

Reigniting the OPAC as a metadata hub

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Abstract

The OPAC, being a well-structured metadata resource with open extensibility through a well-understood ontology, should not be neglected as an effective path to effective resource delivery. Combined with an open source approach the OPAC can be re-invigorated as a metadata hub. Through Web 2.0 and service layers such as OAP-PMH and by importing metadata from existing electronic sources the traditional OPAC can service as a search interface through to both print and electronic resources.

Introduction

Many would regard the Library Management System (LMS) and the Online Public Access Catalogue (OPAC) as legacy systems doomed to manage a dwindling print collection. There is a clear trend in special libraries to substitute physical with digital resources. Indeed, the replacement of physical resources with electronic continues at a pace faster than the resolution of copyright, archiving and licensing issues. In the special libraries that Prosentient Systems deals with regularly (health, legal and governmental), this trend has accelerated in the last five years.

This trend has both positive and negative impacts. On the downside, there is a growing uniformity of electronic holdings across many special libraries, as they discard individual subscription models and replace them with consortia and packaged subscription arrangements. For instance, in the GratisNet network of health libraries in Australia, out of 248 libraries, 165 have overlapping electronic subscriptions to consortia e-journal services. As a result, the broader union catalogue is changing from a heterogeneous mix of journals to a mono-cultural collection. On the upside, clients have more immediate access to electronic resources, both directly through the library subscriptions and through document delivery.

The OPAC and open source

Koha, for instance, is an open source Library Management System that has had wide adoption internationally (Breeding, M 2011) and in Australia (Prosentient Systems 2011). Having introduced Koha to many special libraries in the last two years, I have been in an unusual position to see the detailed profile of many quite diverse library collections. Figure 1 below shows the print holdings by publication year across 60 special libraries operating the Koha Library Management System (Koha Library Software Community 2011). The decline of print purchases in special libraries is profound. The last decade has seen this trend accelerate. It is apparent these special libraries passed “Peak Book” in the early 1990s. The following graphic vividly expresses the changing face of service delivery in libraries.

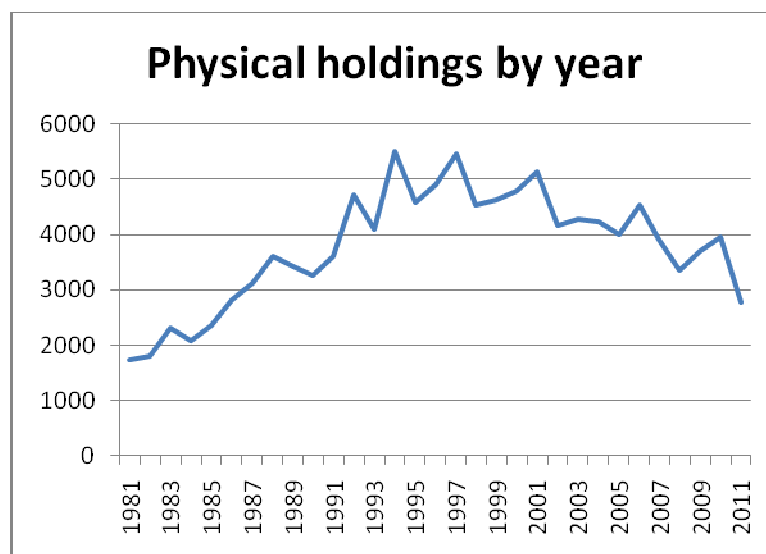


Figure 1: Physical holdings by year of publication across 60 special libraries using Koha

The role of the library is also challenged by the availability of free online resources through quick, effective search engines. The library has much to lose in a context where seemingly effective resources are available free of charge: at risk is the relevance and the authority of the library as a trusted information source. It becomes all the more important for libraries to place themselves squarely in the new information routes of their clients, including social networking.

Where then, does this place the library catalogue? Is it a portal to an increasingly irrelevant part of the library collection? At the turn of the millennium, the Online Public Access Catalogue looked like a mature library system to which nothing much new would be added. However, a decade changes a lot in the world of information technology. Open source and social networking/Library 2.0 have been “game changers” in the area of software for libraries (Balnaves 2008). During the last ten years, several open source systems for library management and digital library management, and of course for content management, have matured. Because they have matured in an era of intense web innovation, the current generation of open source solutions for libraries typically:

- are richly web enabled
- incorporate tagging and allow interactivity in the catalogue, including book reviews
- take advantage of Web 2.0 services, such as finding book jacket images through ISBN lookups
- have a range of web service interfaces that allow mash-ups and interaction with other web-based services.

