Medical image processing web portal : Requirements analysis.

An almost end user point of view …

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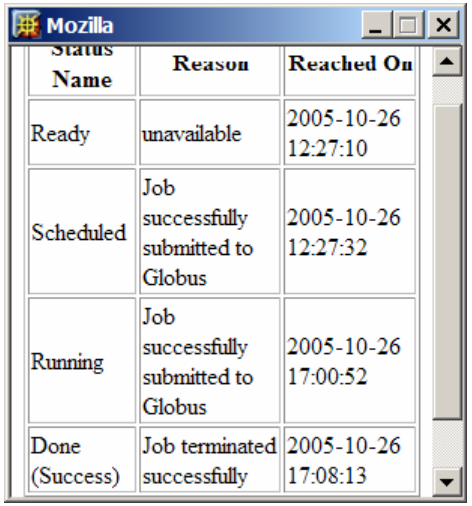
- **What kind of web portal ?**
  - Only **application web portal** offering **a medical image processing set of services** to biomedical end users with no grid competence
  - No compilation, no application development
  - Access to several medical image processes
    - MRI simulation (*SIMRI*)
    - PET simulation (*PETSIM*)
    - Cardiac image analysis (CAVIAR)
    - Dosimetry and radiotherapy planning (This)
    - (Extended to VO Biomed/Medical Imaging ??)
  - Access to multiple computing resources
    - EGEE grid and others (LCG2, Glite, Globus, Condor …)
    - Local clusters (PBS, Sungrid …)
    - Massively parallel machines

- **What kind of process ?**
  - Many hours CPU process gridified using **MPI**
  - No interaction during the running time
  - Input
    - Process parameters : file or web page
    - Resource parameters (target and number of nodes (MPI))
    - Input data file(s)
      - *Client local disk*
      - *Grid storage element*
      - *External storage element*
      - *Connection to hospital Dicom servers*
    - Output data
      - *Temporary file(s) before local saving*
      - *Grid storage element for archiving*
      - *Display*

- **Job monitoring**
  - Status of not ended jobs
  - Status history of not ended jobs
  - Status history of ended jobs
  - Notification service on all job events by mail
    - Configuration : per day, week, event types …



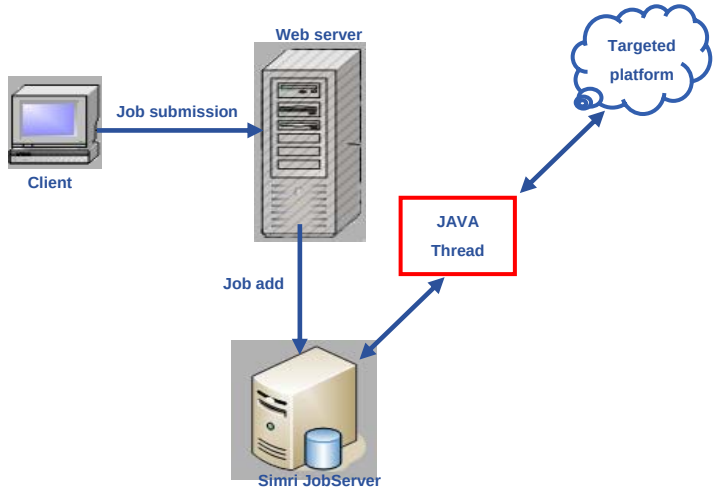
Status Name	Reason	Reached On
Ready	unavailable	2005-10-26 12:27:10
Scheduled	Job successfully submitted to Globus	2005-10-26 12:27:32
Running	Job successfully submitted to Globus	2005-10-26 17:00:52
Done (Success)	Job terminated successfully	2005-10-26 17:08:13

- **Job QOS**
  - Automatic resubmit in case of bad termination
  - Automatic management of multiple submissions
    - Automatic cancellation of multiple jobs submitted once one has started (finished !!)
    - MPI >> submission with different nodes numbers

- **Authentication and security**
  - Access management on the server (User/passwd) and a server certificate for all the jobs
  - User certificate transferred to a server certificate for all the jobs
  - User certificate fully delegated to the job
  - … ?
- **User space management**
  - User space on server, and computing resource
    - I/O Data
    - Job history
  - User group space to share I/O data
  - Classical functionalities (navigation, management) of a user space

- **Server administration**
  - Certificate management and access managment
  - Classical administration of users
  - Accounting functionalities (statistics by user, process …)

- **Global service architecture and performance**
  - A large scale (user, job, process, data) service
  - What is a good design ?
    - A three layers based one
      - *Presentation layer*
      - *Process Layer (Job management)*
      - *Data Layer : user and job data*
    - Other ?



- **To start discussions**
  - ?? PGRADE, GENIUS, GridSphere or an home made ad hoc solution ?? Which solution at which cost ??
  - A VO Biomed/Medical group specific federative project ??
  - Your experience : pros and cons
  - …