



Enabling Grids for E-science

# NA4 F2F Meeting ES Cluster

*Monique Petitdidier*

*Horst Schwichtenberg*

*Paris, IPGP*

*27/28 March, 08*

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



- **Partners**

- FhG SCAI (leader, 24)
- GCRAS (18)
- CNRS (12)
- II SAS (12)
- CGGV (CGG Veritas) (12)
- Taiwan (6)
- KNMI (only consultant)
- ESA Esrin (only consultant)

- **Specific Support**

- providing and supporting core functionalities (generic tools)
  - esp. for ES workflow and data models/formats
    - *Data model example: Level 1 reconstructed, uncompress instrument data in HDF or netcdf*
    - *Workflow tools with automatic annotation have been developed for Flood applications by an ES Cluster partner*
  - for integration of geographical information systems (GIS)
  - for access to external web service toolkits like Google maps, MS Virtual Earth
  - in the context of ES grid-jobs (easy executing, QoS, advanced reservation, steering)
    - (different agent based solutions presented on the last EGEE User meeting)
- direct ES User- and ES Application support (for existing and for new Users)

- **Evolution of gLite**

- Webservice are needed by ES applications

Providing Webservice based interfaces

- e.c. for OpenGIS as defined by OGC
- for OPeNDAP (community standard to access remote data (netcdf, HDF))
- for Data Access and Integration

**Example:**

Earth observation Grid Processing on Demand (G-POD) is based on Webservice interfaces

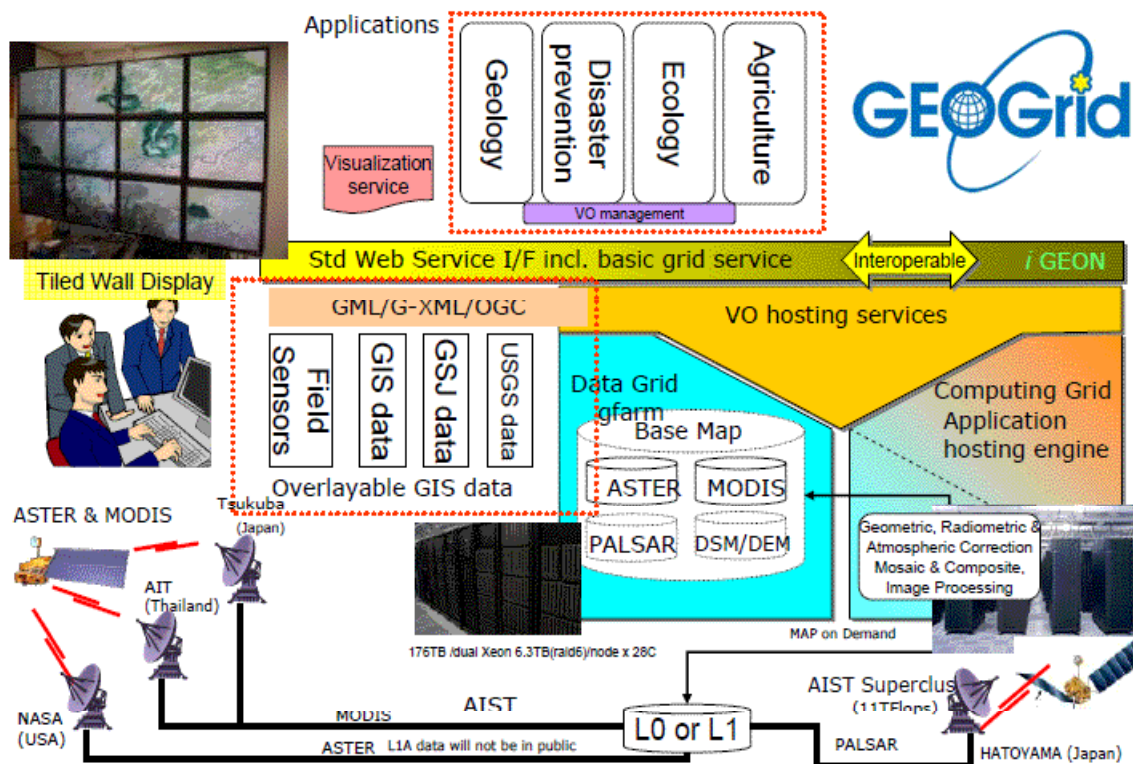
- tools from gLite included

ESA Esrin developed the framework

The cluster will share technologies with ESA ESRIN and the G-POD and the GENESI-DR project

