

SA1 and JRA1 Operations and Operational Tools

D. Cesini, JRA1 Activity Manager - INFN

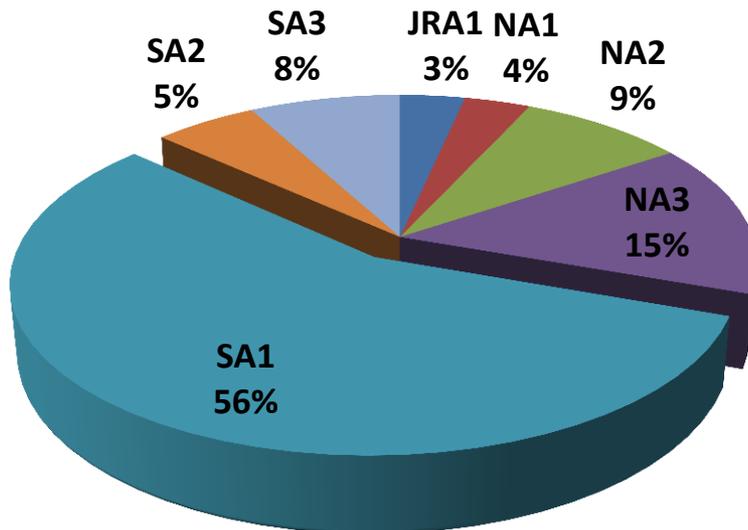
T. Ferrari, Chief Operations Officer -
EGI.eu

- PART I
 - Objectives, tasks, effort, partners
- PART II
 - Resource Infrastructure
- PART III
 - Service infrastructure
- PART IV
 - Issues, use of resources, impact and plans

43 Countries
45 Beneficiaries
5238 PMs
109 FTEs



SA1 Effort



WP	Beneficiary	Total PM	WP	Beneficiary	Total PM
WP4-E	EGI.eu	36	WP4-N	IUCC	25
WP4-E	CERN	59	WP4-N	KIT-G	278
WP4-E	CNRS	12	WP4-N	LIP	107
WP4-E	CSC	23	WP4-N	MTA KFKI	118
WP4-E	CSIC	29	WP4-N	NCF	159
WP4-E	CYFRONET	23	WP4-N	RENAM	20
WP4-E	GRNET	70	WP4-N	SIGMA	82
WP4-E	INFN	48	WP4-N	SRCE	72
WP4-E	KIT-G	70	WP4-N	STFC	277
WP4-E	LIP	17	WP4-N	SWITCH	86
WP4-E	NCF	40	WP4-N	TCD	94
WP4-E	SRCE	11	WP4-N	TUBITAK	130
WP4-E	STFC	75	WP4-N	UCPH	81
WP4-E	VR-SNIC	23	WP4-N	UCY	48
WP4-N	ARNES	94	WP4-N	UI SAV	96
WP4-N	CESNET	128	WP4-N	UIIP NASB	30
WP4-N	CNRS	316	WP4-N	UKIM	71
WP4-N	CSC	67	WP4-N	UOBL ETF	75
WP4-N	CSIC	372	WP4-N	UOM	71
WP4-N	CYFRONET	156	WP4-N	UPT	32
WP4-N	E-ARENA	71	WP4-N	VR-SNIC	84
WP4-N	GRENA	19	WP4-N	VU	22
WP4-N	GRNET	180	WP4-N	ASGC	193
WP4-N	ICI	58	WP4-N	ASTI	156
WP4-N	ICT-BAS	124	WP4-N	KEK	1
WP4-N	IIAP NAS RA	19	WP4-N	KISTI	92
WP4-N	IMCS-UL	52	WP4-N	UNIMELB	36
WP4-N	INFN	378	WP4-N	NUS	14
WP4-N	IPB	118			

7 Countries

8 Beneficiaries

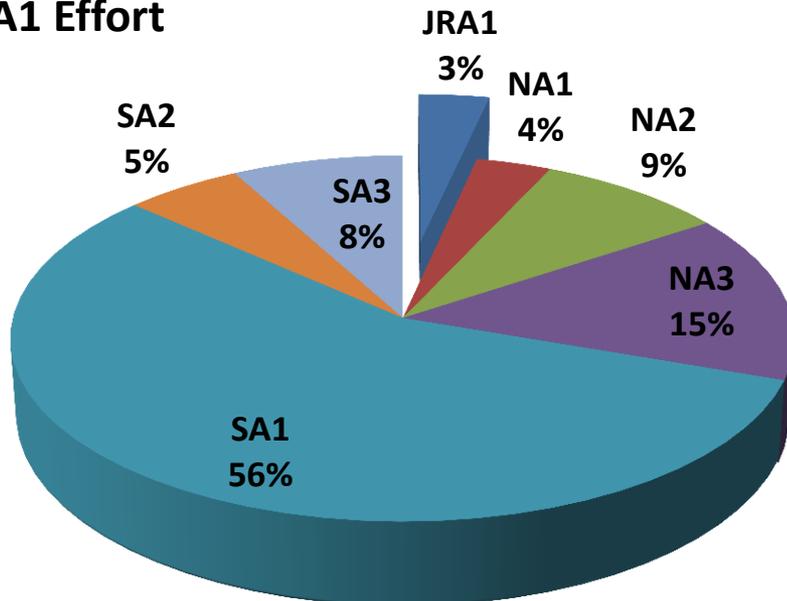
315 PMs

8.67 FTE



WP	Task	Beneficiary	Total PMs
WP7-E	TJRA1.1	INFN	24
WP7-E	TJRA1.2	KIT-G	47
WP7-E	TJRA1.2	CSIC	12
WP7-E	TJRA1.2	CNRS	12
WP7-E	TJRA1.2	GRNET	12
WP7-E	TJRA1.2	SRCE	12
WP7-E	TJRA1.2	STFC	24
WP7-E	TJRA1.2	CERN	12
WP7-G	TJRA1.3	CSIC	3
WP7-G	TJRA1.3	CNRS	3
WP7-G	TJRA1.3	SRCE	3
WP7-G	TJRA1.3	STFC	3
WP7-G	TJRA1.3	CERN	6
WP7-G	TJRA1.4	KIT-G	18
WP7-G	TJRA1.4	CSIC	18
WP7-G	TJRA1.4	INFN	26
WP7-G	TJRA1.4	STFC	27
WP7-G	TJRA1.5	CNRS	53

JRA1 Effort



	Task	Leader/Partner	Task effort distribution
TSA1.1	Activity Management	T. Ferrari/EGI.eu	1%
TSA1.2	Secure Infrastructure	M. Ma/STFC	9%
TSA1.3	Service Deployment Validation	M. David/LIP	11%
TSA1.4	Infrastructure for Grid Management	E. Imamagic/ SRCE	21%
TSA1.5	Accounting	J. Gordon/STFC	6%
TSA1.6	Helpdesk Infrastructure	T. Antoni/KIT	9 %
TSA1.7	Support Teams	R. Trompert/SARA	28%
TSA1.8	Providing a Reliable Grid Infrastructure and core services	C. Kanellopoulos/AUTH	15%

