Diligent

A **DI**gital **LI**brary **I**nfrastructure
on **G**rid **EN**abled **T**echnology

Donatella Castelli
ISTI-CNR

Information Society Technologies

Diligent

Participants

- Italian National Research Coucil – ISTI (Italy, Scientific Co-ordinator)
- European Research Consortium for Informatics and Mathematics (France, Administrative Co-ordinator)

- University of Athens (Greece)
- Swiss Federal Institute of Technology Zurich -ETH Zurich (Switzerland)
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V. – IPSI (Germany)
- University for Health Informatics and Technology Tyrol (Austria)
- University of Strathclyde (United Kingdom)

- Engineering Ingegneria Informatica SpA (Italy)
- Fast Search & Transfer ASA (Norway)
- 4D SOFT Software Development Ltd. (Hungary)

- European Organization for Nuclear Research (Switzerland)

- European Space Agency – ESRIN (Italy)
- Scuola Normale Superiore (Italy)
- RAI Radio Televisione Italiana (Italy)

Diligent

1996 -
ERCIM Technical Reference Digital Library

ERCIM =
European Consortium for Informatics and Applied Mathematics

Federation of distributed repositories and services managed by a central registry service

Diligent

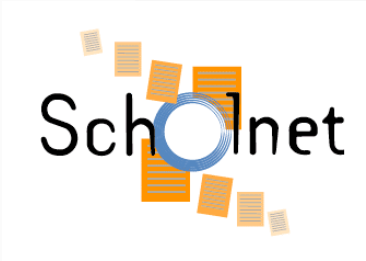
ETRDL - lessons learned

- Successful instrument for supporting communication among researchers
- The exploitation of the ETRDL sw for serving application areas with other requirements (e.g. metadata formats, query language, controlled vocabulary) can only be done by modifying the implementation
- Research communication uses not only textual documents but also slides, demos, videos, etc.
- Metadata sharing through OAI-PMH

Diligent

2000 - OpenDLib

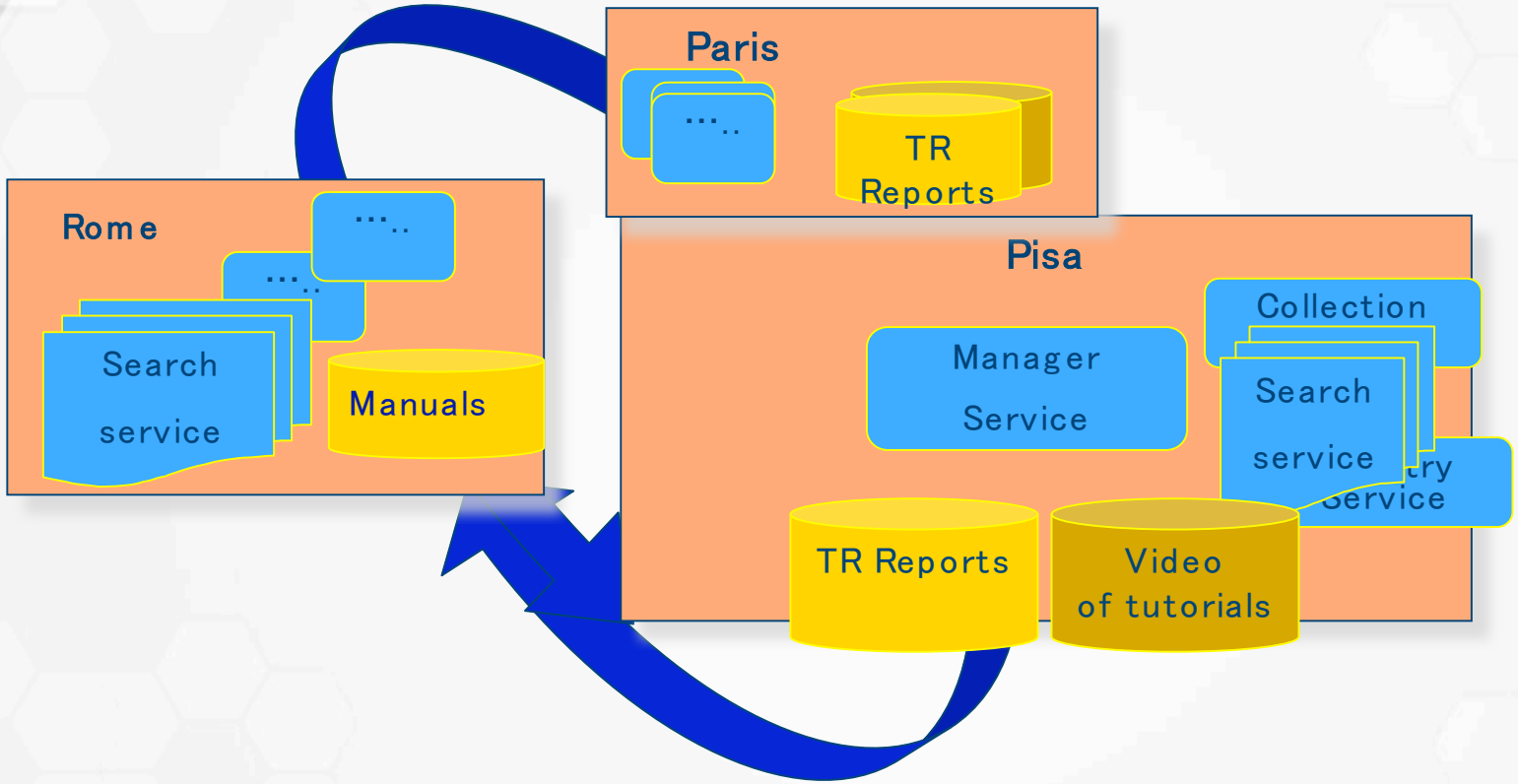
- OpenDLib (http://www.opendlib.com) is the outcome of the "Scholnet- A Digital Library Test-bed to Support Networked Scholarly Communities" project



