Bringing Open Source to the Library
Lessons Learned

NISO Forum
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My Experience with Open Source

- LibX
  - Browser plug-in that includes a toolbar, context menu and embeds library resources into web pages
- LibX Edition Builder
  - Interface where librarians can easily build their own LibX tool
- Used by over 640+ libraries worldwide

LibX

Experience with Open Source, cont.

- Web Services and Widgets
  - MAJAX & MAJAX 2
  - Google Book Search classes
  - tctoclookup

A Librarian’s Perspective

- Libraries have limited resources, even in the best of times
- Technology should be developed so that anyone can implement it, not just programmers
- Open source software can complement vendor-provided systems

Overview

- Open Source software can work with vendor systems to:
  - Link users to library resources
  - Process data for display in external web pages
  - Enhance existing OPACs
- This talk will discuss examples and issues arising in each of these scenarios
Part 1

LINKING USERS TO VENDOR SYSTEMS

Challenges setting up OPACs in LibX

**DTD for III Millennium Catalog Attributes**

```
<ELEMENT millenium (asko)>  
<!ATTLIST millenium  
name CDATA #REQUIRED  
url CDATA #REQUIRED  
urlfingerprint CDATA #IMPLIED  
options CDATA #REQUIRED  
contextmenuoptions CDATA #IMPLIED  
searchscope CDATA #IMPLIED  
conf CDATA #IMPLIED  
keywordcode CDATA #IMPLIED  
advancedcode CDATA #IMPLIED  
journaltitlecode CDATA #IMPLIED  
searchform CDATA #IMPLIED  
language CDATA #IMPLIED  
image CDATA #IMPLIED  
downloadisbn13Id (true|false) 'true'
```

Challenges, cont.

- More JavaScript code from the ILS makes this even more difficult
- Developers of tools that work with the ILS have to understand the code with usually limited or no documentation

Non-Disclosure Agreements (NDA)

- Have a chilling affect on development
  - Restricts what libraries can do and more importantly share with others
- Decreases motivation of library developers
  - If I can only develop for my library, then how can I benefit my professional community?
- Open source developers cannot sign NDAs
  - Because they cannot reasonably maintain non-disclosure when code is open
Standards can do better

- OpenURL syntax (NISO Z39.88)
  - An example of a request syntax
- Configuring an OpenURL resolver in LibX is easy
  - BaseURL + small set of parameters
- Benefits many
  - Links databases to OpenURL resolvers
  - Links resolvers to ILLIAD
  - Allows LibX/Zotero to mine pages with COinS

Emerging Services

- Widgets
  - Small pieces of HTML code copied into pages
  - Example: MAJAX 2 (Millennium AJAX)
    - Increases library’s visibility
    - Enables library to fit into new web landscape
- Mash-Ups
  - Combining information from various online sources into new or existing web environments
  - Nicole Engard’s new book “Library Mashups”
  - WorldCat Mashathon

Getting Information from the ILS

- We want to query the catalog and then use the results in other web pages
  - Basic information: record contents, holdings, availability (not too much to ask, really...)
- Can I write a simple program that tells me if a book is on the shelf?

Current Options

- Most vendors provide no API or service at all
  - Requires work-arounds
- Example: Screen-scrapping
  - Fragile
  - System-specific
- HTML-only output from OPAC is unsuitable
Screen Scraping in MAJAX 2

Emerging Options

- Some vendors have started to provide web service interfaces
  - Use XML and/or JSON
- Examples:
  - Evergreen/XML
  - Serials Solutions Link 360/XML
  - WorldCat API
  - And others (not to exclude anyone)
- That’s good progress, enables cool services

Are Vendor Services Enough?

- No
- Community needs to agree on
  - What functionality should be offered by all vendors?
  - How should the functionality be offered?
- Need standards

What about existing standards?

- Z39.50
  - Does not define holdings & availability
  - Requires special libraries or proxies
- SRU
  - Standard protocol to “search” and “retrieve”
  - Response format is an XML container
  - Separates container and the records in the container
  - Record formats are provider-dependent (intentionally left open by SRU standard)

What about existing standards?

- NCIP (Z39.83) NISO Circulation Interchange Protocol
  - Protocol to get circulation information from a system
    - And much more!
  - Not widely adopted
  - See http://ncip.envisionware.com/ncip_ig/vendor_status.html
**First steps: ILS-DI Recommendation**

- **DLF Initiative**
  - Working group (by Ockerbloom et al) produced document that lays out what functionality an ILS should provide for records and availability
  - Great first step!
  - But doesn’t yet address response syntax and semantics
  - An agreement on request and response formats needs to be reached for ILS-DI to have practical impact

**Conversion Toolkits**

- **Jangle** – intermediary system
  - Presents uniform REST interface for library resources
  - Supports AtomPub, JSON
- **eXtensible Catalog (XC)**
  - OPAC design that enables sharing of metadata and associated code
  - NCIP toolkit that provides conversion for some ILS

**Minimum Requirements for a Standard**

- Must define not just functionality, but also syntax; the “how” beyond the “what”
- Request syntax
- Response syntax
  - Container + Response Items
  - Not HTML
  - XML or JSON required
- Easily accessible from many environments
  - Should support HTTP transport/REST

**Using Open Source to Enhance the OPAC**

- **Tictoclookup**
  - Enrich Journal records with previews of table of contents, obtained from JISC’s eTOC project
  - Implemented for vendor system
- **Seamless integration**

**ENHANCE EXISTING OPACS**
Cool Catalog Enhancements

- Many more examples
  - SMS – III OPAC
  - Embedded chat in III OPAC
  - Juice – Talis
  - ...

- Standards for extending vendor OPACs with information from web services would allow for greater creativity and sharing

A Proposal for a Rating System

Zero stars
Closed system: no documented interface beyond OPAC or backend client

One star
Documented deep-linking syntax for searches

Two stars
Outward-facing, read-only web service or API with documented request and response syntax for records, holdings, and availability
Documented extensibility interface for OPAC front-end

Three stars
Request and response syntax follows standards that extend beyond one vendor
Fully composable OPAC front-end

Four stars
All ILS functionality is accessible read-write via standardized web services
Third-party front-ends can be used