	Task	Leader/Partner	Task effort distribution
TJRA1.1	Activity Management	D. Cesini/INFN	7%
TJRA1.2	Maintenance and development of the deployed operational tools	T. Antoni/KIT	42%
TJRA1.3	Supporting National Deployment models	P. Solagna/EGI.eu	6% (PY1 only)
TJRA1.4	Accounting for usage of different resource types <ul style="list-style-type: none"> • Cloud, HPC, Desktop Grid, • Storage/Data Usage • Application Usage • Billing system 	J. Gordon/SFTC	28% (PY2-PY4 only)
TJRA1.5	Integrated Operations Portal <ul style="list-style-type: none"> • Service Oriented model • Harmonization with GOCDB • Porting to Symfony • New DCI integration 	C. L'Orphelin/CNRS	17% (PY1-PY3 only)

Operate a secure, reliable European-wide federated production grid infrastructure that is integrated and interoperates with other grids worldwide

	Tasks	Task Objectives
O1	TSA1.2	Maintain a secure infrastructure
O2	TSA1.3	Validate new technology releases (tools and middleware)
O3	TSA1.7	Support end-users and Resource Centre administrators
O4	TSA1.8	Service Level Management, grid oversight, documentation and procedures
O5	TSA1.4 TSA1.5 TSA1.6	Operate tools, the accounting infrastructure and the EGI Helpdesk
O6	JRA1.2 JRA1.3 JRA1.4 JRA1.5	Evolve the operational tools used by the production infrastructure <ul style="list-style-type: none"> - Maintenance, development and support of national deployment - Accounting for the use of new resources (desktop, virtualisation, storage, data, application and billing)

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 - Resource Infrastructure
 - architecture
 - resource capacity and utilisation
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Layer I
The federated
interconnected
Education and
Research

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

Resource Provider (RP)
Responsible for
operating the
infrastructure

Layer III.
EGI Resource Infrastructure

NGI/EIRO

EGI.eu

Network

Resource Provider

Resource Infrastructure

Resource Centres

Resource Centres

MoUs

Resource Provider

Resource Infrastructure

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

Resource Centres

338 → +6.8%

Europe, Asia Pacific, North and South America

96 supporting MPI → +31.5%

Countries

51 (57 with integrated RPs) → +18.75%

Capacity

240,000 CPU cores

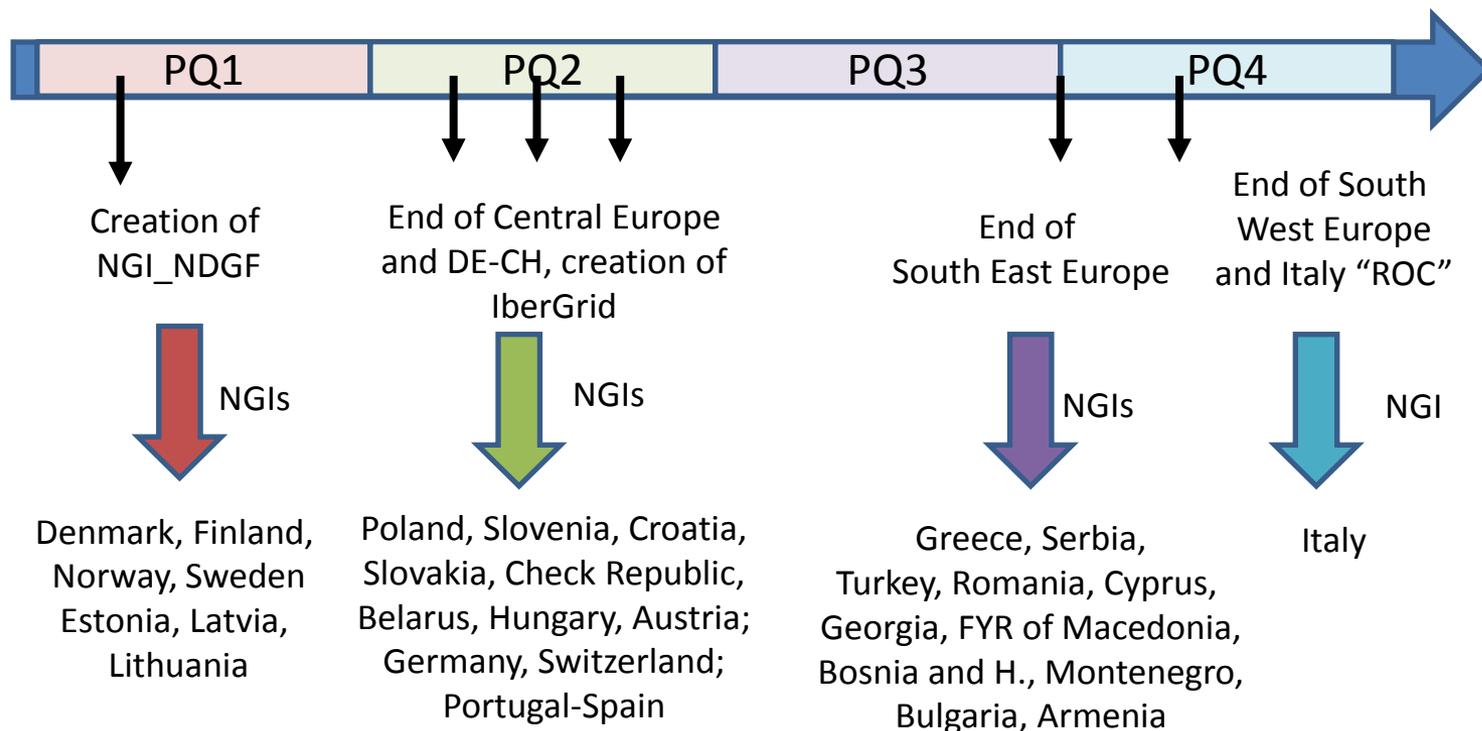
(339,000 with integrated and peer infrastructures) → 24.9%

1.89 Million HEP-SPEC 06*

102 PB disk, 89 PB tape

* HEP-SPEC 06: Computing benchmark based on SPEC CPU2006, 10 HEP-SPEC = 4 kSI2k

- April 2010: 12 EGEE federated regional infrastructures
- April 2011: 40 European NGIs and 1 EIRO (CERN)
 - and 4 integrated resource infrastructures (in the Asia Pacific, Canada, Latin American and Caribbean regions)



- **Availability**

- the percentage of time that the service/RC was up and running
(uptime / total time) x 100
- minimum RC availability: **70%**