- Digital Library Management System
  - the sw can be customised according to the application users needs
  - content can be explicily submitted or harvested from exiting sources

Diligent

OpenDLib dynamic open federation



- The federation may comprise multiple instances of the same service with different configurations
- The workflow that serves a request can change according to the status of the federation

Diligent

OpenDLib services

- DL user functionality
  - submission, doc description, search, browse, retrieval, access, preservation, doc administration, peer review support, …
- Users and policies handling
  - registration, user profile handling, authentication, authorization
- Mediation
  - Virtual collections, specialised services
- Federation management
  - Service registration, re-routing, consistency checking
- Application specific services

Diligent

OpenDLib - lessons learned

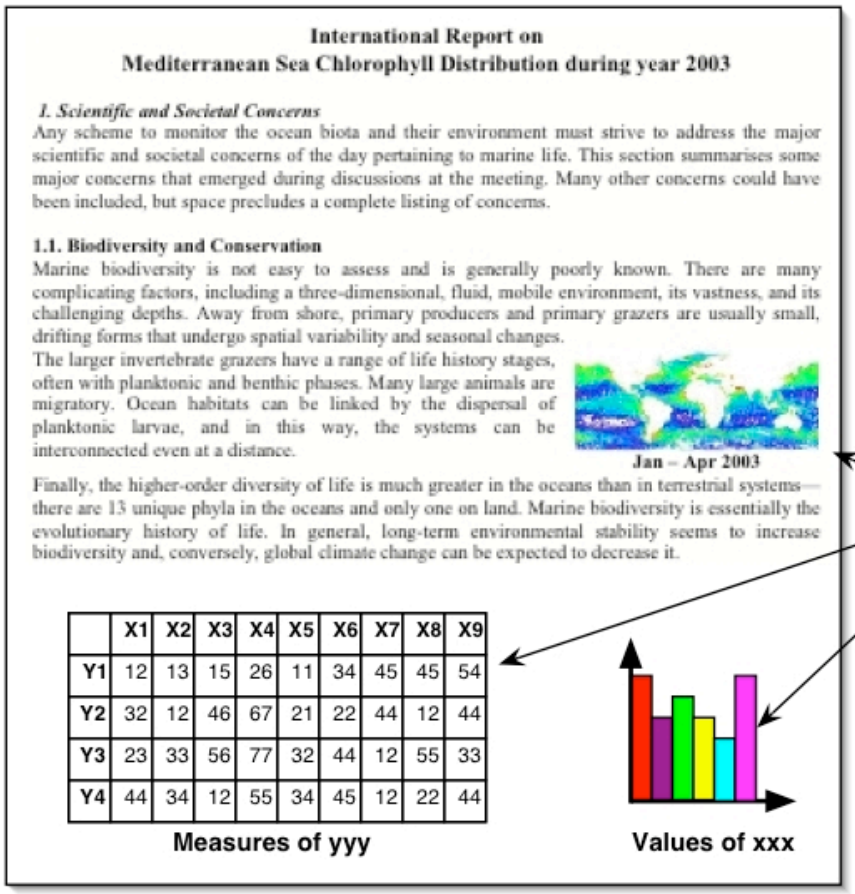
- A DLMS consists of a basic layer of system functionalities
- Sharing must be highly controlled
- Digital objects can be much richer than the physical ones
- A wide range of other services can be introduced

