Report on the Feasibility of Implementing a Shared Open Library System for New Jersey Academic Libraries

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Abstract

The study team visited the Atlanta, Georgia offices of the Georgia PINES (**P**ublic **I**nformation **N**etwork for **E**lectronic **S**ervices) public library consortium April 2-4, 2007 and spent a day-and-a-half with the consortia administrators and Evergreen open library system designers. The team also visited a small and a large county public library system, met with library administrators, staff, and users, and reviewed the functionality of the Evergreen system. The study team also reviewed the current integrated library system (ILS) environment in New Jersey academic libraries and the development and implementation of open library systems elsewhere. Based on the information gathered and the potential benefits to the academic library community of New Jersey, the study team recommends that VALE (Virtual Academic Library Environment) libraries begin implementing the Evergreen open source ILS software. This implementation will require funding to create an administrative infrastructure consisting of a VALE - Open Library System (OLS) office with an administrator and a small staff including programmers.

The creation of VALE-OLS will benefit the New Jersey Academic library community and its users by putting in place a system that is more flexible and adaptable than the current, commercial library systems. It can be developed in response to the needs of its users, rather than the needs of a corporation. It will create an environment where there is no duplication of effort with regards to the ILS, a more efficient, centralized management structure, and a shared bibliographic database that will create statewide findability and availability of materials – including the potential of a statewide academic borrowing card.

Introduction

Since its inception in 1998 as a “grass roots organization to develop inter-institutional information connectivity and collaborative library application projects among New Jersey academic libraries”, New Jersey's Virtual Academic Library Environment (VALE) has had as its core objective “to help institutions meet the demands of students and faculty for access to scholarly materials”. The purpose of the following report is to present the findings of a study team formed to gather information about the Georgia PINES (**P**ublic **I**nformation **N**etwork for **E**lectronic **S**ervices) library consortium's implementation of a statewide, shared library system. This paper will discuss the reasons why such a system is of interest, particulars of the PINES implementation of the open source Evergreen system, the shortcomings of our current integrated library system (ILS) model, a suggested local organizational structure, and recommendations to the VALE Executive Committee.

In January, 2007 a study team was assembled and charged “to explore the feasibility of implementing a shared open library system for New Jersey academic libraries.” The study team members are: Edward M. Corrado, Systems Librarian of The College of New Jersey (TCNJ); Ann D. Hoang, Assistant University Librarian of The New Jersey Institute of Technology (NJIT); Ann Montanaro, Director of Information Technology, Rutgers University Libraries; and Kurt W. Wagner, Head of Library Information Systems, William Paterson University.

The VALE OLS study team, after an examination of the Evergreen software and its use by the Georgia PINES consortium, recommends a similar implementation by VALE, having found it to be technologically and organizationally viable. Throughout the following discussion, we will identify those areas we see as critical, either from a technological or organizational perspective.

Discussion

A related series of events precipitated VALE's interest in an open ILS. The Visions for VALE retreat held in June 2006 produced as one of its publications a paper by Edward M. Corrado and James C. Robertson entitled "A Vision for VALE." That paper speculated about a near future in which a group of New Jersey academic libraries embark on a project to develop and implement an open library system based on open source, extensible software and making use of a shared bibliographic database. This vision had as its result the elimination of duplicated ILS efforts, the multiple benefits of a shared database, and the empowerment of smaller libraries to share in resources hitherto available only to larger institutions. All of these benefits echo the VALE mission.

In September 2006 a private equity firm acquired ExLibris. In December 2006 the firm also acquired Endeavor and has begun to pare down their product offerings. Similar

events have seen the consolidation of Sirsi and Dynix into another large, and potentially merged library system vendor. SirsiDynix, after its acquisition in January 2007 by another private equity firm, subsequently announced the end-of-life date for the Dynix products, including the Horizon ILS. Libraries have, over several generations of vendor-provided systems, begun to voice concerns over their maintenance costs, support, and corporate response to requests for improvements. Since libraries invest greatly in their ILS in terms of time, training, configuration and budget, there are no obvious alternatives to these vendor's systems. Despite concerns over customer service, increasing costs, and opaque (to the customer) corporate strategies, there are no conventional alternatives.

Jonathan Weber's December 15, 2006 article in *Library Journal*, "Evergreen: Your Homegrown ILS" served as a wakeup call and offered a true alternative to the traditional ILS vendor. The article's depiction of the Georgia PINES 250+ library implementation of Evergreen software in a shared database environment galvanized some VALE members to want to learn more about this system and to learn if something similar could relieve perceived problems with the traditional ILS model.