The OPAC as a metadata hub

Clients *want* digital information – and in many cases will *only* use the resources that are in digital format. More than that, ubiquitous discoverability is also important, so that they can unify discovery of their preferred resources in one personal location.

There are, of course, fantastic federated and unified search systems available (not the least of which is Summon) Serials solutions (2011). These systems draw on a rich underlying database resource that enables them to index large electronic collections and that also gives visibility into library collections. For the larger libraries that can afford subscriptions to these deep search tools, the OPAC is simply one among many resources presented through a unified federated search.

Such solutions, while impressive, are not within the budget of all libraries. For smaller institutions, a more cost-effective method is needed to bring these rich resources together in an effective manner. The OPAC, being a well-structured metadata resource with open extensibility through a well-understood ontology, should not be neglected as an effective path to effective resource delivery. It is worth taking a second look at the Library Management System to see whether it might fit the bill. In this dynamic context, the online catalogue has the potential to become the metadata hub for the organisation. Open source, with its integrative possibilities, provides opportunities for making the catalogue *the* search portal for the library. This paper illustrates the use of Koha as a portal into internal resource, including consortia digital subscriptions, digital library resources and single sign-on

through cross-integration with the Athens authentication system (eduserve, 2011) and other single sign-on systems, and by visibility through Z39.50 and Open Archives Initiative, Protocol for Metadata Harvesting (OAI-PMH) interfaces (Lagoze and van der Sompel , 2001). Combined with an open source approach, the OPAC can be re-invigorated as a metadata hub. The major benefit of open source systems is the greater ease by which new functions can be contributed and integrated - and in particular the ability to add open services for information interchange such as web services. As a result, open source systems are amenable to integration with other systems.

Koha, for instance, has the hooks necessary for web services delivery. It supports syndication through RSS. It has a service layer that supports the OAI-PMH metadata. It can act as a Z39.50 search server and client for integration with other libraries. It has a web services layer that can support extensibility through mash-ups. It can support Athens integration for commonly used single sign-on to electronic resources. In addition the OPAC itself has a range of Web 2.0 features such as tagging and cross-integration with other web services. This level of openness creates opportunities for creative use of the OPAC in new ways.

An open, Web 2.0-enabled OPAC can provide metadata discovery and annotation abilities that go beyond that of the digital library system. One of the elements of institutional adoption of repository software, in conjunction with Web 2.0 features emerging from open source catalogues, is the breathing of life and excitement into the library catalogue. The catalogue can now be an interactive, Web 2.0-enabled gateway to resources, including a consolidated view of your enterprise resources. Because Koha can provide linking through tagging, and can be separately indexed through services such as OAI/PMH, the library can achieve a level of visibility through modern web catalogues with associated web services (for Web 2.0 mashups and integration with other systems) that would not otherwise have been expected out of a traditional OPAC.

Figure 2 (next page) illustrates how open source can be the glue to build an enterprise library architecture that can include:

- single sign-on architectures
- content management
- digital library management
- Web 2.0 enabled catalogue / federated searching.

The role of the library in managing electronic resources is changing the delivery framework for information resources in the library. One possible direction is to "bury" the OPAC - to replace it an over-arching discovery tool. This is the fate of older systems that do not have a services framework to complement the web-based search engine. While "OPAC" may be an unfashionable acronym, it is symbolic of an underlying rigour in metadata collection and management - so this is not necessarily the best direction for all libraries. When complemented with Web 2.0 capabilities, strong search capabilities, harvesting capabilities and with layered services enabled, the OPAC can operate as much more than a web-enabled card catalogue.

