



Enabling Grids for E-scienceE

An overview of EGEE operations & support procedures

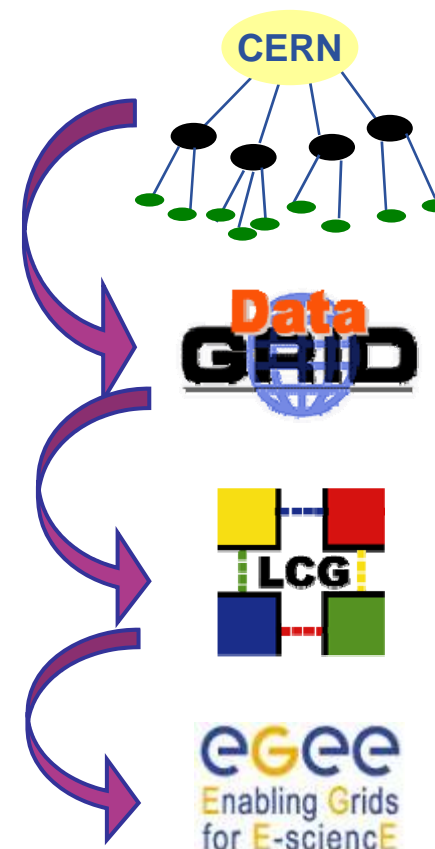
Jules Wolfrat
SARA

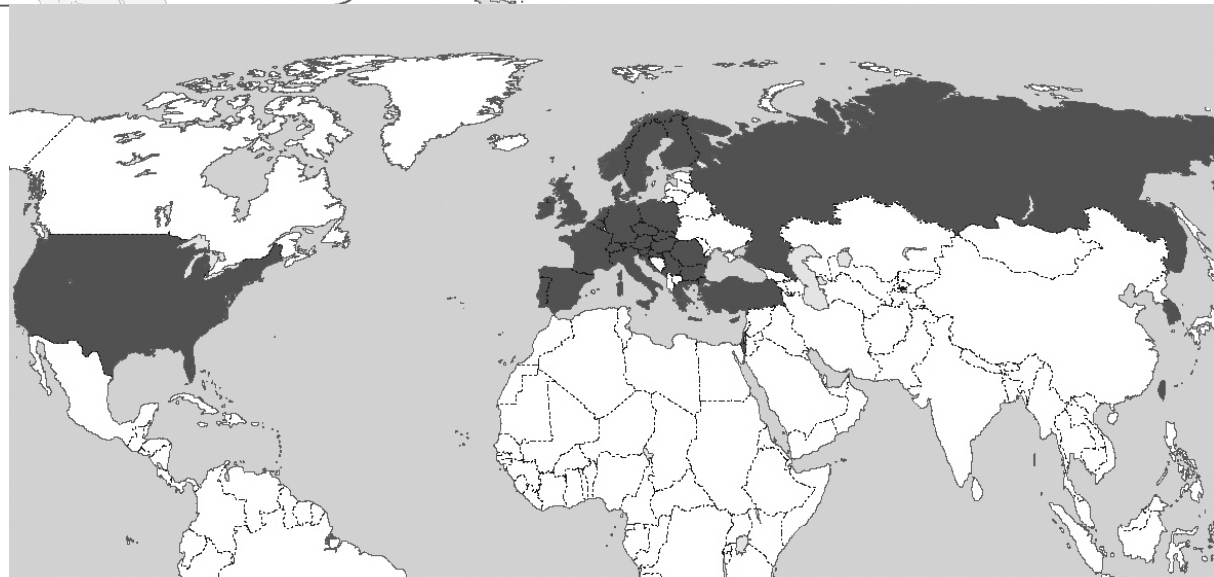
www.eu-egee.org



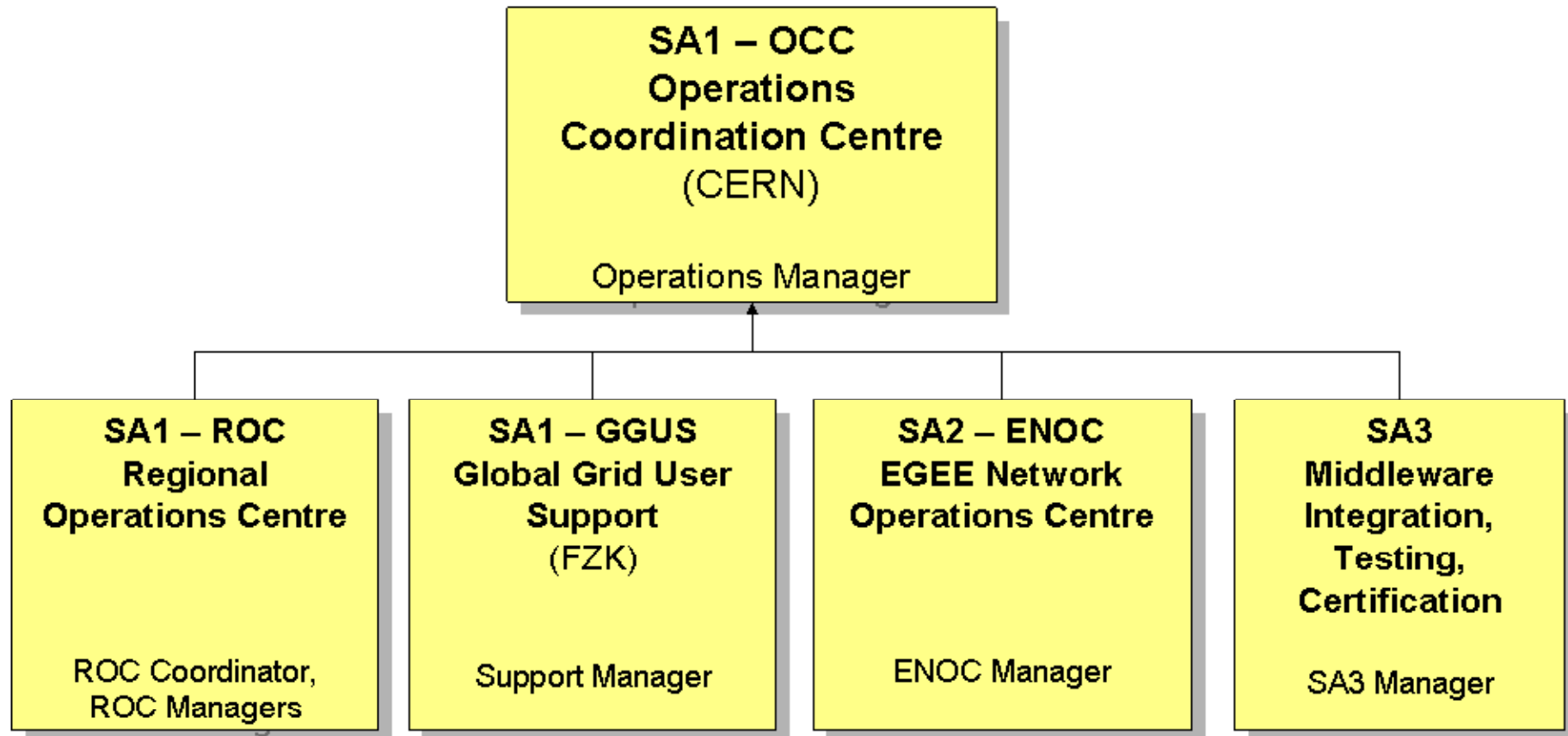
- **EGEE project overview**
- **EGEE SA1 service activity**
- **Support services**

