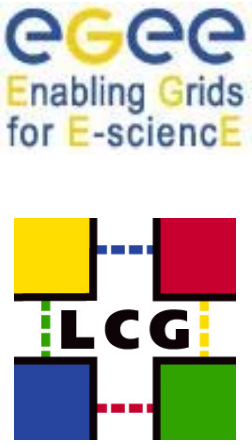
Monitoring Tools and Procedures



T2 Admin Tutorial

2006, CERN

Judit Novak <Judit.Novak@cern.ch>

Piotr Nyczyk <Piotr.Nyczyk@cern.ch>

Outline

- monitoring and related tools
  - SFT, gstat, SFT Admin Page, CIC Portal, FCR
- Grid Operator on Duty procedures
  - GOoD (was: COD)
- tools in development
  - SAM, FCR (new version)

Monitoring and related tools

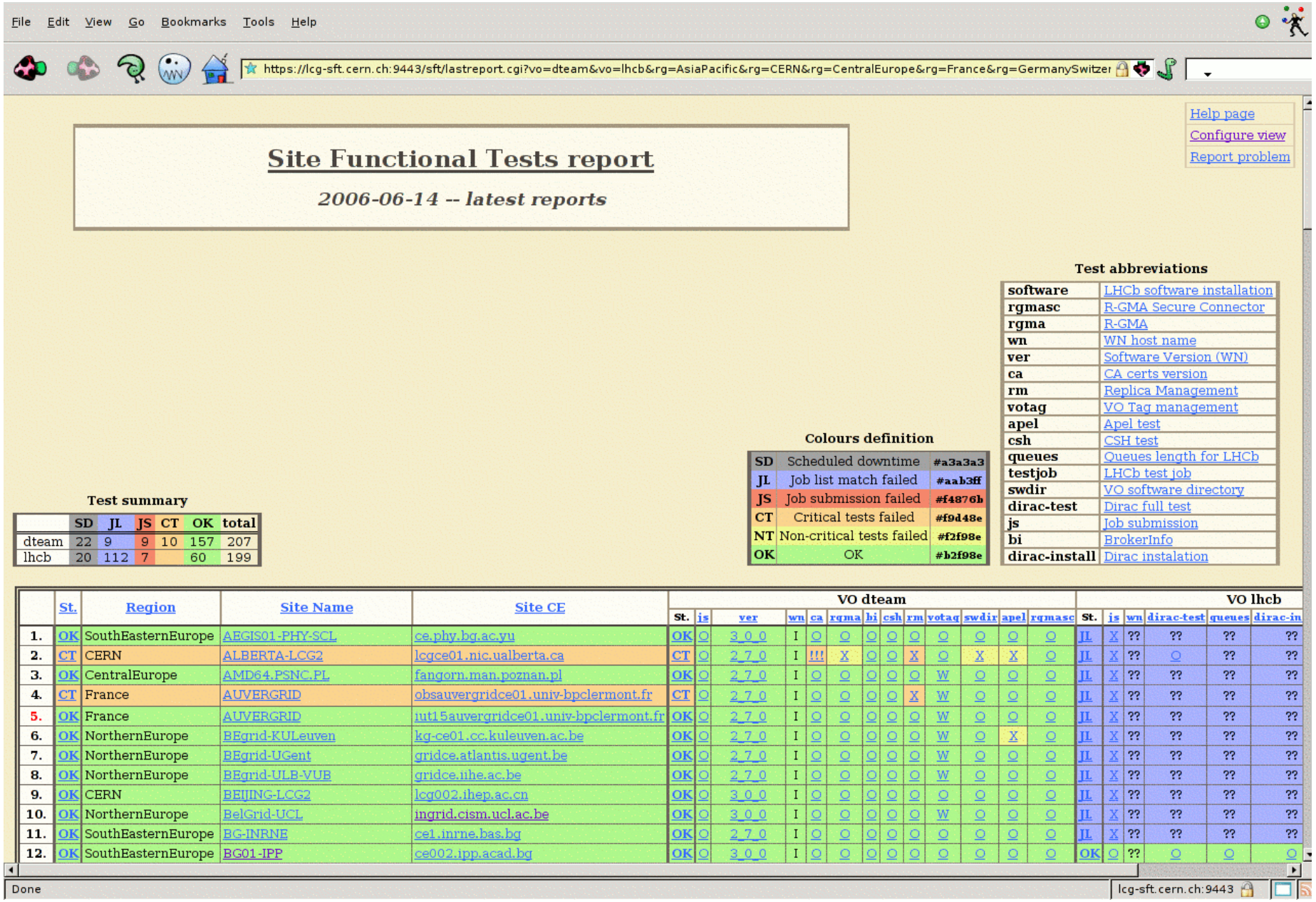
SFT (CERN)

- **Sites Functional Tests**
- https://lcg-sft.cern.ch:9443/sft/lastreport.cgi
- site (CE) *usability* from the users point of view
- constant re-certification, spotting and debugging problems
- testing different aspects of CE:
  - job submission, replica management, LCG version, rgma, CA rpms, etc.
- test suite:
  - submission framework + plug-in tests
- VO-specific tests

SFT 2.

- official SFT submission from CERN
  - submitted for `dteam` VO
  - in every 3 hours
  - to *Certified, Production, and Monitored* sites
  - SFT portal refreshed in every 30 mins
- MySQL backend + detailed data in text files
- site details from GOCDB (via RGMA)
- results visible on SFT portal
  - 2 weeks history also shown

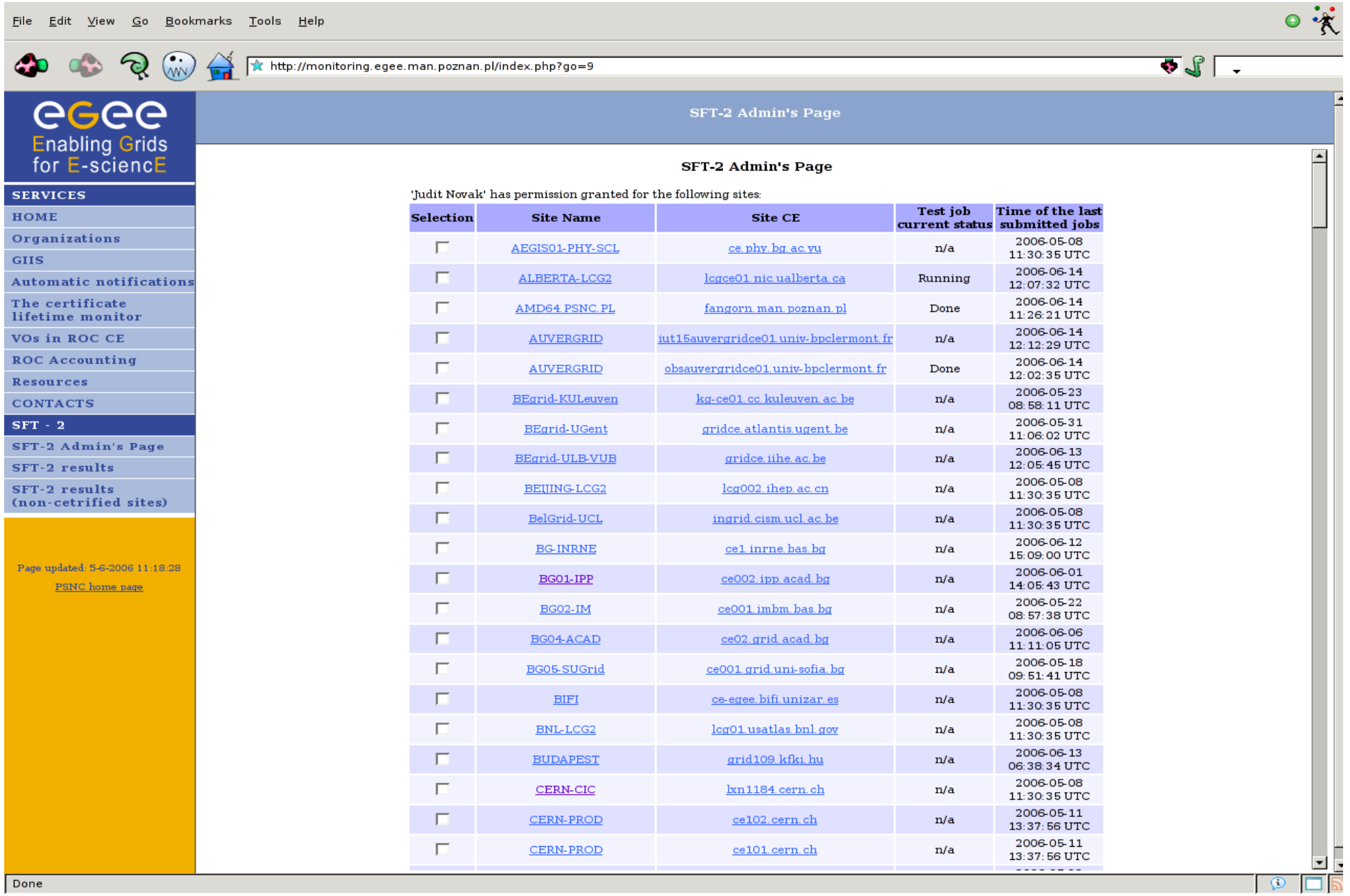
The SFT Portal



SFT Admin Pages (Poznan)

