Practical Agile:
What’s Working for Stanford, Blacklight, and Hydra

Naomi Dushay
Stanford University
Management Might Start Here ...

<table>
<thead>
<tr>
<th>Project</th>
<th>Status</th>
<th>Charter</th>
<th>Roadmap</th>
<th>Service Plan</th>
<th>JIRA</th>
<th>Project Manager</th>
<th>Comments</th>
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<tbody>
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<td>SearchWorks</td>
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<td>Tom Callan</td>
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<td>Project for Future Iteration</td>
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<td>Quest Tool</td>
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<td>Myjava (J2EE nightly)</td>
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<td>Media Streaming with Kaltura</td>
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<td>Kaltura timeline: deployed Phase 2 in Duasla / Kaltura Integration</td>
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<td>DVS</td>
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<td>Charter</td>
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<td>Box Office</td>
<td>Accessing Image, Public Services, DL, Prototype</td>
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<td>Image Intake (IP)</td>
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<td>Registration Processing</td>
<td>Active</td>
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<td>No Analysis</td>
<td>Apps, Export Prep &amp; Accessing Image</td>
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<td>Image Intake (IP)</td>
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<td>Analyst</td>
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<td>To prepare needed objects for digital image accessioning</td>
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<td>Statue</td>
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<td>New Attention</td>
<td>Accessing digital collections</td>
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<td>Rino</td>
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<td>Analyst</td>
<td>Peter Manovitz</td>
<td>Data OATS</td>
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<td>Digital Content Assessment</td>
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<td>roadmap</td>
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<td>Images, Title in or Image stacks, DMG, One&amp;All &amp; DD\S Tour</td>
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<tr>
<td>License Content Cataloging</td>
<td>Active</td>
<td>Charter</td>
<td>roadmap</td>
<td>Analyst</td>
<td>Cathy Sakr</td>
<td>Note: This project will be split into two parts: first is Text, then Collections &amp; second responsibility, second is DL, EDA responsibility</td>
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<tr>
<td>Rennick Ongoing</td>
<td>Active</td>
<td>Charter</td>
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<td>Analyst</td>
<td>Cathy Sakr</td>
<td>Currently pending mapping</td>
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<td>Charter</td>
<td>roadmap</td>
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<td>THiCC, J2C</td>
<td>Active</td>
<td>Charter</td>
<td>roadmap</td>
<td>Analyst</td>
<td>Michael Oliver</td>
<td>Collaborative project for MIST/MPL to financially image the computer media in the Collection and provide digital images to ECHO/Heritage/Archaeological Imaging</td>
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<td>PKI 2.0</td>
<td>Active</td>
<td>Charter</td>
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<td>Legal Tools</td>
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<td>Application Development Methodology</td>
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<td>DLSS Projects</td>
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<td>roadmap</td>
<td>Analyst</td>
<td>Michael Oliver</td>
<td></td>
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</tbody>
</table>
Stanford had ...

40 projects
10ish “project managers”
8½ developers
(Some of our) Goals

- Throughput
- Transparency
- Accurate Planning
- Sustainable
Improving Productivity ...

Developer Happiness
<table>
<thead>
<tr>
<th>Who</th>
<th>Project 1</th>
<th>Project 2</th>
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</thead>
<tbody>
<tr>
<td>Naomi Dushay</td>
<td>SW – Course Reserves</td>
<td>SW – Images</td>
</tr>
<tr>
<td>Jessie Keck</td>
<td>SW – Course Reserves</td>
<td>Hydra-Head</td>
</tr>
<tr>
<td>Willy Mene</td>
<td>Puppetize Lyberservices</td>
<td>DOR publish service</td>
</tr>
<tr>
<td>Michael Klein</td>
<td>Argo - something</td>
<td>(Shark Dirigible)</td>
</tr>
</tbody>
</table>
Problem: Competing Priorities
Solution: Iteration Planning

Backlog

Now
One Month’s Goals
That was ... 

