

Task 7.5: A Digital Library Testbed Framework for the Evaluation of Architectures, Services and Execution Dynamics

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Task 7.5: Objectives

- **Experimental Framework for DL Evaluation**
 - Guide, Repository, Testbed-Framework Daffodil, Accesspoint for expertise
 - Setup a community on DL evaluation
- **Standard Event Model of DL users and services**
 - Logging standard schema and corresponding analyse tools
- **Evaluation Actions**
 - INEX Baseline System
 - The European Library
 - Collaboration in Computer Science DLs

Standard Event Model for DL Usage and Services

- Digital Library Life Cycle
Discover - Retrieve - Collate - Interpret - Re-Present
- Logging levels
 1. **User behavior level:** context, task, user info, etc.
 2. **Concept level:** browse - store - annotate - help - navigate - inspect - display - communicate – author
 3. **Service level:** metadata search, detail search, journal browse, Here also GUI events...
 4. **HCI (keystroke) level:** mouse movement/clicking, keyboard input, eye tracking
 5. **System level:** server load, resource, network traffic etc.

The Concept Level: Example

```
<delos:event beginTimeStamp="1119346409235" endTimeStamp="1119346409235"
  eventid="31.c3e82b:1049e70ade2" service="daff:metadatasearch">
  <delos:search service="SearchTool" numberOfResults="487">
    <delos:input source="2a.c3e82b:1049e70ade2">
      <delos:query>information visualization shneiderman</delos:query>
      <daffodil:query>title=information visualization and author=Shneiderman
    </daffodil:query>
    </delos:input>
    <delos:output><dlo id="..."</dlo><dlo id="..."</dlo></delos:output>
    <delos:collection>acm, dblp, citeseer, achilles, hcibib</delos:collection>
  </delos:search> </delos:event>
<delos:event beginTimeStamp="1119346512939" endTimeStamp="1119346512939"
  eventid="38.c3e82b:1049e70ade2" service="SearchTool">
<delos:display> <delos:visual>1D, list</delos:visual>
  <delos:sort attribute="year" predicate="descending" </delos:sort>
</delos:display></delos:event>
```

Vertical View on Level

User Behavior Level	User enters search terms and clicks on search button
Concept Level	Search Event: Duration, Query, Result
Service Level	Metadata Search Service <ul style="list-style-type: none">– Send search, wait for acknowledge– Receive number of results– Fetch results
HCI Level	<ul style="list-style-type: none">– Typed in terms (Focus on attribute field with eyes)– (Eye movement in search for help?)– Move to and click on search button (Search the Button with Eyes)
System Level	<ul style="list-style-type: none">– Start 15 wrapper to fetch query results– Raise in network traffic– Raise in processor usage– Raise in memory usage

Tools to analyse logging: Stakeholder

- System owner
 - Monetary interests, Number of users, Which users
- Developers
 - User friendly services, Efficiency, Effectiveness, Error free
- Content provider
 - Collection and Pricing policies
- Librarians
 - User classes, Search/Usage Pattern, Communication
- End-User
 - Collaborative Recommendations
- Researcher
 - Interest in all parts of Digital Library, on all Levels

