Contribution ID: **129** Type: **Poster**

GRIDICOM - GRID ARCHIVE for DICOM images

Tuesday 3 March 2009 18:20 (5 minutes)

Nowadays, hospitals and medical structures produce a big amount of DICOM images for several kind of clinical exams (TAC, MR, PET, SPET, x-ray), and they usual store them into specific servers called PACS (Picture Archive and Communication System). However, the growth of digital health-records and medical images led to scalability and maintenance troubles. The GRIDICOM project aims at the realization of a Digital Archive for DICOM images that uses the Grid infrastructure as a Digital Repository.

Keywords

DICOM - PACS - Medical Application - Data Grid Application - Grid Oriented Digital Archive - GSAF

Impact

The growth of digital health-records and medical images led to scalability and maintenance troubles. PACSs are inflexible and don't allow to manage in an efficient and secure way the great mass of data stored in their memory. Typically, after the expiration of a courtesy time, all digital objects are moved on DVD support or on other offline massive memory devices and not used anymore. This big and so important health care patrimony is practically lost. GRIDICOM aims at the realization of a Digital Archive for DICOM images that uses the Grid infrastructure as a Digital Repository. The main idea is to gather all images generated by PACS distributed in several geographic locations, extract all their fully qualifying metadata (DICOM), make them anonymous and organize them inside a big Grid archive. GRIDICOM is more than a satisfaction of Storage needs since it expresses the conviction that it is possible to build a Self-provisioned DICOM Knowledge base.

URL for further information

http://www.pi2s2.it/applications/application_details.php?ID=31

Conclusions and Future Work

The GRIDCOM archive represents the natural cauldron of medical information for several medical applications in both research and diagnosis fields. For example, the development and deployment of a computer aided diagnostics application (by means of an automatic procedure based on identification and statistic comparison of the numerous data previously collected and classified); and 3D reconstruction techniques for a greater assistance to early and non-invasive diagnosis can be hypothesized and supported.

Detailed analysis

The GRIDICOM architecture includes a Software Interface (able to interact to the Grid Data Management Service in order to exploit all repository capabilities) and a client/server application (made by agents working remotely at PACS side and a centralized collector that works as Storage Manager at Grid side). Digital repositories can be organized according to the Sanitary Organizations needs, mapping each of them on different Grid Virtual Organizations and for each organization appropriate access control rules and / or shared policies can be defined. Finally, the knowledge base is enriched towards a simple and powerful Web Interface to access, browse, search and provision the whole archive according to the Grid Security model. Through

this web interface Users can also arrange their own files manually, define metadata (also standard compliant) for different types of collections (records, images, ⋯) and manage them remotely (upload, download, google flavour search, browsing and download).

Primary author: Dr SCIFO, Salvatore (INFN)

Presenter: Dr SCIFO, Salvatore (INFN)

Session Classification: Poster session

Track Classification: End-user environments and portal technologies