



Enabling Grids for E-science

# SA3 Partner Review: FZJ

*Daniel Mallmann – Research Centre Juelich  
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- **5.B.1.2 ACCESS TO ADDITIONAL RESOURCES AND SERVICES**

- EGEE-II will address interoperability with other grid architectures through partners involved in both EGEE-II and those other projects. These include DEISA, ...

- **5.B.2.1.1.1 SA1 OVERVIEW**

- There is *job-level interoperability demonstrated* in a sustainable manner between EGEE and Open Science Grid infrastructures ...

In EGEE-II, *these efforts will continue and will also include work with UNICORE* and ARC middleware systems, to build interoperation where feasible and propose common standards and interfaces.

- **5.B.4.2.1.1 SA3 Management – ORGANISATION**
  - Specific resources for interoperation testing and certification must be provided at FZJ (UNICORE), ...
  
- **5.B.4.3 SA3 EXPLOITATION OF RESULTS**
  - The interoperability of the SA3 distributions with other international Grid middleware flavours (such as that used in Open Science Grid, UNICORE, etc.) will only be sustainable with a coherent understanding of technical directions of each in addressing their own issues

- **APPENDIX A: CONSORTIUM DESCRIPTION**

**Partner 75: FZJ**

**Role in EGEE-II:**

- **SA3** FZJ will work in SA3 "Integration, Testing and Certification" on the development of an interoperability layer UNICORE-gLite, which will allow running multi-middleware workflow applications on different types of computing resources like clusters and HPC-supercomputers.

- **MSA3.3**
  - Plan for how EGEE-II will work with UNICORE middleware to achieve interoperability. Define what should be achieved

- **7.4. PLANING AND TIMETABLE**

- The aim of the interoperability work for UNICORE is to achieve the technical interoperability between UNICORE and gLite, i.e. to submit jobs from UNICORE to gLite and vice versa
- We do not address the operational interoperability between EGEE-II and projects or HPC centres deploying UNICORE

- **7.4. PLANING AND TIMETABLE**

- For the development and testing of the interoperability components we will use hardware resources at FZJ and FhG/SCAI.
- The systems accessible through UNICORE will be provided by FZJ. We will try to make the IBM p690 system JUMP, that is part of the DEISA infrastructure, accessible for demonstrations of the interoperability work.
- In the initial phase we will use the gLite resources provided by FhG/SCAI. In a later phase FZJ might deploy gLite services as well
- The process of identifying a pilot VO who will provide a use case for the interoperability activity is still ongoing

Timetable	
Mid of August 2006 (Project month 5)	Initial SA3 UNICORE – gLite interoperation` meeting at FZJ with participants from CERN and FZJ
End of September 2006 (Project month 6)	Clarification of use cases
March 2007 (Project month 12)	Subset of prototype interoperability components that allow for job submission from gLite to UNICORE and retrieving output, using only simple security mechanisms
September 2007 (Project month 18)	Prototype interoperability components
February 2008 (Project month 23)	Final interoperability components



- **WISDOM (HealthGrid)**
  - Very good use case:
    1. In-silico docking on gLite
    2. Identify chemical compounds which are potential drugs
    3. Refine list of best compounds by further modelling with highly-parallel molecular dynamics codes
  - Step 2 is done manually
- **Fusion**
  - They don't really need highly parallel systems
  - Low priority
- **BalticGrid**
  - Interested in access to gLite infrastructure through UNICORE for Chemomomentum users (drug design) already using UNICORE

- **Interoperability**

- Security
- Information Services
- Job Management
- Data Management

- **Interoperation**

- Interoperability
- Accounting and Auditing
- Error handling / user helpdesk
- Operational security (incidence notification, ...)

- **Security**
  - UNICORE to gLite
    - UNICORE TSI runs commands as the user of the gLite UI, but expects a valid user proxy here
    - VOMS plugin for UNICORE client (under development)
      - *Some issues with JavaAPI*
    - MyProxy plugin for UNICORE client
      - *Development not started*
      - *Can we use the CoGKit Java API for MyProxy or is a gLite version available?*

- **Security**

- gLite to UNICORE

- Current Condor-U sufficient for “simple security mechanism”
    - Condor-U needs to be extended to support “Explicit Trust Delegation”
      - *Extract user name from proxy certificate and insert it as role “user” in the UNICORE job*
      - *To be developed by Condor-U developers or FZJ*
    - VOMS (and proxy) aware UUDB not really necessary

- **Information Services**

- UNICORE to gLite

- UNICORE IDB has only static information about available resources (no service discovery)

- gLite to UNICORE

- UNICORE trusted agent discovers the UNICORE gateways from an xml file and queries the UNICORE NJSs to obtain information; needs to be registered in the UUDBs of the NJSs
    - Agent feeds information about the available UNICORE resources through a UNICORE BDII to gLite
      - *Might be better to be done by gLite developers*

- **Job Management**
  - UNICORE to gLite
    - Prototype for job submission and control available
    - Issue: UNICORE NJS expects a “superuser” on the UNICORE TSI (i.e. the gLite UI) that can see the status of all jobs from all users submitted through the UNICORE NJS
      - *Clean solution needs changing the UNICORE NJS to do the job status monitoring as a user and access to myProxy necessary – huge effort, almost impossible*  
*will result in a separate NJS release for interoperability with gLite*
      - *Dirty solution accesses proxy certificates of all users on the gLite UI;*  
*is proxy renewal possible on the UI?*

- **Job Management**
  - gLite to UNICORE
    - Condor job submission through Condor-U possible
    - Setting up gLite Test-Environment
      - *Some “challenges” related to system administration*
      - *Some “challenges” related to weak knowledge about gLite*
    - Adapt WMS to use Condor-U
      - *Might be better to be done by gLite developers*
    - Job monitoring needs to be in place as well
      - *Might be better to be done by gLite developers*
    - Using Condor CE
      - *Expected to be simpler, assuming job monitoring in place*

- **Data Management**
  - Input- /Outputsandbox
    - Sufficient for demonstration
    - *Not sufficient for real usage*
  - UNICORE to gLite
    - STORM - Access from gLite to GPFS resources
      - *Have to convince DEISA system administrators to install it*
      - *Effort unpredictable*
  - gLite to UNICORE
    - UNICORE NJS/TSI access to GFAL, FTS, SRM
      - *UNICORE NJS/TSI supports GridFTP*
      - *Effort unpredictable*



- **Complexity underestimated in the proposal phase, even while writing the Interoperability Plan**
- **Efforts concentrated on 2 persons since March**
- **gLite expertise too weak for modifications of WMS/BDII/LB**