

# COHSE Informed WWW Link Navigation Using Ontologies





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# Conceptual Open Hypermedia

improve the quality of linking of WWW documents

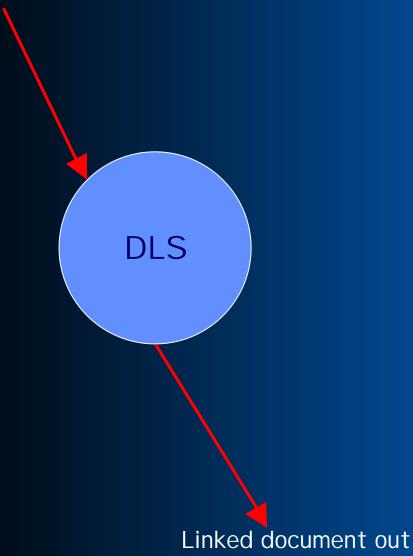
- as readers browse the documents
- as authors create the documents
- by integrating
  - an ontological reasoning service to represent a conceptual model of document terms and relationships
  - a Web-based open hypermedia link service
- to form a conceptual open hypermedia system to enable documents to be linked via metadata describing their contents

Link Creation not just Resource Discovery

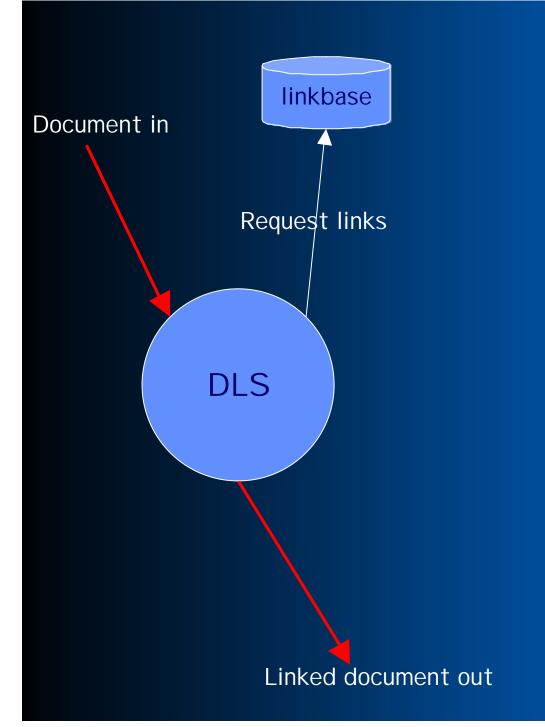
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# Components of COHSE

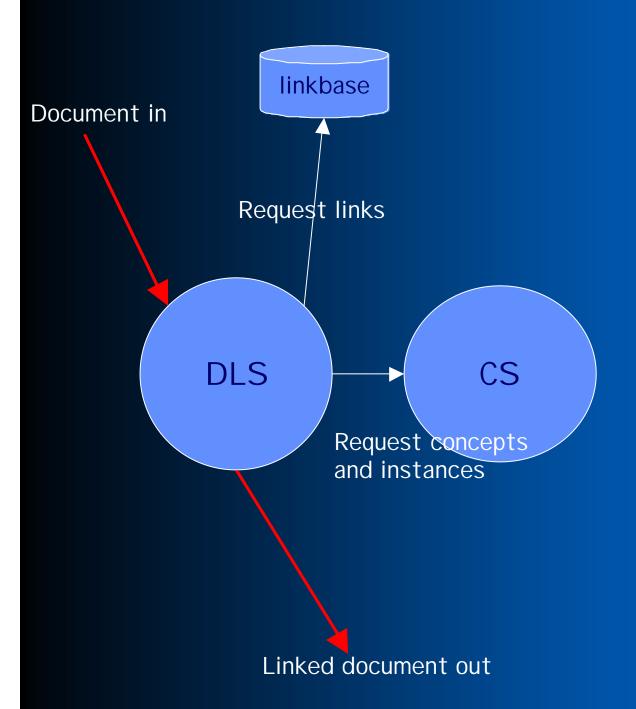
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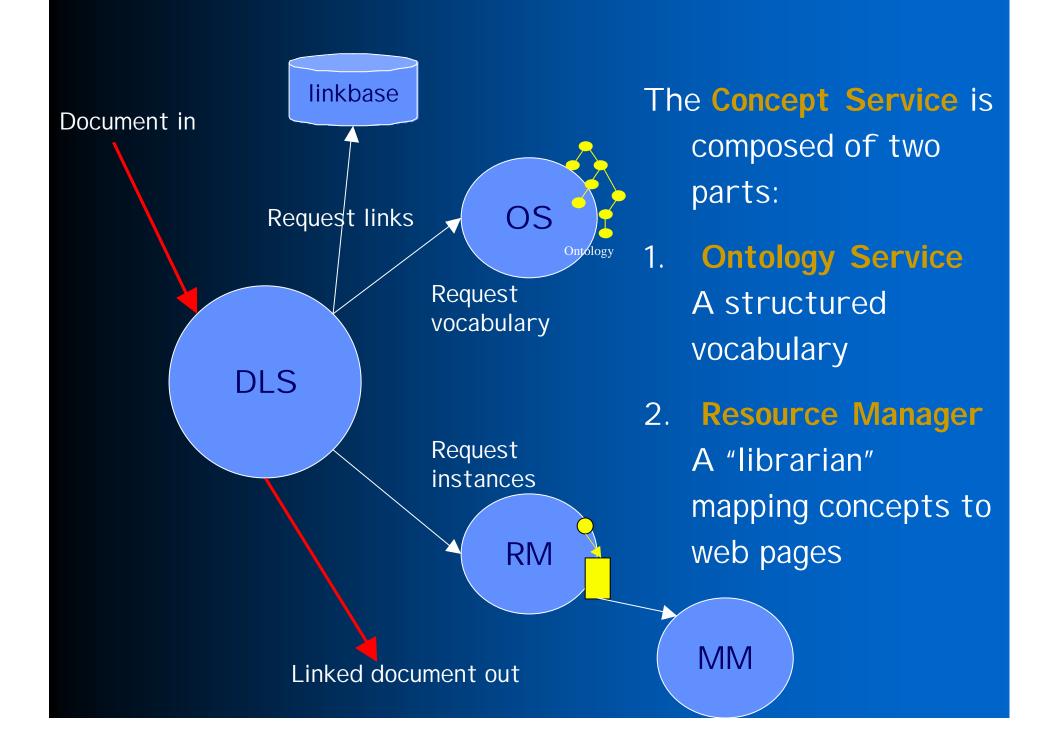
An Open Hypermedia Service uses a link service as the basic mechanism for controlling navigation around a set of Web resources.

