WHITE PAPER: WHY SHARING A LIBRARY MANAGEMENT SYSTEM MAKES SENSE

Shared systems allow individual library collections to be represented in a single system. With robust authentication and circulation modules, shared ILS member libraries and their patrons can more easily discover what other libraries' collections offer. Not only discovery is enhanced, but patron initiated holds (based on patron authentication information) can expedite access to and delivery of the discovered resources. (Moen-McClure, 2006)

INTRODUCTION

The library management system (LMS) provides the core functionality for running a library including acquisitions, cataloging, and circulation functions.[1]   There are several other pieces that come into play and much of this functionality is provided by third party products. These other functions include authentication, metasearch, discovery (formerly known

---

[1] Outside of the U.S., the term "library management system" is used to describe the software used to manage library inventory, keep track of patrons, and to manage circulation. The fact is, it is as important today, for library software to be "integrated" as it is to be "open" because so many third party products are now used by libraries and these products must be able to interact meaningfully with the LMS via APIs (application programming interfaces) and standards and protocols such as SIP2 and NCIP. Therefore, the term library management system (LMS), instead of integrated library system (ILS) will be used throughout this paper.

---

as OPAC), link resolvers, digital asset management, interlibrary loan, virtual reference, course reserves, and more. Supporting the LMS requires managing all of these different software components.

Advancements in software technologies and, especially, Internet technologies have created more sophisticated systems, and more demanding users. Therefore, the people managing library software systems (aka systems staff) also need to be more sophisticated. When properly administered, these complex and robust systems provide libraries opportunities to creatively mash-up solutions that greatly improve the experience for the patron as well as staff.

Luckily, technological and Internet advances have also made some things easier. For example, it is no longer necessary to purchase, install, and manage multiple servers and applications. We now have the benefit of ubiquitous, reliable, high-speed, high-bandwidth connectivity to the Internet. This connectivity has opened the door for new service providers that do the work of running applications, servers, or even an entire data center better and more efficiently than the local IT staff can. Services delivered via the Cloud including "hosting" and "software-as-a-service" and "infrastructure-as-a-service"[2] allow systems staff to focus on satisfying the needs of the customers (library staff and library patrons) and providing good support while leaving the more basic IT functions to the Cloud-based service providers.[3]

---

[2] Software as a Service (SaaS) and Hosting refers to a service in which the application (software) is run by the service provider rather than requiring the local IT group to install it on their own server and maintain it. Infrastructure as a Service (IaaS) is when the entire infrastructure is provided. Multiple operating systems and applications are all managed by the service provider (e.g. virtual environments can be easily instantiated as needed) while still allowing local staff to do the administration of the applications.

[3] For more on the use of the Cloud, see Han (2010).

BENEFITS

Given the complexities of managing a shared LMS, and the fact that everyone can outsource some of their IT functions to service providers, is there any additional benefit for sharing an application that resides "in the Cloud?" Does it really even make sense to share an LMS these days?

The simple answer is yes. The 2006 quote above, which articulates many of the benefits of sharing a library system, is still accurate. All of the benefits mentioned still apply. And, there are more. This white paper identifies the key benefits of sharing a library system in the context of today's technological environment. The benefits include cost savings, improved resource-sharing opportunities, providing a higher quality system staff, improving the quality of the collection, streamlining library workflows, optimizing the patron experience, eliminating routing slips and pre-sorting, and adding value to the consortial affiliation.

COST SAVINGS

There are numerous direct and indirect economic benefits of sharing a library system. In terms of direct savings, each participating library is relieved of the costs of purchasing their own hardware and software, and allocating server room space to keep the servers. There are also significant savings in staff costs because server and database staff can be reduced or eliminated at each library. Most significantly, only one LMS system administrator is needed for all participating libraries.

