

The GRID paradigm for network fruition of cultural heritages

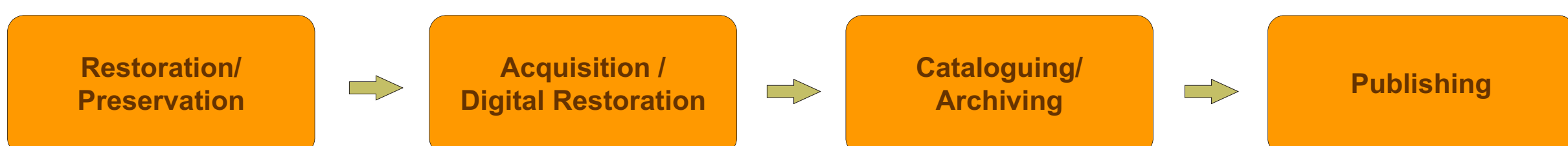
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The preservation of cultural heritages is becoming more and more important nowadays. Unfortunately, several patrimonies has been destroyed due to atmospherical agents, natural disaster and/or human faults. Digitalization is a convenient way to preserve these heritages from every kind of alteration including that one derived from physical restoration. We address the topic of the digital archiving of antique books treating the most frequent damages that affect this kind of heritage. We show the results obtained from our research on GRID Storage used as a Content Management System with a brief description of the architecture and technologies involved.

The Model

ADAT - "Archivi Digitali Antico Testo"

- It represents a **Process Model** built on:
 - Methodologies
 - Technologies
 - Procedures
 - Hardware and Software
- This model aims to **preserve** and **deliver** the true value of the antique manuscript also towards its own virtual representation.