The New Jersey Integrated Library System Landscape

The 52 members of VALE have independent arrangements with ILS providers. In early 2007, 36 VALE libraries responded to a survey conducted by the study team in order to gather information about the functionality being used and the amount being invested in dollars and personnel for maintenance of their systems.

TABLE 1

VALE Library ILS Vendors	
21	SirsiDynix
9	Endeavor/Ex Libris
3	Innovative Interfaces
2	The Library Corporation
1	Polaris
36	Total ILS

Nearly all respondents reported that they use the OPAC, cataloging, and circulating modules, therefore these are considered the first "must have" functions for any new ILS. About 2/3 of the respondents reported that they use acquisitions, periodicals/serials control, academic reserves, and Z39.50 modules, indicating that these are also highly desirable functions. Eight libraries report that they use a materials/equipment/room scheduling module. Seven report use of open URL functionality. Six use a federated search tool.

One of the driving forces in considering alternatives to the current ILS arrangements is the number of staff members needed and the expense of maintaining an ILS. The

responding libraries report that they have, as a whole, more than 50 staff members currently involved in the administration of their ILS. Four report annual maintenance and licensing expenses over $50,000. Six pay from $30,000 to $50,000. Fifteen report paying between $10,000 and $30,000 annually. Salaries were not included in the survey, but, clearly, large sums are spent in New Jersey in salary and service contracts to maintain the current ILS structure. See the complete VALE ILS Survey summary in ***Appendix 1*** for more details.

About Open Source Software

Traditional commercial software is typically proprietary in nature. This usually means that users do not have access to the source code and they are unable to share the software with others. The source code is a human-readable version of the code that has not been compiled. A good way for non-programmers to think of source code is as a program "recipe." Without access to the source code, users cannot make changes or fix bugs in the software by themselves. Often there are ongoing license fees and other costs associated with proprietary software.

Open Source Software (OSS) is a term used to describe software that is licensed under the GNU Public License (GPL) or a series of other licenses that allows anyone to modify the source code free of charge. Besides being modifiable, OSS is also shareable (users may redistribute it without costs) and is generally available at no charge.

There are a number of advantages of OSS when compared to traditional proprietary software. As previously discussed, users are free to modify and improve the software on their own. This means changes and bug fixes can happen faster than with traditional software. Many OSS projects follow the release-often philosophy, which means changes to software can be incorporated into the programs at a much quicker pace. OSS licenses permit users to share the software and any modifications they make with others. Typically, OSS is available free of charge, however this does not necessarily mean that there are no costs associated with it. While it is true that there may be no license fees, implementation costs remain (such as costs associated with data migration). There can also be expenses related to the hiring and training of staff. These costs may not always make the decision to implement an OSS solution less expensive, especially in the short run, but instead of paying fees to a vendor, the organization is making an investment in its own staff. Technical staff will be able to learn from, change, and improve the program by examining the source code.

Because of the open nature of OSS, it minimizes the risks associated with vendor lock-in. If a corporate vendor goes out of business, is purchased by another company, or discontinues a product, the user may have no choice but to migrate to a different product. Migration may also be the only viable option if vendor support is unsatisfactory.

OSS is not necessarily without support or non-commercial. Indeed, OSS often allows for more support options than a traditional proprietary software programs. Organizations

using OSS have the option of hiring their own in-house support team or contracting it to a vendor. A 24x7 commercial support contract may be purchased, or support can be acquired on a piece-meal basis. Another option is to buy support separately for individual components. For instance, the operating system support may come from one vendor and the database support from another. The various support options also minimize the risk of vendor lock-in. For example, support for Linux can come from various sources including IBM, Sun Microsystems, Novell, and RedHat. There are already two companies, Equinox Software and LibLime, selling implementation, migration services, and ongoing support for Evergreen.

Traditional ILS vendors recognize the value of OSS and are using it in their product development. Ex Libris uses MySQL for SFX and Lucene for Primo. Ex Libris' Aleph 500 ILS can be installed on Linux. The Ex Libris Voyager ILS uses Apache HTTPD and Apache Tomcat. Innovative Interfaces, Inc. (III) has products that run on MySQL and SisiDynix's Unicorn utilizes Cygwin and Apache HTTPD.

Benefits of a Shared Integrated Library System

A shared system would reduce or eliminate some types of local ILS maintenance. Since the ILS servers would be shared and centrally located there would be no need for each individual library to purchase or maintain support their own local ILS servers. This will reduce expenses using because of economies of scale. Billing and overdue notices could, likewise, be centrally managed. This has the potential to free time for staff who are currently performing these functions locally to focus on other tasks.

With a shared ILS, a courier service could be put into place that would allow for the centralized delivery of materials between VALE libraries. Besides making things easier for patrons, this service should be able to reduce the time it currently takes to receive materials via interlibrary loan.