- https://monitoring.egee.man.poznan.pl/admin2
- *on-demand* SFT submission
- easy to use
- target site selection
- submission possible to *non-certified sites*
- used by:
  - ROCs: certification of a site
  - ROCs, site admins, GOoDs: speed up debugging

SFT Admin portal



Selection	Site Name	Site CE	Test job current status	Time of the last submitted jobs
☐	AEGIS01-PHY-SCL	ce.phy.bg.ac.yu	n/a	2006-05-08 11:30:35 UTC
☐	ALBERTA-LCG2	lcgce01.nic.ualberta.ca	Running	2006-06-14 12:07:32 UTC
☐	AMD64_PSNC_PL	fangorn.man.poznan.pl	Done	2006-06-14 11:26:21 UTC
☐	AUVERGRID	iut15auvergridce01.univ-bpclermont.fr	n/a	2006-06-14 12:12:29 UTC
☐	AUVERGRID	obsauvergridce01.univ-bpclermont.fr	Done	2006-06-14 12:02:35 UTC
☐	BEgrid-KULeuven	kg-ce01.cc.kuleuven.ac.be	n/a	2006-05-23 08:58:11 UTC
☐	BEgrid-UGent	gridce.atlantis.ugent.be	n/a	2006-05-31 11:06:02 UTC
☐	BEgrid-ULB-VUB	gridce.iihe.ac.be	n/a	2006-06-13 12:05:45 UTC
☐	BEIJING-LCG2	lcg002.ihep.ac.cn	n/a	2006-05-08 11:30:35 UTC
☐	BelGrid-UCL	ingrid.cism.ucl.ac.be	n/a	2006-05-08 11:30:35 UTC
☐	BG-INRNE	ce1.inrne.bas.bg	n/a	2006-06-12 15:09:00 UTC
☐	BG01-IPP	ce002.ipp.acad.bg	n/a	2006-06-01 14:05:43 UTC
☐	BG02-IM	ce001.imbm.bas.bg	n/a	2006-05-22 08:57:38 UTC
☐	BG04-ACAD	ce02.grid.acad.bg	n/a	2006-06-06 11:11:05 UTC
☐	BG05-SUGrid	ce001.grid.uni-sofia.bg	n/a	2006-05-18 09:51:41 UTC
☐	BIFI	ce-egee.bifi.unizar.es	n/a	2006-05-08 11:30:35 UTC
☐	BNL-LCG2	lcg01.usatlas.bnl.gov	n/a	2006-05-08 11:30:35 UTC
☐	BUDAPEST	grid109.kfki.hu	n/a	2006-06-13 06:38:34 UTC
☐	CERN-CIC	lxn1184.cern.ch	n/a	2006-05-08 11:30:35 UTC
☐	CERN-PROD	ce102.cern.ch	n/a	2006-05-11 13:37:56 UTC
☐	CERN-PROD	ce101.cern.ch	n/a	2006-05-11 13:37:56 UTC

gstat (Sinica)

- http://goc.grid.sinica.edu.tw/gstat/
- Information System (*BDII*) monitoring
- response time, consistency,completeness
- aggregated and detailed views
- plots (history)
  - CPU availability, storage space, running jobs, etc.
- refreshed in every 5 mins (non-intrusive)

gstat Portal

File Edit View Go Bookmarks Tools Help

http://goc.grid.sinica.edu.tw/gstat/INFN-BARI/

GStat: 11:48:17 06/14/06 GMT

home alert table service regional service metrics links prod pps test baltic eela euchina eumed seegrid

INFN-BARI Status: OK | OK | GOC | graphs

```
GOCDB Configuration information:
status: Certified, type: Production
giis url: ldap://gridba2.ba.infn.it:2170/mds-vo-name=infn-bari,o=grid

To test site GIIS:: ldapsearch -x -H ldap://gridba2.ba.infn.it:2170 -b mds-vo-name=infn-bari,o=grid
```

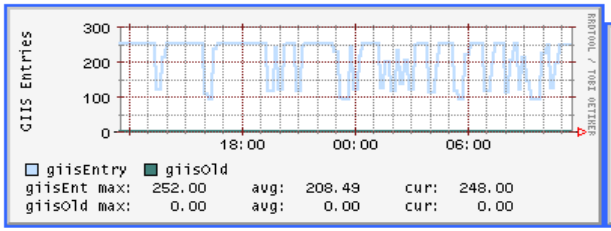
BDII Node Check: . alert_history

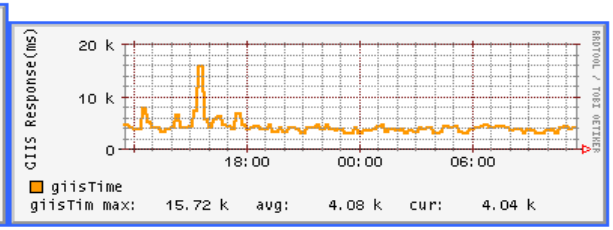
CERN SE Check . alert_history

```
No BDII Node to check in GOCDB
test: ldapsearch -xLLL -l 15  -h bdiihostname -p 2170  -b 'GlueSEUniqueID=lxn1183.cern.ch,mds-vo-name=CERN-CIC,mds-vo-name=local,o=grid'  '(|(GlueSEUniqueID=lxn1183.cern.ch)(objectclass=GlueSA))'  GlueSEUniqueI
```

GIIS Perf Check: ok alert_history

```
Query Response Time (ms):       4097.1 - OK
GIIS Entries Found:             248 - OK
GIIS Old Entries Found:         0 - OK
```





GIIS Sanity Check: ok alert_history

```
Passed

To test site GIIS:: ldapsearch -x -H ldap://gridba2.ba.infn.it:2170 -b mds-vo-name=infn-bari,o=grid
```

Service Check: ok alert_history

hostname	monitor	nodetypes	missing services	history
gridba2	Y	CE,None	none missing	alert_history
gridba6	Y	SE,None	none missing	alert_history
gridba6	Y	MON,SE	none missing	alert_history

