

Integrating document delivery and library services using open source systems By Edmund Balnaves & Michael Huynh

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Abstract

Libraries have been early adopters of open source in the enterprise. Open source library management systems have now been available for over 10 years and are now widely implemented internationally. The web 2.0 initiatives have revitalised the adoption of open source as the open source framework lends itself to additional of flexible new services. This paper will explore open source initiatives that are within easy reach of special libraries, in the areas of integrated library management systems, content management and web publishing systems and document delivery systems. The paper will give case studies of Canberra Hospital (with document delivery and content management) and NSW/NT Area Health Services (the Koha library management system). Open source can facilitate the hiding of complexity of the divers library services now offered to clients through the presentation of single-sign on interfaces for the client to hide the underlying complexity.

INTRODUCTION – WHY OPEN SOURCE?

There is a growing body of published experience in the process of building digital libraries in major institutions, including the work of JISC (<http://www.jisc.ac.uk/>) and Europeana (<http://www.europeana.eu/>). Prosentient Systems works principally with special libraries in the Asia Pacific region to deliver open source library systems. These libraries cover a diverse range of areas, from government departments through to medical research centres. Some, like the Heart Foundation in Australia have a narrow but quite specialist research output. Others, like the Queensland institute of Medical Research, have a large research output. Typically, the libraries in these services rely on either the traditional website to deliver their publications or the standard journal publication model (which entails the institutions funding research which they provide at no cost to publishers and then buy back again through journal subscriptions). Two movements have come together as enablers for special libraries to make better use of their institutional resources: open source and open access. While the term “open access” may generally imply the unrestricted external visibility of publications, open access can also be important in leveraging the research output of an organisation within the institution (even where copyright restrictions prevent external visibility).

One of the synergies in modern library systems has centred on the relationship between open source systems (OSS) and open access (OA). Adoption of OSS and OA has been extraordinary over the last ten years, has progressed in parallel, and in similar timeframes. The synergies go deeper than this. First, open source can be an enabler for the adoption of open access in an institution. Equally a successful OA project can justify the ongoing improvement of the OSS implementation. Second, OSS can provide a level of certainty for an institution in their operation costs. The larger the community of adopters of open source the stronger the overall support. Third, the OSS can provide a level of security in that there is no proprietary lock-in and the code is visible (and therefore can be corrected). The functional depth of this security will be improved by the work of those adopting the open source model.

Open source systems can provide a cost-viable model for implementation of open access in smaller institutions. A common confusion is that open source means “free”. While it may be lower cost, no information technology system operation is free. The ongoing nurturing of a system, software upgrades over time, support for customisations and enhancements, server

administration, network costs are just a few of the base-line elements of managing an information system. Nevertheless, the amortisation of the software support across a wide installed base makes for an effective cost model for smaller institutions.

Finally, open source frameworks can facilitate the complex issue of integration of the disparate resources management by the library, hiding the complexity of access that is otherwise presented to the end user.

Stable open source solutions are now available for all the core technologies for building an ICT-based library:

- Library Management System
- Digital Library System
- Document Delivery Systems
- Content Management System
- Digital Archives
- Document Management (Media Management System)
- Single Sign-on

IT CAN'T BE THAT EASY - THE CRITICAL ISSUES

Building internal acceptance – institutional adoption

The internal acceptance of open source has always been an obstacle to adoption in any institution. Reluctance can come in several forms: resistance to open source itself (based on lack of trust or experience with these systems) and lack of take-up among institutional clients.

The decision to adopt any open source technology is difficult because of associated uncertainties - the possibility that the software maybe one day become obsolete or discarded, the potential in high switching cost in adopting new technologies and abandoning prior investments.

Various factors on prompt software adoption are correlated with business size, the CEO's influence and the competitive pressure on IT adoption. Any change in IT decisions should be clear to users the motive for the decision, purpose of the change and its advantages will encourage acceptance.

Single Sign On

One of the critical pieces of infrastructure that is essential to hiding this complexity from the end user is Single Sign On. Libraries now deliver to their patron access to a range of sophisticated digital services and complex underlying systems. To be effective, patrons need a seamless method for accessing these services.

ACT Health library adopts a unique system which utilizes Joomla! to serve both as an intranet and extranet. Allowing remote user authentication access through proxying users through the

single sign on connecting users to subscribed electronic resources, access to the CMS (including use of forums, chat, blogs and etc...) and the GratisNet document delivery system.

The single sign on acknowledges all the functionalities integrated into the CMS and synchronizing user management data with the GratisNet document delivery system streamlining the process in which the information is handled.

The figure below illustrates the process of how the single sign on process is handled.