- 40 17 projects
- 10ish “project managers”
- 8½ developers
You Might Try …

• Extreme Display:
  • All “Active” Projects
  • Priorities
  • Currently In Progress

• Refuse More Than Two Simultaneous Projects
Problem: Lack of Focus
Solution: Focused Iterations

Backlog:
- Feature
- Feature
- Feature
- Feature
- Feature
- Feature
- Feature
- Feature
- Feature

Now:
- Feature
- Feature
Solution: SMART Goals

- Specific
- Measurable
- Achievable
- Realistic
- Timely
## Development Projects

<table>
<thead>
<tr>
<th>Status</th>
<th>Project</th>
<th>Likely Resources</th>
<th>Notes on Dependencies, Impact, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SearchWire</td>
<td>Restore open bugs to the index, apply small index changes</td>
<td>Nann, Paul</td>
<td>Final deployment was 17 due to defects fixed in pre-release testing, good deployment scenario by Sat, Feb 6</td>
</tr>
<tr>
<td></td>
<td>Release SearchWire 2.0 on Pants</td>
<td>Jesse</td>
<td>Final deployment was 17 due to defects fixed in pre-release testing, good deployment scenario by Sat, Feb 6</td>
</tr>
<tr>
<td></td>
<td>Upgrade rest to 2.5 in SW test</td>
<td>Nann, Paul</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Initial design of Foster Request Form and Search/Rerank</td>
<td>Jennifer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Augment DSR API with Search/Mine Relevancy</td>
<td>Lynn, Michael, Retail</td>
<td>These are to be validated at iteration launch on 2/8</td>
</tr>
<tr>
<td></td>
<td>Publish MOSS along with Public XML in test</td>
<td>Michael, Paul</td>
<td>One doc: <a href="#">DSS-000000</a></td>
</tr>
<tr>
<td></td>
<td>May DSR SW output for SW w/ data</td>
<td>Jen, Nann, Retail</td>
<td>Latest result: <a href="#">DSS-000000</a></td>
</tr>
<tr>
<td></td>
<td>Fully documented views of DSR MOSS objects</td>
<td>Nann, Nann, Retail</td>
<td>Latest result: <a href="#">DSS-000000</a></td>
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<tr>
<td></td>
<td>RTOs</td>
<td>Plan Winter quarter tasks and goals</td>
<td>Nathan, Lynn, Willy</td>
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<tr>
<td></td>
<td>SOAR PC</td>
<td>Identify SOAR/PC changes needed to support SOAR visualization</td>
<td>Lynn, Richard</td>
</tr>
<tr>
<td></td>
<td>Integrate Soda expert to user with 200.00 items</td>
<td>Ken</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Racer and further disseminate presentation on SOAR visualization</td>
<td>Richard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Address dependencies between Argos and 2014 re: ingested bags</td>
<td>Lynn, Richard, Michael</td>
<td></td>
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<tr>
<td></td>
<td>Digitization Workflow/Assessment/Workflow</td>
<td>Work out draft document describing sensitive process of MOSS in the assessment process</td>
<td>Peter, Nathan</td>
</tr>
<tr>
<td></td>
<td>Automate&amp;d scanning lab creation of sample content/Metadata in test</td>
<td>Tony</td>
<td></td>
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<td></td>
<td>Fully documented process for replacing directories for OCR</td>
<td>Tony</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Formulate plan for final ongoing iteration of JPhD3D3/3D for legacy collections</td>
<td>Tony, Peter, Nathan</td>
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<tr>
<td></td>
<td>Library Website</td>
<td>Complete large Phase 1 development tasks (Collections, Contacts, Events)</td>
<td>Jean</td>
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<tr>
<td></td>
<td>Revised project plan for Phase 2</td>
<td>Bill</td>
<td></td>
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<tr>
<td></td>
<td>Subject Guides updated and ready to start implementation in February</td>
<td>Jennifer, Bjo</td>
<td>5 minutes ETZ and OSMO specific behaviors, minor boss</td>
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<tr>
<td>Backlog</td>
<td>On Deck</td>
<td>In Progress</td>
<td>Done</td>
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</tbody>
</table>
You Might Try ...