Done

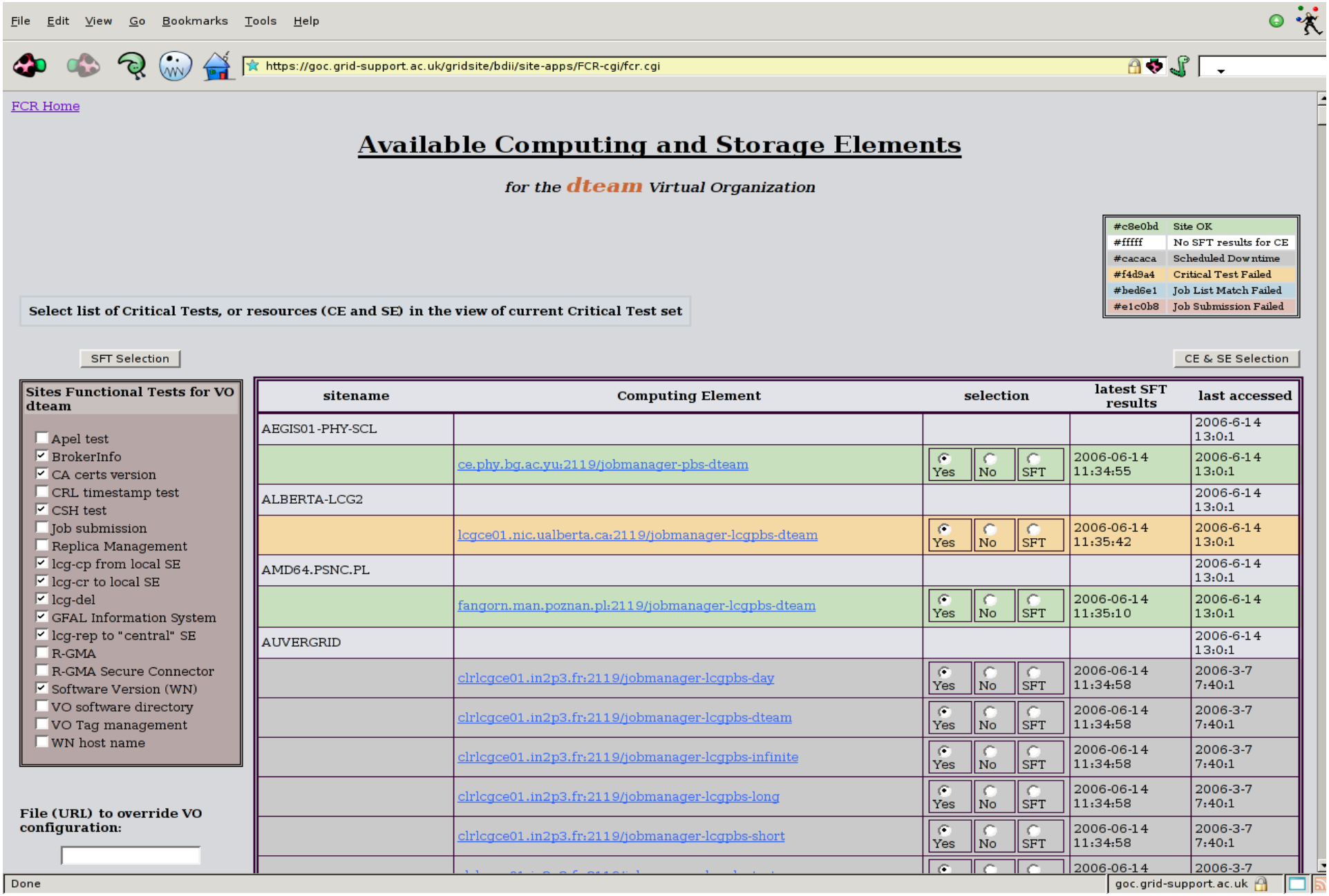
FCR (CERN)

- **Freedom of Choice for Resources**
- https://goc.grid-support.ac.uk/gridsite/bdii/site-apps/FCR-cgi/fcr.cgi
- *critical test* and *resource* selection for VOs by manipulating top-level BDII information
- selection on CEs and SEs
- goal is to be able to
  - select which aspects of site functionality are important for the VO
  - blacklist unreliable sites
  - always use stable, "important" sites
  - less reliable sites based on SFT results

FCR 2.

- support for VO-specific test results
- optional usage (BDII configuration parameter)
  - FCR output: `ldif` file
- dynamically queries site BDIIs
- information for users only available in raw format
  - new version with user pages

