Migrating from Fedora 3 to 4

Learning Outcomes

Understand the main differences between Fedora 3 and 4

Learn about the current state of migration tools and data modeling in the Fedora community

Explore new possibilities for enhancing data in Fedora 4

Differences Between Fedora 3 and Fedora 4

Objects, Datastreams, & Resources

Fedora 3

- FOXML objects
- Inline XML and XML datastreams

Fedora 4

- Web resources (containers & binaries)
- RDF properties and XML binaries

Flat vs. Hierarchy

Fedora 3

- Objects and datastreams at the top level
- No inherent tree structure

Fedora 4

- Containers and binaries in a hierarchy
- All resources descend from a root resource

File System

Fedora 3

- Objects directory and datastreams directory
- Both objects and datastreams are in a PairTree

Fedora 4

- Containers directory and binaries directory
- Containers in a database (e.g. LevelDB)
- Binaries in a PairTree

PID vs. Path

Fedora 3

- Objects have Persistent Identifers (PIDs)
- An object's PID can never be altered

Fedora 4

- Resources have an internal UUID
- Resources have a repository path
- This can be user-defined or generated via a Path-minter

Data Modeling

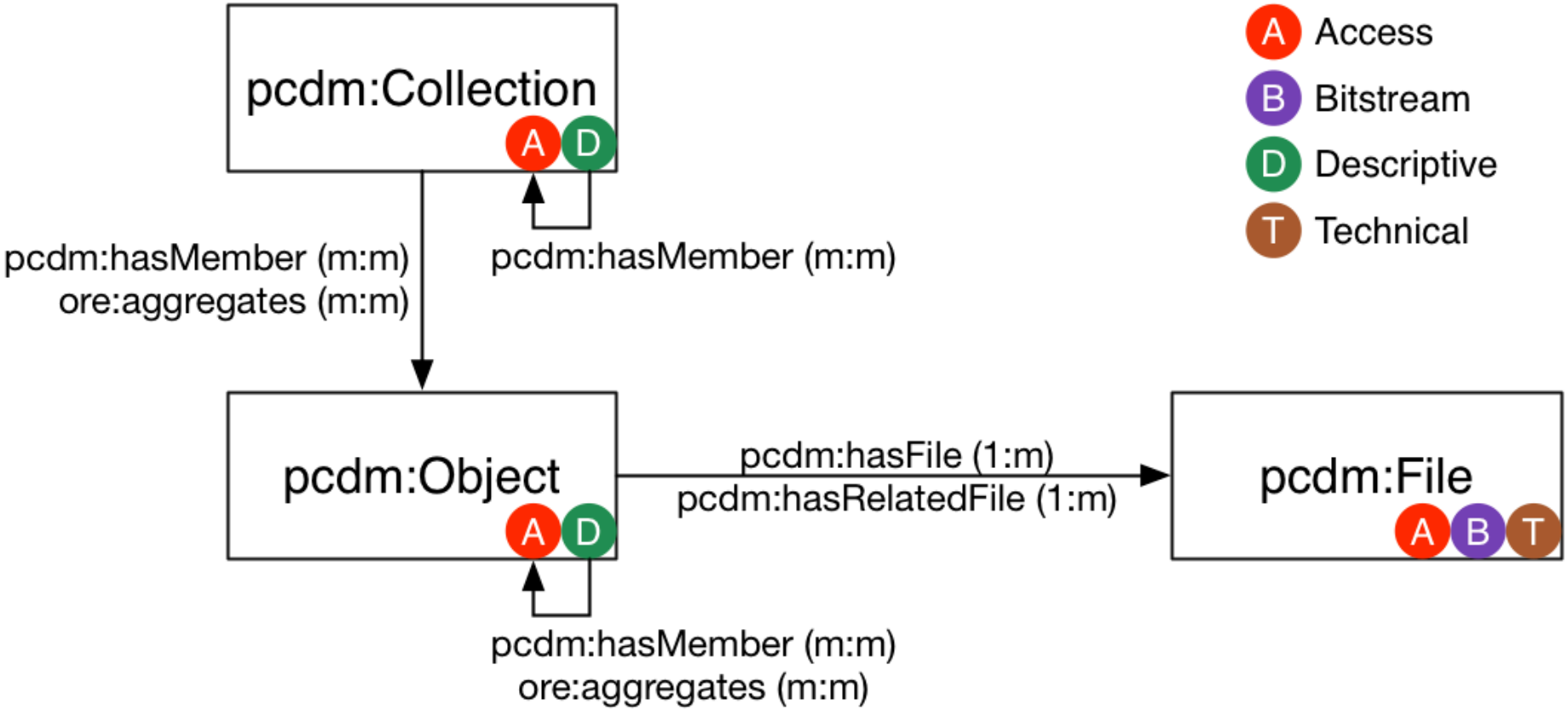
Mapping Properties - Objects

	Fedora 3	Fedora 4	Example
PID	PID	dcterms:identifier	prefix:1234
State	state	fedora3:objState	active
Label	label	dcterms:title	Some Title
Created Date	createdDate	fedora:created	2014-01-20T04:34:26.331Z
Modified Date	lastModifiedDate	fedora:lastModified	2014-01-20T04:34:26.331Z
