



Enabling Grids for E-scienceE

# NE ROC overview

*Jules Wolfrat/ Per Öster  
Pisa*

[www.eu-egee.org](http://www.eu-egee.org)



- **8 sites certified (BE, NL, SE)**
  - delivering 526 CPUs
  - Adding 600 CPUs coming weeks
- **3 sites in certification process**
  - Adding 200 CPUs
- **VOs supported**
  - National : NCF, PVIER, ASTRON, Nadc, VLe, Ascii, BEtest
  - EGEE: ALICE, ATLAS, LHCb, CMS, Dzero, ESR, , Biomed, Magic
- **Service challenge support**
  - 2 tier1 centers - SARA/NIKHEF, NDGF

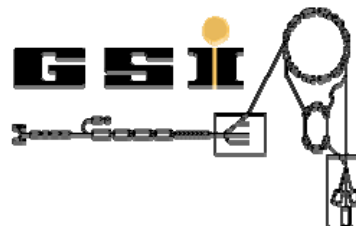
- **NE problem ticket procedures**
  - Difficulties with the interface between the NE RT system and GGUS
    - the procedure generates a mail loop between the 2 systems which generates a lot of new tickets
    - Lack of robustness in GGUS SOAP interface - information must be sent in right order
  - NE RT system is functioning, but procedures are not all present to run a smooth daily service
- **Focused activity started in summer to increase number of RCs, see**
  - Nordic sites: <http://www.egee-ne.org/documents/nordicrc>
  - BEgrid and Belgrid joined
- **Lack of dedicated application support**
  - No NA4 involvement in NE federation

# ROC DECH Report

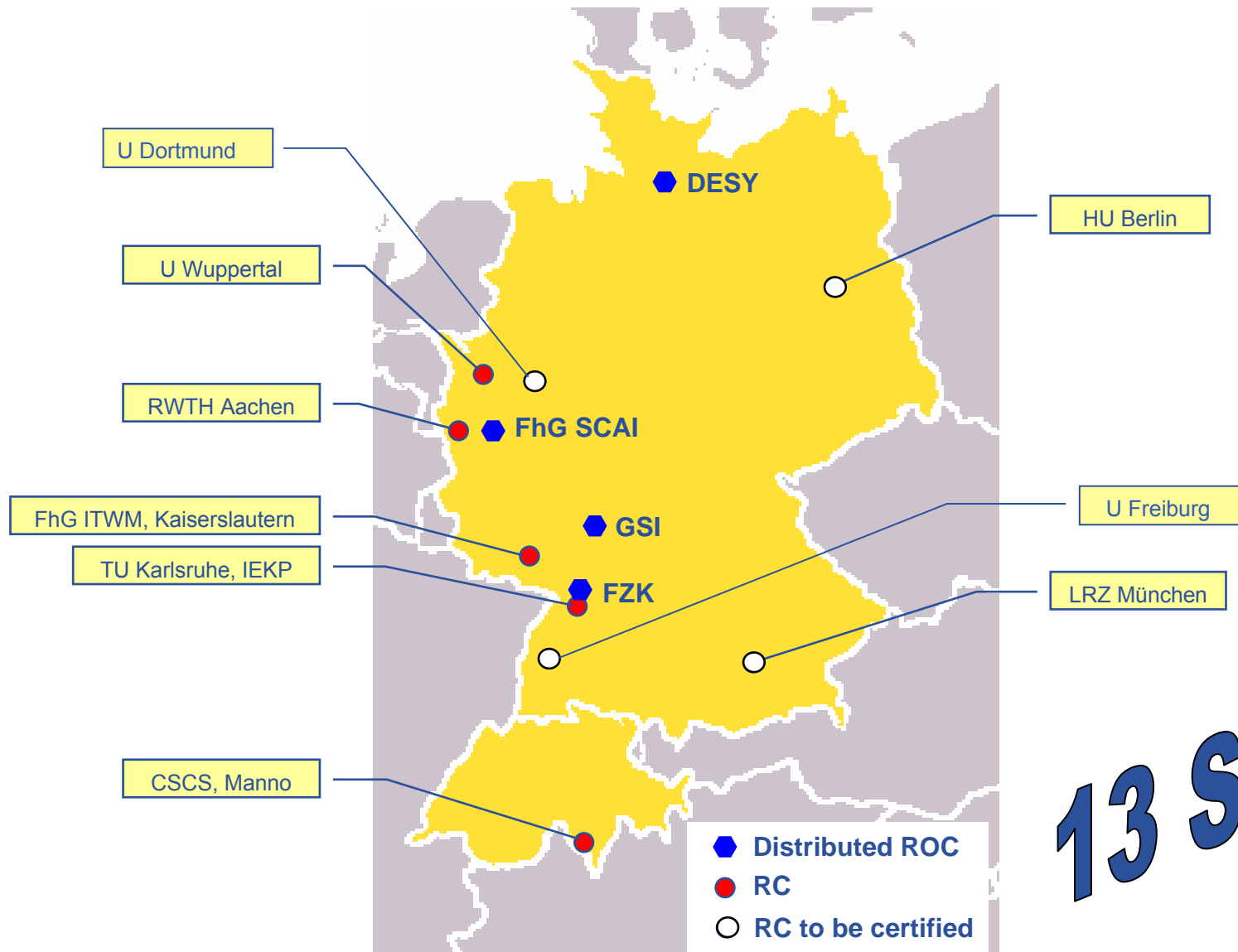
*Sven Hermann, Holger Marten*  
*Forschungszentrum Karlsruhe*