- **1999 – Monarc Project**
 - Early discussions on how to organise distributed computing for LHC
- **2000 – growing interest in grid technology**
 - HEP community was the driver in launching the DataGrid project
- **2001-2004 - EU DataGrid project**
 - middleware & testbed for an operational grid
- **2002-2005 – LHC Computing Grid – LCG**
 - deploying the results of DataGrid to provide a production facility for LHC experiments
- **2004-2006 – EU EGEE project phase 1**
 - starts from the LCG grid
 - shared production infrastructure
 - expanding to other communities and sciences
- **2006-2008 – EU EGEE-II**
 - Building on phase 1
 - Expanding applications and communities ...
- **... and in the future – Worldwide grid infrastructure??**
 - Interoperating and co-operating infrastructures?

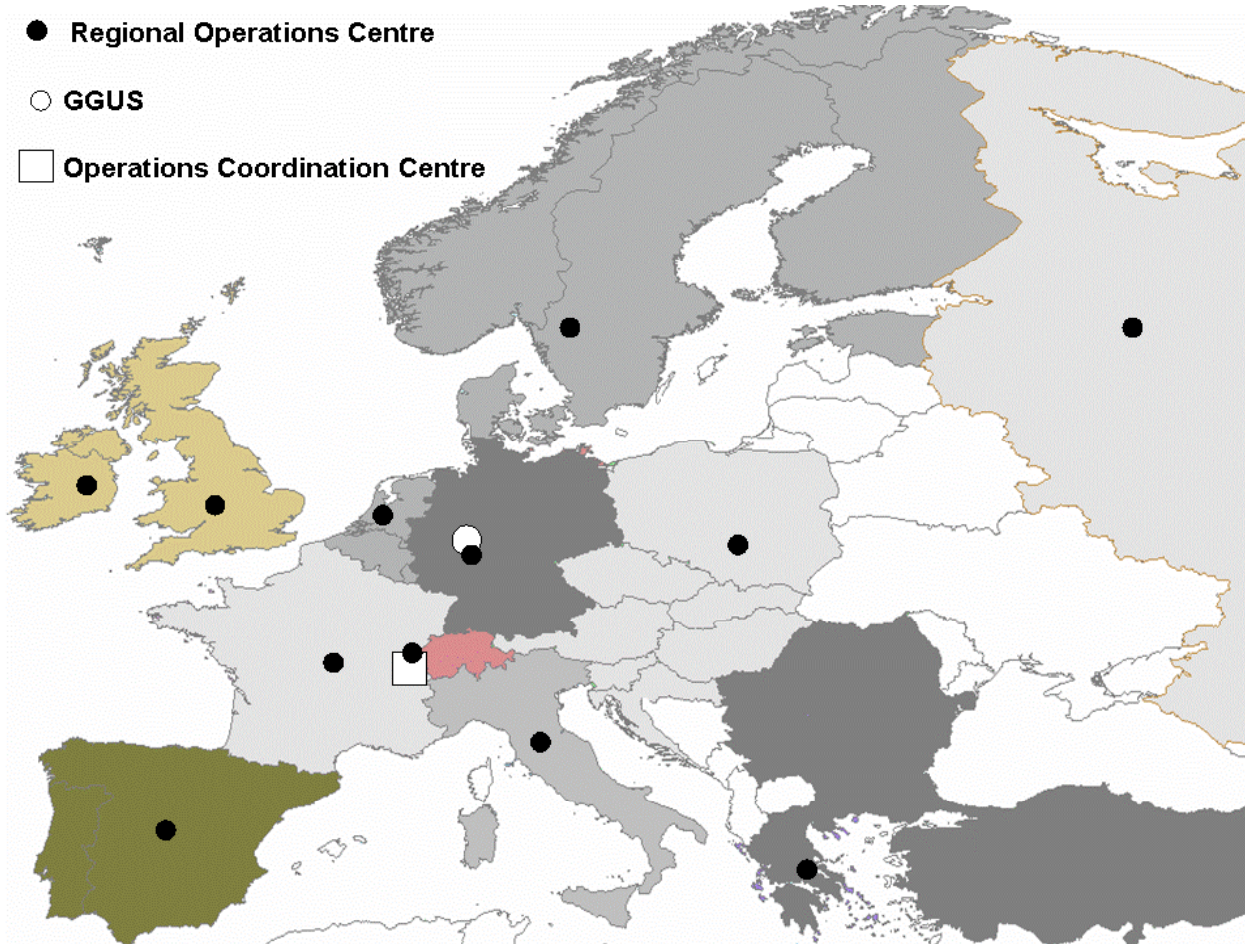




- **Networking Activities**
 - NA1: Management of the I3
 - NA2: Dissemination Outreach and Communication
 - NA3: Training and Induction
 - NA4: Application Identification and Support
 - NA5: Policy and International Cooperation
- **Specific Support Activities**
 - SA1: Grid Operations, Support and Management
 - SA2: Networking Support
 - SA3: Integration, testing and Certification
- **Joint Research Activities**
 - JRA1: Middleware re-Engineering
 - JRA2: Quality Assurance



- Regional Operations Centre
- GGUS
- Operations Coordination Centre



- **Operations Coordination Centre (OCC)**
 - management, oversight of all operational and support activities
- **Regional Operations Centres (ROC)**
 - providing the core of the support infrastructure, each supporting a number of resource centres within its region
 - **Grid Operator on Duty**
- **Resource centres**
 - providing resources (computing, storage, network, etc.);
- **Grid User Support (GGUS)**
 - At FZK, coordination and management of user support, single point of contact for users

Test-beds & Services

Certification testbeds (SA3)

Pre-production service

Production service

Infrastructure:

- Physical test-beds & services
- Support organisations & procedures
- Policy groups

Support Structures

Operations Coordination Centre

Regional Operations Centres

Global Grid User Support

EGEE Network Operations Centre (SA2)

Operational Security Coordination Team

Security & Policy Groups

Joint Security Policy Group

EuGridPMA (& IGTF)