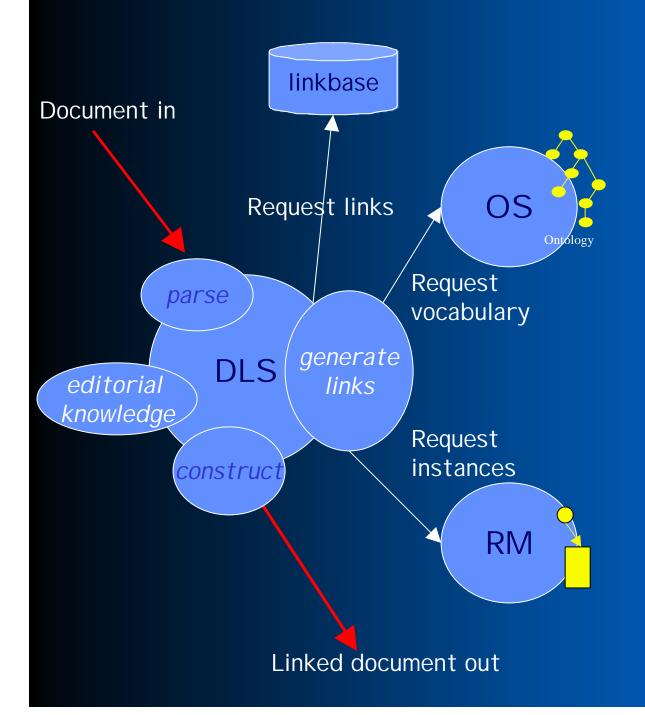


The *link service* retrieves predefined links from a database.



In a Conceptual **O**pen **H**ypermedia Service the link service uses a concept service to recognise concepts referred to in the documents and to link them together.



