



CREE Extension Project

Project Proposal

November 2006

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Background

In the past three years an increasing number of UK Higher Education institutions have adopted portal frameworks to underpin their delivery of a wide range of institutional services to their end-users. Developments have taken place independently, but with a common view to using a portal to help staff and students interact with the University more effectively. For example, the University of Manchester has recently launched its portal, based on the open source uPortal framework, following in the footsteps of the Universities of Liverpool, Bristol, Hull and Edinburgh amongst others. A commercial version of uPortal, Luminis from SCT Sungard, is in use at the Universities of Greenwich, Nottingham and Birmingham and has also recently been launched at Sheffield and Leeds. Oracle Portal has been adopted by Imperial College and Glasgow Caledonian University. Other institutions are currently examining their options, including the Universities of Exeter, Durham and Bradford. In short, there is a mounting view that an institutional portal provides the means through which staff and students can interact with their institution in a coherent and common way, facilitating the link between a University and its members and bringing services and information together in ways not previously possible or considered.

The lead in institutional portal development is most often taken by administrative parts of an institution. The focus is often on enabling greater levels of self-service and interaction with administrative systems. For staff, the portal also acts as a common source of information and news about institutional activities, whilst access to teaching and learning systems is a key service within student-facing portal views. Many institutional portals present information on library services, and this is welcome. But few present the same level of interaction as for administrative applications, and the library services made available can be, in effect, simply a replication of information on the library website. Whilst this is, no doubt, valuable to the users the portal serves, it fails to take advantage of the functionality a portal can provide, allowing for greater levels of interaction in the context of the portal environment and alongside other institutional services. The same scenario can be seen within portal development for eResearch, where the focus is on interactive Grid services, but where it would also be valuable to have more interactive access to research information resources.

The Contextual Resource Evaluation Environment (CREE) project was funded by JISC from February 2004 for 18 months to investigate how end-users would like to access Internet search tools (including library search services, within a range of local contexts and environments, including web pages, a virtual learning environment, and an institutional portal (via portlets). User requirements gathering through a survey, focus groups and user testing with demonstrator revealed that the presentation of search tools in a local environment was beneficial and was perceived as adding value to the services made available to staff and students. This was particularly the case for subject-based search tools, where proactive local presentation of the search tool itself raised awareness of its existence and encouraged end-users to try it out.

In testing out the presentation of search tools within an institutional portal the CREE project sought to investigate two specific aspects: to demonstrate the interactive features that portals can provide beyond the administrative purposes and benefits of the portal; and to investigate the use of the JSR 168 and WSRP portlet standards as the underpinning technology that allows this interactivity as well as permitting interoperability between portals. The use of the standards proved successful and demonstrated that existing search tools could be re-purposed for use within a portal environment.

End-users also responded positively to what the portal could allow. However, the outcomes from CREE left a number of questions unanswered on the use of search tools within portals. A preliminary assessment of valuable areas to pursue from the CREE project developed in mid-2005 has been focused in this proposal on key elements of presenting library search services within an institutional portal environment, with the intention of showing how a portal environment can be most effectively used by library and information resource services.

Aims and Objectives

Three main issues arose from the CREE investigations.

- In order to test the capability of presenting search tools in an institutional portal environment, a proof of concept approach was developed following, for the most part, Google style simple search box interfaces. Whilst there is value in this as many native web interfaces on search tools are discovering there is also value in highlighting the more advanced search capabilities that many search tools can offer, and allowing the user to select their preferences. *The CREE Extension Project will seek to investigate how such advanced search capabilities can be presented and what impact this has on the usefulness of the search tool in general.*
- One of the benefits of using an embedded search tool within a portal framework using JSR 168 is that the search results also appear within the portal, and the user is not taken out of the portal into the native interface (as occurs for the most part when embedding search tool in other web environments). However, this raises issues about the best way to display the results, also within the portlet in question. *The CREE Extension Project will investigate the best ways to display search results in a portlet so as to make them as usable as possible. This will include examining the return of results as RSS feeds that can be flexibly adapted for display – the OpenSearch API provides such capability - and extending the XSLT work of the original CREE project to provide flexible options.*
- One of the key issues arising from presenting search tools within an institutional portal was the focus on search and discovery. Presenting search in this way led to users feeling frustrated that they could not go further and felt the search led them to a dead end. It is important not to let search dominate considerations of other steps in the Discovery 2 Delivery chain, which are of equal or possibly greater importance to discovery. *The CREE Extension Project will examine ways in which location, requesting and delivery might be enabled from within a portal, addressing in particular how the OpenURL standard can be used to enable this.*

