

# OUTSIDE-IN: APPLICATION INTEROPERABILITY USING AN OSID-BASED FRAMEWORK

Adam Franco  
Middlebury College

Open*World* Europe  
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- **Background: Frameworks, OSIDs, Harmoni**
- **Concerto: a repository viewer/editor**
- **An alternative repository**
- **Segue: a curricular CMS**
- **Segue/Concerto interoperability via OSIDs**
- **LibraryFind: meta-search tool/harvester**

# **Background: Frameworks**

**application framework:**

**A system designed to provide the structure, common code, and methodology for building software applications**

# ‘Nuts and Bolts’ Frameworks

Provides things like...

- Input validation
- file management
- database access
- session management
- MVC/action-scripts

Examples:

- CakePHP
- symphony
- CodeIgniter
- Rails

# ‘CMS/Platform’ Frameworks

Provides things in  
‘Nuts and Bolts’  
plus...

- User-management
- Plugin or Widget systems

Examples:

- Drupal
- Joomla!
- Zope

## **Service-Oriented Architecture:**

**Service Oriented Architecture (SOA) is a software architecture where functionality is grouped around business processes and packaged as interoperable services.**

**...The aim is a loose coupling of services with operating systems, programming languages and other technologies which underly applications.**

--Wikipedia “Service-oriented architecture” 2008-06-24

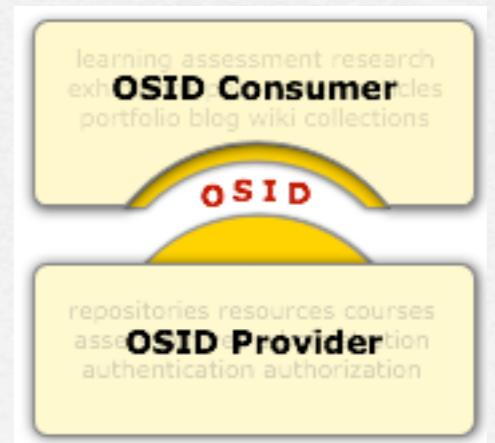
# Service APIs

- Fedora API
- WS-Authorization,  
WS-UserManagement, etc.
- something else for course information?

better if we could use only one...

# O.K.I. OSIDs

- A coherent set of services - no overlap
- Cover most domains needed in educational applications
- Each OSID designed to capture the entirety of its domain.
- Designed for layering and federating patterns
- Technology agnostic:  
*What are the messages/responses? Not, how are they asked/transported/stored?*



