The Building Blocks of the Alliance Digital Repository

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Colorado Alliance of Research Libraries
A Blueprint for this Presentation

- Foundations of digital repository services
- Motivations and components of the ADR service
- A “sneak peek” at the ADR in action
What is the ADR?

The Alliance Digital Repository (ADR) is a **consortial digital repository** service being developed through the use of **open-source tools** and offered by the Alliance to Member Institutions and Affiliates.
Physical Objects in Our Collections...
Born Digital Objects in Our Collections
Five Stages of Digital Preservation

1. **Acknowledge**: understanding that digital preservation is a local concern
2. **Act**: initiating digital preservation projects
3. **Consolidate**: segueing from projects to programs
4. **Institutionalize**: incorporating the larger environment and rationalizing programs
5. **Externalize**: embracing inter-institutional collaboration and dependency

[Kenney and McGovern, 2003]
A Digital Repository is…?

A. A place
B. An organization
C. A collection of assets
D. A server and network or other mechanism providing electronic storage
E. All of the above…
Building Blocks of a Repository

- Hardware
- Software
- Content (Digital Assets)
- Controls
- Community
- Trust
About the Alliance

- Colorado Alliance of Research Libraries
- Founded in 1974
- 501(c3) non-profit library consortium
- History of innovation and resource-sharing
  - CARL ILS, UnCover (Ingenta), Prospector, GoldRush, Shared collection development, Alliance Digital Repository
Eleven Member Libraries at Nine Institutions

- Colorado School of Mines
- University of Colorado
  - Boulder, Auraria (Denver), Colorado Springs
- Colorado State University
- University of Denver
- Regis University
- University of Northern Colorado
- University of Wyoming
- Colorado College
- Denver Public Library
Why a Consortial Alliance Digital Repository?

- Avoids duplication of efforts as well as costs
- Offers a preservation-oriented secure, permanent mass storage solution
- Provides a flexible framework supporting interoperability with systems already in place
- Coordinates standards development and best practices throughout the Alliance
Start-up Funding and Ongoing Cost-sharing

A 2006 survey of 123 ARLs revealed…

- The mean cost of single-institution IR implementation was $182,550
- The mean annual single-institution IR operation cost was $113,543

Individual start-up efforts within the Alliance could total as much as $2 million…

(Institutional Repositories SPEC Kit 292, ARL, 2006)
Start-up Funding and Ongoing Cost-sharing

- The Alliance is self-funding $600,000 for the initial 18 months of ADR development and deployment.
- The Alliance plans to follow member assessment model for on-going funding.
- Sharing costs lets members “get more” for their money.
Why Repositories?

“All institutions which maintain long-term collections of paper, recorded sound and recorded images have to make the shift to managing long-term electronic storage.”

[PrestoSpace]
Current Components of the ADR Technical Environment

- **Servers**
  - Production
  - Development
- **Disk Array**
  - 9 TB of usable disk
- **Connectivity**
  - FRGP uPOP
  - T1 (redundancy)
- **Back-Up Appliances**
  - Disk – DataDomain De-Duplication (10-40 TB)
  - Tape Library
ADR Hardware Infrastructure Overview
Fedora

- **Flexible Extensible Digital Object Repository Architecture**
- Developed in late 1990s/early 2000s
  - Cornell, UVA
  - Mellon funded
- Architecture for storing digital objects
- Optimized for heterogeneous digital objects
  - Images
  - Texts
  - PDF
  - Audio
  - Almost anything digital!
Features of the ADR Service

ADR offers tools to support

- Content Deposit
- Metadata Creation
- Discovery and Access
- Usage Controls
- Migration and Preservation Planning
- Permanent Citations
  - Handles
Fez

- Open source front-end to Fedora
- First release November 2005
  - Developed at University of Queensland, Australia
  - Focus on workflow management
  - Developed to support “UQ eSpace” for institutional research data
  - Part of Australian Partnership for Sustainable Repositories
- Web-based front end
- Supports bit stream deposit and access
Metadata Schemas in the ADR

