PeDALS
Persistent Digital Archives & Library System

Richard Pearce-Moses
Deputy Director for Technology & Information Resources
Arizona State Library, Archives and Public Records

A Word from Our Sponsors

- Library of Congress
  National Digital Information and Infrastructure Preservation Program
  (NDIIPP)
- Institute for Museum and Library Services
  Library Services and Technology Act

Project Partners

- Arizona
- Florida
- New York
- South Carolina
- Wisconsin

- Kudos to the Washington State Archives

Technical Goals

- To develop a curatorial rationale that can be implemented in software to support an automated, integrated workflow to process collections of digital publications and images
- To build “digital stacks” using LOCKSS as the basis of an inexpensive storage network that can preserve the authenticity and integrity of the materials.

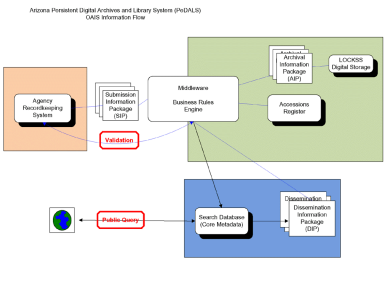
Additional Goals

- To build a community of shared practice that meets the needs of a wide range of repositories
  - For best practices
  - For resource sharing
- To remove cost barriers by keeping costs as low as possible

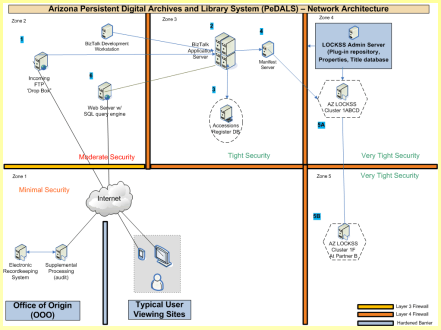
Curatorial Rationale

- Transformation of traditional, paper-based practices into the digital arena
  - Appraisal
  - Acquisition
  - Arrangement and description
  - Housing and storage
  - Reference and access
  - Preservation

Data Flow



Architecture



Automated Processing

- Curators work with rules, not records
  - Describe business processes (rules)
  - Monitor the process for quality assurance
- Rules expressed in software
  - A “pipeline” that transforms records as they move through the system
- Based on Microsoft BizTalk middleware

1. Preparatory Work with OOO

- For each series of records selected for transfer
  - Negotiate metadata you will receive
  - Negotiate format of the records
  - Negotiate format of the submission information package
  - Negotiate frequency and manner of transfer
- OOO develops procedures to create SIPs
- Archives describes business rules in middleware

2. Ingest: Receive SIPs From OOO

- Transfer to a drop box in DMZ
  - FTP
  - Tape
  - CD
- Each OOO has a directory
  - Each series has a subdirectory
- Isolated for virus scanning
- Option: simple Linux box

Submission Information Packages

- OOO Metadata
  - "Well number" , "Owner" , "Title" , "File name"
  - "56-000001","CITY OF TUCSON","2003 annual report","56 files\56-000001_0000.pdf"
  - "56-000001","CITY OF TUCSON","2004 annual report","56 files\56-000001_0000_E52B0.pdf"
  - "56-000001","CITY OF TUCSON","2005 annual report","56 files\56-000001_0000_E8578.pdf"
  - "56-000001","CITY OF TUCSON","2006 annual report","56 files\56-000001_0000_EC3F8.pdf"
- Records
  - XML
  - PDF
  - Other formats

3. Execute Business Rules

- Validation
  - Were all records received without corruption?
  - Were any false records received?
- Generate administrative metadata
  - Assign accession number, date
  - Assign unique system number
  - Record source, transfer authority, restrictions
- Generate series-level metadata
  - OOO: Creator, Provenance, Source of Records
  - Series title, Date ranges
  - Scope note
  - Access points: activities, topics

3. Execute Business Rules – con't

- Generate item-level discovery metadata
  - Creator, Provenance
  - Title
  - Extent: How much of what?
  - Description: abstract, first1024
  - Access points
    - Parties to the record: individuals and roles
    - Dates: Execution, filing
    - Subjects: location, keywords, form/genre

3. Execute Business Rules – con't

- Generate Preservation Metadata
  - Fixity: MD5 or SHA hash value
  - File format: JHOVE or Pronom
  - Rendering software
  - Digital signature
  - Operating system

Mapping and Creating Metadata

Metadata Element	Received	PeDALS Core
Office of Origin		Arizona. Dept of Water Resources : AACR
Var Names		Water Resources : keyform
Series Title		Annual Reports
Series Description/Scope note		[Narrative text]
Arrangement		[Narrative text]
Series Date Range		2003 – 2006
Series Subjects		Water wells Water Supply
Activity/Function		Regulation Health and safety
Transfer authority		Retention schedule 89-403
Restrictions		Open

Mapping and Creating Metadata

Metadata Element	Received	PeDALS Core
Title	2003 Annual Report	2003 Annual Report
Date		2003
Party to Record	City of Tucson	City of Tucson: Author
Location		Tucson
Subjects		Water wells Water supply
Description		[autogenerated]
First1024		[autogenerated]
OOO Id	56-00001_0000	56-00001_0000
File format		PDF
Fixity		[autogenerated]

Final Processing of AIP

- Update Accessions Register database
- Create AIP
  - <AIP>
<Hash> </Hash>
<Metadata> </Metadata>
<Record> </Record>
</AIP>
- Deposit in Digital Stacks (LOCKSS)
  - Generate manifest list to expose to LOCKSS
  - LOCKSS harvests from manifest server

LOCKSS: Digital Stacks

- Redundant Array of Inexpensive Servers
- Automatic integrity checking
- Automate error-correction
- Geographically dispersed copies
- Bitstream preservation

LOCKSS.ORG

Dissemination Information Packages

- Middleware creates DIPs, puts on public webserver
  - Doesn't include administrative, preservation metadata that users will not likely want
  - In format easily supported by common browsers
- Middleware updates public webserver search database

For more information

- http://rpm.lib.az.us/PeDALS/
- Principal Investigator
  - Richard Pearce-Moses
    rpm@lib.az.us
- Project Coordinator
  - Sara Muth
    smuth@lib.az.us