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Communications

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In January 2002, the University of Iowa Libraries introduced its link server—linking related content from one information provider to another—using Ex Libris SFX software. Three basic services appeared on day 1 of the link server's implementation: (1) citation reference linking to full-text electronic journal articles; (2) linking to holdings in the local catalog; and (3) persistent linking to an electronic reference service. The system is now integrated with more than seventy-five licensed databases and includes links to more than 16,000 full-text journal subscriptions. New developments beyond citation reference linking include links to Journal Citation Reports, Ulrichsweb, and interlibrary loan. This article describes the planning and initial implementation process of the SFX server.

By providing library patrons with the ability to link easily from citation to full text, link servers hold the promise of improving the integration of electronic information sources and are quickly becoming a mainstream service in academic libraries throughout the country. Many libraries are now in the evaluation stage or have already selected a link server product and are moving to the implementation stage. The University of Iowa Libraries (UIL) introduced its link server, which uses Ex Libris SFX software, in January 2002. This article describes the planning and initial implementation process at UIL, and identifies a number of phase 2 services currently in development.

Put briefly, link servers provide libraries with the ability to link from one electronic resource to another. In its simplest application, a link server can provide citation reference linking—the ability to link from a citation, typically in an abstract and index database, to the full-text article. While a variety of licensed databases have embedded citation reference linking, they typically assume a one-to-one relationship between source and target. In reality, multiple copies of electronic journal articles often exist, and the most appropriate copy often depends on the location or affiliation of the library user. As Beit-Arie et al. note, "The 'appropriate copy' problem, then, is essentially the issue of where and how to insert localization into the linking process."[1] Libraries are thus motivated to install and configure their own link servers to address the issue of appropriate copy for their clientele.

Pre-Implementation

UIL started to investigate link server technology in fall 2000. Having recently implemented Ex Libris's integrated library system, Aleph, they were aware of Ex Libris's acquisition of the SFX technology initially developed by Herbert Van de Sompel at the University of Ghent.[2] In September 2000, UIL had their first demonstration of SFX (and MetaLib, Ex Libris's federated search and library portal product). UIL closely followed the development of SFX through its beta testing and were poised to be an early implementer by the following fall.

The decision to use SFX was simple. At the time of UIL's implementation, it was the only deliverable product on the market. Most link servers today, including SFX, SIRSI's OpenURL Resolver, Endeavor's LinkFinder Plus, and 1Cat, rely on OpenURL architecture.[3] SFX not only was built upon the OpenURL framework, it was actually the technology for which OpenURL was originally defined.[4] This was the deciding factor for UIL, as the development of OpenURL was seen as an example of Ex Libris's commitment to open standards and transparent technology.

In summer 2001, UIL reached a critical point in managing their electronic resources. Information about UIL's licensed resources existed in a variety of locations, some more hidden than others. For some products, the library catalog had the most accurate and complete information. For other products, the locally developed gateway database was the most authoritative resource. In a few situations, the only access to a product was squirreled away on branch library Web pages or in other elusive places. UIL decided to clean house before beginning the link-server implementation.

UIL formed an implementation team whose first task was to collect all product data together in one location. They wanted to make sure that when the link server went live, the database was as complete as possible. In retrospect, this was not a necessary step. Following the 80/20 rule, UIL could have proceeded with configuring and implementing the link server with the data they already had on the assumption that it accounted for 80 percent of library resources.

The implementation team consisted of ten library staff: a project leader, an applications support person (who administers the server application), an electronic resources technical services librarian, and seven public services staff representing the reference, government documents, chemistry, business, health sciences, and law libraries.

Implementation was a part-time effort over a period of approximately three months. The SFX software has matured since UIL's implementation with a considerably improved ease of administration. With a concerted effort, the link server would now

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take only a fraction of the time to implement.

