



HarvestRoad.

Repository Interoperability

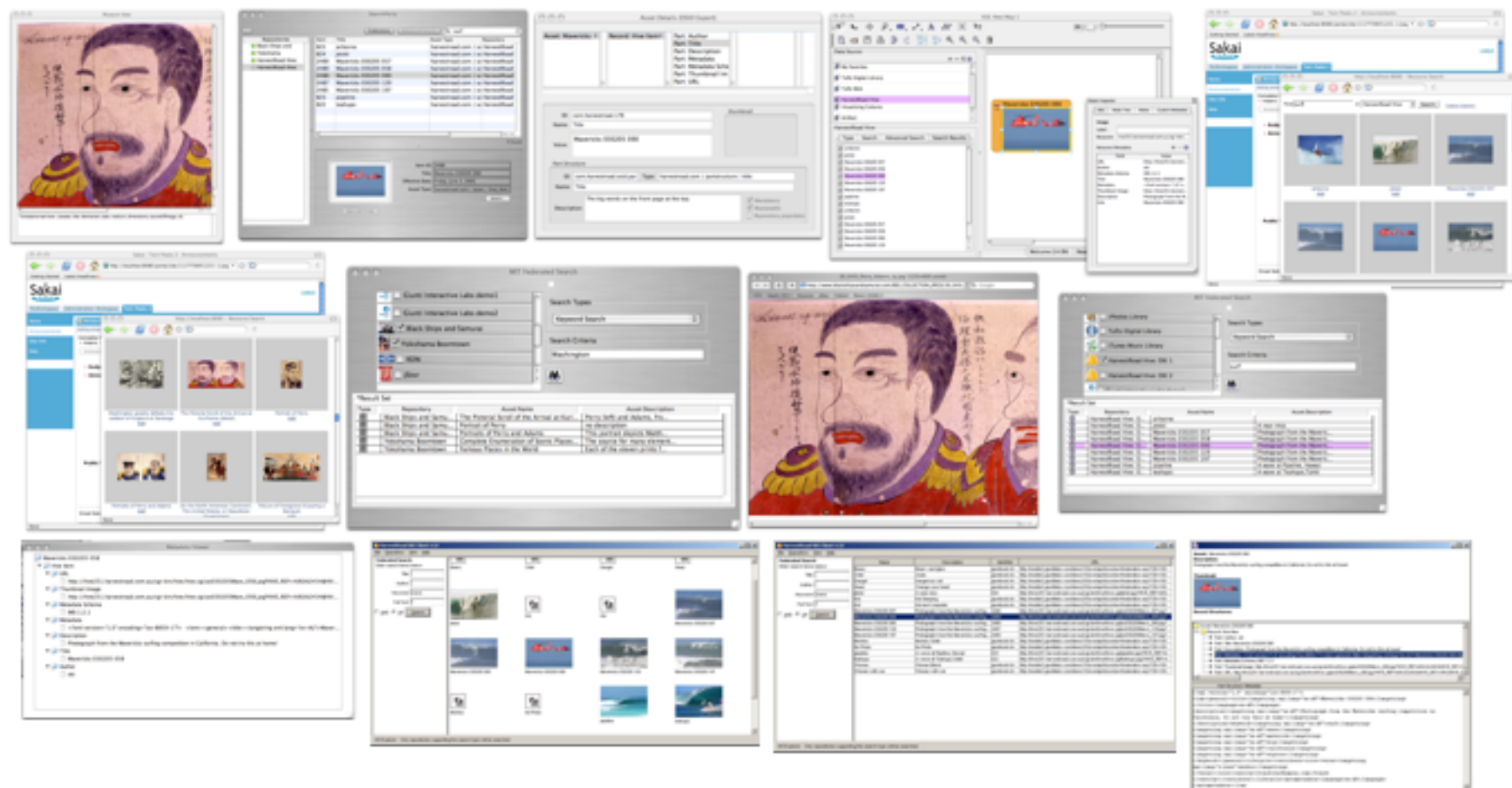
Open Repositories 2006

Sydney, January 31 to February 3, 2006

University of Sydney

May 21, 2008

www.harvestroad.com.au



> Contents

- Alt-i-lab 2005 Demonstration Case Study
- Open Knowledge Initiative
 - Short “primer”
 - Examples
 - Demonstration
 - Implications
- The End Games
 - Course assembly
 - Enterprise integration
- Importance of Repositories

> Alt-i-lab 2005

- Tools Interoperability
 - How tools connect to an LMS
 - Resolving API Standoff
- Repository Interoperability
 - Open Knowledge Initiative (OKI)
 - Open Service Interface Definitions (OSID)
 - Repository OSID
 - IMS Content Packaging, SCORM, SRW ...
- And the winner was ...
 - http://www.okiproject.org/project/update_13.html

> Who participated?