These three technical aims are underpinned by two overall objectives:

- When presenting any service or application within a portal framework there is a need to identify whether the whole service can be presented within the portal, or at which point it is preferable to pass the user out of the portal to native web interface for ongoing interaction. Where this hand off point lies can vary, and the need to identify it better in the context of presenting library search services will underpin technical planning and development
- One further criticism that emerged from the CREE project from users was a lack of understanding as to why presenting search tools in a portal was better than through their native interfaces. The user feedback was in the context of a test demonstrator of functionally limited search tools, but this question (the business case) has to be answered over time. This consideration will be built into developments within this extension project.

Overall Approach

The CREE Extension Project will comprise a mixture of workflow research, technical development, and user testing to achieve its aims and objectives. It will run over a 19-month period to allow for iterative development and testing of the portlets developed. Project outputs will be release throughout this period.

A clearer understanding of the benefits of presenting search tools and related Information Environment services within a portal is required to underpin subsequent technical development. This requires a better appreciation of the workflow that end-users are likely to wish to use or could use when accessing services through a portal. This initial research phase will inform the priorities for technical development.

Technical development will be required to develop appropriate portlets to help address the issues raised in the aims above. Development will centre on the use of JSR 168 portlets to enable advanced

search, better search results display, and post-search D2D activities. JSR 286 will also be investigated if it is released in good time during the project's lifetime. It is also noted that the Subject Portals Project (SPP) Continuation Project will be producing a range of JSR 168-compatible portlet software that can be tested within the CREE Extension Project for validation and exemplars of the issues being investigated.

Research and technical development have to be validated by end-users for the outputs and outcomes to be usable by the community. This phase of the project will test the portlets and issues with staff and students to get their feedback. It is planned that one level of iterative development will also be built in to allow this feedback to be incorporated into the portlets where appropriate.

These three phases will be combined to produce a better understanding of how library search services can be presented within an institutional portal, and why this presentation should be undertaken.

Project Outputs

The project will deliver the following outputs:

- A workshop to discuss issues of presenting Information Environment services, and specifically discovery services, within an institutional portal framework. This will involve representatives of institutions with portals, research portal developers, librarians and Information Environment service providers
- A report detailing the outcomes from this workshop and associated desk research to provide best practice and guidelines on presenting Information Environment services within a portal framework
- A portlet that can make use of the OpenSearch API to facilitate presentation of a wide range of search engines within a portlet. This work will also examine how end-users are passed onto other services from their search results, preventing the search portlet from being a dead-end in the D2D chain. It will also involve work on the presentation of search results.
- A portlet that can interface with OpenURL resolvers, using the OpenURL Router and Innovative's WebBridge as exemplars linkages, to enable the generation of OpenURLs based on submitted information. This information may be manually provided or passed from another portlet (dependent on inter-portlet communication capability available in the forthcoming JSR 286 portlet standard). This work will also examine the use of COinS as a way of embedding OpenURLs within portlets.
- An enhanced version of the JAFER portlet developed in the original CREE project, developing its search results display and identifying how to pass users onto subsequent services after search.
- A report on user testing carried out on the above portlets and SPP portlets to gather feedback on their usefulness. This testing will be in the context of the workshop findings
- A report on how end-users wish to structure and lay out their own portal screens given a range of portlets. This will take place in the context of the customisation features of uPortal 2.5.3. The forthcoming uPortal 3.0 platform will also be used as available and where additional functionality is identified
- A report on interoperability of the portlets developed between portal frameworks. It is planned to ask the portal framework vendors to carry out their own testing to enable this, enabling them to demonstrate their capability of presenting Information Environment services

