



Smart Libraries™

Formerly Library Systems Newsletter™

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



Smarter Libraries through Technology

The Roles of Integrated Library Systems and Library Services Platforms

By Marshall Breeding

One of the major activities that we have covered in *Smart Libraries Newsletter* during the past few years involves the emergence of the new genre of library services platforms. The entrants in this genre take a significant departure from the well-established model of the integrated library systems that have prevailed in library automation for the preceding three decades. I suggested the term *library services platforms* as a way to distinguish these new products, which are designed for comprehensive management of print, electronic, and digital resources; offer a

robust set of APIs for interoperability and extensibility; and are Web-based and use cloud computing.

While I recognize this new genre of library services platforms as substantially different from integrated library systems, I see it as a new branch of the library automation industry. I don't anticipate that the existing trunk will die off any time soon, but will continue along its own path of evolution. I anticipate that library services platforms and integrated library systems will co-exist for quite some time.

Rather than fading away, I think that integrated library systems represent appropriate and progressive technology infrastructure for many types of libraries. I worry that librarians reading about the new library services platforms will have a mistaken impression that the products still considered to be in the category of integrated library systems are obsolete. I see many integrated library systems that are not only viable, but also quite progressive in their ability to meet the future needs of the libraries. Academic libraries have changed in a way that meeting their automation needs seems to require the radical departure represented by the more revolutionary approach of library services platforms. Other library sectors have seen considerable change, but with quite different trajectory and velocity.

The key challenge for integrated library systems lies in achieving the incremental developments that support the

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changes experienced within a given library sector. In the current phase of the library automation industry, for example, I see public libraries as better served by a progressively developed integrated library system than by the library services platforms.

Public Libraries: Reshaping the ILS

Public libraries today face some incredible challenges. They will benefit greatly from the right kind of support from the technical infrastructure. These libraries are busier than ever. Demand for print materials generally continues to increase, and it often must be met with fewer staff members, shorter hours, and other resource constraints. At the same time, public libraries report explosive growth in e-book lending activity. Public libraries aim to stimulate engagement in their programs and services through their virtual presence. Connecting library patrons to the library and to each other through external social networks, such as Facebook or Twitter, and through complementary features in their own technical infrastructure strengthens the library's position as a community hub and promotes reading and literacy. Public libraries approach electronic resources much differently than their peers in academic and research libraries. Public libraries usually offer a relatively modest set of databases of reference and scholarly materials to support homework assignments, personal research, genealogy, local history, and such activities. These collections represent a relatively small portion of their overall expenditures for collections.

In contrast, a typical academic library subscribes to many hundreds of scholarly electronic resources across many specialized fields of study, in many cases representing the vast majority of its funding for collections. The shape of collections, physical circulation patterns, and the kinds of services offered to patrons seem increasingly divergent between public and academic libraries.

ILS: Still a Good Fit for Public Libraries

The emergence of library services platforms does not necessarily mean that integrated library system should be considered obsolete. Quite the contrary, I see many of these products as continuing to evolve in ways that will serve libraries well into the future. I see the ILS as especially viable in the public library arenas where books dominate daily activity, though with increasing emphasis on e-book formats. The ILS as a business system for libraries based on print materials should be able to evolve to take on the challenges of e-books and some other emerging needs.

Significant challenges remain for these products to develop aggressively. The integrated library system will have to advance

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with new aspects of functionality to dramatically improve the processes of e-book lending, both from the perspective of end-user experience and in the way it supports acquisition and management of these materials. The architecture of ILSs must modernize, embracing APIs, cloud computing technologies, and Web-based interfaces if they are to remain viable in the long term.

I see considerable modernization taking place among the ILS products oriented toward public libraries, as in the following examples.

- Polaris Library Systems has steadily evolved its ILS and has continued to see positive results in terms of new sales. The company has been aggressive in developing APIs for Polaris, offering access to its software development kit to its library customers and to authorized third parties. In recent weeks, it has become one of the first to deliver full integration of e-book lending through its own PowerPAC interface, initially through a collaborative effort with 3M Cloud Library with other arrangements underway. Through a partnership with ChiliFresh, Polaris has created a Social PAC that fully embraces the concepts of social networking. (More details reported in this issue.)
- The Library Corporation has completely re-worked its LS2 PAC and the staff interface for its Library.Solution ILS into a fully Web-based environment based on HTML5. It has also addressed the need to support e-books, offering the ability to discovery, view current availability status, and to perform loans from within LS2 PAC. It's also interesting that TLC has been able to extend its bibliographic services, launching a service it calls eBiblioFile to deliver MARC records for e-book collections to libraries as they acquire new titles from any of the major e-book lending services. eBiblioFile finds use well beyond the libraries that use the company's automation products.
- Biblionix has found considerable success in the small and medium-sized public library arena with its Apollo ILS. I see Apollo as relatively traditional in its functionality, but quite progressive in its technical architecture. Designed for these smaller libraries, Apollo offers functionality for the