Diligent

New information objects

Live documents

- a fixed text
- a pollution map
- a table summarizing data
  from millions of observed satellite measures
- a graph reporting an analytical trend of certain information extracted from a great amount of observed data



International Report on
Mediterranean Sea Chlorophyll Distribution during year 2003

1. Scientific and Societal Concerns

Any scheme to monitor the ocean biota and their environment must strive to address the major scientific and societal concerns of the day pertaining to marine life. This section summarises some major concerns that emerged during discussions at the meeting. Many other concerns could have been included, but space precludes a complete listing of concerns.

1.1. Biodiversity and Conservation

Marine biodiversity is not easy to assess and is generally poorly known. There are many complicating factors, including a three-dimensional, fluid, mobile environment, its vastness, and its challenging depths. Away from shore, primary producers and primary grazers are usually small, drifting forms that undergo spatial variability and seasonal changes.

The larger invertebrate grazers have a range of life history stages, often with planktonic and benthic phases. Many large animals are migratory. Ocean habitats can be linked by the dispersal of planktonic larvae, and in this way, the systems can be interconnected even at a distance.

Jan – Apr 2003

Finally, the higher-order diversity of life is much greater in the oceans than in terrestrial systems—there are 13 unique phyla in the oceans and only one on land. Marine biodiversity is essentially the evolutionary history of life. In general, long-term environmental stability seems to increase biodiversity and, conversely, global climate change can be expected to decrease it.

	X1	X2	X3	X4	X5	X6	X7	X8	X9
Y1	12	13	15	26	11	34	45	45	54
Y2	32	12	46	67	21	22	44	12	44
Y3	23	33	56	77	32	44	12	55	33
Y4	44	34	12	55	34	45	12	22	44

Measures of yyy

Values of xxx

Automatically updated with the most recent data

Diligent

Requirements for “new DLs”

- The creation and handling of these documents require
  - access to many different, large, multi-type and multimedia heterogeneous information sources
  - use of specialized services
  - high computing power

Diligent

Requirements for “new DLs” [cont]

- Many potential DL customers do not have the instruments for satisfying these requirements
- Extend the notion sharing is the only possible solution
  - information sources
  - services
  - computers and storage
  - (technical staff)

