

VIRTUAL LIBRARIES

A Service-Based Approach for Virtual Libraries

BY WILLIAM E. MOEN AND KATHLEEN R. MURRAY

Introduction

Much of the expectation surrounding the emerging 21st century library is based on the opportunities presented by enhanced access to information resources through the use of networked information technologies. Existing libraries are a product of an intersection and an interaction of people, resources, and procedures. Libraries are defined by a range of services developed for internal and external consumption. The provision of services to patrons and other users, including library staff, is built upon the collective personnel, information, and technological resources that constitute the library.

Library leaders and librarians are embracing the potential and practicality of virtual libraries to better serve patrons by providing access to a broader range of information than available locally and by supporting traditional resource sharing among libraries. The realization that the convergence of communications and computing technologies offers an opportunity for extending the reach and range of the traditional library is driving the acceptance of the virtual library concept.

The Internet, the Web, and digital collections provide a context for making the idea of a virtual library real. A pragmatic approach for designing virtual libraries is to focus on services rather than on technology. A service-based architecture for a virtual library is essential and provides the framework to accommodate both digital resources and the vast collections that will never be transformed into bits and bytes. Another reason to focus on services is to accommodate the broad range of people involved in the preparation, collection, organization, and use of information. A simple focus on providing faster access to more information generally has only the end user of the information in mind, whereas a service-based architecture can address the roles and responsibilities of the people who staff the virtual library as well as the people who use it.

A Service-Based Architecture

A service-based architecture for creating the emerging library is a logical starting point. Since the library, by its nature, is primarily a service institution, a service philosophy should also guide the virtual library. A library does not collect books and other materials for its own sake but to provide a service. Similarly, a library hires reference librarians to enable services for patrons.

The following are components to consider when thinking about a virtual library.

- Users
- Services
- Resources
- Technology
- Management
- Policy
- Funding

If services are the output of the virtual library, the other components should serve as infrastructure for the creation and delivery of services to users. Figure 1 shows the interaction of these components.

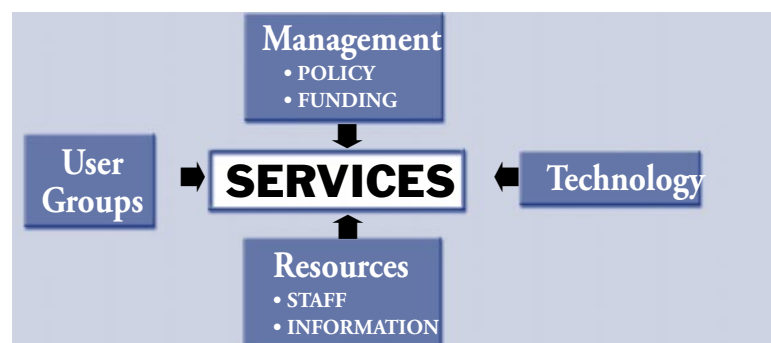


Figure 1: Components of a Virtual Library

User needs define and shape appropriate services, which are based on available resources, including people and information. Technology, in the form of many different tools, supports the delivery of services. Management identifies and prioritizes the services and establishes overall policy. Management also acquires and allocates the funding necessary for the services and the infrastructure needed for their delivery (e.g., resources, technology).

Defining a virtual library in terms of services helps to identify what the library is about. An intentional by-product of a service-based architecture is the identification of services as cost centers. Service creation incurs costs for the people, information, and technology necessary to deliver services to patrons.

A service-based architecture not only identifies components of the virtual library and indicates where funds need to be allocated, it also allows the development of service quality benchmarks. For any service, we need to indicate the goals and objectives of the service, and then propose performance metrics by which to assess the utility of a service and, ultimately, the value of the service to users.

To begin, there are at least two primary categories of services that can be identified.

- External or patron-oriented services
- Internal or foundation services

External services are usually highlighted because we are in the business of serving our patrons. Internal services are the behind-the-scenes services without which the patron-oriented services would be jeopardized. This article focuses on the patron-oriented services while acknowledging the important role that internal services play.

Virtual Library Services for Users

Generally, libraries serve many different user groups and, in the virtual library, this will be an even more important characteristic. In existing libraries, user groups are often defined by demographic characteristics such as affiliation (student or faculty), age (senior or youth), or geographic location (resident or non-resident). What defines a user of a virtual library? Demographic characteristics still play a major defining role, but the boundaries can be wider and more inclusive.

