



# Digital Libraries: Exploiting Digitized Material in Research Activities

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# Content



- ❖ What is a DL
- ❖ OpenDLib: a software system for building DLs
- ❖ A brief demo
- ❖ Concluding remarks

# What is a digital library?



"A digital library is an institution that performs and/or supports (at least) the functions of a library in the context of a distributed, networked collection of information objects in digital form"

Nicholas Belkin

Eight DELOS Workshop

Stockholm, 1998

# Digital objects



❖ Not only bibliografic records (metadata)

but also

❖ information objects (texts, audios/videos, 3D images, ..., data, programs, ..., maps)

# A Digital Library is thus ...



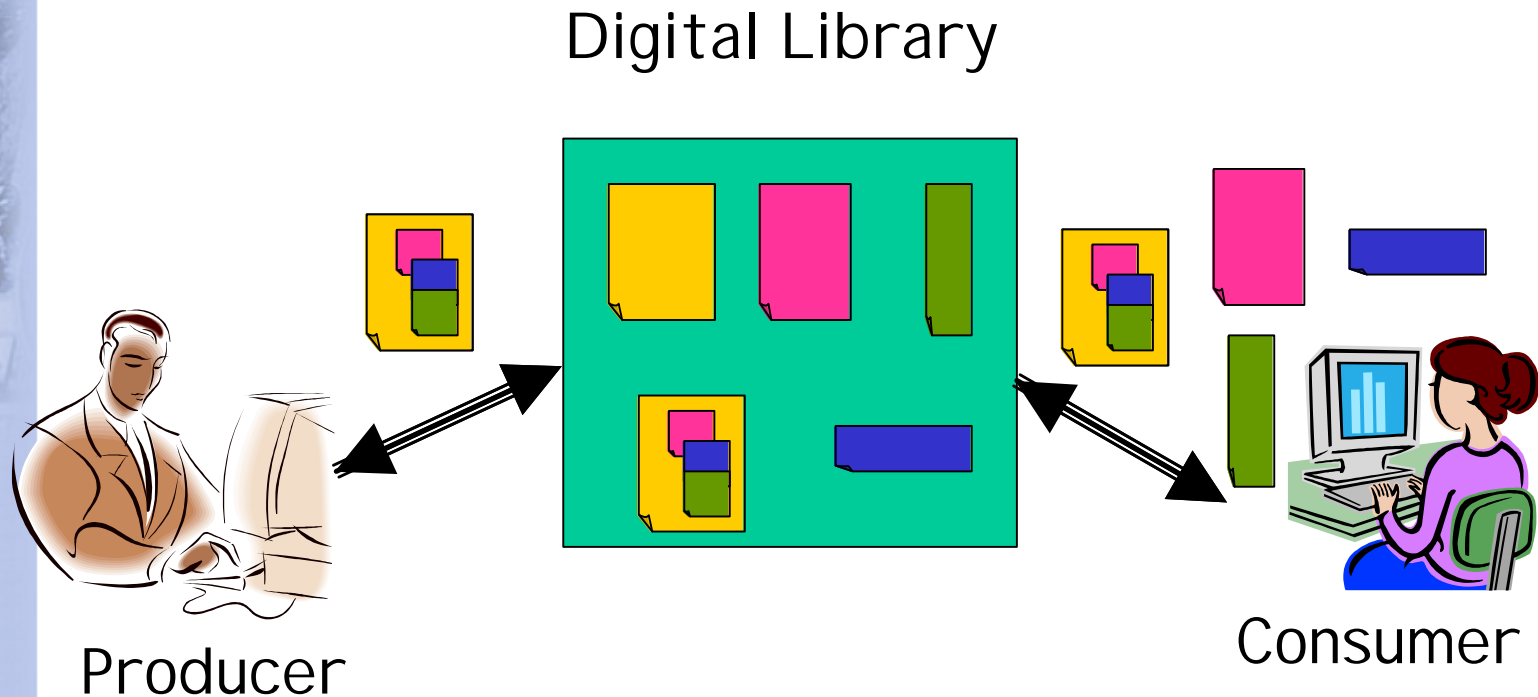
- ❖ a library
- ❖ a museum
- ❖ an archive
- ❖ ...
- ❖ a data center
- ❖ ....
- ❖ a dynamic universal knowledge environment