Forschungszentrum Karlsruhe  
in der Helmholtz-Gemeinschaft



# Centres in DECH contributing to the infrastructure



**13 Sites**

| Services  | Count | VOs    |          | Resources            | Magnitude | VOs    |          |
|-----------|-------|--------|----------|----------------------|-----------|--------|----------|
|           |       | Global | Regional |                      |           | Global | Regional |
| VO Server | 9     | 3      | 6        | Sites                | 9         | 9      | 0        |
| RLS/RMC   | 7     | 3      | 4        | Estimated CPUs       | 1827      | 1827   | 0        |
| RB        | 8     | 3      | 5        | Disk Storage         | 121 TB    | 121 TB | 0        |
| BDII      | 9     | 4      | 5        | Mass Storage Systems | 3         | 1      | 2        |
| UI        | >7    |        |          |                      |           |        |          |

EGEE certified

Funded and Unfunded Partners  
 + 4 more sites to be certified

- **FZK**

- Milestone October fulfilled: > 1550 CPUs, 310 TB disk (83 TB for LHC), 0,5 PB Tape
- DECH Portal online
- GridKa School 05 : largest event in region
- Pre-Prod ready by 80%

- **DESY**

- Storage management developments (dCache-SE with SRM)
- Running Monte Carlo Production (Simulations) for H1, ZEUS and ILC in collaboration with 22 sites, 1800 CPUs Status:  
H1: 61 M Events, ZEUS: 343 M Events

- **FhG/SCAI**

- Participation in BioMed Data Challenge
- Operating Meta Data Server for ESR
- Hosting regional DECH VO (LCG and regional gLite testbed)

- **GSI**

- Running SC and Analysis jobs for ALICE with 336 CPUs in total
- Successful participation in LCG SC3
- Migrated from classic SE to dCache based SE with SRM front-end

- **CSCS**

- Running production environment
- Added support for H1 VO
- Cannot migrate from Classic SE to DPM (CMS PhEDEx) fix end of month



- **Restrictions on OS**
  - Need at least few Linux distributions
  - Source code should always be provided
  - List of required packages
  - Improve documentation of migrations
- **Few supported batch systems**  
(make it difficult for new sites to join)
- **Firewall Management**
  - High Performance FW
  - Port list
  - No change of iptables
- **More Transparent Release management**
- **Interface to Fabric Management, put middleware into the fabric management tools deployment tools session**



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# UK/I ROC current issues and concerns