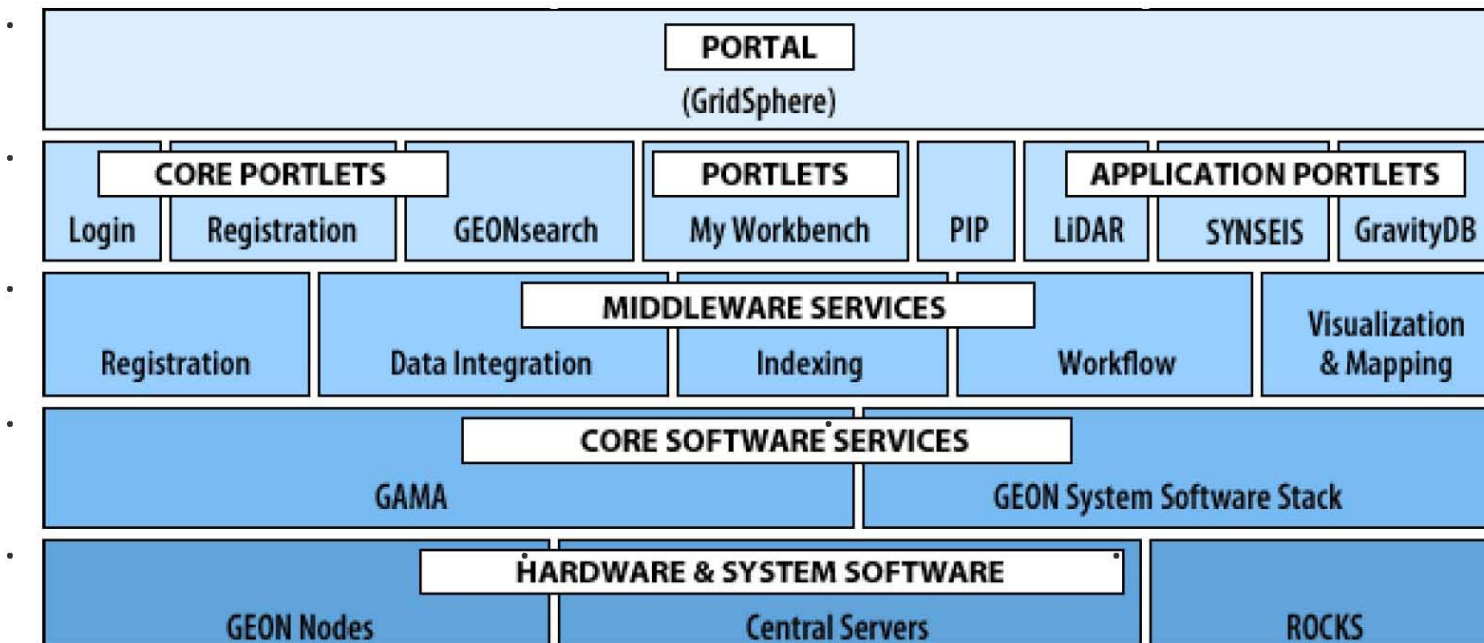
## Architecture example

AIST GEO Grid Architecture (IT Infrastructure)



## Portal and Service Infrastructure example

• <http://www.geonrid.org/technology/portal>



The GEON architecture consists of a single GEON Portal and a number of distributed GEON sites and GEON

- **Applications**

- from meteorology: models (i.e. Simulation codes) like MM5, WRF  
...
- from Civil protection e.g. Cyclops project  
OpenGIS standards are indispensable
- integrated in GEOCLUSTER (CGG, part of EGEE-II)
- From Neries project (in discussion)  
Neries has connected a seismological networks in Europe  
is looking for an integration like GEON and EGEE to run applications
- Ozone prediction (CNRS)
- from GEOSCOPE
- ...  
.  
.

- **INSPIRE**  
Infrastructure for Spatial Information in Europe  
(used for civil protection)
- **Cyclops** (civil protection)
- **Virtual Observatory for Geoscience** (initiative)
- **eGY**(electronic Geophysical Year) centred on data management, policy, rescue....
- **Data fusion** (Grid technologies for Multi-Source Data Integration, Ukraine)
- **Regional Initiatives** (ES in D-Grid, Grid5000, ...)
- **Inside EGEE with SA1 (ROCS)**  
**Clusters** (Astro !, ... ) – we will not reinvent the wheel !



- **Data Source Grid-services for authorized very large databases.**  
DB candidate list: NCEP/NCAR Reanalysis, ECMWF ERA-40 Reanalysis, NOAA Space Weather Reanalysis, SPIDR, ORFEUS, GEOSCOPE, some remote sensing archives...
  - The Data Sources will be interfaced by OGSA-DAI (OMII-Europe Version interoperable with gLite)
- **Expandable Grid-service based ES modeling framework with 2-3 models are pre-installed (GRASS GIS toolkit, MM5 mesoscale weather model, ...)**
- **High-definition visualization grid-service for tiled display video walls based on SAGE technology. (nice to have)**
- **“Data Cloud” service to upload user datasets to the Data Source service (data file + metadata record)**
- **Metadata repository to search for data sources/models and to compose data/model run request with basic workflow composition capabilities. We have a prototype VxOware (developed for NASA Virtual Observatories initiative), but it should be adopted for the EGEE III ES tasks.**

## Today we have different frameworks by cluster partners

- Geocluser (CGGV, see EGEE-II)
- Kwfgrid middleware solution (II-SAS, Flood)
- VxOware (NASA/GCRAS Moscow, sourceforge)
- Gpod (ESA)
- ...

Workplan is not ready:

Open:

- identify interfaces to be wrapped by Webservices (applications, gLite services)
- which standards (WS-\*)
- ...

- Codemanagement: Gforge @ SCAI (svn, Wiki, mailman)
  
- Repository for ES with:
  - Services and Tools
    - including Usecases, design + implementation patterns
  - modeling frameworks with applications
    - ( best practice)
    - may be DEGREE Portal !
  
- **Metrics:**
  - -- number of publications (results)
  - -- number of applications and users
  - -- number of tools in the repository
  - -- hits to our portal

## Upcoming ES events:

EGU European Geoscience Union @ Vienna, 16 April 08

2 Grid related tracks, EGEE booth

See <http://meetings.copernicus.org/egu2008>

DEGREE workshop @ KNMI in 8/9 of May 08

ES Roadmap

<http://www.eu-degree.eu/>