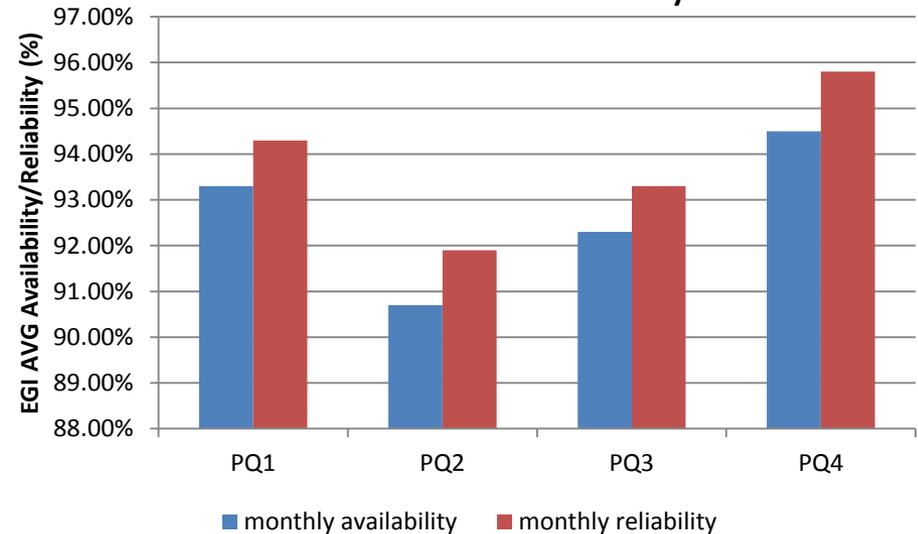
- **Reliability**

- the percentage of time that the service/RC was up and running, excluding periods of scheduled interventions
[uptime / (total time – scheduled time)] x 100
- minimum RC reliability: **75%**

- **Suspension policy**

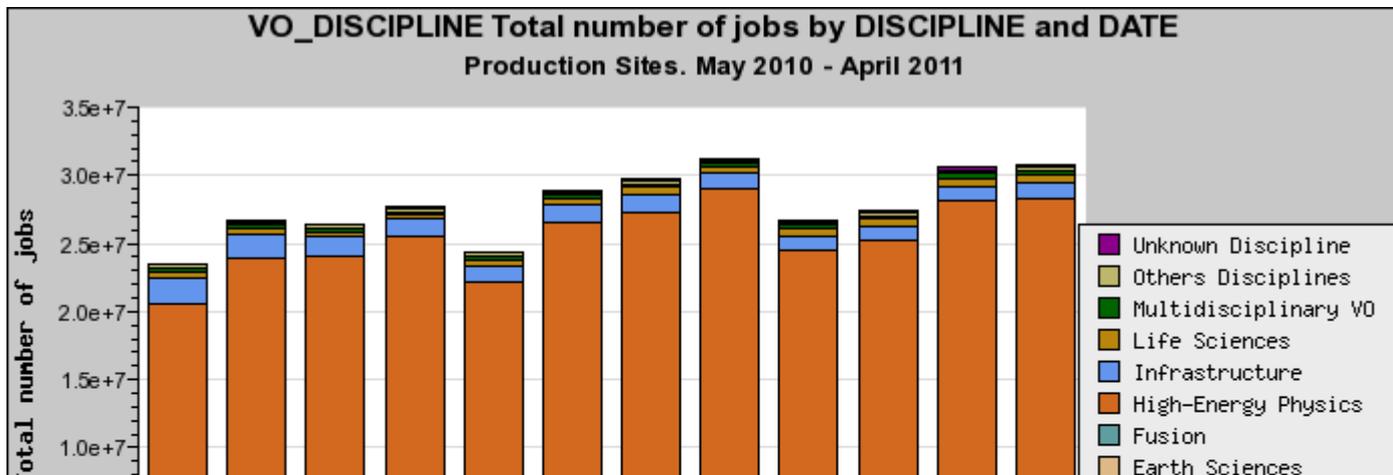
- RC availability < 50% for 3 consecutive months
- **6 RCs suspended**
- stricter policy from PY2: **from 50 to 70%**

Overall PY1 EGI availability: 92.73%
Overall PY1 EGI reliability: 93.85%



- **Reporting**

- monthly performance reports per RC
- **new** ticket-based procedure for monitoring of underperforming RCs

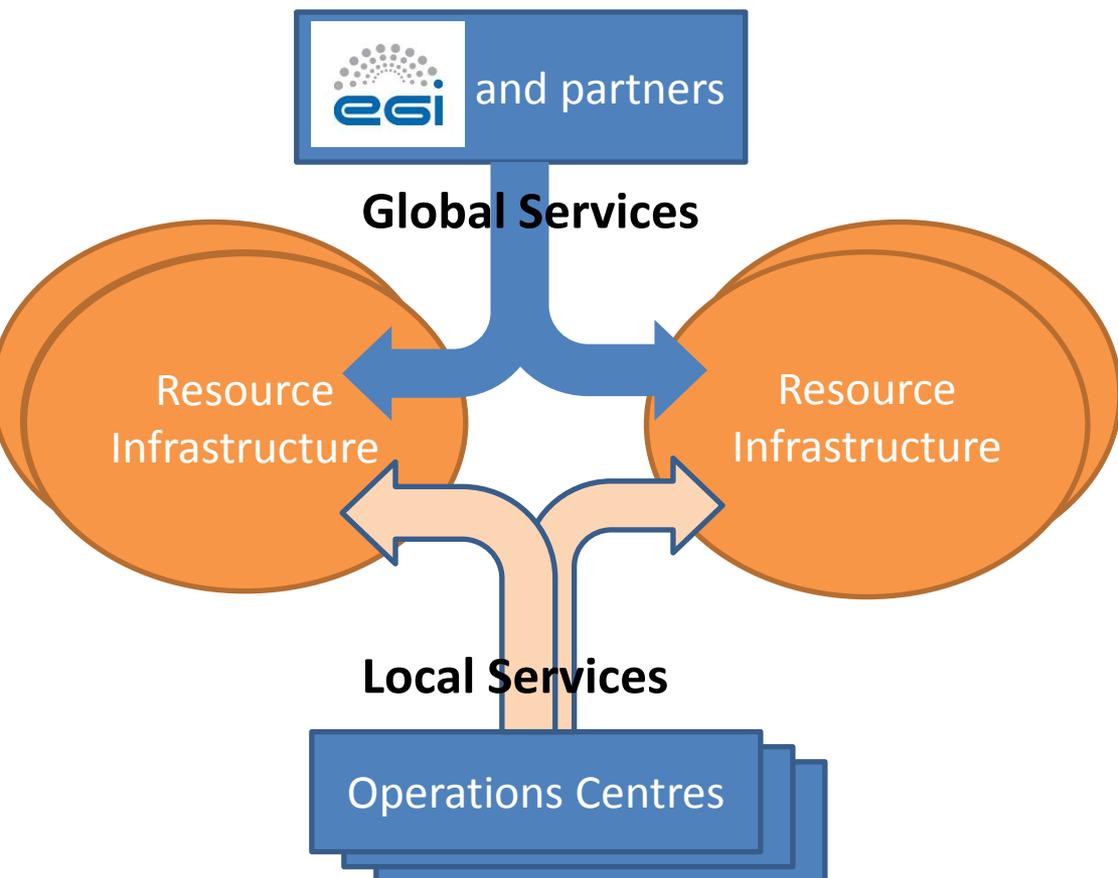


Metric	Unit	Per month	Per day	2011-2010 vs 2009-2010
Average Number Jobs	number	All VOs: 27.8 M Non HEP: 2.8 M (10% of total)	All VOs: 914,000 Non HEP: 100,000	+82% +47%
CPU wall clock (all VOs)	hours	All VOs: 74.8 M Non HEP: 7.0 M	All VOs: 2.5 M Non HEP: 230,600	+35% +28%
Normalised CPU wall clock	HEP-SPEC 06 hours	All VOs: 563.2 M Non HEP: 50.3 M	All VOs: 18.5 M Non HEP: 1.7 M	+101% +56%

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The **service infrastructure** enables secure, interoperable and reliable access to distributed resources.