Focusing on services allows us to think about the types and levels of services we are going to provide to a variety of user groups. Defining the services for any group directs us to the technologies appropriate to those groups.

Services for a virtual library may mirror services offered in our traditional library, and one can assume that these existing library services (e.g., reference services and interlibrary loan services) will exist alongside virtual library services. One key characteristic of the virtual library services discussed below is that they are enabled through the use of the Internet and information technology.

Resource Discovery Service

A fascinating and powerful feature of the Web is the possibility of discovering information regardless of its physical location or format. Yet, discovering information relevant for a particular user at a particular moment is less than optimal in the Web. As a virtual library extends the reach and range of users across organizational, collection, and format boundaries, users face the same challenge they do with Web search engines: identifying relevant materials.

A resource discovery service provides users with a variety of tools and approaches for discovering the existence of appropriate resources. Typically, a user will search one or more repositories of metadata, full text, or images to identify and select resources. The specific features of this service depend on its functional requirements (e.g., types of searches and search criteria required). Three types of searchers are:

- **Single database searching:** In this case, users search a single database.
- **Broadcast searching:** In this case, users concurrently search two or more relatively similar databases. A prime example of this search service is the virtual catalog in which users select two or more library catalogs to search. Figure 2 illustrates this type of searching through the use of the Z39.50 Information Retrieval Protocol standard.
- **Integrative searching:** This is similar to broadcast searching but, instead of concurrently searching similar databases, searches go against databases whose content and structure are quite diverse (e.g., concurrently searching library catalogs and commercial online databases). The objective of this searching approach is to provide users with a coherent view of disparate resources.

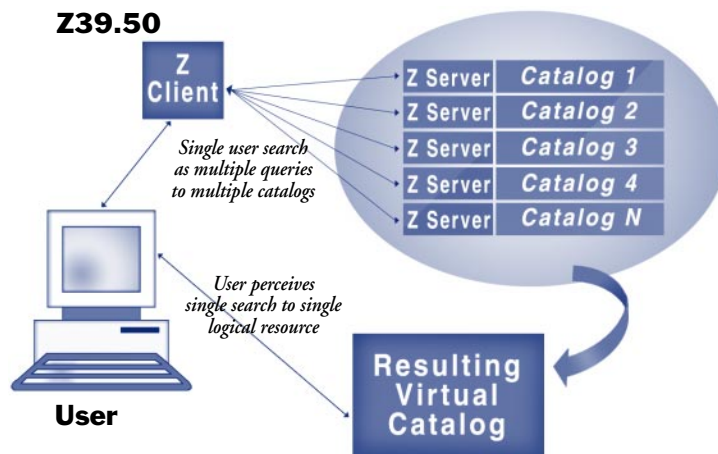


Figure 2: Broadcast Searching to Create a Virtual Catalog

Different resource discovery approaches require different levels of technology integration and system interoperability. For any approach, it is essential to ensure that users' expectations are not raised above a service's capability to deliver.

Access Service

Once a user has discovered resources, the access service addresses getting the information to the user. Print materials found in other libraries may be delivered through traditional interlibrary loan or document delivery services. Digital resources may be available with a click of the mouse. There will frequently be licensing agreements that necessitate authentication of a user from one library prior to allowing access to digital materials owned or controlled by another library.

To what extent will the access service be mediated and to what extent will the patron be in control of initiating access to the materials? Patrons could initiate their own interlibrary loan or document delivery by completing an online form. Additionally, billing and payment for accessing or acquiring resources (digital or analog) must be robust enough to handle the complexity of several billing and payment schemes.

Reference Service

The networked environment provides interesting opportunities for expanding typical library reference services. Already, libraries are deploying email and live chat reference services to supplement face-to-face services. Will a library provide online access to ready-reference materials for patron use (e.g., gazetteers, dictionaries, or almanacs)?

Both costs and the quality of service are important considerations for establishing reference service parameters. Users from other locales may be interested in using a virtual reference service offered by a distant library. With limited resources available for reference services, what is the priority of serving various user populations? The reference service addresses this area of the emerging library and provides a way to rethink reference services and the cost models associated with providing them.

For example, there have been many Ask-An-Expert services springing up in the networked environment. What role does the virtual library have in deploying such services? In a university setting that is filled with experts, does the emerging library offer a referral service to point the user with an information need to a local or international Ask-An-Expert service?