# The functions of a library

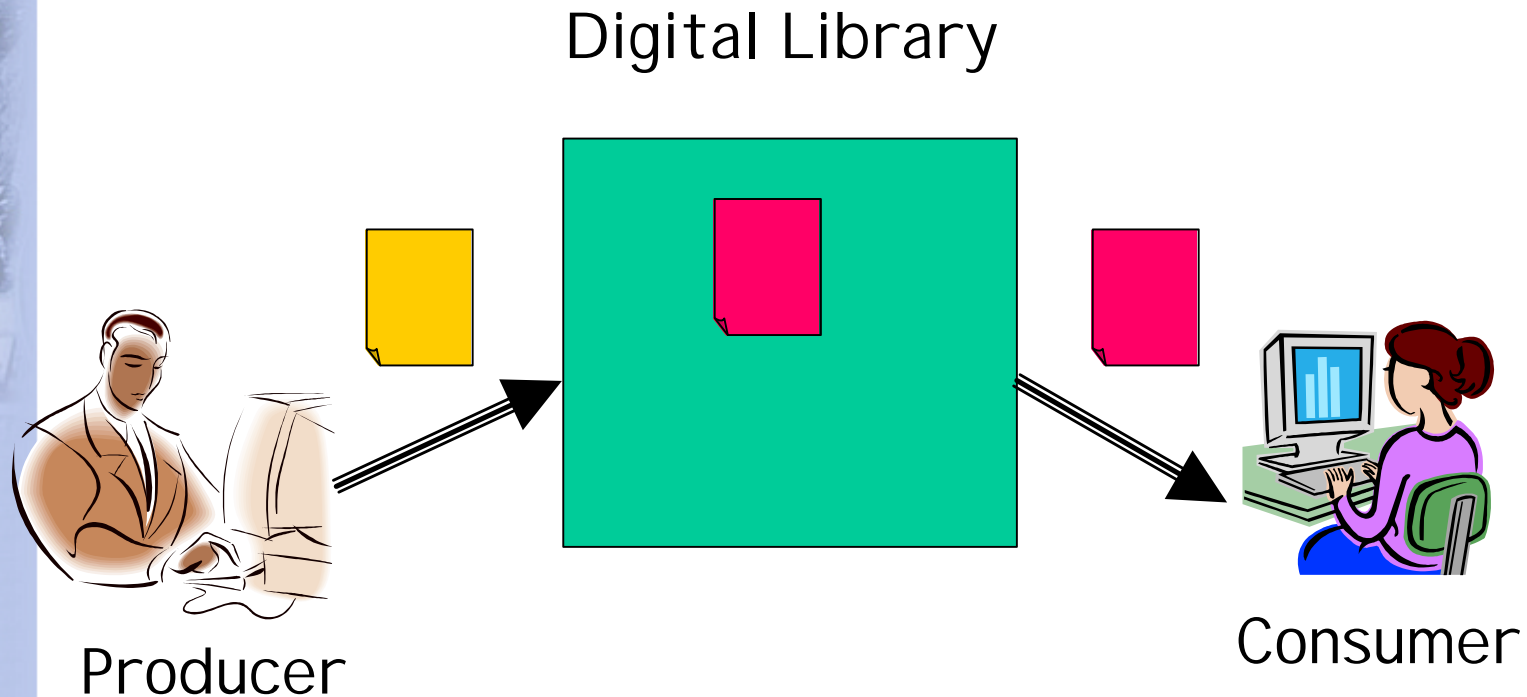


- ❖ Selecting, collecting, preserving, organizing, representing, providing controlled access to, ensuring knowledge of, and disseminating information objects
- ❖ Mediating and supporting interaction between information users and information objects

# DL as a communication means



# Digital Library as a mediator

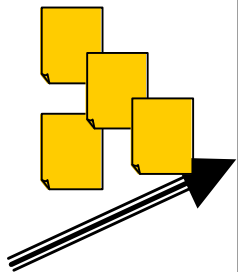




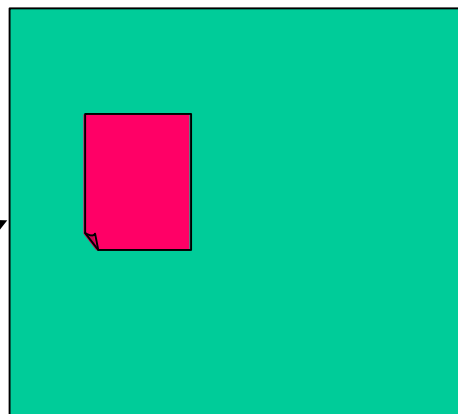


- ❖ It is a software tool for creating digital libraries
- ❖ A digital library is created by selecting a number of configuration parameters (query language, metadata formats, source archives, etc) and then either submitting the content or harvesting it from existing sources
- ❖ The parameters can be changed dynamically without switching off the digital library

# The document representation



OpenDLib



# The document representation



❖ Document

Dante Alighieri "La divina commedia"

❖ Edition

- ◆ Edition 14???
- ◆ Edition 15??
- ◆ Ridotta a miglior lezione dagli accademici della Crusca 1595

