

# EGI Operations

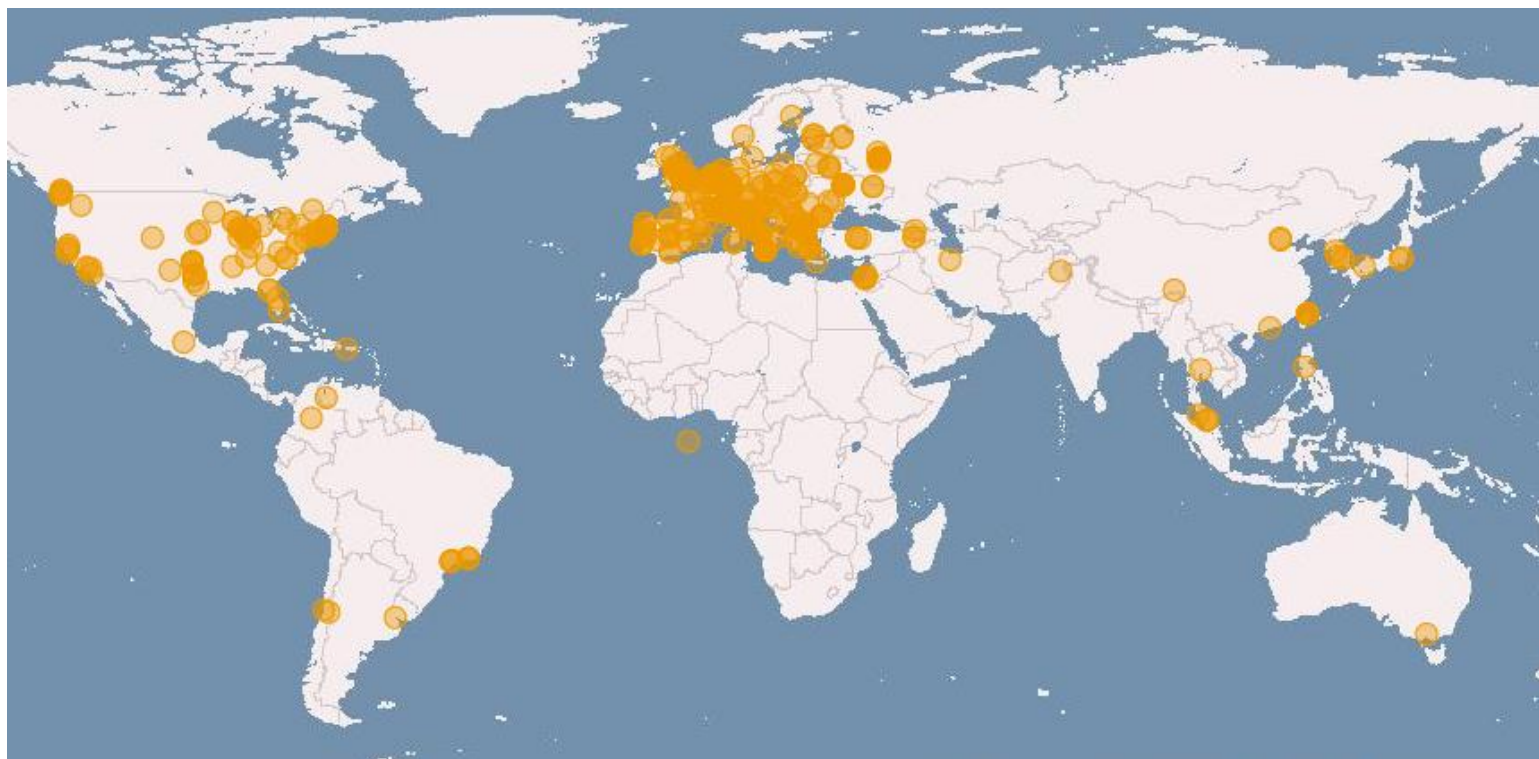
Tiziana Ferrari/EGI.eu  
EGI Chief Operations Officer