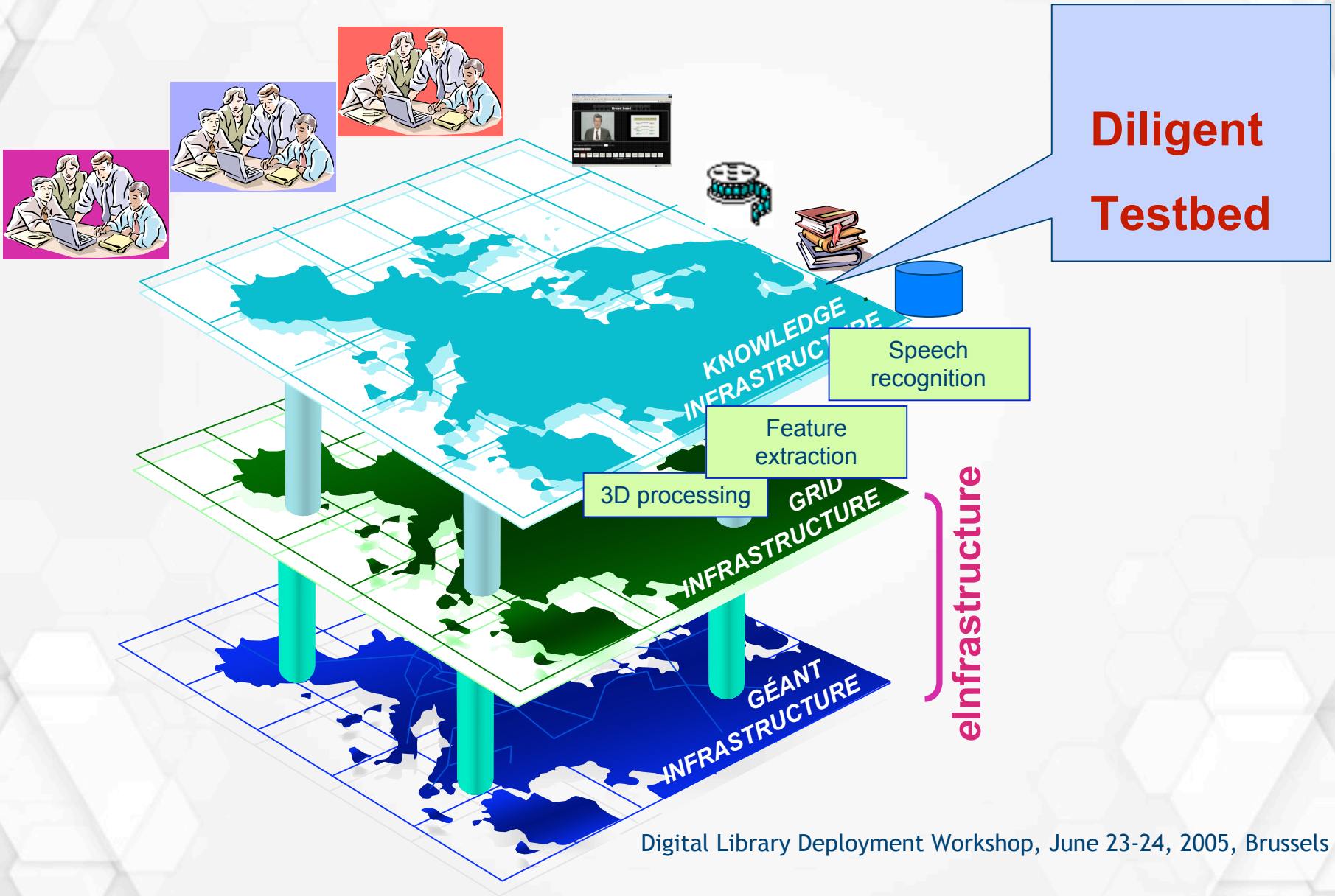
Diligent

Which technology?

- The Grid technology
  - High computing and storage capabilities for managing and processing a wide variety of information objects
  - Controlled sharing of resources

Diligent

A new vision



Diligent

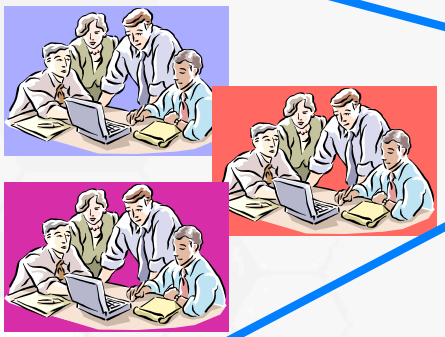
DILIGENT objective

Create a test-bed DIgital Library Infrastructure on Grid-ENabled Technology that allows members of dynamic virtual organizations to create on-demand transient virtual digital libraries based on shared computational, storage, multimedia, multi-type content and application resources