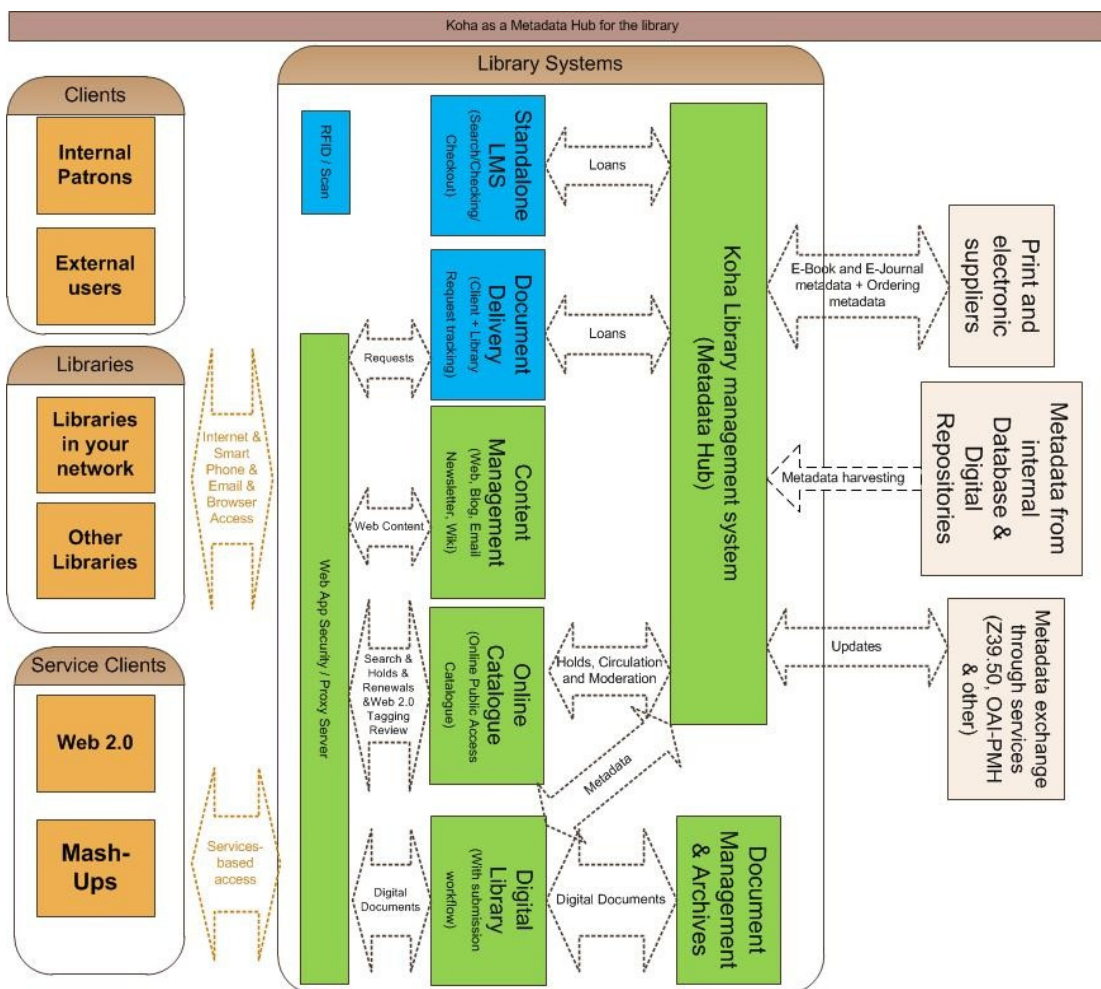


Figure 2: Koha as a metadata hub

Some examples

For area health services in NSW and the Northern Territory, this vision is realised in a number of ways:

- the catalogue becomes a metadata hub, by providing an integrated search engine for institutional repository and consortia electronic resources with classic Google-style search interfaces and faceted search results.
- electronic content can also be summarised through title and subject resource lists (see Figure 3 below).
- the service layers allow integration at the user authentication layer, allowing single sign-on and integration between Koha, DSpace (an open source digital library) and document delivery services.

The screenshot shows the top navigation bar for South Eastern Sydney Illawarra NSW Health, with links for Catalogue Home, Intranet Home, and Internet Home. Below the navigation bar is a search filter input field. The main content area features two tabs: 'A-Z ejournal list' (selected) and 'Subjects'. Under the 'A-Z ejournal list' tab, there is an alpha list of letters from A to Y. Below the alpha list is a search input field with a 'go' button. The search results are displayed in a table with two columns: 'Catalogue entries' and 'Electronic Resources - click on the link to access these resources online'. The table lists four entries: AACN Viewpoint, AAC: Augmentative & Alternative Communication, AACN Advanced Critical Care, and AACN Clinical Issues: Advanced Practice in Acute & Critical Care, each with a corresponding electronic resource link.