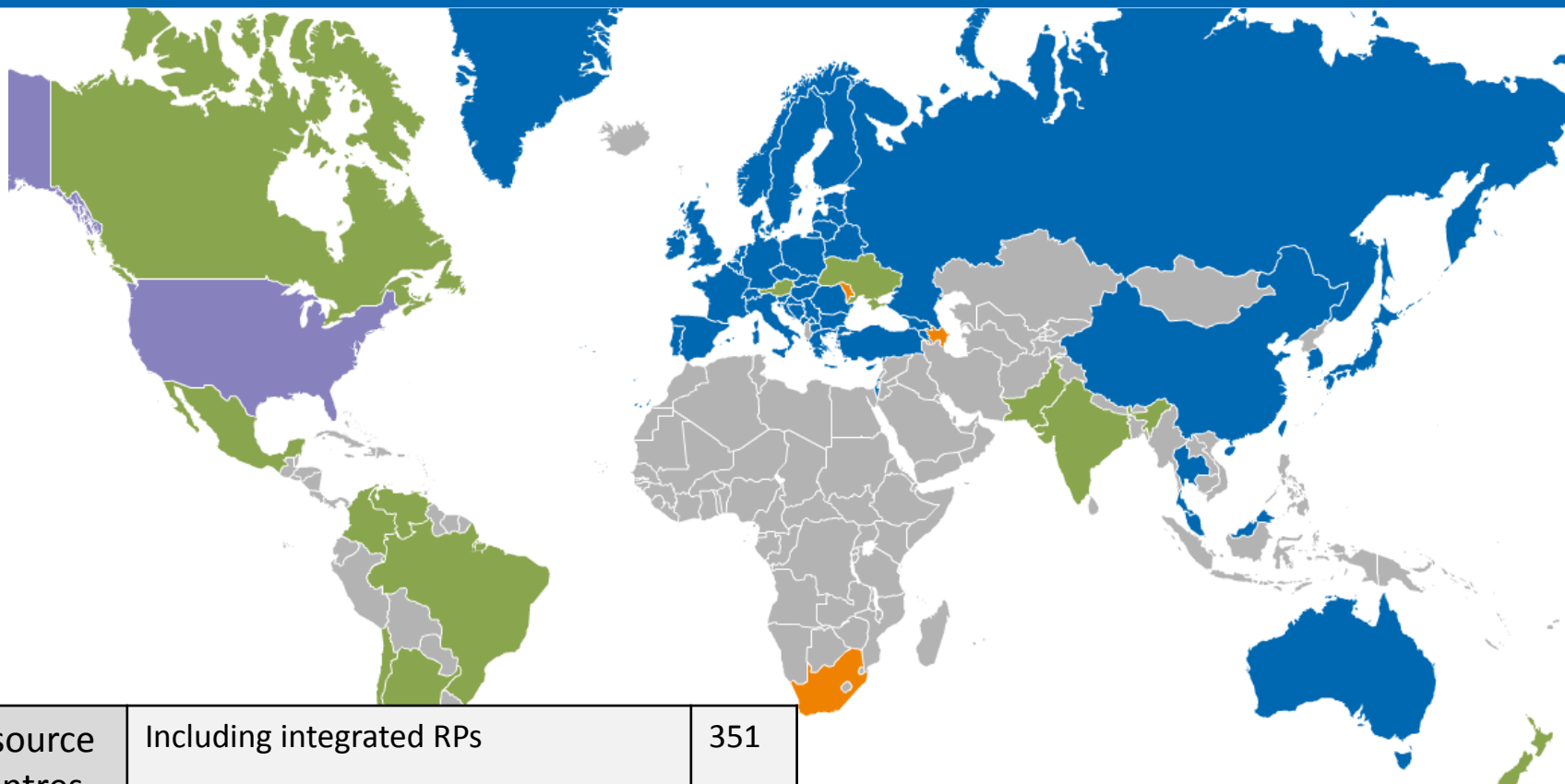
- Infrastructure and operations architecture
  - Services
  - Monitoring and management tools
- Operations

# Installed Capacity

Logical CPUs	Value
EGI-InSPIRE and Council Participants	306,000
Including integrated and peer RPs	429,000

Storage	Value
Disk (PB)	155 PB
Tape (PB)	150 PB





Resource Centres	Including integrated RPs	351
	Supporting MPI	87
Countries	EGI-InSPIRE & EGI Council members	43
	Including integrated RPs	59

