CESNET Activities within EGEE / EGEE II project

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• **NA4 CESNET contributions**
  
  – porting of generic applications into EGEE infrastructure
  – support for running user applications
  – solving user request through dedicated helpdesk
  – development of tools for easy and seamless computational jobs management and application portfolio administration
• **Provided tools & infrastructure**
  
  – VOCE VO environment
  
  – VOCE UIPnP (User Interface PlugAndPlay)
  
  – CEL system (Charon Extension Layer)
  
  – HEP data management

• **Supported end users communities**
  
  – computational chemists, astrophysics, physicists, NMR
### VOCE Applications domains and programs

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Attendance is monitored by
• **What is Charon Extension Layer?**
  
  ▪ uniform and modular approach for (complex) computational jobs submission and management
  ▪ generic system for use of application programs in the Grid environment (LCG/gLite middleware, …)

• **Why Charon Extension Layer?**
  
  ▪ many various batch systems & scheduling components used in grid environment
  ▪ each batch system has unique tools and different philosophy of its utilization
  ▪ LCG/gLite provided tools are quite raw and simple
  ▪ many additional tasks to use computer resources properly
NA4 Activities

Application management
- single/parallel execution without job script modification

Job management
- easy job submission, monitoring, and result retrieving

Command Line Interface (CLI) approach
• Single job management
  ▪ encapsulation of a single computational job
  ▪ minimization of overhead resulting from direct middleware usage (JDL file preparation, etc.)
  ▪ easy submission and navigation during job lifetime
  ▪ same usage in single/parallel executions of applications

• Application management
  ▪ easy application initialization, inter-application/version conflicts and dependencies handling
  ▪ comfortable enlargement / modification of available application portfolio
• **NA3 CESNET contributions**
  
  – active participation in official EGEE / EGEE II events
    
    ▪ EGEE conferences, User Forums
  
  – active participation in generic Grid-related events
    
    ▪ GGF / OGF, GRID conference, CGW, GCCP, …
  
  – organization of local dissemination events / promotion actions
NA3 CESNET contributions

- organized user education events
  - First Auger hands-on session (9. 1. 2007, Praha)
  - EGEE II project seminar (12. 12. 2006, Šlapanice)
  - Seminar for users of EGEE Grid (13. 12. 2005, Praha)
  - Induction EGEE course (26. 10. 2004, Praha)

- organized internal EGEE meetings
  - JRA1 All Hands Meeting (10.-12. 7. 2006, Plzeň)
  - JRA1 All Hands Meeting (20.-22. 6. 2005, Brno)
NA2 Activities

• NA2 CESNET contributions
  – CESNET (Czech Education and Scientific NETwork)
  – NA2 activities as the level above of NA3/NA4 activities
    ▪ to provide visibility of all activities performed within EGEE / EGEE-II

• Currently provided services
  – selected web portals
    ▪ local EGEE portal [link]
    ▪ VOCE portal [link]
    ▪ CHARON website [link]
• Currently provided activities
  – regular contribution to newsletters, press releases
  – translation of available materials to local language
  – continual enhancement of managed websites / portals
  – tight cooperation with NA3 activities
    ▪ advertisement of organized courses, sharing of knowledge through lectures
  – tight cooperation with NA4 activities
    ▪ proper announcement of provided application services
    ▪ spreading of information about available application tools
EGEE II project is funded by European Commission.
The EGEE project is organized on the regional principles. The Central Europe region is currently formed by Austria, Czech Republic, Hungary, Poland, Slovakia and Slovenia as defined in the EGEE Technical Annex. To find more about specific EGEE activities and their states within the Central Europe, please follow corresponding links:

- EGEE CE Federation (Central Europe Website)
- EGEE CE SAI Activities (Central European ROC)
- EGEE CE NAJ Activities (Central European Training Centre)

In order to have the opportunity to directly support researchers from Central European region, the Virtual Organisation for Central Europe (VOICE) computing service has been established.

In real, VOICE is a virtual organisation (dynamic, multi-institutional community) representing all EGEE Grid users within the Central Europe (CE) region willing to utilize computational resources available in the CE. VOICE directly supports CE researchers by providing a computing service. This service consists of sharing data resources and computational capacities available within the CE and the installed Grid middleware and other software to solve various types of computational jobs.
Introduction

Charon Extension Layer (simply Charon or CEL) provides uniform and simple tools for job submission and management in various computer environments such as PC clusters or Grid environments. Furthermore, Charon contains powerful Module system for easy management and utilization of application software.

Status

Development version of Charon is currently available on:
- TROLLCluster and YPLOCluster clusters (small PC clusters at National Centre for Biomedical Research)
- METACentrum (Czech national grid project)
- VOCE-UI (Virtual Organization for Central Europe)

To see more detail about Charon activation click on above links.

Licence

Charon is developed under GNU GPL licence.