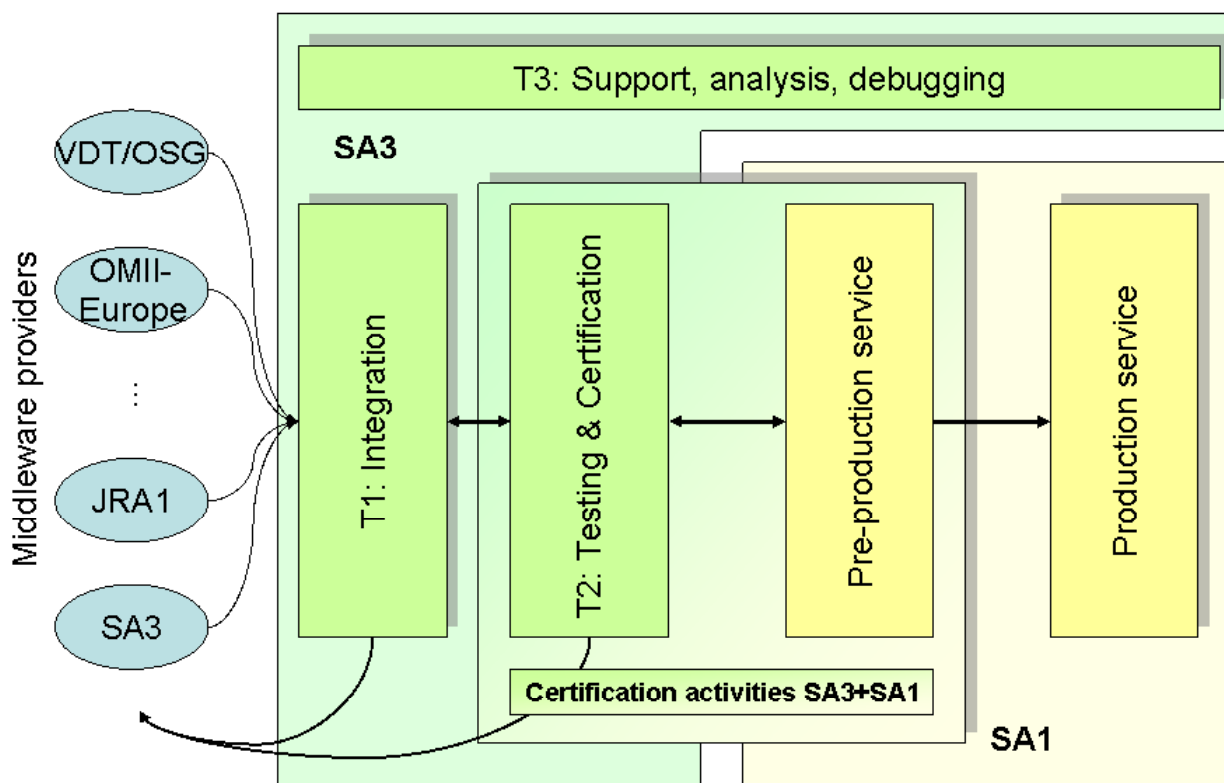
Grid Security Vulnerability Group

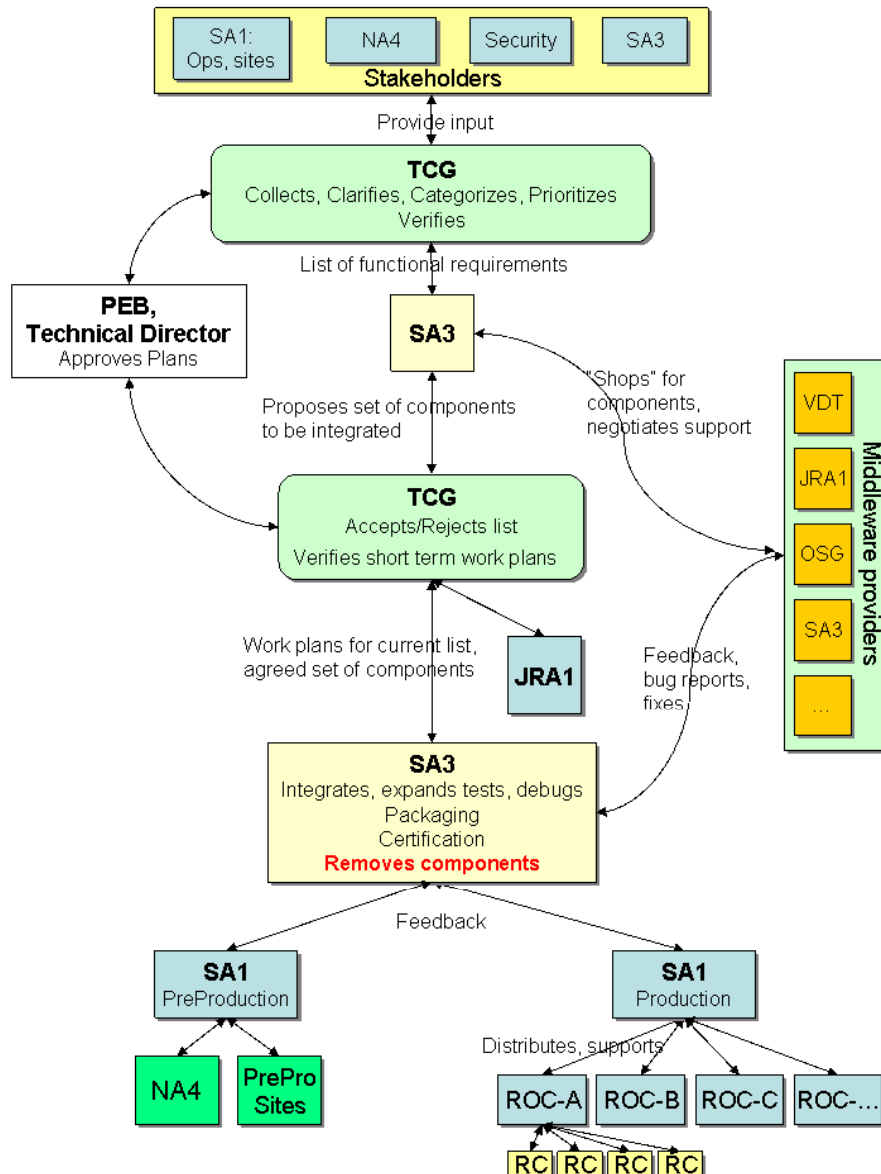
Operations Advisory Group (+NA4)

- TSA1.1: Operate a production and pre-production service
- TSA1.2: Middleware deployment and support ←
- TSA1.3: Grid operations and support ←
- TSA1.4: Grid security and incident response
- TSA1.5: Virtual organisation, application and user support ←
- TSA1.6: Grid management
- TSA1.7: Interoperability
- TSA1.8: Application/resource provider coordination
- TSA1.9: Application/resource-provider/middleware-provider coordination
- TSA1.10: Network Monitoring

- **Deployment of the SA3-produced middleware distribution to all the sites. ROCs responsible in each region for coordinating and ensuring the agreed schedule is maintained.**
 - Core services – require coherent installation across the Grid, interface with local fabric (e.g. CE, SE, local Grid catalogues, etc). Core services have the longest update cycles (1 or 2 per year);
 - Other services (central catalogues, information system components, monitoring tools, resource brokers) – have shorter update cycles and may not need to be present at all sites;
 - Client tools (on WN) – installable in user-space, can be updated on the fly by a central team.

