

Cover Sheet for Proposals <i>(Please complete ALL sections)</i>		JISC	
		IE Programme	
Name of Call Area Bidding For (tick <u>ONE</u> only):			
<input type="checkbox"/>	Strand A1: Automated metadata generation and text mining		
<input type="checkbox"/>	Strand A2: Developing e-infrastructure to support research disciplines		
<input type="checkbox"/>	Strand A3: Repositories: start-up		
<input checked="" type="checkbox"/>	Strand A4: Repositories: rapid innovation		
<input type="checkbox"/>	Strand A5: Repositories: enhancement		
<input type="checkbox"/>	Strand A6: Preservation exemplars		
<input type="checkbox"/>	Strand B1: VRE Innovation: Tools and interoperability		
<input type="checkbox"/>	Strand B2: VRE Innovation: VRE Frameworks		
<input type="checkbox"/>	Strand B3: VRE Innovation: VRE National and Institutional Interoperability		
Name of Lead Institution:		University of Leeds	
Name of Proposed Project:		Alfresco Management and Security Toolkit (AMSeT)	
Name(s) of Project Partner(s):		None	
Full Contact Details for Primary Contact:			
Name: Professor Andrew G. Booth		Position: Professor of Online Learning	
Email: a.g.booth@leeds.ac.uk			
Tel: +44(0) 113 34 33142		Fax: +44(0) 113 34 31407	
Address: Institute of Molecular and Cellular Biology, Garstang Building, University of Leeds, Leeds LS2 9JT.			
Length of Project:		6 months	
Project Start Date:		01 Apr 2009	Project End Date: 30 Sept 2009
Total Funding Requested from JISC:		£28 151	
Funding Broken Down over Financial Years (April - March):			
April 09 – March 10	April 10 – March 11	April 11 – March 12	
£28 151			
Total Institutional Contributions:		£ 5000	
Outline Project Description:			
Production of a Web service management toolkit for the Alfresco content management system together with an Alfresco SWORD interface and Shibboleth Service Provider.			
I have looked at the example FOI form at Appendix B and included an FOI form in the attached bid (Tick Box)		YES X	NO
I have read the Call and associated Terms and Conditions of Grant at Appendix D (Tick Box)		YES X	NO

FOI Withheld Information Form

We would like JISC to consider withholding the following sections or paragraphs from disclosure, should the contents of this proposal be requested under the Freedom of Information Act, or if we are successful in our bid for funding and our project proposal is made available on JISC's website.

We acknowledge that the FOI Withheld Information Form is of indicative value only and that JISC may nevertheless be obliged to disclose this information in accordance with the requirements of the Act. We acknowledge that the final decision on disclosure rests with JISC.

Section / Paragraph No.	Relevant exemption from disclosure under FOI	Justification
NONE		

Alfresco Management and Security Toolkit (AMSeT)

1. Appropriateness and Fit to Programme Objectives and Overall Value to the JISC Community

1. Alfresco¹ is an enterprise content management system that can be used as a repository for documents, Web pages and rich media resources such as Flash presentations and podcasts. The software is tried and tested with the community edition having been downloaded over a million times. There are around 450 enterprise customers worldwide including large companies and government organisations. Alfresco is an Open Source (OS) enterprise Java application that is compliant with JSR170, the Content Repository for JAVA API. In addition, the software has Web service (SOAP), Web scripting (including RESTian services) and Java Remote Method Invocation (RMI) remote interfaces.
2. Alfresco content can be version controlled and is searchable by the integrated Lucene search engine. Workflow is implemented using jBPM, the JBoss Business Process Management module.
3. The aim of this project is to create a Web service management toolkit that will sit on top of Alfresco's service interface that will enable the educational community to readily use the repository in new teaching applications and learning designs. At present there are significant start-up development costs for Alfresco Web service projects in terms of security procedures and familiarization with the native datatypes.
4. For example, to upload a new resource using a Web service interface a programme must first obtain a security ticket, and then use this ticket in security headers to make successive calls to the Alfresco Content and Repository Web services. Then the security ticket must be cancelled. The toolkit will provide a simplified interface that makes this and similar workflows transparent to the user.
5. The AMSeT toolkit will include basic user, group, and workspace management functionality. This will entail the ability to:
 - create, modify, delete and list users, groups and workspaces;
 - upload and retrieve resources.The technology used will be Business Process Execution Language (BPEL).
6. The JISC project, Simple Web-service Offering Repository Deposit (SWORD)², created a standard method for depositing resources into repositories based on the Atom Publishing Protocol (APP). AMSeT will implement a SWORD interface for Alfresco.
7. The project will also create an Alfresco Shibboleth Java Service Provider (SP) that will allow access control to Alfresco resources to be linked to institutional user and group provision. Presently, Alfresco ships with a Shibboleth login filter which, to be useful, requires the concerted use of the Apache Web server, its Shibboleth module, shibd, the Tomcat application server and mod_jk, the Apache-Tomcat connector. Having a Java Alfresco SP will simplify the situation greatly. The JISC Guanxi implementation of the Shibboleth framework will be used.
8. AMSeT will also produce a simple BlackBoard Building Block that will enable the publishing of BlackBoard documents in a remote implementation of Alfresco.
9. Due to its Web service interfaces Alfresco provides the educational sector with the means to incorporate a platform-independent, open source, enterprise class repository into

¹ www.alfresco.com

² <http://www.ukoln.ac.uk/repositories/digirep/index/SWORD>

distributed, service-oriented applications. AMSeT will lower the cost of entry for such projects. AMSeT will facilitate, for example, projects whose aims are to make available Open Educational Resources (OER). The potential scope of repository projects will also be widened through the SWORD and Shibboleth functionality.