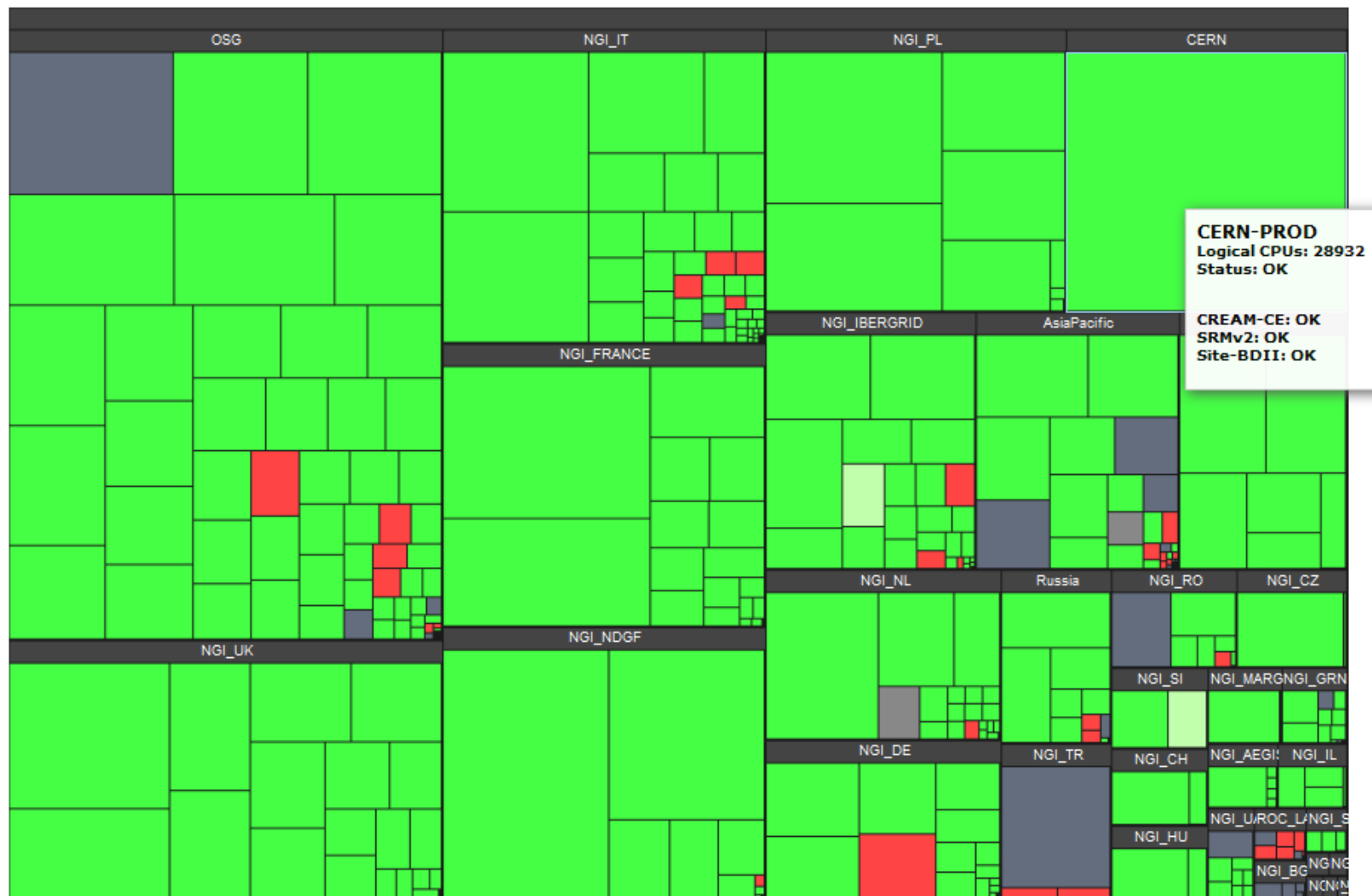
**Integrated EGI-InSPIRE Partners and EGI Council Members**