🍯 Repositories

- 🍯 Giunti Lab's eXact LOBSTER
- 🍯 HarvestRoad Hive
- 🍯 DSpace
- 🍯 JISC RDN
- 🍯 Fedora
- 🍯 MIT's Visualizing Cultures

🍯 Applications

- 🍯 Giunti's eXact Packager
- 🍯 HarvestRoad Hive Explorer
- 🍯 Mac Learning Environment's SearchParty
- 🍯 Tuft University's VUE

> Highlights

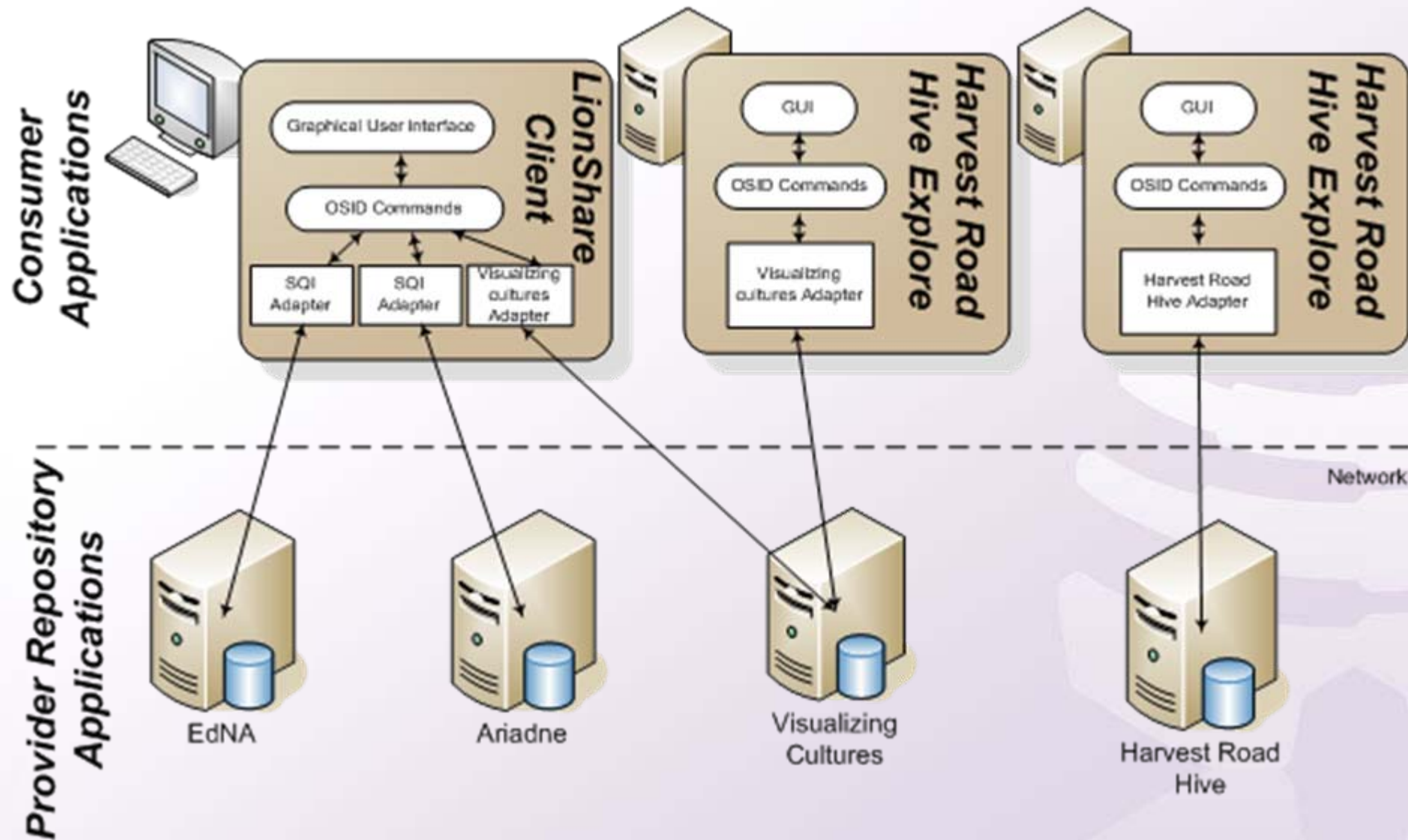
- Consumer choice
- “Moonshot” – Ed Walker, IMS
- “Repositories are where the action is”
- Open Services, especially Repository Services

