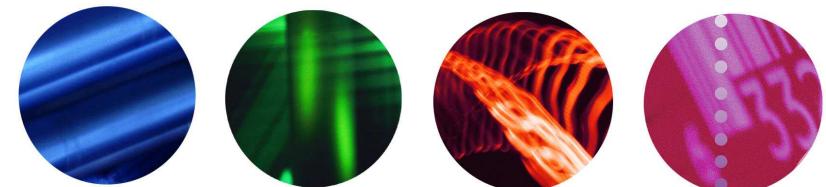


Connecting People to Resources: JISC Core Middleware Programme

Ann Borda and Terry Morrow

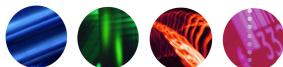
JISC Development Group



Supporting further and higher education

JISC Strategy

- Middleware appears under Aim One: “To develop solutions that help the UK education and research communities to keep their activities *world class* through the use of ICT.” (1.4 a middleware service).
- Meets Key Performance Indicator: “Develop a common, integrated information and communications environment.”
- [http://www.jisc.ac.uk/index.cfm?name=about strategic](http://www.jisc.ac.uk/index.cfm?name=about%20strategic).

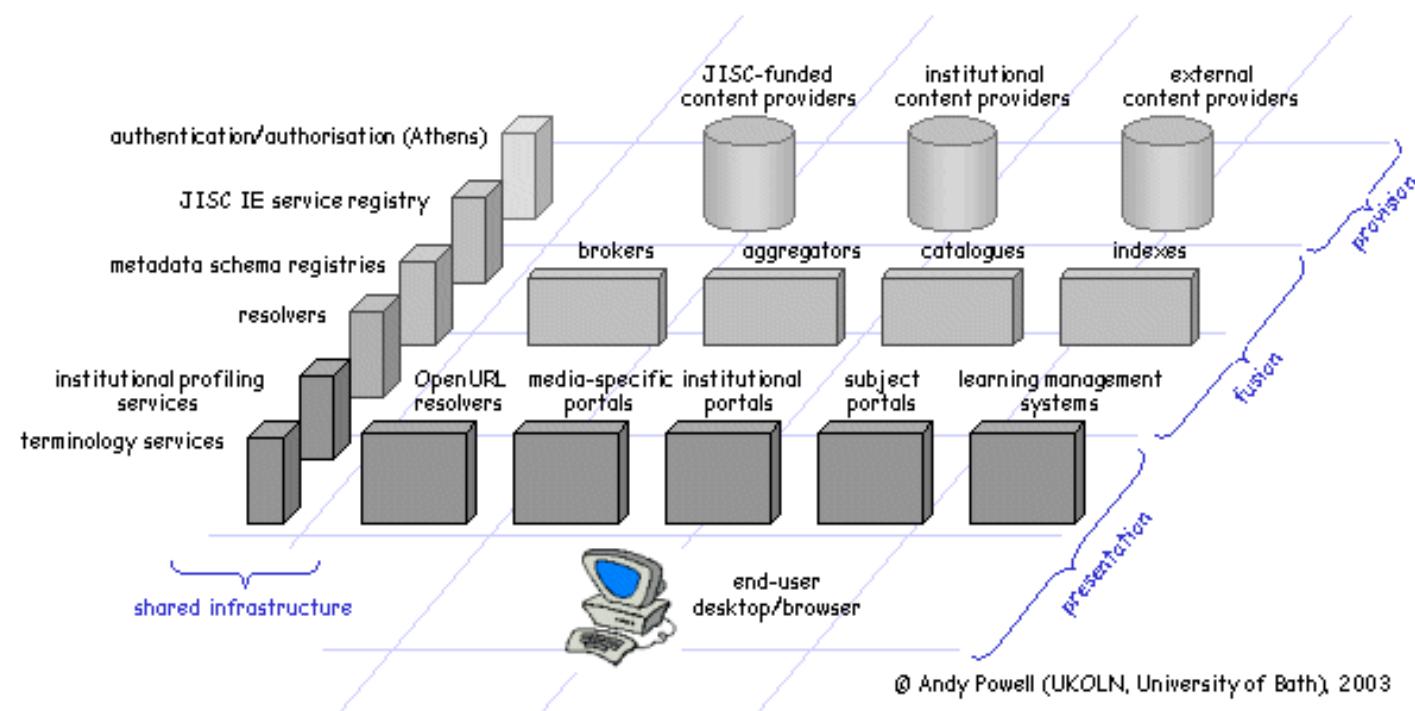


Connecting people to resources

- Middleware, or "glue," is a layer of software between the network and the applications. It provides services such as identification, authentication, authorization, directories, and security.
- The JISC uses the term middleware to describe the process of helping institutions to connect people to resources.
- Also refers to the whole range of access management issues.



Common Information Environment



Core Middleware Programme

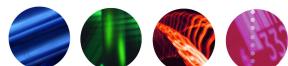
- JISC has devoted a significant part of its development funding to access management issues.
- Different solutions & scenarios investigated and tested.
- Next generation access management system for the JISC community.



Core Middleware Programme

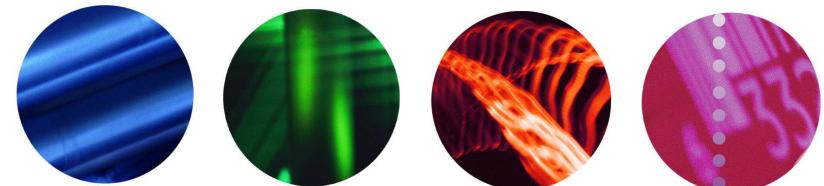
Two main strands of the Programme:

- **TECHNOLOGY DEVELOPMENT**
- **INFRASTRUCTURE**
- http://www.jisc.ac.uk/index.cfm?name=programme_middleware



Core Middleware

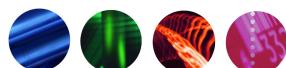
Technology Programme



Supporting further and higher education

Technology Development

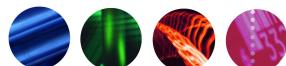
