

Implementation of a Grid-based telemedicine platform

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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).

One of the greatest opportunity offered by EGEE Grid infrastructure is the possibility to exchange information between different users and organizations easily and securely. This cooperation is very similar to the one used in medical practice to exchange patient information between specialists. In this context the cooperation between physicians is a key factor to bring expert second opinion in isolated places such as Burchina Faso.

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 MIP application has been developed using Web Service technology to create an interface between end users and the EGEE Grid Infrastructure. This project organization has been adopted to keep the medical platform as easy to use as possible and to give users the possibility to access the medical information stored across the Grid in a secure way from any machine with internet access and password based authentication. This organization reduces the impact of the "Grid World" complexity on physicians. To develop MIP several grid services will be used. In fact, on one side we will use AMGA service to store all the medical metadata (i.e. patient info, exam details, etc.), to manage users authentication and to define different access permissions based on user role and information category. On the other side the application will be able to store the anonymized (and also encrypted) medical images in different SE using gLite data management capabilities.

With a forward look to future evolution, discuss the issues you have encountered (or that you expect) in using the EGEE infrastructure. Wherever possible, point out the experience limitations (both in terms of existing services or missing functionality)

During design and first steps of development of MIP infrastructure we haven't encountered particoulr problems on metadata management. In fact, the AMGA implementation of metadata catalog is stable and provides all needed features and flexibility to be adapted to our purpose. On the other hand the data management of gLite middleware still lacks in support and flexibility for what concern data management of encrypted data.

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

Our application has been developed to make the medical information exchange through the EGEE Grid possible using gLite services. All the medical information is characterized by the need to manage them keeping in mind the patient privacy. The EGEE Grid Services and the Web Service technology, provide all needed tools to develop a medical platform (MIP) to store and manage medical data guaranteeing the needed security levels both in terms of user authentication (and authorization) and data encryption (both during information transfer and storage). The spotted user target is composed by physicians and medical staff. The MIP infrastructure needs to be able to give them all the services described above without modifying their “modus operandi” inside their medical environment. The development and deployment of MIP services in more medical infrastructures creates a network for knowledge and information sharing across the Grid.

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