

Interoperability and Secondary Repositories: What Can We Do To Build For the Future Now

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“Interoperability is the ability of systems, services and organizations to work together seamlessly toward common or diverse goals”

Long History of Interoperability in Library and Archives World

- Shared cataloging
- Metadata standards: MARC, Dublin core
- Querying: z3950

What's the Problem with Digital Projects then?

- First generation project-by-project model
 - Html hand-coding
 - Commercial software: Cold fusion
 - Customized scripting: Pearl, java, cgi
- Long-term limitations
- Idiosyncratic, stand-alone

Moving from Projects to Digital Repositories

- To meet the preservation and access responsibilities of libraries, museums, and archives
- To meet the complex pedagogical and publishing needs of cultural heritage and educational institutions
- To take full advantage of networked digital media

Digital Repositories and Interoperability

- Resource location
- Resource enhancement
- Digital libraries made more useful
- Secondary repositories

Non-exclusive Strategies for Interoperability

1. Registering resources
2. Read access to a remote database
3. Live query using standard protocol
4. Spider and ingest remote metadata
5. Harvesting metadata

Registering resources

- Simple form registration
- No added overhead
- Non-exclusive
- Increased exposure

Read Access to Databases

- No standards requirement
- No added overhead
- Works with small number of partners
- Full exposure

Live Query Using Standards Protocol

- ZING (next generation of z3950)
- [Hosted by Library of Congress](#)
- ZING SRW Search/Retrieve web services
- Web services model, returns xml
- Has to be implemented by repository
- Low overhead, but limitations of live querying

Spider and Ingest

- Adding remote metadata into your system
- All the power of your own database
- Partnership and ownership issues
- Scalability issues

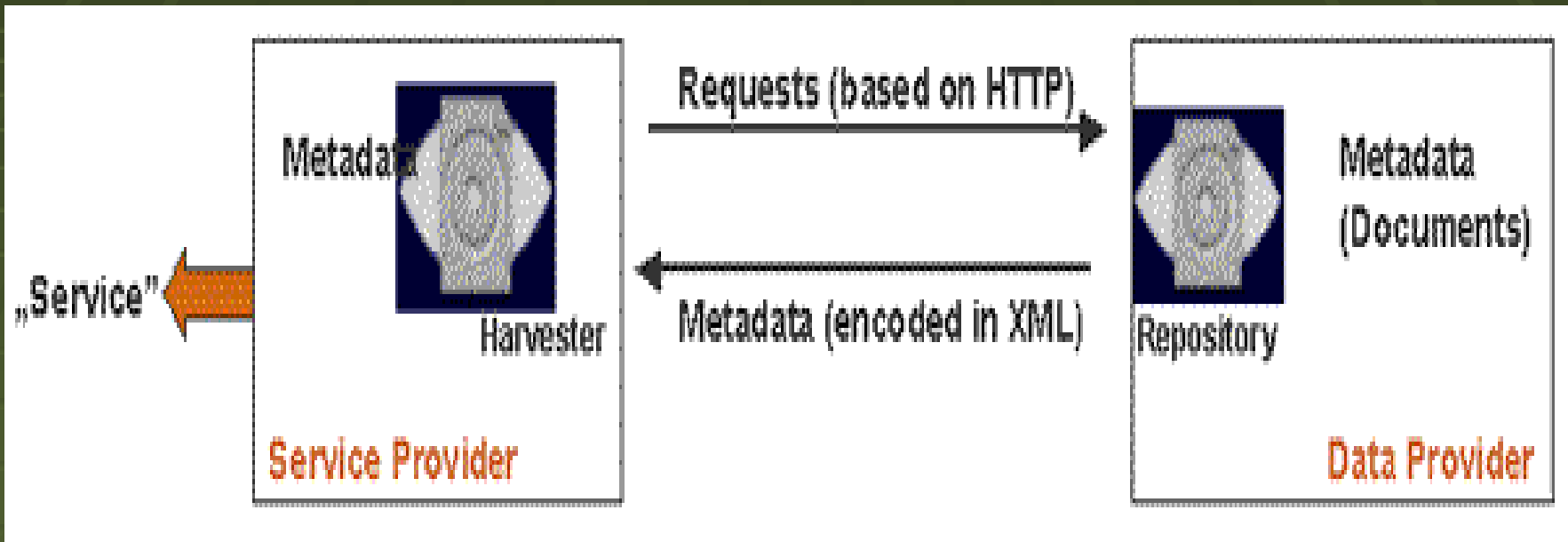
OAI Harvesting

- Community effort to supplement/replace cross repository searching
- Five year old project: 1999-
- Supported by NSF, CNI, Digital Library Federation, Soros Foundation
- Lead developers: Carl Lagoze, Herbert Van de Sompel
- [OAI community](#)

OAI Model

- Data providers who expose metadata
- Service providers who add value (search interface, for example)
- Non-exclusive roles

