GROWING THE LIBRARY'S PRESENCE IN A UNIVERSITY WIDE STUDENT PORTAL

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ABSTRACT

The Library and Information Service at Curtin University of Technology had been an early adopter of portal technology, providing the first portal on campus via MyLibrary and in recent years deploying MetaLib as a gateway to scholarly resources, but had also been a strong advocate of a top level, university wide portal. The implementation of a university wide student portal in late 2003 provided the long desired strategic opportunity. Growing the Library's presence in the portal would be a high priority in 2004. While the Library identified a number of opportunities for development the initial focus was reduced to a challenging but manageable few. These would require close collaboration with other university areas and some innovative use of the Library's own system.

1   INTRODUCTION

Curtin University implemented a portal for all university students in November 2003. Creation of the portal, based on the SUN ONE suite of products, was motivated by the desire to provide students with access to a wide range of online services through a single, cohesive gateway. In its initial deployment the portal offered access to three primary services; student email, eStudent - the web interface for student information about enrolment and self-management of personal details - and the Official Communications Channel (OCC) - a locally developed, database driven messaging system designed to provide a level of guaranteed delivery and an audit trail, functionality not available from an email system. Single sign on would also be provided to the university's learning management systems (Blackboard and WebCT). The portal would be developed and maintained by Curtin University's central IT area Information Management Services (IMS) with direction and leadership provided by the university's Student Services area and input from all major university stakeholders, including students! This paper describes the portal services in more detail, provides some background on the Library's interest in portals and discusses the way the Library's presence is being grown within the portal.

2   DISCUSSION

2.1   EARLY DAYS

The Library became increasingly interested in the concept of a portal to deliver services to clients in the latter part of the last century. It had become evident that the Internet was not a flash in the pan and that information was becoming more accessible and thus more difficult to access. This paradox is best illustrated by comparing two home libraries. In one home there are a dozen volumes. The householder knows exactly what is owned, where it is and who has borrowed it. In the second home there are five hundred volumes. The householder finds himself buying books that he forgot he already owned, receiving books that he forgot he had lent and generally being unable to manage the volume of volumes. The Internet has clearly reached the state of the volume rich household and looking forward only holds out the prospect of greater riches and a sea of information without a boat, or a map. One of the planks being suggested to smooth the navigation of the information voyager of the future is a portal. The semantic web (Berners-Lee, 1998) also holds out the prospect of a sea change, but that is a topic too large for this discussion.

Terminology is fluid in the early stages of innovation, and the word portal is a word that captures the imagination but leaves the speaker to make their own interpretation of meaning. Hence the term is in wide use but with different meanings. There are three characteristics that, at least in my mind, distinguish a portal from other similar web applications. The three characteristics are personalisation, authentication and customisation. The first two are based on the portal's ability to know something about the user when they enter the portal. The portal then targets information at the user based on

that information and eases, or blocks, access to other information and services based on the person's identity and attributes. The third, customisation, assumes that the portal has the ability to be modified to suit the user, and to remember those modifications over time. In combination these three characteristics provide a portal's ability to enhance the user's experience, save their time and assist them to navigate through the myriad of online information and services. Lorcan Dempsey (2004) provides a thoughtful discussion of portals and the confusion of meaning. He describes the word portal as "one of the least helpful words we have developed in recent years" but then provides a future vision of the information environment. Completely reconstructing the information environment is also a topic too large for this discussion.

Having observed the emergence of the portal concept the Library's first foray into this new age was the installation of MyLibrary, a library-centric, open source portal package, developed at NCSU Libraries and written in Perl on a MySQL database. MyLibrary is described as "an extensible implementation of a user-centered, customizable interface to a library's collection of information resources. The system integrates principles of librarianship with globally networked computing resources creating a dynamic, customer-driven front-end to any library's set of materials. It supports a framework for libraries to provide enhanced access to local and remote sets of data, information, and knowledge." (Morgan 2002). MyLibrary at Curtin was made available in 2001. The installation was a pilot that was enthusiastically embraced by library users, demonstrating that there was an unmet need in this area, despite the product being in its early stages of development.

