Opening the ILS for Discovery: The Digital Library Federation’s ILS-Discovery Interface recommendations

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The Digital Library Federation’s ILS-Discovery Interface recommendations

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Why standard discovery interfaces?

• The “Integrated Library System” looks like Yet Another Information Silo to users
  – Needs to interoperate with full range of discovery and research tools
  – Introduction of “next generation” discovery systems slow, when each ILS has (or lacks) its own interfaces

• We need Integrating Library Systems
  – Managing a core set of essential data and services
  – Communicating with other applications in well-defined ways to make the most of library resources

• We need practical solutions for the short and long term
  – Start with essential functions, existing standards
  – But also support more ambitious needs, future standards
FindIt: Local federated search

E-Resources

Databases & Article Indexes
- Stanford Genomic Resources

E-Journals
- Human Genome News

Additional E-Resources
- Human Genome Project Information (Search Engines & Portals)
- Berkeley Drosophila Genome Project (Search Engines & Portals)
- Stanford Genomic Resources (Search Engines & Portals)
- Human Genome Project Information (Government Information)
- National Human Genome Research Institute - ELSI (Schools & Research Centers)

More resources in...
- Biology
- Biomedical Research

Journals, Newspapers (Franklin Catalog)
- Human genome quarterly
- Human genome quarterly [microform]
- Human genome quarterly [electronic resource]
- Human genome: program report.
- Human genome: program report.
- View more hits...

Vcat Video Catalog
- Genomes: genetic roots of the human family
Vcat: Special purpose catalog

Amarily of Clothes-line Alley (1918)
Available. Van Pelt Video Collection; ask at Circulation Desk.
Call No. DVD P53525.A1489 A42 1999
"Amarily is the belle of Clothes-line Alley, a neighborhood near San Francisco's Chinatown. One night after a fight breaks out in the club where she works as a cigarette girl, Amarilly brings an injured socialist home with her. Grateful for her care, he hires Amarilly to clean his apartment and over time begins falling in love with her. But when Amarilly is presented at a posh social gathering, the disastrous results fuel the battle of high and low society."--Container.

At the jazz band ball: early hot jazz, song and dance 1925-1933 (1993)
Call No. VHS Music Videorecording 475

Chinatown (1974)
Circulation Review, Van Pelt Video Collection.
Call No. VHS PN1997 .C4644 1999
Los Angeles private eye Jake Gittes (Nicholson) is approached by a mysterious woman (Dunaway) who wishes to have her husband investigated. As the case unfolds, though, he discovers it to be much more complex and dangerous than he had expected, involving politics, powerful men, and terrible family secrets.

Chinatown (1974)
Available. Shelved at Storage. Click here to request delivery.
Call No. VHS PN1997 .C4644 1999
Los Angeles private eye Jake Gittes (Nicholson) is approached by a mysterious woman (Dunaway) who wishes to have her husband investigated. As the case unfolds.
PennTags: Content annotation

Everything is miscellaneous: the power of the new digital disorder / David Weinberger.
Call#: Van Pelt Library HD30.2 .W4516 2007

tagged discovery by ockerblo ...on 21-MAR-08

Garden State Discovery Museum
tagged libment kids by bmarcell ...on 07-MAR-08

Chemistry: Chemical Synthesis,
Drug Discovery, Materials Science, and Stable Isotopes
PennTags: Content annotation

Location: Van Pelt Library
Call Number: HD30.2 .W4516 2007
Status: Checked Out. Due 09-30-08 (Use BorrowDirect+ or Place Request to Recall).

Location: Van Pelt Library
Call Number: HD30.2 .W4516 2007
Status: Checked Out. Overdue on 03-12-08 (Use BorrowDirect+ or Place Request to Recall).