> OKI Primer

- Specifications for communicating between educational software components and enterprise systems.
- Broad interoperability agreements
- CoP can implement further specification
- Opens new markets for tools and content

From <http://www.okiproject.org/>

➤ Example: Ariadne and Lionshare



MIT Federated Search

	☐ iPhotos Library
	☐ Tufts Digital Library
	☐ iTunes Music Library
	☒ HarvestRoad Hive: OKI 1
	☐ HarvestRoad Hive: OKI 2
	☐ Google Interactive Lab domain 1

Search Types

Keyword Search

Search Criteria

surf



*Result Set

Type	Repository	Asset Name	Asset Description
	HarvestRoad Hive: O...	airborne	
	HarvestRoad Hive: O...	jetski	A near miss
	HarvestRoad Hive: O...	Mavericks 030205 057	Photograph from the Maveric...
	HarvestRoad Hive: O...	Mavericks 030205 058	Photograph from the Maveric...
	HarvestRoad Hive: O...	Mavericks 030205 090	Photograph from the Maveric...
	HarvestRoad Hive: O...	Mavericks 030205 129	Photograph from the Maveric...
	HarvestRoad Hive: O...	Mavericks 030205 197	Photograph from the Maveric...
	HarvestRoad Hive: O...	pipeline	A wave at Pipeline, Hawaii
	HarvestRoad Hive: O...	teahupo	A wave at Teahupo, Tahiti



Asset: Mavericks 030205 090

Description:

Photograph from the Mavericks surfing competition in California. Do not try this at home!

Thumbnail:



Record Structures:

Asset: Mavericks 030205 090

- Record: Hive Item
 - Part: Author: oki
 - Part: Title: Mavericks 030205 090
 - Part: Description: Photograph from the Mavericks surfing competition in California. Do not try this at home!
 - Part: Metadata: `<?xml version="1.0" encoding="iso-8859-1"?><lom><general><title><langstring xml:lang="en-AU">Mavericks 030205 090</langstring></title><language>en-AU</language><description><langstring xml:lang="en-AU">Photograph from the Mavericks surfing competition in California. Do not try this at home!</langstring></description><keyword><langstring xml:lang="en-AU">surf</langstring><langstring xml:lang="en-AU">wave</langstring><langstring xml:lang="en-AU">maverick</langstring><langstring xml:lang="en-AU">big</langstring><langstring xml:lang="en-AU">california</langstring><langstring xml:lang="en-AU">wipeout</langstring></keyword></general><lifecycle><contribute><role><value><langstring xml:lang="x-none">Author</langstring></value></role><centity><vcard>surfhumour.com</vcard></centity></contribute></lifecycle><metametadata><language>en-AU</language></metametadata></lom>`
 - Part: Metadata Schema: IMS 1.2.1
 - Part: Thumbnail Image: http://hive251.harvestroad.com.au/cgi-bin/hive/hive.cgi/ps030205Mavs_090.jpg?HIVE_REF=hii%3A2453&HIVE_RET=T
 - Part: URL: http://hive251.harvestroad.com.au/cgi-bin/hive/hive.cgi/ps030205Mavs_090.jpg?HIVE_REF=hii%3A2453&HIVE_RET=ORG&HIVE_F

Part Structure: Metadata

```
<?xml version="1.0" encoding="iso-8859-1"?>
<lom><general><title><langstring xml:lang="en-AU">Mavericks 030205 090</langstring>
</title><language>en-AU</language>
<description><langstring xml:lang="en-AU">Photograph from the Mavericks surfing competition in
California. Do not try this at home!</langstring>
</description><keyword><langstring xml:lang="en-AU">surf</langstring>
<langstring xml:lang="en-AU">wave</langstring>
<langstring xml:lang="en-AU">maverick</langstring>
<langstring xml:lang="en-AU">big</langstring>
<langstring xml:lang="en-AU">california</langstring>
<langstring xml:lang="en-AU">wipeout</langstring>
</keyword></general><lifecycle><contribute><role><value><langstring
xml:lang="x-none">Author</langstring>
</value></role><centity><vcard>surfhumour.com</vcard>
</centity></contribute></lifecycle><metametadata><language>en-AU</language>
</metametadata></lom>
```