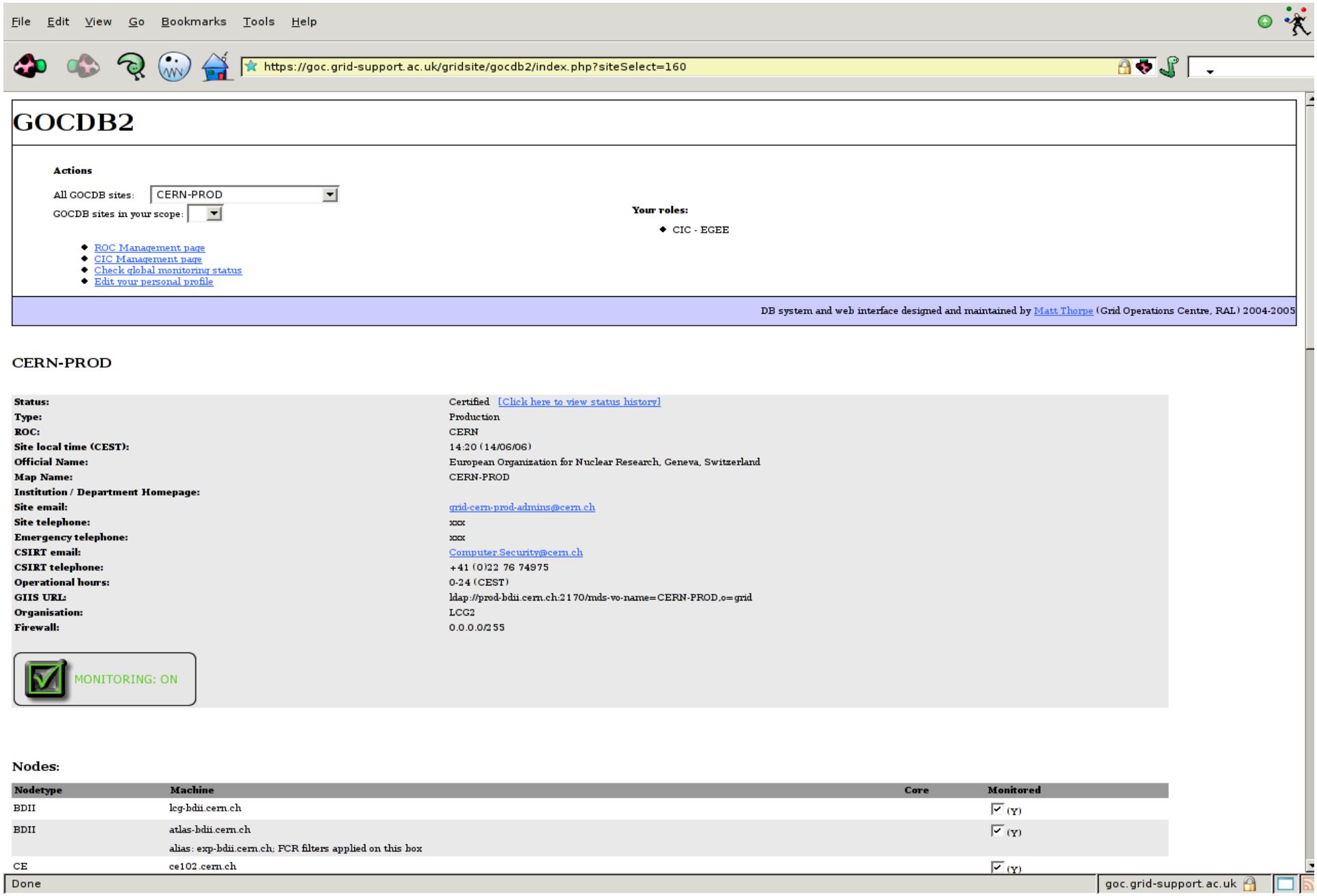
FCR Portal


File Edit View Go Bookmarks Tools Help
https://goc.grid-support.ac.uk/gridsite/bdii/site-apps/FCR-cgi/fcr.cgi
FCR Home
Available Computing and Storage Elements
for the dteam Virtual Organization
#c8e0bd Site OK
#fffff No SFT results for CE
#cacaca Scheduled Downtime
#f4d9a4 Critical Test Failed
#bed6e1 Job List Match Failed
#e1c0b8 Job Submission Failed
Select list of Critical Tests, or resources (CE and SE) in the view of current Critical Test set
SFT Selection
CE & SE Selection
Sites Functional Tests for VO dteam
Apel test
BrokerInfo
CA certs version
CRL timestamp test
CSH test
Job submission
Replica Management
lcg-cp from local SE
lcg-cr to local SE
lcg-del
GFAL Information System
lcg-rep to "central" SE
R-GMA
R-GMA Secure Connector
Software Version (WN)
VO software directory
VO Tag management
WN host name
File (URL) to override VO configuration:
sitename
Computing Element
selection
latest SFT results
last accessed
AEGIS01-PHY-SCL
2006-6-14 13:0:1
ce.phy.bg.ac.yu:2119/jobmanager-pbs-dteam
Yes No SFT
2006-06-14 11:34:55
2006-6-14 13:0:1
ALBERTA-LCG2
2006-6-14 13:0:1
lcgce01.nic.ualberta.ca:2119/jobmanager-lcgpbs-dteam
Yes No SFT
2006-06-14 11:35:42
2006-6-14 13:0:1
AMD64.PSNC.PL
2006-6-14 13:0:1
fangorn.man.poznan.pl:2119/jobmanager-lcgpbs-dteam
Yes No SFT
2006-06-14 11:35:10
2006-6-14 13:0:1
AUVERGRID
2006-6-14 13:0:1
clrlcgce01.in2p3.fr:2119/jobmanager-lcgpbs-day
Yes No SFT
2006-06-14 11:34:58
2006-3-7 7:40:1
clrlcgce01.in2p3.fr:2119/jobmanager-lcgpbs-dteam
Yes No SFT
2006-06-14 11:34:58
2006-3-7 7:40:1
clrlcgce01.in2p3.fr:2119/jobmanager-lcgpbs-infinite
Yes No SFT
2006-06-14 11:34:58
2006-3-7 7:40:1
clrlcgce01.in2p3.fr:2119/jobmanager-lcgpbs-long
Yes No SFT
2006-06-14 11:34:58
2006-3-7 7:40:1
clrlcgce01.in2p3.fr:2119/jobmanager-lcgpbs-short
Yes No SFT
2006-06-14 11:34:58
2006-3-7 7:40:1
Done
goc.grid-support.ac.uk

GOCDB (RAL)

- https://goc.grid-support.ac.uk/gridsite/gocdb2/index.php
- central database to store *static site information*
- all LCG/EGEE sites have to register
  - contact, security contact, certification status, site type
- scheduled maintainance
- used by
  - monitoring tools
    - SFT + gstat (via RGMA), SAM (future)
  - script that generates top-level BDII config file
  - operations management tools

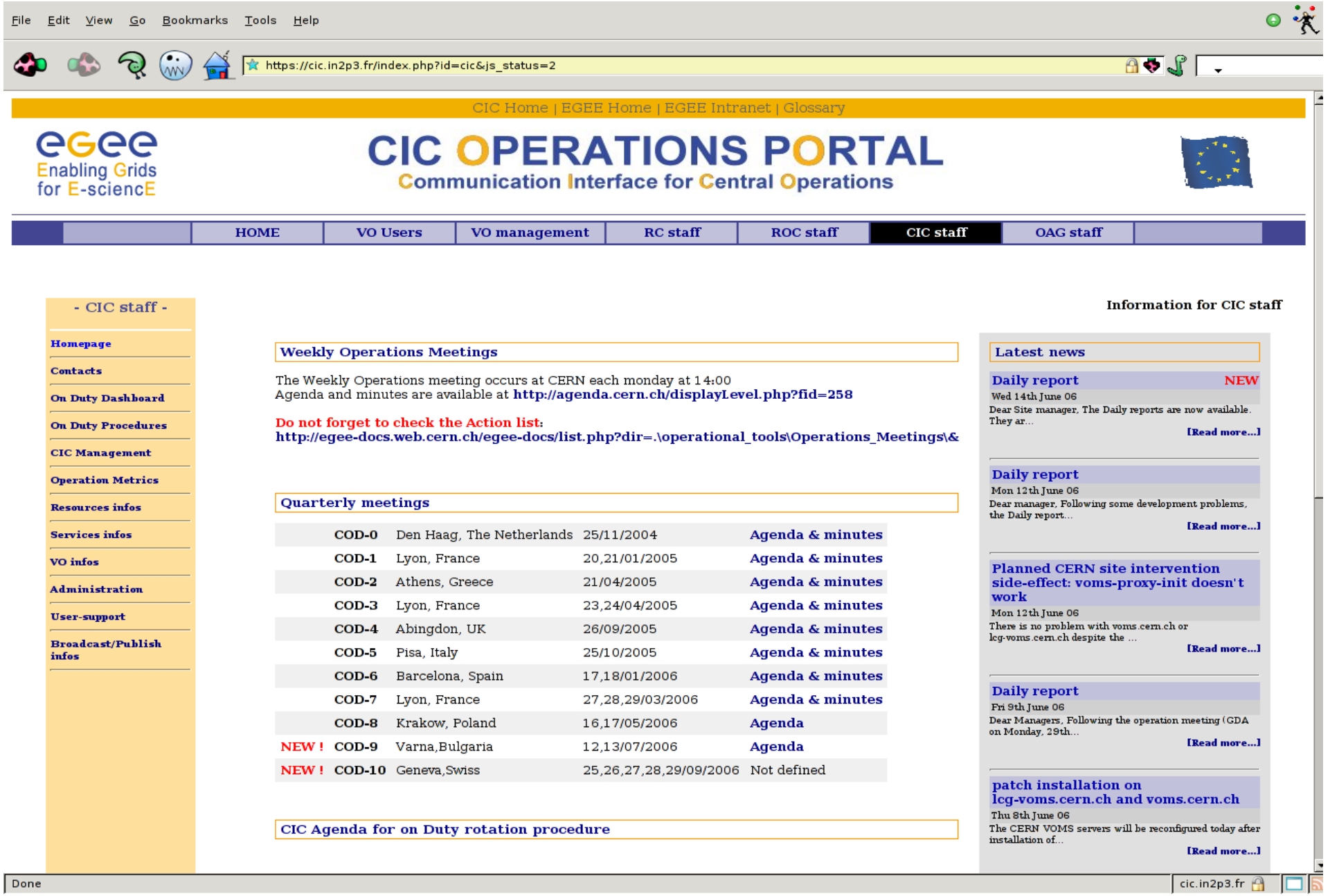
GOCDB Portal



CIC Portal (IN2P3)

- **Communication Interface for Central Operations**
- https://cic.in2p3.fr
- *all information* related to the Grid Operators on Duty (GOoD) activities (documents, shift schedule, etc.) + *tools* (On Duty Dashboard, EGEE broadcast tool)