<http://harmoni.sf.net>

# Harmoni

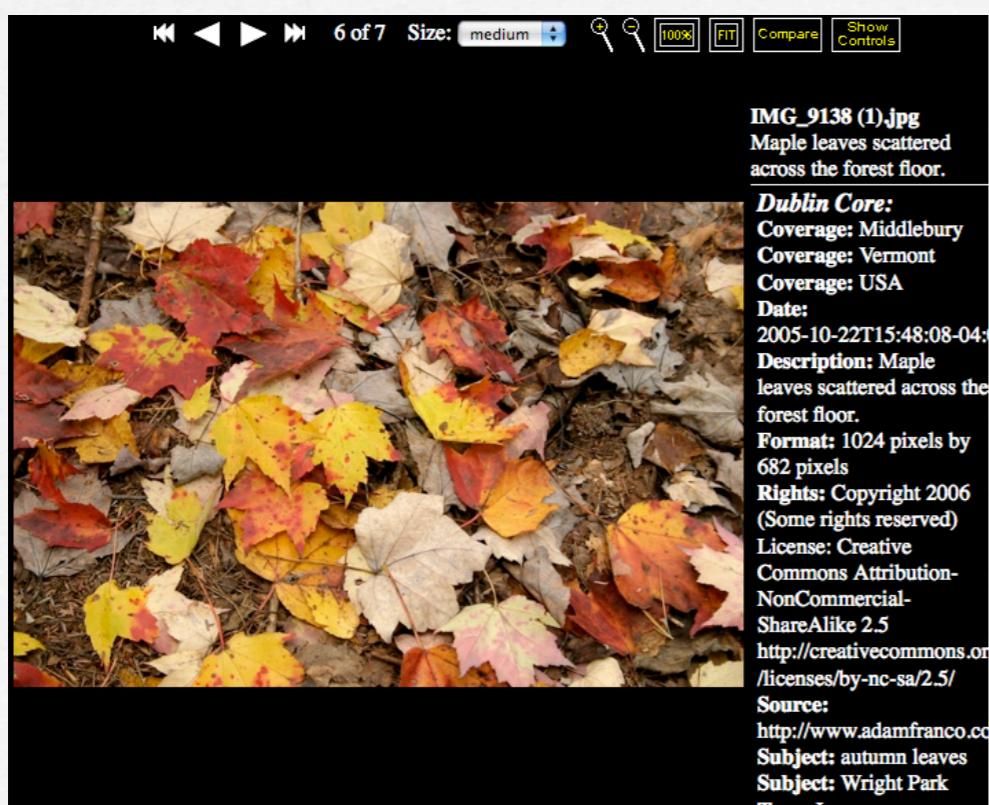
- Service-Oriented Framework
- OSID provider implementations:
  - Agent
  - Authentication
  - Authorization
  - Hierarchy
  - Logging
  - Repository
  - Id
- Optional ‘Nuts and Bolts’
  - Database Access
  - Action-script styled control flow
  - URL writing
  - Error handling

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<http://concerto.sf.net>

# Concerto

- Repository browser/editor
- Slide-shows
- OSID client



A screenshot of the Concerto repository browser titled "Images of Vermont". The interface includes a header with collection management links (Browse, Add, Import, Export, Edit, Delete) and search/filter options (Keyword, Limit to Types, Display settings). Below the header, three images are displayed in a grid:

- Orange in the Evening**: A photograph of a tree with orange leaves against a blue sky.
- Post-blizzard.**: A photograph of a snow-covered road and a building.
- April snows**: A photograph of trees covered in snow.

Below each image is a brief description. An "Asset Options" dialog is open over the third image, containing buttons for View, Details, and Edit.

**Asset Options** [Close](#)

[View](#) View this Asset in the pop-up viewer.

[Details](#) View the detail screen for this Asset.

[Edit](#) Modify this Asset.