VUE: New Map 1

Data Source

My Favorites

Tufts Digital Library

Tufts Web

HarvestRoad Hive

Visualizing Cultures

Artifact

HarvestRoad Hive

Type

Search

Advanced Search

Search Results

airborne

jetski

Mavericks 030205 057

Mavericks 030205 058

Mavericks 030205 090

Mavericks 030205 129

Mavericks 030205 197

pipeline

teahupo

airborne

jetski

Mavericks 030205 057

Mavericks 030205 058

Mavericks 030205 090

Mavericks 030205 129

web

Mavericks 030205 090

Object Inspector

Info

Node Tree

Notes

Custom Metadata

Image

Label:

Resource: hive251.harvestroad.com.au/cgi-bin/...

Resource Metadata

Field	Value
URL	http://hive251.harvest...
Author	oki
Metadata Schema	IMS 1.2.1
Title	Mavericks 030205 090
Metadata	<?xml version="1.0" e...
Thumbnail Image	http://hive251.harvest...
Description	Photograph from the M...
title	Mavericks 030205 090

Welcome (14.9%)

New

eXact Packager - test - [Import]

File Edit View Project Window ?

SCORM

Resource Store

Resources

Data Source: Osid Federation

Domain: All

Repositories: All

Refresh

Query on: All

Query on Lobster Federation with proprietary Type

Metadata field: Identifier

Condition: Contains

Search for all elements

Type: Resources

Execute Query

Query all repository with standard type

Keyword: *

Execute Query

Results: 28

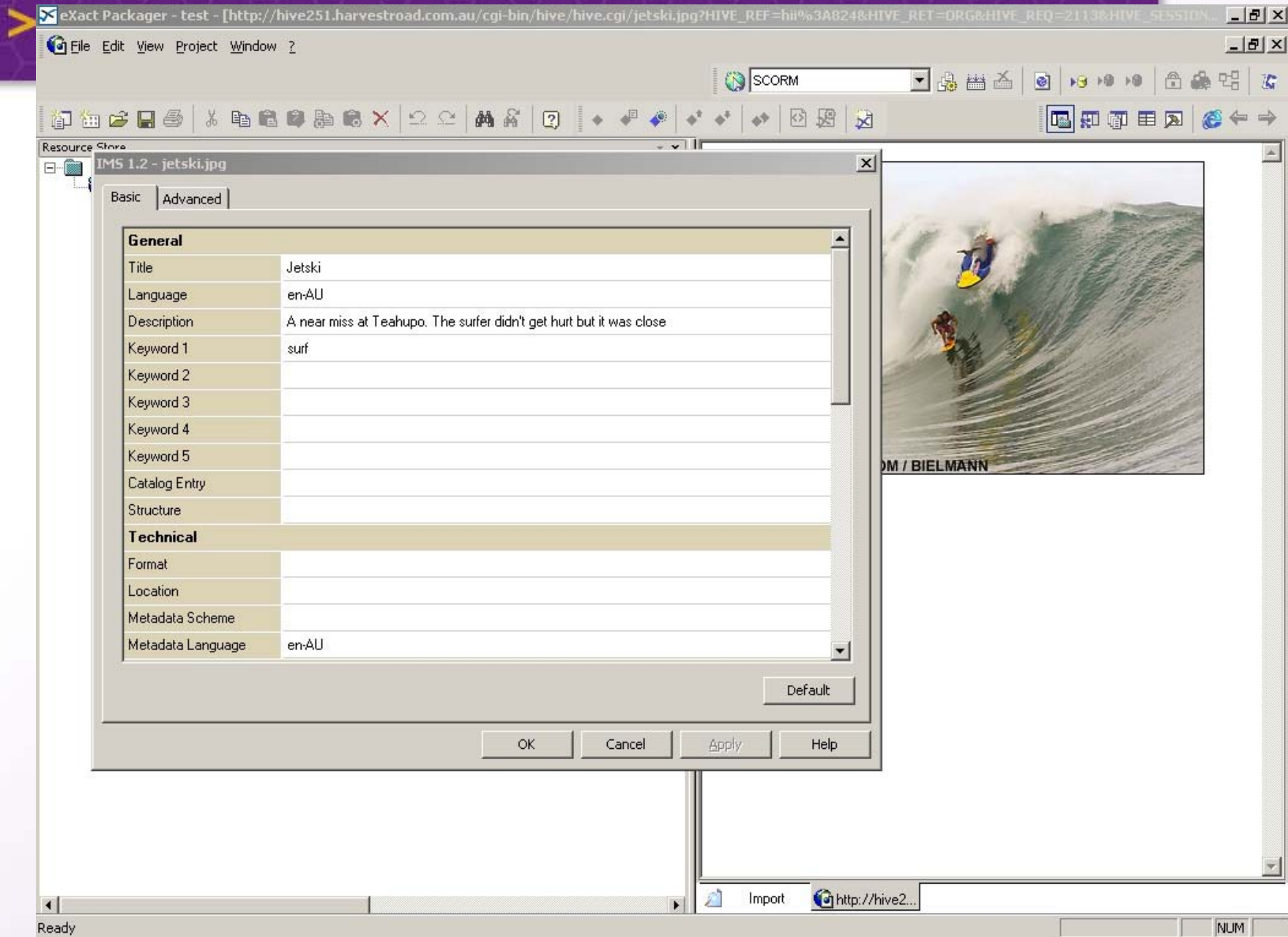
Identifier or file name	Title	Type	Metadata
Learn eXact Repository_...	Kid	giuntiosid.type...	Unknown
Learn eXact Repository_...	Danger	giuntiosid.type...	Unknown
Learn eXact Repository_...	Head	giuntiosid.type...	Unknown
HarvestRoad Hive: OKI ...	Airborne	com.harvestro...	Unknown
HarvestRoad Hive: OKI ...	Jetski	com.harvestro...	Unknown
HarvestRoad Hive: OKI ...	Mavericks 030205 057	com.harvestro...	Unknown
HarvestRoad Hive: OKI ...	Mavericks 030205 058	com.harvestro...	Unknown