EGI services are provided **locally** by Operations Centres and **globally** by EGI.eu.



Service categories:

I. Infrastructure Services →
Tools

II. Technical Services →
Grid middleware

III. Support Services →
Helpdesk

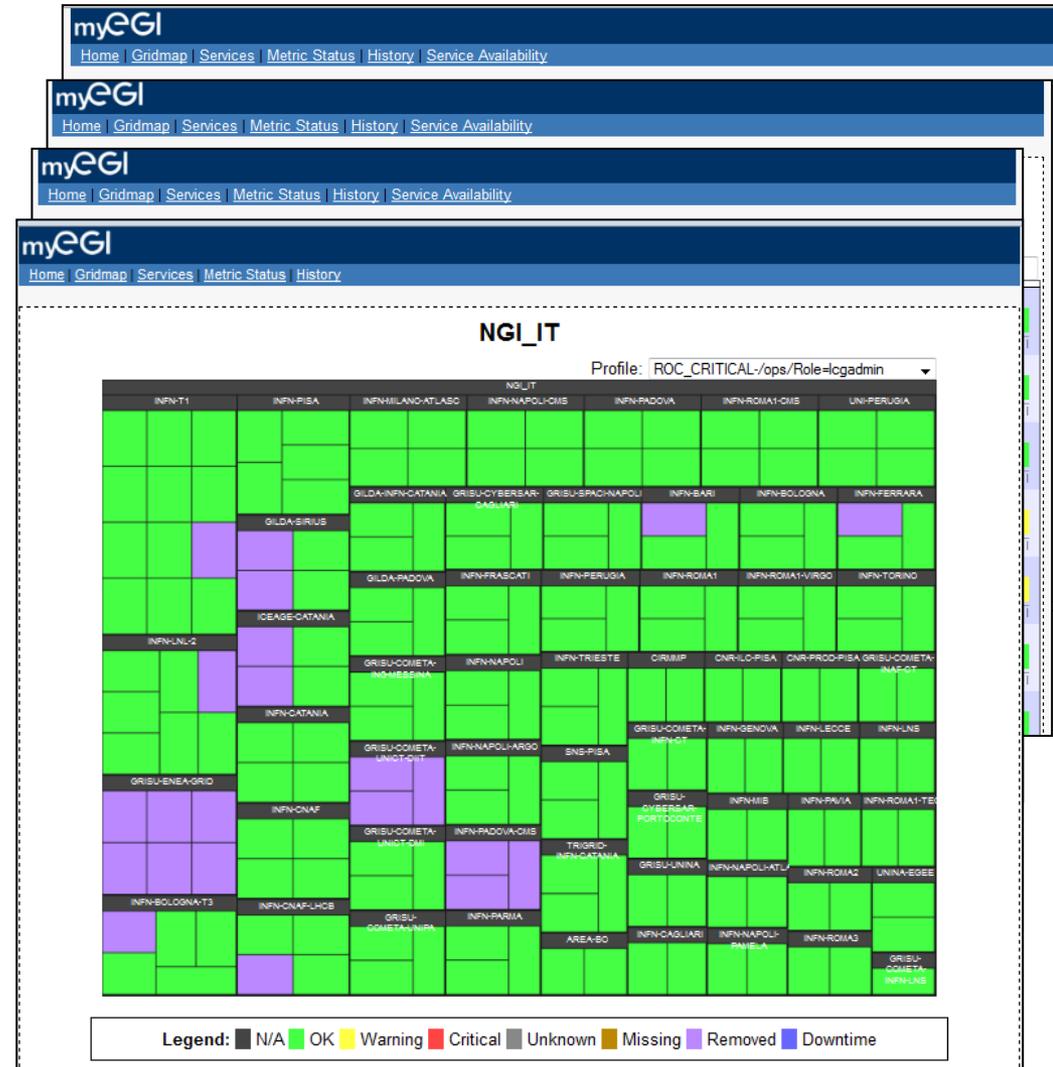
IV. Human Services →
Service Level Management, security,
documentation, coordination

- Operational tools
 - Message brokers
 - TSA1.4, JRA1.2
 - Service Availability Monitoring
 - TSA1.4, JRA1.2, JRA1.3
 - Operations Portal
 - TSA1.4, JRA1.2, JRA1.5
 - Accounting
 - TSA1.5, JRA1.4
 - Helpdesk
 - TSA1.6, JRA1.2
 - Grid Configuration DataBase
 - TSA1.4, JRA1.2

- **Communication bus** used by operational tools to exchange information
 - EGI **Global Service** based on open source messaging (**Apache ActiveMQ**)
 - producers/consumers
 - 4 brokers operated by 3 institutes
 - AUTH (GR), CERN and SRCE (HR)
 - authorization plugin to limit access to broker queues/topics based on server hostname registered in GOCDDB and/or user VO membership

SAM: monitoring framework for RCs and services

- main data sources for the Operations Dashboard
- 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](#)



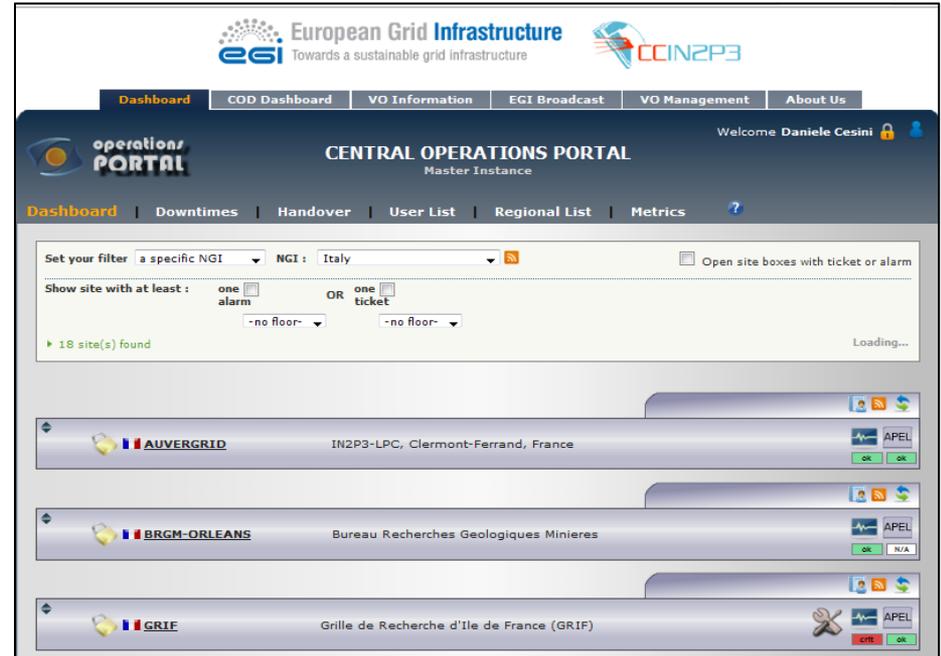
- 8 releases following the new EGI software provisioning and deployment process
- MyEGI GUI in production (central/local instances)
 - new look and feel, GridMap style plots
 - programmatic interface
- Re-engineering of database components
 - ATP as new topology provider
- Probes
 - integration of ARC and GLOBUS 5 probes (UNICORE in progress)
- Other
 - Creation of 2nd level support unit
 - handover of probe maintenance/development (where applicable) to technology providers (EMI, IGE) – in progress