Catalogue entries	Electronic Resources - click on the link to access these resources online
AACN Viewpoint	CIAP EBSCOhost 1/2004 -
AAC: Augmentative & Alternative Communication	CIAP EBSCOhost 3/2001 -Embarqo: 12 month(s)
AACN Advanced Critical Care	CIAP OvidSP 4/2006 -
AACN Clinical Issues: Advanced Practice in Acute & Critical Care	CIAP OvidSP 2/1996 - 3/2006

Figure 3: Alternative views of catalogue data – a subject and alpha list of e-journal resources

While open source has no license fees, it is not correct to regard it as "free". Every information system used by the library has costs: for the infrastructure used to run the service and for the cost of ongoing support. Not having to pay license fees would not in itself motivate libraries to adopt open source solutions for library systems, unless they were also a functionally effective system that met their needs. Here the ten years of development backing up current open source options, such as Koha and Evergreen, provide further motivation for adoption of open source systems:

- they offer functionally rich systems which have many open services layers
- they offer a cheaper system on the basis of ongoing support
- they are increasingly well accepted among the library community.

For instance, Figure 4 is a map of Koha deployments by Prosentient Systems in Australia.

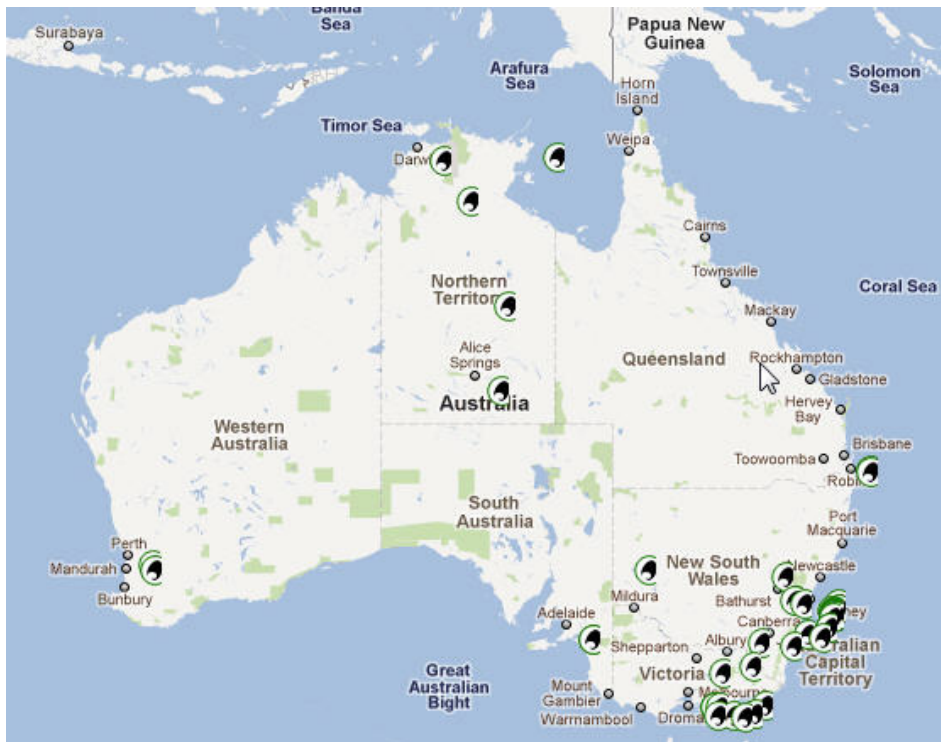


Figure 4: Koha implementations through Prosentient Systems in Australia

Open source has passed the critical mass of acceptance for both Library Management and Digital Library systems. However, without reconsidering the overall role of the OPAC, both these systems are at danger of becoming "legacy" systems. The important step in this is to move away from thinking about the Library Management System as a cataloguing system and think of it as a sophisticated *metadata management system*. Koha, for instance, uses MARC XML. Having the MARC data in XML allows the generation through XML "crosswalks" of any data interchange format - for instance, MODS, METS for OAI/PMH. These interfaces provide visibility of the catalogue for other systems, including for mashups, delivery through RSS feeds and other service-layer cross-integration (Breeding 2010).

While the typical Library Management System cannot store digital objects it can:

- store full description information and links to the digital objects
- provide a search engine accessible via the web, Web 2.0 and web service layers for discovery of the resources
- provide tools for management of acquisition and auditing of the digital resources.

One of the benefits of open source is the ability to extend the system. Not only is the source code provided in full, but also the library can modify the system and even contribute back to the development and enhancement of the system. For instance, ACT Health modified the open source Joomla system to act as a single sign-on point for the internal resources managed by the library. With single sign-on, the cross-integration with other resources in the library can be seamless to the client. Systems such as Koha include a variety of single sign-on services layers, such as LDAP (Lightweight Directory Access Protocol) and CAS (Central Authentication System).

