DEISA access, file systems and jobs submission

Distributed
European
Infrastructure for
Supercomputing
Applications

Denis Girou
Denis.Girou@idris.fr

Agenda

Access to the DEISA infrastructure 3

DEISA File Systems 4

Job submission 7

Documentation 8

User Support 9

Access to the DEISA infrastructure

- A special DEISA account, delivered by the user administration of your *Home site* is required to access the DEISA infrastructure (except for the DEISA Life Sciences Portal)
- It can be:
  - a DECI (*DEISA Extreme Computing Initiative*) account, for DECI projects,
  - a DTU (*DEISA Test User*) account, for European scientists who want to make some experiments on the DEISA hardware and software infrastructure,
  - a DSU (*DEISA Standard User*) account, for for users who submit local jobs on the AIX super-cluster and allow them to be migrated to another platform. This allows a reduced elapsed time to job completion and better workload management at the European level.
- A X.509 user certificate will be needed too for DECI and DTU accounts, delivered by a Registration Authority related to the institution to which you belong
- An interactive connection will be allowed only on your *Home site*
- See Primer section 2 on all these topics

DEISA File Systems

- Three new file systems are available
- They offer a simple, transparent and flexible way to consistently handle jobs across all DEISA sites
- Three environment variables (DEISA_HOME, DEISA_DATA and DEISA_SCRATCH) allow references to these file systems
- The usual HOME file system still exists, and is the normal starting point after an interactive connection, but it should not be used to store programs and data that need to be accessible from other DEISA systems
- Always use these environment variables, because the paths to the physical location of the file systems may vary from site to site
- See Primer chapter 3

DEISA File Systems

- DEISA_HOME
  - data located in this place is physically located at the *Home site* but accessible from every other site (based on IBM's Multi-Cluster GPFS),
  - is usually restricted in size by having defined quotas, because it is guaranteed to be backed up regularly.
- DEISA_DATA
  - this file system exists because the space of the DEISA_HOME one can be too limited,
  - as for DEISA_HOME, data located in this place is physically located at the *Home site* but accessible from every other site,
  - whether the file system is backed up depends on the policy of each site,
  - the policy for quotas is also site dependent, as well as the rules for cleaning up the file system by removing older files.

DEISA File Systems

- DEISA_SCRATCH
  - provides huge disk space for fast local accesses,
  - different for each batch job,
  - but for one job every processor has access to the same common physical location,
  - data located in this file system is not persistent at the end of the job and has to be copied into DEISA_HOME or DEISA_DATA if it needs to be kept.

Job submission

- UNICORE is the general way to submit jobs for DECI and DTU users. See Primer section 5.2 for a dedicated presentation on UNICORE.
- The DESHL (*DEISA Services for the Heterogeneous management Layer*) command line tool accesses the same UNICORE infrastructure in line mode. See Primer section 5.3 for a dedicated presentation on DESHL.
- For DECI users, if your *Exec site* (the site on which your jobs will be really executed) is equivalent to your *Home site*, or if it was agreed for your project to let you use the local batch manager (for Multi-Cluster LoadLeveler on AIX systems, possibly with a direct rerouting of your jobs from your *Home site* to your *Exec site*), you will be able to use this batch manager
- In this case, some cautions will have to be taken:
  - a special requirement must be added in all your jobs, like
    `requirements = (Feature == "DEISA")`
    for LoadLeveler
  - some keywords which are optional in some sites must be used for all DEISA jobs and a few others which are sometimes allowed locally must be avoided (for LoadLeveler, see the paragraph 5.1.1 of the Primer)

Documentation

- Initial version of the Primer released in February 2005
- The Primer has been updated six times since its initial version according to changes made in the software infrastructure and to feedback received

User Support

- DECI users
  - The *Applications Task Force*, composed of application specialists of each site, manage all the DECI projects
  - Each DECI project will be handled and followed by one member of the *ATaskF* at your *Home site*
  - After the approval of a DECI project and the allocation of computing resources on one or several sites, several actions must be executed before the production phase:
    - precise evaluation of the resources required, also for number of processors, memory and different categories of disk spaces (permanent and temporary),
    - calibration of the jobs on the *Exec site*,
    - in case of need, definition of some specific batch queues to be able to access the resources required.
  - During the production phase, in case of needs contact the *ATaskF* member who manages your project or, for day to day problems, the DEISA user support service at your *Home site* (there is a dedicated e-mail address for it at each site — see Primer section 7.1)

User Support

- DEISA Test Users
  - Each DTU must refer to the DEISA user support service at his *Home site* (see Primer section 7.2)
- DEISA Standard Users
  - Each DSU must ask for help at his *local* site, exactly in the same way that he usually does (see Primer section 7.3)