**Internal/External Resource Providers (being integrated)**

**External Resource Providers (integrated)**

**Peer Resource Providers**

# Distribution of compute resources



# CPU Usage

Usage metrics Nov 2012		Value
CPU wall clock time	Million hour/day	50.6
Jobs	Average Job/day (Million)	1.8
Distribution of usage (main disciplines)	High-Energy Physics	88.23%
	Astronomy and Astrophysics	2.00 %
	Life Sciences	1.11%
	Remaining disciplines	8.40%

Layer I  
The federated  
interconnected  
Education and  
Research

**EGI Participant:** National Grid Initiatives (NGIs), European Intergovernmental Research Organisations (EIROs)

**Resource Provider (RP)**  
Responsible for  
providing the  
infrastructure

**Layer III.  
EGI Resource Infrastructure**

ure

NGI/EIRO

EGI.eu

Network

Resource Provider

Resource  
Infrastructure

Resource  
Centres

Resource  
Centres

Resource  
Infrastructure

Resource  
Centres

Resource  
Centres

MoUs

Resource Provider

Resource  
Infrastructure

Resource  
Centres

Resource  
Centres

### Layer I. Resource Centre (RC)

A localised or geographically distributed administration domain, where EGI resources (CPUs, data storage, instruments and digital libraries) are managed and operated to be accessed by **end-users**

### Peer infrastructures:

accessible to EGI users, but relying on own operational services, e.g. Open Science Grid (USA)

e.g. Latin American and Caribbean

- **Central operations services** provided by EGI.eu in collaboration with National Grid Initiatives
  - Operations coordination
  - Central operations tools
  - User and administrator support
  - Reporting, accounting
- **National operations services** provided by the National Grid Initiatives (NGIs)
  - Some NGIs share operations services
- EC support through the **EGI-InSPIRE** project until April 2014



# Security operations

**Security Coordination Group** coordinate overall EGI security activities

## EGI CSIRT

**Incident Response Task Force**  
(incident handling and coordination)

**Security monitoring**  
(Pakiti, Security Nagios, Security Dashboard)

**Security drills**

**Training and dissemination**

## Software Vulnerability Group

Handling reported vulnerabilities, vulnerability assessment, secure coding education

## Security Policy Group

Develop and maintain security policies



**EUGridPMA**



External software providers (EMI/IGE/...)



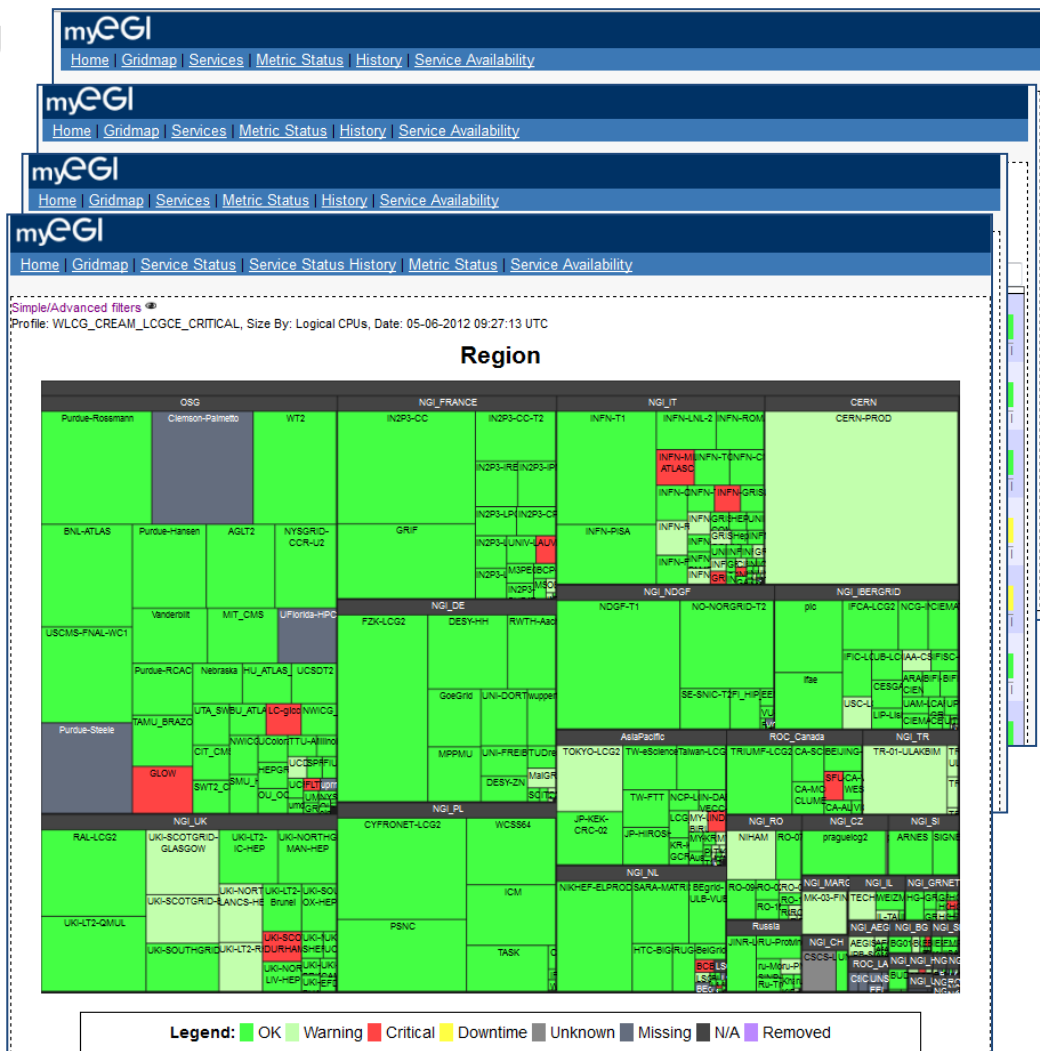
PRACE/XEDE/OSG/...

