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Digital Libraries on the Grid to preserve cultural heritage

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A digital library platform is presented to deploy big digital repositories of ancient documents on a grid infrastructure. In particular, this work will focus on a digital archive coming from the humanistic and musical communities, showing how the Grid is ideal to save a large set of old manuscripts and musical scores to achieve digital preservation of cultural heritage

Impact

Increasingly, digitalization is used as a mean for avoiding the loss of paper literary heritage, caused by physical aging and the environment conditions in which documents are kept. Due to the high quality of digital scans, the collected digital archives are of remarkable size (in the order of hundreds of MB).
Grids offer redundant and huge distributed storage capabilities, providing an ideal and secure place for the long-term preservation of digitalized literary works and documents of artistic and historical relevance. Grid authentication and authorization mechanisms allow a fine-grained access control to archives by single users, groups or entire communities. Moreover, metadata services allow for a structured organization of scans for quick searches.

URL for further information

https://glibrary.ct.infn.it

Conclusions and Future Work

The gLibrary potential to create digital repositories on grid environments, such as the Sicilian e-infrastructure of Consorzio COMETA, has been demonstrated through two use cases belonging to the preservation of literary heritage: (1) the archives of the work of Italian writer Federico De Roberto, made up of almost 8000 scans, and (2) the musical archives of some medieval italian musicians.

Keywords

Digital Libraries, Digital Repositories, Metadata, AMGA, Cultural Heritage, Grid

Justification for delivering demo and technical requirements (ONLY for demonstrations)

During the demo it will be possible to browse, download and view ancient manuscripts and musical scores. For the latter, audio file are also stored in the digital repository that could be listened. We are also planning to have a musician to play live some of the scores.

Video Projector and Screen (or big LCD/Plasma TV)

Detailed analysis

gLite middleware services offers all the tools needed to handle digital libraries on the grid: Storage Elements and File Catalogues provide storage capabilities and keep track of where archives are located, and the AMGA metadata service allows to describe the contents of the saved contents. GSI and VOMS services offer the possibility to define different access levels to users. Unfortunately, direct interactions to the above services is not suitable for non-technical people and, even for the expert ones, accessing them via the available CLIs and APIs is not always straightforward. The gLibrary web-based platform, that orchestrates the interactions with all the previous services in a transparent manner to users, has been developed by the INFN team in Catania. It makes easy to deploy and manage new digital repositories on the grid, offering, at the same time, a desktop-like and intuitive user interface to browse, search and retrieve the digital contents archived.

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