UIL's public services librarians were instrumental in identifying priority sources and targets, and, in particular, determining which linking services would be required for day 1 implementation. UIL decided they would begin with three basic services: (1) citation reference linking to full-text electronic journal articles; (2) linking to holdings in the local catalog; and (3) persistent linking to an electronic reference service titled *Ask a Librarian*. In addition, UIL would provide a persistent link to a set of frequently asked questions.

UIL also decided to do most of their testing in the public arena. The nature of citation reference linking is that the link—or SFX button—appears in UIL's licensed periodical databases. As a result, libraries must rely on database providers to provide a mechanism for OpenURL—enabling their users' access. Many vendors now allow libraries to activate OpenURL through a Web-based administrative interface. At the time of UIL's implementation, however, most vendors were new to OpenURL and there generally was no systematic process for activating their resources. In nearly every situation, UIL decided to activate all of the vendor's databases for all users at the point of first contact (rather than identifying certain databases or certain workstations for testing). The public testing was not problematic, and UIL continues to follow this model when activating new databases.

Moving into Production

After UIL identified the three basic services for day 1 implementation, they then prioritized getting as many targets, or electronic journal titles, activated as possible before activating the source databases. This strategy maximizes the chance that users will find a service of interest when they click on the SFX button.

Before activating new sources, UIL continues to make every effort to ensure that a preponderance of buttons will result in services of interest to the user.

Beyond simply identifying sources, targets, and services, the implementation team faced several decisions. An early important decision was what to name the service. Many libraries were simply calling their service "SFX," but the team decided against that for a few reasons. First, they wanted to distinguish the service from the underlying software that drives the services; UIL had very few services that were named after the software applications used to run them. Second, names of software products change, and UIL did not want to be faced with a name change decision in the event that Ex Libris should decide to market their software differently. Finally, the team decided that the name "SFX" had no inherent meaning for our users. UIL named the service "InfoLink," which suggests the element of linking and complements their library system titled "InfoHawk."

In January 2002, UIL officially went live with the InfoLink service but with no publicity. Over the next several weeks, UIL made some minor tweaks to the configuration and continued to activate new sources and targets. Then in March 2002, UIL began a publicity campaign. Word spread quickly, and the InfoLink service is now widely recognized by students and faculty and has become one of the most important and well-received new services that the library has implemented in recent years.

UIL has also taken advantage of the SFX database to provide direct access to electronic journals outside of citations. SFX's export tool creates an alphabetical list of electronic journals, something that users find desirable regardless of how lengthy the list becomes. UIL also provides a service that allows users to enter citation information into a blank form in order to generate OpenURLs and

deep link directly to the article level from a known citation.

Beyond Full Text

While promoting the ability to go directly to the full-text article, UIL has been careful not to cast InfoLink too narrowly. Citation reference linking certainly is the bread-and-butter of a link server; however, there is potential far beyond linking to full text. Linking servers provide libraries with the ability to offer many other value-added services that they consider relevant for their users. According to Walker, "Linking from metadata—a full citation or a single identifier—should be to a wide range of services, and all kinds of links between electronic scholarly information resources should take into account the context of the user."[5]

This philosophical approach has impacted several of UIL's local configuration decisions. First, the words "text" or "full text" were intentionally avoided in naming the InfoLink service. In addition, UIL chose not to implement direct-linking functionality that bypasses the SFX menu screen because of the desire to add other value-added links and related services beyond simply viewing full text. UIL has also not suppressed any full-text targets. For example, SFX can be configured to suppress links to an aggregator's version of an article when the publisher's version is also available. Similarly, links to publishers who do not support article-level deep linking can be suppressed in favor of those who do. Infolink also provides recursive linking—if a user clicks on the UIL SFX button inside an aggregator's database, the button will link right back to that same aggregator. All of these are locally configurable options. UIL's approach has been to provide as many links as are relevant and guide users through annotations rather than making the assumption that the only goal is to get to the full text.