- Task Board
- “Public” View of Your Recent Work
Problem: Too Many Meetings
Solution: Developer Happiness Hours
Solution: Dead Week
You Might Try ...

- Block Out Times In Your Calendar
- Multi-Hour “Meetings” With Colleagues
- Suggest to Management
- They Have Non-Meeting Work Too!
Problem: Sharing Knowledge Locally

I wonder if someone can help

Eh, I’ll just figure it out
Workspaces

- Co-location
- Open Sight Lines
  - More People Per Room
  - Less Wall Space for Whiteboards, Task Boards ...
- Easy Reconfiguration
Hey Willy: Have a sec?

Jessie, can you look at this?
Solution: Non-Developers, too

Lynn, is this what you meant?

This design is tough to implement; can we revisit?
You Might Try ...

- Demolish Cube Walls
- Temporary Co-Location
  - Large shared office
  - Conference Room
  - Study Room
  - Coffee Shop
- Lunch with Coworkers, Product Owners ...
Flex Room
Problem: Lack of Visible Progress
Solution: Short Iterations

Short is:
- 1 week or
- 2 weeks or
- 1 month or ...

Solution: Good Communication

- Regular Meetings
- Email List
- Wikis
- Tracking System (e.g. JIRA)
Solution: Planned Work is Public

Road Map
A list of upcoming versions. Click on the row to display issues for that version.

- **Future Work**
  - Release Notes

- **weekly sprint for May 31**
  - Release Date: 31/May/11
  - Release Notes

- **weekly sprint for June 7**
  - Release Date: 07/Jun/11
  - Release Notes

- **weekly sprint for June 14**
  - Release Notes
Solution: Progress is Public

Summary

Description

Hydra Platform for Access to Information in Archives: A Hydra head that enables processing, arrangement, description and access for born digital archival materials. Built in association with the Mellon AMS Grant (with UVa, Hull, Stanford & Yale as partners).

Lead: Michael Olson
Key: HYPAT

Issues: Due

- HYPAT-31
  Functional requirements for discovery and delivery of item or document level objects
  Due Date: 31/Mar/11

- HYPAT-31
  Create a Stanford Special Collections APO object fixture
  Due Date: 06/Jul/11

- HYPAT-139
  ruby FTK library creates Fedora objects
  Due Date: 24/Aug/11

Activity Stream

October 13

- Jessie Keck created HYPAT-167 - Create links throwing error
  When clicking on any of the edit asset links you get a "Undefined namespace prefix. xmods.mode" error.
  October 13 at 2:55 PM

October 12

- Jessie Keck created HYPAT-166 - File Assets need to loop through all file assets and not be hard coded to one
  The show partials for file assets don't appear to loop through all file asset objects and are just hard coded to 1 or 2 assets. This means added assets in the edit view won't be displayed.
  October 12 at 11:36 AM

October 11

- Michael Olson updated 4 fields of HYPAT-165 - Update hull collection foxml
  - Changed the Due Date to "12Oct'11"
  - Updated the Description
  - Changed the Assignee to "Peter Chan"
  - Changed the Summary to "Update hull collection foxml"
  October 11 at 11:09 AM

- Michael Olson created HYPAT-165 - Update hull collection foxml
  October 11 at 11:06 AM

October 03

- Naomi Dushay created HYPAT-164 - update edit forms to include all relevant fields
  Naomi is almost finished with the outlined views to show all fields in the objects. The edit forms now need to use all these fields. (collection, ed, disk image, file objects)
  October 03 at 11:28 AM

- Naomi Dushay created HYPAT-163 - better error message for URL to show fedora object that doesn't exist
  October 03 at 11:28 AM
You May Need (JIRA) Foo

- Versioning
- Components
- Workflow
Problem: Scrum Unrealistic

We have too many simultaneous projects

I can’t dedicate 5 developers to a single project, even short term
Solution: Take Pieces of Agile

- Short Iterations of Narrow Focus
- Communication Across Roles
- Co-Location
- Pair Programming
- Transparency
- ...
Experiment!