An interesting example developed by North Carolina State University is its "My Library" service. This service provides customized views of library resources relevant to a user's information interests and needs. It also provides contact information to a librarian that is available to the user. Dynamic and customized, this service heralds one future for reference services.

Instruction Service

Libraries traditionally have instructed patrons in the use of library tools and technologies. With the wealth of networked information available, what are the new responsibilities for libraries? The instruction service focuses on appropriate training and instruction activities to assist patrons. Clearly, patrons will need to know how to use the new and emerging technologies. But more importantly, they may need help in understanding what resources are available, their costs, and their authenticity. The emerging library can explore new modes of instructional service for patrons. One such service is just-in-time training, which delivers training at the time of need directly to the desktop.

Patron Account Service

This service area addresses a range of patron activities including accessing account information, ordering materials, paying for materials, and checking the status of materials. Patrons can determine if an item is checked out, on order, or in the delivery process. Patrons can access their account information through the network, use the service to order materials, or pay for resources.

Developing Virtual Library Services

The above list of services is illustrative and not comprehensive. These five services are intended to provide a point of departure for discussing what the virtual library might provide and what a suitable architecture for service provision would be. In a service-based architecture, the infrastructure is based on the requirements to support the services. Services are the starting point. An initial focus on services rather than on technology sets the stage for identifying requirements for the virtual library.

We begin the service creation process by identifying a set of services to meet the needs of one or more user groups (see Figure 3). The services determine the library resource requirements, including staff and information. Likewise, the requirements of the services drive the adoption of technology and standards in support of service deployment.

Based on the requirements derived from the virtual library's service-based architecture, one can begin to make informed technology decisions. What technologies need to be deployed to support the types and levels of services users require? Knowing that no technology is an island in the networked world, how do we achieve the interoperability of systems that is necessary to the emerging library of the 21st century? And what is the role of standards in assisting interoperability?

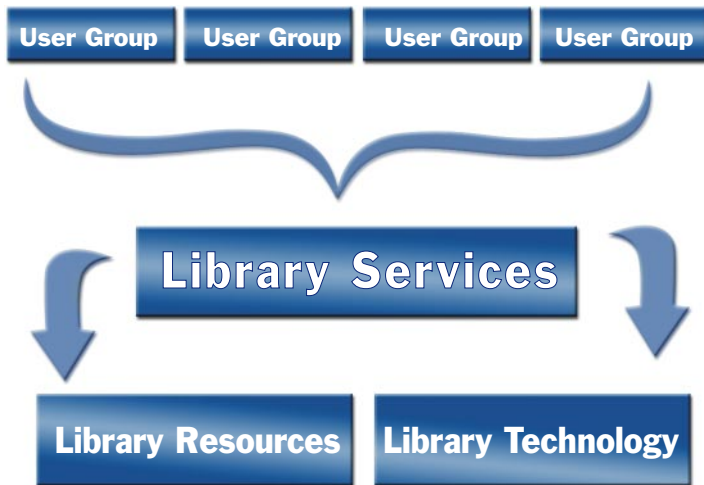


Figure 3: Users and Services as Drivers in the Library

Standards and Interoperability for the Virtual Library

While users provide the starting point in identifying services, management provides the environment for development and deployment of the services. The virtual library is almost by nature a focus for collaboration and the provision of collaborative services. Virtual library managers will be challenged by increasing requirements for inter-organizational cooperation and collaboration. As cross-organizational interaction and collaboration increase, new policy issues will emerge. One way to see how these new policy issues will emerge is to look at another major feature of virtual libraries, interoperability.

In the networked environment, there is a fundamental operating assumption: systems and organizations will interoperate. Unfortunately, this term interoperability is problematic at best. Definitions of interoperability reveal common themes: working together, exchanging information, interacting without special effort on the part of the user, or operating together effectively. (A more complete treatment of interoperability is available in Moen, 2000.)

Paul Miller (2000) of the UK Office of Library and Information Networking (UKOLN) offers an expansive treatment of interoperability. He begins by stating that,

one should actively be engaged in the ongoing process of ensuring that the systems, procedures and culture of an organisation are managed in such a way as to maximise opportunities for exchange and re-use of information, whether internally or externally.

Usually, the concept of interoperability is focused on technical interoperability between information systems. For example, a systems-centric definition of interoperability might be: the ability of two or more systems or components to exchange information and use the exchanged information without special effort on the part or either system.