❖ View

- text
- images

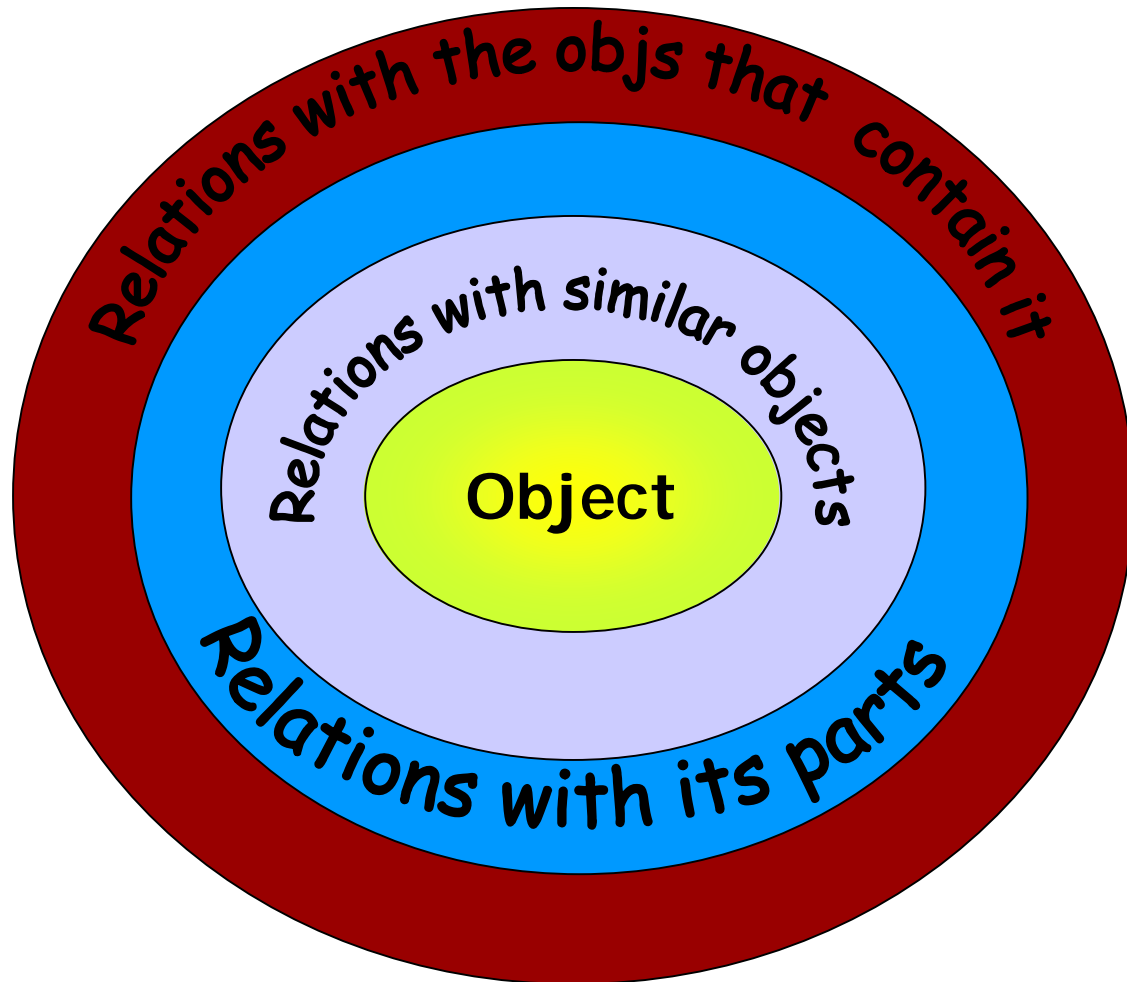
❖ Manifestation

- ✓ jpeg
- ✓ gif

# jpeg manifestation



# Relations among docs



# Relations<sub>[cont.]</sub>

## Atlante della memoria

- collection of iconographic sources
- Metadata

Image

Relations

Textual docs

Similar images

Handle	sns.it/2004_F_171
Version	1
<input checked="" type="checkbox"/> metadata	
dc	<a href="#">  view</a> <a href="#">  download</a>
memoria	<a href="#">  view</a> <a href="#">  download</a>
<input checked="" type="checkbox"/> immagine	
illustrazione	<a href="#">  view</a> <a href="#">  download</a>
<input checked="" type="checkbox"/> relazioni	
<input checked="" type="checkbox"/> contenuto_in	
<input checked="" type="checkbox"/> MargaritaPhilosophic-pag625	
<input checked="" type="checkbox"/> correlato_con	
<input checked="" type="checkbox"/> NumerazioneDeiLuoghi1	
<input checked="" type="checkbox"/> SimboliPlanetariEAst2	
<input type="checkbox"/> metadata	
<input type="checkbox"/> immagine	
<input type="checkbox"/> MostroMnemonic3	

# Relations<sub>[cont.]</sub>

## Atlante della memoria

- Collection of textual sources

Metadata

Relations

images

Related texts

Handle	sns.it/2004_F_80
Version	1
<input type="checkbox"/> metadata	
dc	<a href="#">  view</a> <a href="#">  download</a>
memoria	<a href="#">  view</a> <a href="#">  download</a>
<input type="checkbox"/> relazioni	
<input type="checkbox"/> contiene	
<input type="checkbox"/> RebusMnemonico-pag18	
<input type="checkbox"/> AlfabetoMnemonicoFor-pag19	
<input type="checkbox"/> AlfabetoMnemonicoPos-pag18	
<input type="checkbox"/> metadata	
<input type="checkbox"/> immagine	
illustrazione	<a href="#">  view</a> <a href="#">  download</a>
<input type="checkbox"/> ImmaginiDeiNumeri-pag20	
<input type="checkbox"/> RebusMnemonico-pag17	
<input type="checkbox"/> riferito_da	
<input type="checkbox"/> ArsReminiscendi1	
<input type="checkbox"/> metadata	
<input type="checkbox"/> relazioni	



# Organization of the documents: search space

Search for docs such that:

.....



