e-Framework
for education and research

The e-Framework and e-Research

Kerry Blinco, Lyle Winton
E Framework for Education and Research

http://www.e-framework.org

e-Framework

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

http://www.e-framework.org

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)

http://www.e-framework.org

What is it?

Goal:

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

Principles

- service oriented approach (soa)
- open standards
- community involvement
- incremental development

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What is it?

e-Framework

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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What is it?

e-Framework

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"

Guides

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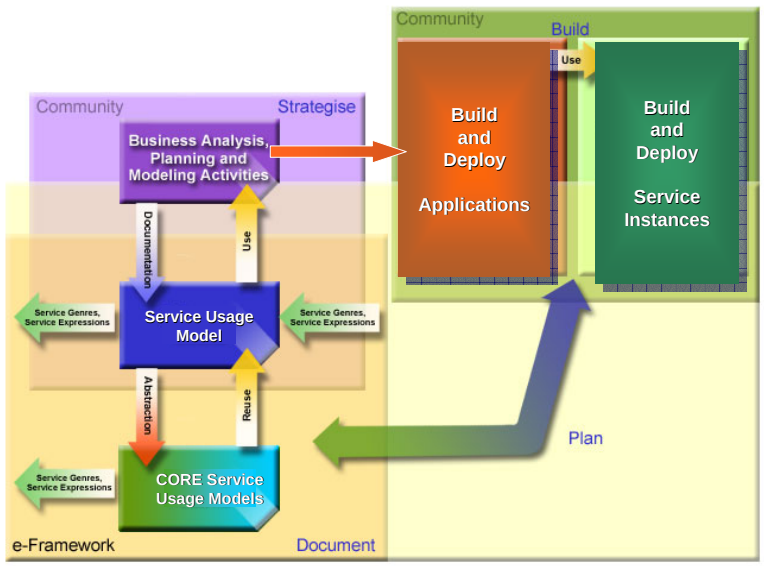
e-Framework Model



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What can it do?

- 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

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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

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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

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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

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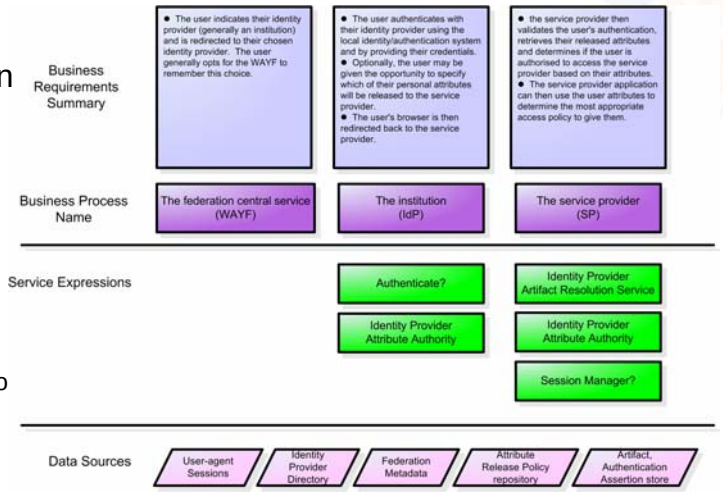
DEST – MAMS Federated Identity

National Identity and Authentication Infrastructure

Documenting the federation.

Comparison with international infrastructure towards wider interoperability. (to come)



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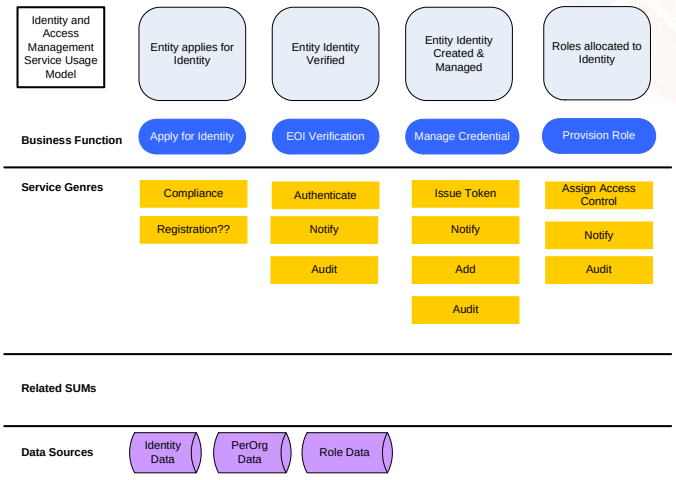
NZ MoE – Education Sector Architecture Framework

e-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?