An added benefit would be the creation of local expertise diffused throughout the New Jersey academic library community. When questions arise it would easy to reach out to local expertise from other area libraries that are using the same system for advice. This local expertise can also serve the purpose of a local trainer pool for new librarians and library staff.

Benefits of a Shared Open Integrated Library System

Besides the above-mentioned benefits of any shared ILS, an open source shared ILS would have a number of additional benefits. A catalyst behind the creation of this white paper was increasing questions and concerns about traditional ILS vendors. Uncertainty in the marketplace caused by mergers and acquisitions, as well as issues relating to development priorities and quality support has raised issues with librarians in New Jersey and beyond. An open source system would help eliminate or marginalize this issue. If a vendor is supporting an OSS and the service is not good, another firm can be hired. By contrast, if the traditional vendor goes out of business or discontinues a

proprietary software product, customers without access to the source code will not be able to make changes, enhancements or bug fixes. In this sense, open source software is "vendor-proof."

Libraries participating in the VALE OLS project will be able to provide support and development resources themselves instead of relying on a vendor that may have other priorities. In an open source environment VALE will have access to the source code and will be able to make modifications or hire a software company to keep the software running and up-to-date. This would immunize VALE from the affects of software being discontinued.

Another advantage of access to the source code, and having the ability to modify it in-house, will give VALE local control over development. Instead of a vendor developing features designed to make the product more marketable around the country, indeed around the world, VALE will be able to design and implement enhancements needed for New Jersey academic libraries. Having local control, VALE can ensure agile, streamlined development. Due to an open architecture, built upon scalable and flexible technology not layered on years of legacy code, VALE will have greater ability to react quickly to changing user needs and demands. This is further aided by the fact that development will be written for the community, and by the community, not driven by financial corporate interests.

By implementing open source technology, VALE would have the ability to directly affect change. By participating in the open source community, enhancements, and new features created by VALE would be made available to other libraries using the same software at no cost. In return, VALE will benefit by the enhancements and new features added to the open source ILS by other developers.

Ordinarily open source software has better support for open standards than proprietary software. It is also easier to create APIs (Application Programming Interfaces) because the code is available for programmers to see, learn from, and understand. Between the support for open standards and the ability to create APIs it is easier to integrate new modules, third party applications, and campus information systems with an open source ILS.

Open source is not without cost. There will be implementation and other ongoing costs associated with an open source ILS. However, because the software is freely available, there will be no initial software costs or ongoing ILS licensing fees. Hardware and operating systems costs will also be lower than they would be with the typical proprietary ILS. Open source ILS typically runs on Linux operating system and PostregSQL database instead of expensive commercial software such as Solaris and Oracle. There are no licensing fees required for these open source applications. Open source software can run on less expensive hardware. For example, Georgia PINES would have spent nearly $2 million dollars for hardware and the operating system alone in order to migrate to a new proprietary ILS. They spent approximately $300,000 to purchase the server cluster and storage area network (SAN) that is running Evergreen.

In the long term, the money saved on these expenses can be used to fund further development and allow VALE to have greater control over where development and support costs are allocated compared to paying these fees to a traditional vendor. In short, an open source system will allow libraries to drive their ILS instead of being driven.

Benefits of a Proprietary Integrated Library System for all Academic Libraries

Although open source library systems have many unique advantages, a shared commercial ILS has some advantages not currently found in any open source ILS. By purchasing a shared commercial, proprietary ILS, VALE would be able to contract with a vendor with a longer track record, a large customer base, and user infrastructure in place.

A traditional vendor would also have a help desk and documentation readily available. While open source software generally supports open standards at least as well as proprietary systems, because of the diffused development structure, open source ILS developers usually do not have a seat at the table in standards organizations.

Evergreen Infrastructure

At this point, because it is not known how many and what size libraries would join, it is nearly impossible to determine the amount of hardware that would be needed to run the VALE OLS. However, the PINES experience shows that there are significant savings using Evergreen compared to a proprietary system that requires more expensive hardware. Assuming that the VALE OLS project would be started with a limited number of libraries that have approximately 150,000 patrons, 3 million bibliographic records, about 1 million circulations a year, a server cluster consisting of the following is a rough baseline about what would required:

1. A pair of databases servers with 16 to 32 GB RAMS each with dual or quad processing core Intel Xeon processors.
2. A small SAN (Storage Area Network) for data storage.
3. One "brick" of servers. A server brick for Evergreen consists of a group of servers that include one Apache web server and three or four drones. Each of these can be identical in hardware configuration and can consist of couple processing cores, 4 GB RAM, and ordinary ATA hard drives. Additional bricks can easily be added as VALE OLS grows.
4. A good quality Ethernet switch to link all of the servers together.
5. Optional: A small, central logging server.