- Core Middleware: Technology Development Programme (April 2004 – March 2007).
- Supports several key scenarios:
 - Internal (intra-institutional) applications as well as use between organisations.
 - Management of access to third-party digital library-type resources.
 - Inter-institutional use – stable, long-term resource sharing between defined groups (e.g. shared e-learning scenarios).
 - Inter-institutional use – ad hoc collaborations, potentially dynamic in nature (virtual organisations or VOs).



Technology Development

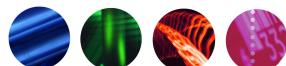
- Programme has funded 15 projects:
 - Some covering specific work (e.g. Shibboleth/PERMIS integration, other Shibboleth extensions, DRM, etc.)
 - Others more speculative and open-ended work, e.g. setup and management of lightweight VOs; life-cycle management of user credentials and attributes; trust models and delegation.

www.jisc.ac.uk/index.cfm?name=programme_middleware



Outputs

- Test bed implementations & demonstrators.
- Reports on the implementation and deployment experiences.
- Evaluation reports
- Recommendation reports
- Ongoing...

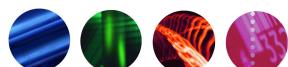


Technologies

- Some of the technologies investigated:
 - PERMIS
 - RADIUS (Wireless Networking and Roaming)
 - SHIBBOLETH

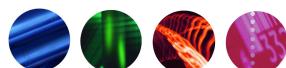
Supported By:

- Study of Institutional Roles
- Expert reports (e.g. Single Sign-on)



SIPS Project

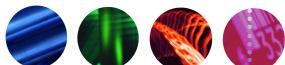
- The SIPS project (Seamlessly Integrating Shibboleth and PERMIS)
- SIPS is a three-way integration of Shibboleth, Permis and Apache
- The PERMIS authorisation framework and the PERMIS tool are used for attribute role management within institutions.
- The SIPS software is to be included in the next major release of NMI (the NSF Middleware Initiative)