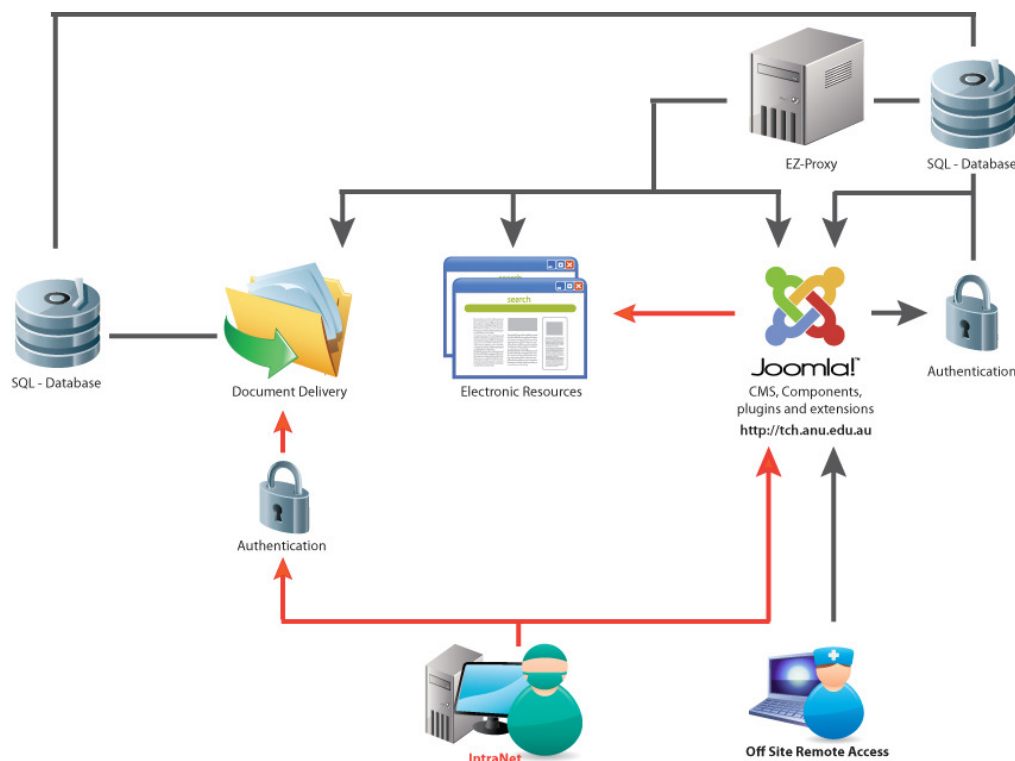


Figure 1: Single-Sign-on at Act Health

Breathing life into the OPAC – an open source vision

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, and here an open, web-2.0 enabled OPAC can play a part as it may provide metadata discovery and annotation abilities that go beyond that of the digital library system. In this context Prosentient Systems is encouraging an enterprise vision of open source that takes advantage of the best aspects of both systems. One of the elements of institutional adoption of repository software in conjunction with web-2.0 enabling emerging from open source catalogues is the breathing of life and excitement into the library catalogue. The catalogue can now become a metadata hub and an interactive, web 2.0 enabled gateway to resources, including a consolidated view of your enterprise resources. This can include:

- User tagging
- User reviews
- Indexing and searching of institutional repository content, including OAI (Open access Initiative) harvesting capabilities
- Federated views of other content and resources (eg a consolidated index of your institutional repository and your consortia subscriptions).