In a service-based virtual library, a focus on users should inform the concept of interoperability, as in the following: the user's ability to successfully search and retrieve information from two or more systems in a meaningful way and with confidence in the results. This perspective is both more appealing and more challenging in the context of a service-based architecture for the virtual library.

Even if our virtual library appears to provide interoperability among a variety of systems, users may find that organizational interoperability may be less than optimal. Searchers can reach out to many different online catalogs or other online databases to find resources. However, if the virtual library does not provide effective patron-oriented access services for users to acquire materials, users may determine that there is not adequate organizational interoperability. Needless to say, technical interoperability raises many new policy and organizational questions. For example, the fact that systems can interoperate does not mean organizations want their systems and the information residing on those systems to be accessible to everyone with a Web browser.

The implementation of standards such as Z39.50 enables interoperability among systems. But, implementing such technologies and offering services based on the interoperable systems requires a clear understanding of the information access and use issues interoperability implies.

Library managers need to address the policy implications of opening or constraining the information access and use that technical interoperability enables. The best time to begin

formulating policies for organizational interoperability is now while we continue to address the tough problems of technical interoperability.

Conclusion:

Building the Virtual Library

Defining a problem is often the first constructive step in solving it. In the case of virtual libraries, a set of well-defined services that respond to users' needs may be an excellent point of departure for building virtual libraries for the 21st century.

Collaboration among libraries has always been manifested in resource sharing programs. Opportunities for resource sharing increase with a virtual library as the reach of librarians and users extend to a broader and more comprehensive range of resources. Many different groups can benefit from a virtual library, and the challenge is to ensure that the various groups have opportunities to participate in the design, development, deployment, and governance of the virtual library. Indeed, the virtual library offers a new context for taking traditional library collaboration forward.

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Designing and Demonstrating a Resource Discovery Service for the Library of Texas

VIRTUAL LIBRARIES

BY WILLIAM E. MOEN AND KATHLEEN R. MURRAY

A Library of Texas – The Vision

Imagine library users seamlessly accessing information from diverse libraries and resources, including both print and electronic sources. A project of the Texas State Library and Archives Commission (TSLAC) and the Telecommunications Infrastructure Fund (TIF) Board, the Library of Texas (LOT) was conceived as a mechanism for bringing the resources of Texas libraries to all Texans and expanding library services through the development and integration of new technologies.

The Library of Texas is envisioned as a service-based virtual library that will enable Texans to search an extensive array of resources, including Texas library catalogs, electronic databases licensed by the TSLAC for statewide use, the TRAIL database, and possibly special collections and treasures held in Texas libraries.

The LOT initiative covers four basic components:

1. Indexing and preserving electronic government documents;
2. Providing a statewide resource discovery service;
3. Training librarians on electronic resources; and
4. Continuing to offer a wide selection of TexShare databases.

Resource Discovery Service

A key service to be provided by the LOT is a common search and retrieval interface to assist users in discovering information through an amalgamation of library tools. This article focuses on the first stage of development of the resource discovery service—the identification and definition of its functional requirements.

The Texas Center for Digital Knowledge (TxCDK) at the University of North Texas is working on a project to support the planning and implementation of a virtual catalog and search and retrieval interface (described

below), which will form the basis of the resource discovery service for the Library of Texas.

- **Virtual catalog:** Texans will be able to search across multiple library catalogs from a single interface and identify library resources without regard to geographical location of either the searcher or the resources.
- **Integrating search and retrieval interface:** From a single interface, Texans will be able to easily search diverse resources, thus integrating access to library catalogs, the TexShare online databases, and other resources.

TxCDK's project with the state library is called "Z Texas Implementation Component for the Library of Texas," or ZLOT (www.unt.edu/zlot). The resource discovery service will utilize the ANSI/NISO Z39.50 information retrieval protocol and build upon the work of the Texas Z39.50 Implementors Group and its Z39.50 specifications.

A Virtual Library for Texas

The adjective "virtual" is applied to so many things that it is important to clarify its use in the context of the LOT and ZLOT. One important feature of the LOT is that it expands the range of resources available to individual Texans by increasing their reach. In this respect, using the term virtual is similar to its use when talking about a computer's "virtual memory." Richard Wiggins noted, "virtual memory allows the user of a computer to pretend the machine has far more memory than is physically installed." In this sense, a virtual library provides the user with a sense of access to information that extends far beyond the resources housed within a single library's physical collection.