- Federated offering of compute and storage resources
  - Transparent access to heterogeneous computing batch systems, disk and tape
  - Highly distributed
  - User authentication and authorization
    - X.509 certificates
    - Virtual Organization membership
    - Experimenting federated identify provisioning and translation of user credentials into short term X.509 certificates (on-line CAs)
    - Integrated compute – data management services through delegation of user credentials

- Data access (file based)
- Data transfer and replication
- File catalogues to track the location of copies of data
- Job submission
- Workload management for the distribution of compute resources
- VO membership service
- Authentication and authorization
- Information discovery system

- main data sources for the Operations Dashboard
- Messaging network
- data source to generate Availability/Reliability statistics
- local/central components:

1. **test submission** framework: based on the **Nagios** system and customised by **the Nagios Configurator Generator**
2. **databases** for storage of information about **topology** (Aggregated Topology Provider), **metrics** (Metrics Description DataBase) and **results** (Metrics Results Store)
3. **visualisation** tool GUI: **MyEGI**



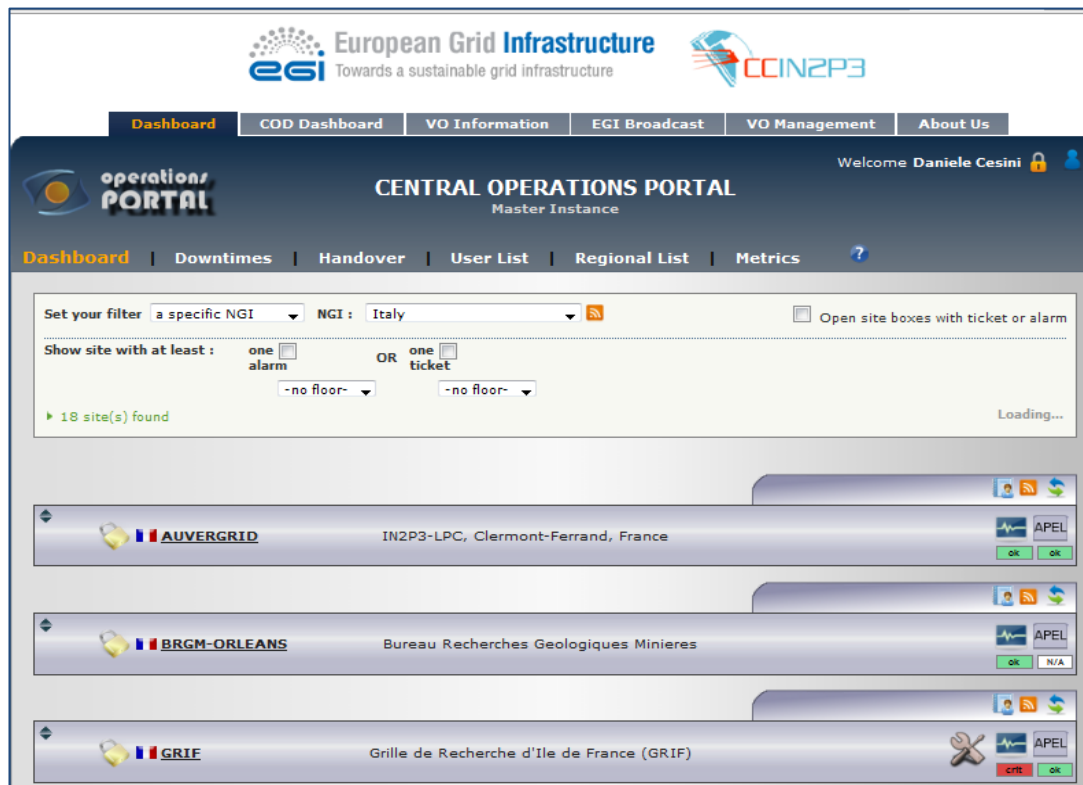
Operations Portal (development and operation by CNRS)

