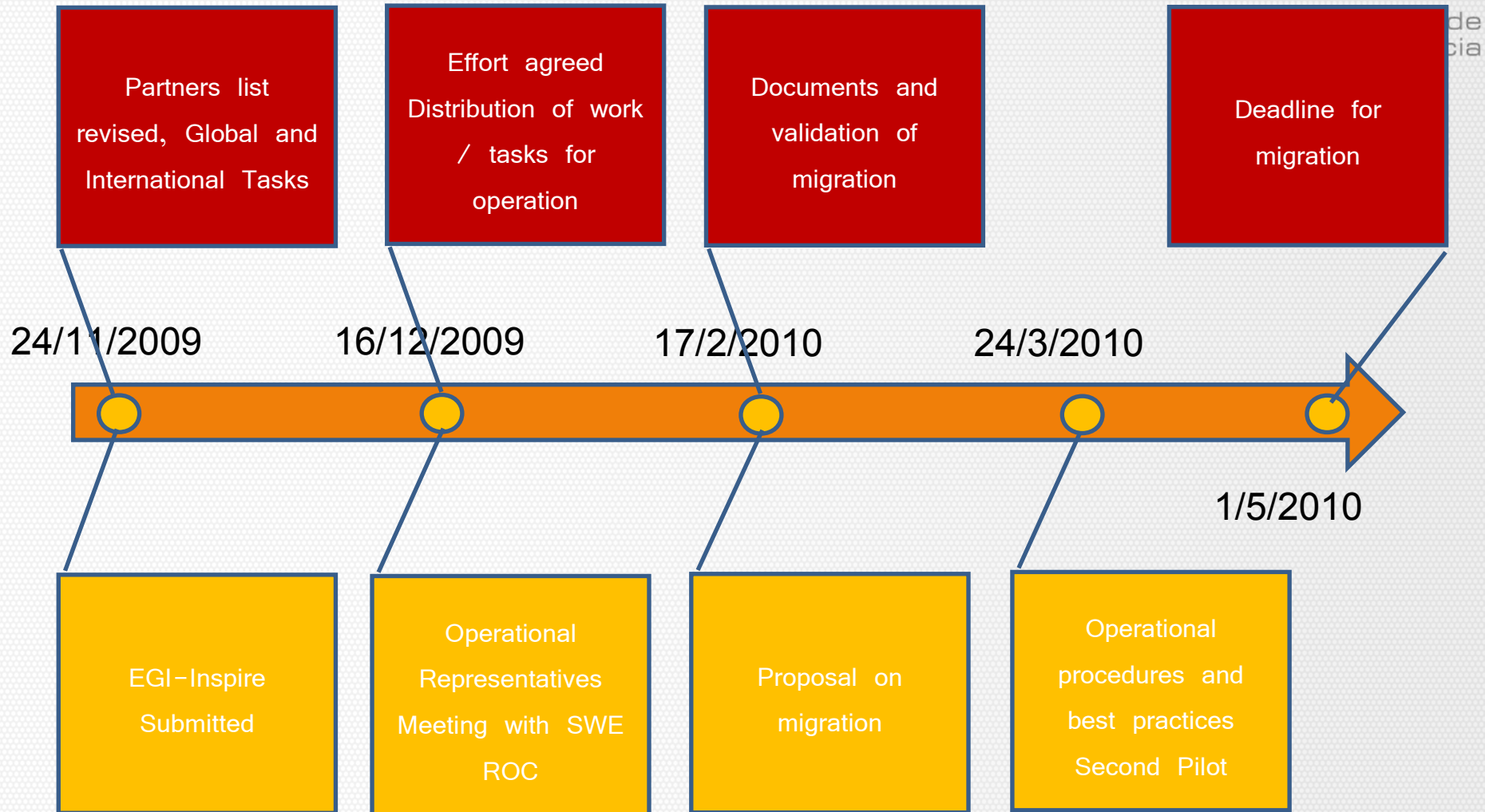
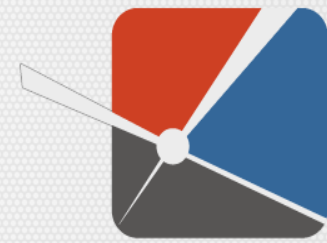
## Grid Infrastructure Area - International Tasks