Extending the reach and range of a user appears to be a focal feature of the emerging 21st century library. The term virtual can imply ephemeral or a sense of not really being there, but this emerging library will be a tangible

entity, with fixed media collections alongside digital collections and robust online search and retrieval services.

Virtual libraries, almost by definition, imply collaboration among resource providers and service providers. The LOT can be viewed as a broker to Texas libraries and their resources as well as a provider of resources (e.g., the TexShare databases, TRAIL, etc.) procured by the TSLAC for statewide use.

The primary responsibility of the ZLOT Project is the design and development of a resource discovery service that will provide users with a variety of tools and approaches for discovering the existence of appropriate library resources.

The Big Picture

The ZLOT Project is concerned with identifying requirements for a standards-based virtual catalog and a common search and retrieval interface for the LOT resource discovery service. Figure 1 shows what this service should look like. The LOT content or resource collections are listed on the top left side of the figure. The bibliographic representation of these resources in databases and indexes is depicted below the resource collections.

Information retrieval systems, which include library automation systems, define, search, retrieve, and manage resource collections and databases. When two or more online catalogs representing the collections of two or more libraries are searched concurrently, these catalogs are considered a single “virtual catalog” for the duration of the search and retrieval session.

On the right side of Figure 1, a user is shown interacting with the LOT search and retrieval interface to select content from the Library of Texas. The term “broadcast search” refers to searching more than one collection of either similar or different types of resources (e.g., searching two online public access catalogs with one query or searching a TexShare database and an OPAC with one query). The LOT presents a common search and retrieval interface no matter the resources being searched and presents results in a common format.

The third functional component of the LOT resource discovery service is the middleware. Middleware interconnects the search and retrieval interface with the database search and retrieval software resident on an information retrieval system such as a library automation system.

Developing the Requirements

To support the development of the virtual catalog and the search and retrieval interface components of the LOT resource discovery service, the ZLOT project staff conducted four focus group sessions in February and March of 2002. The 38 focus group participants were selected from stakeholder groups representing a spectrum of potential users of the LOT. The stakeholder groups included public libraries, academic libraries, medical libraries, the Texas regional library systems, and the Texas State Library and Archives Commission.

All participants in the focus groups were library and information professionals from Texas, including

Figure 1
Functional Architecture for the Resource Discovery Service of the Library of Texas

Content or Resource Collections

1. TexShare Databases
2. E-books
3. Electronic Archive of Government Information
4. Statewide Virtual Catalog

Representations of Resources

1. Proprietary Records
2. Indices of Full-text Files
3. Dublin Core Metadata Records
4. MARC Records



Middleware

1. Translates Searches
2. Formats Retrievals
3. Interacts with Multiple IR Systems

LOT Search & Retrieval Interface

1. Broadcast Searching
 - a. Similar Resources
 - b. Dissimilar Resources
2. Common Retrieval Display



reference librarians in small public libraries, library directors in large academic libraries, interlibrary loan service specialists, and an executive director of a medical research library. The vast majority of participants had extensive experience in the field of library and information science. Many are directors and administrators of their libraries and hold leadership positions in TexShare working groups and other statewide library programs. A list of the focus group participants is available on the ZLOT project website at www.unt.edu/zlot/fr_index.htm.

An initial set of draft requirements for the resource discovery service was derived from the needs and expectations discussed in the focus groups. The ZLOT Advisory Group, which consists of more than 25 library professionals from LOT stakeholder groups throughout Texas, reviewed and discussed the draft requirements. A list of advisory group members is available on the ZLOT project website at www.unt.edu/zlot/zlotag/zlotag_members_28jan02.htm. ZLOT staff refined the functional requirements to reflect the changes discussed by the ZLOT Advisory Group. The result was a list of 53 functional requirements related to the virtual catalog and the search and retrieval interface.

The next step in developing the requirements involved the ZLOT Advisory Group in a process to prioritize the requirements into three levels:

- Priority 1: Library catalogs and search and retrieval interfaces **must** meet these requirements.
- Priority 2: Library catalogs and search and retrieval interfaces **should** meet these requirements.
- Priority 3: It would be **nice** if library catalogs and search and retrieval interfaces met these requirements.

In all, 22 requirements were rated as Priority 1 requirements, 27 as Priority 2, and 4 as Priority 3.