Category	Library Services Platform	Traditional Integrated Library System	Progressive Integrated library System
Architecture	Service Oriented Architecture	Client/Server	Service oriented architecture
Interoperability	API	Batch processes	APIs
Discovery	Web-scale, index-based discovery representing broad corpus of scholarly publishing	MARC records managed directly in local ILS	Books, multiple e-book collections, reference and article databases, programs, Web-site content, etc.
Patron	Integrated social features	Isolated to essential ILS functionality	Integrated social features
Key integration issues	Campus authentication, learning management systems, campus ERP	Isolated	Multiple e-book lending platforms, self-service equipment, municipal or county systems, etc
Cloud Computing?	Multi-tenant software as a service	Local installation	Vendor-hosted option, evolving toward multi-tenant
Public interfaces	Web-based	Web-based	Web-based
Staff interfaces	Web-based	Graphical clients	Web-based

circulation, cataloging, and acquisition of materials without much of the complexity of the systems designed for larger libraries. By delivering this functionality through a modern multi-tenant platform using Web-based interfaces offered as a software-as-a-service subscription, Biblionix is able to offer Apollo at affordable costs for libraries with bare-bones budgets.

- SirsiDynix has worked to keep its ILS products viable through technology components that layer in modern architectures and by creating new products that address management and access of e-books and other types of electronic resources. Available for both its Symphony and Horizon ILS products, SirsiDynix has developed a Web Services add-in that makes their functionality available through a set of APIs consistent with modern architecture. The company has also created new patron interfaces, including Enterprise, Portfolio, BookMyne, and Social Library that operate through the Web Services layer to deliver modernized user experience. Another new add-in product, eResource Central, addresses the management and access of e-books in this Web services environment.

Each of these examples illustrate that public libraries can remain well-served by the integrated library system, but only to the extent that these products are aggressively developed and reen-

gineered to address timely functional requirements and current technical architectures. Beyond these few examples, elements of progressive development or stagnation can be seen across the many dozens of ILS products available today. It's essential that libraries evaluate any product of interest relative to its progression of functional and architectural development and not rely on categorical distinctions.

Architectural Evolution of the ILS

In the longer term, I would expect the ILS to evolve and take on more of the characteristics of the library services platforms, especially from the perspective of internal architecture and deployment models. In the short term, many of the ILS products have bandaged their existing legacy components with service layers that enable additional extensibility and interoperability. But for longer term viability, it seems that a more thorough re-development into true multi-tenant software-as-a-service platforms is needed for these products keep pace. I also see the metadata management features of these systems as eventually evolving into more comprehensive and multi-format models, which was one of the basic precepts of the library services platforms. As the ILS continues a path of progressive development, it will gain increased resemblance to the library services platform.

The association of library services platforms with academic libraries and integrated library systems with public

libraries is also not a firm distinction. While the problems of academic libraries may have prompted some of the characteristics of the library services platforms, some have been adopted by multiple library type. While Ex Libris Alma, Quali OLE and Serials Solutions Intota are geared specifically to

academic libraries, the OCLC WorldShare Platform and Innovative's Sierra aim to meet the needs of many types of libraries.

I do see that the library technology arena entered a new phase with the emergence of library services platforms. These new products represent an important

new thread of activity in the industry. Yet it is important not to hold a simplistic view of the industry. Recognize that many reasonable product and development strategies will coexist and compete. It isn't realistic to expect any set of categories to fully describe all the different products and services.

VTLS Moves to Open Skies

VTLS launched a new product suite, called VTLS Open Skies, positioned as a library services platform. A major step for VTLS, this new strategy takes the most successful components in the current arsenal of technologies and products and rebuilds them into a comprehensive platform for the management and access to library resources.