NGI International Task Code	Estado actual en la NGI / planes	Estado de despliegue en la	Instituciones que faltan	Necesaria en EGI	Depend en otras NGIs
O-N-1 : Operation of the NGI Grid topology and configuration repository	El repositorio HGSM esta en marcha y accesible en <a href="https://rnagios.ngi.cesga.es/hgsm/">https://rnagios.ngi.cesga.es/hgsm/</a>	CESGA, IFCA, LIP, BIFI, CIEMAT y PIC estan inscritos en HGSM	IFIC, CETA, UNICAN, IAA, ESAC y GryCAP/UPV	Si. Los datos del HGSM deben ser interfaseados con el mecanismo de GOCDB para EGI cuando este list en 2011	No
O-N-2: Operation of the NGI accounting repository	El portal de accounting esta accesible en <a href="http://www.ngi.cesga.es/">http://www.ngi.cesga.es/</a>	Publican en el portal CESGA, IFCA, BIFI, CIEMAT, PIC, IAA, UNICAN y UPV	IFIC, ESAC	Si. Los datos de accounting iran a un repositorio global de EGI al menos para VOs internacionales	No
O-N-3: Operation of repositories storing monitoring and performance data	Los datos de monitorización y rendimiento se están almacenando a través del servidor de Nagios <a href="https://rnagios.ngi.cesga.es/nagios">https://rnagios.ngi.cesga.es/nagios</a>	Se están monitorizando IFCA, IFIC, CESGA, CIEMAT-TIC, BIFI, PIC, y GRyCAP/UPV	CETA, IAA, ESAC, UNICAN	Si. Los datos necesitaran ser escalados hacia la monitorizacion de EGI en el caso de VOs internacionales como minimo.	No
O-N-4: Operation of the NGI Operations Portal	<a href="https://rnagios.ngi.cesga.es">https://rnagios.ngi.cesga.es</a>	Se están monitorizando IFCA, IFIC, CESGA, CIEMAT-TIC, BIFI, PIC, y GRyCAP/UPV	CETA, IAA, ESAC, UNICAN	Si.	N
O-N-5,6,7: NGI e-Infrastructure oversight; ticketing system; Regional helpdesk.	El helpdesk regional esta en marcha en <a href="https://ft-ngi.rediris.es">https://ft-ngi.rediris.es</a> . El sistema de alarmas de operación necesita ser puesto en marcha en conjunción con nagios; Mecanismo de validación de nuevos nodos en la NGI mediante la ejecución de un conjunto de test de integridad (os tests de nagios ) Servidor voms, ifc, topbdii, y resource brokers estan desplegados en <a href="https://voms01.ifca.es">voms01.ifca</a> , <a href="https://gridfc01.ifca.es">gridfc01.ifca.es</a> , <a href="https://bdii.ifca.es">bdii.ifca.es</a> , <a href="https://gridb01.ifca.es">gridb01.ifca.es</a> , <a href="https://wms01.ifca.es">wms01.ifca.es</a>	Necesita ser definido el protocolo de operación y su interacción con la solución que se adopte en EGI. Necesario ver como se interacciona a través de GGUS. Regional GGUS.	Necesario crear un equipo distribuido para gestión de tickets de operación	Si. En este momento el servicio de test SAM que esta localizado en el CERN necesita ser absorbido por alguna (s) NGI. Hemos hecho un bid al respecto como IBERGRID	N. Tal vez los SAM tests
O-N-8: Operation of production Grid core services	Servidor voms, ifc, topbdii, y resource brokers estan desplegados en <a href="https://voms01.ifca.es">voms01.ifca</a> , <a href="https://gridfc01.ifca.es">gridfc01.ifca.es</a> , <a href="https://bdii.ifca.es">bdii.ifca.es</a> , <a href="https://gridb01.ifca.es">gridb01.ifca.es</a> , <a href="https://wms01.ifca.es">wms01.ifca.es</a>	Los servicios centrales redundantes están instalados en <a href="https://voms.egee.cesga.es">voms.egee.cesga.es</a> , <a href="https://bdii.egee.cesga.es">bdii.egee.cesga.es</a> y <a href="https://se2.egee.cesga.es">se2.egee.cesga.es</a> , pendientes de instalar LFC y WMS	Necesario instalar servicios redundantes en RedIris	Si	No
O-N-9a: Security and incident response coordination	Rediris coordinara los incidentes de seguridad informando a los sites de las incidencias locales y reportadas desde los grupos de seguridad de EGI.	Necesita ser definido con precisión cuando la forma de la propuesta EGI este fijada		Si	No
O-N-9b: Rollout of middleware updates	La falta de un mecanismo de testeo a la hora de desplegar nuevas versiones de glite ha afectado a la eficiencia de los sites. Como parte del trabajo de la NGI el IFCA pondra en marcha un testbed en el que los updates de middleware seran testeados antes de ser puestos en producción para toda la NGI	Necesita ser definido		No estrictamente, pero muy conveniente para aumentar la fiabilidad de los nodos	No
O-N-9c: Resource Allocation	Para VOs nacionales en colaboración con el area de aplicaciones de la Red de e-Ciencia. Para VOs internacionales necesita ser definido por EGI	Necesita ser definido		Si	No
O-N-9d: Interoperation with national and regional Grids	La interoperación con Portugal esta en marcha a través de IBERGRID.			Si	Si
U-N-* Servicios de soporte a usuarios en general	Helpdesk para usuarios basado en RT. Creación de un equipo distribuido especializado en el soporte a usuarios en coordinación con la Red de e-Ciencia	Necesita ser definido	Creación de un equipo distribuido de gestión de tickets de usuarios	Si	N

# The Consolidation of the Infrastructure

## Grid Infrastructure Area - Migration from ROC to NGI



# Conclusions

## The Spanish Network for e-Science - Grid Infrastructure



- The Spanish Network for e-Science has Already **Achieved all the Main Milestones that were Planned for the NGI.**
- Input to EGI provided.
- First Pilot Operational NGI working
- In the Next Year (2010) we will Consolidate the Collaborations and the Start-up of the Spanish NGI and its role in EGI (Second Pilot & Migration)
- This work will Continue Giving Support to the Spanish User Communities.
- Its **Open Nature and the Voluntary Effort of a Dynamic Community** have made It Possible.



# Preguntas ?

