First things first, the elephant in the room...
DOST THOU REINVENT THY WHEEL!?
We didn’t know Ruby.

We didn’t want to use Drupal.
"No one expects the Spanish Inquisition!"

Diagram showing relationships between various software tools such as Blacklight, Hydra-Head, Solrizer, and Fedora.
Digital Collections Infrastructure Overview

Host: digital.library.wayne.edu

HTML / PHP / JS / CSS Front-End

- Search
- Browse
- Collections
- Login
- singleObject

Client Side (publicly accessible)

Server Side (publicly accessible)

Host: dci.library.wayne.edu

Ouroboros

Fedora Commons (digital object repository)

Solr (full-text search)
Ouroboros
Overview

Philosophy:

Given an instance of Fedora Commons and Apache Solr, and a front-end interface capable of communicating with an HTTP / JSON API, the goal of this middleware is to be capable of ingesting objects, managing their preservation, and providing access, with minimal configuration to the applications it glues together. It does this by imposing descriptive and structural conventions for objects, and chaining disparate tasks together in a way that effectively unites these content-agnostic systems.
Celery: Distributed Task Queue (Redis Backend Broker and Results)
Indexing Fedora Objects in Solr

fedoraManager2 Flask App

API Interface

User Interface

Actions

e.g. FOXML2Solr

Views

1

2

3

4

Fedora Commons

Rest API

Eulfedora

Celery: Distributed Task Queue
(Redis Backend Broker and Results)

MySQL

Solr

Rest API

mysolr
Checking Job Status

fedoraManager2 Flask App

API Interface

User Interface

Actions

Views

Job Status

Celery: Distributed Task Queue (Redis Backend Broker and Results)

MySQL

Solr

Fedora Commons

Rest API

Eulfedora

Rest API

mysolr
<table>
<thead>
<tr>
<th>Task / Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOXML2Solr (bulk)</td>
<td>Indexes metadata, and full-text, from objects in Fedora into Solr</td>
</tr>
<tr>
<td>DCfromMODS</td>
<td>Derive Dublin Core (DC) from MODS datastream (MODS is authoritative for us)</td>
</tr>
<tr>
<td>addDS (bulk)</td>
<td>Add Datastream - Upload or paste content, choose mimetype, etc.</td>
</tr>
<tr>
<td>batchIngest</td>
<td>Upload MODS, choose / edit XSL transformation, save uploads to redo</td>
</tr>
<tr>
<td>editDSXML</td>
<td><strong>UNCjquery.xmleditor</strong> - edit MODS in XML intelligent, javascript browser editor (saved changes derive Dublin Core datastream, then fire FOXML2Solr)</td>
</tr>
<tr>
<td>editRELS</td>
<td>View RDF relationships, add relationships, edit RELS-EXT datastream XML string</td>
</tr>
<tr>
<td>objectState</td>
<td>Batch edit object states</td>
</tr>
<tr>
<td>purgeObject</td>
<td>Purge objects if 1) objects have “Deleted” status, 2) two admins enter unique keys</td>
</tr>
</tbody>
</table>
WSUAPI Overview

Ourobros Server

http://digital.library.wayne.edu/WSUAPI?
functions[] solrSearch&wt=json&q=Alice+in+Wonderland

{JSON response...}
http://digital.library.wayne.edu/WSUAPI
?functions[]=getObjectXML
&functions[]=hasMemberOf
&functions[]=isMemberOfCollection
&functions[]=solrGetFedDoc
&PID=wayne:CFAIEB01e710

Let’s see it in action...

Documentation...
Small feats...

- Experience with, and knowledge of, Fedora Commons and Solr
- Involvement with Fedora / Solr community
- Object metadata normalized, structure represented in RDF relationships
- Complex objects available for first time
- Stable, secure, snappy [knock on wood]
- Highly extensible
- Front-end soft launch in May!
Next Steps...

- Wrap Ouroboros in a Python virtual environment
- Create and Enforce machine-readable content models
- Work with IT for increased system stability / performance
- Additional layer between front-end and Fedora content
- Explore adhering closer to OAIS model
- And of course...
Thanks to...

- Digital Preservation 2014 for the chance to speak about our digital collections work
- Wayne State University Colleagues - Cole Hudson, Joshua Neds-Fox, Amelia Mowry, Joseph Gajda, Negib Sherif, Axa Mei Liauw
- The greater Fedora community for answering questions
- Emory University’s Python Fedora connector, Eulfedora
- University of North Carolina’s XML editor, jquery.xmleditor
Images

- Elephant in Room (slide #2): https://www.flickr.com/photos/statelibraryofnsw/8739115901/
- New Volvo (slide #7): https://www.flickr.com/photos/kfisto/2980309518
- Ouroboros Image (slide #8,9): http://commons.wikimedia.org/wiki/File:Ouroboros.png
- Socrates Image (slide #14): https://www.flickr.com/photos/jacqueline_poggi/8390153928
- Older Volvo (slide #18): https://www.flickr.com/photos/dareppi/8353178685
- Retired Volvo (slide #19): https://www.flickr.com/photos/happy_peanuts/7728575482