As the number of libraries (and their size) increases, VALE could easily add additional server bricks and possibly a pair of load balancing servers. These rough estimates are

subject to the number and size of libraries that will initially participate in the VALE OLS project.

All of this equipment would need to be housed in one centralized data center. This could be a commercial data center or on a campus at a participating institution. Wherever the data center is located, it would need to be of high quality with climate control, security, adequate bandwidth, consistent up time, and robust electrical power.

Upgrades and patches would need to be planned in advance and coordinated with the participating institutions. For academic institutions, one obvious time for upgrade scheduling would be at the end of December after all participants complete their fall term. Also, it may be easier to schedule upgrades during the summer months than other times of the year. One of the timesaving features of Evergreen is that the client software is designed in such a manner that the software is automatically upgraded when a new version is available. This means that unlike in most current proprietary systems, there would be no need to manually upgrade each computer (or the need to use a centralized software management system).

PINES has implemented Evergreen with one, large, shared bibliographic database instead of separate bibliographic databases for each participant. From a technical standpoint, this appears to be the best way to implement Evergreen. While a shared database will require greater cooperation and coordination between libraries, it will also lead to greater efficiencies via shared cataloging, collection development and management, and resource sharing.

In Evergreen, the patron database is also shared. PINES participants use one library card at participating Georgia libraries. This allows authorized staff at every library to be able to see the current status (expired, blocked, etc.) of every patron who may come to the circulation desk. This is convenient for the patron because they can go to any participating library with one card. A shared patron database in New Jersey will enable the implementation of a single borrower card for VALE library patrons. This does raise some questions and concerns about patron management and privacy that will need to be worked out on a policy level when implementing Evergreen. It would be possible to build APIs or adaptors to be able to authenticate users to home institutions via LDAP, Shibboleth or other authentication methods if necessary.

Functionality

Traditionally, integrated library systems have been described in terms of their modules. However, this division may be more of a function of typical library workflow organization than software design. However, since that is the way the functionality of ILS software is typically analyzed; viewing each module separately is the approach that will be used. The following modules are standard components of most vendor systems and the

Evergreen software will be reviewed in each of these areas: acquisitions, serials control, cataloging, circulation, and the online catalog.

Acquisitions and Serials Control

Evergreen does not yet have either an acquisitions system or serials control functionality. The requirements have been written and the software is in development by programmers at the University of Windsor, Ontario, Canada. The module requirements include electronic records management features. It is expected to be ready for review by fall 2007, with implementation planned for 2008. See ***Appendix 2*** for information about the development of the acquisitions/serials control module. This is a feature of importance to PINES as they have large public libraries that cannot consider joining the consortium until the functionality is available. This also is a critical functionality for many VALE libraries.

Cataloging

The strength of the Evergreen cataloging module is its ease of importing individual MARC records using Z39.50. It is fast and efficient. It is also easy to modify imported MARC records and to add them to the database. However, there is no local batch import capability. As a result, each record is added individually. In the PINES system, whenever batch loading is required, it is done at the central office by a system administrator. Local batch loading capability will be needed for individual libraries to add MARC records that are pre-assembled, e.g. batch editing, microform sets, approval plans, serial titles for electronic records, etc.

Templates are available for original cataloging in MARC format. Increasingly, catalogs are going to include other metadata formats. The cataloging module does not yet support formats other than MARC. The software is written to support one master bibliographic record for each title. Currently there is no way of maintaining local subject fields or notes in the bibliographic record. Any incoming record that matches an existing record totally overlays the first record. During discussions with the PINES Database Manager, it was suggested that local information could be added as item notes. However, that would not be particularly useful because of the wide range of local information that may be desired (local author, donor, copy-specific characteristics, institution-specific subject categories, etc.). PINES has no requirement to index item notes. But, even if the notes were indexed, it would be difficult to sort item notes into the correct indexes.

“Bound-withs” (multiple bibliographic entities within one bound volume) are problematic for most systems and Evergreen does not have a method for handling them.

The PINES central office loads all bibliographic holdings in OCLC. Local catalogers can delete individual copies from their holdings, but deletion of full bibliographic records from the PINES database is done centrally.

Authority control is part of the Evergreen software and updates are done monthly. This capability has not been a priority for them. No bulk match functionality has been written. When a cataloger validates a record, it is checked against the PINES central authority file.

Staff search of the bibliographic database is performed within Cataloging using the "Advanced Search" interface that is also available in the OPAC.

Evergreen does not use the MARC Holdings Format.