# Demo: Concerto Usage

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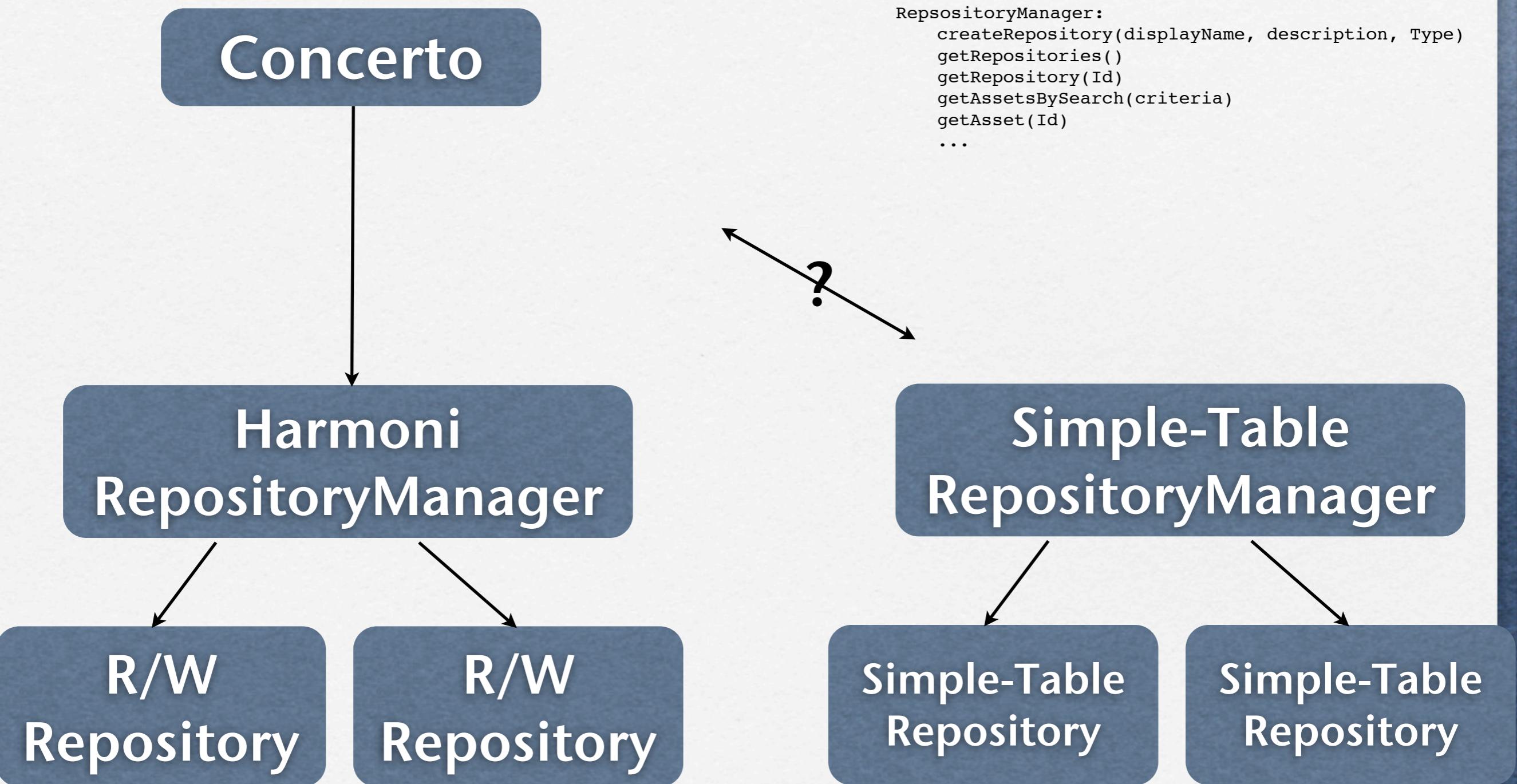
# Simple-Table Repository

- Basic tabular data moved from Excel spreadsheets into MySQL database tables
- Write access using PHPMyAdmin or other database tools
- Read-only access to each row as an Asset in Concerto
- “Federating” RepositoryManager combines multiple Repository impls.

