

EuroVO Data center alliance

Wednesday 9 May 2007 17:30 (20 minutes)

Describe the scientific/technical community and the scientific/technical activity using (planning to use) the EGEE infrastructure. A high-level description is needed (neither a detailed specialist report nor a list of references).

The Virtual Observatory (VOs) is a world-wide effort of the astronomical community to enable the international utilization of astronomical archives structured in Databases as an integrated and interoperating resource: it is a knowledge Grid. The Euro-VO Data Center Alliance aims at coordinating and assisting European Data Centres to take up VO standards. It collects all the DCs of Europe. One of the activities of this project is the coordination between the VOs and the Grid systems.

Report on the experience (or the proposed activity). It would be very important to mention key services which are essential for the success of your activity on the EGEE infrastructure.

We plan to explore the use of the Grid for DCs through two use cases well representative of the typical needs of a DC. A data reduction use case: a DC gets data from archive using standard VOs protocols (DAL), puts the data on a file space, processes data on the EGEE, saves the output to file space and finally gets output for the user, eventually redirecting them to a visualization tool. We identify two possible data processing activities, one involves catalogues and cross matching tools and a second one involves imaging using SExtractor. The second use case is based on BaSTI. It is a database of stellar evolution models for a large range of masses and chemical compositions. It is created using a stellar evolution code FRANEC that requires long computational time to produce a model. To produce on demand models and to make them available to the VOs users it is necessary to make interoperable VOs and Grid. The EGEE services used will be the workload system and the file catalogue.

With a forward look to future evolution, discuss the issues you have encountered (or that you expect) in using the EGEE infrastructure. Wherever possible, point out the experience limitations (both in terms of existing services or missing functionality)

This activity is focused on the possibility to make interoperable two communities, the Grid and VOs. One of the key issues is to identify a common authentication and authorization mechanism that allows DCs and Astronomers through the DCs to access grid resources. The usage of Grid

services via the DCs does not represent in our opinion a challenging task.

Describe the added value of the Grid for the scientific/technical activity you (plan to) do on the Grid. This should include the scale of the activity and of the potential user community and the relevance for other scientific or business applications

Astronomical applications are both computational and data intensive. Astronomical data is mainly structured in database systems. The VObs is a “grid” of databases devoid of computational resources. The Euro-VO Data Center Alliance organizes the activities necessary to allow VObs users to exploit (through the data centres involved in the project) the processing capabilities offered by the computational Grid and in particular by EGEE. This activity will involve a part of the Astronomical community in the Grid computing. Moreover, DCs have a number of computational needs related to data reduction and analysis activity. The theoretical data, produced by numerical simulations, is also available in the VObs. Theoretical data post-processing is in charge of the theoretical DCs and the EGEE grid may be a useful computational resource. Finally, the Grid may be used as a collaboration tool to share data and exchange experiences through DCs.

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Session Classification: Poster and Demo Session