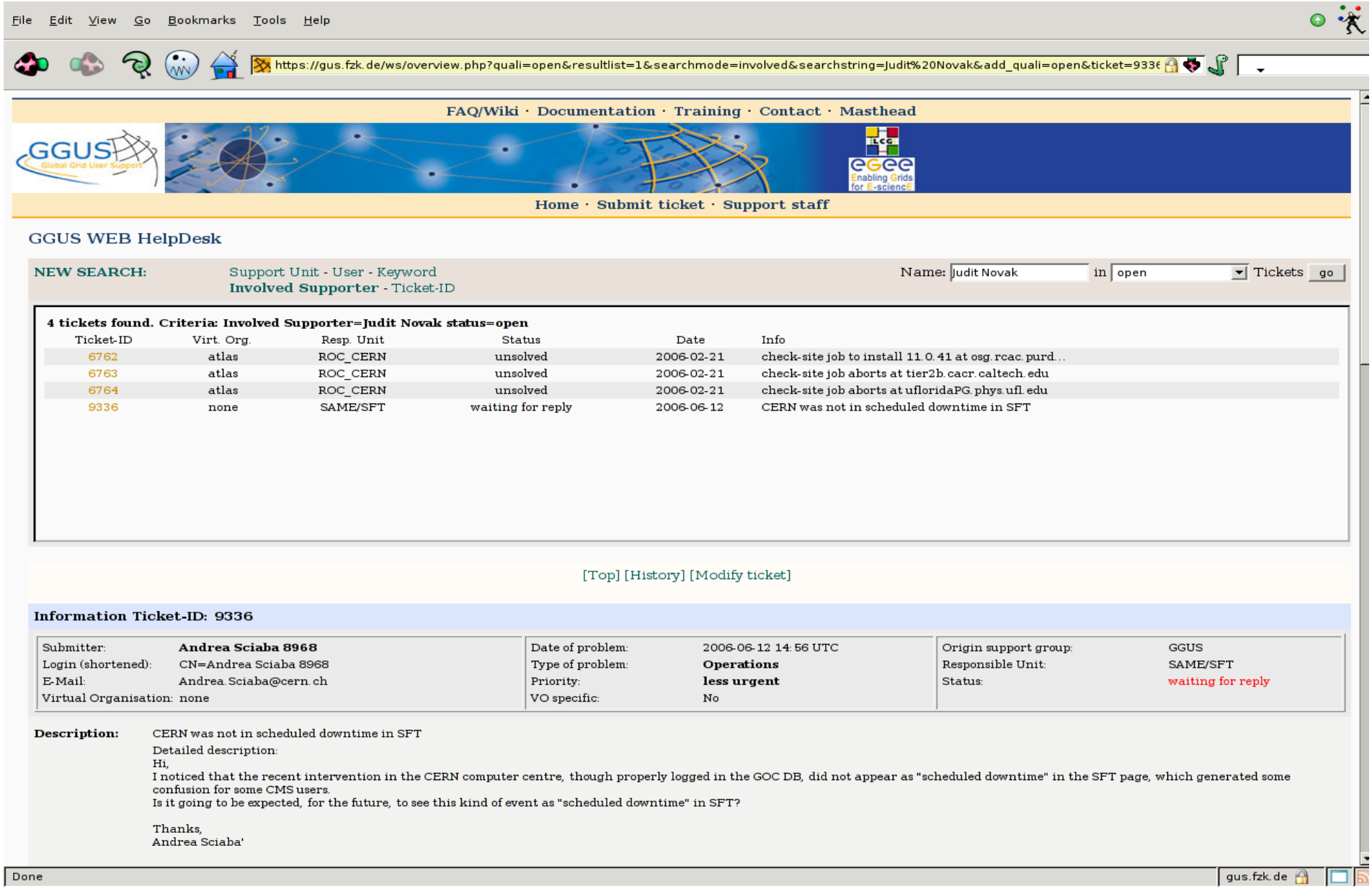
CIC Portal


File Edit View Go Bookmarks Tools Help
https://cic.in2p3.fr/index.php?id=cic&js_status=2
CIC Home | EGEE Home | EGEE Intranet | Glossary
Enabling Grids for E-sciencE
CIC OPERATIONS PORTAL
Communication Interface for Central Operations
HOME
VO Users
VO management
RC staff
ROC staff
CIC staff
OAG staff
- CIC staff -
Homepage
Contacts
On Duty Dashboard
On Duty Procedures
CIC Management
Operation Metrics
Resources infos
Services infos
VO infos
Administration
User-support
Broadcast/Publish infos
Information for CIC staff
Weekly Operations Meetings
The Weekly Operations meeting occurs at CERN each monday at 14:00
Agenda and minutes are available at http://agenda.cern.ch/displayLevel.php?fid=258
Do not forget to check the Action list:
http://egee-docs.web.cern.ch/egee-docs/list.php?dir=.\operational_tools\Operations_Meetings\&
Quarterly meetings
COD-0 Den Haag, The Netherlands 25/11/2004 Agenda & minutes
COD-1 Lyon, France 20,21/01/2005 Agenda & minutes
COD-2 Athens, Greece 21/04/2005 Agenda & minutes
COD-3 Lyon, France 23,24/04/2005 Agenda & minutes
COD-4 Abingdon, UK 26/09/2005 Agenda & minutes
COD-5 Pisa, Italy 25/10/2005 Agenda & minutes
COD-6 Barcelona, Spain 17,18/01/2006 Agenda & minutes
COD-7 Lyon, France 27,28,29/03/2006 Agenda & minutes
COD-8 Krakow, Poland 16,17/05/2006 Agenda
NEW ! COD-9 Varna,Bulgaria 12,13/07/2006 Agenda
NEW ! COD-10 Geneva,Swiss 25,26,27,28,29/09/2006 Not defined
CIC Agenda for on Duty rotation procedure
Latest news
Daily report NEW
Wed 14th June 06
Dear Site manager, The Daily reports are now available. They ar...
[Read more...]
Daily report
Mon 12th June 06
Dear manager, Following some development problems, the Daily report...
[Read more...]
Planned CERN site intervention side-effect: voms-proxy-init doesn't work
Mon 12th June 06
There is no problem with voms.cern.ch or lcg-voms.cern.ch despite the ...
[Read more...]
Daily report
Fri 9th June 06
Dear Managers, Following the operation meeting (GDA on Monday, 29th...
[Read more...]
patch installation on lcg-voms.cern.ch and voms.cern.ch
Thu 8th June 06
The CERN VOMS servers will be reconfigured today after installation of...
[Read more...]
Done
cic.in2p3.fr

GGUS (FZK)

- **Global GRID User Support**
- http://ggus.org
- *ticketing system* for the GRID
- based on Remedy
- tickets created by
  - individual users
  - automatically (GOoD Operations)
- provides *links* to *documentation, monitoring infos*