Operations Portal (CNRS)

- broadcast tool
- Operational Dashboard
- VO Identity Cards

Achievements

- 8 releases
- package for **local deployment** released and updated (deployed in 4 NGIs)
- porting to a **new web framework** almost completed
- improvements to all the modules
 - VO ID Cards module implementation driven by NA3 requirements
- integration with **security dashboard** - in progress
- new “Central Operator on Duty” view released



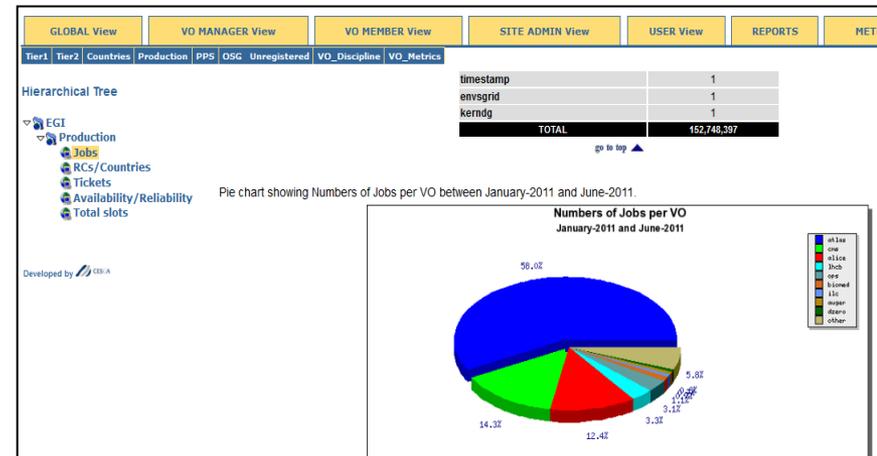
The screenshot displays the 'CENTRAL OPERATIONS PORTAL' Master Instance. At the top, it features the ESI logo and the text 'European Grid Infrastructure Towards a sustainable grid infrastructure', along with the CCIN2P3 logo. A navigation bar includes 'Dashboard', 'COD Dashboard', 'VO Information', 'EGI Broadcast', 'VO Management', and 'About Us'. The user is logged in as 'Daniele Cesini'. Below the navigation, there are tabs for 'Dashboard', 'Downtimes', 'Handover', 'User List', 'Regional List', and 'Metrics'. A search filter is set to 'a specific NGI' with 'NGI: Italy' selected. The search criteria are 'Show site with at least: one alarm OR one ticket', with '-no floor-' selected for both. The results show '18 site(s) found'. Three site cards are visible: 'AUVERGRID' (IN2P3-LPC, Clermont-Ferrand, France), 'BRGM-ORLEANS' (Bureau Recherches Geologiques Minieres), and 'GRIF' (Grille de Recherche d'Ile de France (GRIF)). Each card includes an 'APEL' status indicator and 'OK' or 'N/A' buttons.

Global/local service to collect and provide information about usage of compute resources within the production infrastructure

- Central components
 - gLite-APEL usage record repositories (STFC)
 - [Accounting Portal \(FCTSG\)](#) GUI for access to data from the Accounting Repository
- Local components
 - Sensors, national /regional repositories and portal
 - APEL local database implementation – in progress

Achievements

- new: integration of the APEL accounting system with the message broker network and decommissioning of central R-GMA services
- porting of [APEL tests](#) to Nagios
- portal modified to support the new [GOCDDB4 PI](#) and the [Operations Portal](#)
- XML feeds
- [NGI View](#) added in the portal

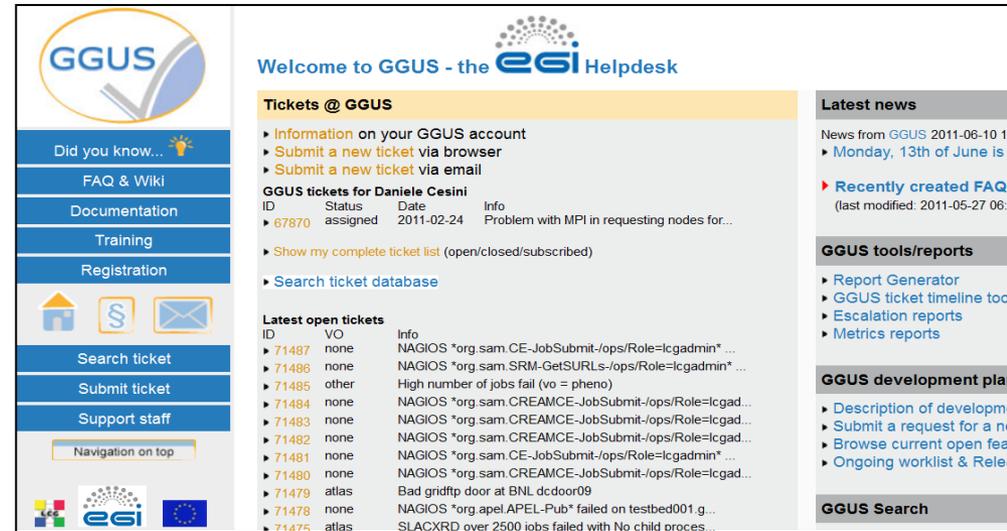


EGI Helpdesk (KIT)

- distributed system with a central component (Global Grid User Support - GGUS) interfaced local helpdesks

Achievements

- 9 releases
- update of support teams and units
- integration of the **new** NGIs (31 NGIs interfaced, 22 as support units, 6 with a local helpdesk)
- definition and implementation of **new workflows** for
 - **technology support** (1st level, 2nd level and 3rd level provided by the Technology Providers – EMI, IGE etc.) and the respective access privileges
 - support of **software provisioning** and bug reporting processes that involve EGI and its external technology providers
- local instance (**xGUS**) available and deployed by various NGIs/projects



Welcome to GGUS - the **esi** 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
 ▶ Monday, 13th of June is a

▶ Recently created FAQs
 (last modified: 2011-05-27 06:3)

GGUS tools/reports

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

GGUS development plan

- ▶ Description of developme
- ▶ Submit a request for a ne
- ▶ Browse current open fea
- ▶ Ongoing worklist & Relea

GGUS Search

GOCDDB (STFC)

EGI relies on a central configuration database to record static information contributed by the resource providers as to the service instances that they are running and the individual contact, role and status information for those responsible for particular services

Achievements

- decommissioning of GOCDDB3, release and deployment of new GOCDDB4
- prototype for local deployment available but w/o synchronisation system
- naming schema modification to integrate UNICORE services
- GLUE2.0 compatibility for service names – in progress



Resources

- Browse Sites
- Browse Services
- Browse ROCs/NGIs
- My Sites/Groups

Downtimes

- Recent & Planned
- Archives

About GOCDDB4

- Doc, Help & Support
- Development Status
- Credits

Search

Submit

User Status

Registered as:
Daniele Cesini

[View Details](#)

Portal Instance

Central Portal

Welcome to GOCDDB Central Visualisation Portal

GOCDDB is the official repository for storing and presenting EGI topology and resources information.