The ZLOT project views the process of defining the requirements as of equal importance to the specific requirements themselves. The iterative process used to identify, clarify, and prioritize the requirements enabled a wide range of librarians to be involved and to help shape the emerging resource discovery service.

Requirements

The 53 functional requirements for the virtual catalog and the search and retrieval interface provide a starting point for the LOT resource discovery service. A full description of the specific requirements are available in the document, "Functional Requirements for the Library of Texas Resource Discovery Service" (June 30, 2002)

available on the ZLOT project website at www.unt.edu/zlot/fr_index.htm.

Virtual Catalog

Multiple online catalogs may be searched using the resource discovery service. To improve the effectiveness of searches and the utility of results, there is a need to provide common search capabilities across library catalogs and to use technical standards to improve interoperability. Table 1 presents the functional requirements for Texas libraries to be represented in the LOT virtual catalog. Since the Library of Texas will use standards as a basis for interoperability among systems, use of specific standards (e.g., Z39.50) is implied but not specifically stated.

Table 1
Requirements for Library Catalogs in the Library of Texas

Priority 1 Requirements	Priority 2 Requirements
<ul style="list-style-type: none"> • Recognize and respond to basic keyword search criteria with accurate results • Provide bibliographic records in standard format for retrieval 	<ul style="list-style-type: none"> • Recognize and respond to enhanced search criteria with accurate results • Recognize and respond to advanced search criteria with accurate results • Recognize and respond to availability criteria in search queries • Provide access to indexes for browsing

TABLE 1

Search and Retrieval Interface

Another important aspect to the resource discovery service is the creation of a common user interface to search and retrieve across different online catalogs and other databases. A common interface to these resources will minimize user training, since users will only need to learn one interface rather than separate interfaces for different online resources.

The search and retrieval interface of the Library of Texas should present a common look and feel to its users. An intuitive, Web-based, simple-to-use interface is imperative for the success of the LOT. Overall, the interface should be non-cluttered in style, employing simple button functionality wherever possible. It must be easy to learn and require minimal computer and information literacy skills. Finally, it must be technically reliable.

Table 2 lists requirements that are common to both the search and the retrieval aspects of the interface. Table 3 presents requirements specific to the user interface for searching, and Table 4 presents the requirements for presenting search results to users.

**Table 2
Common Requirements for Search and Retrieval Interface**

Priority 1 Requirements	Priority 2 Requirements	Priority 3 Requirements
<ul style="list-style-type: none"> • Present a consistent user experience • Enable independence of the interface from resources • Allow users to select a system's native interface • Authenticate users • Allow users to search only those resource collections from which they have the right to obtain the resources • Keep user logins to a minimum • Collect usage statistics • Provide technical and operational support • Meet accessibility standards 	<ul style="list-style-type: none"> • Allow libraries to offer patrons access to a statewide common LOT interface and/or a locally customized version of the common LOT interface • Link to local library websites • Support local customization • Interact with profiles of participating libraries • Describe the available resource collections • Describe the journals in the TexShare databases • Support user-selectable language interfaces 	<ul style="list-style-type: none"> • Allow users to create default user profiles <p style="text-align: center; font-size: 2em; font-weight: bold;">TABLE 2</p>

**Table 3
Requirements for the User Interface for Searching**

Priority 1 Requirements	Priority 2 Requirements	Priority 3 Requirements
<ul style="list-style-type: none"> • Provide simple keyword search functionality • Provide basic search functionality that includes the following search criteria: <ul style="list-style-type: none"> - Author Keyword - Title Keyword - Subject Keyword - General Keyword • Allow concurrent searching of multiple online catalogs • Allow concurrent searching of multiple TexShare databases • Group online catalogs by geographic proximity • Limit searches to local resources 	<ul style="list-style-type: none"> • Provide advanced search functionality that includes: <ul style="list-style-type: none"> - Boolean logic - Truncation - Exact match - First word search - First character search - Limiting results to full-text - Search history - Combined searches - ISBN - OCLC number • Allow refinement of searches with qualifiers <ul style="list-style-type: none"> - Format (e.g., book or video) - Language - Geographic proximity - Date of publication - Date ranges - Type of material (e.g., digital or analog) - Cost (e.g., free or fee) - Owner - Availability • Allow concurrent searching of diverse LOT resource collection types • Allow concurrent searching of diverse LOT resource collection types as well as the web • Group resource collections by subject • Group online catalogs by type of library • Allow customized presentation of resource collections at the local library level • Allow local libraries to select a default group of catalogs for searches • Allow users to specify a critical time sensitivity for their information need • Support searches of special collections • Allow users to browse catalogs 	<ul style="list-style-type: none"> • Support queries in Spanish • Allow the resource collections of non-Texas libraries to be included <p style="text-align: center; font-size: 2em; font-weight: bold;">TABLE 3</p>