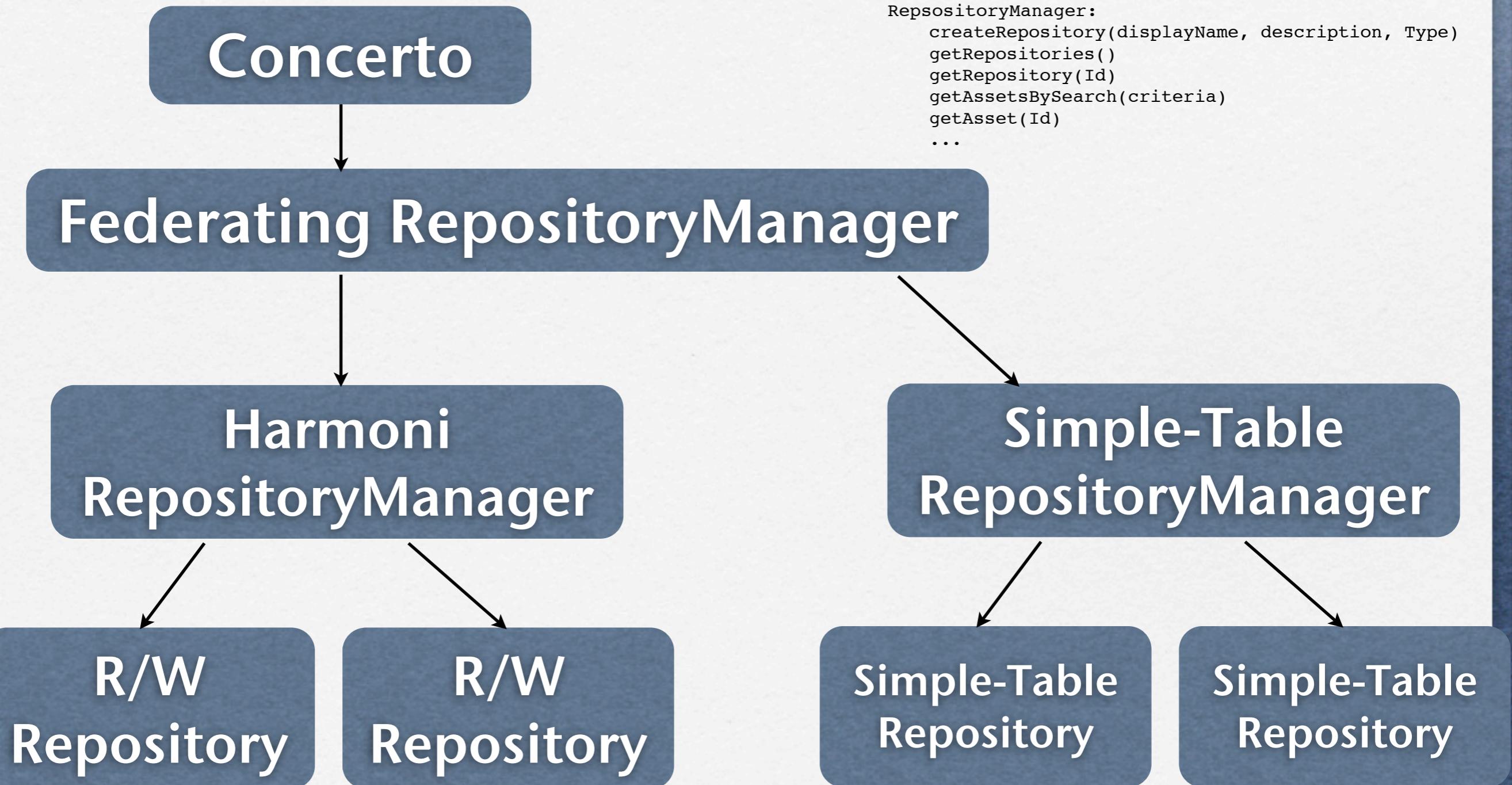
The diagram illustrates the integration of a MySQL database with a Concerto repository. On the left, a screenshot of phpMyAdmin shows a table named 'special\_collections' with 4 rows. The columns are: Identifier, level, department, last\_name, first\_name, and title. The data includes various student theses. An arrow points from this table to the right, where a screenshot of the Concerto 'Theses' collection interface is shown. This interface displays a list of 3804 items, with the first few entries visible:

- The Evolution of Consumer Credit and Credit Cards: Advertising** (Peter A. Wolkowski '06's undergrad thesis for the American Civilization department in 2007)
- Harriet Beecher Stowe's Feminism: How Uncle Tom's Cabin Inspired** (Kathryn M. Sherman's undergrad thesis for the American Literature department in 2007)
- Isolation and Identification of surfactant-resistant and biosurfactant-producing** (Kieran Coe's undergrad thesis for the Biology department in 2007)

# The Federation Pattern



# The Federation Pattern



# Demo: Simple-Table Repository

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<http://segue.sf.net>

# Segue

- Content Management System
- Curricular focus, but general abilities
- Hierarchical sites, permissions
- Threaded discussions
- Pluggable content
- Wiki-linking
- Blogging