If the shared LMS resides in the Cloud, these benefits still come into play (only more so) because even fewer server room resources and IT staff are needed. For libraries not currently sharing a system, eliminating these costs could represent substantial savings for each library. This is especially true in the case of a shared open source library system. For example, according to Elizabeth McKinney, the Georgia PINES shared

system (Evergreen) saved participating libraries approximately $5 million per year over the cost of maintaining individual shared systems.

The Inland Library System has some member libraries on a shared system and some that are stand-alone. In a recent study, they determined that they could move their stand-alone libraries to an open source shared system and save $300,000 annually (over their current costs). Moving those libraries to a second shared, proprietary system would save only $100,000 per year. In either case, moving the existing, stand-alone libraries to a shared system would save money. The question is just how much savings there will be and this will depend on the LMS selected.

IMPROVED RESOURCE-SHARING OPPORTUNITIES

One of the most powerful incentives for sharing a library system is the ability to dramatically improve resource-sharing between libraries. The combination of patron-initiated hold requests and transparent access to multiple library catalogs makes it as easy as it can be for libraries to share their material. Items can be requested and placed on hold from any of the participating libraries just as easily as a request can be placed on an item from the patron's home library.

A shared system provides integrated consortial lending without requiring additional software interfaces or modules. Requesting items from other libraries becomes easy for patrons and staff don't have to be involved in the transaction. This is distinct from the traditional interlibrary loan request which involves request forms and staff intervention. The result is that more items are requested without creating more work for interlibrary loan or circulation staff. The increase in resource-sharing will, however, increase work of the clerical and delivery staff tasked with moving all that material between libraries.

Using the George PINES system as an example again; lending went up 40% between their 275 member libraries after the implementation of their Evergreen system in 2007.

For states like California that provide transaction-based reimbursements, there is no quicker way to increase the number of transactions provided by a library than to make them part of a shared library system. Unfortunately, at the time of this writing, it is unclear whether the state of California will continue to provide transaction-based reimbursements

Because of the ease with which material can be shared between libraries, one of the most important considerations for libraries moving into a shared system is how to manage the inevitable imbalances that occur between net lenders (those who lend more than they borrow) and net borrowers (those who borrow more than they lend). Libraries that lend more are using more staff time to pull items from the shelves, prepare them for transport and to re-shelve them. Other libraries may have smaller collections and feel that even the few requests they fill represent a significant sacrifice, given their small collection and limited staff. It is important to anticipate these imbalances and to have a strategy for mediating each library's concerns.

Also, without philosophical congruency around resource-sharing, a shared library system will not yield the resource-sharing benefits that are possible between libraries with shared service goals. Therefore, it is also important to establish resource-sharing policies and procedures that are supported by all the members. Consistency in lending policies makes the system easier to administrate, more equitable, and easier for patrons to use.

HIGHER QUALITY SYSTEMS STAFF

A shared LMS is more complex than a stand-alone library system. Therefore, moving to a shared LMS requires an investment in high-quality technical staff. Some of the money spent on system administrators in every library can, and should, be invested in a systems staff that has the

variety and depth of skills needed to run the system effectively. Whereas an individual library may try to get by with their "accidental systems librarian," it is important to recognize that it is rare to find one person with all the skills necessary to run a state-of-the-art system office. Tasks include: maintaining servers and routers and firewalls[4]; managing the library management system; running the help desk; integrating third party software such as self-check machines, metasearch tools, discovery system, authentication systems, and proxy servers; building a library website with integrated search of the catalog and other electronic and digital resources; providing training, monitoring trends, testing new technologies, and managing a budget.

By establishing a high quality and appropriately staffed systems office, member libraries benefit from the broader skills and deeper knowledge than any library could otherwise afford on their own. This will ensure that the system is properly maintained and backed up, privacy and security concerns are handled appropriately, disaster recovery plans are in place, long term plans are made, new technologies are explored, staff and patrons get the support they need, and downtime is minimized.

IMPROVING THE QUALITY OF THE COLLECTION

The quality of the collection is enhanced when libraries share. This is because the combined collections result in many new titles for the patrons, and many more copies of popular titles, and possibly more format choices. The result is undoubtedly a more robust and diverse collection.