10. AMSeT might bring to mind the JISC RepoMMan and Remap projects parts of which entailed BPEL workflows over the Fedora digital asset management architecture. Alfresco, however, is a content management system and AMSeT is intended to fit into user-facing learning environments whereas the Fedora projects were focussed on institutional record management and digital archival.
11. With specific reference to paragraph 81 in the terms of reference of the call, the Shibboleth and SWORD interfaces will advance methods of interaction of the repository with the Web environment. The BlackBoard Building Block will enable interaction of institutional systems with an external repository, which could be an invaluable asset in bridging the "personal-institutional divide". For example, an institution might publish resources to Alfresco that can be retrieved by students using a user-centric security technology such as OpenID.
12. AMSeT will also provide an example of the use of the highly usable NetBeans BPEL Designer Module which simplifies workflow development through integration with the BPEL engine in ServiceMix, an implementation of the Java for Business Integration (JBI) specification which will run in any Java application server.
13. All IPR from the project will belong to the University of Leeds and the code will be open sourced under the Apache 2 licence.

2. Quality of Proposal and Robustness of Workplan

14. The project will last for six months, starting on the 1st April 2009.
15. All software functionality will be tested using JUnit, HttpUnit and soapUI as appropriate.
16. The work packages in the project will be as follows:
 1. **Alfresco Web Service Toolkit** [*Brian Clark, 20 days.*]
The creation of the Web services toolkit is expedited by the team's previous experience in working with Alfresco Web services. This will consist of BPEL workflows using Alfresco Web services and a simple Web application front end for demonstration and testing purposes.
 2. **Alfresco SWORD Interface** [*Brian Clark, 8 days.*]
This will be implemented using the Java SWORD codebase.
 3. **Alfresco Java Shibboleth SP** [*Andrew Booth, 20 days.*]
JISC Guanxi 2.
 4. **BlackBoard Building Block** [*Brian Clark, 2 days.*]
The University of Leeds has a unit that produces Building Blocks and this module will be constructed under its advisance. The Building Block will be a simple example of remotely publishing a BlackBoard document to Alfresco.
 5. **Web Site + Blog** [*Brian Clark, 4 days, Andrew Booth, 2 days.*]
This is facilitated by the existence of Web site templates and blog applications implemented for previous projects.
 6. **Dissemination** [*Andrew Booth, 3 days, Brian Clark, 3 days.*]
 7. **Final Report** [*Andrew Booth, 1 day.*]

8. Programme Activities [Andrew Booth, 3 days, Brian Clark, 2 days.]

17. The project deliverables will be as follows.
- Alfresco Web services toolkit that enables user provisioning, group management, workspace management and resource deposition.
 - SWORD interface for Alfresco.
 - Alfresco Shibboleth Service Provider.
 - Alfresco Publisher BlackBoard Building Block
 - A project website.
 - Technical blog.
 - Project source code available from SourceForge³.
 - Full documentation in DocBook, HTML and PDF format.
18. The project will build upon the following software, standards, and specifications: JSE 1.6; JEE 6; SOAP 1.1; WSDL 1.1; WS-BPEL 2.0; JAX-WS 2.0; WS-I Basic Profile 1.0; WSDL 1.1; Guanxi 2.0; Alfresco 3; GlassFish V2; Tomcat 6; ServiceMix; OpenESB; OpenSSO; SOCKET; log4j; JUnit; HttpUnit; soapUI; NetBeans 6.1, DocBook 4.
19. Code will be stored in a Subversion repository hosted on the SourceForge site.
20. AMSeT will be managed in accordance with JISC project management protocols. The Project Director, Professor Andrew Booth from the Faculty of Biological Science, will oversee the work of the AMSeT Project and act as an advocate for it within the University of Leeds and to the external community.
21. Risk analysis.

Risk	Probability (1-5)	Severity (1-5)	Score (p * s)	Action
Staffing	2	2	4	Should either of the project members leave the project the University would either negotiate with JISC to adjust timescales for the work or subcontract the work elsewhere.
Technical	2	2	4	The technical risks are low due to the fact that the project mainly consists of creating new interfaces on top of existing software.
Timescale	2	4	8	We will seek an extension to the project.

