Contribution ID: **29** Type: **Oral**

Medical Data Manager: an interface between PACS and the gLite Data Management System

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Hospitals continuously produce tremendous amounts of image data that is managed by local PACS (Picture Archiving and Communication Systems). These systems are often limited to a local network access although the community experiences a growing interest for data sharing and remote processing. Indeed, patient data is often spread out different medical data acquisition centers. Furthermore, researchers in the area often need to analyze large populations whose data can be gathered through federations of PACS. Opening PACS to the outer Internet is challenging though, due to the stringent security requirements applying to medical data manipulation. The gLite Data Management System provides the distribution, user identification, data access control and secured transportation core services needed to envisaged wide scale deployment of the medical imaging applications. The MDM provides an upper layer to interface to PACS and manipulate medical data with the required level of security.

3. Impact

The MDM core is a DICOM-SRM interface that converts file access queries into DICOM GET operations. An internal database is used to register medical images and to map grid file identifiers into DICOM identifiers. Image files are therefore be visible from the gLite file catalog for future use by services invoking the data management system. Patient privacy is preserved through data anonymization and encryption. DICOM image headers are whipped out prior to image transfer. All data is encrypted prior to exposure to the grid network in order to avoid any data leakage. The encryption / decryption phases are transparently handled by the data management system through calls to the Hydra service. Data access is controlled through user DN-based ACLs. An AMGA metadata server is used to store the medical records of the patient independently from the image. It ensures secured and controlled access to the metadata that is isolated from the images.

If demonstration is requested please explain what visual or interactive aspects of the contribution necessitate a demonstration rather than a presentation or poster?

The Medical Data Manager is a service open to the medical imaging community. We wish to demonstrate it to convince users of its interest and usability. An image viewer will be used to visualize the images queried using this tool.

URL for further information:

http://rainbow.essi.fr/wiki/dokuwiki/doku.php?id=public_namespace:mdm

4. Conclusions / Future plans

The MDM was originally designed using gLite 1.5 components and was recently ported to the production data management system. It is packaged with an installation script and freely available for download. The next step will be the deployment of a significant number of MDM service interfaced to pre-clinical PACS in order to demonstrate a wide area medical imaging network supported by the grid infrastructure. Future plans also include distribution of the medical metadata collected.

Provide a set of generic keywords that define your contribution (e.g. Data Management, Workflows, High Energy Physics)

Medical Data Management, Secured Files Storage, DICOM

1. Short overview

The medical imaging community uses the DICOM image format and protocol to store and exchange data. The Medical Data Manager (MDM) is an interface between DICOM compliant systems such as PACS and the EGEE Data Management System. It opens hospital imaging networks to the world scale grid while protecting sensitive medical data. It can be accessed transparently from any gLite service. It is an important milestone towards adoption of grid technologies in the medical imaging community.

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