With some coordination on the part of the consortium, the collection can be further enhanced. Rather than letting happenstance determine the shared collection, the partner libraries can take advantage of each library's materials budget to purposely purchase items that will not only benefit a

---

[4] Some of these responsibilities can be handled by service providers if the LMS is hosted in the Cloud.

library's own holdings but will also enhance the quality of the shared collection.

This is how libraries can get at the "long tail" material. Rather than having each library buy the same titles that sit on their shelves and circulate infrequently, each library buys *different* titles that circulate infrequently so that patrons more often find – in the catalog -- exactly what they are looking for. They may not always find it on the shelf, but implementing a shared collection development policy, will increase the chances of patrons finding what they want, somewhere, in the shared collection.

Better bibliographic control is another reason that the quality of the shared collection is often superior to many stand-alone catalogs. Rather than cataloging material at each member library, many shared systems establish a cataloging team that catalogs material according to a system-wide standard. This approach helps ensure that the catalog is consistent and that the bib records are high quality and items cataloged appropriately.

With each library doing their own cataloging, it is bound to introduce inconsistencies. Some catalogers will spend an inordinate amount of time adding information that is of little value to patrons, while others will accept an inadequate record from a vendor or OCLC.

Agreeing on a cataloging strategy and centralizing the work by a small group of excellent catalogers can save money while ensuring that patrons find what they are looking for.

SHARE AND STREAMLINE TECHNICAL SERVICES

Many of a library's technical services functions can be centralized, optimized, and streamlined as part of sharing the library system. Removing the redundancies saves money, reduces the amount of work that needs to be done, and the number of people needed. The more services

that are consolidated and centralized, the more optimized the workflow becomes.

How many services should be moved under this umbrella of the shared technical services is for the group to decide but key candidates for sharing include serials and claiming, receiving, processing, and cataloging. The idea is to expand the concept of resource-sharing to include more than sharing library materials. Human resources can also be shared to the betterment of all parties. Finding the balance of what to share is up to each group of libraries on a shared system.

As these services are consolidated and moved out of the individual libraries and into a central service center, it is a prime opportunity to streamline these operations. Methodologies such as Lean[5], a management philosophy and set of methodologies designed around preserving value with less work, will go a long way toward reducing wastes in effort, time, money, and space. And the result is better service for both patrons and staff.

OPTIMIZING THE PATRON EXPERIENCE

There are many aspects to optimizing the patron experience including using the software and developing policies that are patron-focused and supporting the system with a robust delivery service.

State-of-the-art shared systems utilize scoping and faceting to help patrons search for, select, and get exactly what they want. Many shared systems have an option to scope searches so that, by default, the patron's initial search is for material in their local library. If the item being sought is not available locally, the search can be easily expanded to include a larger pool of libraries (e.g. by geography) or to the entire shared collection.

---

[5] See Locher (2007).

Another way patrons can narrow in on exactly what they want is to limit searches to items that are "available." Usually, "available" is defined as available at the patron's current location (or home library). Sometimes available can be defined as sitting on a shelf somewhere (anywhere) in the shared systems (e.g. not checked out).

Configuring these settings so that they are consistent and supportive of local policies, and are as patron-friendly as possible is an important job of the system administrator. However, the system administrator's work should be guided by a governing body of library representatives who are helping implement the shared resource-sharing vision of the consortium.

With a shared LMS, library patrons will have access to a collection that is many times larger and more diverse than their own local library. This will increase their likelihood of finding something they want, thus improving their experience of the library. However, in order to ensure that patrons continue to remain satisfied with the larger collection, it is important to support the shared library system with a robust and efficient delivery service.

If patrons find items they want but they can't get them for weeks, their satisfaction with the system will suffer. Interlibrary delivery systems are critical components of a successful shared library system.