The screenshot shows the homepage of the Open Knowledge Initiative (OKI) website. At the top left is the OKI logo, which consists of a stylized 'K' and 'I' inside a globe icon. To the right of the logo is the text "Accelerated interoperability through simplified integration". Below this is a sub-header "Please register above (for better browsing experience)". A navigation menu on the left includes links for "Welcome", "About O.K.I.", "News and Events", "Contributors", "Projects", "Developers", "OSID V3", "Overview", "Interfaces", "How it Works", "WG Drafts", and "Conversations". A sidebar at the bottom left provides a link to "Sign up for the oki-announce mailing list". The main content area features a large blue banner with the text "OSID V3" in large white letters, followed by "The next generation of Open Service Interface Definitions". Below the banner are several small screenshots of software interfaces. A quote at the bottom right reads: "The OSID version 2 specifications were first released in 2004. Over 75 integration projects later, we've learned a few things." At the very bottom of the page, there is a paragraph of text about the history and evolution of OSID V3.

Accelerated interoperability through simplified integration

Please register above (for better browsing experience)

Content RSS Discussion RSS

Open Knowledge Initiative » OSID V3

Welcome About O.K.I. News and Events Contributors Projects Developers OSID V3 Overview Interfaces How it Works WG Drafts Conversations

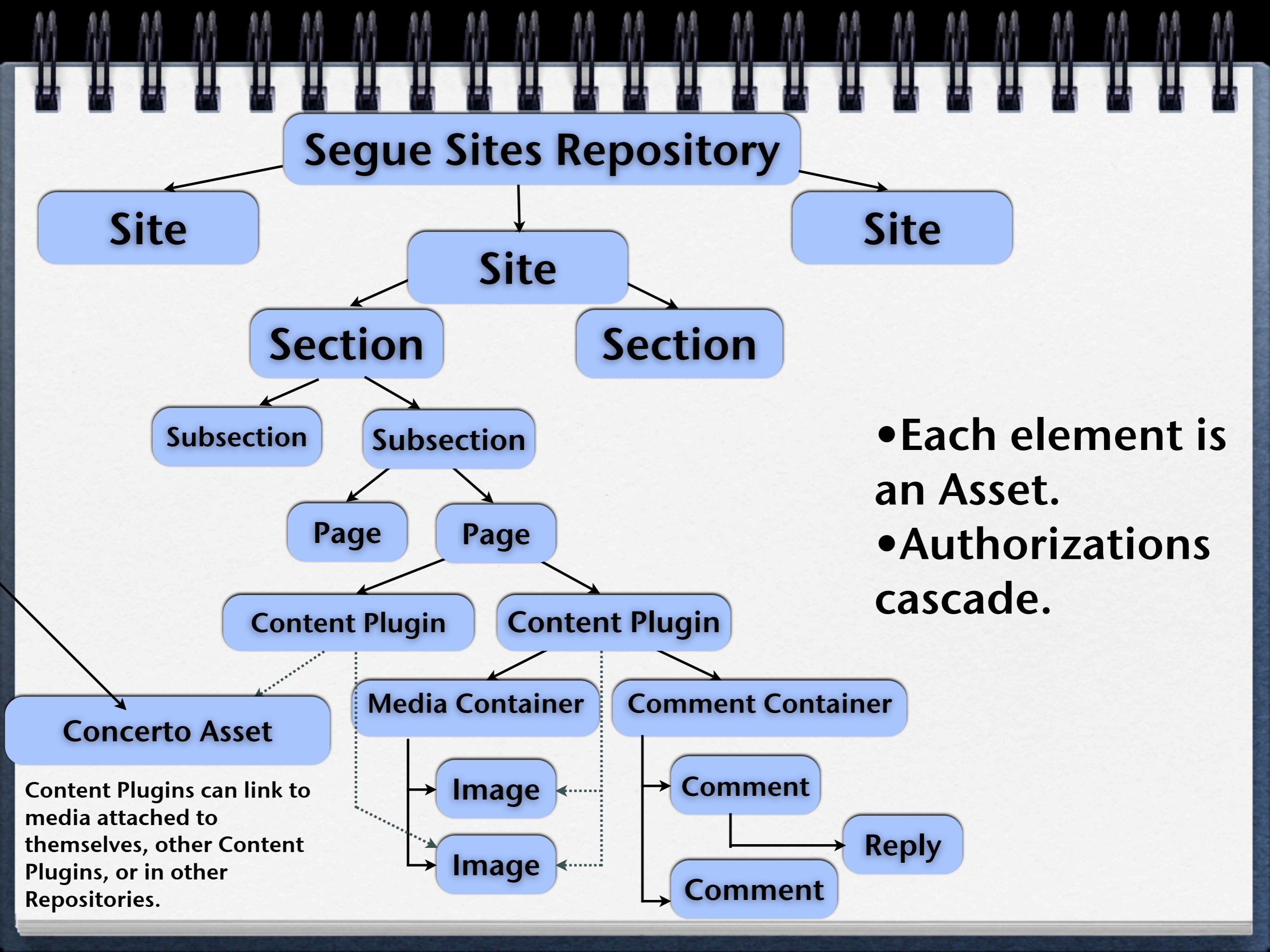
Sign up for the oki-announce mailing list

