



Contribution ID: 78

Type: Poster

Structuring Medical Images with the Grid

Abstracts for online demonstrations must provide a summary of the demo content. Places for demos are limited and this summary will be used as part of the selection procedure. Please include the visual impact of the demo and highlight any specific requirements (e.g. network connection). In general, a successful demo is expected to have some supporting material (poster) and be capable of running on a single screen or projector.

The most challenging issue in the project has been deployment. The current infrastructure requires dealing with the restrictions of private networks and firewalls of modern hospitals. GridFTP protocols, for example, needed to be carefully configured with port maps to enable the communication outside from the hospitals.

The key services in the infrastructure, inherited from EGEE, have been the authorisation service and the file transfer. The authorisation service has been extended to deal with encryption and multiple CAs to guarantee the security of multiple administrative domains. File transfer is crucial when exchanging large data files (on the order of several tens up to few hundreds of Megabytes) in short time.

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).

Sharing and organising medical imaging knowledge is a key issue in medical research and training. Evidence-based medicine is also demanding high-quality well-organised knowledge bases to check for second opinion and drive diagnosis.

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.

The first advantage lies on the organisation of data. The availability of a Grid platform to securely share cases will enable increasing the significance of the studies, through the enlargement of the study sample, and the support to learning through representative cases. Currently, data is organised by administrative and demographic keys, which prevents from searching for specific diagnosis.

In order to implement this functionality, an authorisation architecture has been implemented to define work-groups, case access permission and relations. Encryption and key share management is necessary to prevent from unauthorised access from users with administrative privileges.

The relevant studies should be explicitly selected and carefully documented through the structured report. In order to ease this process, advanced post-processing tools are provided in the form of WSRF services. This Grid services provide the users with the access to advanced algorithms and computer resources.

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

However, sharing and organising medical imaging data is not straightforward. Technological and legal problems on exchanging data make it difficult or even impossible with the current infrastructures. On the other side, the index criteria used in clinical practice are inefficient when searching for knowledge.

CVIMO (Valencian Cyber-infrastructure for Medical Imaging in Oncology) is a platform developed to share and organise medical studies and reports based on ontologies constructed upon the fields of structured reports. It is based on a Grid Software Architecture of WSRF services that organise coding, access rights and data location for different studies and reports.

This platform enables the users to submit new cases which are automatically organised according to the semantic criteria defined through the Virtual Organisations and groups. The platform provides a virtual data catalogue based on the metadata coming from the evaluation report of the radiologists.

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Track Classification: Demo and Poster session