Import

Import

Ready

NUM



Sakai : Twin Peaks 2 : Announcements

Getting Started Latest Headlines

Sakai

Logout

MyWorkspace Administration Workspace **Twin Peaks 2**

- Home
- Announcements
- Site Info
- Help

http://localhost:8080 - Resource Search

Find in [Citation Search>](#)



airborne
[Add](#)



jetski
[Add](#)



Mavericks 030205 057
[Add](#)







Public V

Email Noti

Done

Done

Sakai : Twin Peaks 2 : Announcements

←

→

↺

✖

🏠

<http://localhost:8080/portal/site/1117739051231-1/paç>

⊞

G

Getting Started

Latest Headlines

Sakai

Logout

MyWorkspace

Administration Workspace

Twin Peaks 2

Home

Announcements

Site Info

Help

Announ

Adding annou

Complete t

• means

Announ

• Subje

• Anno

Public

Email Not

Done

http://localhost:8080 - Resource Search

←

→

↺

✖

🏠

⊞

G



Washington greatly defeats the soldiers of England at Saratoga
[Add](#)



The Pictorial Scroll of the Arrival at Kurihama (detail)
[Add](#)



Portrait of Perry
[Add](#)



Portraits of Perry and Adams
[Add](#)



On the North American Continent: The United States, or Republican Government
[Add](#)



Picture of Foreigners Enjoying a Banquet
[Add](#)

 HarvestRoad.



SearchParty

+

Collections

Advanced Search

Q

surf

×

Repositories

Black Ships and

Yokohama

HarvestRoad Hive:

HarvestRoad Hive:

Item	Title	Asset Type	Repository
825	airborne	harvestroad.com / as	HarvestRoad
824	jetski	harvestroad.com / as	HarvestRoad
2490	Mavericks 030205 057	harvestroad.com / as	HarvestRoad
2489	Mavericks 030205 058	harvestroad.com / as	HarvestRoad
2488	Mavericks 030205 090	harvestroad.com / as	HarvestRoad
2487	Mavericks 030205 129	harvestroad.com / as	HarvestRoad
2485	Mavericks 030205 197	harvestroad.com / as	HarvestRoad
823	pipeline	harvestroad.com / as	HarvestRoad
822	teahupo	harvestroad.com / as	HarvestRoad

9 found



Item ID: 2488

Title: Mavericks 030205 090

Effective Date: Friday, June 3, 2005

Asset Type: harvestroad.com / asset / hive_item

details...