The increasing take-up of mobile devices as a means for information access illustrates the demand for simple, direct access to information resources in a seamless manner (Griffey 2010). If we have learned nothing else from the semantic web, it is the importance of well-structured metadata delivery. In this context the library catalogue still provides a consistent and effective framework for metadata capture and presentation. The openness of the open source LMS has other benefits - such as extensibility to adjust the presentation layer to support mobile devices.

Methods for unifying metadata in the OPAC

Some of the methods for centralising metadata in the OPAC are:

- (1) Loading freely available e-journal and e-book lists into the catalogue to facilitate searching. Many publishers and suppliers will provide lists of resources that your library subscribes to. These may be in MARC format already, in which case import into the catalogue is quite straightforward in the case of Koha (which is MARC-based). They may be in spreadsheet or text format, in which case a few steps of transformation into MARC may be necessary (there is a great free tool called MarcEdit that can facilitate this).
- (2) Consolidating metadata from internal document management systems, digital libraries and document lists into the catalogue to facilitate document discovery. Koha has a services layer that can allow you to invest in your own "feed" of such information into Koha.
- (3) Extending the Z39.50 capability in Koha to also perform federated searches on other systems - this is getting into a deeper layer of development. If your library has these resources to draw in, the open source nature of Koha allows such extensions.

NSW Parliamentary Library

The NSW Parliamentary Library has a print collection of about 200,000 items, including an impressive rare books collection. It also has more than 400,000 news articles, media releases and digital resources supporting current awareness and the parliamentary "collective memory". These disparate resources are brought together using the Library Management System. The Koha system provides a common search interface through to all of these resources. When items are added to the digital library, a web services layer transfers the metadata for these objects to Koha and presents a simple, quick interface for selection of items requiring classification (Figure 5). There the items are metadata enhanced with subject-authority information. This process is facilitated through the use of AJAX auto-fill forms (Figure 6).

Subject cataloguing for NSW parliament

[Home](#) | [Cataloguing](#) | [Loader items to catalogue](#) | [Update from Dspace](#)

Showing records 1 to 100 of 871		1 2 3 4 5 6 7 8 9 »		Records on page: 100 ▾	
title	biblio number	citation	nocataloguing	viewpdf	subjectcataloguing
We'll pay our bills	725649	The Daily Telegraph Tuesday 12th July p 11	[no cataloguing]	[view pdf]	[subject cataloguing]
New plan aims to keep the 'burb at Brookie	725648	The Daily Telegraph Tuesday 12th July p 11	[no cataloguing]	[view pdf]	[subject cataloguing]
Bogus smoke a \$2b waste	725647	The Daily Telegraph Tuesday 12th July p 11	[no cataloguing]	[view pdf]	[subject cataloguing]
Once again, western Sydney left carrying the can for Labor's grand plans	725646	The Daily Telegraph Tuesday 12th July p 6	[no cataloguing]	[view pdf]	[subject cataloguing]
Ibrahim venture tops target list	725645	The Daily Telegraph Tuesday 12th July p 4	[no cataloguing]	[view pdf]	[subject cataloguing]
Title has Lady Gaga in Clover	725644	The Daily Telegraph Tuesday 12th July p 3	[no cataloguing]	[view pdf]	[subject cataloguing]

Figure 5: Speeding up the metadata definition using workflow

Subject cataloguing from Dspace

[Home](#) | [Cataloguing](#) | [Loader items to catalogue](#) | [Update from Dspace](#)