Owner	ownerID	fedora:createdBy	Chuck Norris

Mapping Properties - Datastreams

	Fedora 3	Fedora 4	Example
DSID	ID	dcterms:identifier	prefix:1234
State	state	fedora3:objState	active
Versionable	VERSIONBLE	fedora:hasVersions	true
Label	label	dcterms:title	Some Title
Created Date	createdDate	fedora:created	2014-01-20T04:34:26.331Z
Modified Date	N/A	fedora:lastModified	2014-01-20T04:34:26.331Z
Mimetype	MIMETYPE	fedora:mimeType	image/jpg
Size	SIZE	premis:hasSize	50000

Portland Common Data Model



Data Migration Tools

Motivations

Preserve Fedora 3 content, history and audit log

Leverage Fedora 4 features

Make data accessible and functional in the new environment

Make migration easier, faster and less error-prone

Initiatives

Fedora-based “migration-utils”

Hydra-based “fedora-migrate”

migration-utils - Philosophy

FOXML is a complete representation of the object

FOXML offers a wide range of compatibility with various versions of Fedora

FOXML migration doesn't require the Fedora 3 repository software to be running

Large number of existing frameworks for efficiently processing XML

migration-utils - Considerations

Migration of non-repo data (configuration, global XACML policies, etc.) will need special handling

Writing and using plugins for mapping complex metadata must be easy

migration-utils - Process

1. Read and process FOXML documents
2. Migrate PIDs
3. Convert inline XML to managed XML or RDF properties
4. Convert datastreams to binaries or RDF properties
5. Convert or map access controls to Fedora 4
6. Migrate versions