Proxy | Add to PennTags | Franklin Logout

This resource has been posted in PennTags

Posted by ockerblo on 03-21-2008
- annotation:
- tags: discovery
DLA: Facet-based searching
Subject maps
Integration focus: Patron discovery, from search to use

- Finding relevant resources (discovery)
- Acquiring them (delivery)
- Managing their usage (patron services)

- We’re not addressing other integration:
  - Acquisitions integration (e.g. w/ financial systems)
  - Cataloging integration (e.g. w/ external cataloging partners inside and outside “librarian” community, multiple forms of catalog data beyond MARC)
  - Item management (physical or digital)
The ILS-DI group

- John Mark Ockerbloom, Penn (chair)
- David Bucknum, Library of Congress
- Todd Grappone, USC
- Dave Kennedy, University of Maryland
- Emily Lynema, NC State
- Patricia Martin, California Digital Library
- Dianne McCutcheon, National Library of Medicine
- Terry Reese, Oregon State
Project chronology

- **Spring 2007**: Open discussion session, DLF Forum
- **Summer/fall 2007**: Group formed, survey conducted, first recommendation draft released
- **March 2008**: Meeting with vendors and developers; basic discovery interfaces (BDI) agreed on
- **June 2008**: First official release
- **August 2008**: Second meeting with vendors, developers; BDI adjustments and details agreed on
- **December 2008**: Recommendation version 1.1 released
- **2009 and beyond**: Recommendations promoted; vendors, designers, developers implement
Survey (summer 2007)

• Questions, comments about actual and desired use of the ILS, discovery applications that drew on ILS data and services
  – Responses solicited on DLF-Announce, Code4lib, Ngc4lib
  – Over 150 responses in one week

• Current use
  – Many considering new ILS in next 2 years; 1/3 considering open source, some looking externally (e.g. WC local)
  – Widespread frustration with OPAC interfaces, metadata schemes, resource scope
  – Many okay with ILS’ inventory management functions

• Beyond the OPAC
  – 3/4 using supplementary discovery applications
    » Many locally developed
  – Wide variety of interactions with OPAC
    » Data export most common

• More detailed survey result summaries on project Wiki
What we aimed to do:
Recommendation scope

1. Support open-ended array of apps using ILS data, services
   -- We don’t specify the applications, just the interfaces they can use
   -- Apps may be local or remote, may use more than just one ILS

2. Articulate clear interface expectations for developers
   -- Detailed enough to allow app clients to “ignore” implementations, ILS implementers to “ignore” client usage
   -- Include requirements, inputs, outputs, exceptions…

3. Be applicable to a wide variety of systems and technologies
   -- Avoid locking in transient fads, One-True-Way paradigm
   -- Define two levels: abstract functions/behaviors
      concrete bindings
Functions

Abstract but specific description of service or behavior, not tied to any particular technology

• Example:
  • “Return all bibliographic records, with their ids, added to or changed in the ILS since a specified date, in a specified format”

• Specified: Inputs, outputs, side effects, guarantees, exceptional cases

• We also request some general behaviors
  • E.g. “Output structured bibliographic data in a configurable pipeline for transforming to display”

• Functional areas of interest:
  • Data aggregation (harvesting)
  • Real-time search and queries
  • Patron information and services
  • OPAC interaction
Bindings

Specific technologies that implement desired functions

- **Examples:**
  - OAI-PMH profile for exporting bibliographic records using marc21 XML and modified internal bibids
  - Cocoon server allowing XSLT to be applied to XML schema of bibliographic data

- **There can be multiple bindings for any given function**
  - Preferred: Standard protocols, portable data standards
    - E.g. OAI-PMH, SRW, XML, OpenURL, METS…
  - Less ideal: Language-specific object APIs, application handoff conventions
    - E.g. Java/Perl libraries, Javascript hooks

- **Need to specify how these technologies are used**
  - The more specific and definite we are, the easier to implement
What we aimed to do: Recommendation policy

4. Quick recommendations, feasible to implement in reasonable time and cost
   -- Keep as simple and modular as possible
   -- With existing ILS where possible, or new systems
   -- At least one existing-technology binding for each function

5. Work with applications beyond “traditional library” domain
   -- Researchers use applications Not Invented Here to find, organize, work with information
   -- Interacting with them amplifies library’s reach, impact
   -- Exploit, but avoid requiring, library-specific technologies

6. Be responsive to the user and developer community
   -- Shamelessly steal Reuse as much work as we can
   -- Transparency, reference implementations, open standards all help
Levels of interoperability

- **Level 1: Basic discovery interfaces**
  - Base functionality of the “Berkeley Accord”
  - Detailed binding specs included in the recommendation

- **Level 2: Elementary OPAC supplement**
  - Enables wider range of apps

- **Level 3: Elementary OPAC alternative**
  - Enough functions to substitute for native OPAC interaction in common cases