Circulation

The Evergreen software was written for a public library consortium and it fully meets the needs of the PINES organization for which it was developed. While academic libraries perform most of the same functions as a public library, how they perform those functions is often quite different. Circulation is a prime example of that. In the PINES system, each library agreed to follow the same circulation rules. This unification reduces the complexity required of the system. For instance, there is one set of borrower types, loan and renewal periods, fine amounts, and a limit to the number of items that can be placed on hold. In the public library setting materials are checked out for a relatively short period of time with the expectation that they will be renewed or returned when they are due. Evergreen has a recall function but has not been tested or used. Borrowers can place holds on needed items but the hold is filled only when the item is returned, or if the requested item is available at another library.

The Evergreen software supports varying circulation periods based on the type of borrower. New Jersey libraries would need uniform borrowing policies or would require extensive, complex tables or matrices to accommodate all possible borrower types. The table below shows an example of the extent of the variation between four New Jersey academic institutions regarding rules governing the circulation of books. Even more variation can be anticipated when more libraries and material types are added. An example of one book circulation rule for four New Jersey academic libraries is detailed in ***Table 2***.

The Evergreen software has robust hold and transit features. In the PINES configuration, a borrower with a state-wide library card can borrow from any PINES library. Materials can easily be put on hold, which acts as a request, and the hold is filled from the owning library or the library closest to the pick-up location. (Holds on new books are restricted for the first six months. They can only be requested from patrons of the owning library or regional library.) Library materials can be picked up and returned at any location. Similarly, fines and fees can be paid at any location. In the PINES system, the library that receives fine money keeps it. However, fees for lost books are returned to the owning library.

TABLE 2				
	The College of New Jersey	Rutgers University	New Jersey Institute of Technology	William Paterson University
Circulation of books				
Undergraduate loan period	28 days	28 days	28 days	28 days
Number of items out	50	240	15	30
Renewal limit	1	no limit	2	1
Overdue fine amount	.05/day	0	.10/day	.25/day
Graduate student loan period	28 days	semester	28 days	28 days
Number of items out	50	240	25	30
Renewal limit	1	no limit	3	1
Overdue fine amount	.05/day	0	.10/day	.25/day
Faculty/staff loan period	semester	semester	semester	semester
Number of items out	no limit	240	25	30
Renewal limit	3	no limit	no renewal	1
Overdue fine amount	0	0	0	0
Alumni loan period	28 days	28 days	28 days	28 days
Number of items out	20	25	10	30
Renewal limit	1	no limit	2	1
Overdue fine amount	.05/day	0	.10/day	.25/day
Guest loan period	28 days	28 days	28 days	
Number of items out	10	25	10	
Renewal limit	1	no limit	2	
Overdue fine amount	.05/day	0	.10/day	
Retired faculty loan period	28 days	28 days		
Number of items out	10	240		
Renewal limit	1	no limit		
Overdue fine amount	.05/day	0		
Retired staff loan period	28 days	28 days		
Number of items out	10	240		
Renewal limit	1	no limit		
Overdue fine amount	.05/day	0		
Visiting scholars loan period	28 days	28 days		
Number of items out	10	25		
Renewal limit	1	no limit		
Overdue fine amount	.05/day	0		

Unlike academic libraries, PINES does not need to batch load patron records from an external source, such as a registrar's file, or to delete individual patrons. At PINES, the initial patron load was performed with SQL scripts. All new patron records are added to the PINES database one at a time. By law PINES is required to keep the patron records for 7 years. As a result, no mechanism has been developed for removing patrons. Currently, when a mistake is made or a duplicate record is entered, the record is flagged as "inactive." Eventually the administrator will remove these "inactive" records. Notes to or about a patron can be added to the patron record. They can be set as "staff only" or can be viewed by the patron.

The circulation software can handle "on-the-fly" charging of material that is not in the database. When such material is returned it is flagged to be cataloged.

The intra-library loan functionality within the PINES system is fully developed but the software does not have interlibrary loan (ILL) functionality, nor does it link to a third-party ILL system.

Academic Reserves

The PINES consortium has no need for academic reserves so it has not yet been a programming requirement. However, the developers are reviewing ReserveDirect, an open source application, written at Emory University, as a module that could fulfill the functional requirements.

Booking System

Many academic libraries have booking systems used to schedule rooms, equipment, and media. Evergreen does not currently have this ability. The developers suggested there might be an open source booking system that could fill the requirements.

Report Writing

One of the few criticisms library staff (and even Evergreen developers) expressed about Evergreen was the report-writing functionality. The problem is not that it does not exist but that it is so sophisticated and configurable that only the programmers can interpret it. As written, it offers users too many options expressed in "programmers' language." Some canned reports have been developed but most reports are currently being produced at the central office. Simplified report writing is a high priority to Evergreen development and should be available soon.