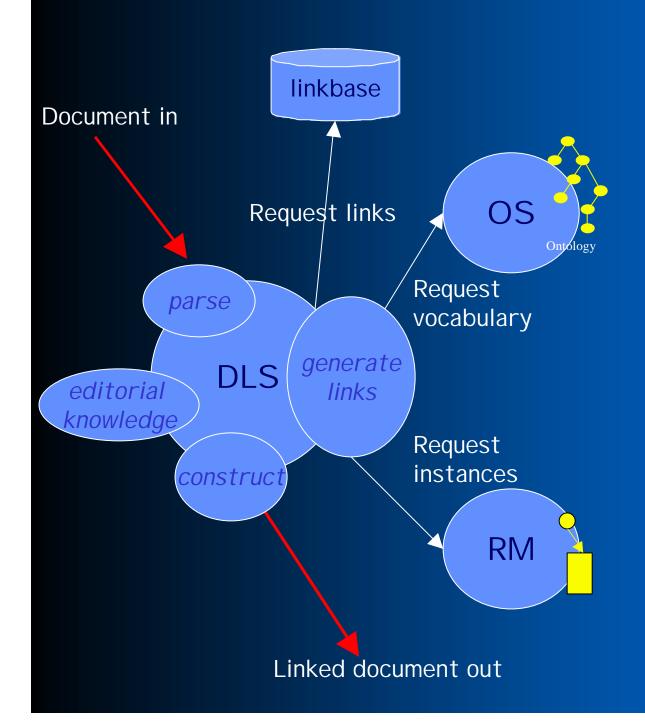


The link service is decomposed into

• a *parser* that decomposes the page into a DOM

• a *constructer* that reforms the DOM into a Web page

...more->



The link service is decomposed into

a link generator
 that promiscuously
 proposes linking
 opportunities

 an editorial component that controls the linking opportunities

# Current Status

- A survey of metadata based solutions for web resource description (e.g. SHOE, Ontobroker...)
- A set of scenarios articulating the interaction between the conceptual service and the hypermedia service
- Architecture of COHSE
- Two prototypes



- Re-engineered Distributed Link Service
- Demonstrators
- Ontology Inference Layer

## progression through prototypes

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#### Clothes

When walking in the mountains, one should always wear gloves and a hat, and if it's cold, a coat. Gloves made of wool are best, although manmade material is fine -- these have made great advances in recent years. Lakes and rivers, however, are a different thing, and it's often best to wear a bathing suit in such environments. And if you're considering a trip which takes in glaciers or ice masses, wrap up well!

One thing that it would be very strange to do would be to try and go walking in the hills while thinking about XML. Such a task should only be done in the confines of an office. Worrying about OSD, RDF and Cascading Style Sheets would be sure to ruin a good day out.

tocal intranet

I've always had trouble getting things to put on my plates of meat.

DNA replication factor -- who cares? And DNA binding is the most boring thing in the world. After phosphomevalonate kinase that is.

#### **COHSE Services Control Panels**

- Ontology Service
- <u>Resource Finder</u>

### **Platt Application**

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Clothes
When walking 와 in the mountains, one should always wear gloves and a hat 와, and if it's cold 와, a coat 와. Gloves made of wool Գ
wool: Usually associated with fiber or fabric made from the fleece of sheep or lamb. However, the term "wool" can also apply to all animal hair fibers, including the hair of the Cashmere or Angora goat or the specialty hair fibers of the camel, alpaca, llama, or vicuna.
Links for wool :
Suit     FASHION FOR ALL : READY-MADE CLOTHES AND HOME DRESSMAKING     Suit
Frockcoat, Waistcoat and Trousers     Bathing Costume and Beach Robe     WE WANT TO BE WARM: WE WANT TO BE DRY
Afternoon Dress     Ladies Indispensable Assistant: The Lady's Work-Box     1830's to 1840's Gentlemen
<ul> <li><u>1850's to 1860's Basics</u></li> <li><u>Online Library: Ladies Home Journal: June 1895 - Designs in Crochet and</u></li> <li><u>1800's to 1820's Gowns</u></li> </ul>
<ul> <li><u>1760's to 1790's Underclothes</u></li> <li><u>1800 to 1820's Gentlemen</u></li> <li><u>1760's to 1770's Gowns</u></li> </ul>
1750's to 1770's Gentlemen     Rizzo's Reproductions
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### Bathing Costume and Beach Robe 1930-5

The Male Order

This blue all-in-one swimsuit is made of machine knitted wool or jersey or, with short lego-sections and a label for 'Ellis and Son, Burton on Trent'. Over is worn a cotton ortowelling orbeach robe or, woven with a geometric black and white pattern or. (See suggested items (below) to look at the other outfit or in this photo)



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### **Platt Application**

**Browser application** 

🥭 Done

# Concept Service Powered by OIL

 Ontology service: moving from a thesaurus to one employing reasoning capabilities

 Harvesting ontologies from user interactions with web resources

Ontology Inference Layer

• The FaCT reasoning engine



# **Open Hypermedia Open Questions**

- The Web is not just a knowledge base but a hypertext
  - Support both Navigation and Searching
  - What are the differences between navigation and searching?
- Query vs. Link Following
  - What impact does navigation have on the use of an ontology?
  - Whither the back button?
- Presentation of links
  - User interface to links & Rendering concept-based links
- Authoring opportunities vs reading opportunities
- Serendipitous link discovery without exposing the ontology to the reader in order to capture their information need –
  - Uniformity of the appearance of the hypertext
  - Maintaining the context of the document
- Context & Rhetoric -- Are they still important?
  - History: how did I get here?
  - Confusion if a search pitches you into the middle of a site.



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