Enabling Grids for E-sciencE

# GR Report

*Kostas et al*

*EGEE-SEE SA1 ROC  Meting Istanbul*

www.eu-egee.org

e-infrastructure

# Whats new

- **Procured new cpu's and storage**
  - ~240 cores to be added soon.
- **HYDRA secure storage service available for both GR and SEE**
- **Nagios Tool for Monitoring etc.**
  - based at auth backup at IASA
- **New wiki with x509 authentication based on twiki**
  - able to host numerous subprojects

# Whats new

- **NA4 Registry (see later on)**
- **TRACK + SVN**
  - hosted by AUTH, can be used by the whole region as needed.
- **Experimenting with other FS like Lustre**
- **Migrating to gLite 3.1 and SL4 64 bit**
- **Experimenting with UserSpace rpmDB as a tool to spread libraries and applications in SEE faster and more reliable.**

# Regional Application Portal (2)

**Available at: https://ui01.marie.hellasgrid.gr/**

EGEEIII-NA4 Applications Registry - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://ui01.marie.hellasgrid.gr/na4-SEE/index.php?a=reset

SAM GridMap GStat HG-MON CRsens TRAC HG-GOC HG-GANGLIA HG-Pakiti GR-Pakiti on-book gLite-UP CISCO Acc GOCDB ELOG Wiki IASA-MON 3COM HW-MAP VPN TINY-URL

EGEEIII-NA4 Applications Registry | Statistics for ui01.marie.hellasgrid.gr (...

## SEE Applications Registry (NA4)

Home | User | Download | Admin

Logged in as: User

You are in: Region: SEE >> User >> Registry

Records shown 1 - 6 of 6

Custom Filter [ ] All Fields ☐ Whole words only

Apply Filter  Reset Filter

| | | | Id | Logo | Application Name | Discipline | Description | Scientific Contact | Web Site | Regional Contact | Country | Region | VO | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| View | | | 1 | | A Model Independent Analysis Scheme (AMIAS) for Extracting Multipole Amplitudes. | NUCLEAR PHYSICS | A novel method for extracting multipole amplitudes in the nucleon resonance region from electroproduction data is applied. The method is based on statistical concepts and it relies heavily on Monte Carlo and simulation techniques; it produces precise identification and determination of the contributing multipole amplitudes in the resonance region and for the first time a rigorous determination of the associated experimental uncertainty. The results are demonstrated to be independent of any model ... more | Efstathios Stiliaris (stathis@iasa.gr, stiliaris@phys.uoa.gr), Department of Physics, University of Athens & IASA | | | Greece | SEE | see | |
| View | | | 2 | | Modelling In Meteorological and Climate Applications | EARTH SCIENCE | In the present work, the advantages of using the Grid services for meteorological applications will be presented. The main use of Grid will be for development of the RAMS modeling system. RAMS model has been widely implemented in many meteorological applications for weather prediction. In the present time, RAMS is evaluated for predictions of Saharan dust transport in Greece and climatic changes that will occur due to the dust transport. The usage of Grid is necessary for evaluating RAMS as a la ... more | George Kallos (kallos@mg.uoa.gr) , Department of Physics, University of Athens. | | | Greece | SEE | gridcc | |
| View | | | 3 | | Limited Area Weather and Environmental Forecasting on a Grid Platform (LAWEF-GRID) | EARTH SCIENCE | This application is targeting to produce early warnings related with hazardous weather events. Such real time operations are approached using the MPI based Skiron/Eta weather forecasting system for short time periods (18 hours forecasting horizon). Using the concept of "nowcasting", the system is daily integrated on a very high resolution domain (~5 km) covering the wider area of Eastern Mediterranean. The normal operation of the computational model runs in a deterministic fashion under Grid ... more | George Kallos (kallos@mg.uoa.gr) , Department of Physics, University of Athens. | | | Greece | SEE | gridcc | |

Done  ui01.marie.hellasgrid.gr

# HellasGrid/SEE Hydra infra

- What is HYDRA: Is an encrypted storage solution. This works by encrypting the files and storing them on normal storage elements.
- HellasGrid/SEE hydra infrastructure consists of 3 hydra servers:
  - hydra01.egee-see.org (HG-03-AUTH)
  - hydra02.egee-see.org (HG-06-EKT)
  - hydra03.egee-see.org (HG-05-FORTH)

- Almost all the sites in the HG community contributed on this task. To be more specific:
  - Technical documentation for the hydra service deployment (AUTH)
  - Deployment of the actual hydra services (AUTH, EKT, FORTH)
  - Each HG site deployed the hydra client facility
  - Infrastructure integration testing and debugging (IASA)
  - The end users guide is also written by IASA. This is available at the EGEE SEE wiki http://wiki.egee-see.org/index.php/HellasGrid_HYDRA
  - Communication/assistance/guidance of the end users (IASA).