However while the MyLibrary pilot demonstrated the feasibility of a library portal, there was at that time early discussions within the University about a university portal. A tacit strategic decision was made to align the portal efforts of the library with that of the university. Indeed MyLibrary was maintained, but not further developed by the Library until the university portal came on line at which time MyLibrary was discontinued at Curtin. However MyLibrary as an open source product has continued to develop and is widely installed in libraries elsewhere. The Library also continued to develop other initiatives, such as the purchase and installation of the MetaLib gateway to resources. The concept of such a scholar's portal is a complementary activity to that of a university portal. For more detail on a MetaLib installation see Ann Flynn's (2002) description of the experience at University of Technology, Sydney.

2.2   ONE PORTAL TO RULE THEM ALL

Curtin University had first discussed a top level portal in the context of infrastructure needed to support the growing presence of online learning. These early investigations were eventually brought to a head when an opportunity was presented by a deal with Sun Microsystems, brokered by CAUDIT (Council of the Australian University Directors of Information Technology), to provide access to the Sun ONE software stack at an affordable price (Vissiere 2003). The Sun ONE software would provide many of the elements already being considered as essential to building the needed top level infrastructure to support learning at Curtin University. These included directory, portal and email services; all basic building blocks able to be delivered in an integrated fashion. Curtin University had already entered into a partnership with Sun Microsystems (Rowe 2001) and re-aligned its major platforms with Sun's hardware and operating system and was well placed to take advantage of the Sun ONE offer. The impetus given by the software opportunity, and the existing momentum for the development of a university level student portal combined to see OASIS (Online Access to Student Information Services) launched on the 1st November 2003 at http://oasis.curtin.edu.au/.
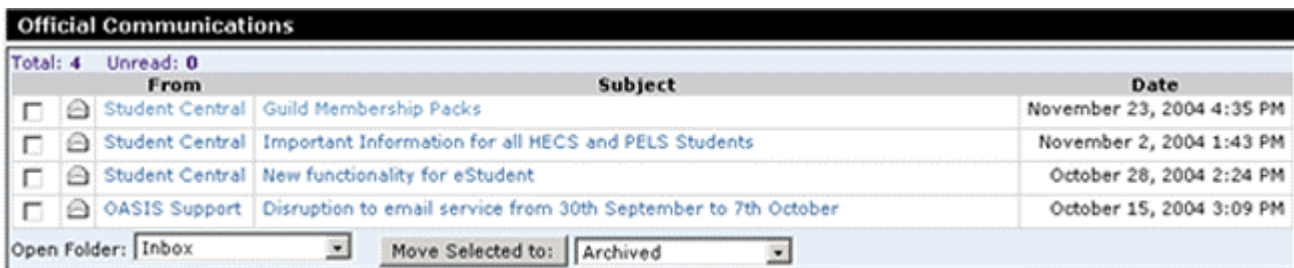
OASIS would provide a single entry point for delivering eServices to Curtin University students, eventually. In the first instance OASIS would provide access to some key services that would provide a solid foundation for future growth. Creating a university level portal is not a trivial task and many structures need to be in place behind the scenes, not the least of which is the identity management and directory services required. Universities are a diverse and semi-controlled environment and for a portal to provide a single entry point, even to limited services, requires substantial cooperation from diverse agencies within the university. At Curtin University these hurdles were addressed and overcome.

Some of the initial offering of the portal will be described below and then a description of how the Library has attempted to grow its presence in the portal.

2.2.1   THE OFFICIAL COMMUNICATIONS CHANNEL

One of the drivers for the development of integrated top level services for students was a need for efficient and effective electronic communications. In particular the desire to replace existing paper based formal communications. Deficiencies in the use of email for such communications with students were well understood. Even the provision of an email service to students through the portal, which was one of the initial services, couldn't overcome the inherent fragility of email. With communications sent via email it is possible for them to bounce (be rejected and thus not arrive) for a variety of reasons such as a student account being over quota or some temporary glitch in the mail transport system. Even if the reliability of delivery emails could be improved, the ability to prove that an email had been sent, received and read – in the case of latter disputation - is beyond the capabilities of email technology. A different solution was proposed. A channel (in portal parlance this is a specific, modular service delivered through the portal) that would look to the user like email but be a messaging system supported by a database.

