Implementing an Integrated Digital Asset Management System: FEDORA and OAIS in Context

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Structure

- Background and overview
- OAIS Model
  - Why OAIS?
  - Overview
  - Ingest
  - Archival Storage
  - Access
  - (Administration, Data Management)
- METS
- Integration as a project (Issues and Tasks)
Institutional Context

- The LLGC DAMS is safekeeping for Wales’ digital assets but, it is an element within a wider Digital Asset Management Solution, which is an element within the library’s integrated systems, which come together to:

  … preserve and give access to all kinds and forms of recorded knowledge, especially relating to Wales and the Welsh and other Celtic peoples, for the benefit of the public including those engaged in research and learning.
Institutional Context

- IMS Procurement high level deliverables:
  - Improves efficiency and substantially simplifies the Library’s technical architecture and infrastructure.
  - Interfaces seamlessly across different parts of the Library with links to, for example, remote document delivery systems.
  - Conforms to and interfaces with international standards and related activities based on an open architecture.
  - Is open and hospitable to external user systems, e.g. for document requesting, resource discovery and inter-library loans.
  - Is operational with successfully migrated legacy data and data from external sources.
  - Accommodates the functions of the National Screen and Sound Archive of Wales.
  - Is open and hospitable to the information community in Wales e.g. for data exchange, maintenance and storage, and for the ingest of electronic resources.
Institutional Context: Development

Aims

- History of development with Fedora

- Key Aims:
  - Add functionality to VITAL
  - Developments in line with communities (Fedora, Vital and other DAMS)
  - Skills and Resources
    - Cataloguers experience
    - Re-use skills
  - Single Search
  - Solution to adhere to Standards; METS, PREMIS, OAIS, TDR etc etc
Why OAIS?

- Useful Overview
- Standard and ‘tested’
- Overlaps with TDR (medium-term goal)
- Granularity

But...

- Not overly restrictive (interpretation?).
- Complex & inaccessible
Rights Management

Object Storage Servers

Dissemination Layer

FEDORA

Preservation Check (eg. DROID)

Virus Check

Error Check (Checksum)

Preservation Tasks (eg. Migration)

Ingest Mechanisms

Electronic Deposit

Off-Air Recording

Digitisation

Digital Archives
FEDORA Storage Solution(s)

VITAL Client

Rights?

Layered Disseminator Structure

Direct Route (e.g., Google, URL)

Staff

VITAL Access Portal

User

Ingest Process

Web Deposit Interface

External Depositor

Storage Solution(s)
Modelling: Ingest
Rules for being an AIP

- Every object will have a MARC record (at some level) within the IMS
- Every object in the repository will have a METS document
- Every object will have DC for OAI-PMH
- METS will be our SIP, AIP and DIP
- METS will be the policy, FEDORA services will enact the policy.
  - eg. DC Section in METS populates the DC datastream
  - eg. Structural Map held in METS, structure in RELS-EXT datastream
METS Creation

Default METS Document

Existing METS Document (if applicable)

MARC XML

METS SIP
  JHove
  DC
  Mods
  PREMIS
  Technical - MIX
  Behaviour
  METS:Rights
  METS:StructuralMap etc.
Ingest Revisited

Ingest Processes (IMS, MARCXML etc)

Update IMS with 856 link to Handle

Checksum, Error Checking etc
Modelling: Archival Storage
Object Model (AIP): Still Image

Object (PID/Handle)
- DS: METS
- DS: DC (OAI-PMH)
- DS: Relationships
- DS: Object (eg. TIFF File)
- DS: Object (eg. JPEG File)
- DS: Object (eg. Thumbnail File)
- DS: Object (eg. Zoomify File)

Referenced

Near-Line Tape Store
Fast Image Server
Server
Metadata Types & Locations

Virtua

MARC21

Asset

VITAL

METS

DC
Model 1:
Archival Storage - Error Checking

VITAL Object

- DS: METS (incl. MIX, MODS)
- DS: DC (for OAIS METS)
- DS: RELS-EXT
- DS: TMDM, (supported by DC METS/Neutral)
- DS: Zoomify Image (Referenced)
- DS: Thumbnail Image (Managed)
- DS: Reference Image (Referenced)
- DS: Archive Image (Referenced)

Checksum Checker JHOVE?
(Regular Check)

- Writes result to
  - PREMIS section of METS document
- Reads Checksum
- Validates
- Validates
- Validates

Legend:
- Blue = Exists
- Red = VTLS to Create
- Green = LLGC to Create
- Orange = Created by Process
- Inspect/Measure
- Dashed = Link To Be Created
- Inspect/Measure
Archival Storage Revisited

FEDORA/VITAL

Developments

Existing/Storage Processes

Ingest

Storage confirmation

Storage request

AIP

Manage Storage Hierarchy

Error logs

Operational statistics

Storage mgmt policies

Replace Media

Disaster recovery policies

commands

AIP

AIP

media

backup media

Access

Receive Data

Provide Data

AIP request

Notice of data transfer

AIP

Error Checking

Potential error notification

Disaster Recovery

Archival Storage Revisited
Modelling: Access
Access Revisited

FEDORA/VITAL
IMS/Virtua

Data Management

Co-ordinate Access Activities

Administration

Deliver Response

Archival Storage

Generating DIP

Descriptive info

Report request

Report request

Report request

Result set

Query request

Dissemination request

AIP, notice of transfer

AIP request

Order

Assistance request

Query request

Report request

DIP

Billing info

DIP

Result set

Report

Assistance

DIP

Report set

Report

Assistance

DIP

Result set

Report

Assistance

4.7.4

Consumer
Briefly: Administration?

Diagram showing various processes and components in an administrative system, including:
- **Management**
  - Establish Standards and Policies
  - Physical Access Control
- **Ingest**
  - [Updated] SIP
  - Audit Report
  - Lien
  - Appeal
  - Final ingest report
  - Submission/schedule agreement
- **Producer**
  - Audit Submission
  - Negotiate Submission agreement
- **Data Management**
  - Policies
- **Archival Storage**
  - Operational statistics
  - Recommendations Proposals
  - Approved standards Migration goals
- **Preservation Planning**
  - Migration package
  - Performance info inventory reports
- **Access**
  - Dissemination request
  - AIP/SIP reviews
  - Billing info
- **Customer Service**
  - Payment
  - Consumer comments
  - Bill
- **CONSUMER**
  - AIP/SIP templates
  - Customization advice
Briefly: Data Management?
METS

- METS as SIP, AIP and DIP
- Contains Metadata from:
  - JHOVE/ Automatically Extracted
  - RightsMD
  - DescriptiveMD (minimum required for locating)
  - PreservationMD

- METS functions as the rules not the enforcement mechanism
Key Issues for Integration

- Seamless Transition IMS to DAMS
  - Skin
  - Language choice
- Persistent Session
  - Search history
  - Cart
- Shared Rights
  - LDAP
- Single Sign on
IMS Linking (Developments)

- Updating of MARC Records in IMS
- Ingest of descriptive metadata from IMS
- Single Search & Sign On
- Transparent Dissemination Experience
- Rights Management
Managing the Implementation

- Implementation Group comprising mix of standards, IMS project management, technical, and digitisation staff. Carried over from pilot.

- 2 DAMS Implementation Managers (Systems & Technical)

- Key interactions with other personnel as required.
Managing the Implementation

Milestones:

- Migration of existing Digitised Material
- Switch over to VITAL for delivery of assets
- Ingest of other existing formats (e.g. VDEP, Websites, A/V)
- Implementation of further disseminators required for access.
Questions?

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