Project Outcomes

The CREE Project demonstrated that embedding search tools within local environments was a useful and feasible direction. The CREE Extension Project intends to take this finding and push it forward to examine in greater detail how an institutional portal framework can be used to enable this local embedding. It is intended that the project will demonstrate the requirements for effectively surfacing Information Environment services within a portal, facilitating discovery workflow and establishing a portal as a valuable place to visit for search services as well as other institutional services. This will enable libraries at institutions running institutional portals to strengthen the contribution they can make to the services presented and enable greater integration with these other services. It is further

intended that the e-Research community will be able to benefit from this work in order to surface search tools alongside Grid resources in the most usable fashion.

Notwithstanding the benefits to the institution and the library within this, the project will also discover further how end-users would like to structure their portal interfaces using the customisation features of the uPortal framework.

In both cases the portlets developed will seek to demonstrate the ability how the Information Environment can be enabled within a portal framework.

Stakeholder Analysis

Stakeholder	Interest / stake	Importance
End-users	Access to services in the context of an institutional portal, allowing access alongside and in the context of other institutional services and information. Also facilitating added value services in the D2D chain.	High
Institutional portal managers	Ability to present a wider range of services within an institutional portal, enhancing the service. Also the ability to link disparate services in a common environment.	High
Librarians	Ability to surface library services and resources within an institutional context, raising awareness of them, facilitating use and demonstrating added value.	High
Institutional managers	Enhanced service provision to staff and students	Medium
Information Environment service providers	Ability to deliver services in a local context and embed them alongside institutional services. Offers an alternative route for service delivery to back-up current routes	High
Content providers	Valuable to have content surfaced through alternative and extra routes	Low

Risk Analysis

Risk	Probability (1-5)	Severity (1-5)	Score (P x S)	Action to Prevent/Manage Risk
Staffing				
- Recruiting staff	3	4	12	Ensure rapid advertisement to get staff in place early in the project once approved
- Keeping staff	2	5	10	Ensure staff skills and knowledge are cascaded to other team members, and that staff concerns are addressed early through regular communication
Organisational				
- Institution decides to move away from portal use	1	3	3	Project can continue on testbed portal implementation for wider benefit

Technical				
- Portlet standards do not enable desired functionality	2	4	8	Ensure that technical development is well scoped to determine what can and can't be achieved
- Functionality to be delivered through portlets doesn't meet user requirements	2	4	8	Assess user requirements before and during technical development on an iterative basis
External suppliers				
- Dependency on external software delivery from SPP	3	3	9	Keep in touch with SPP work to ensure awareness of progress and delivery schedule
User				
- User requirements are unfeasible or not detailed enough	2	5	10	Ensure user requirements gathering is focused and in depth to ensure a strong link between users and development

Standards

Name of standard or specification	Version	Notes
JSR 168	1.0	The acknowledged and widely implemented standard for portlets
JSR 286	1.0 (or JSR 168 ver 2.0)	The next proposed release of the JSR 168 portlet standard. This standard will be used where feasible, dependent on its release schedule (currently planned for early 2007, but has development has a record of moving)
WSRP	1.0	The acknowledged standard for delivering Web Services into portlets or delivering portlets as Web Services. Attention will focus on JSR 168 initially, but functionality will also be tested using WSRP
WSRP	2.0	As for JSR 286 above, this will be tested where feasible, dependent on its release schedule (its release date is currently undetermined)
Z39.50	3.0	The primary standard used for cross-searching remote library resources, as recommended within the JISC Information Environment
OpenURL	1.0	Used for context-sensitive linking between resources, as recommended within the JISC Information Environment
SRW/U		A successor to Z39.50 for searching remote library resources, designed for the web environment, as recommended within the JISC Information Environment
OpenSearch	1.1	An open, RSS-like API, developed by Amazon for facilitating searching of remote web resources
RSS	various!	An acknowledged standard for syndication of information, as recommended in the JISC Information Environment

Technical Development

Development will be based around the uPortal portal framework, using version 2.5.3, which is fully compliant with both JSR 168 and WSRP. It is intended to follow an iterative development process throughout the project in order to allow feedback to be gathered that can inform refinements. 2-3 cycles of development will take place, dependent on progress and the user requirements raised.