OpenDLib

Archive1  
Germany

Archive2  
France

Archive3  
Italy

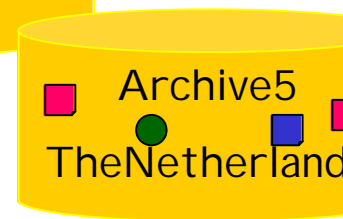
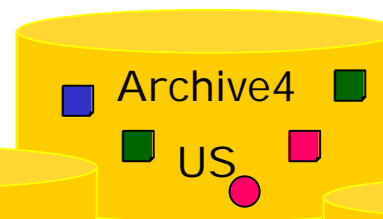
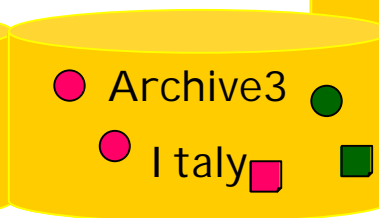
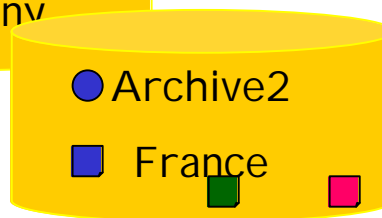
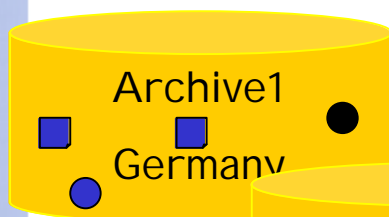
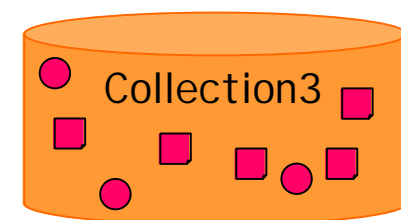
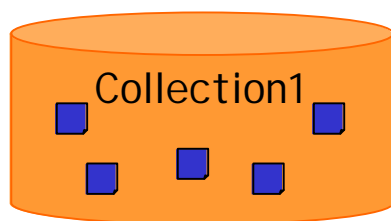
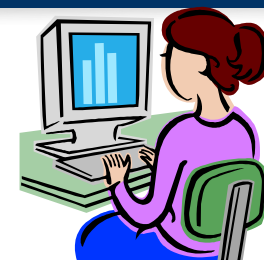
Archive4  
US

Archive5  
TheNetherlands

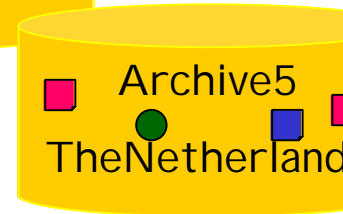
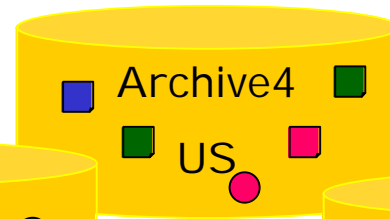
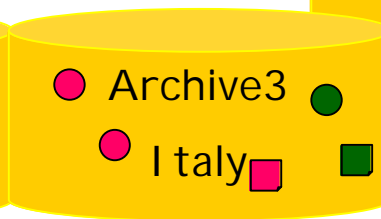
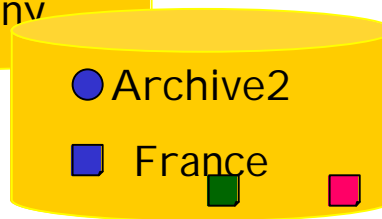
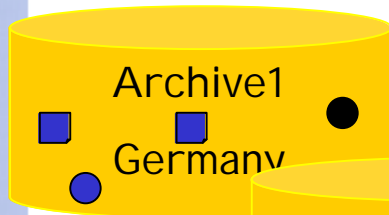
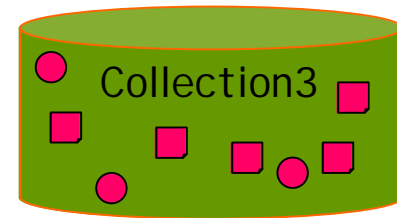
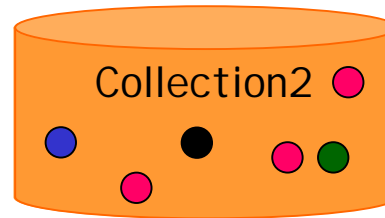
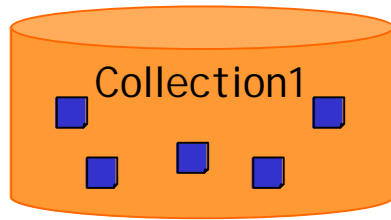


# Organization of the documents: virtual collections

Search for docs in Collection1 such  
that  
.....



