Integrating Everything: the JISC-DEST e-Framework for Education and Research

Kerry Blinco
Technical Standards Adviser to DEST
Co-Manager e-Framework Operations Group
E-Framework and Standards Manager, RUBRIC Project, DeC University of Southern Queensland
Service oriented approach
JISC / DEST e-Framework
Services and References Models
What does this mean for Repositories?
What do we mean by:

"INTEROPERABILITY"

e-learning
administration
grid
collaboration
e-research
simulation
digital libraries
portal
performance support

http://www.e-framework.org
What do we mean by:

“INTEROPERABILITY”

e-learning
repositories
administration
grid
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simulation
digital libraries
portal
performance support
A service oriented approach to interoperability....
Overlap of functions and data within components means significant data replication required to keep components synchronised.

Virtually impossible to implement single sign on, for example, in this type of environment.
Service oriented approach

- Learning Management
  - Activity Mgt
  - Collaboration
  - Assessment

- Library
  - Cataloguing

- Student Record System
  - Grading
  - Reporting

- Messaging
  - Authentication
  - Packaging
  - Discovery

- No need to replicate data; all applications use the same common data sources.

- Individual components smaller so easier to create and maintain.

*Scott Wilson - CETIS

http://www.e-framework.org
Services need well defined interfaces so all components can access them.
How do services help build applications?

- Presentation and workflow constructed from multiple shared services
- Data and business function encapsulated in services
“soa” vs “SOA”

- “soa” – service oriented approach
  a system design methodology using networks of loosely-coupled, communicating services.

- Implementations of e-Framework components use “SOA” Service Oriented Architecture where appropriate
  software architecture for a service-oriented approach implemented using a particular technology, e.g., CORBA, web services.
A collaborative initiative by:
- **JISC** The Joint Information Systems Committee (UK)
- **DEST** The Department of Education Skills and Training (Australia)

- Evolving, sustainable, open standards based, service oriented technical framework
- Developed from the ELF, expanding to e-research, information environments etc
- Defining vocabularies, notations and methodologies
- Coordination with funding programs of partners – eg Repositories Programme in the UK, FRODO and MERRI projects in Australia
- Developing relationships with other interested bodies- NZ, SURF, DLF, standards bodies
To help us plan across domains
To help conversations about developing ICT across libraries, learning, research, admin.
A shared vocabulary and common ground
Trend towards modular approach – flexibility
Share costs to change and develop
Identify gaps and needs
Ability to build on previous work
e-Framework as a SOA framework

- is not a static document
  - every aspect of the framework itself is developed iteratively
  - it mainly tracks and structures technological developments

- is not a prescriptive blueprint
  - tracks multiple solutions for the same component
  - designed to provide the components for specific architectures, but is not the architecture itself
  - provides structure to small, ‘grassroots’ development
The e-Framework will contain:

- Reference Models
- Service Definitions
- Use
  - Context
  - Background
  - Guidance
  - Implementations
- Development
  - Policies
  - Processes
  - Guidance

User Needs & Community Engagement
“Domain” view of services

- Domain Specific Services:
  - e-Learning
  - e-Research
  - e-Admin

- Common Services:
  - Messaging/Collaboration
  - E-Resources Management
  - Middleware (Security and Logging)

Most developed – further iteration required
“Domain” view of services

- Domain Specific Services:
  - e-Learning
  - e-Research
  - e-Admin

- Common Services:
  - Messaging/Collaboration
  - E-Resources Management
  - Middleware (Security and Logging)

Strawman joint JISC-DEST activity
“Domain” view of services

Domain Specific Services
- e-Learning
- e-Research
- e-Admin

Common Services
- Messaging/Collaboration
- E-Resources Management
- Middleware (Security and Logging)

NZ interest
"Domain" view of services

- **Common Services**
  - Middleware (Security and Logging)
  - E-Resources Management
  - Messaging/Collaboration

- **Domain Specific Services**
  - e-Learning
  - e-Research
  - e-Admin

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IE, Repository Services – extending early work
“Domain” view of services

- **Domain Specific Services**
  - e-Learning
  - e-Research
  - e-Admin

- **Common Services**
  - Messaging/Collaboration
  - E-Resources Management
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IE, Repository Services – extending early work
Reference models

- aimed at a particular business process or workflow
- defined by services that they combine
- joins services with requirements
- different levels of granularity, some high level and abstract, some detailed and targeted at implementation
- no limit on the number of reference models in the framework
- can overlap with other reference models
- may be used to design implementations
For example:

- **Name**: time management
- **Domains**: e-learning, e-science, e-admin, digital library, repositories
- **Description**: The time management reference model deals with the problem of sharing and co-ordinating the schedules of people and resources in an organisation. It describes a workflow in which various actors can view schedules, edit them, or request an edit in them. The purpose of the model is to make it easier to co-ordinate people and resources such as rooms, equipment and documents.
Why do reference models matter?