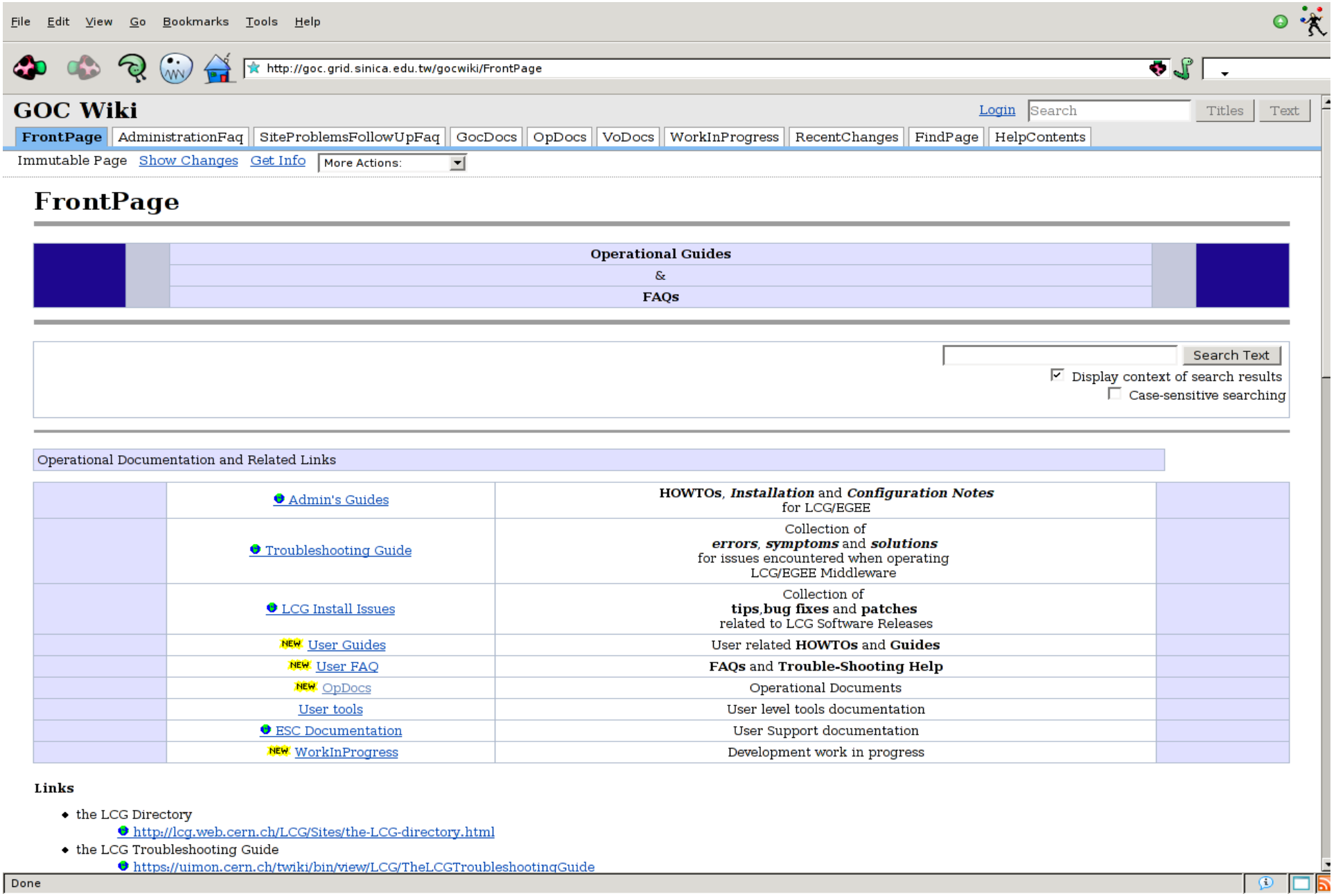
GGUS Portal


File Edit View Go Bookmarks Tools Help
https://gus.fzk.de/ws/overview.php?quali=open&resultlist=1&searchmode=involved&searchstring=Judit%20Novak&add_quali=open&ticket=933
FAQ/Wiki · Documentation · Training · Contact · Masthead
Home · Submit ticket · Support staff
GGUS WEB HelpDesk
NEW SEARCH: Support Unit - User - Keyword
Involved Supporter - Ticket-ID
Name: Judit Novak in open Tickets go
4 tickets found. Criteria: Involved Supporter=Judit Novak status=open
Ticket-ID Virt. Org. Resp. Unit Status Date Info
6762 atlas ROC_CERN unsolved 2006-02-21 check-site job to install 11.0.41 at osg.rcac.purd...
6763 atlas ROC_CERN unsolved 2006-02-21 check-site job aborts at tier2b.cacr.caltech.edu
6764 atlas ROC_CERN unsolved 2006-02-21 check-site job aborts at ufloridaPG.phys.ufl.edu
9336 none SAME/SFT waiting for reply 2006-06-12 CERN was not in scheduled downtime in SFT
[Top] [History] [Modify ticket]
Information Ticket-ID: 9336
Submitter: Andrea Sciaba 8968
Login (shortened): CN=Andrea Sciaba 8968
E-Mail: Andrea.Sciaba@cern.ch
Virtual Organisation: none
Date of problem: 2006-06-12 14:56 UTC
Type of problem: Operations
Priority: less urgent
VO specific: No
Origin support group: GGUS
Responsible Unit: SAME/SFT
Status: waiting for reply
Description: CERN was not in scheduled downtime in SFT
Detailed description:
Hi,
I noticed that the recent intervention in the CERN computer centre, though properly logged in the GOC DB, did not appear as "scheduled downtime" in the SFT page, which generated some confusion for some CMS users.
Is it going to be expected, for the future, to see this kind of event as "scheduled downtime" in SFT?
Thanks,
Andrea Sciaba'
Done
gus.fzk.de

GOC Wiki Pages

- http://goc.grid.sinica.edu.tw/gocwiki
- *collect information* related to site management
- contains:
  - Troubleshooting Guide
    - recipes related to error messages
  - Admins FAQ
    - descriptions for procedures (installation, etc.)
  - User Guides
  - LCG version related infos
- the Troubleshooting Guide is particularly useful for errors reported by SFT

GOC Wiki Pages



Grid Operator on Duty

GOoD operations

- **Grid Operator on Duty**
- global EGEE/LCG GRID monitoring
- 8 ROCs responsible for the whole GRID operations
  - 1 (2) ROC(s) on a weekly rotation
- WLCG/OSG/EGEE weekly phone conferences

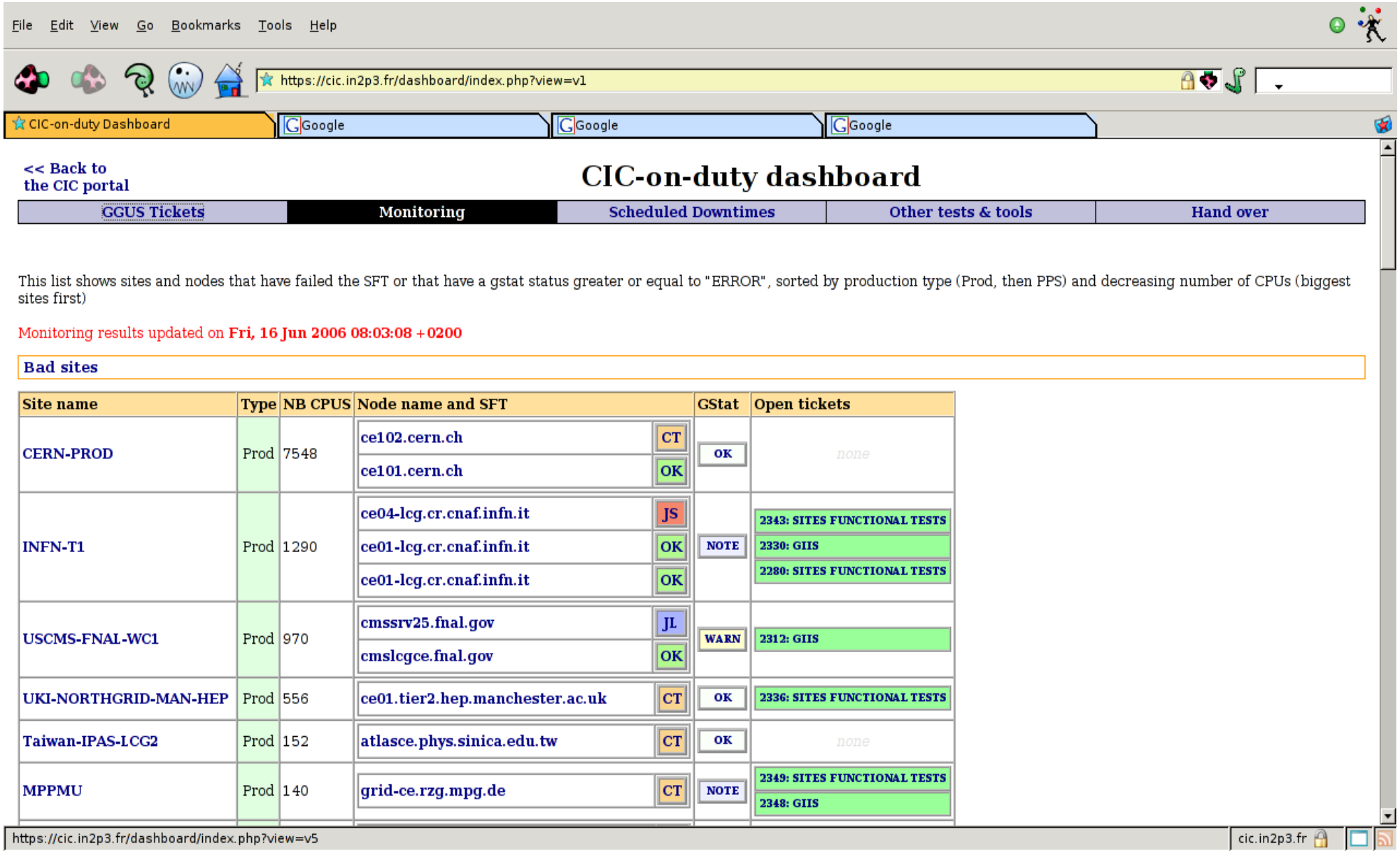
Operator's Role

- looking at monitoring tools
  - **SFT, gstat, Certificate Monitoring pages**
- **open tickets using On Duty Dashboard**
- **escalate expired tickets**
- **process site responses (update tickets accordingly)**
- **end of duty: hand-over notes**

