

## Sharing and Processing Medical Images on the Grid

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The generalisation on the use of digital medical images in hospital environments has fostered the evolution of many information technologies (storage, processing, data management...) which are changing the way in which radiologist work and cooperate. This fact is fostering the creation of virtual repositories of medical data to ease collaboration, research and training among medical organisations. Although many efforts are being developed at international level (BIRN, MEDIGRID, ACI and CaBIG projects), the efficient and robust sharing of data remains a challenging problem. There are several technical and legal problems not yet solved, such as efficient large data distribution, privacy protection, post-processing and knowledge management.

This talk will make a survey on the available technologies and will present an activity namely TRENCADIS (Towards a gRid Environment for proCessing and shARing DIcom objectS) which is being developed at the UPV aiming at the use of Grid Technologies to tackle with such problems. This talk will present different Grid Software Architectures developed and the mechanisms to create virtual repositories of selected and distributed DICOM objects and specific views for different user communities. In this point the use of ontologies and structured templates to organise the DICOM data according to the contents of Structured Reports is a promising issue. The organisation through patient data or image modality is very efficient for the management of clinical practice, but the ontological schema proposed is far more efficient for research and training, when the objective is focused on finding cases sharing common symptoms. Even diagnostic-based organisation will be not clearly efficient since symptoms are shared by different pathologies. Services and techniques used for data encryption, progressive data transferring and ontological searching will be also commented.

The talk will focus on outlining the suitability of Grids for the creation of large-scale and secure virtual environments for sharing, processing and organising large amounts of medical imaging knowledge.