Some of the antecedent products that will contribute building blocks for VTLS Open Skies, include:

Virtua, the company's flagship integrated library system, initially introduced in 1998 as the successor to the original VTLS. Virtua is based on a multi-tier client server architecture, using Oracle as its relational database management system and Apache SOLR for its indexing and search engine. In recent years Virtua has been engineered to support multi-tenant implementations, allowing for the consolidation of many previously separate installations of Virtua to be consolidated into a single instance. Its functionality is organized according to the traditional ILS modules, including cataloging, circulation, serials management, and acquisitions. Virtua includes a Web-based online catalog, branded Chameleon, though the company offers additional discovery interfaces. Virtua's metadata management modules natively support FRBR (Functional Requirements for Bibliographic Records) hierarchies and RDA (Resource

Description and Access) cataloging rules.

VITAL provides a highly customizable digital asset management system on the open source Fedora repository platform. First introduced in 2004, VITAL has been implemented by libraries and related organizations to support institutional repositories and digital collections. A specialized version, VITAL Media, supports streaming media in multiple channels and formats and has enhanced the native support in Fedora in the way it handles linked data RDF triple stores.

Chamo Discovery is VTLS's discovery layer product, designed to deliver access to a library's collections and enriched with a variety of social networking features. Chamo was initially introduced in 2009 and re-launched in 2012 as Chamo Discovery. In a consortial implementation, Chamo Discovery allows patrons to maintain multiple borrowing profiles when associated with multiple libraries or institutions. Chamo offers APIs that facilitate integration with a Drupal-based library website. VTLS bases an increasing portion of its patron interface products on Drupal and offers consulting services to assist libraries with creating customized applications based on this open source content management system. Chamo Discovery enables a library to provide access to its print and digital collections, events, and any licensed and free data for which it has access to metadata. Chamo Dis-

covery does not include a pre-built index of article-level content, following the model of the Web-scale discovery services, such as Summon, EBSCO Discovery Service, Primo Central, and WorldCat Local. Chamo Discovery has the ability to integrate with these other discovery indexes through APIs.

MozGo, a mobile application for libraries, was launched in 2012. Available for Android and iOS devices, it includes such functions as searching of a library's collections; viewing account details, including items charged, due dates, and fines owed; as well as presenting information about the library, such as opening hours, program, and location maps. MozGo has been designed to operate with any ILS and is positioned as the initial application built under the VTLS Open Skies architecture.

Open Skies is being developed by reengineering each of its previous stand-alone products to conform to the service oriented architecture (SOA) and to follow a consistent set of APIs that allow them to work together as a unified library services platform. According to VTLS CEO and President Vinod Chachra, "Open Skies takes the best components from each of VTLS's current products and makes them available in a SOA-based platform." This approach of rebuilding existing business logic components to operate through SOA preserves the functionality currently

offered by the antecedent products and provides a foundation for the creation of new capabilities, such as the ability to support workflows across print and digital materials. VTLS Open Skies will include a unified multi-format Metadata Management System (MMS) for all material types. New user interfaces, both for library staff and for patrons, will be developed that take advantage of the new architecture and consolidated functionality.

The company plans to offer VTLS Open Skies through a variety of deployment options, such as: software that can be installed on servers operated by the library, on servers hosted by VTLS, and through multi-tenant software as a service. VTLS will offer Open Skies as an upgrade to its existing client libraries that have purchased Virtua and VITAL.

Development of VTLS Open Skies is underway. VTLS plans a phased process as its current products are replaced with the Open Skies architecture.

VTLS Corporate Background

VTLS, though based in the United States, has a broad international presence, with the majority of its customer libraries outside of the United States. The company traces its beginnings to the Virginia Tech University Newman Library in the mid-1970s. It has operated as an independent company since 1985. Libraries of many types use VTLS products, with academic libraries representing the highest percentage. In recent years, VTLS has

broken into the top tier of the municipal library arena, with successful implementations of Virtua in the Queens Borough Public Library, the busiest public library in the United States, and the Hong Kong Public Library, one of the busiest public libraries in the world.

As a company in the library automation industry with a long corporate history, VTLS has been able to bring its products through several generations of fundamental technology transitions. Its first products based on mainframes gave way to those based on client/server technology. Now as the service-oriented architecture prevails, VTLS has charted a course that will transform its products into the model of library services platforms.