- **Level 4: Robust/domain-aware discovery platform**
  - Includes functions specific to academic, public, other particular kinds of libraries
Level 1: Basic discovery interfaces

• **Export bibliographic data for indexing, search**
  – Functions: HarvestBibliographicRecords, HarvestExpandedRecords
  – Incremental harvesting must be supported
  – Recommended binding: OAI-PMH

• **Identify available items from a search:**
  – Function: GetAvailability
  – Multiple-item queries must be supported
  – Recommended binding: REST/HTTP with XML response

• **Let users request items (via the OPAC)**
  – Behavior: GoToBibliographicRequestPage
  – Recommended binding: URL template (can be OpenURL)
A simple call: GetAvailability

Request:

http://onlinebooks.library.upenn.edu/webbin/availability?id=olbp42044&id_type=bib

Response:

<dlf:collection xsi:schemaLocation="http://diglib.org/ilsdi/1.1/
    http://diglib.org/architectures/ilsdi/schemas/1.1/dlfexpanded.xsd">
    <dlf:record>
        <dlf:bibliographic id="olbp42044"/>
        <dlf:simpleavailability>
            <dlf:identifier>olbp42044</dlf:identifier>
            <dlf:availabilitystatus>available</dlf:availabilitystatus>
            <dlf:availabilitymsg>HTML at loc.gov</dlf:availabilitymsg>
            <dlf:location>http://www.loc.gov/nls/other/audioart/index.html</dlf:location>
        </dlf:simpleavailability>
    </dlf:record>
</dlf:collection>
Higher levels of interoperability

• Level 2 (Elementary OPAC supplement)
  – Add real-time search, browse, record retrieval
    » (possible bindings: SRU, OpenSearch)
  – Also add authority harvesting, OPAC embed/transform

• Level 3 (Elementary OPAC alternative):
  – Add direct patron functions (status, hold, recall, renew…)
    » (possible bindings: NCIP subsets; OpenURL)

• Level 4 (Rich / domain specific discovery)
  – Add course reserve search for academic libraries
  – Add Explain, reflective interfaces
  – Add more options to functions above

We don’t full specify these, but give abstract function definitions, recommend binding technologies, and encourage experimentation, implementation, and eventual standardization
Acting on the recommendations

• Some initial small implementations, prototypes:
  – Online Books Page Basic Discovery interfaces
    » (now in production)
  – Jangle proof of concept
    » (an ILS-BDI skin on top of existing API)

• Architectural planning
  – Australian Nat’l University has it in their service framework
  – OLE project also aims to support compliance

• Similar APIs in other projects
  – Jangle Atom Publishing Protocol interface
  – XC’s NCIP and OAI toolkits similar to our bindings

• ILS-based development still to come
  – Berkeley Accord calls for vendor support
  – We plan to add ILS-DI overlay on top of our Voyager system
Implementing the recommended interfaces

• How they can be provided
  – Libraries/overlays built on top of existing ILSs
  – Interfaces built directly into new versions of ILSs
  – Reimagined library systems supporting the interfaces

• Who can implement them
  – ILS vendors
  – Libraries
  – Application developers/hackers

• How they should be provided
  – Fully and openly documented interface binding details
  – Ideally, both server and client implementations
  – As few IP encumbrances as possible (open source clients may be particularly useful)
What happens next?

• DLF Task Group has completed its job
  DLF still oversees recommendation
  Some members promoting the interfaces

• Acting on the recommendation
  – Implementors: Building ILS-DI services, client libraries
  – ILS vendors: Providing ILS-DI APIs
  – Libraries: Asking for and using the APIs in their services;
    suggesting further specifications and recommendations

• If successful, recommendation will need to be updated for new needs, tools
  – Process should be lightweight, with peer review, fairness
  – Standards definitions for higher levels will help
  – Sustainability model?
Making the recommendations a reality

• Read the recommendation:
  – http://diglib.org/architectures/ilsdi/

• Participate in the discussion group:
  – ils-di@googlegroups.com

• Urge ILS, application providers to support it
  – Many vendors pledged to; customer demand key

• Let us know of work following recommendations

• Contact me with questions:
  – Email: ockerblo@pobox.upenn.edu
  – Blog: http://everybodyslibraries.com/

Thank you!