Open with Finder

 HarvestRoad.

SearchParty

+

Collections

Advanced Search

Q Washington

✕

Repositories

- Black Ships
- Yokohama
- HarvestRoad
- HarvestRoad

Item	Title	Asset Type	Repository	Description
30_043	The Pictorial Scroll of the Arrival at Kuri	mit.edu / asset / doc	Black Ships and Sa	Perry (left) and Adams, f...
30_044	Portrait of Perry	mit.edu / asset / doc	Black Ships and Sa	
30_045	Portraits of Perry and Adams	mit.edu / asset / doc	Black Ships and Sa	This portrait depicts Mat..
Y0160	Complete Enumeration of Scenic Place	mit.edu / asset / doc	Black Ships and Sa	The source for many elem
Y0192	Famous Places in the World	mit.edu / asset / doc	Black Ships and Sa	Each of the eleven prints..

5 found



Open with Finder

Item ID: 30_043i_Perry_Adams

Title: The Pictorial Scroll of the Arrival at Kurihama (detail)

Effective Date: Friday, June 3, 2005

Asset Type: mit.edu / asset / document

details...



Visualizing Cultures Collections

Search

John Dower's Tour

Keyword

Title

Medium

View All

Collections

Black Ships & Samurai

Yokohama Boomtown!

Ground Zero 1945



The Pictorial Scroll of the Arrival at Kurihama (detail), 30_043i_Perry_Adams ,Black Ships and Samurai Collection



Portrait of Perry, 30_044_PerryKawaraban, Black Ships and Samurai Collection



Portraits of Perry and Adams, 30_045_Adams_Perry ,Black Ships and Samurai Collection



On the North American Continent: The United States, or Republican Government, Y0117, Yokohoma Boomtown! Collection



Picture of People of the Five Nations: A Sunday, Y0142, Yokohoma Boomtown! Collection



Complete Enumeration of Scenic Places in Foreign Nations: City of Washington in America, Y0160, Yokohoma Boomtown! Collection

Federated Search

Enter search terms below

Title Author Keyword Full Text ☒ AND ☐ OR

A North American (Portrait of Perry)



A Portrait of Perry, a North American



A Superb View of the United States Japanese Squadron, Under the Command of Commodore Perry, Bound for