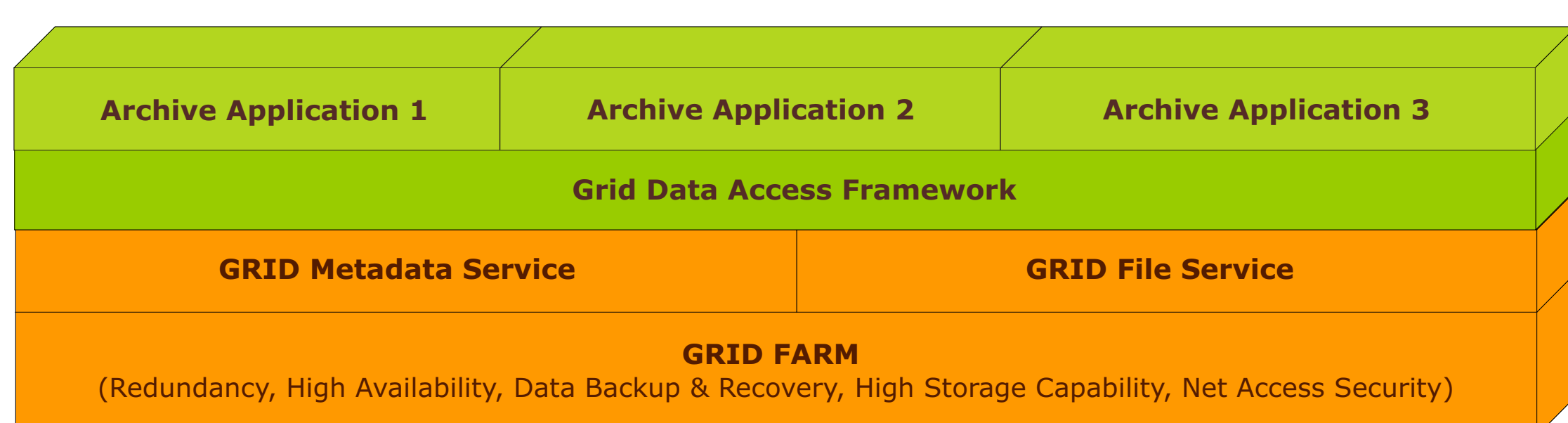


The Requirements

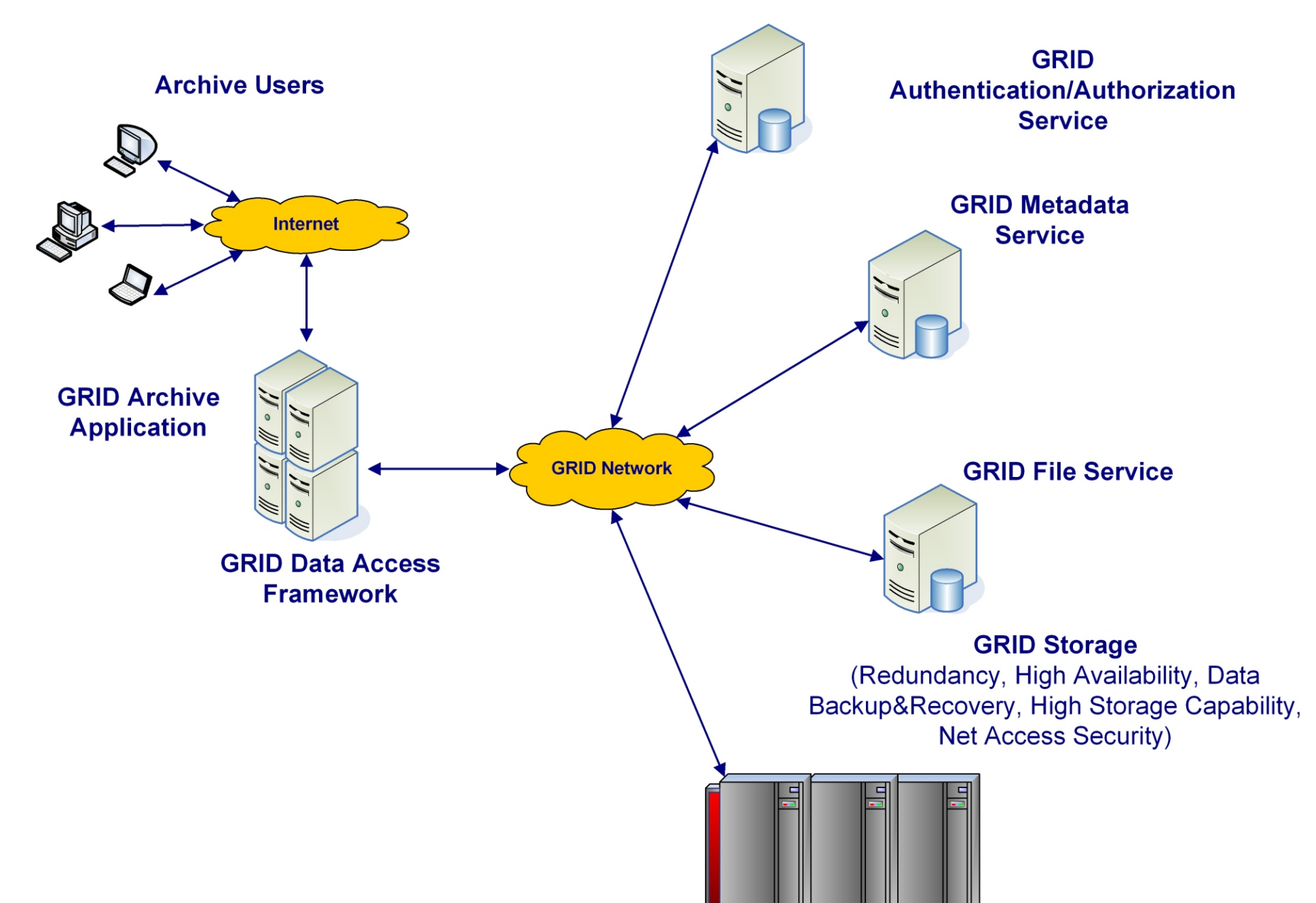
- Handling and managing large amount of data (Tera/Peta Bytes)
- Geographical distributed storage
- Net access (web oriented) for several functionalities (administrative, operational, consultative)
- Centralized access control mechanism based on Virtual Organization roles that users belong to
- Providing indexing and cataloguing services
- Delegating management aspects for both net infrastructure and storage system (maintenance and security) to the Grid Site Management

