COMPONENTS OF LIBRARY PORTALS

Library portals are changing rapidly, but four major components are common:

- A single-search interface
- User authentication
- Resource linking
- Content enhancement

Single-search interface

An essential component in any portal is a single or simultaneous search across multiple electronic sources and the return of results in a consistent library-customizable format—but identified by source. Some vendors describe their single-search interface as a federated search, and others describe it as a broadcast search.

Federated search has been used by a few vendors instead of the more common single-search. **Broadcast search** describes a simultaneous search of multiple Z39.50 resources and predates the introduction of portals.

Multiprotocol searching is involved because some resources are Z39.50-conforming, some are HTTP, some SQL, some XML, and still others are in native (proprietary) mode. Various formats and metadata standards must be supported, including MARC, EAD, Dublin Core, TEI, and XML.

HTTP: hypertext transfer protocol

SQL: structured query language

EAD: encoded archival description

TEI: text-encoding initiative

XML: extensible markup language

Organizations that wish to access the resources of archives and museums should look for products that support EAD and Dublin Core, because these are the formats most widely used by archivists and museum registrars.

Most portals are capable of setting search limits (such as language or date of publication), sorting results, and eliminating duplicate search results (deduping), but the library determines which features to activate by using tables of options in the portal's manager.

Portals often return too much information, which creates a need to manage the content to make it relevant. The simplest form of ranking lists the results in order of the percentage of the search terms that are matched or the frequency with which keywords appear. Entering multiple terms is more effective than entering a single term with this type of ranking.

Another way to structure the heaps of unorganized information is by maintaining a thesaurus to serve as a navigational and organizational tool to filter search results. Most library portal vendors only provide the capability to build and maintain a thesaurus, rather than provide one.

An optional but important part of any single-search tool is measurement of use. Use measurement helps a library make collection development decisions. It also validates the use figures submitted by online reference services to which a library subscribes. This feature of a portal is sometimes available only at additional cost.

User authentication

User authentication, also known as patron authentication, determines whether patrons are eligible for service by checking the patrons against a library database. This authentication is usually done with a proxy server to limit access to resources the patron is authorized to use. For example, a library may allow anyone to access its patron access catalog, its community information file, and other locally created files on its Web server. Or it may limit access to subscription databases to only registered borrowers. Or it may limit access to some databases to conform to the licensing restrictions.

Although libraries generally do not like to restrict access to information, many database providers require authentication of the patron and transmission of authorization for access before opening the search engine of the targeted database. Among the most severe restrictions is that the user be in a library, rather than coming into the library's proxy server via the Internet. Another form of restriction is that the user must fall into a specific category. For example, Lexis is available to law faculty and students served by an academic law library, but not to members of the local bar who may have been issued a library card.

Resource linking

Resource linking allows a library to seamlessly tie electronic resources together. For example, an index or abstract can be linked to a full-text database, or a local bibliographic record can be linked to a review or to an e-book. The link need not be to text but can go to an image. Links to a library's calendar of events or a community resources database also are possible.

Most portal products require a library to create the links to electronic sources of information. That task can be time-consuming. Endeavor Information Systems was the first firm to extend basic portal capabilities by licensing (from a vendor) software and a database with already created links. It is using JournalSeek, a knowledge database developed by Openly Informatics, Inc., to link to more than 7,700 electronic journals in the sciences and humanities, and Link.Openly, a system for generating links from bibliographic citation data. The offering, known as LinkFinderPlus, became available early in 2002.

Fretwell-Downing, the portal vendor working with a group of ARL members on a multi-institutional portal product, also has contracted with Openly Informatics, Inc. An ongoing subscription service keeps the links current. Other vendors will likely offer linking packages in the next year or two.

Open URL

OpenURL, a standard developed by the National Information Standards Organization (NISO), facilitates linking. It is a syntax to create Web-transportable packages of metadata or identifiers about an information object. It provides a uniform way for users to link directly from bibliographic citations to full-text articles, document delivery services, library catalog searches, and other potential services for which a URL can be constructed.