Adams detail from Portraits of Perry and Adams



Admiral M. C. Perry and Members Visit to Japan, 1853



Assembled Paintings of Commodore Perry's Visit



Assembled Paintings of Commodore Perry's Visit - flat version



Assembled Paintings of Commodore Perry's Visit - trimmed version



Assembled Paintings of Commodore Perry's Visit, detail of six portraits



Assembled Paintings of Commodore Perry's Visit, detail of six portraits



Band and Gifts, detail from Assembled Paintings of Commodore Perry's Visit



Bottom row from Assembled Paintings of Commodore Perry's Visit



Com. Perry Paying his Farewell Visit to the Commissioners at Simoda



Commodore Perry Meeting the Imperial Commissioners at Yokohama



Commodore Perry's Flagship Powhatan



Commodore Perry's Visit to Shui, Lew Chew





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Demonstration

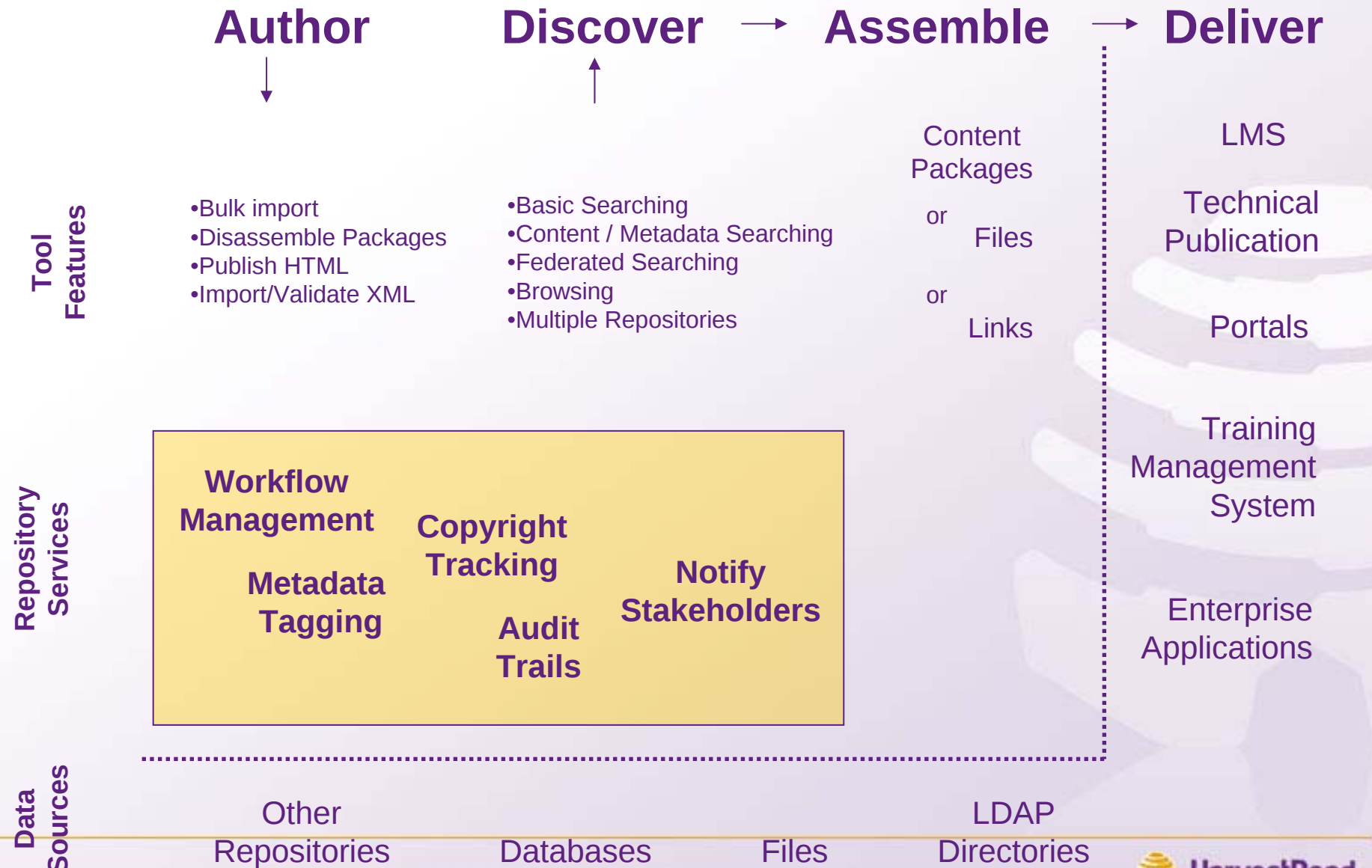
Using Hive Explorer to discover and reuse content from multiple repositories

www.harvestroad.com.au

> Implications for Repositories

- What really is a repository?
 - Store, Manage content (not just Archives)
 - Repository Services (metadata, workflow, notification, copyright etc.)
 - Deliver to runtime environment
- Interoperability
 - Expose services
 - Don't lock content in – provide an exit strategy
 - Content Bridge

> Hive Context Diagram



> Specifications and Standards

- Repositories need to support
 - IMS Metadata, Content Packaging
 - SCORM 1.2 application profiles of above
 - Any metadata schema (Dublin Core, Cancore etc)
 - SCORM 2004 application profiles, CORDRA
 - OKI OSIDs
 - Repository, Shared (IDs, Types)
 - Authentication, Authorisation, Hierarchy, Filing
 - Open Archives Initiative (Data Provider)
 - MARC21 data import, export
 - Other application profiles for specific CoP

> End Game: Course Assembly

Reload Editor

File Edit Schemas Tools View Window Help HarvestRoad

SCORM Package - Temp

Profile: SCORM 1.2 Default Profile

Temp

- adlcp_rootv1p2.xsd
- imscp_rootv1p1p2.xsd
- imsmanifest.xml
- imsmd_rootv1p1p2p1.xsd
- ims_xml.xsd