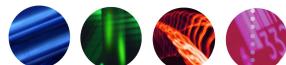
KC-ROLO

- KC-ROLO project, an extremely successful FE project within the programme.
- Aims to setup Shibboleth architecture between Kidderminster College, RSC West Midlands and University College Worcester to provide a long term method of sharing of institutional learning resource objects.
- Incorporates other technologies such as a WebISO in the form of Pubcookie.
- <http://www.kidderminster.ac.uk/kc-rolo>

ROLO



- **LICHEN: Location Independent Collaboration in Higher Education Networks**
- To extend and complement the work of the [UKERNA Wireless Advisory Group](#) and [TERENA TF-Mobility](#) (which is establishing a RADIUS-based hierarchy of trust for Location Independent Networking)
- To investigate and develop a generic system for managing and applying authorisation policy pertaining to resources accessed by users in different administrative domains.
- Users typically members of short-lived, distributed collaborations between multi-site – and multi-disciplinary – groups.
- <http://www.iam.ecs.soton.ac.uk/projects/LICHEN.html>



Middleware Studies

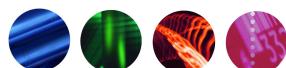
- Single Sign On
- UKeduPerson
- National Certificate Issuing Service

www.jisc.ac.uk/index.cfm?name=prog_middss_studies



Gaps?

- Further work is needed in supporting areas - rights management, attributes, trust policies etc.



International

- JISC middleware activities are informed by and represented at events run by TERENA in Europe and Internet2 in the US.



www.internet2.edu/

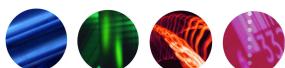
‘Consortium of 207 universities in partnership with industry and government to develop & deploy advanced network applications and technologies, accelerating the creation of tomorrow's Internet’.

Primary goals :

- Create a leading edge network capability for the national research community
- Enable revolutionary Internet applications
- Ensure the rapid transfer of new network services and applications to the broader Internet community.

Internet2 Working Groups

- Partnerships
- Initiatives
- Applications
- Middleware
- Engineering



Key Middleware Projects

- eduPerson (LDAP Directory Schema). Defining an LDAP object class to include widely-used person attributes in higher education.
- Grouper - an open source toolkit for managing group information across integrated applications and repositories.
- Shibboleth - an open source implementation to support inter-institutional sharing of web resources subject to access controls.

Signet - developing centralized management of user privileges across a range of applications

Federations

- [InCommon Federation](#) & [InQueue Federation](#)

Middleware Architecture Committee for Education (MACE)
– Deployment of a common middleware infrastructure to support the academic and administrative needs of the research and education community.



TERENA

- TERENA - Trans-European Research and Education Networking Association
- "...to promote and participate in the development of a high quality international information and telecommunications infrastructure for the benefit of research and education."
- Undertakes technical activities and provides a platform for discussion to encourage the development of a high-quality computer networking infrastructure for the European research community.
- <http://www.terena.nl/>



Lower Slaughter (the “Cotswolds meeting”)

- High level international cooperation in middleware standards, development and deployment.
- Australia, Finland, the Netherlands, Spain, Switzerland, the UK and the US, together with CERN.
- 2 key initiatives:
 - the commissioning of a “cookbook” guidelines for implementing a national-scale middleware infrastructure
 - to fund an investigation into whether an international body could be set up to regulate the linking of national middleware infrastructures to facilitate trans-national working (e.g. for international student mobility).