In the proposed channel all messages sent to students would create an audit trail. It would possible to prove that a message had been sent, delivered and read by the student. This proposal required extensive programming to create such a system, but being database driven the required audit functionality was a realistic expectation, unlike email. The combined talents of Sun Microsystems and Curtin University staff were deployed to build the channel, to be known as the Official Communications Channel (OCC). Figure 1 shows an example of the channel as seen by a student from within OASIS. The look and feel resembles email, but behind the scenes the technology is very different.

Official Communications			
Total: 4 Unread: 0			
	From	Subject	Date
☐ ✉	Student Central	Guild Membership Packs	November 23, 2004 4:35 PM
☐ ✉	Student Central	Important Information for all HECS and PELS Students	November 2, 2004 1:43 PM
☐ ✉	Student Central	New functionality for eStudent	October 28, 2004 2:24 PM
☐ ✉	OASIS Support	Disruption to email service from 30th September to 7th October	October 15, 2004 3:09 PM
Open Folder: Inbox ▼	Move Selected to: Archived ▼		

Figure 1: Official Communications Channel

2.2.2   eSTUDENT

eStudent is the student web interface for the student administrative system (Student One). This web interface was introduced at the same time as the portal was released and provided as single sign on through the portal. This provided students with the ability to manage some aspects of their student record on line. Such aspects include the ability to view and update personal details, access the study plan, enrolment details and results, and print off an academic record or enrolment advice. Access is also provided to fees information. This service, which provides efficiencies for the student and the university administration, is a good illustration of the portal managing authentication and personalisation.

2.2.3   STUDENT EMAIL

Students were also provided with a web based student email service through the portal. While the OCC would provide a means for official communications to the student, email remains the bread and butter of day to day communication with fellow students, lecturers and the invisible college. A robust and functional email service is an essential part of learning in today's environment. While students may continue to have multiple email accounts, such as free web accounts and external work accounts, the provision of a university email account provides a value added service.

2.2.4   UNIT INFORMATION CHANNEL

Presenting students with a summary view of their currently enrolled units, and quick links to resources for those units was provided through a newly created channel, the Unit Information Channel. An example is shown in Figure 2. The links to unit outlines, handbook entries and bookshop lists are generated on the fly for the student based on their enrolment information. This is a perfect illustration of the personalisation characteristic of a portal and how it can save the student time and effort.

Unit Information

Unit descriptions for your enrolled units may be accessed via the following links:

Unit Code	Name	Outline	Handbook
12424	Ed 463(Q) - Art for Children	Outline	Handbook
301180	Ed 129 - Introduction to Curriculum	Outline	Handbook
301182	Ed 124(P) - Teaching and Learning Processes II (Prim)	Outline	Handbook
301184	Ed 128 - Learning, Teaching and Assessment	Outline	Handbook
301363	Ed 127(P) - Professional Practice II (Prim)	Outline	Handbook

- **Curtin Bookshop** - Order your books online! You can order the books for your enrolled units at the Curtin Bookshop.
- If you have any queries regarding unit details shown above please contact your division/school to confirm your enrollment details.
- You can refer to the Student handbook by clicking here.
- Similarly, all Division of Humanities Unit Outlines may be accessed via this link.

Figure 2: Unit Information Channel

2.2.5 LEARNING MANAGEMENT SYSTEMS

The portal would provide a single sign on to the two main learning management systems deployed at Curtin University. Alternate means of entry would be maintained but in time the portal may become the single entry point. Work behind the scenes also meant a synchronisation of identity and authentication with the learning management systems.

2.3 GROWING THE LIBRARY'S PRESENCE

The Library was closely involved in the development of the portal, through contribution to the various committees and ad hoc working groups required to get such a large undertaking off the ground. The initial focus of the portal development team was to get the functional portal, with the key services, as described above, into production. However the success in launching the portal at the end of 2003 was simply an indicator to the Library that a long awaited opportunity was now arrived.

2.3.1 LIBRARY NOTICES AND THE OCC

The Library had wanted, for many years, to replace its printed library notices (fine, recall, overdue etc) with electronic equivalents. However the lack of automated access to student email addresses and a university wide student email system had held back this work for a number of years. With the creation of the OCC however a different and better option presented itself. Library notices, by and large, require all of the reliability and audit ability that had been built into the OCC. With the introduction of the OCC the university now required students to agree to its regular use as a condition of enrolment. The match was perfect.