• Scrum
  • Short, Focused Iteration
  • (2?) – 7 People
  • Temporary Co-Location
• Task Board
• Pair Programming
• Daily Stand Ups
Problem: No Local TDD

I’ve been meaning to do it...
Solution: Requirement of OSS

No Code Without Passing Tests!

OK
Open Source Software

- True Group Ownership
- Good Communication
- Rotating Roles
  - Bigger (release manager for pieces)
  - Smaller (meeting moderator, notetaker)
Problem: Distributed Developers

(Eddie Shin)
Solution: Realtime Contact

Weekly Check-Ins

As Needed

Face to Face!
Problem: Developer Distrust

Their stuff is always buggy

I hate his code

I could do this faster myself ...

... if I had time
Solution: Good Development Practices

- Automated tests
- Continuous Integration
  - Automatic Notifications
- Code Coverage
- Transparency
- Documentation Coverage
## Solution: No Code Without Tests

<table>
<thead>
<tr>
<th>NAME</th>
<th>TOTAL LINES</th>
<th>LINES OF CODE</th>
<th>TOTAL COVERAGE</th>
<th>CODE COVERAGE</th>
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<tbody>
<tr>
<td>hydra-plugin_test_host/app/controllers/application_controller.rb</td>
<td>11</td>
<td>4</td>
<td>100.00%</td>
<td>100.00%</td>
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<td>hydra-plugin_test_host/app/helpers/application_helper.rb</td>
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<td>3</td>
<td>100.00%</td>
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<td>hydra-plugin_test_host/vendor/plugins/hydra-head/app/controllers/application_controller.rb</td>
<td>51</td>
<td>26</td>
<td>100.00%</td>
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<td>hydra-plugin_test_host/vendor/plugins/hydra-head/app/controllers/assets_controller.rb</td>
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<td>80</td>
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<td>58.75%</td>
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<td>hydra-plugin_test_host/vendor/plugins/hydra-head/app/controllers/catalog_controller.rb</td>
<td>261</td>
<td>88</td>
<td>91.19%</td>
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<td>hydra-plugin_test_host/vendor/plugins/hydra-head/app/controllers/contributors_controller.rb</td>
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<td>hydra-plugin_test_host/vendor/plugins/hydra-head/app/controllers/file_assets_controller.rb</td>
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<td>hydra-plugin_test_host/vendor/plugins/hydra-head/app/controllers/get_controller.rb</td>
<td>39</td>
<td>33</td>
<td>97.44%</td>
<td>96.97%</td>
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</tbody>
</table>
Solution: Test Coverage Transparency

```
125    @response, @document = get_solr_response_for_doc_id(pid)
126    if reader?
127       @downloadable = true
128       break
129    end
130    end
131
132    if @downloadable
133       if @file_asset.datastreams_in_memory.include?"DS1"
134          send_datastream @file_asset.datastreams_in_memory["DS1"]
135       end
136    else
137       flash[:notice] = "You do not have sufficient access privileges to download this document, which has been marked private."
138       redirect_to(:action => 'index', :q => nil, :f => nil)
139    end
140 end
141 end
142 end
143 end
```
Solution: Automated Test Runs