## Jeremy Coles

[www.eu-egee.org](http://www.eu-egee.org)



INFSO-RI-508833

- **VO boxes.** Our LCG Tier-1 site (RAL) is evaluating the impact within SC3 but generally our sites are concerned. Some are shared sites and feel current VO box requirements will compromise site security policies. One box per site per VO will not scale. GridPP will evaluate responses to the security questionnaire and seek ways to agree a solution. Nevertheless some VOs will likely get less resources if VO boxes are a requirement. How will this area move forward?
- **Middleware Releases.** Sites were adjusting to regular releases and wanted this to continue. The “continuous update” model (for SC4) will introduce problems – what software version will sites need, when will they need to update, how will “versions” be tagged and what will be the operational and support impact be if sites are running different software versions? Nb. The EGEE II proposal stresses certification and testing models with release cycles. In addition what is the future of YAIM – will sites have to use the gLite installation tool and if so when?
- **Defining and measuring availability.** LCG sites are being asked to deliver to a specified level of service in an LCG MoU. How does this translate to EGEE sites.

- **User/operational support.** We need to present a support system that is easy to use and transparent in operation with efficient workflows. Do we tell all users the same thing whether EGEE wide or national? How do we improve the service (which requires more use) and keep users happy (who are reluctant to trust the system!)?
- **Technical forums.** Can we create forums to discuss technical issues like use of volatile vs permanent storage?
- Levels of **SFT.** The BDII can apply specific tests for VOs but the COD only reviews one set of critical tests. We need to move towards greater flexibility – eg. The UK National Grid Service could run and use SFT results but they would fail tests not important to them (e.g. LCG replication). This will soon be an issue for EGEE anyway – as LCG specific tools feature more in the middleware release.
  - Different subset for regional sft is foreseen anyway
  - Sites in sc3 have specific services need special SFT



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# Asia Pacific ROC current issues and concerns Min Tsai

[www.eu-egEE.org](http://www.eu-egEE.org)



- **Members include:**
  - India, Korea, Japan, Singapore, Taiwan (8 sites)
- **Participation with CMS and Atlas Service Challenge**
  - Seeking storage requirements from Atlas
  - starting to contact more RC for participation
- **Regions site's experience and participation varies widely**
- **To improve this situation, we:**
  - have compiled list of recommended startup documentation for new administrators
  - need to improve the level of communications in this large region
  - are considering providing centralized deployment model for some sites to improve reliability
    - How have others done this?

- **Deployment Tools**
  - ROC use Quattor for WN installation
    - High learning curve, got good support from CERN and NIKHEF
  - YAIM for service nodes
- **Ticketing using OTRS**
  - Automatically create tickets from GGUS emails
  - But not integrated with GGUS Web services yet
- **Common issues encountered in the region**
  - Missing BDII entries (service endpoints)
  - Replication errors (could related to IS issue)
  - Queuing system level failures (jobs get stuck, maui malfunction)
  - Experiment software problem (updating, debugging etc)
  - Proxy expiration using UI with local time zone (switched to UTC)
  - Missing SW repository (missing entry in /etc/fstab, or simply NFS errors)
  - CA rpms not updated



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# Production status - France

*P. Girard, R. Rumler*

*4th EGEE Conference, Pisa, 20051026*

[www.eu-egee.org](http://www.eu-egee.org)



Information Society





- **Status in the region**
- **Open issues**

- Number of sites increases if counting geographically
- Three sites decided to put their resources together, two other ones will enter that cooperation (region of Paris)
- A new one under installation at Nantes
- **Current list:**
  - CGG
  - GRIF
    - CEA-DAPNIA
    - IN2P3-IPNO
    - IN2P3-LAL
    - IN2P3-LLRP
    - IN2P3-LPNHE
  - IN2P3-CC
  - IN2P3-CPPM
  - IN2P3-LAPP
  - IN2P3-LPC
  - IN2P3-SUBATECH
  - IPSL-IPGP