- The goal is to produce a *middleware distribution* that can be deployed widely
 - Not the same as middleware releases from development projects
 - More like a Linux distribution – bringing together many pieces from several sources





- **Technical Coordination Group**

- Agrees the contents and priorities for what goes into the integration and testing process

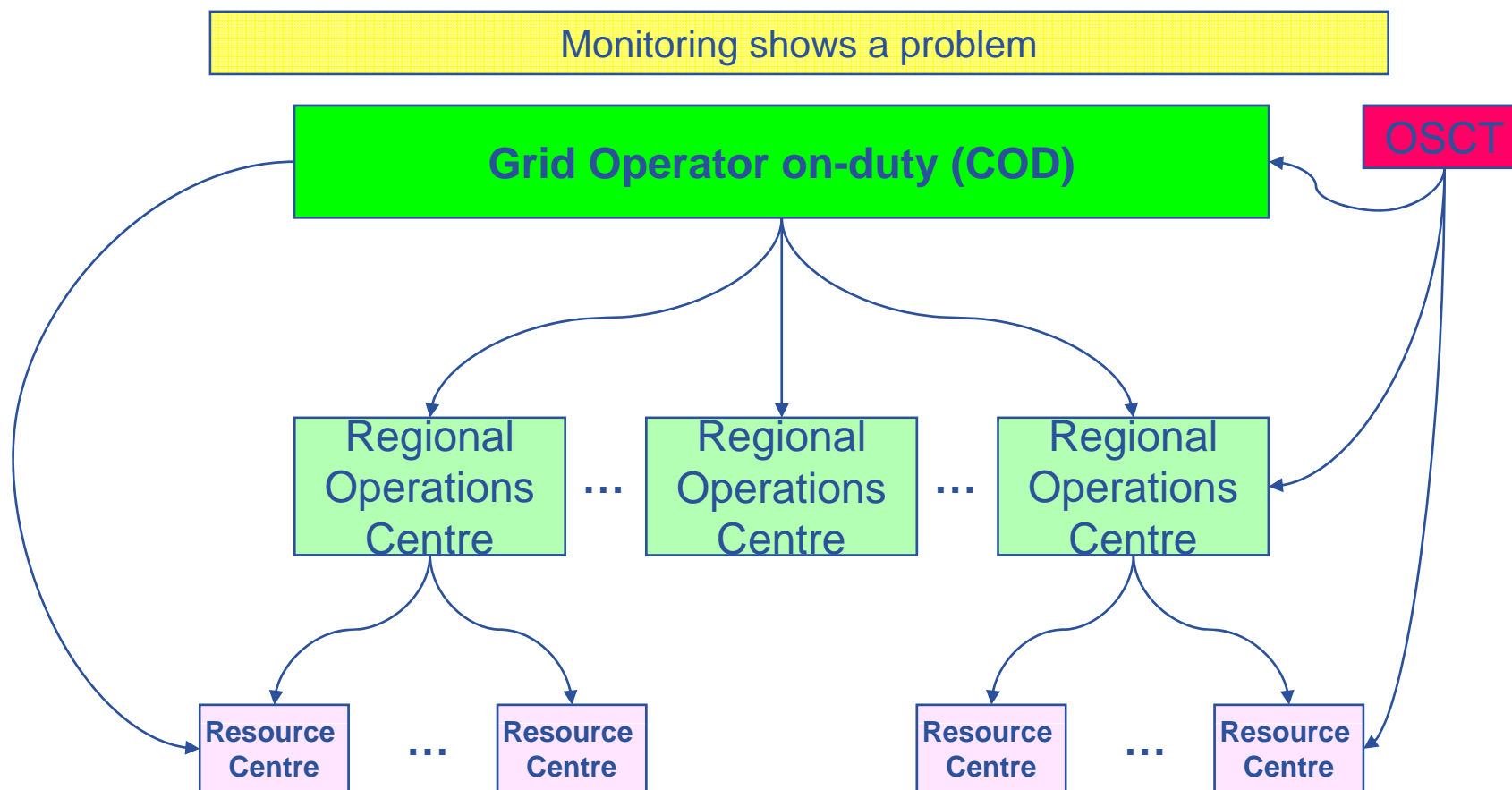
- **Not all desired new components or updates may make the next distribution**

- Depends on priorities and urgency for other pieces

- **Moving away from big-bang releases to component upgrades**

- Concept of a baseline release and then updates and patches
- New baseline when significant changes (dependencies, ...)

The goal is to proactively **monitor** the operational state of the Grid and its performance, **initiating corrective action to remedy problems** arising with either core infrastructure or Grid resources



- Service Availability Monitoring (SAM)

<input type="radio"/>	BDII	Top-level BDII
<input type="radio"/>	sBDII	Site BDII
<input type="radio"/>	FTS	File Transfer Service
<input type="radio"/>	gCE	gLite Computing Element
<input type="radio"/>	LFC	Global LFC
<input type="radio"/>	VOMS	VOMS
<input checked="" type="radio"/>	CE	Computing Element
<input type="radio"/>	SRM	SRM
<input type="radio"/>	gRB	gLite Resource Broker
<input type="radio"/>	MyProxy	MyProxy
<input type="radio"/>	RB	Resource Broker
<input type="radio"/>	VOBOX	VO BOX
<input type="radio"/>	SE	Storage Element
<input type="radio"/>	RGMA	RGMA Registry

Regions: Unknown, CERN, France, UK_Ireland, GermanySwitzerland, Italy, CentralEurope

VOs: ops, egrid, aegis, alice, cms, dteam, atlas

Sorting Order: RegionName

ShowSensorTests

No	SiteName	NodeName	Status	ops					
				js	ver	ca	bi	esh	rm
NorthernEurope									
1	BEgrid-KULeuven	kg-ce01.cc.kuleuven.ac.be	OK	ok	2.7.0	ok	ok	ok	ok
2	BEgrid-UGent	gridce.atlantis.ugent.be	OK	ok	3.0.2	ok	ok	ok	ok
3	BEgrid-ULB-VUB	gridce.ihe.ac.be	OK	ok	3.0.2	ok	ok	ok	ok
4	BelGrid-UCL	ingrid.cism.ucl.ac.be	OK	ok	3.0.2	ok	ok	ok	ok
5	CSC	csc-ce.csc.fi	OK	ok	3.0.2	ok	ok	ok	ok
6	EENet	krut.eenet.ee	OK	ok	3.0.2	ok	ok	ok	ok
7	HPC2N	i101.hpc2n.umu.se	ERROR	error	3.0.0	ok	ok	ok	ok
8	IMCSUL	puduris.latnet.lv	OK	ok	2.7.0	ok	ok	ok	ok
9	IMCSUL-INF	birzs.latnet.lv	ERROR	error	na	na	na	na	na
10	ITPA-LCG2	atomas.itpa.it	OK	ok	2.7.0	ok	ok	ok	ok
11	KTU-BG-GLITE	ce.bg.ktu.lt	OK	ok	3.0.2	ok	ok	ok	ok
12	KTU-ELEN-LCG2	pupa.elen.ktu.lt	OK	ok	3.0.2	ok	ok	ok	ok
13	LSG-AMS	gb-ce-ams.els.sara.nl	OK	ok	3.0.2	ok	ok	ok	ok
14	LSG-KUN	gb-ce-kun.els.sara.nl	OK	ok	3.0.2	ok	ok	ok	ok
15	NIKHEF-ELPROD	tbn20.nikhef.nl	OK	ok	3.0.2	ok	ok	ok	ok
16	NSC-BLUESMOKE	lcg-ce.bluesmoke.nsc.liu.se	OK	ok	3.0.2	ok	ok	ok	ok
17	PDC	g03n02.pdc.kth.se	OK	ok	3.0.2	ok	ok	ok	ok
18	RTUETF	ce01.grid.etf.rtu.lv	OK	ok	3.0.2	ok	ok	ok	ok
19	SARA-LISA	mu9.matrix.sara.nl	OK	ok	3.0.2	ok	ok	ok	ok
20	SARA-MATRIX	mu6.matrix.sara.nl	OK	ok	3.0.2	ok	ok	ok	ok
21	SU-GRID	grid.su.lt	OK	ok	3.0.2	ok	ok	ok	ok
22	T2 Estonia	oberon.hep.kbfi.ee	ERROR	ok	3.0.2	ok	ok	ok	error
23	VGTU-gLite	grid.vtu.lt	OK	ok	na	na	na	na	na
24	VU-MIF-LCG2	grid2.mif.vu.lt	OK	ok	3.0.2	ok	ok	ok	ok

