Laying the foundations for next generation collaboration and knowledge management environments through the realisation of on-demand Digital Libraries over Grid enabled infrastructures.

Objective

The DILIGENT project aims at supporting virtual research groups by providing the knowledge infrastructure that manages a network of shared resources (archives, database, and software tools) and enables creation of reliable and secure Digital Libraries (DL) on-demand.

More specific objectives are the following:

- to open up Grid technology to a broad range of research and industrial communities;
- to broaden the diffusion of Digital Libraries, which are so far restricted to large organisations, by supporting a cost-effective digital library creation and operational model;
- to promote cross-fertilization between the Digital Library and Grid technology domains that will foster synergies and advances in both areas.

Technical Approach

The DILIGENT infrastructure is composed of a set of interacting services providing:

i. a number of typical Digital Library functions, like search, annotation, personalisation, document visualisation;

ii. access to information sources and applications provided by third-parties;

iii. features necessary for handling the shared content and application resources; and

iv. support for the creation and operation of on-demand, transient Digital Libraries. These services will exploit the high computational and storage capabilities of the Grid infrastructure released by EGEE project in order to support complex and time consuming functionalities.

Applications

DILIGENT will serve a multitude of application needs. Project experiments include the creation of Digital Libraries for support activities, i.e. organisation of conferences, preparation of projects and periodical reports and course handling.

Contact information:
Donatella Castelli
Istituto di Scienza e Tecnologie dell’Informazione "A. Faedo" - CNR
Via Moruzzi, 1, 56124, Pisa - Italy
Tel: +39 050 3152902
Fax: +39 050 3153464
http://www.diligentproject.org/
mailto:info@diligentproject.org
The DILIGENT Collective Layer group of services provides the functionality to support both the dynamic construction and maintenance of transient Digital Libraries and the controlled sharing and management of the resources that are used to implement them.

The Content and Metadata Management components provide traditional data management services on top for Grid infrastructure. There will be added advantage of using the same infrastructure for supporting different Virtual Digital libraries (VDL), and allocating resources on demand. Furthermore the base annotation service ensures consistent and distributed annotation handling.

The Index & Search group of services provide powerful Digital Library Management system Information Retrieval facilities on top of structured, semi-structured and unstructured data. Within the DILIGENT platform, advanced personalised Search facilities are being aided by classic constructs such as indices, non-traditional Computational Intelligence technologies, such as advanced feature extraction and content source description and selection and a powerful substrate of services that manage infrastructure resources in an efficient manner.

Process Management group of services builds the functionality necessary to design, execute and manage completely new, more elaborate, services by re-using existing services and “plugging” them together into “Compound Services” (processes) thus providing more sophisticated functionality. These processes can not only be created by users but are also an integral part of the DILIGENT infrastructure, where processes are used to maintain the system in a consistent state.

Application Specific group of components and services aims to implement the end-user applications for two specific scenarios identified in DILIGENT: The ImpECt and the ARTE scenarios. These applications will be built using the services made available to the Application Specific Layer (ASL) by the underlying Digital Library Layer (DLL) and the Collective layers in the DILIGENT Architecture. In addition, visualization support for user-specific services will be made available.

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* Images presented come from the ARTE archives and the EU and ESA public image galleries