Diligent

DILIGENT DL infrastructure

Consumers



Service A

Service B

Service C

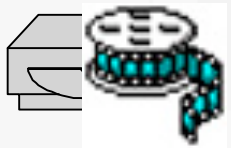
DLCreation service

Service D

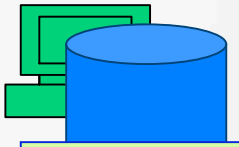
Service E

Producers

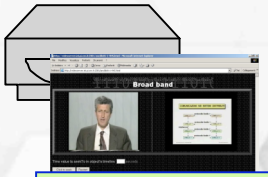
3D processing



simulation



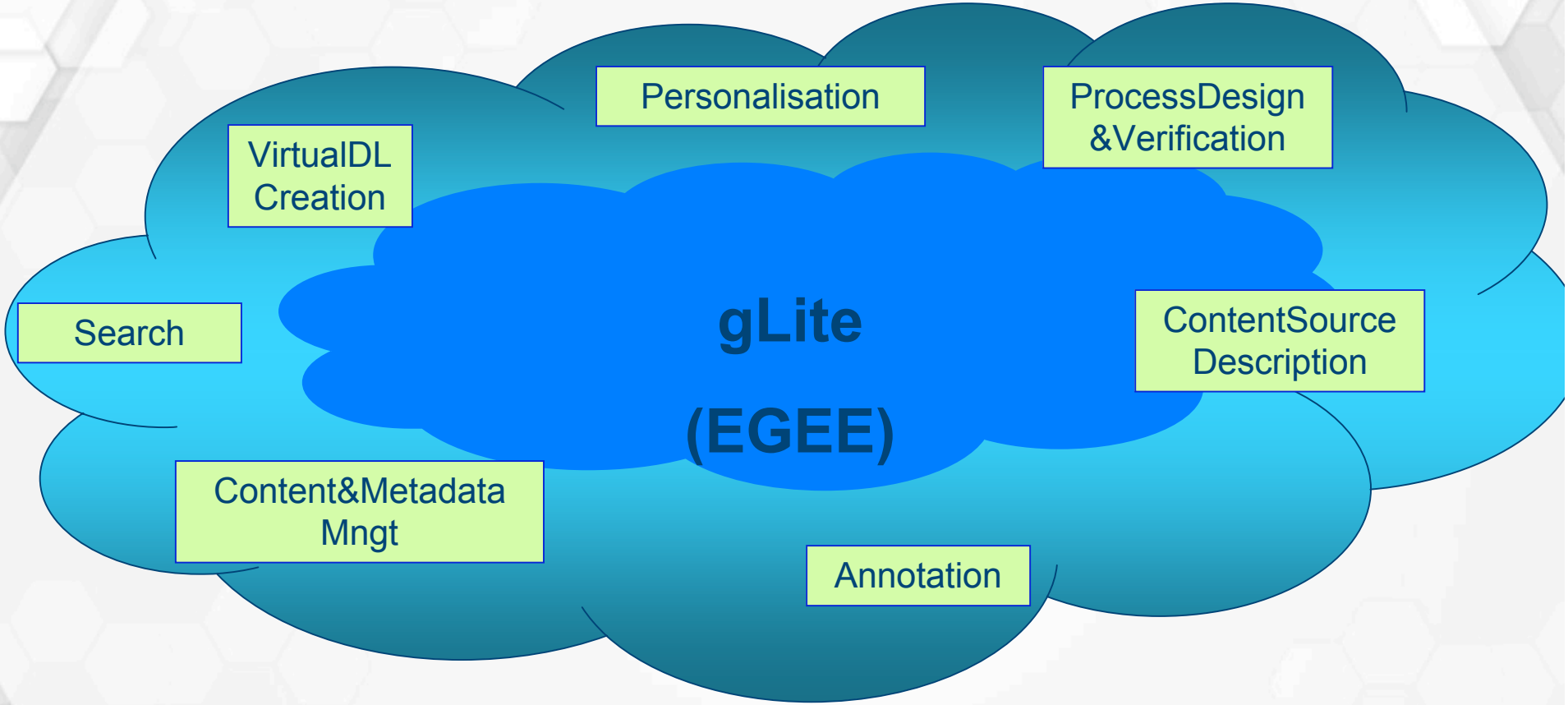