- **TSA1.3.4: Weekly operator on duty support**
- **Grid operator on Duty (COD) creates tickets in GGUS based on monitoring information – e.g. failing SAM tests for a site**
 - Tickets are assigned to responsible regional ROC and site if applicable
 - 10 COD teams run weekly duties (2 teams each week)

- **Role:**
 - Watch the problems detected by the grid monitoring tools
 - Problem diagnosis
 - Report these problems (GGUS tickets)
 - Follow and escalate them if needed (well defined procedure)
 - Provide help, propose solutions
 - Build and maintain a central knowledge database (WIKI)
 - Tool used: operations dashboard at the CIC portal:



<http://cic.gridops.org/index.php?section=home&page=homepage>



A Selection of Monitoring tools

Enabling Grids for E-science

GIIS Monitor 09:19:49 01/11/05 GMT

ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE
ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE
ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE
ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE
ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE
ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE
ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE
ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE
ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE
ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE	ALICE

Legend:
 0: OFFLINE
 1: WARNING
 2: INFO
 3: NOTICE
 4: WARNING
 5: ERROR
 6: CRITICAL
 7: UNKNOWN

1. GIIS Monitor

GOC SITE DATABASE

Site Information - RAL-LCG2

BOG: RAL
 Priority Name: RAL
 Contact email: ralsupport@RAL.ac.uk
 Operational hours: 24x7
 Organization: RAL

2. GOC Data Base

Service Availability Monitoring

- BDII Top-level BOG
- EDII Site BOG
- FTS File Transfer Service
- gCE Grid Computing Element
- LFC Global LFC
- VOMS VOMS
- CE Computing Element
- SRM SRM
- gRB Grid Resource Broker
- MyProxy MyProxy
- RB Resource Broker
- VOBOX VO BOX
- SE Storage Element
- RGMA RGMA Registry

Regions: CERN, France, UK, Germany, Italy, etc.

3. Service Availability Monitoring

GRID OPERATIONS CENTRE

LCG2 Site Scheduled Downtime Report

SITE	DESCRIPTION	START DATE	END DATE
RWTH-LCG2	Hardware for hardware and LCG software upgrade	2004-10-14	2005-01-31
UCL-HEP	Replacement of GE and upgrade of LCG L2.3	2004-11-23	2005-01-17
RZPPL-LAL	Upgrade to LCG2.3	2004-12-15	2005-01-17
LHJEP-LCG2	Hardware for hardware and LCG software upgrade	2004-12-10	2005-01-18
HEPHY-URK	Hardware for hardware and LCG software upgrade	2005-01-08	2005-01-12
HBAS-Breidaker	Hardware for hardware and LCG L2.3	2005-01-05	2005-01-12
HGSI-GINET	Hardware for hardware and LCG software upgrade	2005-01-11	2005-01-11
SHEPFIELD-LCG2	Hardware for hardware and LCG software upgrade	2005-01-10	2005-02-10
BOGI-IPP	Upgrade to LCG2.3 and more nodes	2005-01-12	2005-01-14
PGC-LCG2	Hardware for hardware and LCG software upgrade	2005-01-10	2005-01-11
usTCDE	Hardware for hardware and LCG software upgrade	2005-01-11	2005-01-11