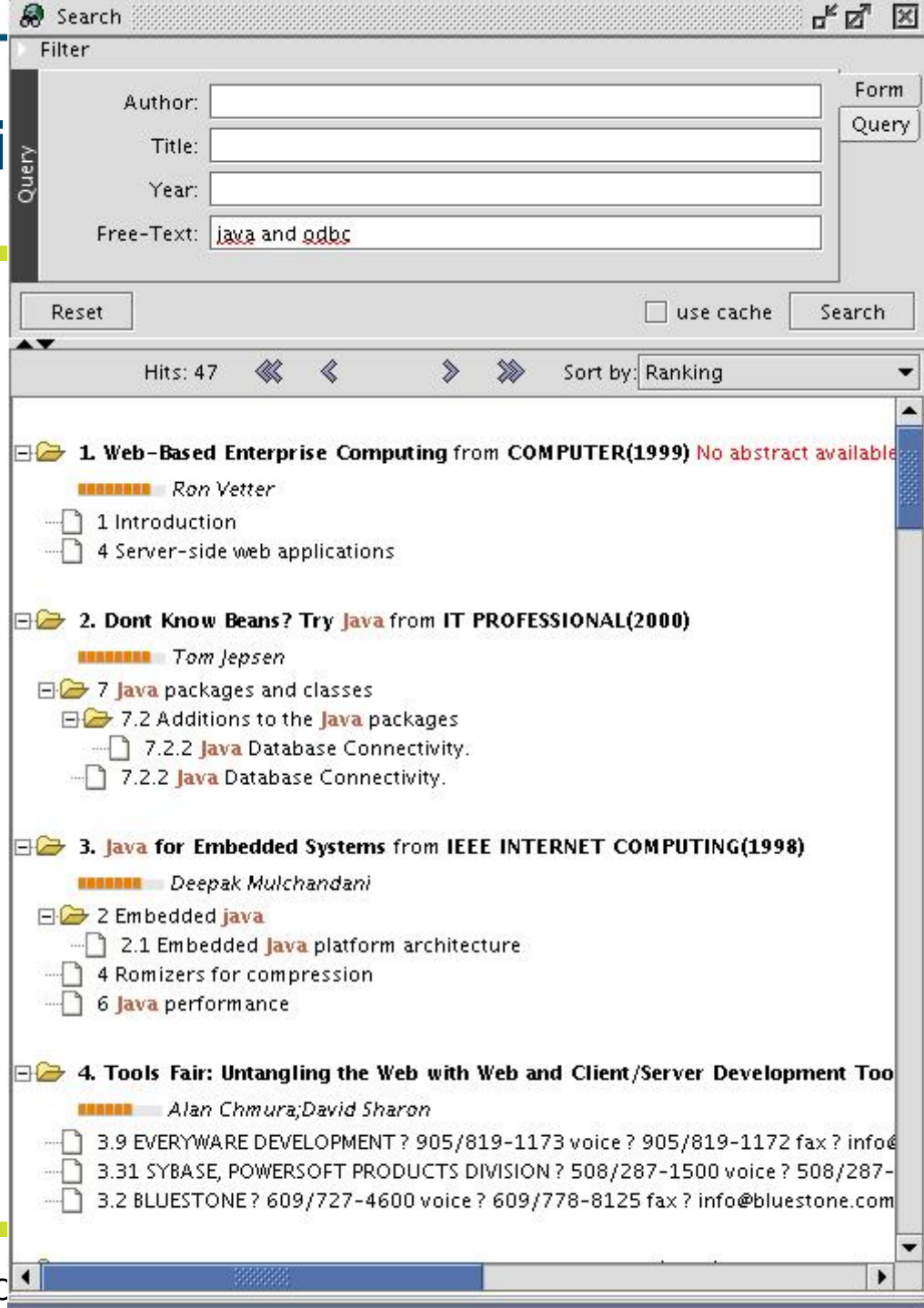
Analyse Logging: The Search Path

The screenshot displays the 'Log-Visualization' application window. At the top, there are navigation buttons: Search, Recommend, Show curre..., Show old S..., and Expert Help. Below these are tabs for 'Vertical Graph' and 'Horizontal Graph'. The main area shows a hierarchical tree of search events. The root node is 'Session: initiator=student123; system=DAFFODIL'. A search event is highlighted in yellow: 'Search: input: query: listOfTerms= visualization;'. This leads to a 'Resultlist: 2015 hits;' event, followed by several 'Detailview of DL-Object' events with titles like 'Scientific Visualization', 'An Approach to Evaluation of Software Visualization', etc. A 'Browse: sort: criteria= year; predicate= reverseOrder;' event is also visible. Below this is another 'Resultlist: 2015 hits;' event, followed by more 'Detailview of DL-Object' events. At the bottom of the tree, there are 'Classification-Browser' events and a 'Term = Information' event, with a 'Thesaurus: term = information theory;' event highlighted in yellow. On the right side, there is a panel with 'Objects Events' and 'Actions Tools' sections. The 'Actions Tools' section lists several actions with checkmarks: search, browse, navigate, store, inspect, annotate, and help. At the bottom right, there are buttons for 'Select all' and 'Deselect all'. At the bottom left, an 'Event: inspect' is shown with its details: 'Detailview of DL-Object: title= An Approach to Evaluation of Software Visualization; author= Averbukh, Vladimir L; Konovalov, Alexander V.; Vorzopov, Vladislav V.; year= 1992;'. The interface uses various colors to highlight different parts of the search path: yellow for search and thesaurus events, cyan for detailview events, and purple for classification events.

Evaluation Activities

- Done
 - INEX Interactive Track 2005
- Upcoming
 - The European Library
 - User Collaboration in Computer Science

- Daffodil as baseline system for interactive XML retrieval
 - Integration of services and sources into Daffodil
 - Integration of new search tool with special result list handling and display of XML data



Mobility Management for Cellul...