Feature extraction



Speech recognition

Diligent

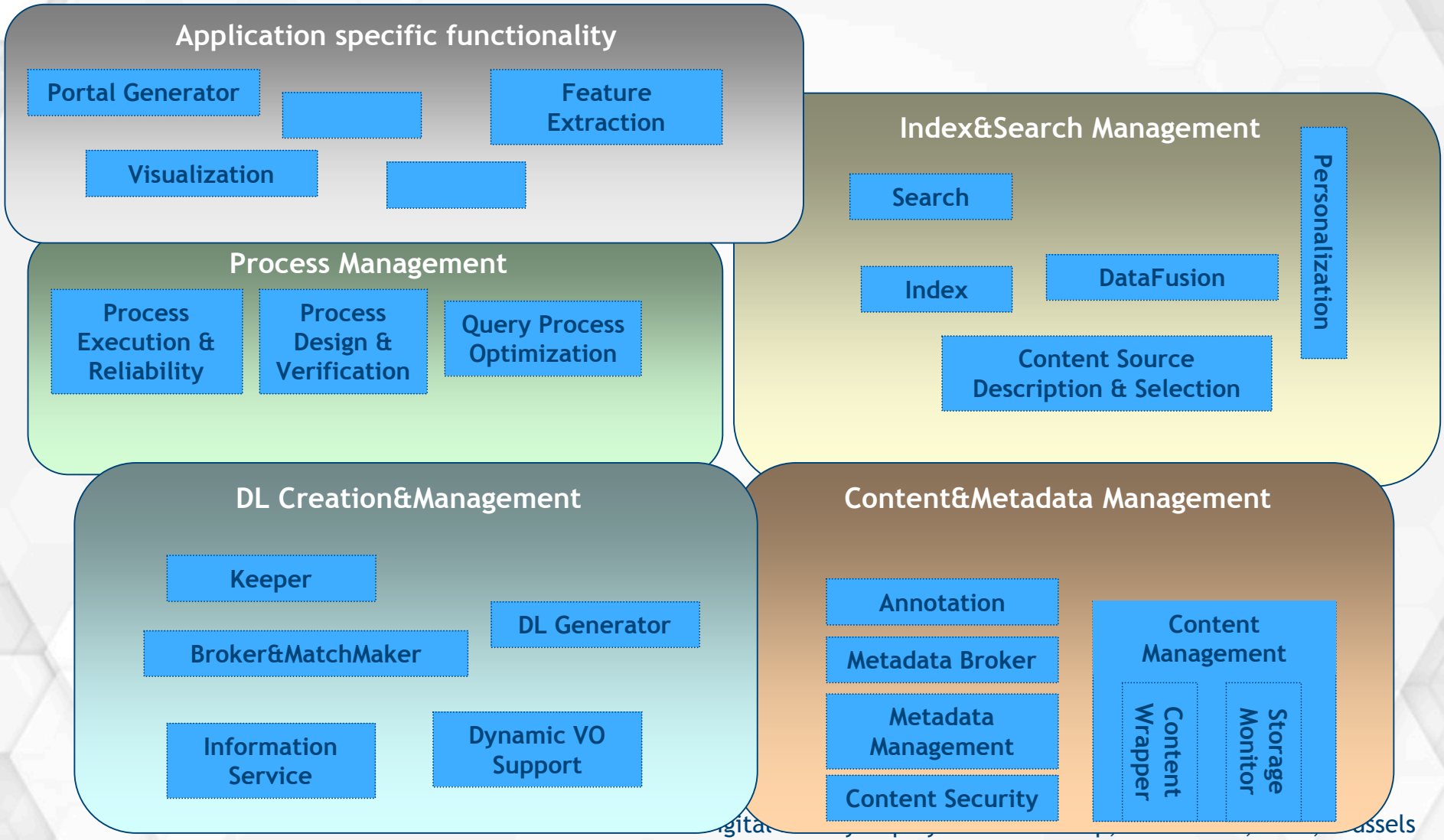
Technical solution



- The DILIGENT project will build-up on gLite and it will develop a set of services for supporting: i) the creation and maintenance of DLs; ii) the co-ordinated sharing of specific DL resources; and iii) the specific DL functionality