# RPMdb schema for the VO-see SW (1)

- **It is based on the CMSSW SW installation/management procedure.**
- **A bootstrap script is used for the initial setup of the SEE RPMdb. The bootstrap script is modified based on SEE VO needs.**
- **An APT repository is available for the SEE SW rpms.**

- **A typical procedure is:**
  - The sgmsee user submits a job that will download and execute the bootstrap script on the target site.

```
#!/bin/bash
if test -d $VO_SEE_SW_DIR
then
    wget http://repo.marie.hellasgrid.gr/see/Software/download/see/Bootstrap/see_bootstrap-slc4_ia32_gcc345.sh
    export SCRAM_ARCH=slc4_ia32_gcc345
    sh -x ./see_bootstrap-$SCRAM_ARCH.sh setup -path $VO_SEE_SW_DIR
    source $VO_SEE_SW_DIR/slc4_ia32_gcc345/external/apt/0.5.15lorg3.2-CMS3/etc/profile.d/init.sh
    apt-get update
fi
```

  - After the initial setup, the SEE rpmdb should look like the example below:

```
[sgmsee001@wn05.marie.hellasgrid.gr ~]$ rpm -qa
external+gcc+3.4.5-CMS3-1-1024
external+expat+2.0.0-CMS3-1-1013
external+beecrypt+4.1.2-CMS3-1-1008
external+bz2lib+1.0.2-CMS3-1-1011
external+rpm+4.4.2.1-CMS3-1-1038
external+libxml2+2.6.23-CMS3-1-1006
system-base-import-1.0-1220434165
external+elfutils+0.128-CMS3-1-1006
external+db4+4.4.20-CMS3-1-1007
external+zlib+1.1.4-CMS3-1-1012
external+neon+0.26.3-CMS3-1-1003
external+openssl+0.9.7d-CMS3-1-1011
external+apt+0.5.15lorg3.2-CMS3-1-1067
```

# RPMdb schema for the VO-see SW (2)

- The sgmsee user submits a new job for the installation of a specific SEE SW available at the SEE APT repo. The installation script could be as easy as the example provided below.

```
#!/bin/bash
PKGNAME=$1
export SCRAM_ARCH=slc4_ia32_gcc345
source $VO_SEE_SW_DIR/slc4_ia32_gcc345/external/apt/0.5.15lorg3.2-CMS3/etc/profile.d/init.sh
apt-get clean
apt-get update
apt-get install $PKGNAME
```

- The new view of the SEE rpmdb should contain the newly installed rpm:

```
[sgmsee001@wn05.marie.hellasgrid.gr ~]$ rpm –qa | grep see
see+base-env-0.0.1-1
```

- **Of course, after the SEE SW installation is made, the corresponding VO-see Tag must be added.**
- **The SEE RPMdb prototype it is already deployed in two sites, the GR-06-IASA (32bit) and the HG-05-FORTH (64bit). It is tested and the results are more than encouraging.**

# Nagios

- **Deployed on 2 sites (primary and backup service)**
- **multi-site support since January 2008**
- **Usage of probes developed in OAT and previous effort**
- **Developed our own probes, such as the WMS testing probes which are using real Grid jobs to test the WMS**
- **Nagios is used in order to alert sites for failures and also is used by the failover mechanisms**

Probes

- glite-FTS-WS
- glite-LFC
- glite-RGMA:
- CAdistribution:
- DPM
- DPNS
- globus-GRAM
- gsiftp
- GridProxy
- MyProxy
- ResourceBroker
- SRM
- org.glite.wms.WMProxy:
- org.glite.wms.NetworkServer

# Nagios

- **Integration with SAM test (through the SAM programmatic interface**
- **Other work done:**
  - Migration from single site installation to ROC installation. Sites are automatically populated from BDII once per day in order to have up to date information regarding the available services per site.
- **Probes in development**
  - Check the supported MPI flavors on sites that define MPI support
  - Check the installation of the supported "standard" libraries/binaries (compilers etc)
  - Check on basic security issues (suid, availability of scheduling services (at/cron) etc)
  - BDII key-queries (i.e. check whether core services are listed on all BDIIs)

# Ganglia

- Federated Ganglia service has been deployed at all sites within HellasGrid
- Each site runs each one ganglia instance, information is correlated at the central ganglia instance
- Work is taking place to feed ganglia with information from nagios probes. Already used internally by some sites

# Failover mechanisms

- **VOMS Fail over has been deployed in run in production for many years**
- **WMS and BDII Failover mechanisms have been deployed early 2008**
  - Pool of WMS and BDII servers
  - Usage of DNS round robin
  - Service that uses the monitoring infrastructure based on Nagios in order to disable and re-enable servers from the DNS round robin

# Twiki

- Twiki has been deployed within HellasGrid
- Custom plugin has been developed that enables *proper* X509 authentication. Authorization is based on groups
- Already used operational for almost one year
- Several teams have internal twikis deployed since many years

# Trac, Subversion

- Central repository service using Subversion.
- Projects can request shared or dedicated repositories
- Automatically with each repository, TRAC is used to provide combined project management support (wiki, bug tracking,  repository browsing)
- Both Subversion and TRAC use X509 authentication. Authorization is based on groups
- Already used operationally for almost one year
- Git support is planned for beginning next year

# Helpdesk

- HellasGrid runs its own Helpdesk service based on RT
- Uses X509 Authentication
- Authorization is based groups/roles
- Lacking integration with GGUS

# Work in progress

- Central Quattor Infrastructure service (to be presented in the quattor workshop end of October)
- Monitoring of installed software per site / VO and repository with the results
- WN SW installed monitor Portal