<table>
<thead>
<tr>
<th>Job</th>
<th>Last Success</th>
<th>Last Failure</th>
<th>Last Duration</th>
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<tbody>
<tr>
<td>active_fedora</td>
<td>4 days 16 hr (#56)</td>
<td>21 days (#45)</td>
<td>4 min 22 sec</td>
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<tr>
<td>hydra-head-rails2-plugin</td>
<td>1 day 8 hr (#114)</td>
<td>1 day 13 hr (#113)</td>
<td>5 min 17 sec</td>
</tr>
<tr>
<td>hyhull</td>
<td>21 hr (#89)</td>
<td>N/A</td>
<td>6 min 2 sec</td>
</tr>
<tr>
<td>jettywrapper</td>
<td>10 hr (#5)</td>
<td>N/A</td>
<td>11 sec</td>
</tr>
<tr>
<td>lockit</td>
<td>10 hr (#5)</td>
<td>N/A</td>
<td>6.9 sec</td>
</tr>
<tr>
<td>loggable</td>
<td>28 days (#3)</td>
<td>1 mo 8 days (#1)</td>
<td>5.8 sec</td>
</tr>
<tr>
<td>namaste</td>
<td>17 hr (#11)</td>
<td>17 hr (#9)</td>
<td>8.2 sec</td>
</tr>
<tr>
<td>om</td>
<td>10 days (#32)</td>
<td>23 days (#11)</td>
<td>41 sec</td>
</tr>
<tr>
<td>solrizer</td>
<td>16 days (#25)</td>
<td>1 mo 12 days (#8)</td>
<td>13 sec</td>
</tr>
<tr>
<td>solrizer-fedora</td>
<td>16 days (#12)</td>
<td>N/A</td>
<td>41 sec</td>
</tr>
</tbody>
</table>
Solution: Test Result Transparency

```plaintext
jcmeloni [89369b87@gateway/web/freenode/ip.137.54.155.135] entered the room. (11:38:17 AM)
11:47:19 AM hydra_hudson_bot: Project om build #7: STILL FAILING in 44 sec: http://hudson.projecthydra.org/job/om/7/
11:47:20 AM hydra_hudson_bot: Matt Zumwalt: starting nokogiri sanity check spec for hudson
anarchivist left the room (quit: Remote host closed the connection). (12:00:17 PM)
anarchivist [~anarchivist@unaffiliated/anarchivist] entered the room. (12:03:15 PM)
jcmeloni left the room (quit: Page closed). (12:07:24 PM)
You have disconnected (12:09:43 PM)
You have connected (12:23:54 PM)
12:29:16 PM hydra_hudson_bot: Matt Zumwalt: debugging hudson
12:32:43 PM hydra_hudson_bot: Matt Zumwalt: trying to pin down hudson nokogiri misbehavior
12:46:45 PM hydra_hudson_bot: Matt Zumwalt: debugging hudson
12:51:18 PM hydra_hudson_bot: Yippie, build fixed!
12:51:19 PM hydra_hudson_bot: Matt Zumwalt: debugging hudson
```

```
```
Solution: Auto Change Notification

Commit: 936049f5144f6f3d76c0f926fb5bb85f96f894f9
  https://github.com/sul-dlss/hydra-hydus/commit/936049f5144f6f3d76c0f926fb5bb85f96f894f9
Author: Matt Zumwalt <matt.zumwalt@yourmediashelf.com>
Date: 2011-04-30 (Sat, 30 Apr 2011)

Changed paths:
A README
A Rakefile
A app/controllers/application_controller.rb
A app/helpers/application_helper.rb
A config/boot.rb
A config/database.yml
A config/environment.rb
A config/environments/development.rb
Solution: Change Transparency

Moving doc rake task out of the solrizer namespace.

jkeck (author)
May 02, 2011

Showing 1 changed file with 20 additions and 20 deletions.

lib/tasks/solrizer.rake

```
@@ -1,9 +1,28 @@
       desc "Task to execute builds on a Hudson Continuous Integration Server."
       task :hudson do
-   Rake::Task['solrizer:doc'].invoke
+   Rake::Task['doc'].invoke
+   Rake::Task['solrizer:rspec'].invoke
       end

+  # Use yard to build docs
+  begin
```
Solution: Public, Shared Code

Project Hydra

Member Since: Jul 28, 2009

Public Repositories (16)

- hydra-head
  - Hydor Postgres Rails Engine (requires Rails3)
  - Last updated: June 08, 2011

