Newsletter

ALA TechSource
www.techsource.ala.org

Smart Libraries™

Formerly Library Systems Newsletter™

50 East Huron Street, Chicago, Illinois 60611-2795, USA

August 2004 Volume XXIV Number 8

ISSN 1541-8820

Interoperability: Promise or pipedream?

A battle is brewing in library automation that could change the way libraries think about their automated services—and especially the way libraries implement technical solutions. Product developers and librarians are making decisions about the way to do library automation that, so far, has been more of a philosophical debate but has the potential to introduce major change.

The word heard from vendors, promised by the open-source community, and touted by pundits in the IT community is *interoperability*. But how much is real and how much is myth?

The dream is built on 20 years of integrated library system (ILS) and standards development. Many librarians have wanted to build a system comprised of the best modules from disparate vendors. Despite standards efforts such as MARC, the payoff has only been ease of data transfer or system migration, not true interoperability *among* systems.

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Vendors race to build digital library systems

Many library systems vendors now offer separately priced digital library (DL) products. These may be variously called digital asset management systems (DAMS), digital object management systems (DOMS), or simply digital library software.

Vendors appear to have decided that digital collections need metadata rather than MARC cataloging, and they are using their DL products as an opportunity to build XML-based systems from scratch. Some are marketed as stand-alone products, and others are designed as adjuncts to the vendor's integrated library system (ILS). Some vendors offer the option of hosting a library's system on their own site as an application service provider (ASP).

Although all DL products have the intent of helping libraries manage digital collections, current offerings vary widely in focus and maturity. A vendor's awareness of and compliance with significant standards is a good indicator of the sophistication of the system.

All DL systems should be able to import and export XML. A mature DL system should implement the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) as a data provider, and the vendor should be supporting or considering support for the Metadata Encoding and Transmission Standard (METS).

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Interoperability *from page 1*

And while vendors participate willingly in interoperability efforts such as NCIP for circulation interchange, EDItEUR book and serial e-commerce, and investigations of federated search best practices, many of them are building and marketing stand-alone software modules to handle the growing suite of library automation needs.

A nearly accepted fact is that the traditional ILS—dedicated to core functionality such as acquisition, cataloging, circulation, and online display—is not equipped to handle either the demands of an increasingly savvy customer base or the capabilities evident in more sophisticated Web-based information technology. For instance, few libraries have identified the traditional catalog as the proper repository for digital collections, article-level citations, or guides to electronic resources.

The challenge for libraries, then, is determining whether new library automation modules—equipped to handle new workflow and new collections—should be built as stand-alone modules with the latest technology or should be tightly integrated with the existing system.

Vendors will tell you that interoperability is the middle-ground here. That is, if they can build a system that can stand alone to fulfill required functionality *and* will interoperate with existing legacy systems—then libraries can have the best of both worlds.

To date, however, most of this interoperability is achieved with the vendor's own legacy system. For example, no one has yet seen an electronic resources management (ERM) module that will interoperate with a third-party system for inclusion of ILS acquisitions and serials data.

Hope may be found for interoperability in the increased adoption of XML and the new so-called Web services—applications that will facilitate the communication and exchange of information among disparate systems.

On June 16, VTLS President and COO Carl Grant created Views (Vendor Initiative for Enabling Web Services), a joint effort to discuss and develop Web services. The initial group includes: Dynix Corp.; Fretwell-Downing, Inc.; Index Data, MuseGlobal; OCLC; and VTLS, Inc. NISO also is closely watching this effort. The coalition, while not all-inclusive, was built to reflect disparate library automation solutions, that is, not just ILS vendors or portal providers, but a cross-section of the library automation industry.

Web services already have wide adoption in commercial Web spaces by companies such as Amazon and Google. Dynix, Index Data, and VTLS offer products that are built on Web services technology.

One major unknown is the degree to which Web services offer the promise of interoperability with tightly integrated systems. Some vendors may choose not to participate to protect proprietarily integrated functionality. Some libraries may prefer more turnkey solutions that do not require a closer eye on the Web services integration layer created among systems.

Regardless of the individual development choices of vendors or product selections of libraries, both sides of the industry will follow Web services and interoperability closely.—*Andrew K. Pace*

VTLS JOINS ARL RANKS

After a successful 2003 fourth quarter, VTLS, Inc., garnered its first ARL (Association of Research Libraries) customer in June, its milestone accomplishment for 2004. With several marketing and strategic changes at VTLS, the library automation company signed the New York University's Division of Libraries.

