

The HydraSphere: One Body, Many More Heads, One Year Later
Proposal for A Panel Presentation at the Fedora User Group Meeting
Open Repositories 2012

Introduction

Hydra is a multi-institutional project that gives institutions a framework to build and deploy robust and durable digital repositories (the body) supporting multiple “heads”: feature-rich, digital asset management applications with tailored workflows.

The Hydra project has been presented at previous Open Repositories conferences,^{1,2} including most recently at OR11, where sessions presented a deep dive into the community framework and principles that gird the collaboration³, and a demonstration of the technical architecture⁴ and various heads deployed across the partner base⁵. Since OR11, the project has crossed into its fourth year and has clearly achieved critical mass, with an explosion in the numbers of adopters, contributors, and solutions provided by different Hydra heads.

This international panel session, composed of Hydra adopters from multiple institutions, will present a brief overview of community and technical developments in the HydraSphere—the realm of Hydra adopters and technology—since OR11. It will then explore, using specific Hydra heads as concrete examples, both how the framework as originally designed has successfully accommodated institutional variation, and how it has evolved to meet emerging needs of the growing adopter base.

Growth Since OR11

Hydra debuted at OR09 in a presentation by the founding partners (the universities of Hull, Virginia and Stanford, along with Fedora Commons--now DuraSpace), that laid out a vision for a distributed, open source project that would complement Fedora and provide a shared framework for rapidly minting repository-powered applications. By

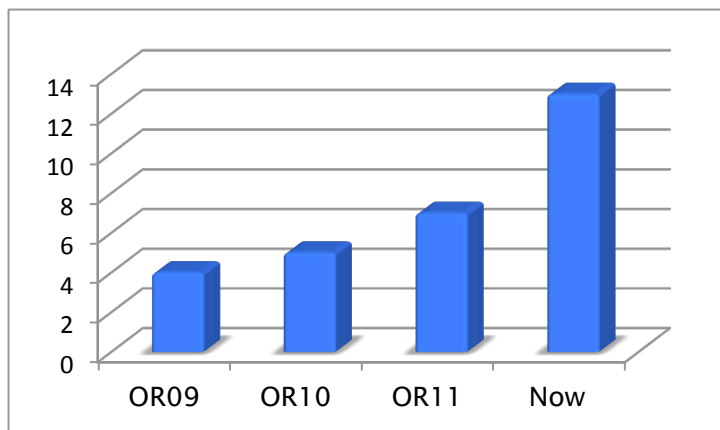


Figure 1: Number of Active Hydra Institutions, Year by Year

2010, MediaShelf had become an integral part of the effort, as the partners developed the technological foundation for the project. In 2011, three additional partners had joined the fray (Notre Dame, Northwestern University and the Rock and Roll Hall of Fame), doubling the institutional adoption base.

Now in its fourth year, the project has doubled again in size (see Figure 1), with a similar growth rate anticipated for the next year. From its inception, Hydra has been designed as a broad-based, widely-adopted, distributed open source project. This vision has now clearly been realized.

The growth in institutional adopters has been reflected in the increasing numbers of tailored solutions, or “Hydra Heads”, and the underlying codebase of the framework. In 2011, a half dozen distinct heads were in production or late stage development. As of March 2012, the menu of active heads has expanded to include:

Active Hydra Heads	
<i>Area</i>	<i>Implementations / Implementers</i>
General Purpose (Institutional) Repositories	<ul style="list-style-type: none"> • University of Hull • University of Virginia • Penn State University
Repository Administration and Workflow Management (Digitization, Curation, Preservation)	<ul style="list-style-type: none"> • Stanford University • Northwestern University • University of Illinois – Urbana-Champaign
Archives and Special Collections	<ul style="list-style-type: none"> • Rock & Roll Hall of Fame • Stanford University • University of Virginia
Images	<ul style="list-style-type: none"> • Northwestern University
Media	<ul style="list-style-type: none"> • Indiana University • Northwestern University • Rock & Roll Hall of Fame • WGBH
Exhibits	<ul style="list-style-type: none"> • Notre Dame University
Electronic Theses & Dissertations	<ul style="list-style-type: none"> • Stanford University • University of Virginia
Data Curation	<ul style="list-style-type: none"> • <i>many</i>

This diversity of heads and developers has created a marketplace of functions. Not only are whole heads shared across institutions, but also specific bits of code (supporting drag-and-drop for creating sets, e.g.) flow freely across sites, and to new adopters.

While some of these heads have fit cleanly into the original Hydra architectural design and data models, others have stretched the technology and data architecture, and driven their evolution. In particular, as more sites have adopted Hydra as a core technology in their local environments, it has created pressure for Hydra to adapt to existing Fedora deployments as well as to integrate with non-Fedora componentry.

In late 2011, Hydra underwent a significant refactoring and its principal component, hydra-head 3.0, was released as a Rails 3.x gem. This development, along with

corresponding updates to other components (Blacklight, active_fedora, Opinionated Metadata, RubyDora) have had three principal objectives and outcomes:

1. dramatically simplify the adoption and implementation process for new Hydra institutions;
2. cleanly separate core hydra functionality from head-specific code (while enabling easy migration of code from institution-specific heads into the core, where justified); and
3. increase the rigor, reliability, test coverage and documentation for the code base.

Panel Discussion

The discussion of the panel will focus on:

- demonstrating the range and functionality of Hydra heads deployed since OR11,
- exploring the recent growth and trends in the Hydra community, and where Hydra makes the most sense as a solution,
- illustrating how the Hydra code base has advanced to meet the three refactoring objectives (cited above), especially adoption by new institutions, and
- examining how a distributed community can structure both its technical and community framework to evolve in reaction to significant adoption.

The panel will provide structured, but brief, presentations and demonstrations that frame these topics, and then broaden out to moderated discussion among the panelists and with the audience on the current state and future directions for the Hydra Project.

¹ Chris Awre et al., “Project Hydra: Designing & Building a Reusable Framework for Multipurpose, Multifunction, Multi-Institutional Repository-Powered Solutions” (presented at The 4th International Conference on Open Repositories (OR2009), May 20, 2009), <https://wiki.duraspace.org/download/attachments/11502264/Hydra-OR09.pdf?version=1&modificationDate=1298051332404>.

² Tom Cramer et al., “Hydra: A Technical and Community Framework For Customized, Reusable, Repository Solutions” (presented at the The 5th International Conference on Open Repositories (OR2010), Madrid, Spain, July 6, 2010), <http://dx.doi.org/10.2390/biecoll-OR2010-12>.

³ Chris Awre et al., “Building the Hydra Together: Enhancing Repository Provision Through Multi-Institution Collaboration” (presented at the 6th International Conference on Open Repositories (OR2011), Austin, TX, June 9, 2011), <https://conferences.tdl.org/or/OR2011/OR2011main/paper/viewFile/475/101>.

⁴ Zumwalt, M. et al., “Hydra Framework and Hydra Developer Community: Open Source Collaboration in Action” (presented at the 6th International Conference on Open Repositories (OR2011), Austin, TX, June 10, 2011).

⁵ Meloni, J. et al., “Hydra: One Body, Many Heads (24 x 7 presentations)” (presented at the 6th International Conference on Open Repositories (OR2011), Austin, TX, June 10, 2011).