<http://www.jisc.ac.uk/index.cfm?name=international.middleware>



Technology Landscape

- Communities similar to ours are also working on core middleware technologies and standards-based models



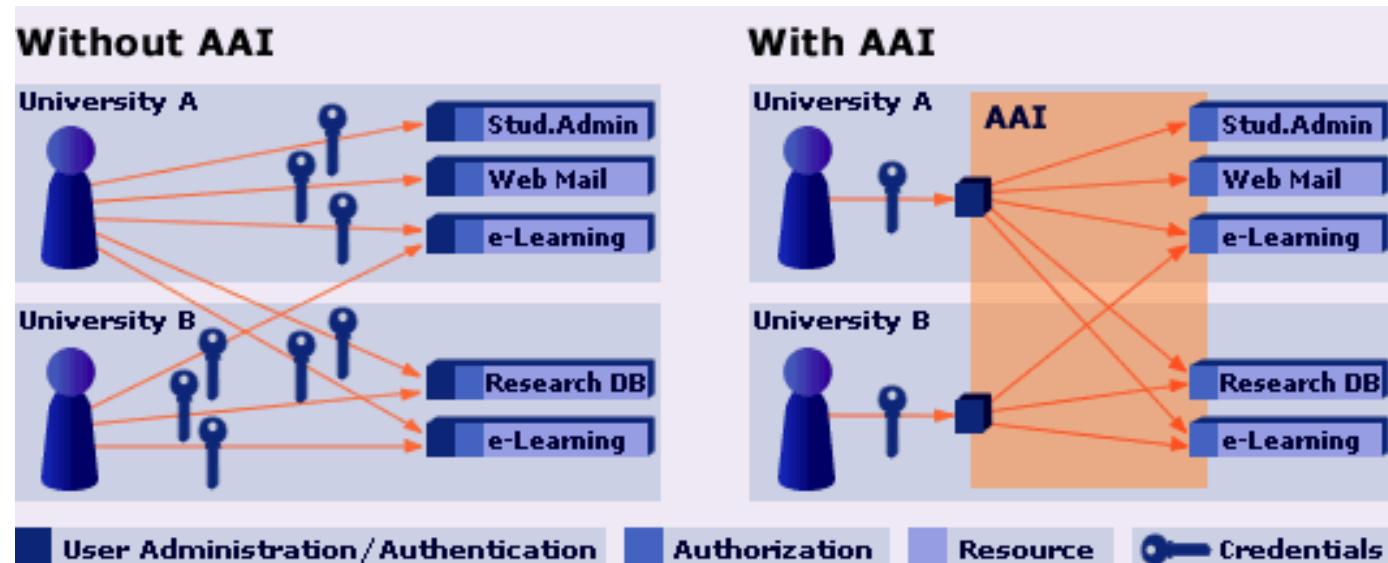
SWITCH

- Key role to contribute to the development and operation of the Internet in Switzerland.
- Implementing AAI (Authorisation and Authentication Infrastructure)
- Five major universities integrated into AAI.
- <http://www.switch.ch/aai/>

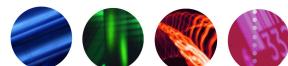
SWITCH



SWITCH



SWITCH



- Developed by Spanish equivalent of JISC
 - Strongly campus-centred (all authentication and authorisation takes place at user's organisation)
 - Makes fewest demands on content supplier
 - Working at ~25 sites in Spain
 - Shibboleth compliance
- **<http://papi.rediris.es/>** 

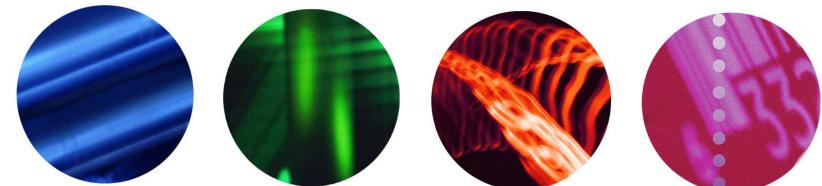


- Macquarie University - lead University on the Meta Access Management System (MAMS) Project.
- A conceptual architecture to support multiple, independent models of a “meta access management system” to be implemented within organisations, and for inter-institutional communication.
- Provides an essential “middleware” component to increase the efficiency and effectiveness of Australia’s higher education research infrastructure.
- www.melcoe.mq.edu.au/projects/MAMS/