- hydra-plugin_test_host
  - An empty rails app to use as the "host" application when testing Hydra plugins.
  - Last updated: May 27, 2011

- solririzer-fedora
  - An extension to solririzer for dealing with Fedora objects & Repositories
  - Last updated: May 24, 2011

Organization Members (13)

- ajs6f
  - 0 public repos, 2 followers

- becc (Bess Sadler)
  - 5 public repos, 37 followers

- cfitz
  - 8 public repos, 3 followers

- darthnelly (Molly Pickral)
  - 4 public repos, 0 followers

- eddies (Edwin Shin)
  - 4 public repos, 5 followers

- flyingzumwalt
  - 3 public repos, 15 followers

- garrickvanburen (Garrick Van Buren)
  - 3 public repos, 9 followers

- jchristo4 (Christopher Jesudurai)
  - 0 public repos, 0 followers

- jkeck (Jessie Keck)
  - 0 public repos, 7 followers

- jscofiie (John Scofield)
  - 2 public repos, 1 followers

- mbklein (Michael B. Klein)
  - 22 public repos, 13 followers
Solution: Doc Transparency

Hydra-Head

Hydra-Head is a Rails Engines plugin containing the core code for a Hydra application. The full hydra stack includes the following:

- **Blacklight** (a Rails Engines plugin) for the User Interface - **Solr** (a java application, also ported to other languages) for the Search Engine - **ActiveFedora** (a ruby gem) to let the rails application talk to fedora - **OM** (a ruby gem) to streamline the metadata configuration - **Solrizer** (a ruby gem) to write Fedora content to the Solr index - **SolrizerFedora** (a ruby gem) for something. - HydraHead (a Rails Engines plugin) to glue it all together

For a more thorough overview of the Hydra framework, see HYDRA_OVERVIEW.textile

This is (currently) a Ruby on Rails 2 Engines Plugin. It will soon become a Rails 3 Plugin, which will be distributed as a gem.

Table of Contents (left)

1. **Installation/Setup**
   1. Installing the Test Host (for testing/demo)
   2. Installing the plugin into a Rails App

2. **Testing**

3. **Getting started with ActiveFedora and OM**

4. **Acknowledgements**
   1. Design & Strategic Contributions
Bonus Slides
Problem: Unhappy “Customers”

This isn’t what I asked for

I didn’t realize it would look like this

I implemented the spec
Solution: Collaborative Design

Hypatia

2004-M-088.0004.dd

Description
Creator: Tobin, James
Date(s) of creation: 1992-1993
Document type: Disk image

Files
<table>
<thead>
<tr>
<th>File</th>
<th>Size</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-M-088.0001.txt</td>
<td>123 KB</td>
<td>download</td>
</tr>
<tr>
<td>2004-M-088.0001.xml</td>
<td>345 KB</td>
<td>download</td>
</tr>
</tbody>
</table>

Technical info
Original filename: 2004-M-088.0004.dd
Source media: 3.5" Floppy disk
File size: 1.41 MB

ID: qwertyls3456yuop7890
When I am on the search results page
Then id 867 should be before 567
And if I select “title” from the search pulldown
Then id 567 should be before 867

It should ...
Problem: Need Stable Test Data

Tests keep failing because the data keeps changing
Solution: Mocks, Stubs, Fixtures

**Fixtures:** data for tests

**Mocks:** I don’t need an actual object, just a placeholder with a little bit of the information

**Stubs:** I know I’m gonna call a method with certain arguments, and I know what it returns and it isn’t the method I’m testing right now
Problem: Endless Discussion

Is this approach okay with folks?

I think you should do it this way.

No, this other way.
Solution: Working Code Wins

I’m going to do this

Suggestion

Suggestion
Estimating Work is HARD

- Larger Estimates are Less Accurate
- Make it Relative, Not Absolute
- Fibonacci?
- Hours / Days / Weeks / Months?
New 80/20 Rule ...

80% of the Work Happens in the Last 20% of Elapsed Time for the Project

(Tom Cramer)