4. Scheduled Downtimes

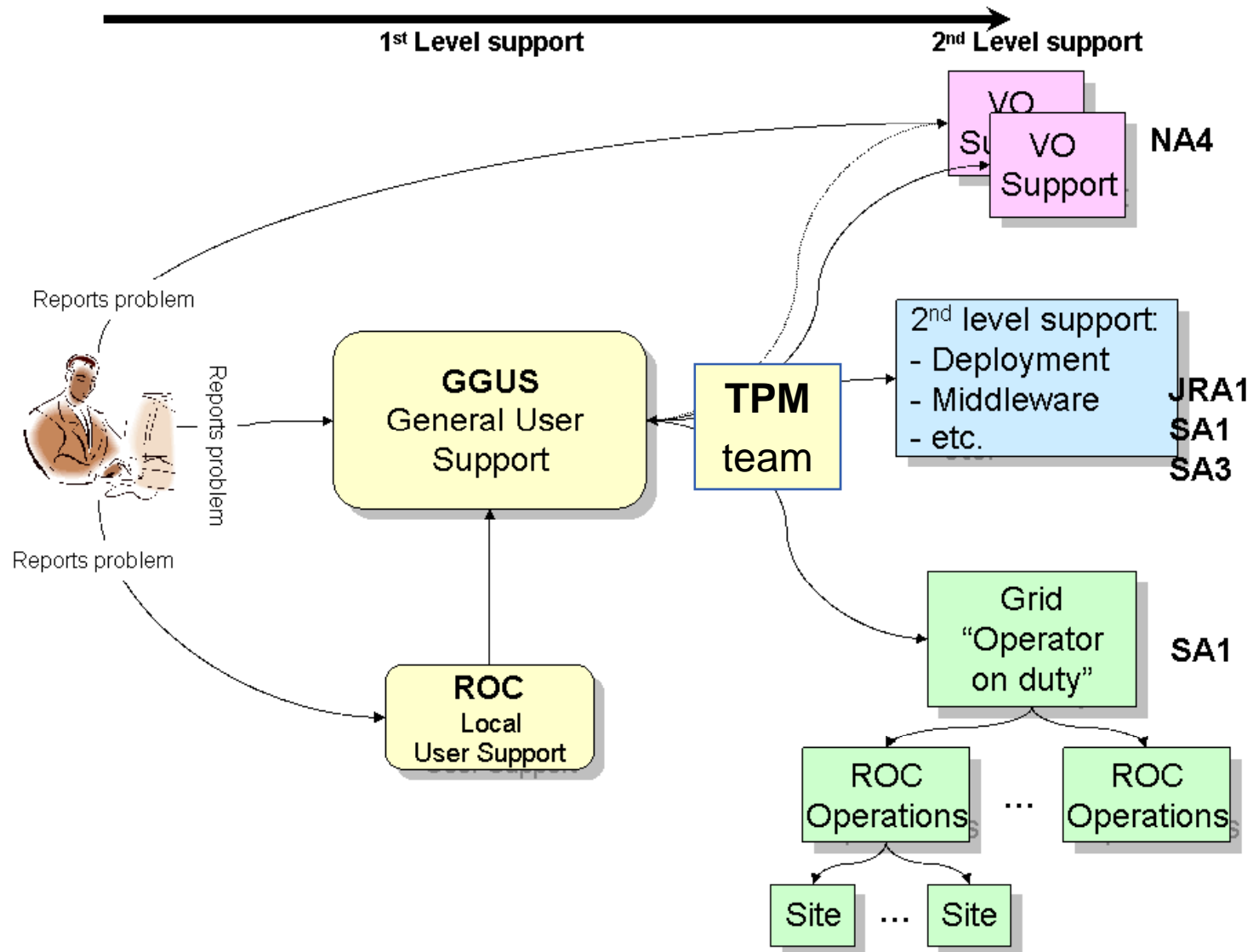
GridCE

GridCE Monitor

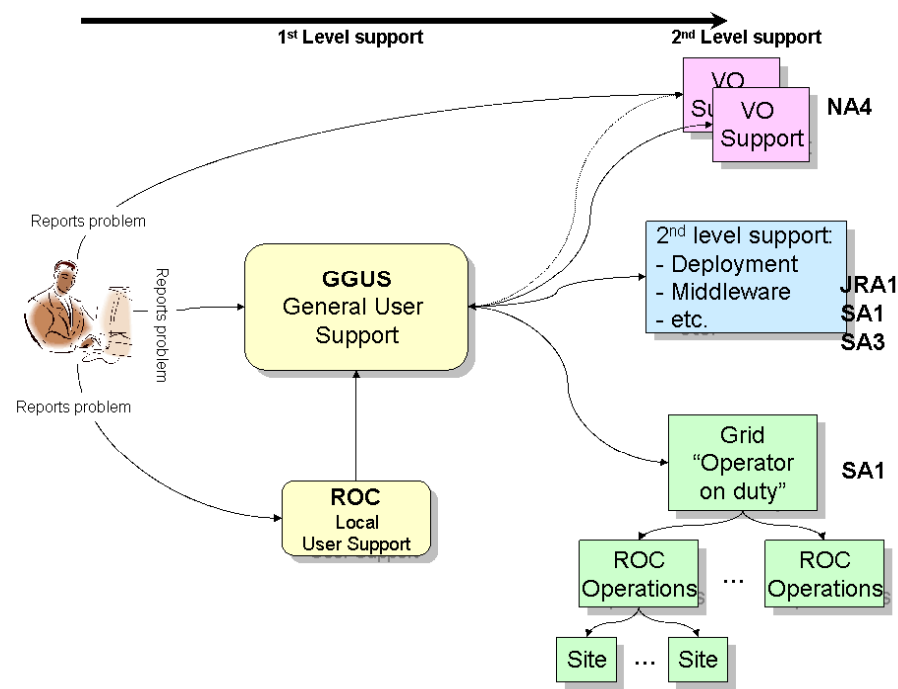
Region	GLF	GF	RunUp	WALUS	JobLoad	Forest	Mount	CEUF	CEStatus	Available	Total	%	Mount
CEBN	2	8	56	0	0	0	0	0	0	44.4 GB	139.3 GB	32%	33
CEBN	1	8	14	0	0	0	0	0	0	1.6 TB	2.6 TB	6%	8
CEBN	1	8	0	0	0	0	0	0	0	4.1 TB	4.3 TB	9%	1
CEBN	3	9	0	0	0	0	0	0	0	2.0 TB	2.0 TB	100%	0
CEBN	2	17	14	0	0	0	0	0	0	8.7 TB	10.7 TB	81%	1
CEBN	1	8	0	0	0	0	0	0	0	7.7 GB	62.0 GB	12%	1
CEBN	1	8	14	0	0	0	0	0	0	1.6 TB	2.6 TB	6%	8
CEBN	1	8	0	0	0	0	0	0	0	1.6 TB	2.6 TB	6%	8
CEBN	1	12	171	842	0	0	0	0	0	1.4 TB	27.6 TB	5%	3
CEBN	2	11	91	132	0	0	0	0	0	1.4 TB	27.6 TB	5%	3
CEBN	1	8	2	44	0	0	0	0	0	16.2 GB	30.9 GB	52%	2
CEBN	2	18	123	150	0	0	0	0	0	168.0 GB	317.6 GB	53%	43
CEBN	1	8	17	142	0	0	0	0	0	27.6 GB	93.6 GB	30%	2
CEBN	1	8	0	0	0	0	0	0	0	6.6 GB	103.6 GB	6%	18
CEBN	1	8	0	0	0	0	0	0	0	191.4 GB	196.8 GB	97%	3
CEBN	3	9	78	18	0	0	0	0	0	6.2 TB	6.7 TB	91%	4
CEBN	4	16	1028	0	0	0	0	0	0	680.0 GB	1.7 TB	40%	1
CEBN	1	8	1	3	0	0	0	0	0	70.8 GB	68.1 GB	103%	9
CEBN	1	11	2	13	0	0	0	0	0	843.0 GB	912.3 GB	92%	15
CEBN	2	11	11	0	0	0	0	0	0	9.78 GB	32.4 TB	3%	102
CEBN	1	8	0	0	0	0	0	0	0	31.0 GB	87.7 GB	35%	13