What information is presented here?

This portal presents a view of topology and resources information for the whole EGI infrastructure. This consists mainly of:

- Participating National Grid Initiatives (NGI)
- Grid Sites providing resources to the infrastructure
- Resources and services, including maintenance plans for these resources
- Participating people, and their roles within EGI operations

This is a visualisation tool only!
Data are provided and updated at regional level by participating NGIs, and are then gathered and presented through this central interface.

How to update information?

Unless your NGI uses a regional system fully synchronised with Central GOCDDB, updates can be made through:

- the [GOCDDB4 Central Input System](#).

GOCDDB is developed by Rutherford Appleton Laboratory, STFC, UK on behalf of EGI.eu. Licensed under the [gLite Software \(Apache\)](#) License.

Metrics Portal (FCTSG) prototype tool being developed for a manual/automatic collection of EGI-InSPIRE metrics from different information sources to track **project** and **partner** performance

EGI METRICS PORTAL


Logged in as: /C=IT/O=INFN/OU=Personal Certificate/L=CNAF/CN=Daniele Cesini
 Last login: June 1, 2011, 10:38 a.m.
[Log out](#)

Common metrics of SA1 - Quarter 3:

Metric Name	Task	Description	Value
M.SA1.OperationalSecurity.1	TSA1.2	Number of Site Security Challenge (SSC) made	444
M.SA1.OperationalSecurity.2	TSA1.2	Number of Sites failing the Site Security Challenges	346
M.SA1.OperationalSecurity.3	TSA1.2	Incident Handling Assessment scores	7
M.SA1.OperationalSecurity.4	TSA1.2	Number of suspended sites for security issues	454
M.SA1.Accounting	TSA1.5	Number of sites adopting AMQ messaging for Usage Record publication	33
M.SA1.Service.Validation.2	TSA1.3	Number of staged rollout releases undertaken & rejected	4
Comments			

Edit
Back to tasks

NGI metrics of SA1:

Push the button to go to the corresponding NGI metrics. Note that you will need privileges to edit them.

NGI Name:
Quarter:

[History](#)

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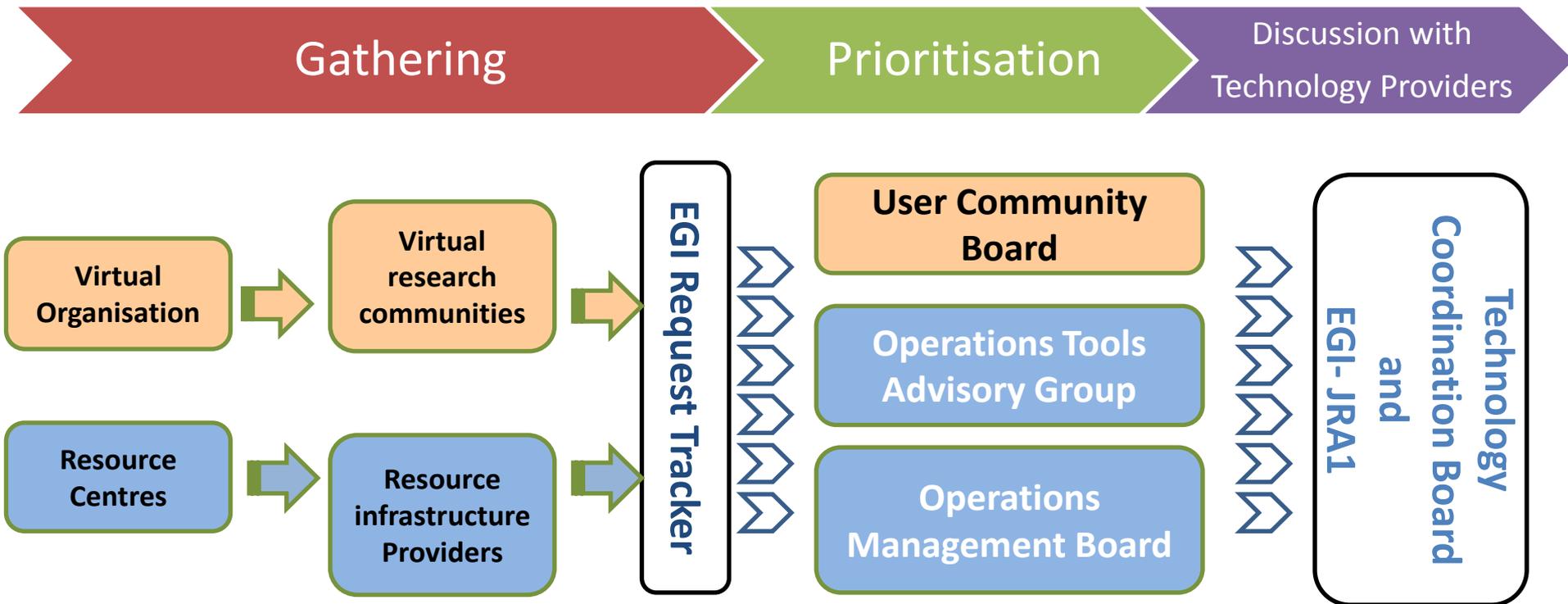
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- Reliable deployment and enhancement of software and integration of new technology
 - Requirements gathering
 - TSA1.1
 - Technology Staged Rollout
 - TSA1.3
 - Interoperability
 - TSA1.3
 - Core services
 - TSA1.8

New process for requirements gathering (tools and deployed software) every 3 months

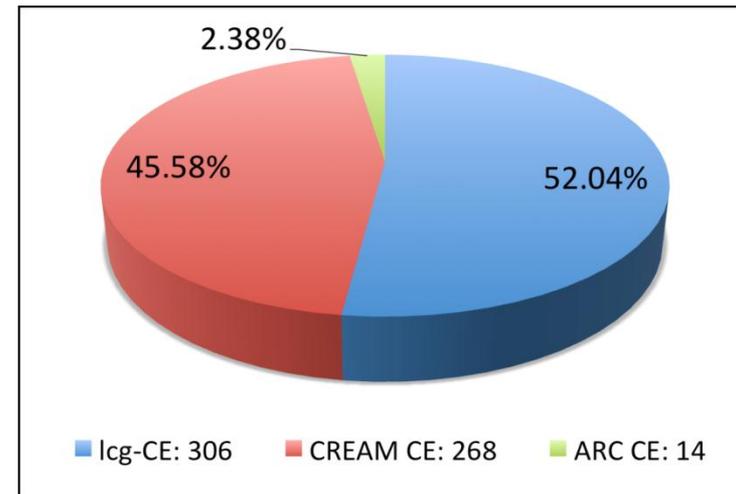


- **New** software updates (grid middleware and tools) are deployed into the production infrastructure incrementally through a **staged rollout** to ensure that they are reliable in actual use, following successful verification of the software component against published criteria
- **Early Adopters** are the **production** Resource Centres willing to deploy one or more new releases
 - automation of the process based on RT
 - process tested with the validation of gLite 3.1/3.2 releases and SAM