provides a single access point to information, tools and facilities for various actors (NGI Operations Centres, VO managers, etc.)

Central operations dashboard (with NGI national views)

Modules:

- Broadcast tool for communication across NGI operators, resource administrators and users
- VO Id Card and VO Management
- Operation Dashboard
- (new) Security Dashboard
- (new) VO Operations Dashboard




The screenshot displays the 'CENTRAL OPERATIONS PORTAL' interface. At the top, there are logos for 'European Grid Infrastructure' and 'CCIN2P3'. Below these are navigation tabs: 'Dashboard', 'COD Dashboard', 'VO Information', 'EGI Broadcast', 'VO Management', and 'About Us'. The main header area includes the 'operations PORTAL' logo, the title 'CENTRAL OPERATIONS PORTAL Master Instance', and a welcome message 'Welcome Daniele Cesini'. A secondary navigation bar contains links to 'Dashboard', 'Downtimes', 'Handover', 'User List', 'Regional List', and 'Metrics'. The main content area features a search filter section with a dropdown for 'Set your filter' (currently set to 'a specific NGI'), a text input for 'NGI' (currently 'Italy'), and a checkbox for 'Open site boxes with ticket or alarm'. Below this, there are options to 'Show site with at least' one alarm or one ticket, with a 'no floor' dropdown for each. A message indicates '18 site(s) found'. The main content area lists three sites: 'AUVERGRID' (IN2P3-LPC, Clermont-Ferrand, France), 'BRGM-ORLEANS' (Bureau Recherches Geologiques Minieres), and 'GRIF' (Grille de Recherche d'Ile de France (GRIF)). Each site entry includes a status indicator (APEL) and a 'no floor' dropdown.

## GOCDDB (STFC/UK)

EGI relies on a central configuration database to record

- Authoritative service end points
- Status of services (in production, testing, in maintenance, ...)
- Resource centre administrators
- NGI operators, security officers
- NGI operations managers