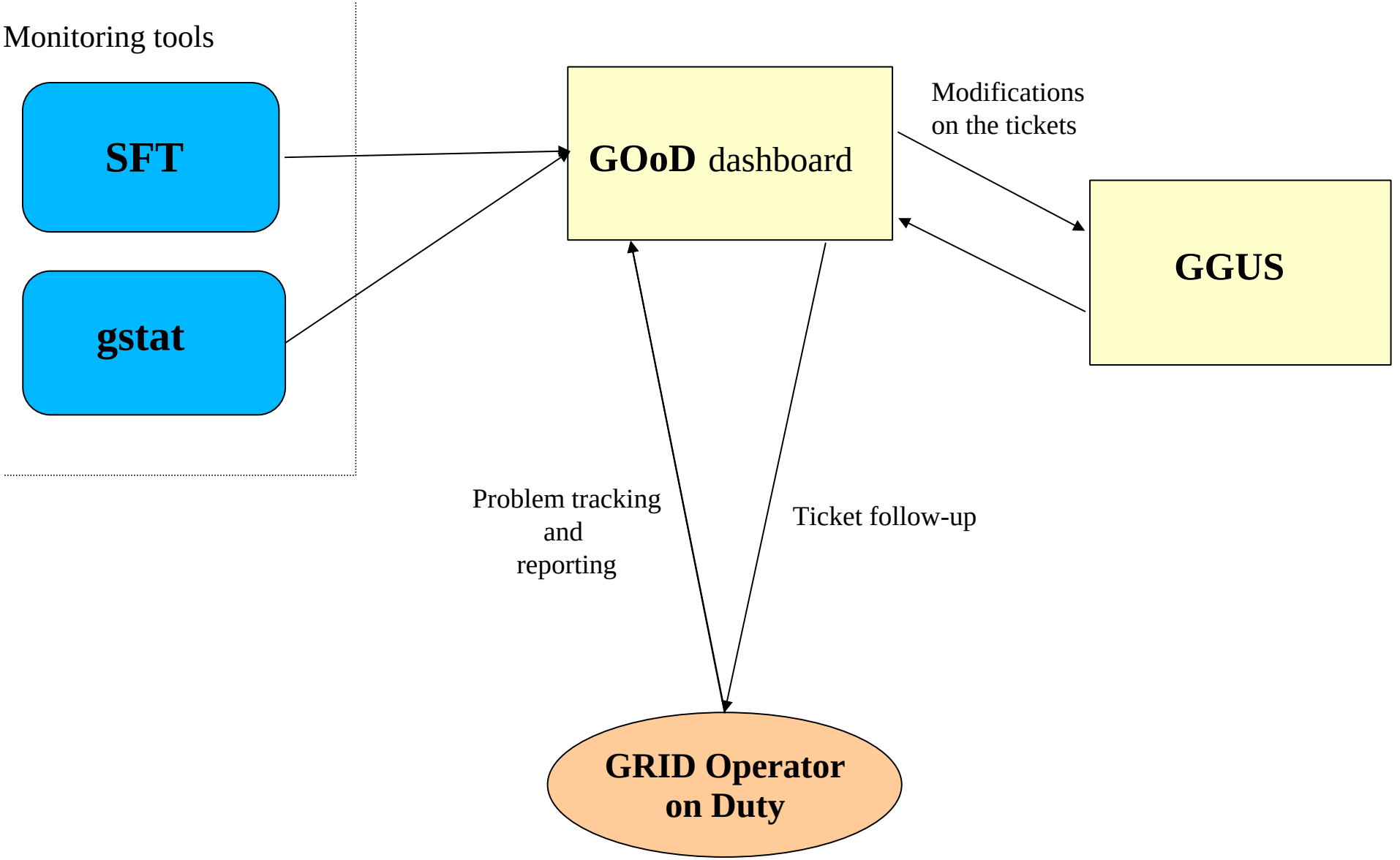
On Duty Dashboard

- summary of necessary *monitoring information* + tools for *ticket processing*
- GOoD ticket linked to corresponding GGUS ticket
- information from GOCDB
- SFT + gstat results
- ticket creation and management tool
- tools for e-mailing concerned sites and ROCs

On Duty Dashboard



Connection between used tools



Escalation Procedure

- defines the *steps* to be taken during the lifetime of a ticket
- available on CIC Portal
  - (https://edms.cern.ch/document/701575)
- distinction between sites depending on the amount of resources

Escalation Steps

1. ticket creation
2. first mail (to: site + ROC)
3. second mail (to: site + ROC)
4. suspension from the GRID

- before 4.:
  a) mail to ROC
  b) weekly operations meeting call to the site
  c) mail to OMC for validation

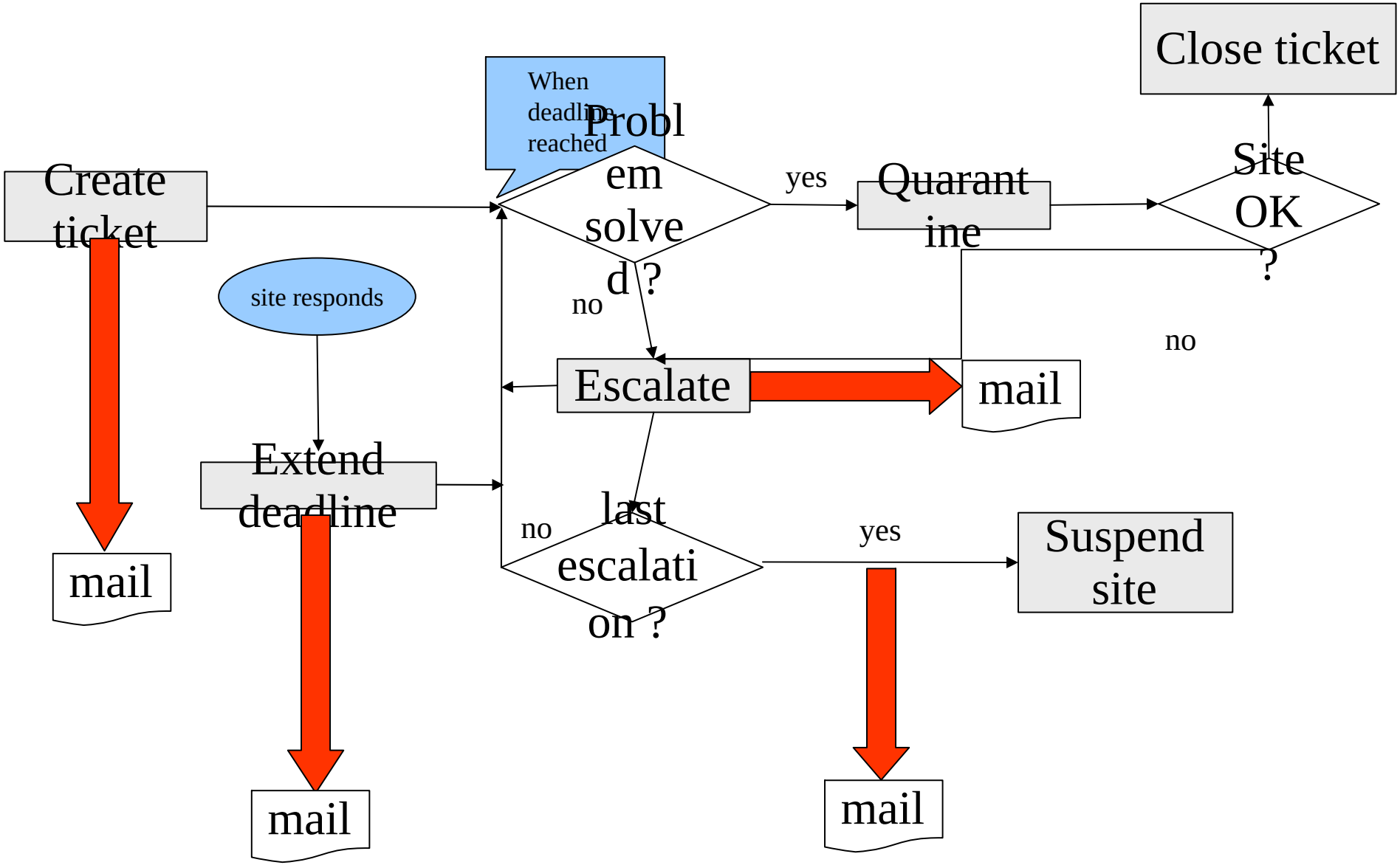
Escalation Procedure -- Quarantine

- site categories
  - low: CPU <20
  - normal: 20 < CPU < 100
  - high: 100 < CPU
- between 2.-3. and 3.-4.
  - low + normal: 3 days
  - high: 1 days
- before 4.
  - mail to ROC *immediately*
  - weekly operations meeting *ASAP*
  - *mail to OMC ASAP*

Escalation Procedure -- Quarant. 2.