With slow and diminishing turnover of ARL library systems, each victory is a big one for library automation vendors. Despite the relatively fixed number of potential customers, and by extension a fixed amount of revenue, prestigious customers still mean prestige for vendors. NYU's Libraries ranks 17th in the ARL membership criteria index.

With continued success overseas, VTLS has struggled in past years to successfully market its new system Virtua. VTLS has enjoyed other recent success with its marketing of VTrax, an RFID solution, and the development of Fedora's open-source digital asset management (DAM) solution, marketed as Vital.—*AKP*

Contact: www.vtls.com

Libraries try voice over wi-fi

Librarians who toured the Orange County Library System (OCLS) while in Orlando for the June 2004 American Library Association (ALA) annual conference saw an interesting use of new technology. Library staff use a wireless voice communication system called Vocera to increase efficiency and improve patron service.

The main library of OCLS is six floors high and a city block long, making direct staff communication difficult. Before installing Vocera, staff tended to be confined to specific workspaces, such as a service desk on one floor. With Vocera, staff can circulate through the building, helping patrons where the patrons are actually working, while keeping in touch with one another.

The Vocera communications system runs on a standard Windows server and leverages the wireless networking (wi-fi) already installed in a building. Users wear a lightweight badge with a speaker, microphone, and LCD for hands-free communication. At OCLS, badges are rotated from staff to staff between shifts. Unlike pagers or cell phones, Vocera uses in-building technology and has no monthly costs. If desired, the system also can be connected to the telephone system through a PBX, so users can make and receive phone calls directly through their badges.

Vocera Communications was surprised by library interest. Its product is primarily implemented in hospitals, where it helps floor nurses communicate with central nursing stations and one another. Now, however, the company is watching the library market. So far the only library installations are OCLS and Seattle Public Library, but the company is talking to several other library systems.—*PC*

Contact: Damon Tarver (dtarver@vocera.com)
www.vocera.com

Standards in the news

LC launches MADS

The Library of Congress (LC) has drafted the Metadata Authority Description Schema (MADS), a companion to Metadata Object Description Schema (MODS). MADS is related to the MARC 21 authority format as MODS is to the MARC 21 bibliographic format. It supports MARC authorities semantics in a simplified form using natural language-based tags.

The schema will be developed and maintained by LC with input from users. An early draft version is now available for review and comment by prospective users. Afterward, the schema will be revised and made available for experimentation.—*PC*

Contact: www.loc.gov/standards/mads

ISSN revision may be major

An ISO working group has been set up to revise the ISSN Standard (ISO 3297). Some issues concern the assignment of ISSNs to continuing resources and the current practice of assigning different ISSNs to print, online, and CD-ROM versions of the same title.

A survey undertaken in conjunction with the five-year review of the standard showed widespread dissatisfaction with the way ISSNs are assigned now. One problem is that many publishers use a single ISSN for all versions regardless of the guidelines.

Reliable title level and version level identifiers for serials are needed for link resolution and e-resource management. The ISO working group is exploring several options related to ISSN assignment and will meet again in October 2004.—*PC*

Contact: www.collectionscanada.ca/iso/tc46sc9/wg5.htm

CROSSREF SEARCH exposes journal content

A new partnership between CrossRef and Google brings to light what is arguably the most significant portion of the hidden Web—articles published in scholarly electronic journals. In the pilot program, called CrossRef Search, the full text of journal articles from nine participating publishers is seachable in Google.

Results from included journals can be found through default Google searching but may be buried low in the relevance ranking. Users also can access a special CrossRef Search form from the websites of participating publishers. This form filters out all results except those from the scholarly journals. In either case, results are delivered through the familiar Google interface at Google speed.

CrossRef Search includes both open-access and restricted-access journals, and it encompasses both current journal issues and back files. Links take the user to the full text of the article on the publisher's site.

The pilot includes 25 participating publishers, including the American Physical Society; BioMed Central; Blackwell Publishing; John Wiley & Sons, Inc.; Nature Publishing Group; Oxford University Press; University of California Press; and University of Chicago Press.