In its initial release messages to students were sent manually via the OCC. These could be individual messages or bulk messages based on a list of student identifiers. To use the OCC for library notices would require a different method. The Library worked with the OASIS development team and a method was formulated. This model required additional work from both parties. The Library would write a Perl script to intercept output from the library system on the way to the notice printer and create an electronic version for sending to students. The OASIS development team would create a web service to allow the communications to be sent from a library server to the OCC. This web service would have application to other areas of the university, and thus was of value to more than just the Library, and being constructed with open standards such as SOAP reduced the library development time.

After a period of development, testing and refinement the Library began sending notices via OCC on 2nd November 2004. During semester an average of 430 messages is sent Monday to Friday. The print equivalent continued to be sent until the OCC method had proved itself fully reliable. Figure 3

shows an example of an overdue notice sent via OCC, as would be received by a student. The obvious gain for the Library will be in the reduction in the number of print notices, a reduction of 85% with staff and some other client groups continuing to receive print notices. However there are other gains as well. When disputes arise about whether notices were sent or received these can be resolved by Library staff using the administrative interface to establish the facts. The audit trail can be shown to students and will not only indicate whether a notice was sent and received but if and when it was opened by the student. The Library also intends to implement courtesy notices, a service that was cost-prohibitive with paper notices, and this will provide extra value to students in the resulting improved circulation of materials.

Curtin ✿
University of Technology

Official Communication

Id:
Date: November 3, 2004 6:23 AM
From: Library & Information Service
To:

Subject: Overdue Notice

Overdue Notice

Dear Miss .

Curtin Library wishes to advise you have overdue items.

These items will be accumulating fines at a daily rate until their return or renewal as outlined in the Library Rules.

Telephone renewals may be possible. Please call 9266 7166 or visit your nearest Curtin Library site.

Your overdue items are listed below:

Title	DC number
When the pelican laughed / Alice Nannup, Lauren Ma	DC07303415

Helpful Links

Check your borrower information at http://opac.lis.curtin.edu.au/F by selecting "Your Borrower Information" from the top pane of the screen.

- For details on your Borrower ID and library PIN go to http://library.curtin.edu.au/borrowing/id_pin.html
- For Library locations and opening hours go to http://library.curtin.edu.au/information/hours.html
- For details on returning items and after hours returns go to http://library.curtin.edu.au/information/howto.html#return
- For Library Contact Information go to http://library.curtin.edu.au/contact/index.html

Figure 3: Library Notice received via OCC

2.3.2   LIBRARY RESERVE AND THE UNIT INFORMATION CHANNEL

While the work to integrate library notices into the OCC was being conducted other opportunities were being explored. The Unit Information channel had proved useful to students and the Library thought they could add extra value by linking from a student's unit directly to the readings provided by the lecturer and held within the Library's reserve. The Library's reserve, as well as containing print materials in the traditional manner, particularly books, also contains a large percentage of digital objects, particularly journal articles. Access to these materials would be facilitated by providing a direct link. When the idea was first considered the library system didn't have the functionality to provide such a list based purely on the unit code (unique across the domain of units). However the portal knew the unit codes and given an appropriate stem could create a link. The Library set about having the functionality enabled within the library system and the OASIS development team modified the channel to create the extra link using the unit code.

As not all units have items in reserve, the portal needed to pre-check for the presence of reserve items for each unit before displaying the link. If there were no reserve items for a unit then an indication was needed that there are no reserve items rather than a link that offered a false promise. To conduct this pre-check the Library created a script that dynamically generated a listing of all unit codes present in

reserve. This list would be uploaded into the portal on a regular basis and be checked when dynamically generating the channel.

This work was completed and the functionality released to students in October 2004. Figure 4 shows the Unit Information channel with an additional link to the Library's reserve. This also illustrates the pre-check for availability and an indication that reserve items are not available for all units.

Figure 4: Unit Information Channel with Reserve link

A working example of the reserve link is
http://opac.lis.curtin.edu.au/F?func=find-b&find_code=wco&local_base=cur30www&request=300712

2.3.3   BORROWER INFORMATION CHANNEL

Providing students with access to the library system to view and mange their loans, known at Curtin University as borrower information, is a typical part of modern library usage. This functionality is a high use, high value activity for students and is provided by the library system from within the online catalogue. In survey and focus group activity conducted by the Library in 2003 students expressed a desire for easier and quicker access to this functionality. Given its high use and high value borrower information became an obvious target for growth in the portal.