MANIFEST-4CEA120D-BBDE-CB8B-B9B8-516D561EFFB4

- Organizations
 - Managing the Digital Age
 - About the Course
 - Copyright
 - Digital Design
 - Discussion Lists
 - Newsgroups
 - Referencing
 - Searching the Internet
- Resources
 - http://hive251.harvestroad.com.au/cgi-bin/hive/hive.cgi?HIVE_REF=hi%3A2428&HIVE_RET=ORG&HIVE_PROD=0&HIVE_REQ=2001
 - http://hive251.harvestroad.com.au/cgi-bin/hive/hive.cgi?HIVE_REF=hi%3A2430&HIVE_RET=ORG&HIVE_PROD=0&HIVE_REQ=2001
 - http://hive251.harvestroad.com.au/cgi-bin/hive/hive.cgi?HIVE_REF=hi%3A2432&HIVE_RET=ORG&HIVE_PROD=0&HIVE_REQ=2001

HarvestRoad Hive Explorer v1.0

Category Options Tools Publish Help

Hive @ hive251.harvestroad.com.au

- Apple
- ECU
- Engineering
- Hive
- My University
 - Bureau Admin
 - Courses
 - Common Course Assets
 - Managing the Digital Age
 - Nursing
 - Testing Area
 - Using HarvestRoad Hive
- Default Images
- Defence
- Email Templates
- Stonnn

Title	Format	Size (KB)	Version	Last Editor	Last Modified	Item ID	A
copyright	HTML	3	1.0	jlt	Thu Jun 02 09:38:09 W...	2458	24
Referencing	HTML	3	1.0	jlt	Thu Jun 02 09:38:02 W...	2468	24
Digital_Design	HTML	4	1.0	jlt	Thu Jun 02 09:38:08 W...	2460	24
discussion	HTML	4	1.0	jlt	Thu Jun 02 09:38:03 W...	2462	24
Newsgroups	HTML	4	1.0	jlt	Thu Jun 02 09:38:02 W...	2466	24
search	HTML	5	1.0	jlt	Thu Jun 02 09:38:06 W...	2470	24
About_the_course	HTML	8	1.0	jlt	Thu Jun 02 09:38:01 W...	2456	24
Managing the Digital Age	Zip Files	8	1.0	jlt	Thu Jun 02 09:39:06 W...	2473	24
search graphic	Image JPEG Var 1	10	1.0	jlt	Thu Jun 02 09:38:05 W...	2469	24
web page design graphic	Image JPEG Var 1	10	1.0	jlt	Thu Jun 02 09:38:01 W...	2459	24
copyright world orbit graphic	Image JPEG Var 1	11	1.0	jlt	Thu Jun 02 09:38:07 W...	2457	24
markets	Image JPEG Var 1	11	1.0	jlt	Thu Jun 02 09:38:03 W...	2463	24
models	Image JPEG Var 1	11	1.0	jlt	Thu Jun 02 09:38:04 W...	2465	24
about	Image JPEG Var 1	12	1.0	jlt	Thu Jun 02 09:38:09 W...	2455	24
discussion page graphic	Image JPEG Var 1	12	1.0	jlt	Thu Jun 02 09:38:04 W...	2461	24

> Why HarvestRoad *Lerves* OKI

- Provides customers with greater choice and flexibility to use tools
- Enables drag and drop course assembly from a wide range of repositories, not just Hive
- Reduces cost to interoperate “many to many” tools and repositories. No “API Stand-off”.
- Technology independent and technologically simple
- Increases ROI in learning technologies
- Decreases the complexity of client applications
- Promotes greater sharing
- Manages integration through a standard rather than a proprietary approach

> Importance of Repositories

- American TelEdCommunications Alliance and MiCTA
- Members in 48 States of US
- Single institutions and Statewide repositories
- “Panel Contract” awarded this week
- LOR category for first time
- Quotes relevant to repositories ...

- “ ... storing content in a standards based repository and linking to that content from a mature LMS is the proper way to design an on-line learning solution.”

- “As on-line learning objects grow in number, it will be important to work with repositories which are open and accessible from multiple learning management applications.”



HarvestRoad.

Questions?

John Townsend

General Manager, Product Group

HarvestRoad Ltd.

www.harvestroad.com.au

> Copyright

- Statutory regulations in Copyright Act
 - Part VB
 - AVCC Guidelines
- Voluntary Licensing via CAL
 - Research project with Griffith, Uni Tas, ECU and CAL later this year
- Now, proceed to specific questions....

> Open Archives Initiative (OAI-PMH)

- Hive repository is a data provider
- OAI Harvesters send request to Hive
- Harvester is assigned a user account
- ListRecords, GetRecord and ListIdentifier requests implemented as Hive search requests
- Hive returns metadata in unqualified Dublin Core
- Supports all 6 basic request types