VTLS Open Skies takes an evolutionary approach into the library services platform arena. This strategy can be seen as similar in some ways to the path Innovative Interfaces followed to create Sierra, blending a considerable level of new development on a foundation of existing software components. Ex Libris Alma, Kuali OLE, the OCLC WorldShare Platform, and Serials Solutions Intota, in contrast, were each developed from scratch without borrowing code from existing applications. Whether by evolutionary or revolutionary routes, these library services platforms, offering a more unified and comprehensive approach to managing library collections across multiple formats and using modern technologies such as SOA, represent an important new dimension of the library automation industry.

See: www.vtls.co

Innovative Interfaces Ownership Update

Smart Libraries Newsletter has previously reported on the majority acquisition of Innovative Interfaces, Inc. and SkyRiver Technologies by a pair of private equity firms, Huntsman Gay Global Capital and JMI Equity. In the initial transaction, company cofounder Jerry Kline sold the majority of the company, but retained a stake and served as the chairman of a newly constituted Board of Directors. In a subsequent transaction that closed the end of January 2013, Kline divested his remaining shares to the investment firms. Huntsman Gay and JI Equity now own 100 percent of Innovative Interfaces and SkyRiver. No information is publicly available regarding financial details such as the valuation of the company or the portion of shares retained by Kline following the initial transaction. Kline also has resigned from the company's board of directors, having divested his ownership and concluding his strategic and operational involvement.

As previously reported, Neil Block departed the company in December 2012. He has recently joined Polaris Library Systems as Vice President of Strategic Growth.

This ownership transition brings to a conclusion Innovative's longstanding status as being owned and led by its founder. Kline's active role has been diminishing for a number of years, beginning with the appointment of Neil Block as company President in 2010. The March 2012 sale of the majority ownership to private equity investors ushered in a new executive team by Kim Massana. The exit of Jerry Kline provides some clarity that the direction of the company will be shaped according to the strategies of its new ownership. The middle management of the company and operational personnel remain largely intact as the company enters this new phase.

It's important to note the contributions of Jerry Kline. He led the company for 35 years, from its start in his garage, as it

became one of the largest and most successful companies in the library automation industry. Under his leadership the company created many products used successfully by libraries in many regions of the globe. Never one to take a passive role, Kline has been a prominent figure in the library automation industry. In addition to cofounding Innovative Interfaces, Kline's legacy includes launching SkyRiver, filing a lawsuit against OCLC for monopolistic and anticompetitive practices, and a long history of passionately

representing the interests of his companies. We can anticipate that the company under new ownership and leadership will build on that strong foundation.

On the product front, Innovative Interfaces has completed the initial release of its new Decision Center, designed to help libraries use a variety of metrics in support of a more data-driven approach to collection development. The product taps data from circulation history, such as check-outs and hold requests, patron demographics, fund expenditures, cur-

rent item inventories, and transit times. The tool can be used to optimize collections through weeding, targeted acquisitions, and redistribution of items. Libraries implementing Decision Center include the University of Nebraska in Lincoln, Jefferson County Public Library, and the Tulsa City-County Library.

Response to the company's new Sierra library services platform continues to be strong, especially from libraries already running Millennium.

See: www.iii.com

Kuali OLE Receives Additional Round of Funding

The Andrew W. Mellon Foundation has awarded the Kuali OLE project an additional \$750,000 to support a third year of development of a new-generation library services platform available as open source software, designed for research libraries. This additional phase will include enhancements including accommodating multisite implementations, support for patron self-service, and interoperability with high-density storage facilities. Indiana University continues as the lead institution for the partnership which also includes Duke University, University of Chicago, University of Maryland, North Carolina State University, University of Florida, Lehigh University, Villanova University, University of Michigan, and the University of Pennsylvania. HTC Global has been engaged as a commercial affiliate,

contracted to perform much of the technical work following an agile software development process. It will continue in this role in this additional phase of the project.

The Andrew W. Mellon Foundation has demonstrated an ongoing commitment to fund the Kuali OLE project and related initiatives. This third round of funding was preceded by a \$475,000 one-year planning grant awarded in June 2008, a \$2.38 million award announced in January 2010 for a two-year software development project. In June 2012, the Mellon Foundation also funded a \$499,000 project to create the Global Open Knowledgebase, in partnership with JISC, which will provide an open access and community supported knowledgebase needed for electronic resource management in Kuali OLE and related projects. The Mellon's

investments in the Kuali OLE project now total over \$4 million, with the participating partner institutions providing similar levels of matching funds and in-kind contributions.