Online Catalog (OPAC)

The online catalog will require a comprehensive, in-depth review to understand exactly how it currently works, what characteristics are configurable options, and which will require programming modifications to meet the needs of academic libraries.

The catalog has many outstanding useful features. It has been designed so that the "skin" of the catalog can have a single interface for a unified "look" for a consortium or can be customized with different interfaces for individual institutions. It has both a basic search option and a highly customizable advanced search option. Librarians will appreciate the "MARC Expert Search." With this feature a user can search for a term or terms in MARC tag-numbered fields. The full MARC record is a display option within the catalog and the number search gives users the option of searching for a specific number in an indexed number field (ISBN, call number, barcode, etc.). Most numbers can also be searched as keywords.

The search results display with format icons used as visual references to identify the type of item retrieved. For instance, video has an icon of a movie camera, printed music has a note, and text is displayed with a book. Clicking on one of the icons limits the display to that format. Another useful feature is the "Shelf Browser." Using the call number range of the retrieved item, a patron can "browse" the nearby shelves in a selected library or the whole consortium.

Each successful search displays facets that represent related subjects, authors, and series displayed in a frame next to the bibliographic record. Selecting one of these links searches the catalog again using that subject, author, or series to find additional items.

During testing for this report, a number of catalog searches presented questionable results. The catalog includes a "did you mean?" feature when a search term does not match anything in the database. However, it is unclear how this mechanism works and the source of the suggestions. For instance, a keyword search for "Einsteen," returned, "Did you mean *ein steen*?" Similarly, a search for "braile" returned, "Did you mean *barile*?"

The database is Unicode compliant and developers displayed PINES records in the original font and character set.

A current search of the PINES catalog defaults to relevance ranking as the "sort criteria," but it is not obvious how relevance is being set. A system-wide search of "Einstein" in PINES resulted in "at least 148 hits." The first title displayed was *Willie Mays: my life in and out of baseball, as told to Charles Einstein*, authored by Willie Mays, and published in 1972. It was held by three libraries in the system. *Einstein on Peace*, written by Albert Einstein, displayed second in the list. Similarly, a search of "Harry Potter" resulted in a list of 277 records with the Spanish edition of *Harry Potter and the Chamber of Secrets* as the first title listed. More investigation is needed to understand how relevance is set.

The keywords do not retrieve results exactly as expected. A search on the term "pop-up" brings up records with the term "pop." When the term is searched with surrounding quotation marks, the search returns "Zero hits were returned for your search. Did you mean *popp*?" The Evergreen online documentation states, "You can search for an exact

phrase using double quotes. For example, “Harry Potter” will find only items with the exact phrase, not with the terms Harry or Potter alone.”

Some search result behaviors are difficult to understand. The advanced search function has many search filters that let the patron limit a search by such things as item format, language, audience, and more. However, if a search is performed using a filter (for instance, limiting results to “large print”) and the search results in zero hits, the filter is dropped when subsequent searches are performed. The new search reverts to a basic search, not the previous advanced, filtered search.

The “My Account” features are well developed. Users can view their own personal account information, including contact information, items checked out or on hold, and fines. A patron can reset both password and username. A user can also set personal preferences for viewing in Evergreen: setting the size of the font, the number of items displayed per page, and preference for notification. Bookbags is a password-controlled “My Account” option. A patron could use it to keep track of books they would like to use for research, books read, or suggestions for others. Bookbags can either be private, viewable only by the creator, or public, viewable by anyone who knows where the Bookbag resides. By default, all Bookbags are private, and the user must explicitly instruct the system to allow others to view the contents of a Bookbag.

PINES has enhanced their catalog with subscriptions to the Syndetics Solutions dust jackets and reviews. Unlike some other systems using dust jackets, these images can be enlarged so that the full text on the cover can be read.

Evergreen does not currently have a direct link to GALILEO (**G**eorgi**A LI**brary **LE**arning **O**nline). However, a patron who logs into the PINES system can go to GALILEO without having to be authenticated a second time. Providing the link is on Evergreen’s list of priorities.

During the study team’s visit to the PINES offices in Atlanta, Evergreen developer Jason Etheridge reviewed a preliminary list of Rutgers University Libraries’ ILS functional requirements. The team asked Jason to code the summary so that Evergreen’s ability to fulfill Rutgers’ requirements could be analyzed. Of the 110 requirements, 28 were reported as currently supported by Evergreen. 6 were reported as a feature of Evergreen configurable through scripting. 23 requirements were reported as “probably has the feature, requires more discussion.” 26 requirements were reported as “will have it implemented soon for PINES.” 27 requirements were reported as “requires [new] development.” This summary can be viewed in full in ***Appendix 3***.

