LibX – Connecting Users and Libraries

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INSTITUTE of Museum and Library SERVICES

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The Age of the Web

- Data from *OCLC 2005* Study on "College Students' Perceptions of Libraries and Information Resources"
- 89% of college students start information search with a search engine
  - vs 2% start with the library website

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Perceptions of Libraries vs Search Engines

- Libraries lead in
  - Trustworthiness & Credibility
    77% to 23%
  - Accuracy
    76% to 24%

- Search Engines lead in
  - Speed
    90% to 10%
  - Convenience
    84% to 16%
  - Ease Of Use
    87% to 13%
  - Cost Effectiveness
    71% to 29%
  - Reliability
    63% to 37%

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Our Challenge

- How can librarians provide users with resources that are
  - Accurate
  - Trustworthy
  - Complete
  - Accessible
- while providing the ease of use, integration, and availability of modern search engines?
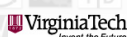
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Idea: a "library tool" for the Web

- Developed in summer of 2005
- A "virtual librarian" that guides users to library resources while they use the Web
- Library Tool
  - integrates access to library resources into the users' "webflow"
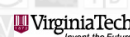 - no matter which page a user visits

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Where should the library tool be implemented?

Client vs. Server Side Solutions

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Server Side Solution

- The "library tool" would:
  - Require buy-in of content providers to serve it
  - Need server infrastructure to retrieve tool configuration based on user's affiliation
  - Be limited by what can be done in HTML/mashup
    - E.g., can't enhance browser
- Example:
  - Google Scholar + OpenURL Server

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Client Side Solution

- The "library tool" would not:
  - Require buy-in of content providers
  - Need server infrastructure (or very minimal)

- The "library tool" could:
  - Take advantage of a richer user interface
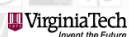 - Customized and enabled/disabled by the user

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The LibX Plugin

- Client-side library tool
- Uses browser extension technology
  - Integrates into the browser's rich user interface
  - Can provide services on all web pages
  - Does not require server support to operate

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Firefox vs Internet Explorer

- LibX Firefox
  - (2005)
- Written in XUL + JavaScript
- Uses Firefox extension architecture (overlays)
- Easy implementation
- Open source environment
- Sufficient documentation
- Written by Annette Bailey, Godmar Back, and Mike Doyle

- LibX IE
  - (beta release 2007)
- Written in C#/.Net and JavaScript
- Uses .Net/COM Interop
- Highly complex to implement
- Closed source environment
- Poor documentation & limited support
- Written by Nathan Baker (MS thesis)
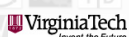- Funded by IMLS National Leadership Grant

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What LibX Can Provide

- Direct Access to Catalog(s) and Databases
  - Integrated toolbar
  - Smart context menu
- Direct access to OpenURL resolver(s) to find appropriate copy
  - Directly via toolbar or indirectly through Google Scholar
- Remote Access Proxy
- Web Localization
  - Research companion that "hints" at library resources by placing cues into page
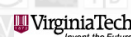 - Autolinking
  - Support for COinS

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Library resources are <u>local</u>

- Libraries provide different services
  - Local resources: catalog types, OpenURL resolver, e-Journals lists, local databases, subject pages/guides, consortia catalogs, licensed citation software
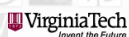 - Many custom settings ("search scopes," local indices, local ERM) that reflect local circumstances

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LibX Editions

- Editions are versions of LibX that are customized for a particular user community
  - Associated with an academic or public library, consortia, or city
- Can be offered by libraries
- Include local settings, including branding

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Creating LibX Editions

- There is no central database of *all* resources
- There is limited auto-discovery of resources
  - Worldcat registry helps, but by itself cannot automate the process
  - Fully automatic resource discovery ("zero-config") still a vision at this point
- Manual customization is required
- Librarians are best able to provide this customization for their community
- Offer an interface that enables libraries to create LibX editions that incorporate their resources
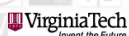
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LibX Edition Builder