**GOCDDB 4**

**Browse**

- My Sites
- NGIs
- Sites
- Service Groups
- Service Endpoints

**Add**

- Add Site
- Add Service Group
- Add Service Endpoint
- Add Downtime

**Downtimes**

- Recent & Planned

**About GOCDDB4**

- Doc, Help & Support

**Search**

**User Status**

Registered as:  
Tiziana Ferrari

[View Details](#)  
Manana Dolan



**NGIs**

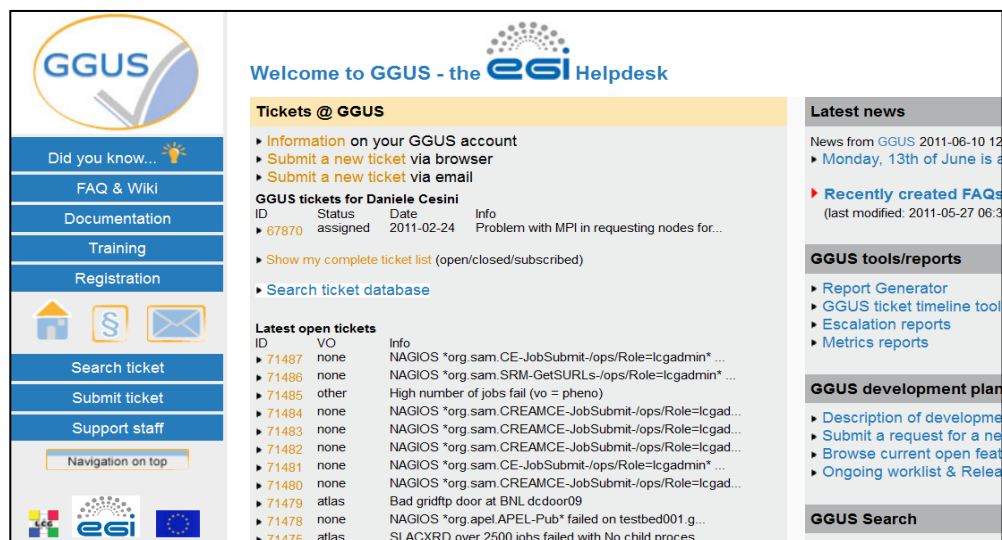
EGI's National Grid Initiatives  
[What is an NGI?](#)

40 NGIs

Name	Sites	Description
 AsiaPacific	65 Sites	Regional Operating Centre for Asia Pacific
 CERN	20 Sites	
 EGI.eu	15 Sites	EGI.eu Operations Centre hosting central operations tools
 NGI_AEGIS	9 Sites	
 NGI_AL	1 Site	
 NGI_ARMGRID	5 Sites	
 NGI_BA	1 Site	
 NGI_BG	9 Sites	
 NGI_BY	6 Sites	National Grid Infrastructure for Scientific Research in Belarus
 NGI_CH	8 Sites	

## EGI Helpdesk (KIT/DE)

- distributed system with a central component (Global Grid User Support - GGUS) interfaced local helpdesks
- 1<sup>st</sup> and 2<sup>nd</sup> level support provided centrally by EGI.eu
- 3<sup>rd</sup> level support provided by technology providers (SLAs)
- Seamlessly interfaced to technology provider helpdesks



Welcome to GGUS - the **EGI** Helpdesk

**Tickets @ GGUS**

- Information on your GGUS account
- Submit a new ticket via browser
- Submit a new ticket via email

**GGUS tickets for Daniele Cesini**

ID	Status	Date	Info
67870	assigned	2011-02-24	Problem with MPI in requesting nodes for...

[Show my complete ticket list](#) (open/closed/subscribed)

[Search ticket database](#)

**Latest open tickets**

ID	VO	Info
71487	none	NAGIOS *org.sam.CE-JobSubmit-/ops/Role=lcgadmin* ...
71486	none	NAGIOS *org.sam.SRM-GetURLS-/ops/Role=lcgadmin* ...
71485	other	High number of jobs fail (vo = pheno)
71484	none	NAGIOS *org.sam.CREAMCE-JobSubmit-/ops/Role=lcgad...
71483	none	NAGIOS *org.sam.CREAMCE-JobSubmit-/ops/Role=lcgad...
71482	none	NAGIOS *org.sam.CREAMCE-JobSubmit-/ops/Role=lcgad...
71481	none	NAGIOS *org.sam.CE-JobSubmit-/ops/Role=lcgadmin* ...
71480	none	NAGIOS *org.sam.CREAMCE-JobSubmit-/ops/Role=lcgad...
71479	atlas	Bad gridftp door at BNL dcdoor09
71478	none	NAGIOS *org.apel.APEL-Pub* failed on testbed001.g...
71475	atlas	SIACXRD over 2500 jobs failed with No child proces...