Table 4
Requirements for the User Interface for Presenting Search Results

Priority 1 Requirements	Priority 2 Requirements	Priority 3 Requirements
<ul style="list-style-type: none"> • Include the following data elements in retrieved results: <ul style="list-style-type: none"> - Author - Subject - Title o Keywords - Format (e.g., book or video) - Language - Geographic proximity - Date of publication - Type of material (e.g., digital or analog) - Cost (e.g., free or fee) - Owner - Standard identifier - Availability • Indicate resource availability in terms of: <ul style="list-style-type: none"> - Physical location - Copyright information - Circulation status - Circulation policy - Reservation - Delivery options - Time interval for delivery • Link to resources directly from search results • Alert users of local availability of resources • Allow users to document search results 	<ul style="list-style-type: none"> • Group results according to type and format of resource • Group results according to user selectable criteria • Initiate a search of online catalogs for journal titles in search results • Initiate a borrowing request directly from search results • Provide a follow-on search to discover similar resources 	<p>TABLE 4</p>

From Theory to Practice

Arriving at a set of requirements is an important first step in designing the LOT resource discovery service. The next step is to evaluate the feasibility of these requirements and ultimately assess the value of the requirements for librarians and library users.

Many integrated library system vendors and other technology companies are developing products to create and deploy virtual libraries. The ZLOT project is examining the extent to which the current library technology marketplace is able to address the LOT resource discovery service requirements. To make this assessment, the ZLOT project is conducting a proof of concept demonstration. This promises to be an innovative approach to assessing the feasibility that the requirements can be met by products and services readily available in the library technology marketplace.

During the proof of concept demonstrations, the TxCDK will work with the TSLAC to create a small-scale feasibility demonstration of the LOT resource discovery service. The demonstration will include:

- a virtual catalog involving 20 to 30 online library catalogs interconnected via Z39.50, and
- an integrating search and retrieval interface that provides single search capability across two or more online library catalogs and two or more TSLAC licensed online databases.

In early July, a formal call for vendor participation was issued. For details on the proof of concept demonstration, see www.unt.edu/zlot/POC/poc_index.htm. A total of 11 vendors submitted letters of intent to participate. The vendors' task is to develop prototypes that address the requirements and to make them available for an assessment period. The focus of this assessment is on the current or near-term capability of the library technology marketplace to meet the functional requirements.

TxCDK will report the results of the proof of concept demonstration to the TSLAC. These results and other information generated through the ZLOT Project will enable the TSLAC to choose a path for

full-scale development of the LOT resource discovery service. The proof of concept demonstrations should provide the TSLAC, Texas librarians, and the TIF Board a highly visible demonstration of the reality of LOT and its potential for the citizens of Texas.

Building the Library of Texas

Following the proof of concept demonstrations, the ZLOT project will develop an architectural design for the LOT resource discovery service. This architecture will serve as a blueprint for building a service that addresses the requirements of a range of Texas libraries and Texas citizens for distributed access to LOT resources. Additionally, the architecture will be informed by the knowledge of available vendor products and services gained in the proof of concept demonstrations. As the ZLOT project completes the first phase of its work in December of 2002, the TSLAC will be in a position to decide on the implementation of the resource discovery service in accord with available resources in 2003.

Libraries wishing to participate in the LOT are encouraged to become familiar with the functional requirements outlined in this article and to keep abreast of the outcomes of the ZLOT proof of concept demonstrations this fall. Once the architectural design is complete, libraries will be able to identify how they can best participate in the LOT's resource discovery service. There will be opportunities for libraries to allow access to their catalogs and their collections either from an application hosted by the library or a shared application hosted by the LOT on a centralized resource discovery server.

Information regarding the ZLOT Project is available at www.unt.edu/zlot and information regarding the LOT is available at www.tsl.state.tx.us/lot. Comments and questions concerning the ZLOT Project can be directed to either Bill Moen (wemoen@unt.edu) or Kathleen Murray (krm0028@unt.edu). ★

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