Acknowledgements

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SA1 CESNET contributions

- CESNET contributes to production, pre-production and certification testbeds

- Czech Republic contributes with 270 CPUs and 20 TB disks
  - mostly for Alice/Atlas experiments

- provides all EGEE services WMS, LB, BDII, Myproxy, LFC, UI, ...) for VOCE and Auger VOs

- provides user support for CE region and VOCE/Auger VOs

- coordinates incident response team in CE region
• Virtual Organization for Central Europe (VOCE)
  – open Grid environment
  – catch-all virtual organization
  – for new user communities VOCE provides
    ▪ freedom from establishing their own VO before trying a Grid
    ▪ initial outsourcing of VO services
  – routine VO management & administration performed by dedicated administrators
  – maximal simplification of researchers day-to-day work through utilization of high-level middleware tools
    ▪ CHARON Extension Layer, GUI portals
Virtual Organization for Central Europe

- provides **complete grid infrastructure** under EGEE wings
  - VOCE officially registered in the list of EGEE VOs
  - the first regional VO in EGEE
  - currently this model is recommended for all regions
- based on **regional principle**
  - VOCE spans the whole Central Europe (CE) Federation
  - core services operated by CESNET
  - resources are provided by many institutions across the CE
    (these resources are available to all users registered in VOCE)
• **VOCE - Description**
  
  - **fully production environment**
    - VOCE environment allows Grid newcomers to get quickly first experience with Grid computing
  
  - **incubator** for new user / applications / application areas
    - assistance in adapting a software for use on the Grid
    - even for applications that do not have Grid / cluster / remote computing experience
    - smooth transition to production use
    - support for preparation of specific VOs
      - *when users get more organized with more experience*
• **VOCE - Goals**
  - to provide *application neutral environment*
    - not bound to any particular application
    - interested in broad scale of application areas
  - even small groups can access EGEE production Grid
  - no need to invest into specific VO setup and operation before testing and using the EGEE/gLite Grid environment
  - available for production runs as well as a *training infrastructure*
SA1 Activities

• VOCE – Virtual Organization for Central Europe

resources from

CESNET (Czech Republic)
PSNC, CYFRONET, ICM (Poland)
II-SAS (Slovakia)
SRCE, IRB, FESB (Croatia)
BME, KFKI, ELTE, NIIF (Hungary)
GUP, HEPHY (Austria)

more than 214 registered users
from 14 institutes and 6 countries

in total 1308 CPUs
17 SE, 31.9 TB disc space / 9.1 TB used

currently 19 sites supporting VOCE
Statistics of VOCE tickets

The graph shows the total number of VOCE tickets over the months from January 2006 to February 2007. The bars indicate the number of new tickets (light blue) and solved tickets (dark red) for each month. The data is categorized by month and year, with January 2006 to February 2007 displayed on the x-axis and the total number of VOCE tickets on the y-axis.
Virtual Organization for astrophysics

- Pierre Auger Cosmic Ray Observatory
  http://www.auger.org

  - studies the universe's highest energy particles which shower down on Earth in the form of cosmic rays
  - Auger Observatory is a hybrid detector employing two different independent detection methods
  - one of them tracks the development of air showers by observing ultraviolet light emitted high in the Earth's atmosphere, to this AUGER community task will employ

  Grid environment with VO AUGER
AUGER – Virtual Organization for astrophysics

Pierre AUGER Collaboration

more than 300 scientists, 17 participating countries

Argentina, Australia, Bolivia, Brazil, Czech Republic, France, Germany, Italy, Mexico, Netherlands, Poland, Portugal, Slovenia, Spain, United Kingdom, United States, and Vietnam

in total 530 CPUs
4 SE, 2.1 TB disc space / 9.5 TB used

currently 3 sites supporting AUGER VO

future more sites expected to join
• JRA1 CESNET contributions
  – development of gLite - grid middleware development and re-engineering (the one and only CE development contributor)
  – in EGEE2 development concentrates on
    ▪ Job management system
      • (Italy - INFN, Datamat, Czech Republic - CESNET)
    ▪ Data Management
      • (CERN)
    ▪ Information Systems
      • (UK - RAL)
  – CESNET contribution - Job Monitoring services
    ▪ Logging and bookkeeping (L&B)
    ▪ Job Provenance (JP)
JRA1 CZ Cluster

Homepage of gLite components developed and maintained by the CZ cluster of EGEE project.

Logging and Bookkeeping (LB)

Documentation
- Users Guide - Overview of the service, quickstart (trivial and less trivial use cases), CLI, API and WS interface reference.
- LB-JP interaction guide - Notes on interaction (i.e. export of data) of LB with JP, described setup of the chain of daemons required on LB server, spool directories etc.
- Test plan
- Web Service interface

Job Provenance

Documentation
- Test plan
- Integration of JP into gLite - software, documentation and notes prepared for integration team
- Web Service interface

EGEE Pre-Production Testbed instruction
- Click here - it is our support page for pre-production. Documentation and RPMs available here.

Contact: egee-jra1(at)infiria.cesnet.muni.cz
JRA1 Activities

• JRA1 CESNET contributions

  – Logging and bookkeeping

  – keeps track of Grid jobs, answers questions like
    ▪ what happened to my job XXX?
    ▪ what was the status of my yesterday submission?
    ▪ are my jobs from experiment AAA still running?

  – features
    ▪ Capture job control flow
    ▪ Provide job state information
    ▪ Just in time or short-term post mortem analysis
    ▪ Support user generated events
    ▪ Supports notifications
• JRA1 CESNET contributions

  - L&B use
    - Provision of job state
      - Including notification
      - Feed into R-GMA
    - Provision of more detailed info about job flow
  - Debugging
    - Transfer between components, failure trace
  - Statistics (JRA2)
    - Time of submission, execution start and end
    - Matchmaking results, reasons for no match found
    - Failures
  - End user events
    - E.g. visualization of progress of job execution
• JRA1 CESNET contributions

  – Job Provenance Motivation
    ▪ The information about jobs has longer value
      • E.g. repeat a submission of a job executed year ago
    ▪ The information about job control flow and job execution environment complements job results
      • E.g. to be able to reliably resubmit a job

  – Job Provenance
    ▪ Preserve information about Grid jobs
    ▪ Allow data-mining in this information
    ▪ Assist job re-submission

Prototype implementation available in gLite 3.1 (development version)
- Achievements

  available at