**OSID V3**

The next generation of Open Service Interface Definitions

"The OSID version 2 specifications were first released in 2004. Over 75 integration projects later, we've learned a few things."

Since the introduction of the first OSID definitions in 2003, and the current version 2 OSIDs in 2004, the O.K.I. project has received countless kudos and complaints. OSID V3 strives to strengthen all that is right with the OSIDs while at the same time addressing the numerous issues that developers have raised over the years. From the troubles with Types, to issues with Iterators, and the general challenges raised through applying the OSID model to multiple programming languages we listened to what developers had to say. In 2006 the O.K.I. Project began the more formal process of eliciting RFCs and developing a new set of service patterns aimed at easing the task of developing using OSIDs, while at the same time increasing interoperability. The result is a proposed interface definition specification that we fully expect to last well beyond the next decade



# Demo: Segue Usage

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- ✓ An alternative repository
- ✓ Segue: a curricular CMS
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- LibraryFind: meta-search tool/harvester

# Demo: Segue-Concerto Interoperability

Segue sites in Concerto

The background of the slide features a spiral-bound notebook with white pages and a dark blue cover visible at the edges.

# **Demo: Segue-Concerto Interoperability**

**Concerto File in Segue Site**

- ✓ Background: Frameworks, OSIDs, Harmoni
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- LibraryFind: meta-search tool/harvester

# LibraryFind



Libraries



- Meta-Search System
- Z39-50 searches of library catalogues with caching
- Harvesting of OAI-PMH providers
- Results from harvested, cached, and real-time searches intermixed

My Saved Items

vermont

Find It! Advanced Search

Search results for 'vermont'

Refine Results

Material Types

- [Articles \(29 results\)](#)
- [Books \(25 results\)](#)
- [Images \(33 results\)](#)

Subjects

- Railroad accidents--Vermont
- Agriculture Vermont.
- snow
- Floods--Vermont
- trees
- Vermont Veterans Home
- Railroads--Natural disaster effects--Vermont
- Soldiers homes--Vermont--Bennington
- cannons
- Language and languages
- Study and teaching
- Periodicals.
- Mortality Vermont Statistics.
- [More Subjects...]

Authors

- Adam Franco
- Vermont. State Board of

Results 1 - 10 of 1534 hits

Sort by Relevance

[Book] [Vermont hospitals : a databook for ... / prepared by Division of Medical Care](#)  
Call Number: RA981.V5 V47 1985  
Vermont. Division of Medical Care Regulation. | Hospitals Vermont Statistics.; Hospitals 1985 The Division

**Author:** Vermont. Division of Medical Care Regulation. X  
**Title:** Vermont hospitals : a databook for ... / prepared by Division of Medical Care Regulation.  
**Publisher:** The Division,  
**Date:** 1985

Citation: [Save This Item](#) [more from 'Midcat'](#)

[Book] [Vermont hotels, tourist homes and cabins.](#)  
Call Number: TX907 .V4  
Vermont. Publicity Service. | Hotels Vermont Directories.; Vacation homes.; Vacation homes Vermont Publicity Service, Department of Conservation and Development  
Citation: [Save This Item](#) [more from 'Midcat'](#)