Core Middleware

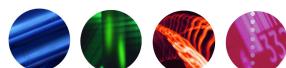
Infrastructure Programme



Supporting further and higher education

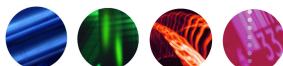
Infrastructure Programme

- Establish a UK Shibboleth infrastructure
- Government Comprehensive Spending Review funding
 - Approx £2.5m from Apr 2004 to Mar 2006
- Main work areas:
 - Making Mimas and Edina services Shib compliant
 - Funding for organisations willing to be early Shibboleth adopters
 - Creating a service to assist the early adopters
 - Establishing a national UK federation
 - Liaising with suppliers: publishers, subscription agents etc



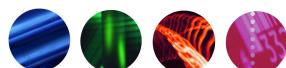
Early adopters (1)

- Call for proposals sent out Dec'04
- 18 responses by 10/2/05 deadline
- 2 being renegotiated
- 6 being combined into single proposal (ShibboleAP) - managed by LSE
- Partners:-
 - Royal Holloway
 - SOAS
 - KCL
 - UCL
 - Birkbeck
 - Imperial



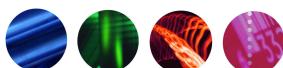
Early adopters (2)

- A further 10 approved
 1. Leeds (GILEAD)
 2. Nottingham (Local origin implementation)
 3. Nottingham Trent (East Midlands deployment)
 4. UK Data Archive (SAFARI)
 5. Newcastle (SAPIR)
 6. Bristol (Metalib Shibboleth integration)
 7. Liverpool (LSIP)
 8. Cardiff (multiple resources including NHS)
 9. Exeter (Project SWISH)
 10. St George's Hospital Med Sch (ADAMS)



ShibboleAP

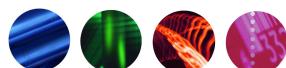
- Consortium of 6, led by LSE:
 - Royal Holloway, SOAS, KCL, UCL, Birkbeck, Imperial
- Members of the SHERPA-LEAP consortium
 - SHERPA = Securing a Hybrid Environment for Research Preservation & Access (Nottingham)
 - LEAP = London E-prints Access Project
- Aims:
 - (1) Establish general purpose Shibboleth origins at each college.
 - (2) Integrate the ePrints.org server making it a target



GILEAD*

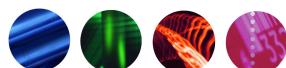
- Led by Leeds University
- Will make Shibboleth their strategic solution to access management across the university
- Exploit the campus enterprise Active Directory via LDAP
- Will build on the Guanxi project to test Shibboleth federation mechanisms between Leeds & Manchester
- Develop BEI and others as targets

** The name of the people who used the pronunciation of Shibboleth to identify Ephraimites (Judges 12:4-6)*



Nottingham University

- Wanted to use local eDirectory usernames to access local and remote resources
- Had been expecting to implement AthensDA
- Instead will now deploy the Eduserv implementation of Shibboleth origin
- Will document and present as case study



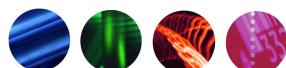
Nottingham Trent

- Investigate, prototype and deploy centrally hosted service for East Midlands institutions
- Completed project will be handed to East Midlands MAN to run



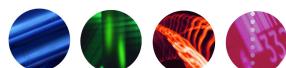
UK Data Archive

- Project name SAFARI
 - Shibboleth Authentication For the Resource Infrastructures of the UK DA
- Make three UK DA resources Shibboleth targets
- Embed in UK DA's one-stop registration service



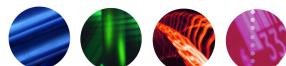
Newcastle University

- Project name SAPIR
 - Shibboleth-enabled Access to Portals & Institutional Resources
- Will develop Shibboleth as AM solution for library-mediated resources & services
- Four strands:
 - Replace Athens with Shib
 - Configure Reading List Management system as Shib target
 - Configure Metalib as Shib target
 - A Shibboleth test environment for the Aleph Library Management System



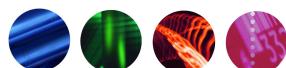
ILRT – Bristol University

- Implement Shibboleth environment for Bristol Univ
- Integrate Metalib and SFX link server as Shib targets
- Project output made available to 26 UK institutions using Metalib
- Also 29 institutions using SFX