e-Framework

- 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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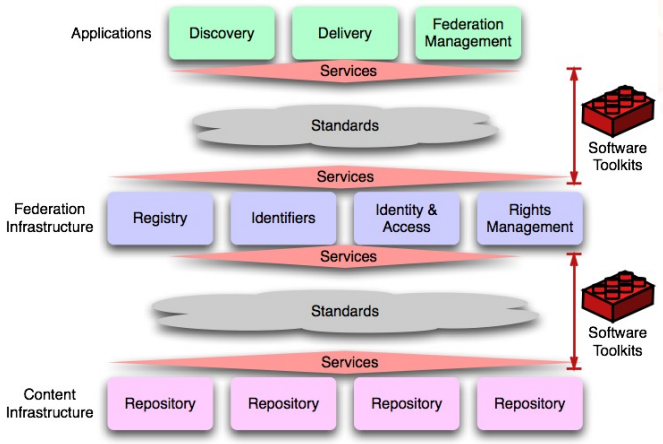
DEST – FRED use of e-Framework

e-Framework

Federated Repositories for Education (FRED)

Developing software toolkits to help communities build federations of repositories.



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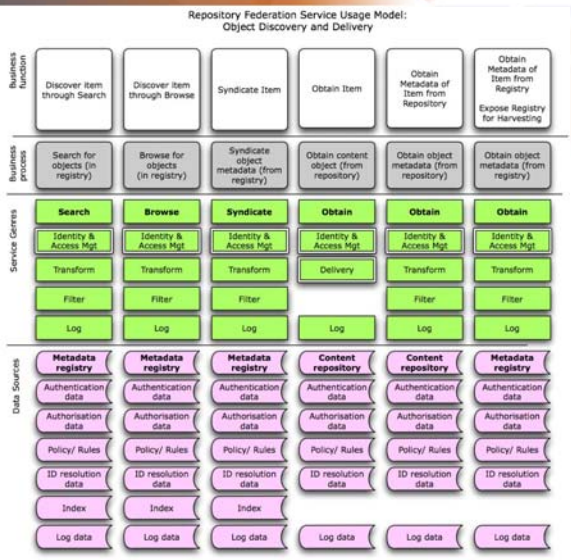
DEST – FRED use of e-Framework

e-Framework

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



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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

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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 middelware/services to bridge the technology-requirements gap

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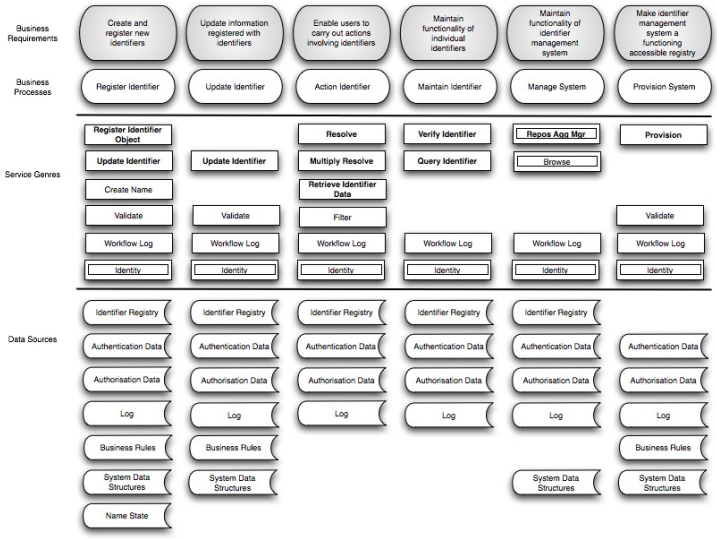
DEST – PILIN use of e-Framework

National Identifier Infrastructure

plan for changes in underlying technology by understanding the abstract services



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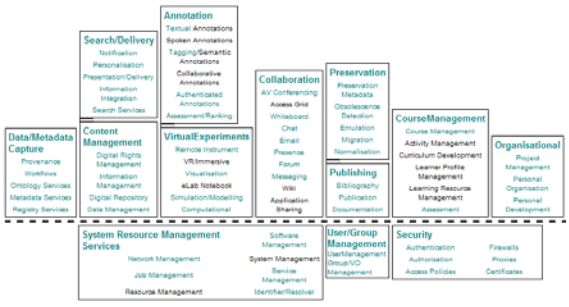
What's happening?

- Research Infrastructure…
  - Starting with initial factoring of services



  - Jane Hunter, Matthew Dovey

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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 with be key
  - Access Infrastructure
    - Shibboleth SUMs
    - talking with AAF, MAMS, National Grid
      - Shibb, PKI, Grid interoperability

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What's happening?

- 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

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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
    - Birds-eye view of technology in use within domains
- For more information…
  - Paper: http://www.e-framework.org/Portals/9/docs/papers/Briefing060802.pdf
  - Contact: editor@e-framework.org
  - Newsletter: http://www.jiscmail.ac.uk/lists/E-FRAMEWORK.html
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