**Latest news**

News from GGUS 2011-06-10 12:00:00  
 Monday, 13th of June is a

**Recently created FAQs**  
 (last modified: 2011-05-27 06:30:00)

**GGUS tools/reports**

- Report Generator
- GGUS ticket timeline tool
- Escalation reports
- Metrics reports

**GGUS development plan**

- Description of development
- Submit a request for a new feature
- Browse current open features
- Ongoing worklist & Release schedule

**GGUS Search**

# Accounting and service level management

- Central gathering of accounting information and central availability/reliability reporting system
  - Only a small set of NGIs keeping a local registry of accounting data

EGI ACCOUNTING PORTAL

GLOBAL View VO MANAGER View VO MEMBER View SITE ADMIN View USER View

hierarchical Tree EGI View --> Production

Tier1  
 Tier2  
 Countries  
 EGI  
 AsiaPacific  
 CERN  
 EGI.eu  
 NGI\_AEGIS  
 NGI\_AL  
 NGI\_ARMGRID  
 NGI\_BA  
 NGI\_BG  
 NGI\_BY  
 NGI\_CH  
 NGI\_CYGRID  
 NGI\_CZ  
 NGI\_DE  
 NGI\_FI  
 NGI\_FRANCE  
 NGI\_GE  
 NGI\_GRNET  
 NGI\_HR  
 NGI\_HU

Data to graph: Norm. Sum CPU (kSI2K-hours) Normalised CPU time to a reference  
 Period: Start year: 2012 Start month: 1 End year: 2012  
 Groupings: Show data for: REGION as a function of: VO  
 VO Groups: ☒ LHC ☐ TOP 10 ☐ ALL  
☐ Group the rest of VOs in a new category  
 Chart: Type: GROUP BAR Scale: LINEAR  
 dteam VO: ☐ Exclude dteam and ops VOs jobs information  
 Local Jobs: ☒ Grid Jobs Only ☐ Grid Jobs and Local Jobs ☐ Local

Refresh

Normalised CPU time (kSI2K) by REGION and VO.  
LHC VOs. January 2012 - December 2012.

The following table lists the sites that have not published accounting data to GOC during the last 3 months. This probably in so listed sites are encouraged to take the appropriate measures to correct it.

Region	Sites
AsiaPacific	IR-IPM-HEP, JP-KEK-CRC-02, MY-USM-GCL, TW-EMI-PPS, TW-NTU-HEP
NGI_DE	MaiGRID, UNI-BONN
NGI_FI	CSC, FI_AA, FI_Aalto, FI_Helsinki, FI_JYU, FI_LUT, FI_Oulu, FI_TUT, FI_UEF, FI_UTU
NGI_HU	II, IICC, IG



- Roles

- NGI operators on duty → providing support to national administrators and users
- NGI security officer
- NGI operations manager

- Coverage

- 9:00-17:00, 5 days per week
- Central operations tools → 24/7
  - Notification mechanisms in case of failure outside office hours (in progress)

- How are the NGI operations organized?

- Mostly centralized, some distributed, outsourcing across NGIs is common practice

- Tools

- Integrated/interoperating tools across all NGIs

- What types of users are using your network and services?
  - Various scientific disciplines
  - EC-funded projects and spontaneous collaborations → Virtual Organizations
- Minimum availability/reliability guaranteed by all Resource Centres
  - User SLAs being developed
  - Resource Centre OLA
  - NGI OLA
  - EGI.eu OLA
- Communication and user registration
  - User community board (EGI level policy board)
  - Broadcast tool to all VO managers/VO users
  - VOs are centrally registered
  - User VO membership registered through the VOMS services (distributed, one VO can be served by multiple instances for HA)

- **NGI-level communication**
  - Weekly meetings, NGI-specific support channels and mailing lists and documentation
- **EGI-level communication**
  - Centrally maintained documentation, wiki, broadcast
  - Operations management board for EGI-level coordination of operations
- **Inter-NGI communication**
  - Broadcast tool, wiki, mailing lists, discussion forum

- What information does EGI document?
  - Technical guides for service administrators
  - User documentation
  - Procedures
  - Policies
  - FAQs
- Which tools are used to create and update documentation?
  - Wiki and DocDB

- DANTE-EGI.eu MoU recently finalized
  - Network support services
    - Performance tuning (PERT)
    - Troubleshooting
    - PerfSONAR MDM
  - Integration of helpdesks will be investigated

- Federation of NGI operations
  - EGI.eu operations central services
  - NGI operations services
- Tightly coupled operations model facilitated by the availability of a limited set of technology providers
  - Integration of heterogeneous software stacks is possible
- One system of integrated or interoperating operations tools