Update the subjects for this entry

Bibliumber: 725644
Author: Kathy McCabe
Title: Title has Lady Gaga in Clover
Full text: Kathy McCabe Music Editor THE two most powerful women in Sydney came head to shoulder yesterday as a statuesque Lady Gaga was made an official Sydneysider by Lord Mayor Clover Moore. With the world's most influential pop star in command of the city's airwaves and nightclubs since arriving, it was only fitting she was awarded honorary citizenship of Sydney -- the first entertainer of her kind to be bestowed the title along with four tennis players and an Italian conductor. Gaga has enjoyed a love affair with the town since her first visit in September 2008 as Australia rewarded the New York pop princess with her first No.1 hit Just Dance. Back then she performed at the small Oxford Art Factory which holds about 400 people. Tomorrow night she will hold court over the Monster Hall -- formerly known as the Sydney Town Hall -- with a \$1 million show and party for 1000 fans and A-listers including Erica Packer and Russell Crowe. When Ms Moore presented the honorary title to the singer, she was almost rewarded with a kiss on the cheek -- but Gaga missed her target thanks to the stilettoassisted height difference. The singer-songwriter appeared to accept the plaque with as much excitement as a Grammy win. "I'm an Aussie," she exclaimed, jumping up and down. Ms Moore paid tribute to Gaga's gay rights activism, particularly her same-sex marriage crusade, which also inspired the title track of her latest album Born This Way. "A struggle like this has many parents, but one woman has helped turn the tide -- from playing small bars in New York to huge arenas around the world, Lady Gaga is one of the world's biggest stars," Ms Moore said. "I would like to pay tribute to her for using her star power to focus attention on the prejudice directed at gay men and women. Lady Gaga has been a powerful force for the gay and lesbian community in Sydney and we have a rare honour for people whose achievements embrace the ideals and spirit of our city -- Honorary Citizen of Sydney." Missing the mark: Lady Gaga yesterday and (inset) trying to plant one on Lord Mayor Clover Moore Picture: Brad Hunter
Subjects:
 600 : \$a Moore, Clover remove
 650 : \$a 2011-07-12 remove
 650 : \$a 2011-07 remove

Please enter subjects below

Member

Please start typing a Member name - will appear.

Subject

Please start typing a Subject - possib will appear.

Corporate Name

Please start typing a Corporate name will appear.

Figure 6: speeding up the metadata definition using Ajax auto-type

The ingestion process needs to be efficient, in order to be available in a timely manner for the Parliamentary members. The workflow systems around managing digital resources are important, particularly when integrating resources across two systems.

The consolidation of these resources into a single catalogue enables the creation of custom searches as well as generalised "Google-style" searches. Custom searches include:

- search by member name
- search by newspaper.

Web service layers such as OAI/PMH not only provide inter-operability with other information services, they can also allow imaginative "mash-ups" with the library resources. They can simplify inter-library metadata exchange. For instance, the National Library is looking at OAI/PMH as a means of "harvesting" catalogue updates from Library Management Systems, moving away from the old batch-oriented process of Libraries Australia updates.

Integrating subscription resources

Many digital subscription providers make available their e-subscription content in MARC or spreadsheet format. This provides an ideal medium for enhancing the catalogue with electronic resource visibility to external subscription content. This can be done in several ways:

- providing a search and structure list of subscription content (e.g. an alphabetic and subject listing of e-resources)
- integrating the e-resources in the standard catalogue search
- introducing a federated search layer using Z39.50 to show the catalogue and other e-journal resources (possibly through the OPAC itself where it allows a Z39.50 federated search to be introduced).

The visibility of services layers also allows integration at the user authentication layer, allowing single sign-on and cross-update of authentication between Koha, DSpace (digital library) and document delivery services. This integration can be extended by using Athens, CAS or Shibboleth (Internet2 Middleware Initiative, 2011) authentication, making the OPAC an authentication portal to the electronic resources.

Conclusion

The nature of information delivery in organisations is gradually but ineluctably changing, with the myriad of new methods for information dissemination and delivery. Information providers, publishers and information agents are offering new services directly to clients, where they would once have dealt with such issues through the library - and may now view the library as a dispensable "middle man". Marginalisation of the library service is a possibility in this context. However, the last decade of innovation in library systems has delivered a new toolkit into the hands of libraries. The availability of a wide range of open source tools and technologies offers an opportunity for direct technical engagement in a number of ways:

- by integrating Web 2.0 technologies that allow direct re-engagement with the library patron base
- by lifting the lid on the technology itself by downloading and installing open source systems
- by changing and developing these systems; by contributing to the community enhancement of the software.

This flexibility allows libraries such as ACT Health to engineer their own single sign-on solution – a process facilitated by the core open source Joomla content management system.

Will the catalogue disappear as the library resources go electronic? It may take a smaller part in a wider federated search of the totality of library resources. Alternatively, it may take a more central role for some libraries. It is worth looking at the Library Management System as a *metadata hub*. Do not assume that this resource is constrained to managing declining physical assets. It may be the most effective portal for delivery of the increasingly complex digital resources that a library manages. The library search engine may well be far more sophisticated than any search engine embedded in the corporate document management system or even the digital library systems. If this is not the case in your library, perhaps it is time to look at changing what you are currently using.

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