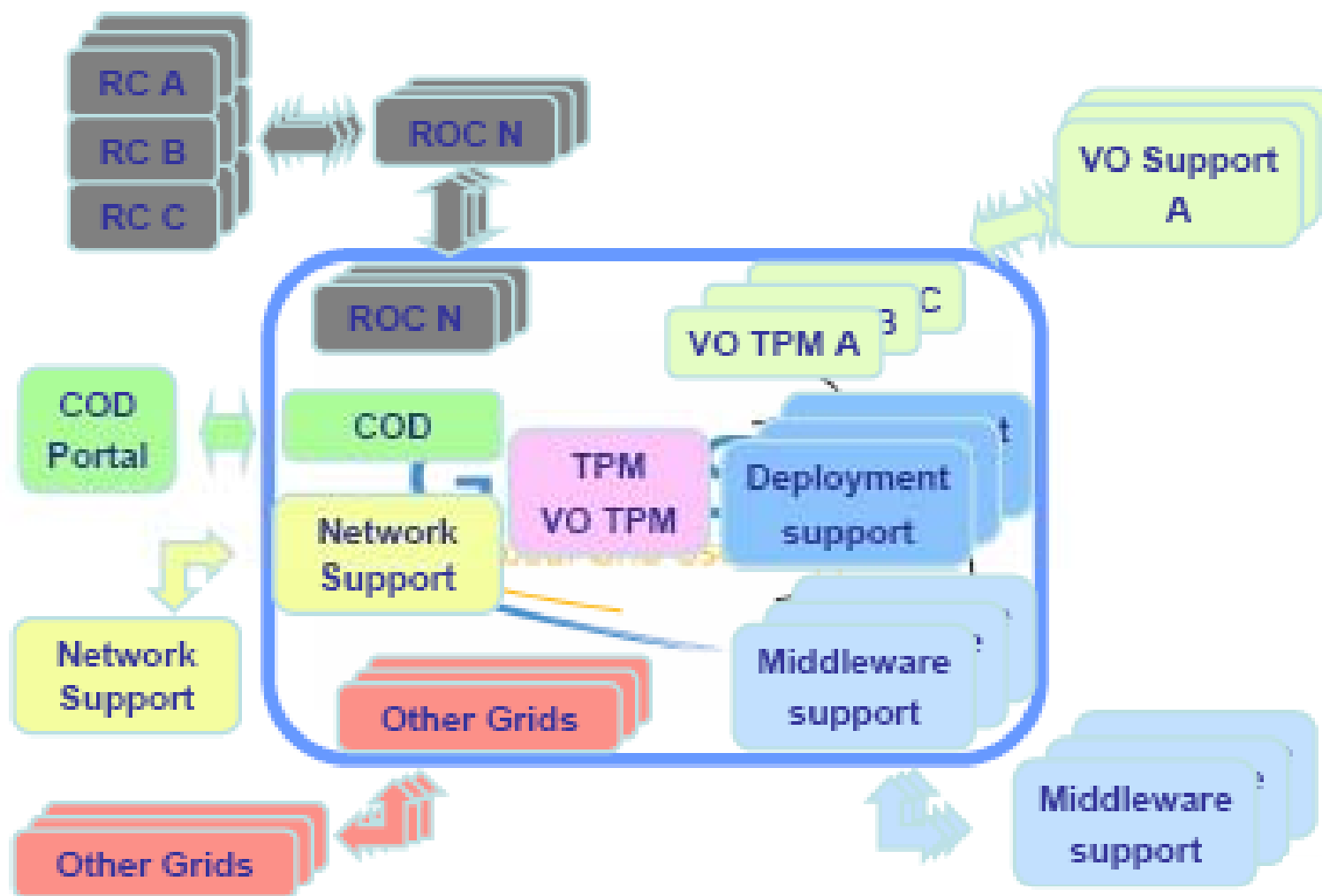
5. Gridce monitor

Note: Those thumbnails are links and are clickable.

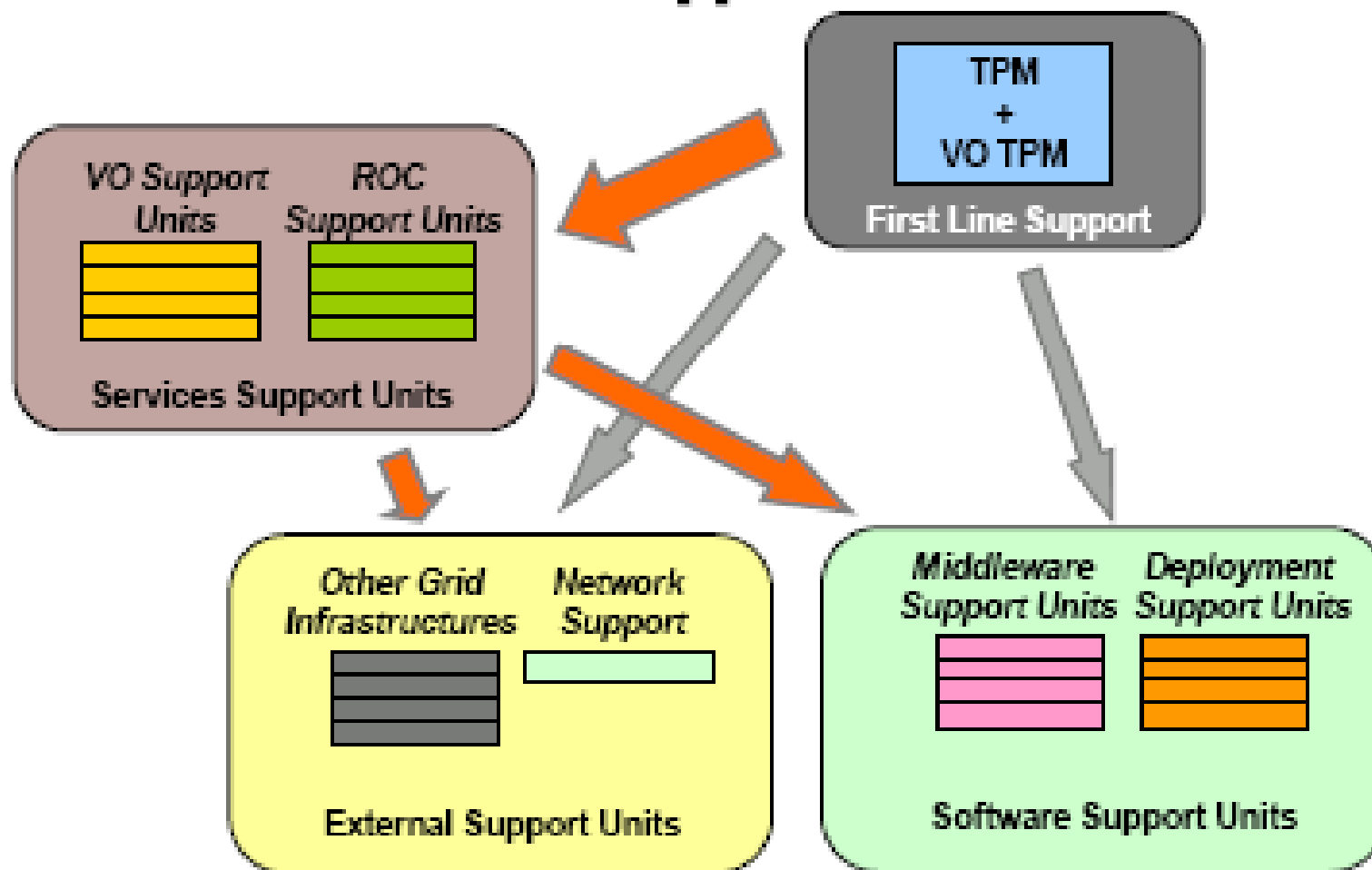


- central helpdesk keeps track of all service requests and assigns them to the appropriate support groups.
- In this way, formal communication between all support groups is possible
- To enable this, each group has to build only one interface between its internal support structure and the central support facility





Support Workflow



- **GGUS**

- <https://gus.fzk.de/pages/home.php>

- X.509 certificate must be loaded into browser

- **Responsible units:**

- https://gus.fzk.de/pages/resp_unit_info.php

- **Support staff**

- Access based on Subject name from X.509 certificate

- <https://gus.fzk.de/pages/support.php>

- Tutorial

- http://egee-docs.web.cern.ch/egee-docs/support/documentation/pdf/1100_Tutorial_on_GGUS-HelpDesk_System.pdf

[FAQ/Wiki](#) · [Documentation](#) · [Training](#) · [Contact](#) · [Masthead](#)





