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BMPortal –A Bio Medical Informatics Framework

Wednesday 9 May 2007 17:30 (20 minutes)

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).

Bioinformatics and Medical Informatics are converging disciplines. Today, traditional clinical health records are going to evolve in a new branch often identified as Bio Medical Informatics in order to include genomic data for each patient. Both genomic and modern medical data acquisition and processing demand large storage facilities and harness lot of computing power. Distribution of data is a key issue. Both researcher and medical doctors require an ubiquitous access to patient's data.

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.

Distributed medical imaging process of rare data has been proven to be successful and of clinician real interest. The unprecedented Grid possibilities to access distributed data in respect to key security and privacy features has been proven to be the "killer feature"of our previous EGEE experiences.The Grid has been proven to be useful also when low amount of CPU power is used,due to its data and metadata management functionalities.Activities to deploy test application in production contexts (hospitals) are already planned and will be carried out in next months.There is however still the need for low latency (realtime or interactive) job execution tools, where the CPU power is not relevant but the response time is perceived as the key factor. Medical doctors are demanding high responsive tools, provided through transparent, user friendly infrastructures. There is still the need of a dedicated framework for the deployment of bioinformatics and medical informatics integrated platforms

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)

The key target of our ongoing activities is the development of a Grid-based platform
for the management of bioinformatics and medical informatics data. The platform will
serve users through a Grid portal based on Enginframe product from NICE,that has been
proved to be a reliable framework for interfacing Grid applications. New tools
dedicated to medical data and metadata management will be developed.GILDA testbed has
been used for testing.GILDA support has been revealed essential for it.

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

Today EGEE provides enough computing power, storage resources and security features
to guarantee adequate adoption of it in modern medical distributed context.
Certificate based security and advanced feature on data and metadata federation,
coupled with strong and fine grained security policies on users and groups available
through VOMS, allow to replicate on a EGEE VO real world organizations with their own
hierarchies. Distributed data storage and replication could trigger the adoption of
all –online patients archives and health records-avoiding low latencies in accessing
old patient data stored on magnetic or optic backup devices. The cost per Gbyte and
the availability of low cost commodity hardware could help health care providers in
defining new kind of storage management systems, without concentrating patient
records on centralised data centre.EGEE data access utilities are used to access data
remotely, reducing copies of data in conformance of most common privacy medical issues

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