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ARTE and ImpECt: exploiting the Diligent prototype

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DILIGENT is an ongoing EU IST project whose goal is to deliver an infrastructure making possible to define and dynamically create virtual digital libraries by reusing available resources. A virtual digital library is a pool of resources dynamically aggregated to meet the user requirements where these resources range from information sources to services exploiting computing and storage Grid capabilities. In addition to such main goal and to prove the viability of the released infrastructure to meet their requirements and improve their daily work, two user communities (ARTE and ImpECt) belonging to different application contexts have been selected. As a consequence, DILIGENT is a project that sits over Grid and Digital Library (DL) technologies and it is influenced by requirements arising in the Cultural Heritage and Earth Observation domains (the user communities). In particular, the project heavily relies on the concept of resources sharing because the foundational concept of virtual digital library has been envisaged by elaborating on and cannot be implemented without this Grid facility. By providing to the user communities (i) the capability to dynamically create DL, and (ii) to have access to an huge computing and storage capability, all this with an acceptable management cost, DILIGENT promises to revolutionise the way through which joint research is conducted and propose novel application scenarios. New kinds of functionality can be envisaged or improvement of already existing functionality can be implemented, the management of new kind of knowledge becomes feasible, new way to organise research processes can be implemented. In such a scenario EGEE plays a fundamental role. In fact, being EGEE in charge to provide a big production quality Grid infrastructure serving a myriad of applications, it represents the most attractive provider for

an organised and ready to use pool of computing and storage facilities. The Diligent project is currently testing the first prototype that will be delivered by the end of September '06. According to the Diligent implementation plan, this version is not fully-fledged. Rather it supports the basic DL functionalities required to satisfy the main user communities' requirements. The aim of this demo is to introduce the current Diligent prototype through the presentation of the ImpECt and the ARTE application scenarios.

The ImpECt scenario (Implementation of Environmental Conventions) demonstrates the use of a grid-based digital library for Earth Sciences.

The ImpECt digital library, besides the Diligent basic services, is currently providing access to the following information sources and services:

- (1) a collection of processed satellite images showing the vegetation index;
- (2) a collection of digital objects about background information on MERIS;
- (3) the MGVI (MERIS Global Vegetation Index) external service.

The sources together with their metadata are maintained by the DILIGENT content management and metadata management, and can be queried by region, time, and content.

The MGVI service is integrated by means of the DILIGENT process management. In addition, searches on external sources (e.g. Google) are supported using the DILIGENT search facilities.

Search results can be browsed and used for generating, for a particular time frame and location, environmental reports based on a user-defined template. These user-defined reports can then be saved and indexed in the digital library as newly available information. The user interface for search, result browsing, and report generation is realized by means of portlets hosted on a GridSphere portal.

The ARTE scenario demonstrates the use of a grid-based digital library for cultural heritage domain. Its community, represented by educational institutions (Schools and/or Universities) and by the Italian educational broadcasting network, shares a set of archives with multimedia content with the aim to combine them in complex learning objects, named courses. Once a course is built, it is stored and made available to be reused in and adapted for new didactic contexts.

In addition to the management of courses, the ARTE DL provides functionalities to store, manage, and retrieve all kind of information objects related to them, such as images, texts, audio/video recording, etc.

The current ARTE DL provides access to a number of community specific information sources, such as between the others, the “Progetto Emblemata. ‘Con parola brieve e con figura’ Libri antichi di imprese e di emblemi”; “A Celebration Of Women Writers”; “Arts And Humanities Data Service”; “Bayerische”; “Gallica”; “Perseus”; “Emblem Project Utrecht”; “RAI Medita” collections. In order to securely store and make available these set of copyrighted information objects on the Diligent Grid infrastructure, the Diligent content security facilities have been largely used.

Summary

The aim of this demo is to introduce the current Diligent prototype through the presentation of the ImpECt and the ARTE application scenarios. The ImpECt scenario (Implementation of Environmental Conventions) demonstrates the use of a grid-based digital library for Earth Sciences. The ARTE scenario demonstrates the use of a grid-based digital library for cultural heritage domain.

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