View information regarding the current status of OpenURL as a NISO standard at http://library.caltech.edu/openurl.

Regular URL support and OpenURL support differ. The former has a URL point to a single address; the latter involves automatically generating URLs and using them to search and retrieve related materials from multiple locations simultaneously, without the need for a librarian to predefine the destination(s) in the catalog record itself.

The standard was published in October 2002, and a few vendors have already incorporated it into their portals. Here are some OpenURL-enabled resources:

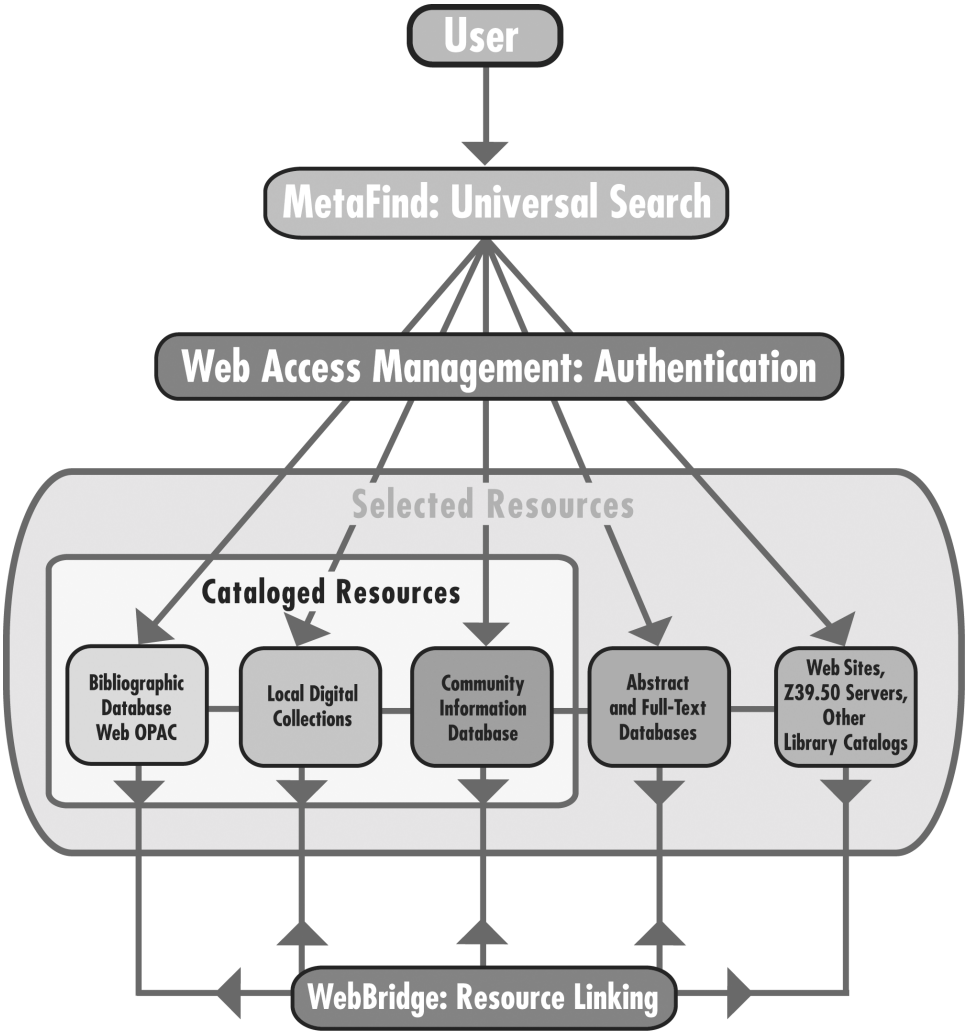
- Cambridge Scientific Abstracts
- Chemical Abstracts Service
- EBSCOhost
- Elsevier ScienceDirect
- Gale InfoTrac
- WilsonWeb
- ISI Web of Science
- OCLC FirstSearch
- Ovid Bibliographic Databases
- ProQuest
- RLG
- SwetsNetNavigator

Content enhancement

A bibliographic record usually does not tell a patron much about a title. Content enhancement overcomes that limitation by providing links to tables of contents, book jacket images, author biographies, and reviews. Although this enhancement is a specific application of resource linking, it often is regarded as a separate component because the additional content usually is supplied on a subscription basis by a firm other than the vendor of the automated library system or the developer of the resource-linking software. Syndetic Solutions is the most-used source of content enhancement.