Unlike the other activities undertaken, as describe above, this would require the creation of a new channel and the discovery of a method to facilitate the interaction of the portal, which would know who the student was, with the library system that managed the user's borrowing details. Early explorations had discovered the work being done at the University of Nottingham by Dr Mike Gardner and at Royal Holloway, University of London by Owen Stephens, both of whom were using Aleph 500 (the same library system as used by the Library) and uPortal, an open source portal (not dissimilar similar to the Sun Portal). The key to the functionality between the portal and the library system was a newly developed xml interface to the library system. This was just what was required by the Library. However a major upgrade of the library system and considerable testing and exploration of the xml interface would be required before the structure of a Borrower Information channel took shape.

The Borrower Information channel would be generated on the fly once a student was logged into the portal and entered the library section of the portal. The development time required was much reduced by having an interface to the library system that could provide this information in well formed xml over http. The development of the channel is still in progress at the time of writing.

The summary display would look something like figure 5, which is a mock up. The summary also provides links to additional functionality such as renewing items, cancelling hold requests and more.
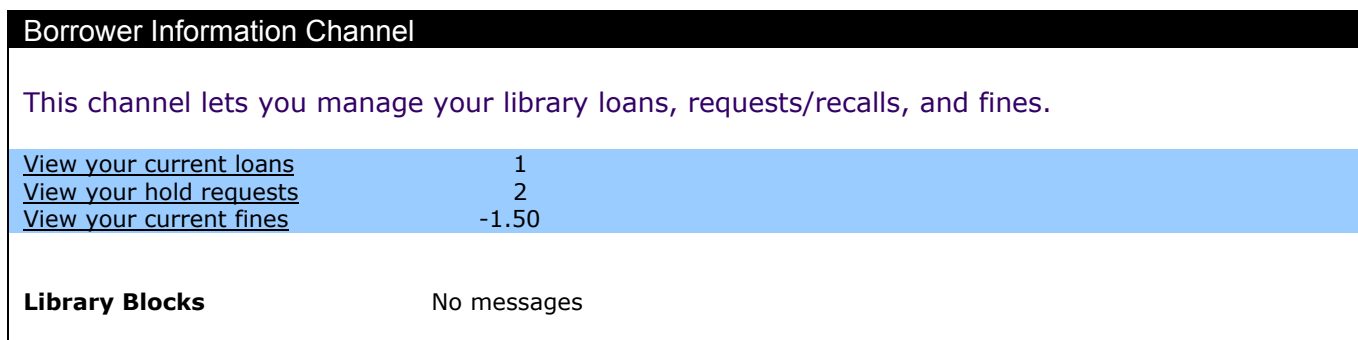
Borrower Information Channel	
This channel lets you manage your library loans, requests/recalls, and fines.	
View your current loans	1
View your hold requests	2
View your current fines	-1.50
Library Blocks	No messages

Figure 5: Borrower Information Channel

2.3.4   NEWS FOR EVERYONE

The Library has also created an RSS feed for library news and information. This was created to allow the syndication of news to many places from a single source, a service whose rationale is well described by Paul Miller (2003). Developing a Library News channel in the portal, or incorporating library news into an announcement channel, is made much easier by the use of an xml standard such as RSS. The immediate intention is to reticulate the same news to the portal and Library's home page, but other interfaces, such as the online catalogue, could also be enabled to receive the same information. With a single place to maintain the news feed the effort required to reach a broad audience of library users is much reduced.

3   CONCLUSIONS

The development and implementation of a university wide student portal at Curtin University is a substantial achievement in its own right. However the ongoing viability and utility of the portal will depend on the value it delivers to students and the economies it provides to all areas of the university. The attempts to grow the Library's presence in the portal are still early ventures. As the portal continues to grow and develop the Library will just be one of many university entities with a substantial claim to portal real estate, with students the ultimate beneficiaries. Much of the vision of portals is still vision, but at Curtin University we now have a substance on which to bring our visions to reality and the Library is a key contributor.

4   REFERENCES

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