Achievements	Value
Max number of components tested/rejected in staged rollout per PQ	29/3
Max number of staged rollout tests undertaken	40 (PQ4)
Number of EA teams	45
Middleware stacks/components	ARC, gLite, UNICORE, SAM, CA trust chain, GLOBUS - in progress

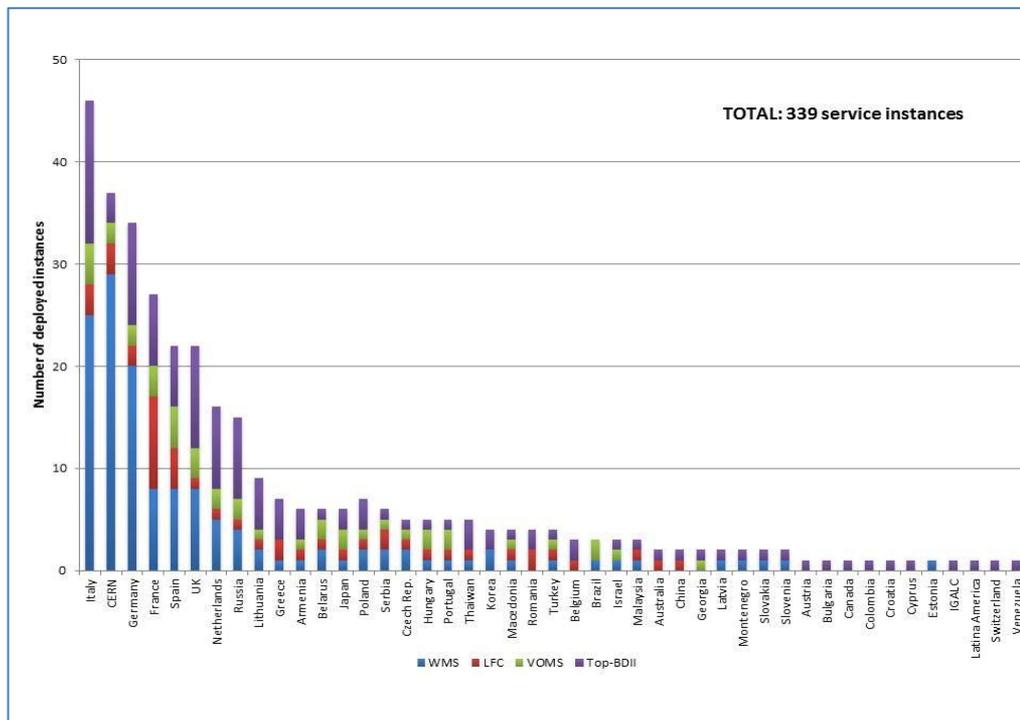
- Deployed middleware
 - ARC (2.38%), gLite (97.62%), UNICORE (1 RC)
 - more ARC and UNICORE installations expected in 2011
 - Croatia, Germany, Poland, Romania, The Netherlands, UK integrating GLOBUS and/or UNICORE → GLOBUS and UNICORE task forces

- Accomplishments
 - ARC fully integrated in to GOCDB, accounting and SAM
 - integration of UNICORE and GLOBUS in progress
 - Open Grid Forum
 - Production Grid Infrastructure WG
 - Grid Interoperability Now WG
 - Infrastructure Policy Group



• Achievements

- core grid services for new/small VOs
- **new** infrastructure for the DTEAM VO membership management (troubleshooting)
- membership management for OPS VO (monitoring)
- **new** infrastructure for monitoring of uncertified sites
- catch all CA
- 339 local core grid service instances
 - 135 workload management services (WMS)
 - 45 file catalogues (LFC)
 - 118 information discovery services (top-BDII)
 - 41 VO membership services (VOMS)



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III. Support Services 1/2

Technical Services	SA1 tasks	Central components	Local components
1 st level support	TSA1.7	Triage of tickets in GGUS	1 st level support for tickets opened locally
Grid oversight	TSA1.7	Central operations support and escalation of tickets not managed locally	Local operations support
Network Support	TSA1.7	Support to connectivity and performance problems (contact point to the NREN PERT teams)	

2nd level support: Deployment Middleware Support Unit (SA2)

3rd level support: Technology providers

Accomplishments

- new training and dissemination channels for new NGI support teams, monthly newsletter
- most of the new NGIs successfully established their own local support structures
- support for network performance issues in place (relying on tools for monitoring and troubleshooting) – contact point with NREN PERT teams

Metric	Value
Average number of EGI tickets CREATED/month	965 tickets (~constant)
Average monthly response time	3.24 operating hours
Average median of monthly solution time	6.67 operating hours

But

- central infrastructure oversight workload affected by new Operations Centres starting operations, now progressively reducing
- support problems faced in some NGIs now under resolution

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- Local human services with central coordination
 - Service Level Management
 - TSA1.8
 - Operational security
 - TSA1.2
 - Documentation
 - TSA1.8
 - Operations Management
 - TSA1.1

- Purpose
 1. to provide the **metrics for conformance** of the achieved level of service to the agreed one
 2. to ensure that the agreed level of service **is provided (monitoring and reporting on Service Levels)**
- Achievements
 - new EGI Resource Centre Operational Level Agreement [ITIL v3]
 - *agreement between EGI (“IT Service Provider”) and a Resource Centre (“another part of the same Organisation”)*
 - *an OLA supports the EGI delivery of grid services (“IT Services”) to end-users (“Customers”)*
 - duties, services and the related quality parameters
 - Resource Provider OLA in progress
 - definition of **new** GGUS-based process for Service Level Management (involving the central operators on duty – COD)
 - **new** suspension policy

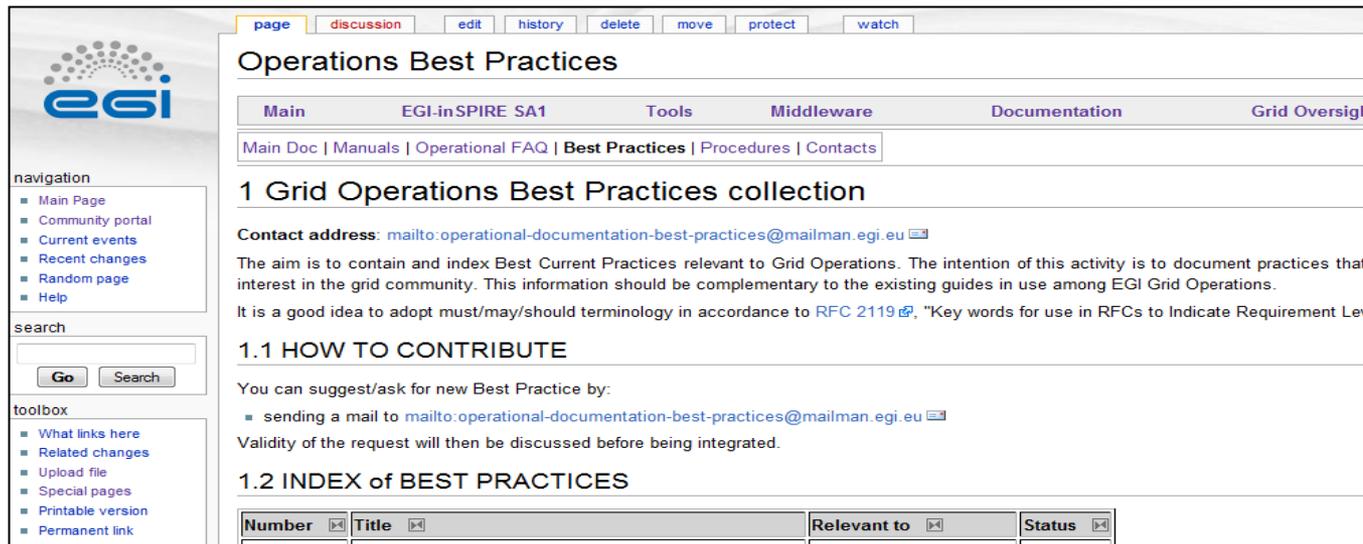
- Security incident response

Security Policy

- Handling potential reported vulnerabilities
- Vulnerability assessment
- Secure coding education