- Web application that allows the creation and maintenance of LibX editions
- Released in July 2007
- Designed and built by
  - Tilottama Gaat, Master's thesis work
  - Dr. Godmar Back
- Uses Java-based environment
  - ZK (www.zkoss.org): AJAX via Java servlets
  - Allows building of Rich Internet Applications (RIA)
  - Runs on server side, but look and feel is comparable to desktop applications
- Funded by IMLS National Leadership Grant
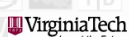
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LibX Edition Builder

Demo
http://libx.org/editionbuilder

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Open Source Spirit & the LibX Edition Builder

- Anybody can
  - Build an edition
  - Share an edition
  - Copy an edition
  - Modify their copy of an edition
  - Distribute their edition
- Allows personalized vs. blessed editions
  - Individual vs. library editions

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Edition Builder (Behind The Scenes)

Configuration information is stored in XML internally

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Edition Builder (Behind The Scenes)


```
<links>
  <url href="http://www.lib.vt.edu/" label="VT University Libraries"/>
  <url href="http://addison.vt.edu/" label="Addison Catalog"/>
  <url href="http://libx.org/editions/vt/libx.html" label="LibX VT Homepage"/>
</links>
```

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Edition Builder (Behind The Scenes)


```
<catalogs>
  <millenium name="Addison" url="http://addison.vt.edu" sid="libxvt"
             searchscope="1" urlregexp="addison\.vt\.edu"
             options="Y;t;jt;a;d;i;c">
    <xisbn cues="true"/>
  </millenium>
  <bookmarklet options="dbname" url=
"http://www.lib.vt.edu/dsp/index.php?searchval=%dbname&action=SearchDatabase" name="VT Database List">
    <xisbn cues="false"/>
  </bookmarklet>
</catalogs>
```

Edition Builder (Behind The Scenes)


```
<catalogs>
  <millenium name="Addison" url="http://addison.vt.edu" sid="libxvt"
             searchscope="1" urlregexp="addison\vt\.edu"
             options="Y;t;jt;a;d;i;c">
    <xisbn cues="true"/>
  </millenium>
</catalogs>
```

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Auto Detection Features

- LibX Edition Builder attempts to help user with their configuration
- Contacts OCLC Registries
  - OpenURL Resolver Registry (by IP address)
  - Worldcat Registry (by OCLC institution ID)
- Contacts catalog servers directly
  - Heuristic guesses for server fingerprints, e.g., III returns `Server: III 100` in its response
- Keeps and consults own database of catalogs already configured
- Next slide shows how these features work together

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Slide 25 (flowchart)

Edition Examiner — www.du.edu 130.253.2.7 — User enters IP Address or Hostname — User enters catalog URL

Edition Builder Sends IP Address to OCLC's OpenURL Registry — University of Denver 4582 — Edition Autodetection — prospector.coalliance.org

http://jc3th3db7e.search.serialssolutions.com/ — OpenURL Resolver Information — Retrieves Institutional ID — Probe Base URL — Found Prospector in U Wyoming Edition

Offers Import Of Settings in Edition — Edition Builder Sends Institutional ID to OCLC — Detect III Millennium — Contact LibX Database of Catalogs

catalog.du.edu — Retrieves Catalog Base URL(s) from Institutional Profile — Offers Import Of Settings in Edition Builder

User imports and refines information — Feeds Catalog URLs To Autodetection — User imports and refines information

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User Customization

- Auto detection facilities provide only initial import
  - Edition maintainer can subsequently customize several parameters per catalog type
  - Including name to be displayed, local settings
- Edition builder provides help:
  - Commonly used settings, pitfalls, etc.

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Custom Catalog Support Via URL Templates ("Bookmarklets")

WorldCat
☑ Show Required Attributes ☐ Show Xisbn Settings Delete 'WorldCat'

Required
B
B
B

Bookmarklet URL Template

The URL template for this bookmarklet. Each occurrence of %option in the template is replaced with the value the user entered for %option. Possible choices for %option include all built-in search options (such as %Y for Keyword searches) and user-defined search options.

Example. To include google.com searches, use the URL template:

http://www.google.com/search?q=%Y

List Y under options.

Bookmarklets are similar to Smart Keywords. In fact, you can convert any smart keyword by copying the keyword's location (obtained from Bookmarks -< Organize Bookmarks -< Properties -< Location) here, then replace the %s in the URL with a search option such as %Y.