- 3 days quarantine after site is OK before ticket is closed
- site response → deadline can be extended

COD Escalation Procedure



Tools in Development

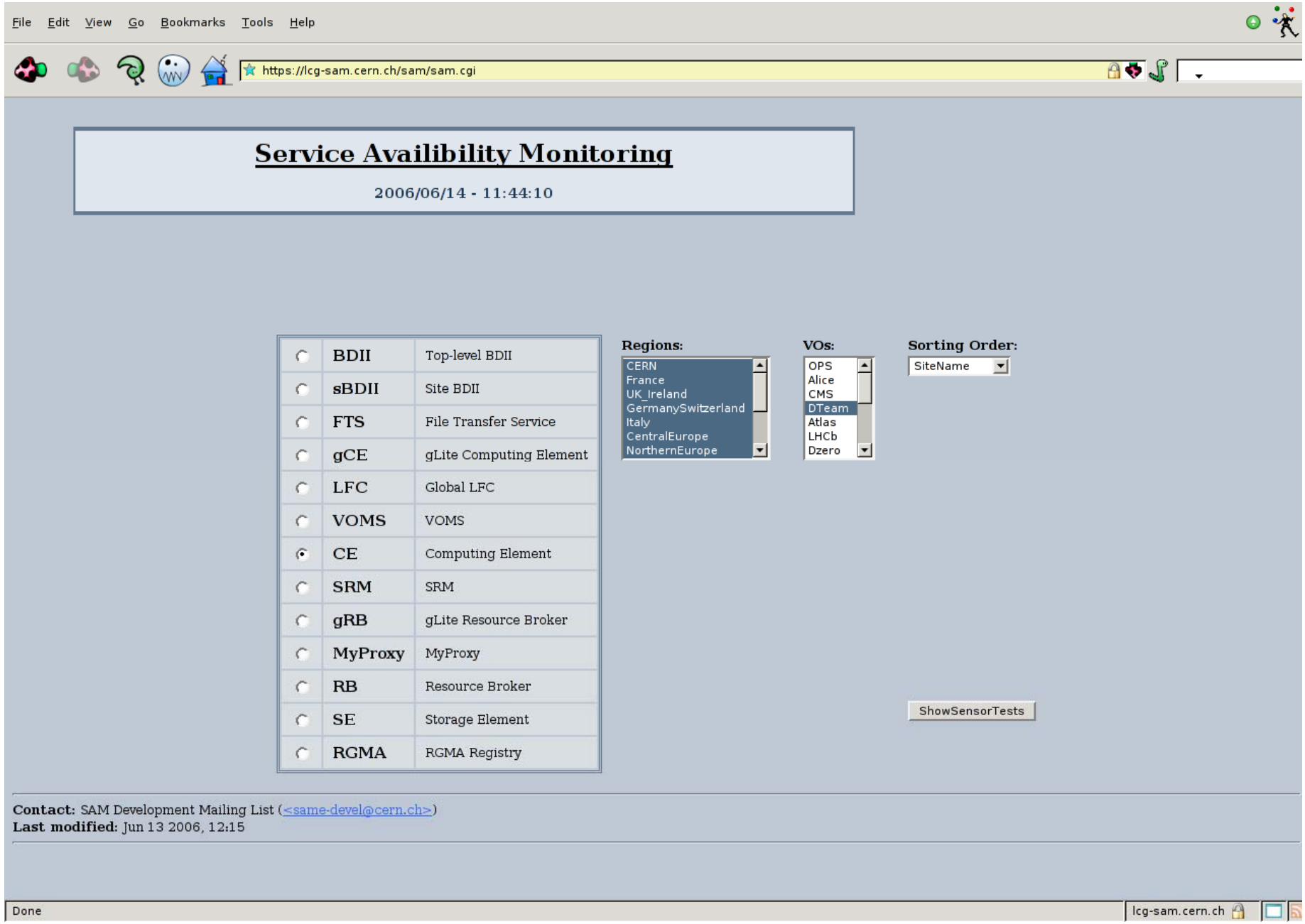
SAM

- Service Availability Monitoring
- https://lcg-sam.cern.ch:8443/sam/sam.cgi
- monitoring framework for GRID services
- "evolution of SFT "
- services involved:
  - CE, SE, BDII, RB, etc.
- development of the framework at CERN
- sensor development distributed
  - CERN, RAL, Sinica
- web services + Oracle DB

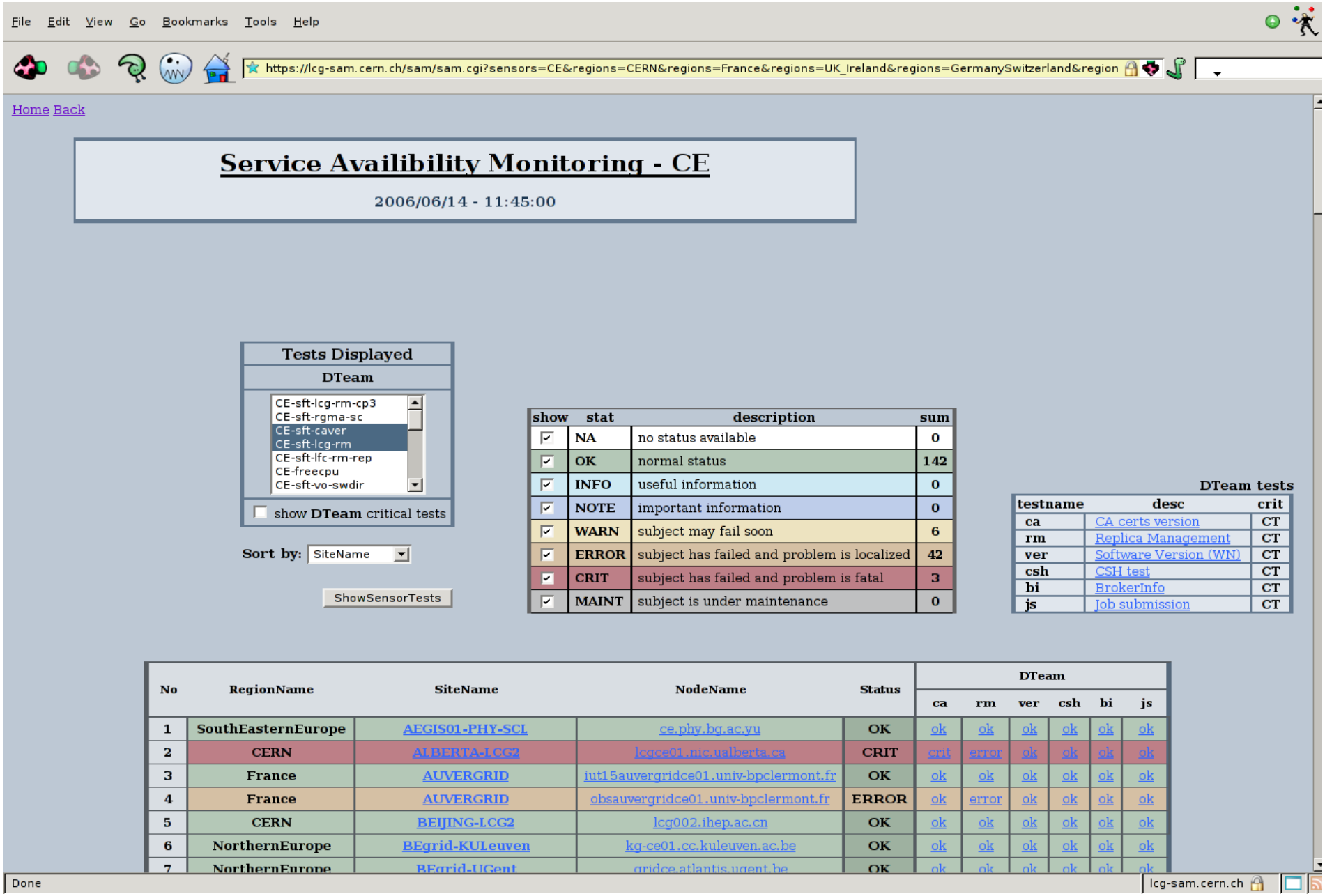
SAM 2.

- operations VO: `ops`
- sensor test submission available for all VOs
- critical test set for VOs (defined using FCR)

SAM Portal -- main



SAM -- sensor page



SAM -- Availability monitoring

- aggregation of results over a certain time
- site services: CE, SE, sBDII, SRM
- central services: FTS, LFC, RB
- status calculated in every hour → availability
  - current (last 24 hours), daily, weekly, monthly

FCR

- new version integrated with SAM
- new features
  - for every service VO can select which test are critical
  - definition of the core services
  - site status information pages for users
- web services, Oracle