22. Sustainability.
- The toolkit will become part of the WAFFLE Bus⁴ project at the University of Leeds.
 - The Web site and blog will be maintained for a minimum of 3 years after the end of the project.
 - Code will be downloadable from the project Web site and SourceForge, which can be used for future community development.
 - The operations in paragraph 5 form a subset of the Web service operations provided by Alfresco. The project team would expect to add more functionality to AMSeT relating to fine-grained access control and internal workflow, for example.

³ <http://www.sourceforge.net/>

⁴ <http://www.elearning.ac.uk/features/socket>

3. Engagement with the Community

23. AMSeT uses JISC Guanxi Shibboleth.
24. An AMSeT blog will report regularly on progress.
25. The project also extends the scope of an existing JISC tool, SWORD, and uses a previous project SOCKET for testing and development purposes.
26. The project team would be pleased to accept invitations to contribute summary articles to the JISC e-Learning Focus web site.
27. A poster presentation of the project will be offered to the University of Leeds teaching and learning conference in January 2010.
28. A poster or short presentation will be submitted to the next annual ALT-C conference.

4. Impact

29. There is currently a low level of engagement with Alfresco by the JISC community and the educational community as a whole. This project will provide impact by highlighting the advantages over other products in the field and reducing initial project development costs.
30. Stakeholder analysis

Stakeholder	Interest / stake	Importance
Lecturers/tutors	Will readily be able to plan for the incorporation an enterprise content management system into OER and other distributed projects	Medium
e-Learning technologists	Will offer more design options for distributed projects requiring a repository, new PLEs, VLEs, and simulations, for example.	Medium
Developers	Will offer a quick, simple, platform-independent way of incorporating a content repository into a distributed project.	High
JISC Community	Will raise the profile of Alfresco in a period that will see repository projects increase in importance as the trend towards OER continues.	Medium
Learners	Can use a range of technologies to access repository content	Medium

31. Potential impact and evaluation methodology
 - The authors are of the opinion that Alfresco can form an easily maintainable and manageable resource management core for personal and institutional learning environments of the future.
 - Many HE and FE institutions use the BlackBoard VLE and the Alfresco Building Block has a large potential user base.
 - The toolkit will also provide advantages to institutions using VLEs other than BlackBoard since many will have a relatively straightforward mechanism for introducing calls to external Web services.
 - The results of googling “alfresco AMSeT jisc” in a year’s time from the project end will give a clear view of the impact of the project in terms of community interest and contributions to future projects.

5. Budget

Directly Incurred Staff	Apr09– Mar10	TOTAL £
Post, Grade, No. Hours & % FTE	£ None	£ None
Etc.	£ None	£ None
Total Directly Incurred Staff (A)	£ None	£ None
Non-Staff		
Non-Staff	Apr09– Mar10	TOTAL £
Travel and expenses	£2 500	£2 500
Hardware/software (2 x PC, Blackboard development kit)	£5 000	£5 000
Dissemination	£1 000	£1 000
Evaluation	£500	£500
Other - IT Support charges and consumables	£5 000	£5 000
Total Directly Incurred Non-Staff (B)	£14 000	£14 000
Directly Incurred Total (C) (A+B=C)		
	£14 000	£14 000
Directly Allocated		
Directly Allocated	Apr09– Mar10	TOTAL £
Staff	£11 685	£11 685
Estates	£1 220	£1 220
Other	£ None	£ None
Directly Allocated Total (D)	£12 905	£12 905
Indirect Costs (E)		
	£6 246	£6 246
Total Project Cost (C+D+E)		
	£33 151	£33 151
Amount Requested from JISC	£28 151	£28 151
Institutional Contributions IT Support, Blackboard Development Consultancy etc.	£5 000	£5 000
Percentage Contributions over the life of the project		
	Partners None	Total 100%

No. FTEs used to calculate indirect and estates charges, and staff included	Prof Booth	29/110 = 0.26
(Assumes 220 days per year)	Dr Clark	FTE
		39/110 = 0.35
		FTE

32. The benefits to the University of Leeds as an institution arise from the fact that it is committed in the medium term to the BlackBoard VLE. The Alfresco Web services toolkit and Building Block have the potential to play an important role in establishing links with student personal learning environments as these grow in importance.

6. Previous Experience of the Project Team

33. **Andrew Booth** (Project Director) is Professor of Online Learning in the Faculty of Biological Sciences. Prior to this appointment, he was Director of the Flexible Learning Development Unit, where he headed the team that developed the Bodington™ System, and was one of its original developers. An experienced Java programmer and a Shibboleth expert, he was director of the JISC SOCKET project, and was also a member of the Guanxi and Gilead JISC projects and the ASK Steering group. His work was recognised by the award of a National Teaching Fellowship in 2007.
34. **Brian Clark** (Developer) is a tutor/developer in the Faculty of Biological Sciences at the University of Leeds. Brian is an experienced Java programmer and has a good knowledge of the latest developments in service-oriented architecture. Recently he has been investigating Alfresco's Web service interfaces for internal projects. He was manager and Java developer for the JISC SOCKET project.

Accompanying letter of support from senior member of institution.