Items should be delivered within 24 hours if they are on the library shelf when requested. This means the library delivery system must be efficient and it also requires library staff to pull requested items promptly and have them ready for the first possible pick-up. Items being transferred to fill requests must also be available on the Holds Pick-up shelf on the day they arrive. This is because patrons tend to track the progress of their requests, which they can do in a shared LMS environment (versus with an ILL). Often, they will be at the library ready to get their items as soon as they see they are on their way.

A shared system designed around a common set of resource-sharing goals, robust delivery system, and standardized lending policies has the potential

for providing an optimized patron experience and improving the service that each library can deliver to their patrons over what they could have offered them individually (and at less cost).

ELIMINATING ROUTING SLIPS AND PRE-SORTING

As mentioned above, one of the side effects of a robust resource-sharing environment is the increase in interlibrary transfers. This increase in delivery volume can put a strain on delivery staff moving the material as well as library staff struggling to keep up with long "pull lists."[6]   Some libraries transfer hundreds of items from one library to another every day to satisfy patron requests. Because the service is so popular with patrons, libraries continue to provide the service despite being overwhelmed with the work associated with pulling the items, attaching routing slips to each item and, often, presorting the items into delivery totes designated for specific libraries.

Depending on the library system, library staff may be expected to place routing slips on each item and place them in a "mixed tote" meaning the items include material for multiple libraries (these will be sorted later by the delivery service's sorting staff).

Printing, or hand-writing, routing slips and attaching them with rubber bands is very time-consuming for staff. Some libraries try to eliminate the need for routing slips by placing all items for a specific location in its own tote, and then just labeling that tote. This approach reduces the number of routing slips needed but it requires the library to have plenty of space for staging large numbers of totes.

---

[6] The "pull list" is the list of items that staff need to pull off the shelf to satisfy a patron request. These items need to be scanned to be put in "in transit" status and a routing slip placed on or in the item. Some pulled items are to be picked up at the local library, so these need a hold slip printed and they will be placed on the self-service pick-up shelf.

With a shared LMS, both routing slips and presorting can be completely eliminated. This is done by centrally sorting all of the material and taking advantage of the LMS itself to help with sorting. The term "label-less sorting" was coined by the Massachusetts Library System[7] to describe the system they have implemented using this technique. In their case, the system works with not just one, but multiple shared LMSs and is based on barcode (not RFID) technology and the SIP2[8] protocol.

With a single shared LMS, it is relatively straight-forward to make a connection to the LMS and use the SIP2 protocol to identify the destination of each item. Sorting staff scan or read the barcode number of each item and the LMS returns information about where the item is going. The sort center totes are configured with an indicator light above each tote that illuminates indicating where the item belongs.

This technique is called put-to-light (or sort-to-light) and is a common technique used in manual warehouse picking and sorting operations because it is fast and accurate. Human sorters are prone to error when reading routing slips and interpreting location codes. With a sort-to-light system, they just scan the bar code with a lightweight scanner that is attached to their hand and the light tells them where the item goes.

For library staff, the workflow involves pulling items from the pull list, scanning them to put them into transit, and then dropping them into a tote. No routing slips are required. No separate totes for each location are required. It is quick, easy and doesn't take up much room in the library.

Using an RFID sort-to-light system to implement label-less sorting has never been done but it would work even better than a barcode based

---

[7] Ayre, Lori Bowen & Pronevitz, Greg & Utt, Catherine. (2011) "Label-Less Library Logistics: Implementing Labor-Saving Practices in Massachusetts' High-Volume Resource Sharing System", Collaborative Librarianship, Vol 3, No. 3. Retrieved from http://collaborativelibrarianship.org/index.php/jocl/article/view/142/108.

[8] Standard Interchange Protocol, version 2.

system because the sorters would not have to visually locate the bar code on each item.

Label-less sorting reduces the resource-sharing workload for library staff, reduces the amount of space needed for staging outgoing delivery, and ensures that sorting is fast, efficient, and accurate.