We will automate the creation of bookmarklets in the future.
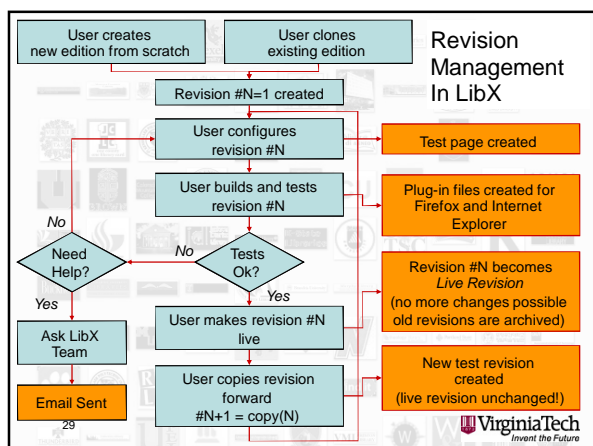
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  LibX B
  - (Sho
    via Li

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LibX Revision Management

- When configuration changes (new catalog system, new catalog URL, etc.) LibX provides a way to *update* an edition
  - Firefox version uses Firefox's built-in update mechanism
  - IE uses our own implementation
- Each edition may have multiple revisions: 1, 2, 3, …..
- Edition maintainer must manage revisions of an edition to make sure users obtain desired configuration updates
- Provides 2 staging areas before pushing update
  - Test page where testing can be done without downloading
  - Test revision which is complete build that can be installed
- Process shown on next slide

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Slide 29 (flowchart) — Revision Management In LibX

User creates new edition from scratch — User clones existing edition

Revision #N=1 created

User configures revision #N — Test page created

User builds and tests revision #N — Plug-in files created for Firefox and Internet Explorer

No — Need Help? — No — Tests Ok? — Revision #N becomes *Live Revision* (no more changes possible old revisions are archived)

Yes — Ask LibX Team — Yes — User makes revision #N live

Email Sent — User copies revision forward #N+1 = copy(N) — New test revision created (live revision unchanged!)

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Future Work

- Improve Edition Builder:
  - Auto-detection of bookmarklets (allowing any resource with a search form to be included)
  - Better discovery via OCLC as its services improve
- Improved Web Localization
  - Support pre-search via pazpar2/Z39.50
  - User-provided cues
- User studies of the Edition Builder interface

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Acknowledgements

- LibX Team
  - Dr. Godmar Back
  - Kyrille Goldbeck
  - Nathan Baker
  - Tilottama Gaat
  - Michael Doyle
  - Tobias Wieschnowsky

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Questions?

- Thank you!

- Contact Information
  - http://libx.org
  - Edition Builder: http://libx.org/editionbuilder
  - General questions: libx.org@gmail.com
  - Edition-specific: libx.editions@gmail.com

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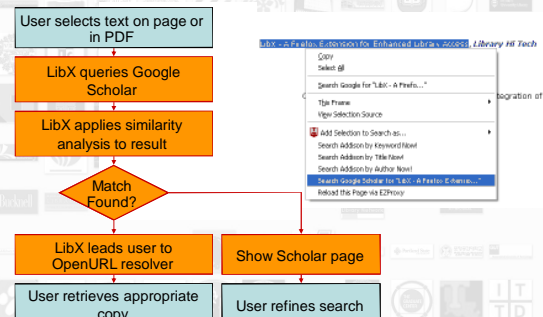**Virginia**Tech
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Google Scholar & LibX

Demo

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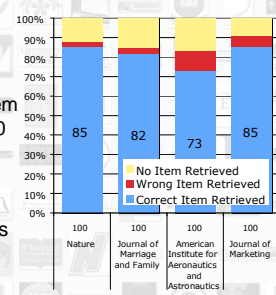## Google Scholar Integration in LibX

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Known-Item Retrieval Efficiency

- On average, LibX retrieved the correct item in 81% of cases for 400 randomly selected references
- For details, see Retrieving Known Items with LibX. *The Serials Librarian*, 53(4), 2007.

Recall and Precision for Single-click Known-item Retrieval via LibX

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