About the Article

1 Introduction

2 Mobility management

3 Handoff

3.1 INTER-BASE STATION HANDOFF

3.2 INTERSYSTEM HANDOFF

4 Roaming

4.1 THE INTERCONNECTION BETWEEN

4.2 REGISTRATION

4.3 CALL DELIVERY

5 Conclusion

INTERSYSTEM HANDOFF

Our description of the intersystem handoff follows IS-41[2] (GSM follows similar procedures), and we assume network-controlled handoff. Figure 3 illustrates the trunk (voice or data circuit) connection before and after the handoff. A communicating **mobile** user moves out of the base station served by MSC_1 and enters the area covered by MSC_2 . The handoff follows these steps:

- MSC_1 requests MSC_2 to perform handoff measurement. MSC_2 then selects a candidate base station, BS_2 , for handoff. That is, MSC_2 finds a base station that covers the **mobile phone** and has a free radio channel to cover the call. MSC_2 returns the signal-quality parameter values and other information to MSC_1 .
- MSC_1 checks if the **mobile phone** has made too many handoffs or if intersystemtrunks are not available. If so, MSC_1 exits the procedure. Otherwise, MSC_1 asks MSC_2 to set up a voice channel. Suppose that a voice channel is available in BS_2 . MSC_2 asks MSC_1 to start the radio link transfer.
- MSC_1 sends the **mobile phone** a handoff order. The **mobile phone** tries to synchronize to BS_2 . After the **mobile phone** connects to BS_2 , MSC_2 informs MSC_1 that the handoff is successful. MSC_1 then connects the call path (trunk) to MSC_2 and completes the handoff.

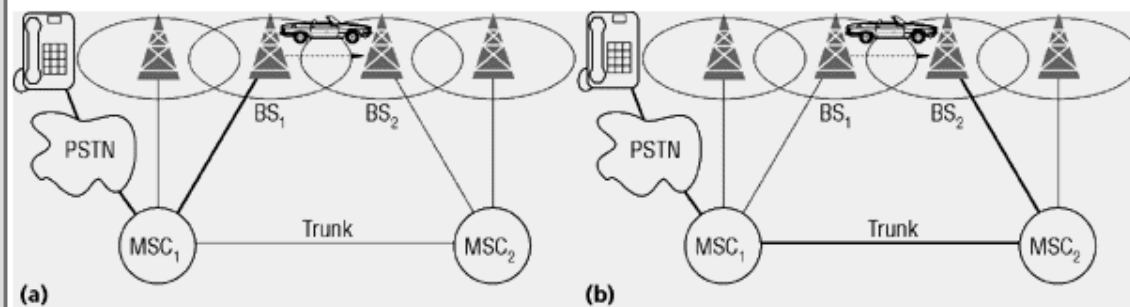


Figure 3: Before (a) and after (b) an intersystem handoff.

In this process, MSC_1 is called the anchor MSC , and is always in the call path after the handoff (see Figure 4a). If the **mobile phone** moves back to MSC_1 again, the connection between MSC_1 and MSC_2 terminates.

Comparative Evaluation: The European Library

Ελληνικά La Biblioteca Europea Det europeiske bibliotek La bibliothèque européenne De Europese Bibliotheek
 The European Library Det europeiska biblioteket Avrupa Kütüphanesi Europska knjižnica Eiropas bibliotēka
 na Evropska knjižnica Az Európai Könyvtár Die Europäische Bibliothek Euroopan kirjasto Euroopa raamatukogu

ADVANCED SEARCH

On start up you search in the [default list of collections](#). For more specific results [choose your own collections](#).

1 SELECT COLLECTIONS ?

[▶ choose your own collections](#)
[▶ reset: default list of collections](#)

- EU Online books, images, maps, music...
- UK British Library integrated catalogue
- PT Biblioteca Nacional (Portugal)
- FR BN-OPALE PLUS
- DE Online catalogue of the Deutsche Bibliothek
- FI HELKA
- IT SBN OPAC
- NL General Catalogue Koninklijke Bibliotheek
- CH HELVETICAT
- SI National Library Catalogue (KatNUK)
- KR Croatian National Bibliographies of Books : 1990-2003
- SR Serbian Union Catalogue COBIB.SR

2 SPECIFY YOUR QUERY ?

Specify a query for one or more fields.

Any field

and Title

and Author

and Subject

▶ [Add more fields](#) **RESET**

SEARCH

SEARCH RESULTS ?

Matches for '(digital libraries)'.