[Book] [Vermont agricultural report ... / by the State Board of Agriculture.](#)  
Call Number: S121 .A32  
Vermont. State Board of Agriculture. | Agriculture Vermont. 1882 The Board  
Citation: [Save This Item](#) [more from 'Midcat'](#)

# OSID Repository to OAI-PMH Gateway

- OSID Repository client
- OAI-PMH provider

Images of Vermont

Collection: [Browse](#) | [Add](#) | [Import](#) | [Export](#) | [Edit](#) | [Delete](#)

Keyword  Search

Limit to Types...

Display 9 per page, in 3 columns. Order by Modification Date Descending

[more...](#)

Orange in the Evening  
Paper birch and maple trees in the evening light behind my house.  
[+Tag](#)  
[Options... | Selection |](#)

Post-blizzard.  
The shed after the Valentines Day blizzard of 2007.  
[+Tag](#)  
[Options... | Selection |](#)

April snows  
An fluke April snow dropped 3 inches of snow in Middlebury, VT.  
[+Tag](#)  
[Options... | Selection |](#)

**Asset Options** Close

- [View](#) View this Asset in the pop-up viewer.
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```
- <OAI-PMH xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/ http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd">
<responseDate>2008-06-24T19:19:51Z</responseDate>
<request verb="ListRecords" metadataPrefix="oai_dc"
set="edu.middlebury.segue.sites_repository">
http://slug.middlebury.edu/~afranco/demo/concerto/oai.php
</request>
<ListRecords>
- <record>
- <header>
<identifier>oai:demo.concerto.middlebury.edu:53</identifier>
<datestamp>2008-06-24T05:51:14Z</datestamp>
<setSpec>edu.middlebury.segue.sites_repository</setSpec>
</header>
- <metadata>
- <oai_dc:dc xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/oai_dc/
http://www.openarchives.org/OAI/2.0/oai_dc.xsd">
<dc:title>All About birds</dc:title>
<dc:description>A demo website about birds.</dc:description>
- <dc:identifier>
http://slug.middlebury.edu/~afranco/demo/concerto/index.php?module=asset&
action=view&collection_id=edu.middlebury.segue.sites_repository&asset_id=53
</dc:identifier>
</oai_dc:dc>
</metadata>
</record>
- <record>
```

LibraryFind \* vermont [Find It!](#) Advanced Search [My Saved Items](#)

Search results for 'vermont'

Refine Results Material Types [Articles \(29 results\)](#)  
Books (25 results) Images (33 results)

Subjects Railroad accidents--Vermont Agriculture Vermont. snow Floods--Vermont trees Vermont Veterans Home Railroads--Natural disaster effects--Vermont Soldiers homes--Vermont--Bennington cannons Language and languages Study and teaching Periodicals Mortality Vermont Statistics. [More Subjects...]

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Author: Vermont. Division of Medical Care Regulation. Title: Vermont hospitals : a databook for ... / prepared by Division of Medical Care Regulation. Publisher: The Division, Date: 1985 Citation: [Save This Item](#) more from 'Midcat'.

[Book] [Vermont agricultural report ... / by the State Board of Agriculture.](#) Call Number: S121 .A32 Vermont. State Board of Agriculture. | Agriculture Vermont. 1882 The Board Citation: [Save This Item](#) more from 'Midcat'.

Vermont. Publicity Service. | Hotels Vermont Directories.; Vacation homes.; Vacation homes Vermont Publicity Service, Department of Conservation and Development Citation: [Save This Item](#) more from 'Midcat'.

# **Demo: Concerto and Segue assets in LibraryFind**

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# Questions?

Adam Franco  
afranco@middlebury.edu

<http://www.adamfranco.com/archives/76/>

<http://harmoni.sf.net>  
<http://segue.sf.net>  
<http://concerto.sf.net>

<http://www.libraryfind.org>