- **Open Issues**
  - ROC support (TPM)
  - Managing production and pre-production together
  - Reliability and pertinence of SFT results
  - VO box implementation, setup, and configuration
  - Operations metrics



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## IT ROC

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[www.eu-egee.org](http://www.eu-egee.org)



- **The production infrastructure LCG/EGEE is used by other projects/experiments**
  - Grid.it, egrid, Babar, Virgo, CDF, ARGO, MAGIC, Zeus, ...
- **Additional configuration for the middleware is provided at ROC level by a regional team:**
  - More VOs: define once VO servers, poolaccounts, add VOMS certificates, ... to reduce misconfiguration risks
  - MPI (requested by non-HEP sciences), additional GridICE config (monitor Wns), AFS read-only (CDF requirement), ...
- **Deploy additional middleware in a non intrusive way:**
  - Since Nov. 2004 VOMS, now in EGEE
  - DGAS (DataGrid Accounting System)
  - NetworkMonitor (monitor network connection quality)
- **Of course 100% compatibility is mandatory**

- **This activity is not so complex because Yaim is designed to be flexible and extendible**
  - An additional package (ig-yaim) provides scripts and configuration files to add/override features on standard lcg-yaim
- **When needed new metapackages are created**
  - Super-sets of the corresponding LCG metapackages
- **Documentation is published at each release**
  - Release notes, upgrade and installation guides
- **Everything is available for site managers on a central repository**
- **Collaboration with the LCG Certification and Deployment Team via Savannah**
  - request for new features, bugs, help request, suggestions, etc...

- **We would like to improve the process**
- **FRY, a set of basic low level tests**
  - To be run on every grid element
  - Perform some boring checks (daemons, disks full, certificate, CRL, home directories, ...)
  - Useful to tests nodes not yet in grid or debug nodes with troubles
  - To be updated on every release
- **Use and extend the LCG certification test suite**
  - Powerful and flexible framework for site testing maintained by G. Grodidier
  - We are extending it with additional modules to test our customizations
- **Development of a generic grid middleware benchmark framework**
  - Simulate the activity of one or more grid users
  - Measure the performance of users tools under stress conditions
  - Prototype implementation just started

- **Computing resources, storage and services published via a unique site BDII**
  - The GRID services information are tightly realated with the CE status
  - Is a separate site BDII reliable enough to avoid problems with the CE impact the SE access?
- **Minimum resource center size (CPU and storage)?**
  - Overhead for COD and Roc On Duty
  - General agreement or regional policy?



# Integration of ENEA-GRID multi-platform resources in EGEE

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ENEA INFO, Frascati, Roma (Italy), bracco@frascati.enea.it

C. Sciò [Esse3Esse, Roma], A. Secco [Nice], M. Fontana, M. Leone [CRIAI, Portici]

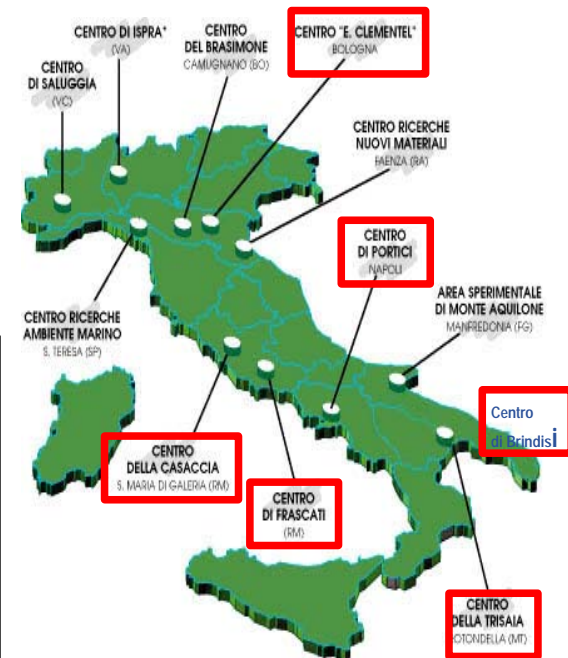
ENEA: Italian National Agency for New Technologies, Energy and Environment

ENEA-GRID: the infrastructure providing an **unified user environment** and an **homogeneous access method** to ENEA computational resources distributed in 6 Italian sites, connected over WAN.