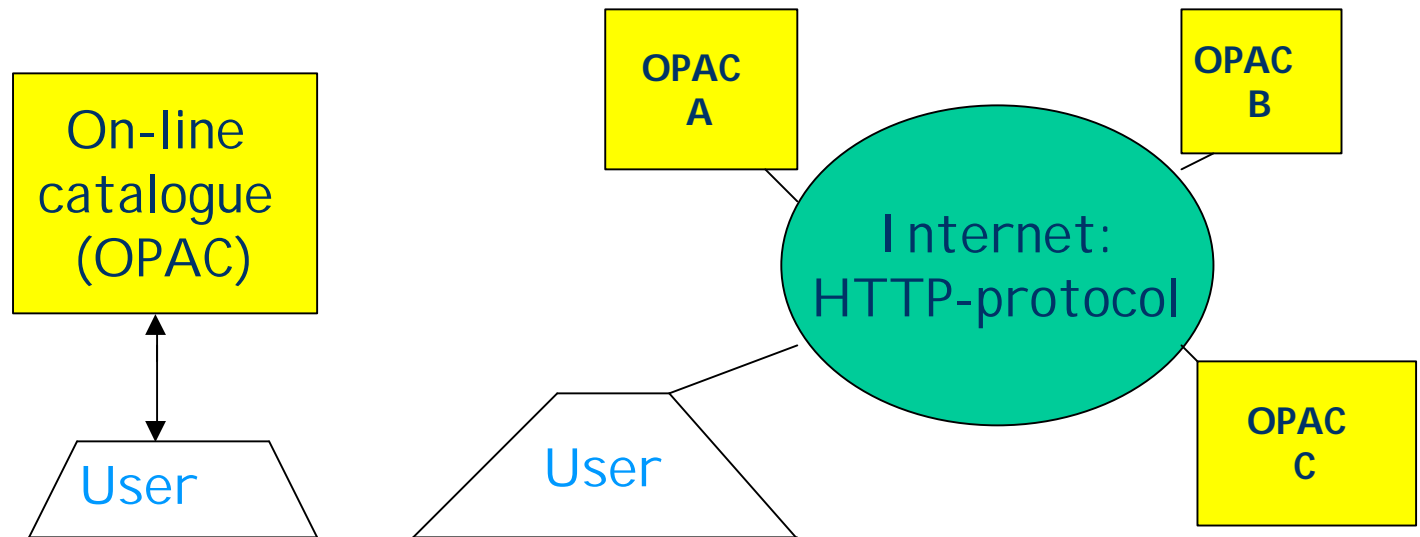
# Collection access policies



# System architecture: the past

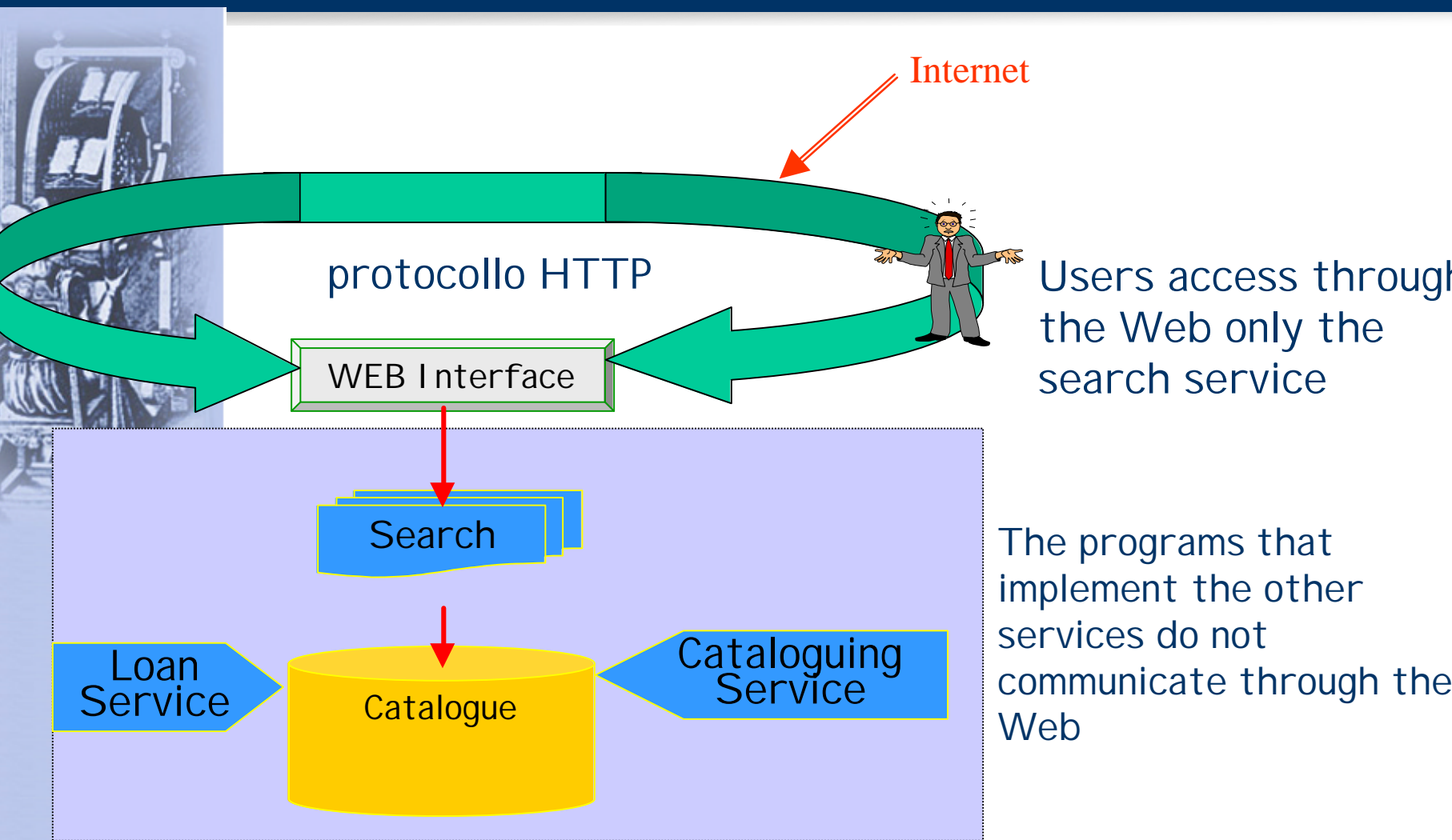


From a "direct"  
communication (on-line) ....