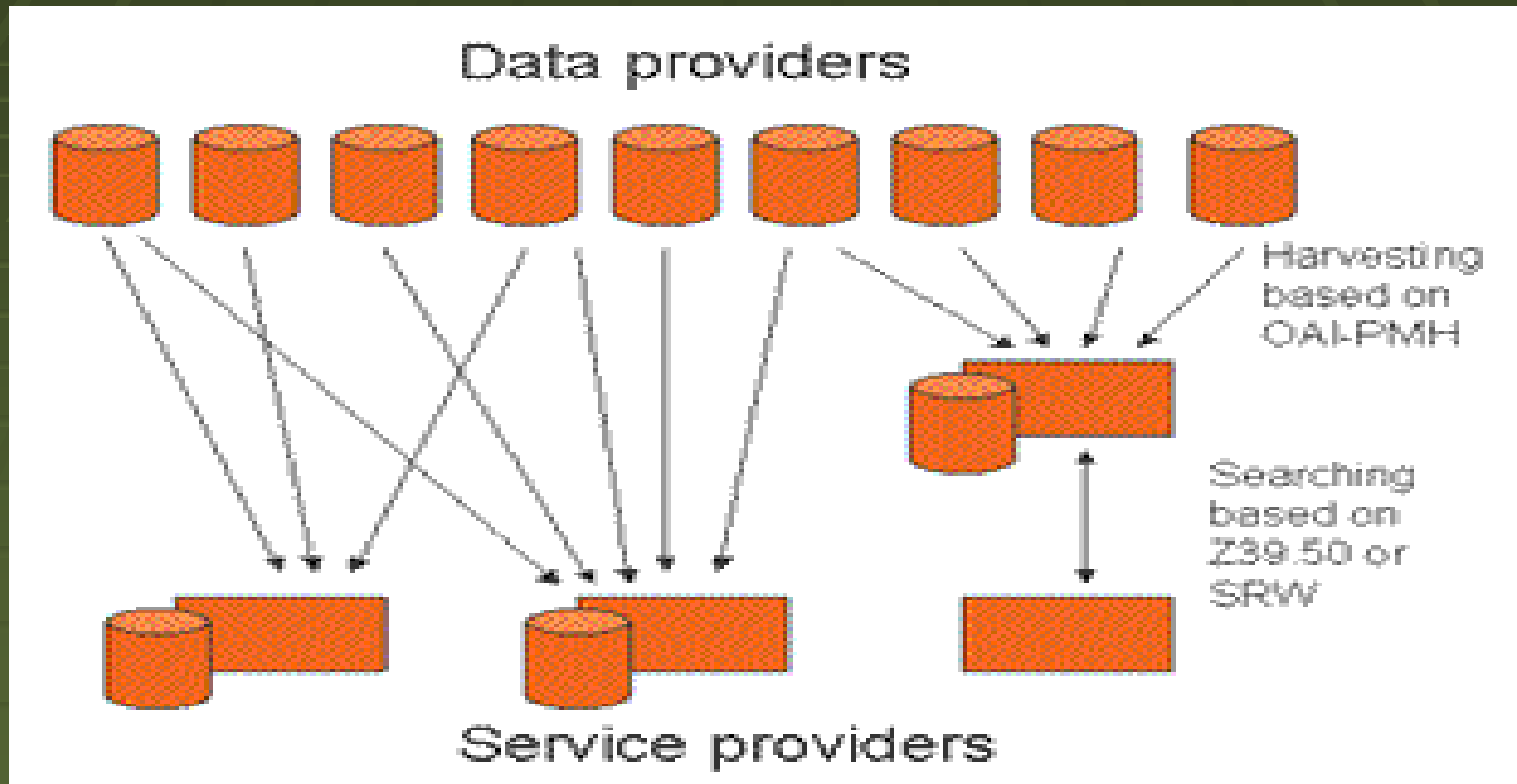
OAI Model



OAI-PMH: Open Archives Initiative Protocol for Metadata Harvesting

- OAI-PMH 2.0: Stable, low-barrier protocol
- All sorts of resources
- Uses http protocol to move xml data
- Unqualified Dublin Core
- + Community agreed upon format
- Aggregates metadata (does not search)

OAI Model



Beyond Resource Discovery: Secondary Repositories

- Pointing/Linking into primary repositories
- Segmenting
- Combining resources across repositories
- Annotating
- Value added through use

Linking: First Generation Secondary Repositories

- Collection of links
- Online syllabi/ lesson plans
- Blogs with links

Second Generation of Secondary Repositories: Coming Soon

- Based on standardized repositories
- Development of new tools to work with on-line digital objects
- Value added

Tool Development: MediaMatrix

- Allows users to find, segment, annotate, organize, and publish streaming media on the World Wide Web
- Uses browser's bookmark feature to launch application
- Finds and loads media into editor
- Allows user to “isolate” portion of media and annotate
- Users can organize clips/annotations on personal portal page
- Create publications/presentations from clips and annotations
- Archive independent

Media Matrix Technology

- Server-side

- Database driven - MYSQL
- php/javascript
- Xml based delivery/display

- Demo:

<http://www.historicalvoices.org/~mmatrix>

Media Matrix

- Uses
 - Digital Archive/Library
 - Easy creation of derivatives
 - Distributed creation of intellectual metadata
 - Re-use of user generated information as metadata
 - Education
 - Allow teachers and students to more easily use multimedia materials in the classroom
 - Create multimedia presentations and reports

Requirements for Building for Interoperability and Collaboration

- Standardized metadata
- Unique identifiers
- Persistent URLs/URIs

Looking towards the Future

- Enhancing access and resource location
- Empowering DL users to use digital objects
- Unlocking educational potential of DLs
- Interlocking resources through secondary repositories