[Home](#) · [Submit ticket](#) · [Support staff](#)

Support Staff

Welcome to GGUS HelpDesk System

Enter the GGUS ticket search engine

- ▶ New version
- ▶ Old version

- ▶ Check/update your GGUS account

Useful Links for Supporters

- | | |
|---|--|
| ▶ Tutorial for GGUS-HelpDesk System | ▶ Official TPM schedule |
| ▶ Download GGUS training material | ▶ General support/TPM information |
| ▶ Executive Support Committee (ESC) internal pages | ▶ Info about "Responsible Units" connected to GGUS |
| | ▶ OWL - ongoing worklist |

Useful Links for Admins

- | | |
|--|-------------------------------|
| ▶ CIC Follow Up FAQ | ▶ GOC DB |
| ▶ CIC Portal | ▶ GOC Monitoring overview |
| ▶ EGEE Support processes and workflows | ▶ HEP-VO Managers |
| ▶ Federations and contacts | ▶ Italian Grid Knowledge Base |
| ▶ GIS Monitor at ASCC | ▶ RGMA Tools / Monitoring |
| ▶ GOC Accounting Services | ▶ Site functional tests |

EGEE broadcast (provided by CIC portal [http\(s\)://cic.gridops.org](http(s)://cic.gridops.org))

Please follow this link to get redirected to the latest version of the EGEE broadcast tool:

- ▶ **EGEE Broadcast**



CIC OPERATIONS PORTAL



[HOME](#)

[VO Users](#)

[VO management](#)

[RC management](#)

[ROC management](#)

[COD management](#)

[OAG management](#)

VO management

[HOME](#)

[VO ID card update](#)

[New VO Registration](#)

[Availability of resources](#)

[Weekly reports](#)

[Monitoring](#)

[Data Challenges](#)

[Freedom of Choice](#)

[User support](#)

[Broadcast Information](#)

Identified with the following certificate:

```
O=dutchgrid
O=users
O=sara
CN=Jules Wolfrat
```



VO Identity Cards

Hi Jules Wolfrat,
You are not recognized as a VO manager (contact us if that is an error)

VO SELECTION

[Choose your VO from the list](#)

(sorted by VO name alphabetic order)

OR

[Use the following filters](#)

Scope

Discipline

Status

Latest news

Release of UPDATE 18 to gLite 3.0. NEW
Priority: Normal

Mon 19th March 07

Dear members of the EGEE Grid Production Service, UPDATE 18 for g...

[\[Read more...\]](#)

Batch system unscheduled down at GridKa NEW

Mon 19th March 07

The batch system at GridKa is down due to unexpected internal failures...

[\[Read more...\]](#)

UKI-NORTHGRID-LIV-HEP Important Note

Fri 16th March 07

Hi, 1st Due to upgrade of the core MAP2 switch we will start so...

[\[Read more...\]](#)

LHCOPN: Maintenance on Tuesday 20/3/2007

Fri 16th March 07

On Tuesday the 20th of March 2007 between 8:00 to 8:30 AM CET the conn...

[\[Read more...\]](#)

- Entry for VO managers, RC managers, ROC managers, COD operators
- Recipients can be selected, e.g. all VOs or a selection of VOs

Contact all the EGEE Communities - Publish News on the CIC Portal

Sender Information ROC MANAGER

Name

e-mail address

EGEE Federation

Broadcasting Information

News publication in all CIC portal views: NO YES

SEND MAIL ONLY: contact easily specific EGEE communities...

WLCG Tier-1 contacts

To CIC-on-duty (CIC-on-duty mailing list)

To ROC Managers (ALL ROC Managers by default)

ALL Customize your Request

To VO managers (ALL VO Managers by default)

ALL Customize your Request

To VOs Users (All VO USERS by default)

ALL Customize your Request

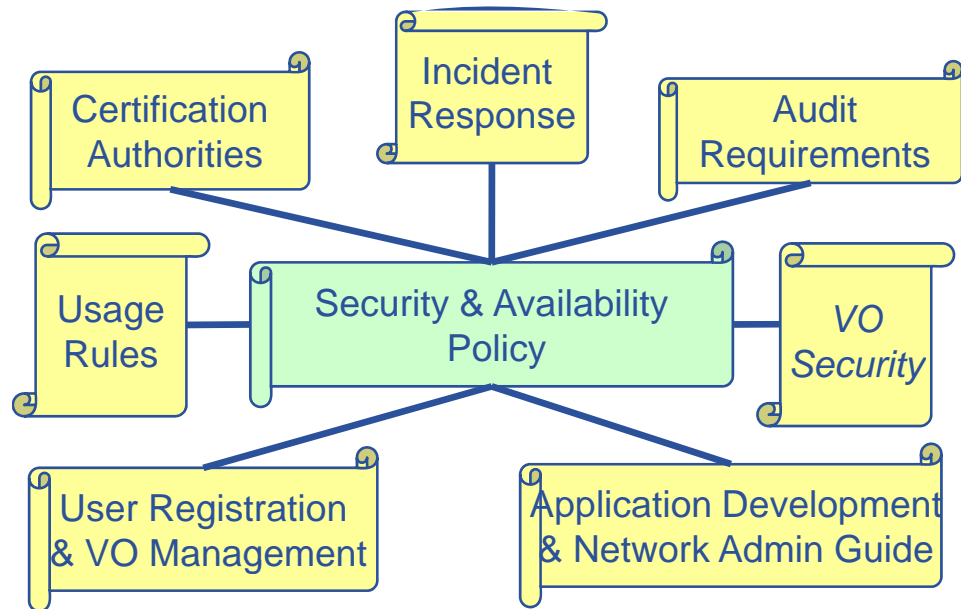
To Production Site Admin (All by default)

ALL Customize your Request

To PPS Site Admin (All by default)

ALL Customize your Request

Data to publish



Collaborative policy development

- Many policy aspects are collaborative works; e.g.:
- **Joint Security Policy Group**
- **Certification Authorities**
 - EUGridPMA → IGTF, etc.
- **Grid Acceptable Use Policy (AUP)**
 - common, general and simple AUP
 - for all VO members using many Grid infrastructures
 - EGEE, OSG, SEE-GRID, DEISA, national Grids...
- **Incident Handling and Response**
 - defines basic communications paths
 - defines requirements (MUSTs) for IR
 - not to replace or interfere with local response plans

- **Joint Security Policy Group:**
 - Joint with WLCG, OSG, and others
 - Focus on policy issues
 - Strong input to e-IRG
- **EUGridPMA**
 - Pan-European trust federation of CAs
 - Included in IGTF (and was model for it)
 - Success: most grid projects now subscribe to the IGTF
- **Grid Security Vulnerability Group**
 - New group in EGEE-II
 - Looking at how to manage vulnerabilities
 - Risk analysis is fundamental
 - Hard to balance between openness and giving away insider info
- **Operational Security Coordination Team**
 - Main day-to-day operational security work
 - Incident response and follow up
 - Members in all ROCs and sites
 - Recent security incident (**not** grid-related) was good shakedown