Figure 2 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

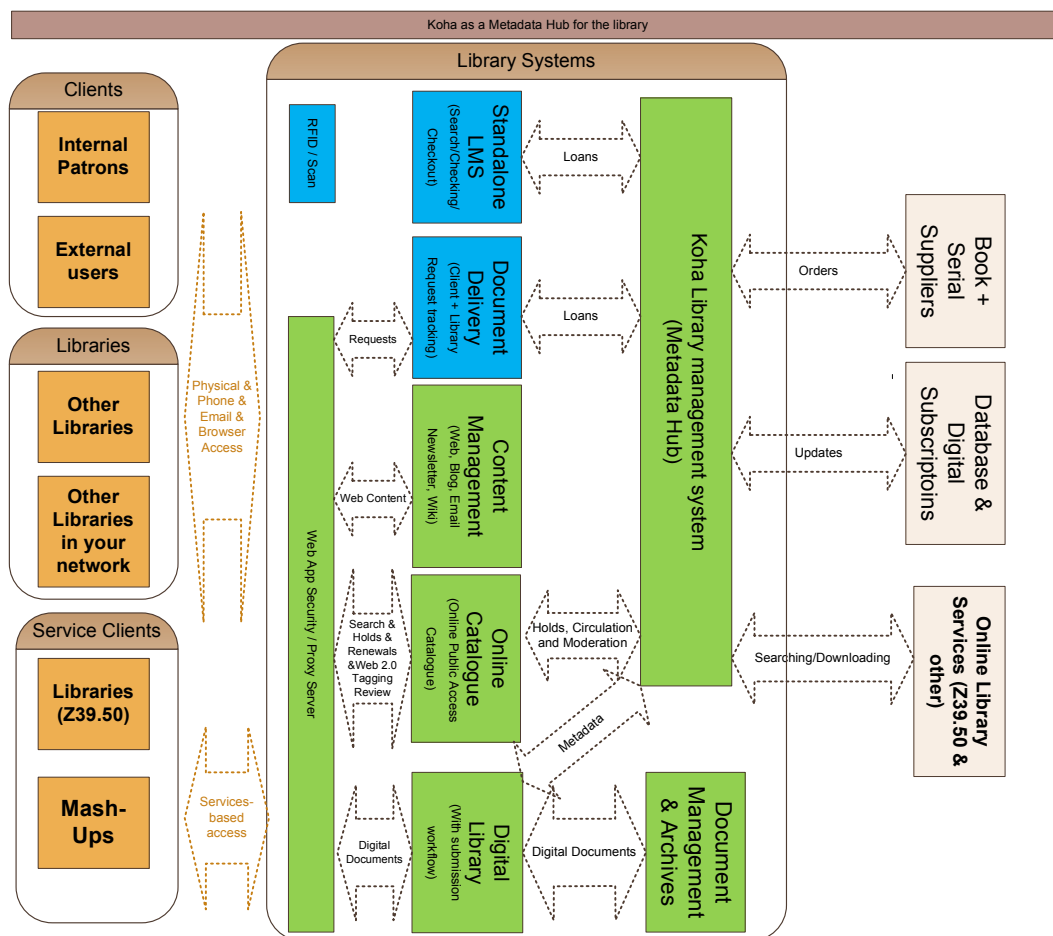


Figure 2: The Inter-Search integrated library management system framework

For area health services in NSW and Northern Territory this vision is realised in a number of ways. Firstly, the catalogue becomes a metadata hub by providing an integrated search engine for institutional repository and consortia electronic resources. The catalogue data can then be presented through classic Google-style simple search interfaces or through electronic journal resource lists (see Figure 2 below).

**SOUTH EASTERN SYDNEY ILLAWARRA
NSW HEALTH**

[Catalogue Home](#) [Intranet Home](#) [Internet Home](#)

Filter:

[A-Z ejournal list](#) [Subjects](#)

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#)

Search:

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: alternative views of catalogue data – an electronic resource subject and alpha list view of e-journal resources

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.

CONCLUSION

The bulk of the library profession has, of necessity (and perhaps inclination), oriented to setting strong standards and leaving the delivery of information systems in the hands of commercial vendors. The demand for compliance to strong standards has borne dividends in the facility with which bibliographic data can be exchanged nearly seamlessly. Nevertheless, the nature of information delivery in organisations is gradually but ineluctably changing with the myriad of new ways for the 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. The degree to which this marginalisation is avoidable depends a lot on the time it takes our profession to reskill in a manner that maintains the relevance of the library and the profession, and the effectiveness of the library in providing effective, seamless access to the myriad resources now available. Where does open source fit into this? The last decade has opened the possibilities for direct engagement by libraries with the technology that they are working with. A decade ago there were limited opportunities to lift the lid on the technology that commercial library vendors provided their clients, other than demanding compliance with broad library standards. 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 learning 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 - and even changing and developing these systems; by contributing to the community enhancement of the software. This 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.

These are real challenges and opportunities - one that Special Libraries are experience right at the coal-face. Special libraries are the canary in the coal mine for the library profession. They can be more easily dispensed of by organisations than public or state/national libraries, if they are seen to be of marginal worth. Adoption of open source systems can be a practical response of increasing information capability in a context of a diminishing budget. Open Access is an enabler for better ownership and visibility of organisational resources. There is a very clear role for librarians to ensure that the information management in organisations is coherent, effective and sustainable. There is also a role in engagement across the multiple modes of communication. There is a role also in being the hub of knowledge about the media assets and technologies relevant to the organisation. All of these entail a level of technological engagement that is richest when it is informed by a willingness to experiment with the technology - to try out the tools and the new modes of communication. While it is challenging, it is also pretty interesting. Open source and open access have a pivotal role here, as your institution does not have to wait for a vendor-delivered course in the latest software release. You can get online and try it out, download it, even change it!

Biography

Dr Edmund Balnaves is the Information Officer for the IT Section of IFLA. He is an active proponent of open source solutions for libraries and has established hosting services for special libraries in the Asia-Pacific region to encourage adoption of open source. His doctoral research in the area of systematic content reuse in the World Wide Web frames his interest in effective, dynamic, information systems for libraries and web-based publishing. He is the editor of the IFLA IT Section Newsletter and has presented on a range of topics in the area of digital archiving, escrow management of subscriptions, evaluation of open source systems and systematic content reuse.

Michael Huynh is the Technical Officer at the ACT Health library. He is devotee of open source development and solutions. He has developed and implemented many unique web solutions with open source technology in a Government environment. Michael recently co-developed 'NICUCAM' a service that provides parent/families remote viewing of their neo-natal babies via a secure website, the first in Australia to introduce this at the Centre of Newborn Care at The Canberra Hospital. He is heavily involved in development of E-Health solutions with open source technology.