Achievements	
<p>EGISIRT</p> <ul style="list-style-type: none"> • Handling potential reported vulnerabilities • Vulnerability assessment • Secure coding education 	<p>Security Service Challenge 4</p> <ul style="list-style-type: none"> → 13 RCs tested (including WLCG Tier1 sites) 9 security incidents handled 12 advisories issued (3 critical) 3 critical vulnerabilities mitigated within 7 days 1 security training session (EGI TF)
SVG	<p>29 software vulnerabilities reported</p> <ul style="list-style-type: none"> → 15 concerning Grid middleware → 4 fixed (others have not passed their Target Date yet)
Procedures	<p>3 new procedures</p> <ul style="list-style-type: none"> Software vulnerability handling Critical vulnerability handling Security incident (exploited vulnerability) handling
Resource Centres suspended	0

- Documentation collected at the EGI [wiki](#) (160 operations pages)
 - 9 new [procedures](#) defined and approved
 - 3 new [manuals](#) and several guides - in progress
 - [migration and update](#) of existing legacy technical documentation - in progress
 - [mirroring](#) of EGI wiki at ASGC



The screenshot shows a wiki page titled "Operations Best Practices". At the top, there are tabs for "page", "discussion", "edit", "history", "delete", "move", "protect", and "watch". Below the title is a navigation bar with links for "Main", "EGI-inSPIRE SA1", "Tools", "Middleware", "Documentation", and "Grid Oversight". A secondary navigation bar includes "Main Doc", "Manuals", "Operational FAQ", "Best Practices", "Procedures", and "Contacts".

The main content area starts with the heading "1 Grid Operations Best Practices collection". Below this is the "Contact address" section, which includes an email link: <mailto:operational-documentation-best-practices@mailman.egi.eu>. The text explains the aim of the collection: "The aim is to contain and index Best Current Practices relevant to Grid Operations. The intention of this activity is to document practices that interest in the grid community. This information should be complementary to the existing guides in use among EGI Grid Operations. It is a good idea to adopt must/may/should terminology in accordance to RFC 2119, 'Key words for use in RFCs to Indicate Requirement Levels'".

There are two sub-sections: "1.1 HOW TO CONTRIBUTE" and "1.2 INDEX of BEST PRACTICES". Under "1.1 HOW TO CONTRIBUTE", it says "You can suggest/ask for new Best Practice by:" followed by a bullet point: "sending a mail to <mailto:operational-documentation-best-practices@mailman.egi.eu>". It also notes: "Validity of the request will then be discussed before being integrated."

At the bottom, there is a table with columns for "Number", "Title", "Relevant to", and "Status".

- PART I
 - Objectives, tasks, effort, partners
- PART II
 - Resource Infrastructure
- PART III
 - Service infrastructure
- PART IV
 - Issues, use of resources, impact and plans

- SA1
 - pending integration of two NGIs
 - successful establishment of some NGI as reference provider in the country

- JRA1
 - development for local deployment tools delayed
 - no funded effort for 2nd level support of distributed tools
 - SAM
 - Operations Portal

- SA1
 - 98% PMs achieved (aggregated)
 - EGI.eu Global Services
 - some marginal cases of overspending due to transition from EGEE
 - TSA1.8E: 59% of the allocated PMs were consumed due to issues in claiming effort within the JRU (nevertheless, all services were successfully delivered)
 - NGI Local Services
 - few cases of under/overspending that will be compensated over the duration of the project
 - overspending due to the transition from a EGEE federation to a NGI and to the setup of a new Operations Centre
- JRA1
 - 80% PMs achieved (aggregated across all tasks)

- TJRA1.2 – Maintenance
 - total spent → 86%
 - unspent effort can be compensated during the coming years – 4-year task
- TJRA1.3 – Development of tool packages for local deployment
 - total spent → 63%
 - underspending by almost all the partners and development not completed
 - hiring issues for some partners
 - consolidation of use cases
 - dependencies among tool development roadmaps
 - proposal: extension of TJRA1.3 into PY2
- TJRA1.5 (CNRS)
 - total spent → 76%
 - harmonisation of operations portal with GOCDB postponed

- SA1
 - day-by-day operations (security, support, oversight)
 - wide participation in staged rollout activities
 - integration
 - future NGIs and MoUs with new integrated RPs
 - finish UNICORE and GLOBUS integration
 - virtualised resources, desktop grids and PRACE (pilots)
 - operational tools availability reports (Global and Local)
 - automation of service level management processes
- JRA1
 - accounting
 - new APEL Publisher → September 2011
 - regional Accounting Server packaged and released to NGIs → December 2011
 - extension to support new resources and EGI business models
 - local deployment models to be completed (synchronisation system for regional GOCDB)
 - Operations Portal: Integration of security dashboard, feature enhancements, regionalisation

Project objective	SA1/JRA1 Achievements
<p>O1 <i>The continued operation and expansion of today's production infrastructure</i></p>	<ul style="list-style-type: none"> - SA1 and JRA1 provided continued, open and available services to all disciplines - Radical transition to a NGI-based model → >20 NGIs <ul style="list-style-type: none"> • NGIs at different levels of maturity but active, increasingly sustainable and improving their performance - OMB and OTAG established → >40 members - Installed capacity and Resource Centres integrated continued to grow → +25% CPU cores, +85% job run - 28 operational tool releases - 6 task forces
<p>O4 <i>Interfaces that expand access to new user communities</i></p>	<ul style="list-style-type: none"> - Support of MPI expanding → +31.5% - Integration of UNICORE → HPC
<p>O5 <i>Mechanisms to integrate existing infrastructure providers in Europe and around the world</i></p>	<ul style="list-style-type: none"> - New procedures and processes → +9 - Collaboration with integrated RPs through MoUs
<p>O6 <i>Establish processes and procedures to allow the integration of new DCI technologies</i></p>	<ul style="list-style-type: none"> - Accounting infrastructure migrated to messaging - ARC fully integrated, GLOBUS and UNICORE in progress - Integration of virtual Grid sites (StratusLab)

- All project metric targets **met**
- Effective contribution of both SA1 and JRA1 to meet the project objectives
 - ☺ continued operation with increasing performance and growing level of integration
 - ☺ new operational structures
 - from 12 federations to 40 NGIs and a framework for collaboration with integrated infrastructures
 - ☺ expansion of the resource infrastructure and increasing usage
 - +25% sites
 - +84% jobs run