Liverpool University

- LSIP – Liverpool Shibboleth Implementation Programme
- Implement Shib origin system on existing Novell e-directory
- Configure local systems as targets
- Test interworking with Athens gateway
- Develop a local federation



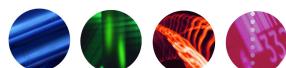
Cardiff University

- Adoption of Shibboleth for Multiple Identity Management Applications
- Test applicability of Shibboleth to a range of resources
 - e-Science Application Target
 - Secure NHS Resources



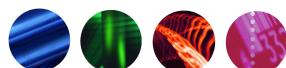
Exeter University

- SWISH
 - South West Implementation of Shibboleth
- Shibboleth pilot service
- Covers:
 - Members of University based in Exeter
 - Peninsula Medical School
 - Peninsula Allied Health Collaboration
 - Combined Universities in Cornwall
- Investigate integration with University portal (XPort project)



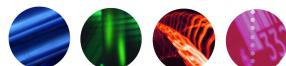
St George's Hospital Medical School

- ADAMS
 - Authentication & Delivery across Medical courses using Shibboleth (ADAMS)
- Use Shibboleth for JISC project teaching resources used nationally by HE and FE
- Allow on site access to resources for Medical and Healthcare students
- Investigate complex access rules for patient-identifiable images



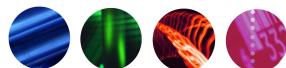
Middleware Assisted Take-Up Service

- Providing support to early adopters
- Scoping future requirements for institutions adopting Shibboleth
- Support services include:
 - Comprehensive website
 - Documentation
 - Help desk
 - Onsite support
 - Training events
 - Links to and information about software
- Tenders submitted by early December
- Negotiations still ongoing!



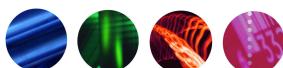
Federations

- Organisations with a common purpose (eg education and research) who trust each other
- Federations
 - sign up to a set of rules
 - may have legal status
 - need the trust of suppliers
- Production federations
 - USA - InCommon
 - Switzerland - SWITCHaai
 - Finland - HAKA
- UK test federations – SDSS; Athens
- JISC establishing a production UK federation
 - Name suggestions?



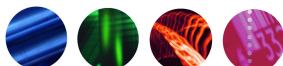
Service Providers (1)

- Also known as “targets”
- May be external eg
 - Publishers
 - Subscription agents
 - National data centres
 - Collaborating organisations within a region
- May also be internal eg
 - Exam results database
 - Room bookings
 - Personnel records
 - Any service that requires authentication before access is permitted



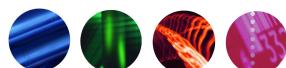
Service Providers (2)

- Some publishers etc already testing or implementing Shibboleth
 - Eg EBSCOhost, Elsevier ScienceDirect, Ex-Libris SFX, JSTOR, ProQuest, WebCT
- Others keeping active watching brief
 - Eg Gale, Ovid, IoPP,
- Implementing Shibboleth requires installation of plugin (like Athens)
 - Also need to sign up to terms and conditions
- Federations and suppliers
 - Unclear how suppliers fit with federations
 - For now will have to join each country's federation



Further Information

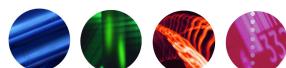
- JISC web pages – go to
<http://www.jisc.ac.uk/index.cfm?name=programme middleware>
- Internet2 <http://shibboleth.internet2.edu>
- Athens <http://www.athensam.net/shibboleth>
- Two new JISCmail lists:
 - JISC-Shibboleth
 - JISC-Shibboleth-announce



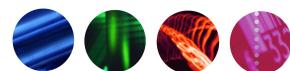
Further Information

JISC EVENTS:

- JISC Annual Conference
 - April 12th, 2005, Birmingham
- Core Middleware Programme Meeting
 - Mid-May 2005
- Joint Programme Meeting
 - July 7,8th 2005, Cambridge



Questions?



Contacts

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