CrossRef Search offers free full-text searching of the output of multiple publishers, breaking down the publisher-based service silos that so mystify library users. The nine publishers participating in the pilot vary in how prominently they feature CrossRef Search on their own websites, but librarians should watch to see how many searches CrossRef Search siphons from the publishers' own search services.

One problem with CrossRef Search is that Google is not an OpenURL source. Libraries that want to take advantage of link resolution to point to the appropriate copy or offer extended services will be disappointed. However, CrossRef is working with Google to include DOI links in a form Google supports. The DOI directory is OpenURL-enabled, and libraries can configure themselves so that the DOI resolver redirects DOIs back to the local link resolution system (see www.crossref.org/03libraries/16lib_how_to.html).

The CrossRef Search pilot will run through 2004 to evaluate functionality and to gather feedback from scientists, scholars, and librarians to fine-tune the program. CrossRef also is in discussion with other search engines for similar services.—*PC*

Contact: www.crossref.org

Opening up the RFP

The dreaded request for proposal (RFP)—daunting for libraries, time-consuming for vendors, and arguably a waste of everyone's time. Some contend only two or three real RFPs are actually out there that libraries use essentially as a template for making proposal requests. Moreover, rapid changes in the automation industry date vendor responses to these documents before they can even be sent out.

A new company has formed to make the RFP process more accurate for vendors and more timely for libraries. OpenRFP was launched in June to expedite the RFP process and to educate libraries about new technology. OpenRFP President Don Chvatal argues that to develop an open and efficient market, "you must be willing to disclose your information, not just to potential customers, but to your competition as well."

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Large vendors are hesitant to upset the market by criticizing competitors more harshly, and smaller vendors have limited resources to spend on new marketing ideas. The basic business model is for vendors to pay to be included on the OpenRFP site, which includes computer-generated lists of functional requirements and links to verified information regarding standards compliance.

OpenRFP has great potential to increase trust between libraries and vendors and to reduce cost for all parties. The challenges will come in making an already tight market even more competitive and in filling the need of an evolving RFP process. Many libraries, already frustrated with the lack of substantive information that comes in RFP responses, have begun crafting extremely customized versions of the RFP for products like electronic resource management (ERM) systems, reference linking, and digital asset management (DAM). Nevertheless, OpenRFP will be interesting to watch, especially to see the rate of vendor adoption. OpenRFP welcomes feedback from vendors and libraries on its website.—*AKP*

Contact: www.openrfp.com

ERM RACE HEATS UP

In only five short months since *SLN* last reported the sudden attention generated by electronic resource management (ERM) systems (March 2004), four more major vendors have announced the adoption of the Digital Library Federation's (DLF) ERM Investigation group's system specifications.

The market seems like a frenzied race to an unknown finish line, as vendors rapidly attempt to differentiate themselves with products both they and libraries do not fully understand.

Innovative Interfaces, Inc., appears in the development lead, with more than 60 sales and 26 installed sites, including two of the founding members of the DLF's ERM investigation, the University of Washington and Cornell University.

Nevertheless, other vendors will capitalize on Innovative's experience. Several new product offerings were unveiled at the American Library Association's (ALA) annual conference in June, including Verde from Ex Libris, Inc. (USA), Meridian from Endeavor Information Systems Inc., Verify from VTLS, Inc., and integrated ERM modules from Dynix Corp. and Sirsi Corp.

With the exception of Innovative's already available product, most others will not see full release until late 2004 or early 2005.

As DLF wraps up its XML schema, workflow development, and functional requirements, new leadership in the ERM initiative will be needed. Most ERM vendors have identified key development partners. ERM will be one of the major development efforts of library automation vendors for the next five years and beyond.—*AKP*

Contact: www.library.cornell.edu/cts/elicensestudy/home.html

Vendors *from page 1*

Key features of DL software cluster around the end-user functions of search and presentation and the staff functions of metadata creation, digital object creation, and digital object management.

Search. End-user searching in DL products may use the vendor's catalog interface, a special DL search interface, or a metasearch interface. Regardless, librarians and patrons should be able to retrieve entries for objects in various formats (such as texts, photographs, and video clips) presented in a way that makes sense. Features to look for include:

- The ability to search either metadata only, full text only, or both metadata and full text
- Thumbnail display for images included in search results
- The ability to cross-search multiple digital collections, and to cross-search digital collections and the library catalog

Presentation. Most digital objects require special software to be viewed or played by the user. This software may be provided in the form of browser plug-ins, or it may be provided as server-side functionality. Good DL applications should make the process easier for users by requiring only the most common plug-ins, such as Adobe Acrobat Reader for PDFs. DL systems may or may not provide presentation software for various types of objects, such as MrSid or JPEG2000 images, which require zoom and pan capabilities. Few systems currently handle page-image books, which require page-turning and "go to page" functions.