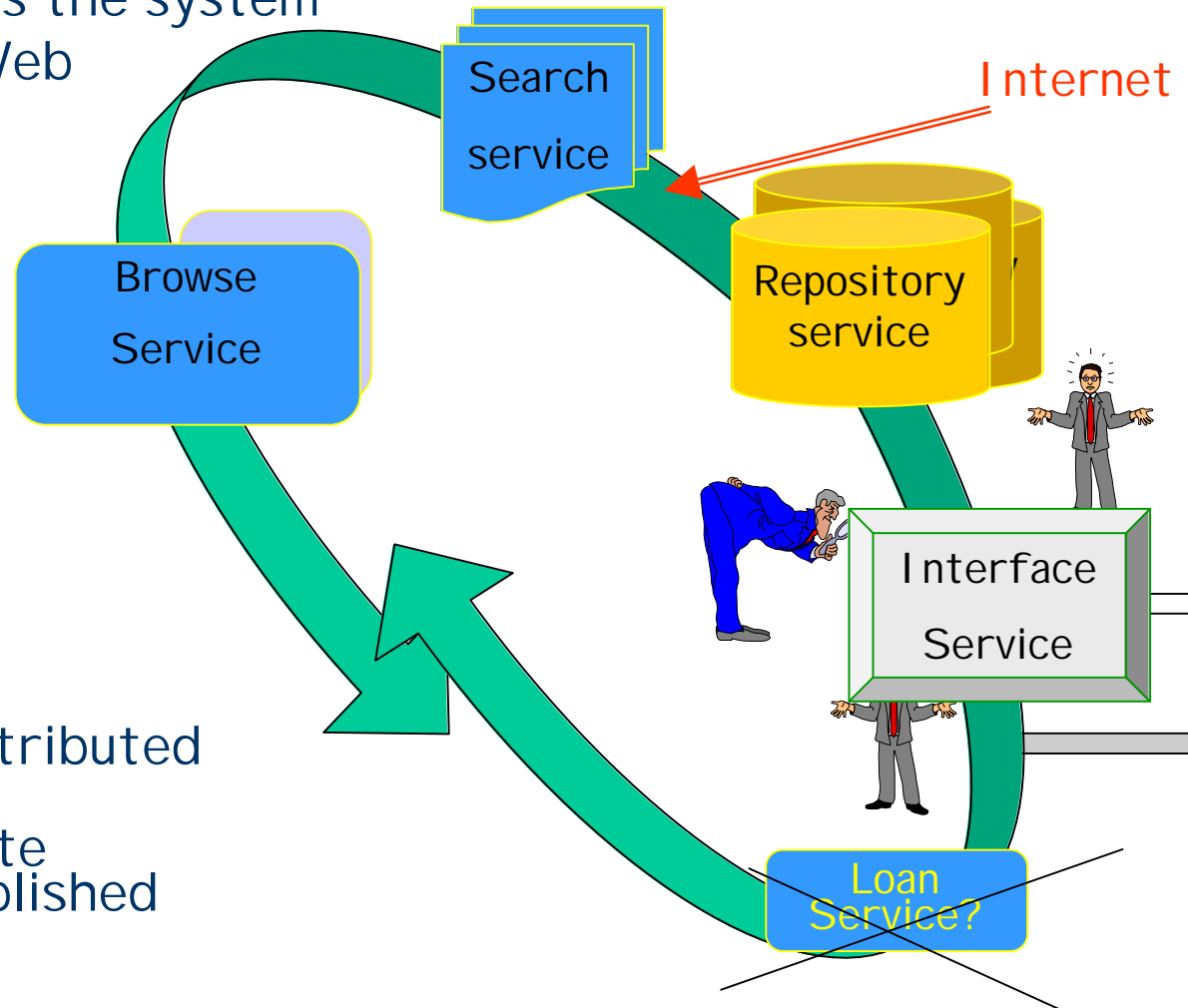
.... to a communication  
through the Internet

# Web access to OPACs



# Distributed architecture

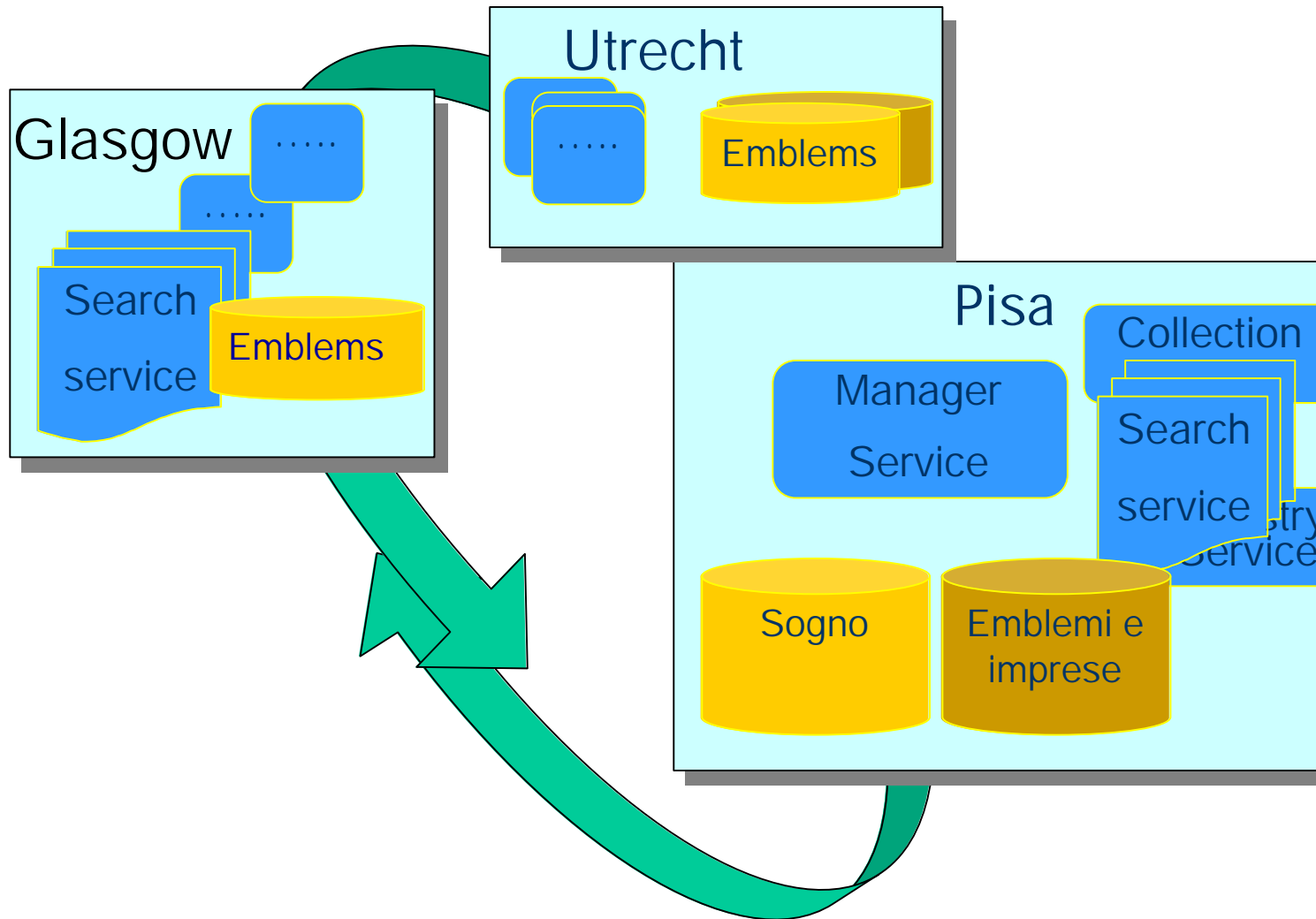
Users access the system through a Web interface