The OpenSearch API is being used in conjunction with the JAFER portlet as it offers a flexible API that can be targeted at a range of different search services for testing. The JAFER portlet can also be pointed at a range of resources, both Z39.50 and SRW/U targets. However, whilst there are many Z39.50 targets available for testing against, there are fewer SRW/U targets currently available. OpenSearch is proposed as a useful alternative at this time for demonstration purposes. The interaction between the SRU development team and A9, the developers of OpenSearch is noted and will be tracked to ensure practice follows current directions.

Intellectual Property Rights

Rights to the outputs of the project will be owned by the University of Hull, but will be distributed to the community as required under the terms and conditions of the JISC grant.

Project Partners

The CREE Extension Project will be conducted under the auspices of the University of Hull and there will be no project partners. We will, however, seek to involve end-users outside the University of Hull for user testing.

Project Management and Staffing

The project will be managed by Chris Awre, Integration Architect within the e-Services Integration Group at the University of Hull and project manager for the original CREE project. Ian Dolphin, Head of strategy, will act as Project Director, again as on the original CREE project.

Technical development will be carried out by a developer within the e-Services Integration Group, to be recruited. The workshop and user testing will be coordinated through the project manager in association with an external consultant, Caroline Ingram. Caroline worked on the original CREE project and has contributed to a number of other JISC projects in recent years, including the recent Portals and e-Research study.

Workpackages

The work will be structured into the following workpackages.

Workpackage	Description	Duration
WP1: Project management	To oversee the project and monitor its progress throughout its lifetime.	Months 1 - 19
WP2: Workshop	To plan, organise and run a workshop on the delivery of Information Environment services within a portal framework	Months 1 - 4
WP3: Desk research	To carry out desk research to inform the workshop and discover information relating to the delivery of Information Environment services within a portal	Months 2-5
WP4: Report summarising the findings of WPs 2 and 3	To prepare a report on the findings from the previous two workpackages for dissemination to the community	Month 6
WP5: Technical development	To develop the OpenSearch and OpenURL portlets as well as enhance the existing JAFER portlet	Months 2 - 19
WP6: User testing	To test the portlets developed in the context of the	Months 10 - 19

	outcomes from WPs 2 and 3 and gather feedback from users	
	NB. WPs 5 and 6 will run in coordination to allow iterative development and testing	
WP7: Portal screen layout testing	To investigate how, given a range of portlets to select from, both Information Environment and other institutional, users combine these for their own purposes	Months 12 - 16
WP8: Portlet interoperability testing	To invite portal framework vendors to test the portlets developed to demonstrate interoperability using the JSR 168 standard	Months 15 - 18
WP9: Project evaluation	To evaluate the project throughout its lifetime to ensure it is achieving the intended outcomes	Months 1 - 19
WP10: Dissemination	To identify appropriate dissemination opportunities to report the results of the project to the HE and FE community	Months 12 - 19

Exit and Sustainability Plans

Project Outputs	Action for Take-up & Embedding	Action for Exit
Workshop	To involve a representative group from the community	The findings from the workshop will be included within a report for community dissemination
Report of workshop and desk research	To disseminate the report as widely as possible to relevant stakeholder communities	N/A
Portlets (OpenSearch, OpenURL and JAFER)	To demonstrate their use through user testing and dissemination opportunities to encourage uptake, in the context of the findings from the workshop and desk research	Portlets will be made available for others to use on open source and deposited in an acknowledged portlet repository
Reports on user testing and portal screen layout	To disseminate the reports as widely as possible to relevant stakeholder communities	N/A
Portal interoperability report	To disseminate findings as agreed with portal framework vendors	N/A

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