Interest in Evergreen beyond PINES

Currently, the only Evergreen installation in production is at PINES. However, there has been significant interest expressed in Evergreen by other libraries and consortia. The University of Windsor has partnered with PINES to build an acquisitions/serials modules for Evergreen and they plan to implement Evergreen once it is completed. The Kings

County Library System in the State of Washington has signed a contract with Equinox Software. (Equinox Software, founded by the original Evergreen software developers, is a company that will install, maintain, and support Evergreen.) Equinox will provide services including data translation and loading, software installation and customization, and training and consultation on Evergreen's capabilities and features. A large consortium of public and academic libraries throughout the province of British Columbia is also investigating Evergreen. Other academic libraries and library consortia have also expressed interest, but have wished to remain anonymous at this point. It is anticipated that as more libraries, especially academic libraries, migrate to Evergreen, the software will become better and more full-featured.

Other Integrated Library System Possibilities

Koha is another viable open source ILS. While there are many more installations of Koha than Evergreen (Joshua Ferraro, a Koha developer and President of LibLime, estimates there are at least 300 production installations of Koha around the world), there are no known installations in large consortiums. While the new version of Koha known as KohaZoom promises to be more scalable than previous versions, the scalability in a large environment is yet to be tested. On the surface, Evergreen's staff clients also appear to be more full featured and have advanced functionality (although it should be noted that Koha already has an acquisitions/serials module). Because of time limitations and lack of consortial implementations, the feasibility of Koha for the VALE OLS project was not addressed. Koha might be another consideration, however, Evergreen shows more promise and is proven to work in a large-scale consortium.

The study team did not investigate the feasibility of acquiring a commercial, proprietary ILS for New Jersey academic institutions. There are large academic library consortiums running on proprietary systems in Florida, New York, Illinois, and other states. Thus, there is no reason to believe the software would not function for VALE. However, with a commercial, proprietary system VALE would still have the same vendor-related issues now faced with the current systems. For these reasons, and others, this option was not evaluated.

A third possibility for a shared system would be to develop our own system. This option was not evaluated. This would take many more resources and much more time than building on what is already available. Since Evergreen already has the building blocks in place, with proven reliability and scalability, it meets the requirements for the VALE OLS. There appears to be no reason to incur the additional costs and time necessary to "re-invent" the wheel.

Suggested Organizational Structure of VALE OLS

In order to implement a VALE OLS, an entity will need to be created to support and manage the system and its associated hardware and software. For the purpose of this report, this entity is called the VALE OLS Technology Office. The VALE OLS Technology Office, through its administrator, will report to VALE Executive Committee.

VALE Executive Committee will serve as the oversight committee for the ongoing operation and growth of VALE OLS Technology Office.

The components of the VALE OLS Technology Office include:

- Administrator and staff
- Physical location(s) for staff and hardware
- OLS Development Advisory Committee
- Functionality subcommittees

The VALE OLS Technology Office should be centrally located for ease of access to meetings, training, and deployment of trainers to local institutions. The VALE OLS servers should be located in a data center, accessible to the developers for various required functions (i.e. data backup, software installation, hardware maintenance and upgrades, etc.)

Seed money will be needed to begin the implementation of the VALE OLS project. The VALE Executive Committee may choose to seek funding from the State of New Jersey and/or various grant funding agencies. This will establish the VALE OLS Technology Office and begin the first phase of the VALE OLS project. Funding for subsequent years may come from annual maintenance and development fees paid by participating institutions. Eventually, the VALE OLS should be able to sustain itself as more and more institutions participate.

The VALE OLS Technology Office will need to hire a director reporting to the VALE Executive Committee. An OLS Development Advisory Committee should be established to guide the OLS development priorities. The membership of the OLS Development Advisory Committee should include:

- VALE OLS Director
- Representatives from the VALE Executive Committee
- Representatives from participating institutions
- Representatives from non-participating institutions (non-voting)

Initially, representatives of the participating institutions will constitute the governing body for administration, while representatives from the non-participating institutions may serve in an advisory capacity. This is to ensure that development meets the needs of all VALE libraries.

The members of the Development Advisory Committee will have liaison responsibility to the functionality subcommittees. The functionality subcommittees will make recommendations and guide the directions of the OLS software.

The functionality subcommittees should include:

- Acquisitions/serials control
- Cataloging (e. g. MARC records, authority control, other metadata formats, and one bibliographic database)
- Circulation (e. g. academic reserves, booking system, system-wide academic borrower card, inter-institution request delivery, and ILL)
- OPAC
- Other subcommittees as needed

The first phase of the VALE OLS project should include any VALE member institution, private or public, universities or colleges that desires to participate.