- Digital Object Core Metadata Schemas
  - Fedora Object XML (FOXML)
    - MODS
    - OAI Dublin Core
    - PREMIS events
    - Jhove
    - Fez Administrative, Structural, and Access control schemas

- Optional Content-specific Schemas
  - MARC (XML), VRA, local/native schemas
  - any schema (via XSDs)
XTF

Origami Image Viewer

- eXtensible Text Framework
  - Developed at California Digital Library (CDL) in 2004
  - System for indexing, searching and displaying texts
  - Support for PDF, EAD, TEI, Text

- Origami Image Viewer
  - Developed by Academic Technologies at Northwestern
  - A web-based zooming viewer for high-resolution images
  - Software consists of two programs:
    - a python program that processes an image into a folder of image tiles
    - a highly capable flash-based viewer to be embedded in web pages.
Current ADR Landscape
“In Digital We Trust…”
Trusted Digital Repositories

- Provide reliable, long-term access to managed digital resources to its designated community, now and in the future
- Accept responsibility for the long-term maintenance of digital resources on behalf of its depositors and for the benefit of current and future users
- Design its system(s) in accordance with commonly accepted conventions and standards to ensure the ongoing management, access, and security of materials deposited within it
- Have policies, practices, and performance that can be audited and measured

Repository Audit and Review

- Management Assessment
  - Stability
  - Scalability
  - Sustainability
  - Risk

- Tools and Strategies
  - Internal TRACs
  - Drambora Toolkit
  - Partnering with Member Institutions
Alliance Relationship Support

- MOUs
- Deposit Licenses
- Level of Service Agreements
- Consortial Policies
- Support Resources
  - Wiki, Blog, Bug Tracking
  - Help, Tutorials, Documentation
ADR Consortial Community

- Alliance Board of Directors
  - Member Council
    - ADR Steering Committee
      - ADR Executive Committee
      - ADR Working Groups
        - Metadata, Policies, ETDs, User Interface and Functionality, Technical Administrations, End-User Training
Consortial Policy Areas

- Organizational
  - Governance
  - Participation
  - Community Organization
  - Community Termination
  - Grant Support
- Content and Metadata
  - Deposit and Usage
  - File Format Support
  - Identification
  - Ownership
  - Metadata
- Access, Rights, and Usage
  - Authentication
  - Copyright
- Preservation and Infrastructure
  - Preservable formats
  - Repository Termination
  - Technical Infrastructure
A Sense of ADR Community

ADR Consorcial Community

- UWyo Institutional Community
  - Undergraduate Research Day Local Community
- UNC Institutional Community
- DPL Institutional Community
  - Creating Communities (MLS) Local Community
- Mines Institutional Community
- Other Institution Institutional Community
- Regis Institutional Community
- Aurora Institutional Community
- Colorado College Institutional Community
- ArtsBrain Local Community
- Michener Local Community
- ETDs Local Community
- IKMap Local Community
- DU Institutional Community
- Penrose Local Community
- Institute for Human Animal Connection Local Community
- CU-Boulder Institutional Community
- Dark Archives Local Community
- Graduate School Local Community
- Archives Local Community
Common Repository Content

- Images
- Texts
- Maps
- Audio
- Video
- Datasets
- Faculty Publications
- Learning Objects
- Electronic Theses and Dissertations (ETDs)
- Institutional Records and Official Documents
- Bulletins, Directories and Publications
- Current and Historical Campus Newspapers
Being deposited **Right Now** across The Alliance?

- Undergraduate Research Day Presentations
- Institution Annual Reports
- Datasets
- Soviet Photojournalism Imagery
- Athletics and Sports History Imagery
- UNCRD Journals
- ETDs
- Pre-prints and Post-Prints
- Historic Images of the West
An ADR Model: Fridlyand Archive
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Alliance Digital Repository
Just a Little More Information…

Consortial ADR URL
http://adr.coalliance.org
Soft Launch: March 2008

Email
adr@coalliance.org

Alliance URL
http://www.coalliance.org

ADR Resources
http://adrresources.coalliance.org