Services are distributed on Internet.  
They communicate through an established protocol.



# Federated architecture

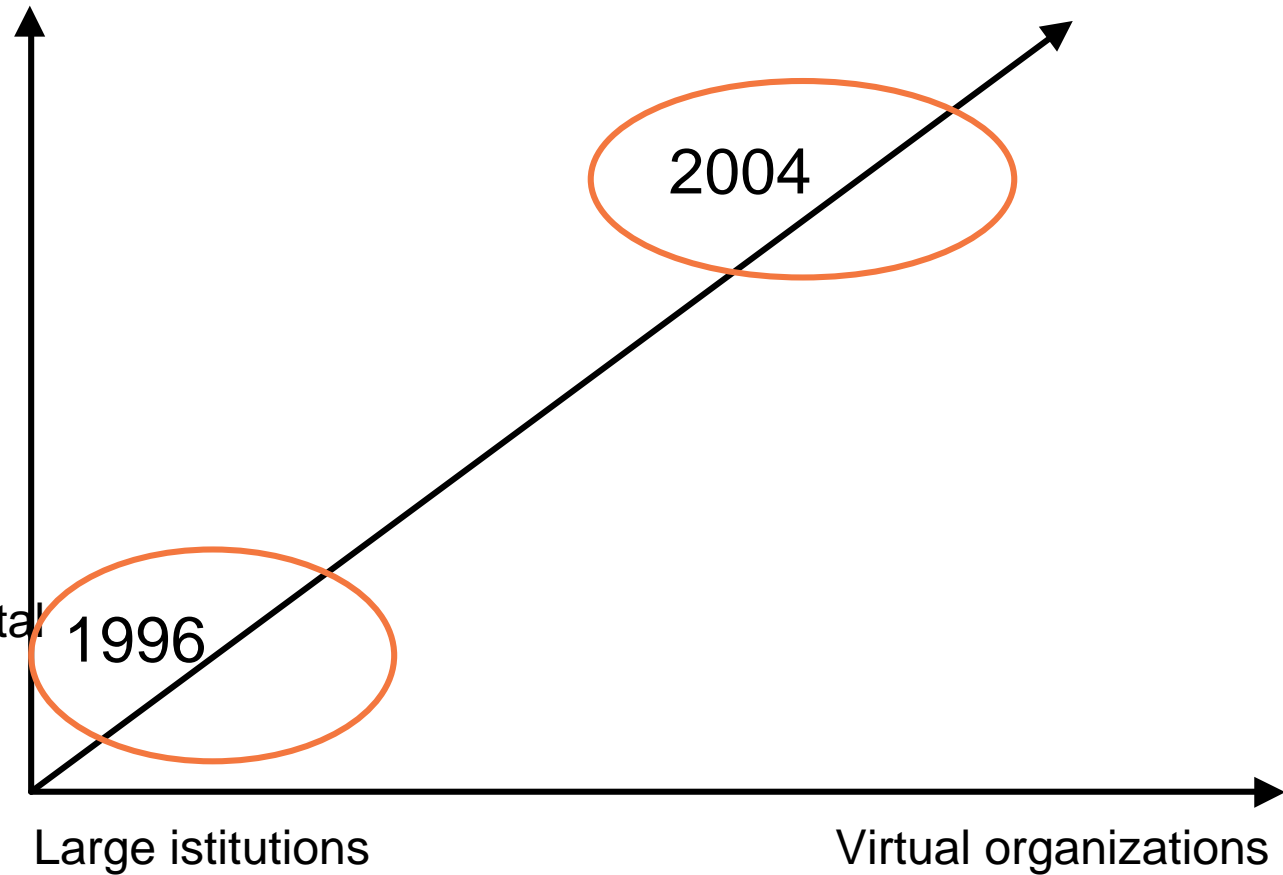


# The DLs evolution



Dynamic Universal  
Knowledge Environment

Repository of texts in digital  
format + search service



# Dynamic Universal Knowledge Environments



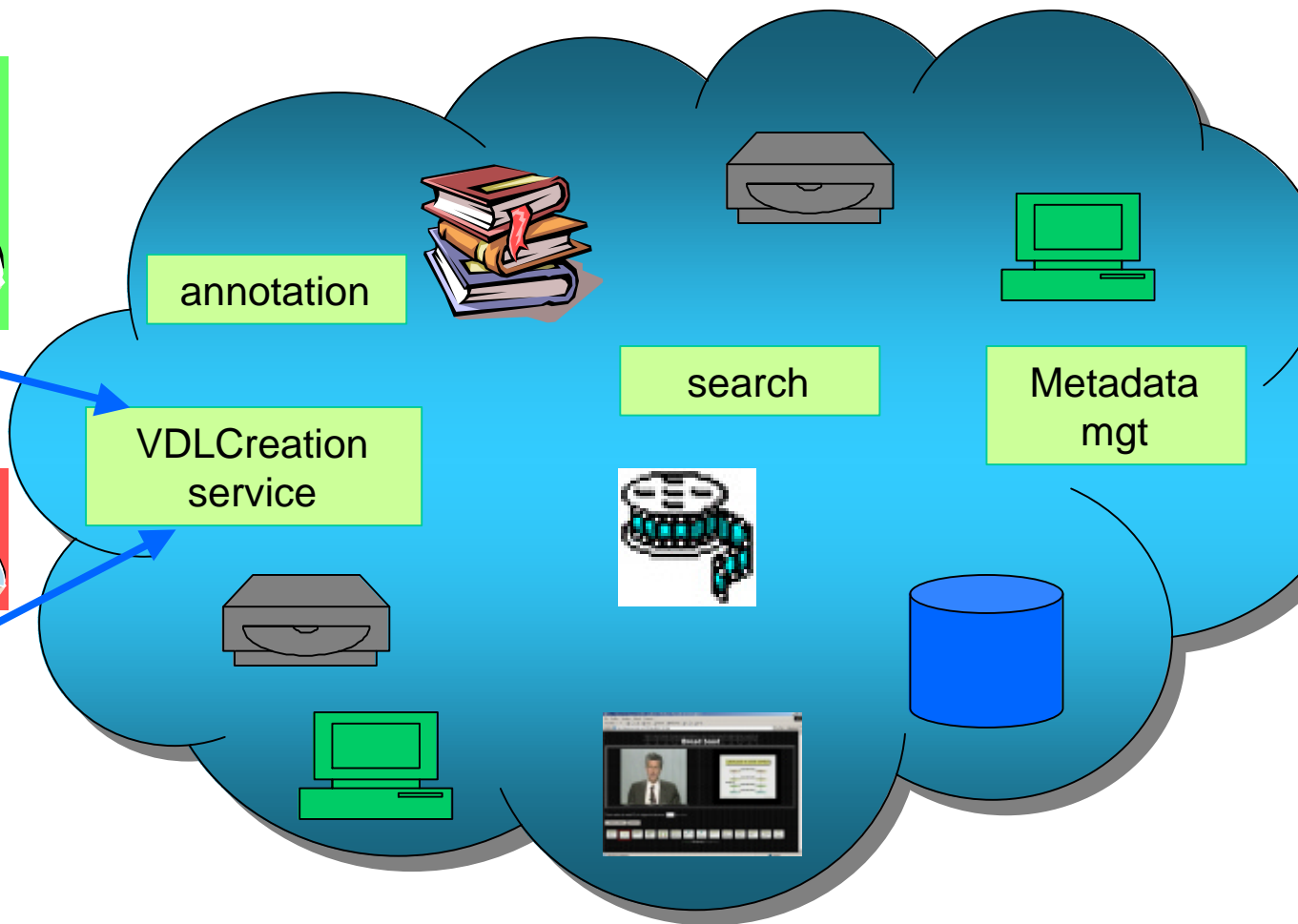
"After approximately ten years of development digital libraries have moved far beyond any connotations of the term 'library', to also encompass Digital Archives and Museums and now have functionality to deal with multimedia objects often with embedded general knowledge, semantics and behavior. The potential exists for digital libraries to become the universal knowledge repositories and communication conduits of the future, a common vehicle through which information in all forms can be accessed, discussed, and enhanced.

*Digital libraries may thus become the strongest shield of humanity protecting its historic, culture and scientific artefacts from time, natural disasters and human malice."*

DELOS NoE



# The future: D I L I G E N T



# D I L I G E N T



- ❖ Controlled sharing of resources will permit to reduce the cost of DUKEs
- ❖ High computational and storage capabilities will permit the realization of more powerful services e.g. image similarity search, semantic analysis, automatic content description

# Discussion



Digital Libraries are considered as a useful instrument for collaboration among researchers in the scientific domain.

1. Do you feel the need of a digital library for supporting your work?
2. Which are the most important functions that such a digital library should provide?

# Discussion<sub>[cont.]</sub>



The content of a digital library can be dynamically enriched during the time, as research advances. The current “Con parola breve e con figura” exhibition catalogue might be considered the first step of a continuously expanding virtual catalogue.

3. Would such a catalogue be useful for you?

# More Info



**Thank you**

## Links:

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