Syndetic Solutions,
www.syndetic.com

Sirsi has already chosen to incorporate a third-party content enhancement product into its iBistro. Rather than having a library purchase a content enhancement product and then create a link to it in the portal, the vendor more fully integrates a content management product of its choice to increase the functionality available to the portal user.



This illustration, drawn from the product literature of Innovative Interfaces, graphically shows the relationship of the single search, patron authentication, and resource-linking components of a typical library portal.

An emerging component: Interactive services

Although most portals can support interactive services, only a few libraries—primarily academic libraries—have incorporated them into their portals because these services often tie up expensive computer resources for activities that are not directly related to the mission of a library. Typical of such services are e-mail, chat rooms, forums, and polls.

Another service offered through the portal of some libraries is access to a person's records, including not only outstanding loans, fines, and holds, but stored preferences for specific sites and stored recent search strategies.

A few libraries are considering pushing information to users based on stored profiles. This information might include announcements of new books or events that may be of interest. Pushing helps librarians promote library use with an active approach.

Pushing is sending users information that has not specifically been sought in a search.

Customization

Read a useful description of the Kentucky Virtual Library portal project's customization of the user interface in "Assembling and Managing Virtual Libraries," *Library Technology Reports*, Sept./Oct. 2001 (vol. 37, no. 5), pp. 31-39.

Almost any library portal can be customized for a user or class of users. The most basic customization in a public library offers interfaces for advanced users, for adults, and for children. The interface choice can be made by the patron, or it can be encoded in the patron record. An excellent use of customization in a school library environment is to tailor the user interfaces to different grade levels.

Academic libraries sometimes customize the staff user interface by department because the needs of staff in acquisitions, circulation, and reference are different. They also may allow staff to customize their own user interfaces. At least one academic library offers customized patron user interfaces by broad disciplines such as social sciences, engineering, and humanities.

A few public libraries have sought to tier their portals, offering children's, basic, and advanced portal options. That division is accomplished not only by tailoring the screens to these three categories of users, but also by the choice of resources made available.

A patron can further choose to customize the portal, although that customization requires more time and skill than many people have. For libraries to undertake such customization for individual patrons would be a significant drain on staff time. For that reason, the customization tends to be limited to maintaining a file of preferred links and a recent search history.

Implementation

Libraries often implement only a few of a portal's components. The reasons for not pursuing a comprehensive implementation are many: cost, lack of staff resources, lack of familiarity with the portal's potential, and perceived needs of patrons. Content enhancement is the most widely adopted component, especially by public libraries seeking to provide book jacket images or reviews for trade titles and by academic libraries seeking to provide tables of contents for scholarly works.

User authentication also has been widely adopted because many online reference services do not allow access to their databases unless a library establishes that the patron is eligible. The single-search interface is becoming popular because patrons are often frustrated by having to search many different resources sequentially, typing the same search terms again and again.

The least widely implemented component is resource linking. Only two of the 17 portals accessed during the preparation of this report had activated this capability. Several more had staff developing lists of links that should be made available eventually.

Of the 17 contacted libraries that are using portals, all are limiting the scope of resources accessed through the portal. In most cases, only the library's catalog and its online subscription reference services are available. The library that offers the broadest scope also includes selected websites—including URLs to other libraries' patron access catalogs. None envisions facilitating access to the Web at large.

Of the 17 libraries contacted, the percentage offering access to each type of resource through a portal were:

Type of resource	Percentage
Local digitized collections	53
Other library catalogs	47
Virtual union catalog	47
Licensed databases	47
E-journals	47
E-books	35
Library-selected URLs	35
Local databases	29
E-reserves	23
Online course materials	18

The maximum number of links established by the libraries is usually fewer than 20.