The e-Framework and e-Research

Kerry Blinco, Lyle Winton
E Framework for Education and Research

- Brief overview of the e-Framework
  - What is it?
  - What can it do?

- What’s Happening?
What is it?

Background

- Enabling meaningful conversations and collaboration across boundaries
- DEST / JISC e-Framework for Education and Research
- Now DEST, JISC (UK), MoE (NZ), SURF (NL)

Goal:

- technical interoperability
- in education and research
- by improving
  - strategic planning
  - implementation processes

Principles

- service oriented approach (soa)
- open standards
- community involvement
- incremental development
Sure … but what are the outputs?

… a knowledge base …

**Services**
- Describing interfaces between applications
  - technology independent *genres*
  - technology dependent *expressions*
  - *e-f descriptions of standards*

**SUMs**
- Service Usage Models
  - how to combine services to meet business requirements
- CORE SUMs
  - Commonly Repeating SUMs or reusable patterns

**Guides**
- Collaboration framework
  - common vocabulary
  - templates for developing documentation
  - information on technologies, projects, practice

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Sure … but what are the outputs?

… a knowledge base …

**Services**
- Service Genres – “The What”
- Service Expressions – “The How”

**SUMs**
- Service Usage Models (SUMs) – “The Composition”
- CORE SUMs – “The Patterns”
Interoperable Development (Standards and Services)
- Standards encourage Interoperability, "soa" encourages Integration
- But Standards and Services are not enough!
- Addresses interoperability at the pain points
  - At the business policy/process level
  - At an application and implementation level
  - At the service-oriented level
    - (service interfaces and contracts)
  - At the semantic level
  - In a specific context

Adoption and Adaptation
- Taking standards or community profiles and adopting or adapting
- e-Framework provides a feedback mechanism
- Analysis of differences between communities/adaptations
What can it do?

- Publishing Information
  - Standards/services in use or planning
  - Experiences in adoption, testing emerging standards and technologies
  - Communities focused around interoperability

- Leveraging International Experience
  - What are other countries doing (consistent vocab)
  - How are they doing it (consistent model)

- Strategic Advice
  - In a sense, we are documenting communities of practice
  - Pick solutions from communities that interoperate
  - Choice of technologies and existing gaps become more obvious
  - Birds-eye view of technology in use within domains
  - Promote reuse and not rebuild

How can people engage?

- many Consumers, key Contributors

- use to Model
  - Provides a strategic approach to technical infrastructure development within and across domains

- use to Document
  - Provides a consistent technical vocabulary and model

- use to Develop/Build
  - Provides a focal point for interaction with software developers and those providing services to research and education
  - Acts as a catalyst for development/refinement of specifications and standards
  - Interoperability – Shared Infrastructure and Federations
What’s happening?

- used to Document…
  - eg. Access Management
  - Different International Models
    - Shibboleth in different countries
  - Different Contexts
    - Grid
      - PKI, X.509, GSI
    - Trust Federations
      - MAMS, AAF
    - Global Identity
      - OpenID, X.509

DEST – MAMS Federated Identity

National Identity and Authentication Infrastructure

Documenting the federation.

Comparison with international infrastructure towards wider interoperability. (to come)
NZ MoE – Education Sector Architecture Framework

Education Sector Authentication & Authorisation (ESAA)

One of the 5 ESAF projects using e-F.

Use of e-Framework for specifying business process, profiling standards and services towards interoperability across the education sector.

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What’s happening?

- used to Model and Develop/Build…
  - eg. FRED (Federated Repositories for Education)
  - Started by using e-Framework to model and document
    - Service Usage Model (SUM)
      - Business processes supported
      - Functionality provided
      - Service-oriented structure
    - Service Expressions
      - Service level behaviours
      - Service Profile
      - Standards used
  - e-Framework documentation given to the developer
    - Successfully built services for federation, first pass

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http://www.e-framework.org
Federated Repositories for Education (FRED)

Developing software toolkits to help communities build federations of repositories.

Repository Federation Service Usage Model

What services are involved in building a repository federation?

Detailed service expressions – enough to give to software developers & guarantee interoperability
What’s happening?

- eg. FRED (Federated Repositories for Education)
  - Painless Interoperability?
  - For the developer, yes!
  - For the analysts and architects, no!
    - Takes time to develop the model
    - Takes time to understand the standards
    - Takes time to profile for interoperability
  - However, e-Framework provided a methodology for the modeling
    - Facilitates this process

What’s happening?

- Shared Infrastructure
  - eg. PILIN (Persistent Identifiers Linking Infrastructure)
    - IDs for things (papers, data, collections, instruments…)
  - Using the e-Framework to understand
    - the problems to be solved
    - the required services
    - Don’t start with technology
  - Using the e-Framework to build
    - Building services to outlast the technology
    - Choice of appropriate technology for the problem
    - Gaps become more obvious
    - Building appropriate middleware/services to bridge the technology-requirements gap
DEST – PILIN use of e-Framework

National Identifier Infrastructure

plan for changes in underlying technology by understanding
the abstract services

What's happening?

- Research Infrastructure…
  - Starting with initial factoring of services

- Jane Hunter, Matthew Dovey
What’s happening?

Research Infrastructure…
- Access Management, Federation, Identifier Infrastructure – common to multiple domains including research
- We are beginning to address the research specific services
- Start with the practical/existing Service Usage Models (SUMs)

Data Infrastructure
- SRB (Storage Resource Broker) Usage
- gLite SRM (Storage Resource Manager) Usage
- Talking with ARCHER
  - MAMS Access Management – existing SUM
  - SRB – SUM in progress
- Fedora Repository – SUM in progress
- PILIN – SUM in progress, existing connections with ARROW
- Interoperability will be key

Access Infrastructure
- Shibboleth SUMs
- Talking with AAF, MAMS, National Grid
  - Shib, PKI, Grid interoperability

Work in progress…

Research:
- Research Journal SUM
- ARCHER SUM
- Australian National Grid SUM
- MAMS National Grid SUM
- Storage Resource Broker (SRB) SUM
- gLite Data Management (EGEE) SUM

Learning:
- R2Q2 SUM
- SPAID SUM
- ResponseProcessing SUM
- CamTools Sakai SUM
- Learning Object Repository Network (LORN) SUM
- Flowtalk SUM

Library:
- FRED Repository Federation SUM
- ASK SUM
- USQ ePrints Repository SUM

Administration:
- Student Transfer SUM
- Early Notification SUM
- Identity and Access Management SUM

Common SUMs:
- Australian MAMS SUM (Shibboleth)
- FRED Authenticated Harvest SUM
- OpenID SUM
- MAMS OpenID Provider SUM
- Persistent Identifier Linking Infrastructure (PILIN) SUM

What’s happening?
Summary

- What the e-Framework can do...
  - Development (Standards and Services)
    - Addresses interoperability at the pain points
  - Adoption and Adaptation
    - Documenting standards and community profiles
    - Provides a feedback mechanism
  - Publishing Information
    - Experiences in adoption, testing, emerging technologies
    - Communities focused around interoperability
  - Leveraging International Experience
    - What are other countries doing
    - How are they doing it
  - Strategic Advice
    - Bird's-eye view of technology in use within domains

- For more information...
  - Contact:  editor@e-framework.org
  - Newsletter:  [http://www.jiscmail.ac.uk/lists/E-FRAMEWORK.html](http://www.jiscmail.ac.uk/lists/E-FRAMEWORK.html)

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