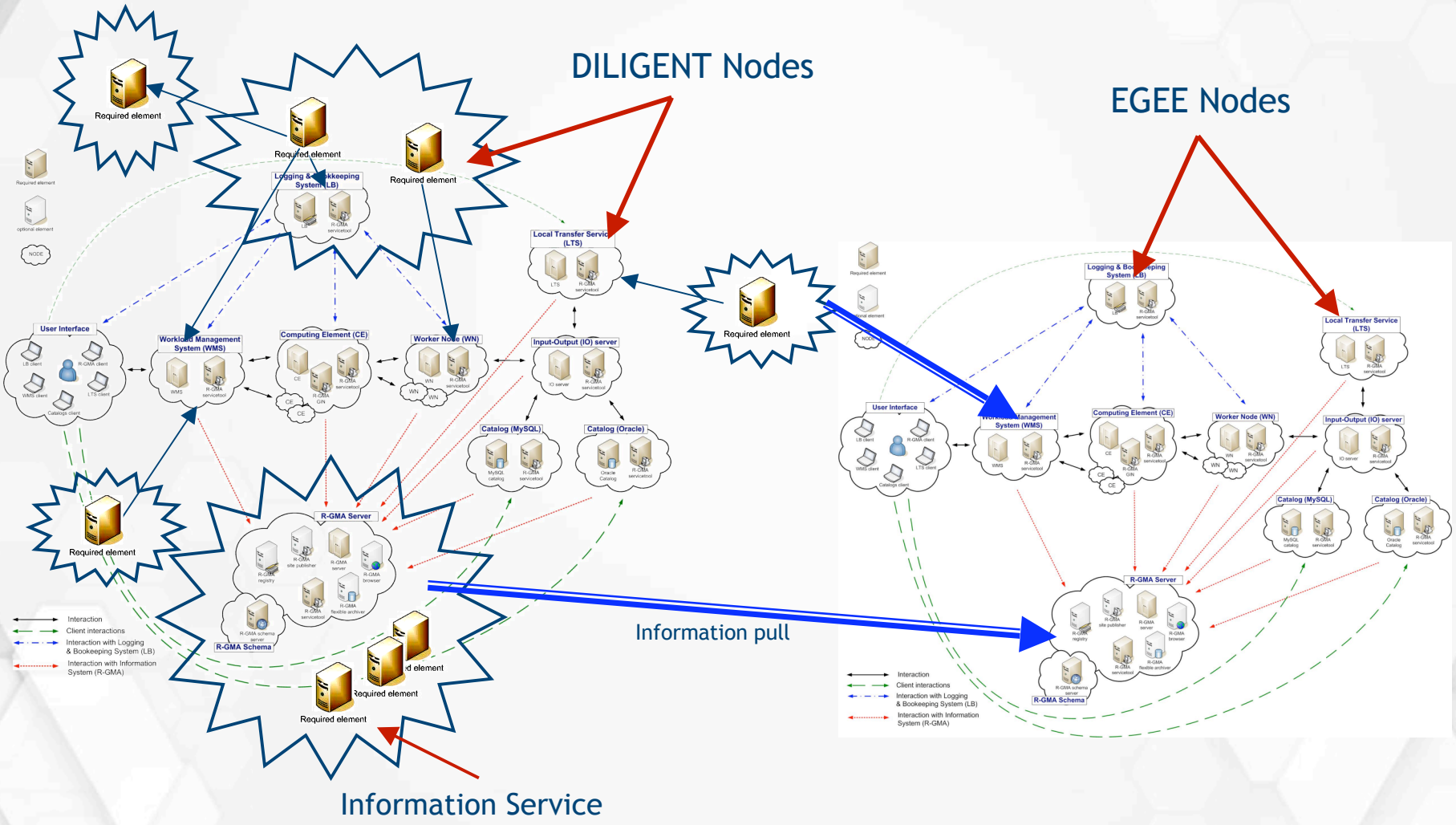
Diligent

Diligent functionality



Diligent

DILIGENT infrastructure



Diligent

A DIgital LIbrary Infrastructure on Grid ENabled Technology

http://www.diligentproject.org