Metadata. Most DL products have their own data entry interfaces for creating and updating descriptive metadata. All of them support simple Dublin Core, and some have out-of-the-box support for MARC, EAD, TEI, or other standards. Some features to look for include:

- Support for qualified Dublin Core
- The ability to customize a predefined metadata template, or to define a new template
- Batch metadata import and export in all the schemes supported for data entry

Digital object creation. Some DL systems interface with scanners so digital files can be imported at the point of creation. Some interfaces also support image manipulation functions or the creation of searchable text from images using optical character recognition (OCR). If image creation and manipulation features are available, ensure these features do not limit your ability to use third-party tools.

Object management. Digital object management includes repository functions such as the creation of persistent identifiers, the association of administrative and technical metadata

MORE MUSICAL CHAIRS

As is usual just before or just after the American Library Association's (ALA) Annual Conference, several vendors announce new hires, as other library automation professionals depart. This year has proven no exception. After a brief hiatus from library automation, Marsha Stark returned in May as Sirsi Corp.'s new vice president for sales in North America. Stark formerly worked for Innovative Interfaces, Inc. Sirsi also tapped the educational software industry in June by hiring Angus Caroll away from MindLeaders; Caroll joins Sirsi as chief marketing officer.

For those of you wondering what became of Jane Burke, former CEO of Endeavor Information Systems Inc., she joined Cadmus Professional Communications, a company serving publishers, as sales director in late June.

Other changes won't likely be found in press releases. At the end of June, Robert Walton ended his one-year run as chairman of the board of Ex Libris, Inc. (USA). Walton, former CFO for Innovative Interfaces, Inc., described the break as amicable, as he fulfilled the goals that were established for him by Ex Libris' parent company based in Israel, including the appointment of Dan Trajman as president of the U.S. subsidiary in March 2004. Russell McDonald, vice president of sales and industry veteran, also will leave Ex Libris at the end of August.—*AKP*

TABLE 1. OVERVIEW OF DIGITAL LIBRARY PRODUCTS

Vendor	Product(s)	Notes
Dynix Corp.	Horizon Digital Library	Focus on search; partnership with PTFS for search technology and (optional) digitization services
Endeavor Information Systems	Encompass for Digital Collections	Flexible metadata and collection management; partnership with Luna Imaging for media presentation
Ex Libris, Inc. (USA)	DigiTool	Major enhancements planned for Version 3; building repository and preservation functions
Innovative Interfaces, Inc.	MetaSource	Includes Millennium Media Management, XML Harvester and Metadata Builder
Sirsi Corp.	Hyperion	Bundled with Rooms as Digital Heritage Room; partnership with Convera for full-text search
VTLS, Inc.	Vital	Released in 2004; uses open-source Fedora as repository

with objects and files, maintenance of structural metadata for compound objects, and version control.

Good architectures have separate data repositories with clear-cut interfaces. Digital collections, or aggregations of related materials, should be logically—rather than physically—defined. Librarians should be able to create any number of collections (for example, by format or by subject) and to assign a single object to multiple collections without redundant storage of either the object or its metadata.

Several vendors have made agreements with technology partners to provide enhanced search, presentation, or repository services. Some ILS vendors offering DL products are listed in Table 1.—*Priscilla Caplan*

Good-bye, not farewell

This issue is the last installment for *SLN* editors Andrew K. Pace and Priscilla Caplan. Pace will continue as *American Libraries*' "Technically Speaking" columnist. Caplan is devoting her attentions to the FCLA digital preservation archive. Continuing as editors are Judy Luther and Marshall Breeding.

Tom Peters, of TAP services, has joined the *SLN* editorial staff. Peters collaborates with libraries and library vendors on several e-book, virtual reference, and online programming projects, and he has worked with library consortia for the past decade on many library automation initiatives.

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August 2004
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Production and design by Angela Hanshaw, American Library Association Production Services.
Smart Libraries Newsletter is published monthly by ALA TechSource, a unit of the publishing division of the American Library Association.