The current development roadmap projects Kuali OLE Version 1.0, to be complete in the fourth quarter of 2013, according to the timeline currently shown on the project's Web site. The original timeline slated the initial version to be complete at the beginning of 2013. This additional year of development will result in a more complete set of functionality in the initial release.

No libraries are yet using the software in production. Partners on the earliest implementation track may begin shifting to Kuali OLE by the end of 2013.

See: kuali.org/ole

Polaris Creates Social PAC

Polaris Library Systems has created a version of its online catalog that offers a distinctively social flavor. Through a partnership with ChiliFresh, the Social PAC brings the social networking

features of ChiliFresh Connections directly into the Polaris PowerPAC interface. Rather than layering the ChiliFresh content and social features, as was previously possible, the Social PAC uses behind-the-scenes APIs

to seamlessly blend them into the product.

ChiliFresh initially entered the library arena with its Review Engine that provided a database of reviews, written by library patrons, that could be layered

into an online catalog, enhancing the basic bibliographic record resident in the ILS. ChiliFresh also offers a collection of more than 8 million book jacket images available for subscription. ChiliFresh Connections is the company's latest catalog enhancement project that focuses in social interactions among library patrons, creating profiles that allow the use of social network features, but within a library-specific community. The ChiliFresh Connections connects patrons with those associated with the same library as well as those affiliated with any library subscribing to the service. Social features include chat, online book clubs, friending and following other members, and creating a digital personalized bookshelf that can be selectively shared with other members.

The partnership between Polaris Library Systems and ChiliFresh blends the capabilities of the Polaris PowerPAC and ChiliFresh Connections. Libraries subscribing to ChiliFresh Connections can insert it into the online catalog of any of the

major ILS products. The Polaris Social PAC shifts the point of integration from insertion into the HTML templates of the online catalog to the API level, which represents a more modern and sustainable approach.

This strategy to bring social networking concepts into the interfaces offered by the library is consistent with other initiatives, such as that of BiblioCommons, which can be seen as both a complementary and competitive product. As an alternative to Social PAC, Polaris has also been able to integrate its ILS with BiblioCommons. In most of these cases, BiblioCommons was already in place, with the library implementing Polaris to replace a legacy ILS without disrupting the discovery and Web site experience offered to library patrons. The roll-out of Social PAC gives Polaris an even stronger public interface in this time when libraries seem eager to offer a dynamic library-oriented social experience to their patrons.

See: www.chilifresh.com; www.polarislibrary.com

Serials Solutions Announces Intota Assessment

Previous issues of *Smart Libraries Newsletter* have covered the intent of Serials Solutions to create Intota as a library services platform to extend its reach beyond its current products and services related to electronic resource management and Web-scale discovery. Serials Solutions describes its intent for Intota to address all aspects of a library's collection, including the print materials, ultimately allowing libraries to simplify and reduce the cost of their automation environment by giving them the ability to discontinue their integrated library system. Serials Solutions was earliest to jump into the Web-scale discovery arena, announcing Summon in January 2009. The company, by contrast, is a latecomer to the library services platform arena, with Intota not expected to be available until 2015.

Serials Solutions announced that it plans to provide Intota Assessment for use in 2013, prior to the entirety of the product. This strategy reinforces one of the key principles underlying the data-oriented design of Intota. To support more informed decision-making in areas such as collection development, Intota Assessment will use operational data and metrics from all aspects of the library's systems in addition to data drawn from

the company's knowledgebases and bibliographic products. By providing this component of Intota in an earlier timeframe, the company finds an opportunity to give libraries a glimpse of what it aims to achieve in the complete product. With Intota on a later delivery time frame and other products now available, Serials Solutions seems motivated to provide evidence that libraries will find benefit by waiting for Intota.

Serials Solutions also continues to strengthen Summon. A new feature recently introduced, called Summon Spot-lighting, enables libraries to highlight content from specialized collections within search results. Libraries will be able to feature images from local digital collections that may be of special significance. Image Spotlighting presents thumbnail views of images from a locally curated image repository, or from selected image-oriented subscription resources, within search results in order to guide patrons to explore these specialized collections. This feature provides an additional technique to help libraries balance access to local resources within the context of the vast amount of subscribed content indexed in Summon.



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