Stop the search

EU	Online books, images, maps, music...	0
UK	British Library integrated catalogue	390
PT	Biblioteca Nacional (Portugal)	1
FR	BN-OPALE PLUS	217
DE	Online catalogue of the Deutsche Bibliothek	...
FI	HELKA	0
IT	SBN OPAC	46
NL	General Catalogue Koninklijke Bibliotheek	305
CH	HELVETICAT	...
SI	National Library Catalogue (KatNUK)	...
KR	Croatian National Bibliographies of Books : 1990-2003	...
SR	Serbian Union Catalogue COBIB.SR	...

British Library integrated catalogue - UK -

390 objects with (digital libraries) have been found in 'British Library integrated catalogue'.

jump to



[next](#)

1	<p>Colleges, code, and copyright : the impact of digital networks and technological controls on copyright and the dissemination of information in higher education / Center for Intellectual Property, University of Maryland, University College.</p> <p>Document type: text , language materials , monograph Language: eng</p>	
2	<p>Joint conference on digital libraries (ICDL) 2004 [electronic resource] : global reach and diverse impact.</p> <p>Document type: text , language materials , part Language: eng</p>	
3	<p>LIDA 2005.</p> <p>Document type: text , language materials , part Language: eng</p>	
4	<p>Archives in the society : ICA pre-congress meeting, Vienna, 2004 : papers of the international conference, Elblag, May 22-24, 2003 / edited by Wladyslaw Stepniak.</p> <p>Colloquia Jerzy Skowronek dedicata (9th : 2003 : Elblag, Poland) / Stepniak, Wladyslaw.</p> <p>Document type: text , language materials , monograph Language: eng</p>	
5	<p>Research and advanced technology for digital libraries : 9th European conference, ECDL 2005, Vienna, Austria, September 18-23, 2005, proceedings / [edited by] Andreas Rauber, Stavros Christodoulakis, A Min Tjoa.</p> <p>ECDL 2005 (2005 : Vienna, Austria) / Rauber, Andreas. / Christodoulakis, Stavros, 1948- / Tjoa, A Min.</p> <p>Document type: text , language materials , monograph Language: eng</p>	
6	<p>Peer-to-peer, grid, and service-orientation in digital library architectures : 6th thematic workshop of the EU Network of Excellence DELOS, Cagliari, Italy, June 24-25, 2004 : revised selected papers / Can Türker, Maristella Agosti, Hans-Jörg Schek, eds.</p> <p>Thematic workshop of the EU Network of Excellence DELOS (6th : 2004 Jun : Cagliari, Italy) / Türker, Can. / Agosti, Maristella. / Schek, H.-J.</p> <p>Document type: text , language materials , monograph Language: eng</p>	
7	<p>User-based evaluation of academic digital libraries : case studies, Social Science Information Gateway, Art, Design Architecture & Media Gateway and the Electronic Journals Service of the University of Patras, Greece / by Maria Monopoli.</p> <p>Monopoli, Maria.</p> <p>Document type: text , language materials , monograph Language: eng</p>	
8	<p>Proceedings of the 5th ACM/IEEE Joint Conference on Digital Libraries : Denver, CO, USA, June 7-11, 2005 : digital libraries, cyberinfrastructure for research and education : / sponsors, ACM SIG on Information Retrieval, ACM SIG on Hypertext, Hypermedia and the Web, IEEE Technical Committee for Digital Libraries.</p> <p>ACM/IEEE Joint Conference on Digital Libraries (5th : 2005 : Denver, Colo.)</p> <p>Document type: text , language materials , monograph Language: eng</p>	
9	<p>Information retrieval design : principles and options for information description, organization, display, and access in information retrieval databases, digital libraries, catalogs, and indexes / by James D. Anderson and José Pérez-Carballo.</p> <p>Anderson, James D. (James Doig), 1940- / Pérez-Carballo, José</p> <p>Document type: text , language materials , monograph Language: eng</p>	
10	<p>Cataloging and organizing digital resources : a how-to-do-it manual for librarians / Anne M. Mitchell and Brian E. Surratt.</p> <p>Mitchell, Anne M., 1972- / Surratt, Brian E., 1972-</p> <p>Document type: text , language materials , monograph Language: eng</p>	

search within results (digital libraries)

- [Advanced search](#) (more options)
- [Change the collections selection](#)

