Enabling Grids for
E-science in Europe

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LCG-2 Middleware
Internals and APIs

Workload Management System

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EGEE is a project funded by the European Union under contract IST-2003-508833

Geneal comment

- You should download the tarball from the tutorial agenda.
  - wms-api-example.tar
  - Also you can copy and unpack the tarball in grid-tutor.ct.infn.it
    - /home/scampana/CERN-tutorial/wms-api-example.tar
- Skeletons of the exercises will be available in the main directory
  - This includes a multipurpose Makefile
- Solutions of the exercises will be available in the “SOLUTIONS” subdirectory
- There will be three exercises:
  - Building a JDL
  - Submit a job
  - Use edg-brokerinfo

JDL preparation

- Use the C++ APIs to:
  - build a JDL with the following characteristics:
    - Executes some "home made" shell script
      - You have to create this script as well.
    - If there are waiting jobs ranks by the negative number of them, otherwise ranks by the number of free CPUs
    - Requires CEs in production status, with outbound connectivity and allowing a jobs 6 minutes long (CPU time)
    - Retrieves the .Brokerinfo file for further usage
  - Print on screen the string representation of such JDL
  - Dump the resulting JDL into a file for future use
  - Use the skeleton "prepare-jdl.cpp"
- Obtain a matchmaking of your JDL
  - Including the ranking
- Submit the JDL using the command line
  - Check the status from time to time
- Retrieve the output

Submitting a job

- Try to compile “workload.cpp”
  - submit the test JDL using the binary you obtain
  - Do you know RB and LB?
    - Have a look in $EDG_LOCATION/etc/<voname>/
- Starting from the skeleton “workload.cpp”:
  - Before job submission perform matchmaking
    - Print matching resources and their rank
  - Retrieve automatically the output once the job is finished
- Try the new version with the test JDL
- Modify again workload.cpp so that
  - The job is cancelled as soon as it gets in “RUN” state.

Brokerinfo

- Use the edg-brokerinfo command line to obtain:
  - The name of the CE
  - The name of the CloseSE
  - For EACH CloseSE, its mount-point
- Try with both the “example.BrokerInfo” file and the .Brokerinfo you retrieved with the job.
- Write a C++ application which does the same
  - Start from the skeleton “Brokerinfo-example.cpp”
  - You can also try to obtain:
    - The VO name
    - The SE protocols
    - The SE port
    - …