ADDED VALUE TO CONSORTIAL AFFILIATION

Libraries consistently place the shared library system and delivery services as the two most important services provided by consortia. Both these services are tightly integrated, as noted above, because the shared system promotes resource-sharing which in turns puts an increased demand on delivery. Providing these two services to libraries and their patrons is a key value to members.

The work of establishing a shared system and resource-sharing vision (material resources as well as human resources) and developing policies, protocols and cost-sharing mechanisms that meet the needs of the members requires communication and trust among the members. Establishing trust and communication channels creates more opportunities for leveraging the power of the group. Teams can be established to focus on certain functional areas such as cataloging, circulation, customer service, outreach, staff development, workflow optimization. Technology trends can be jointly monitored and new ideas can be piloted by individual libraries on behalf of the group.

A strong system office supported by library leaders that trust each other and are committed to finding new and better ways of providing services to patrons and improving the work experience of library staff can promote innovation for all the members.

SUMMARY

Today's library management systems are complex and require a broad range of technical skills to properly manage them. Shared library systems are even more complex because of the need to configure them to satisfy the disparate needs of the member libraries. However, if a group of libraries can come together around a shared vision of resource-sharing, and agree on how to implement that vision, multiple benefits will accrue to all the members.

The potential benefits of sharing a library system are numerous. Some individual libraries will significantly reduce their costs. For a few, the cost may go up but this can be addressed by a principled cost-sharing formula. Overall, the costs associated with running library systems will be reduced.

The quality of the collection will improve as additional copies of popular items become available and niche and less common or extraordinary titles are added. Treating the shared collection as another collection that needs tending will improve its quality.

Resource-sharing between libraries will increase because of the ease with which patrons can discover and request items from other libraries. The patron experience will be enhanced because of the ease of access, quick service for requested items and the range of material available.

Finally, the consolidation of services provides opportunities for streamlining workflows and optimizing services especially as it pertains to technical services and for staff that prepare material for transit and do sorting.

The quality of the system staff can, and should, be higher than any single member library could otherwise afford. And, the added value of a strong systems team, high quality shared collection, and associated other services is perceived as a key benefit of being a part of the consortium.

RESOURCES

Ayre, Lori Bowen & Pronevitz, Greg & Utt, Catherine. (2011) "Label-Less Library Logistics: Implementing Labor-Saving Practices in Massachusetts' High-Volume Resource Sharing System", Collaborative Librarianship, Vol 3, No. 3. Retrieved 12/26/11 from http://collaborativelibrarianship.org/index.php/jocl/article/view/142/108.

Bocher, Bob (June 2008). "LibraryWorks: Sharing an Integrated Library System." Library Resources Group. Retrieved 11/29/11 from http://www.libraryworks.com/LW_White%20Papers/WP_Sharing_an_ILS_0608.aspx

Dempsey, Lorcan (April 2006). "Libraries and the Long Tail." D-Lib Magazine, Vol. 12, No. 4. Retrieved 12/1/11 from http://www.dlib.org/dlib/april06/dempsey/04dempsey.html.

JRM Consulting, Inc. (September 2011) Automated Library Systems for the Inland Library System: An Exploration of Options. Retrieved 11/29/11 from http://www.joematthews.org/docs/Inland%20Report.pdf.

Locher, Drew. (October 2007) Lean Lessons: In the Office: Where Lean And Sig Sigma Converge. Retrieved 12/1/11 from http://asq.org/quality-progress/2007/10/lean/in-the-office-where-lean-and-six-sigma-converge.pdf

Moen, William E., and McClure, Charles R. (September 2006). Shared Integrated Library System Cost Study: Final Report. Retrieved 11/29/11 from http://dpi.wi.gov/pld/pdf/sharedilsreport.pdf.

Han, Yan (2010 June). On the Clouds: A New Way of Computing. Information Technology and Libraries, p. 87-92. Retrieved 12/1/11 from http://www.ala.org/lita/ital/sites/ala.org.lita.ital/files/content/29/2/han.pdf.