

A telemedicine platform for information and image management on the grid

Tuesday, 12 February 2008 16:00 (0 minutes)

The medical field offers a wide and challenging scenario in which new grid applications can be developed to improve collaborative work between scientists. The development of grid-based medical applications needs to take into account some key factors such as the need to conform to strict legal constraints in terms of data privacy and security. Moreover physicians are quite reluctant to use new applications that change their way of working, for this reason applications developed on this context need to be as intuitive and user friendly as possible.

3. Impact

To allow physicians to manage and exchange medical data and images, the platform uses web services technology and grid services provided by gLite middleware. Physicians access the platform using a web portal developed with the GridSphere portlet container that presents to them a user-friendly interface to access several distributed medical services that manage images and medical information. Medical information is stored locally in the user's hospital using the AMGA metadata catalogue and information between services deployed in different location is exchanged using the SOAP messaging protocol. Medical images are stored anonymized and encrypted on the grid while their corresponding metadata are stored in the local AMGA server. The proposed medical platform allows submitting, monitoring, and managing medically-related jobs such as dosimetric simulations. These jobs are CPU-intensive simulations using a physician's medical images to predict the result of a cancer dosimetric treatment.

URL for further information:

<http://clrwww.in2p3.fr/PCSV/>

4. Conclusions / Future plans

Our platform is mainly based on data management services provided by gLite middleware with particular regard to AMGA for medical information management and GFAL APIs for image storage and management on the grid. Our experience with these services is overall positive but the increase in grid reliability, stability and performance opens the way for new features and improvements in order to offer physicians more reliable medical services.

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

Medical Data Management, Data Management, Medical Imaging, Web Services, GridSphere

1. Short overview

Constant growth of grid technology opened the way for new opportunities in terms of information and data exchange in a secure and collaborative context. These new opportunities can be exploited to offer physicians new telemedicine services in order to improve their collaboration capabilities. Our platform gives physicians an easy-to-use telemedicine environment to manage and share patient information between remote locations.

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

poster?

During the demonstration we would like to show an example of all the most important features provided by our medical platform. The demonstration will be focused on the user portal and on how physicians can manage and share their medical data and images in different location and with other physician located in remote hospitals.

Primary authors: Mr DIARENA, Matteo (CNRS IN2P3 LPC Clermont-Ferrand); Mr NOWAK, Simon (CNRS IN2P3 LPC Clermont-Ferrand)

Co-authors: Prof. BOIRE, Jean-Yves (ERIM INSERM ERI 14); Dr BILBAO, José Roman (University of Almeria); Dr MAIGNE, Lydia (CNRS IN2P3 LPC Clermont-Ferrand); Mr DAO, Van Tuyet (Ho Chi Minh City Institute of Information Technology); Dr BRETON, Vincent (CNRS IN2P3 LPC Clermont-Ferrand); Mr LEGRE, Yannick (CNRS IN2P3 LPC Clermont-Ferrand)

Presenters: Mr DIARENA, Matteo (CNRS IN2P3 LPC Clermont-Ferrand); Mr NOWAK, Simon (CNRS IN2P3 LPC Clermont-Ferrand)

Session Classification: Demonstrations

Track Classification: Application Porting and Deployment