Search

Data Sources

<input checked="" type="checkbox"/> Google	<input checked="" type="checkbox"/> ArXiv	<input checked="" type="checkbox"/> DBLP
<input checked="" type="checkbox"/> Springer	<input checked="" type="checkbox"/> CiteSeerS	<input checked="" type="checkbox"/> GetInfo
<input checked="" type="checkbox"/> HCIBIB	<input checked="" type="checkbox"/> CompuScience	
<input checked="" type="checkbox"/> CiteSeer	<input checked="" type="checkbox"/> Scirus	
<input checked="" type="checkbox"/> BibDB	<input checked="" type="checkbox"/> LeaBIB	
<input checked="" type="checkbox"/> Achilles	<input checked="" type="checkbox"/> ACM	

Data Types

<input checked="" type="checkbox"/> Metadata
<input checked="" type="checkbox"/> PDF
<input checked="" type="checkbox"/> PS
<input checked="" type="checkbox"/> DOC
<input checked="" type="checkbox"/> PPT

Filter

Query

Author:

Title:

Year:

Free-Text:

Form

Reset

Results

Hits: 0

Extract...

Metadata G: PDF G: PS G: DOC G: PPT

Search for terms in most meta data text fields
Syntax
 The syntax uses boolean algebra.
 You can use single terms, "phrases", AND or OR and braces "(" and ")". **Please note**
 Terms in this field apply to e.g. title, abstract, fulltext, but not year.
Example:
 "Java API" and limitations
Term assist
 e.g. spellcheck or suggestions. Happens when you take a short typing break.
 Press **Ctrl+Space** to trigger manually.

Search

Iter

Author:

Title:

Year:

Free-Text:

Form

Query

Reset use cache **Search**

Hits: 164 Sort by: Year

- Hyunmo Kang; **Ben Shneiderman**
Exploring Personal Media: A Spatial Interface Supporting User-defin (2004) from Achilles.
- Catherine Plaisant; Hyunmo Kang; Anne Rose; **Ben Shneiderman**
Immediate Usability: Kiosk Design Principles From The CHI 2001 Ph (2003) from Achilles.
- Carol A. Hert; Gary Marchionini; **Ben Shneiderman**; Elizabeth D
Supporting statistical electronic table usage by citizens (2003) from Achilles.
- Catherine Plaisant; Hyunmo Kang; Anne Rose; **Ben Shneiderman**
A photo history of SIGCHI: evolution of design from personal to publ (2002) from Achilles.
- Ben Shneiderman**; Harry Hochheiser; Eamonn Keogh
An Augmented Visual Query Mechanism for Finding Patterns in Time (2002) from Achilles.
- Ben Shneiderman**; Jinwook Seo
Cover Feature: Interactively Exploring Hierarchical Clustering Results (2002) from Achilles.
- Ben Shneiderman**

Extract...

Metadata G: PDF G: PS G: DOC G: PPT

Comparative Evaluation: TEL standard interface vs. DAFFODIL

Analytical evaluation of functional similarities & differences

- Usability
 - Search & Browse
 - Display
 - Feedback / Help Functions
- Empirical evaluation
 - How well does each tool support the users' needs?
 - Experts and End-Users

Question
Welches Format soll generiert werden?

Option
XML
Score:

Preferred
LaTeX
Score:

Criteria
Ausgabeformate
Relevance: / 100

Criteria
Lesbarkeit Quelltext
Relevance: / 100

Criteria
Unterstützung in Java
Relevance: / 100

Question
question text

Option
description
Score:

Criteria
criterion
Relevance: / 100

Question ?
Wie sieht es aus mit der Konvertierung von XML nach PDF?

Mapping and displaying structural transformations between XML and PDF

Author(s):
David F. Brailsford
Matthew R. B. Hardy

Year: 2002
Pages: 95 - 102

Abstract:
Documents are often marked up in XML-based tagsets to delineate major structural components

edges

POS Positive... NEG Negativ...

QO Questio... delete e...

once

klas

kretschmer

Save Load Leave

Daffodil-Object

Eventuell hilft uns das hier weiter

Structure and transformation of documents: Mapping and displaying structural transformations between XML and PDF

Next Activities

- Define standard for logging schema
 - Paper submitted
- Setup evaluation testbed framework
 - Started at
 - <http://www.is.informatik.uni-duisburg.de/delos/index.php>
- TEL Evaluation
- Evaluation of user cooperation in DL
- Evaluation of Annotation-Service
(Joint work with task 4.10)

DL Testbed Framework:

- Testbed framework: new applications & services
- Community for DL Evaluation
- Development of logging scheme
- Prototype evaluations: INEX, TEL, Cooperation in DLs