The Multi Layer Architecture View

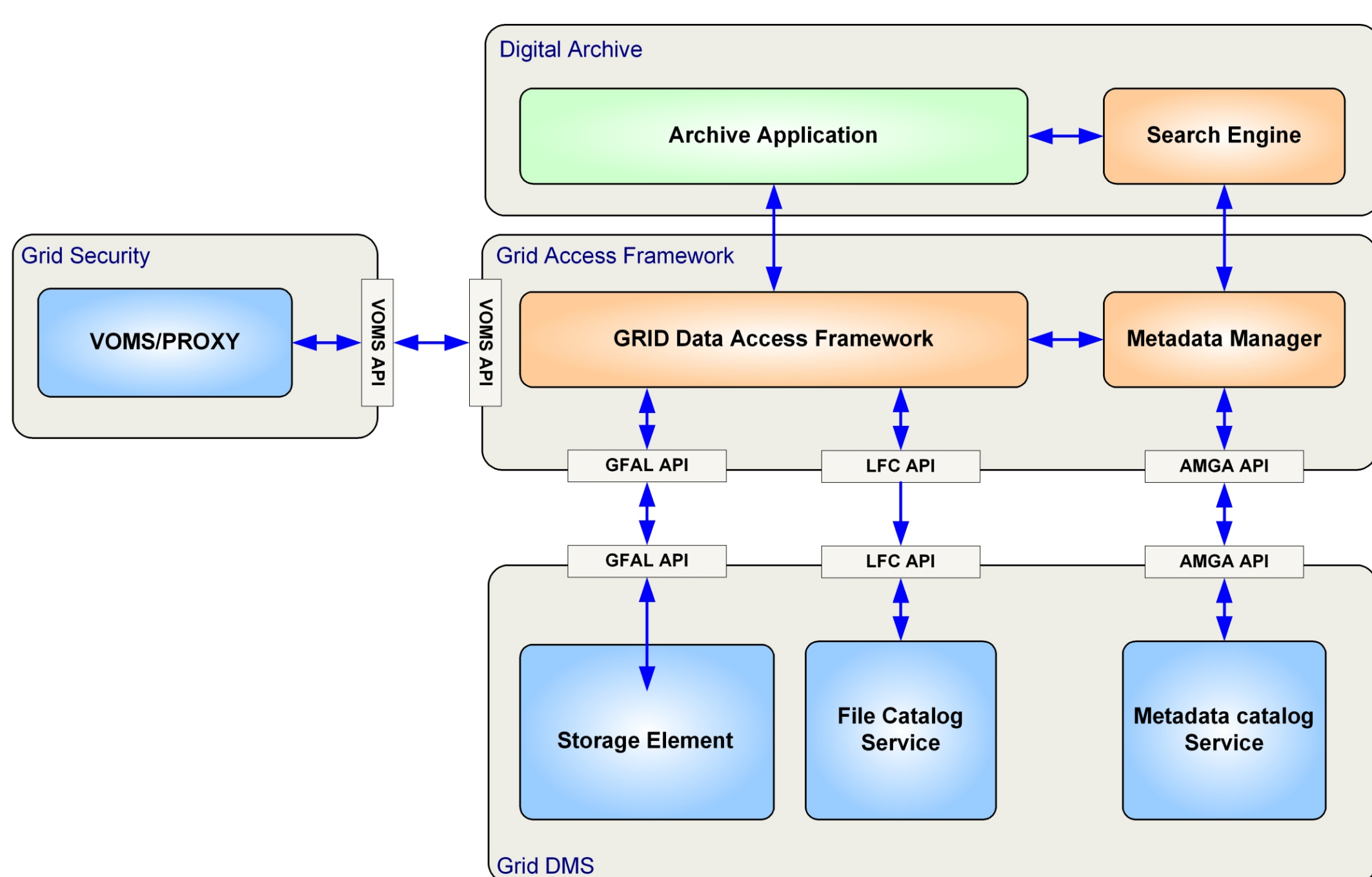
- Main idea is designing an **opened, multilayered** and **distributed architecture** to provide **interoperability** among Data and Metadata Management services of the GRID infrastructure and several applications.
- This architecture encourages the implementation of "*digital archive federation*" that even sharing the same wide data base they keep their own **autonomy** and **independence**



The Distributed Architecture View



The Software Architecture View



Grid Access Framework

- Grid Access Framework aims to hide the complexity and fragmentation of the underlying services API; Data management services are seen as a unique service and different operations are treated in a coherent way and atomic mode
- Wrapped Services:
 - Metadata Service:** is the GRID service that takes in charge metadata management for cataloguing and searching digital files
 - File Catalogue Service:** is the GRID service that handles the digital files and takes care about their location within the distributed storage
 - Storage Element:** is the GRID service that manages the stored physical digital files
 - AA Service:** is the GRID service that implements the Authorization and Authentication infrastructure.

Archive at work: Metadata Usage



Not only GRID

- Future Objectives**
 - Development of high added value applications oriented to e-commerce, e-learning and last but not least **multimedia cultural tourism**
 - Digital resources accessible towards the net and addressed to both **specialized user** and cultured and curious user
 - User/archive interface** that emphasizes not only the cultural heritage knowledge but also, encourages research and experimentation promoting creative initiatives based on **virtual gallery, text travels, driven tourist/cultural journeys**