Other relevant models

EDUCATION AND RESEARCH
Community, Institutional, project
analysis, planning and modeling activities

IDENTIFY

Service Genres
Service Expressions

Documentation

REFERENCE MODELS

USE

Service Genres
Service Expressions

Use

Induction

SERVICE PATTERNS

Reuse
A number of “reference” modeling and service framework activities in progress

esg: (Not inclusive – also NISO, ISO, activities, ADORE, Lorcan Dempsey’s blog etc)
The JISC IE Architecture

- JISC-funded content providers
- Institutional content providers
- External content providers
- Brokers
- Aggregators
- Indexes
- Catalogues
- End-user
- Desktop/browser
- Presentation
- Fusion
- Provision

Authentication/authorisation (Athens)
JISC IE service registry
User preferences services
Metadata schema registries
Resolvers
Institutional preference services
Terminology services
OpenURL resolvers
Subject portals
Institutional portals
Media-specific learning systems
Management systems

Services:
- Terminology services
- User preferences services
- JISC IE service registry
- Authentication/authorisation (Athens)
- OpenURL resolvers
- Shared infrastructure
The JISC IE Architecture

- Describe collections & services
  - Using the IESR schema

- OAI PMH repository
  - Dublin Core – OAI-PMH-DC XML/
    - UK LOM CORE- Dig Repos. Spec

- JISC-funded content providers
- Institutional content providers
- External content providers
- Brokers
- Aggregators

- Institutional portals
- Media-specific learning management systems
- Subject portals

- End-user
  - Desktop/browser
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  - Provision

- Authentication/authorisation (Athens)

- JISC IE service registry
- User preferences services
- Metadata schema registries
- Resolvers

- Institutional preference services
- Terminology services

- Shared infrastructure

- Harvest using OAI PMH version 2.0
- Assign persistent URI’s

- IMS content packaging, or METS
The JISC IE Architecture

- JISC IE service registry
- authentication/authorisation (Athens)
- user preferences services
- metadata schema registries
- resolvers
- institutional preference services
- terminology services
- shared infrastructure

JISC-funded content providers

Sherpa IR's

Other IR's

brokers
eprintsuk
indexes
openDOAR

provision

fused

presentation

Some E-Print Services

- OpenURL resolvers
- subject portals
- institutional portals
- eprintsuk
- learning management systems
- end-user desktop/browser

end-user preferences services

resolvers

metadata schema registries

institutional preference services

terminology services

shared infrastructure

end-user preferences services

resolvers

metadata schema registries

institutional preference services

terminology services

shared infrastructure
Resource Discovery and Delivery

Judith Pearce (NLA) New Frameworks for Resource Discovery and Delivery
Fedora Services Framework

http://www.fedora.info/download/2.1b/userdocs/server/features/serviceframework.htm

Web-based submission and basic workflow
In Spring 2005, DLF Services Framework Working Group recommended dedicated effort to define a framework for libraries to regain a shared sense of the library and its systems that can be modeled for more effective organization.

In January 2006 Geneva Henry appointed as Distinguished Fellow.

Will model the business processes side of the library to understand current operational models, independent of systems.

The opportunity:
- to provide a roadmap;
- a common vocabulary;
- a reference model through which to understand (but not dictate) local practice by comparison;
- a way of articulating the value and business of the 21st century library to outside partners (and ourselves?) as clearly as we can articulate the 19th century one.
How the e-Framework approach helps Repositories

- Provide internally consistent vocabulary and processes to support conversations, documentation, dissemination etc
- Collaboration with DLF aims to share vocabulary, methodologies and notations whilst allowing different models
- Identify and document state of play with repository services and specifications
- Compare existing and developing models and architectures
- Identify reusable repository “Service Patterns”
- More input to the discussions on “Service Bricks” the better. eg raising interesting questions - are “repository” & “registry” bricks or reference models?
EG: conversation problem 1
– what is a service!

E-Framework concept
- Service Genre
- Service Expression
- Service Implementation
- Service Instance / Deployed service

FRBR analogy
- Work
- Expression
- Manifestation
- Item
For more information:

- www.e-framework.org (interim site)
- www.elframework.org
- www.rubric.org
- www.jisc.ac.uk

kblinco@powerup.com.au
jon@intercog.net (e-Framework Editor)

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