Suggested Administration Structure for VALE OLS

The VALE OLS Technology Office staff will develop, manage and operate the VALE OLS. The initial VALE OLS Technology Office should include:

- VALE OLS Director
- Two software developers/system administrators
- One database manager/trainer

It is desirable that all staff have a library degree and/or library background. However, for the developer positions, it is not as vital to have a library degree and background, as long as they have the necessary technical and programming skills. The developers should have the expertise comparable to those of the original PINES' developers. To ensure the integrity of the single, shared bibliographic database, it is essential that the database manager/trainer has extensive cataloging background including expertise in authority control. See ***Appendix 4*** for the PINES job descriptions.

The VALE OLS Director will report to the VALE Executive Committee. The director's responsibilities will include outreach, advocacy, and the day-to-day management of the VALE OLS Technology Office. Additional responsibilities may include grant writing, customer/helpdesk support and services, assessment, documentation, and inter-institution request delivery.

The developers' responsibilities will include systems administration, software development, customer/helpdesk support and services, and documentation. The developers will work with participating institutions to fully test new functions prior to deployment.

The database manager's responsibilities will include maintaining the integrity of the bibliographic and patron databases, training, documentation, customer/helpdesk support and services, and assistance with the management of inter-institution request delivery.

The VALE OLS Technology Office director and staff will work closely with all committees as well as the participating institutions to continuously assess the VALE OLS software. They will also host focus group meetings and conduct annual surveys to ensure user satisfaction at participating institutions.

The VALE OLS Development Advisory Committee will ensure development growth and deployment that is acceptable to current and future participants. The Advisory Committee will work with the VALE OLS Technology Office Director to seek regular funding, solicit additional members, and perform assessment and ongoing evaluation.

The functionality subcommittees will work closely with the VALE OLS director, developers, and database manager on initial deployment, future development, documentation, and training. The functionality subcommittees will also work closely with the developers and participating institutions to test new functions and enhancements prior to release.

Conclusion and Recommendations

The study team recommends that VALE libraries begin implementing the Evergreen open source ILS software. Implementation by the academic libraries of New Jersey will be a significant contribution, phased in over several years. The study team has seen that Evergreen is a workable ILS system as deployed in a large, statewide public library consortium. After interviewing a cross section of library staff, we observed great satisfaction with the functionality of Evergreen and its support by PINES. The Evergreen system is stable, viable, and well supported by the PINES administrative and technical infrastructure. The Evergreen software is undergoing continual assessment and benefits from timely improvements based on user feedback. On numerous occasions the benefits provided by the PINES Evergreen system were obvious: the efficiencies of a single, shared bibliographic database; the commonality of a shared ILS; the convenience of a single, shared patron database; and development based on the needs of users rather than the priorities of a corporation.

The charge to this study team was to “explore the feasibility of implementing a shared open library system in New Jersey academic libraries”. This report has discussed the requirements for such a statewide academic ILS. The organization proposed will meet the functional and administrative needs of a statewide ILS. The study team recommends the timely formation of a VALE OLS Implementation Committee to maintain the momentum initiated by this study team. The new committee will be responsible for setting the direction for the project, getting the support of a core group of participating libraries, and establishing the functional subcommittees. Additionally, the committee will work with the VALE Executive Committee to seek initial funding.

We recommend a test installation of the Evergreen software to accommodate the testing of the application. This initial implementation will allow the functional subcommittees to explore and evaluate the software using sample bibliographic data acquired from participating libraries and test patron records.

We recommend that the VALE OLS Implementation Committee establish functional subcommittees to begin preparing the VALE OLS requirements, to review existing Evergreen functionality, and to determine areas where additional programming and/or software modifications will be required. The following committees will be needed:

- Technology Committee: review hardware, software, documentation, and administrative functions
- Acquisitions Committee: review software development related to acquisitions, fiscal control, electronic records management, and serials control
- Cataloging Committee: review the functionality of copy cataloging, original cataloging, and authority control
- Circulation Committee: review circulation, academic reserves, booking, and interlibrary loan
- OPAC Committee: review the online catalog

The VALE OLS project requires a statewide shared bibliographic database. We further recommend the establishment of a statewide academic library patron database and borrower card to facilitate a circulation and distribution network.

We encourage the VALE Executive Committee to adopt these recommendations to implement an open source library system. This will reduce the duplication of efforts throughout the New Jersey academic library community, enable cooperative collection development, leverage efficiencies of scale, and, most fundamentally, create a library environment for users where shared resources become available throughout the state.

Appendices

1. ILS Survey
2. Acquisitions/Serials Document
3. Comparison of Rutgers' Functional Requirements with Evergreen
4. Job Descriptions

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