Enabling Grids for E-sciencE

Contribution ID: **86** Type: **Oral contribution**

gLibrary: a Multimedia Contents Management System on the grid

Thursday 2 March 2006 18:00 (20 minutes)

Nowadays huge amounts of information are searched and used by people from all over the world, but it is not always easy to find out what one is looking for. Search engines helps a lot, but they do not provide a standard and uniform way to make queries.
The challenge of gLibrary is to design and develop a robust system to handle Multimedia Contents in a easy, fast and secure way exploiting the Grid.
Examples of Multimedia Contents are images, videos, music, all kind of electronic documents (PDF, Excel, PowerPoint, Word, HTML), E-Mails and so on. New types of content can be added easily into the system.
Thanks to the fixed structure of the attributes per each content type, queries are easier to perform allowing the users to choose their search criteria among a predefined set of attributes.
The following are possible use examples:
- A user wants to look for all the comedies in which Jennifer Aniston performed together with Ben Stiller, produced in 2004 ; or find all the songs of Led Zeppelin that last for more than 6 minutes;
- An user needs to find all the PowerPoint Presentation about Data Management System in 2005 run by Uncle Sam (fantasy name);
- A doctor wants to retrieve all the articles and presentations about lung cancer and download some lung X-ray images to be printed in his article for a scientific magazine;
- (Google for storage) a job behaves as a “storage crawler”: it scans all the files stored in Storage Elements and publishes their related specific information into gLibrary for later searches through their attributes.
Not all the users of the system have the same authority into the system. Three kind of users are enabled: gLibrary Generic Users, members of a Virtual Organization recognized by the system, can browse the library and make queries. They can also retrieve the wanted files if the submitter user authorized them; gLibrary Submitter Users can upload new entries attaching them the proper values for the defined attributes; finally gLibrary Administrator are allowed to define new content type and elect Generic User granting them submission rights.
A first level of security on single file is implemented: files uploaded to Storage Elements can be encrypted using a symmetric key. This will be placed in a special directory into the system and the submitter will define which users are the rights to read it.
All the application is built on top of the grid services offered by the EGEE middleware: actual data is stored in Storage Elements spread around the world, while the File Catalog keeps track of where they are located. A Metadata Catalog service is intensively used to contains the values of attributes and satisfy user’s

queries. Finally, A Virtual Organization Membership Service comes in help to deal with authorization.

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Session Classification: 2b: Data access on the grid

Track Classification: Data access on the grid