ENEA-GRID computational resources:

~300 cpu: IBM SP; SGI Altix & Onyx; Linux clusters 32/64; Apple MacOSX cluster; Windows servers. **Most relevant resource: IBM SP4 128 nodes ~1Tflops, located at Frascati site.**

~600 registered users; installed storage ~15 TB



GRID functionalities (unique authentication, authorization, resource access and resource discovery) are provided using “mature”, multi-platform components that constitute ENEA-GRID middle-ware:

- Distributed File System: **AFS/OpenAFS** (native authentication & authorization)
- Resource Manager: **LSF Multicluster** (Job Forwarding Model)
- Unified user interface: **Java & Citrix Technologies** (including Web access)

## ENEA participation in EGEE/SA1

The focus of the participation of ENEA in other GRID projects is **interoperability**: sharing resources with other GRIDs must be compatible with ENEA GRID architecture -> **gateway implementation**. Moreover gateways are a **simple approach to Multi-platform resources**.

ENEA EGEE site [ENEA-INFO] is located in Frascati and consists of:

- **Standard EGEE Linux nodes**: YAM/YUM/YAIM repository LCG 2.6, SE, UI
- **EGEE/ENEA Linux Cluster**: CE egce.frascati.enea.it , 16 WNs
- **EGEE/ENEA Gateway to AIX**: Linux CE egceaix.frascati.enea.it

LCG 2.6 Middle-ware has been patched for compatibility with ENEA-GRID architecture, AFS and LSF:

- **Pool account users** are pre-defined as standard AFS user of ENEA GRID with AFS homes: e.g. for dteam VO \$HOME=/afs/enea.it/grd\_eg ee/user/dteam001...
- **lcmaps** has been modified to acquire an AFS token using gssklog.
- gssklogd daemon has been modified for compatibility with VO security.
- **lsf** job manager is used and **JobManager.pm** and **lsf.pm** have been modified for compatibility with AFS file system and ENEA LSF configuration.

In this approach **CE and WN share the same file system** via AFS.

Jobs can be submitted by edg-job-submit using INFN certification RB and setting explicitly CE: egce.frascati.enea.it.

**Implementing the gateway:** one of the Linux WNs was modified and tested

- 1) /etc/grid-security and /opt/ directories was completely removed.
- 2) a new /opt/globus has been created with 2 subdirectories: bin and etc.
- 3) /opt/globus/etc/globus-user-env.sh is a link to the usual file in an AFS location
- 4) /opt/globus/bin/globus-url-copy & grid-proxy-info are links to wrappers in AFS  
 e.g.: **globus-url-copy** -> wrapper  
 wrapper: **lsrun -m egce.frascati.enea.it globus-url-copy \$\***

where **lrun** is the LSF command for immediate execution on a remote host. As a result **all data transfer between WN and RB are effectively done by the CE** which shares \$HOME with WN (AFS).

### EGEE/ENEA gateway to AIX

With the described approach, a similar **/opt/globus** has been created on IBM SP hosts and the CE `egceaix.frascati.enea.it` differs from the Linux CE only for the name of the resource where LSF submits are performed.

**Successful tests** have been performed with the same approach also with submissions to **SGI/Irix 6.5** , to **Apple/MacOSX** and **SGI/Altix IA64** : hosts located at **3 different sites** Frascati , Trisaia (Southern Italy), Casaccia

Advantage of this approach: easy WN firewall configuration!

Limitations: on WN monitoring and accounting middle-ware is not yet available

ENEA-INFO site status: site certification in progress

**Conclusion: successful job submission and result retrieval to AIX, MacOSX, IRIX and Altix IA64 Worker Nodes has been demonstrated using a Linux gateway between EGEE LCG 2.6 and ENEA-GRID.**