fedora-migrate - Overview

Hydra-based migration tool

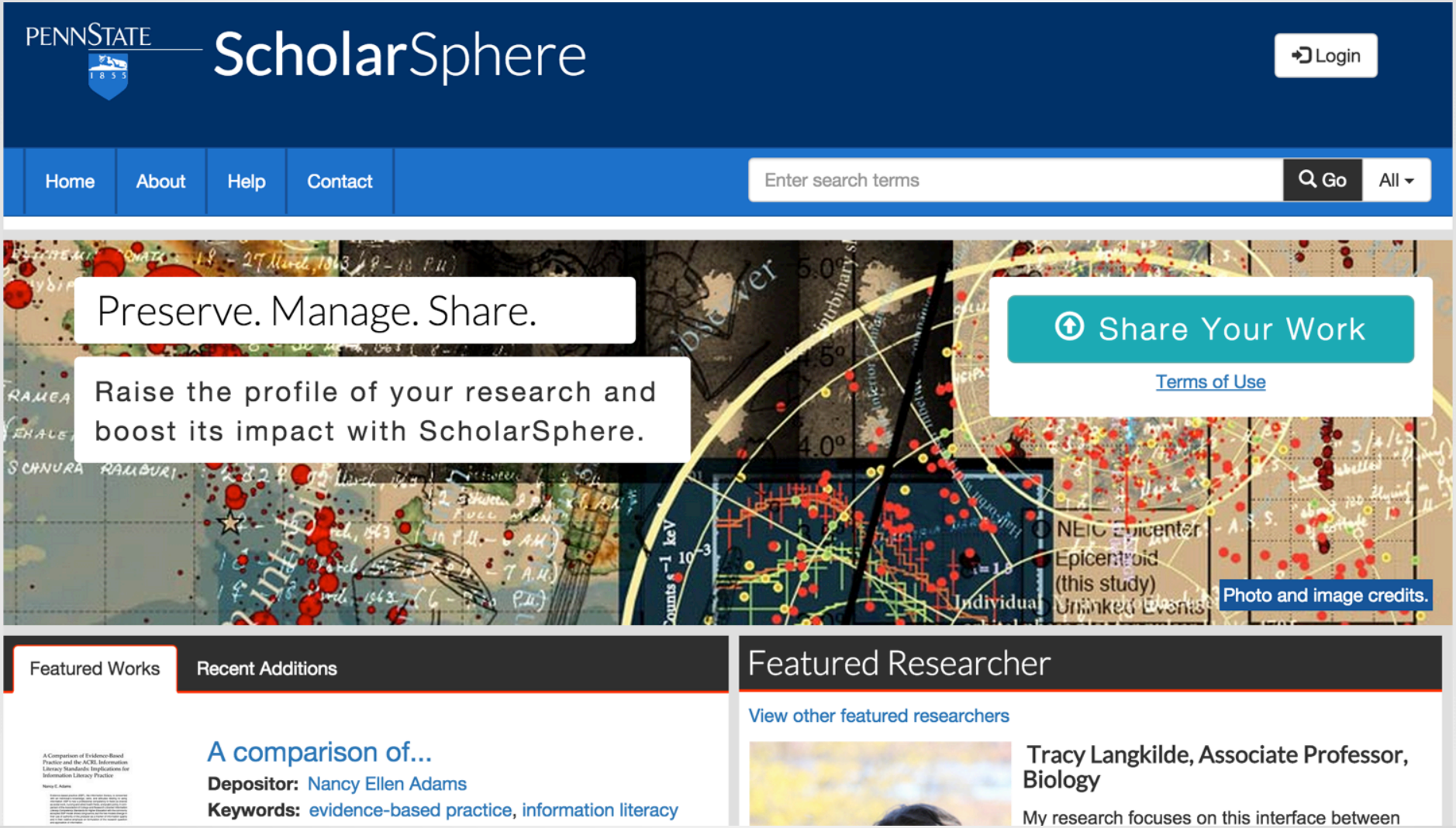
Iterates over Fedora 3 using the Rubydora gem and migrates in two steps:

1. Fedora 4 resources created with the same ID
2. Permissions and relationships migrated

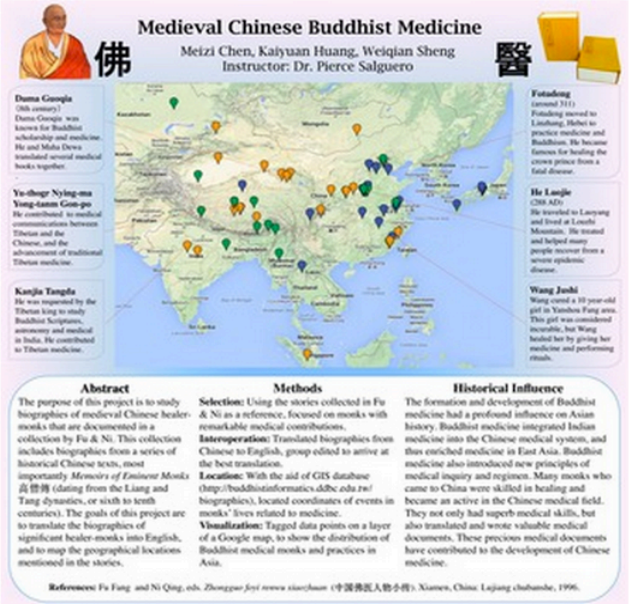
fedora-migrate - Requirements

1. A working Hydra application using Fedora4
2. An existing Fedora3 instance
3. All models defined in your Hydra/Fedora4 application

fedora-migrate - Use Case



fedora-migrate - Use Case



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Enhancements

Taking Advantage of Properties

Lightweight and granular compared to XML

Inline XML is no longer applicable

Converting Inline XML and/or XML datastreams (e.g. RELS-EXT, RELS-INT) to RDF properties

New Query Possibilities

New possibilities for complex queries that extend beyond the limits of the repository

- Linked data relationships can be exposed via a standardized SPARQL-Query
- Web applications can take advantage of these standardized representations
- Data can be shared and queried in new and interesting ways

Enhancing Your Metadata

XML metadata datastreams are still supported, but there are new opportunities to explore!

XML metadata can be converted into RDF metadata using an RDF-based schema

RDF metadata is easier to query and share

Take advantage of linked data by pointing to authority URIs