With this approach in mind, UIL is now working on a number of phase 2 services beyond full text. These services include:

- Linking to a journal's impact factor in ISI's Journal Citation Reports
- Linking to a journal's directory information in Ulrichsweb
- Initiating author searches in a variety of databases, including the local catalog, Web of Science, and numerous periodical abstracting and indexing databases
- Searching for cited references in Web of Science
- Linking to Books in Print and book review services

Furthermore, the SFX link server now is an integral part of UIL's interlibrary loan services. At present, interlibrary loan staff regularly use SFX to check if an item can be found online or in local holdings prior to initiating an interlibrary loan. UIL will soon integrate SFX automatically into their interlibrary loan request form by combining the interlibrary loan form with the SFX citation linker. After a user enters whatever bibliographic data is at hand, the SFX server will first look to see if the full text is available electronically. If not, the SFX server will then look to see if the item is in the local catalog. If that search also fails, the user may then proceed to the next step of the interlibrary loan process. As a result, interlibrary loan requests for items already held locally, either electronic or in print, will be weeded out before they even make it to the interlibrary loan office. The entire process happens in just a few seconds.

Finally, UIL now is experimenting with a variety of mechanisms for using SFX as a backend to help faculty create links to full-text articles in their course reading lists. The library works closely with faculty in the development of resource lists for courses, and we want to provide an easy mechanism for faculty who use UIL's TWIST course Web server, or the WebCT and Blackboard servers, to guide students directly to full-text resources available electronically.

UIL also actively participates in the SFX/MetaLib Users Group (SMUG), a self-governed users group of which the University of Iowa is a founding member. SMUG provides an opportunity for resource sharing, especially for locally developed sources and targets and for niche databases. The group also acts as a sounding board for Ex Libris developers and identifies those areas of primary concern for customers at large. Most importantly, however, SMUG is a collection of unabashed OpenURL advocates, and a key effort of the group has been to promote OpenURL implementation with vendors, benefiting the entire link server user community. SMUG has watched OpenURL blossom and can offer information providers details about best practices for their OpenURL implementation. In particular, vendors who permit customers as much local customization as possible tend to be the most effective implementers of OpenURL. A particular stumbling block in some implementations is the vendor's inability to allow the customer to use its own customized icon and link text. The user's group experience with many vendors is that each customer is being told the same story that they are the only customer voicing concern with that vendor's implementation. As the OpenURL user community grows, information providers will be driven to better implement OpenURL in their environments, and the users group community will become an effective medium for passing along concerns of collective interest.

In the past year, link-server implementations have grown dramatically. In one year, UIL's local link-server implementation has matured into a service that has become invaluable to its students and faculty. More than seventy-five of UIL's licensed databases are now OpenURL-enabled, with links to more than 16,000 full-text journal subscriptions. Link servers provide libraries with a rare opportunity to leverage their access to Web-based materials while keeping local control over how the materials are presented and which links are most relevant to their users, proving to be important components in any integrated library system.

References

1. Oren Beit-Arie et al., "Linking to the Appropriate Copy," *D-Lib Magazine* 7, no. 9 (2001). Accessed Aug. 24, 2003, www.dlib.org.

2. Herbert Van de Sompel and Oren Beit-Arie, "Open Linking in the Scholarly Information Environment Using the OpenURL Framework," *D-Lib Magazine* 7, no. 3 (2001). Accessed Aug. 24, 2003, www.dlib.org.

3. Maria D. D. Collins and Christine L. Ferguson, "Context-Sensitive Linking: It's a Small World After All," *Serials Review* 28, no. 4 (2002): 267–82.

4. Oren Beit-Arie et al., "Linking to the Appropriate Copy."

5. Jenny Walker, "Open Linking for Libraries: The OpenURL Framework," *New Library World* 102, no. 1163/1164 (2001): 127–33.

A History of Web Portals and Their Development in Libraries

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This article studies the history of Web portals widely used in business-to-business and business-to-consumer Web applications

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