

WebBridge in a Consortial Environment: The Western North Carolina Library Network Experience

I. Introduction.

Implementing WebBridge in any library is a challenging task. WebBridge is a powerful but complex piece of software in its own right. This complexity is compounded by its interoperability with many other pieces of software, other online systems, and various industry standards. A fully functional WebBridge system must not only be installed and configured properly on its resident server, but it must also be linked properly to the library opac, to remote indexes and abstracts, to full text targets, and those remote targets must in turn be properly linked back to the resolution server in order for the magic of context-sensitive linking to happen. All this must be based on a considerable knowledge base consisting of a set of origins, rules, data tests, resource definitions, and a set of coverage files which may be of considerable size and complexity, and whose acquisition into the knowledge base can be another challenge. Yes, implementing WebBridge for a single library can be a challenge; implementing it in a library network of several libraries, with different users, different resources, different needs, and perhaps different decision processes can be downright daunting.

In this presentation, we talk about how this daunting challenge has been met in the Western North Carolina Library Network. Specifically we have five objectives: (1) to outline the special problems faced by consortia in implementing the WebBridge product, (2) to describe the procedures and the decision-making process we used in WNCLN to deal with these special problems, (3) to discuss the features currently available in WebBridge to deal with consortial issues, (4) to make some recommendations for WebBridge enhancements that would facilitate the use of the product in a consortial environment, and finally (5) to make some general recommendations on WebBridge that would enhance its power and utility for librarians and the general public in both single library and consortial environments.

II. Background on WNCLN.

Let's begin with just a few words about who we are as a network and the library environment that we have developed. The Western North Carolina Library Network began in 1984 with a decision among Appalachian State University, the University of North Carolina at Asheville, and Western Carolina University to cooperate in the purchase of an integrated online library system. We purchased OCLC's LS2000 system at that time, which we shared as an online circulation system and library catalog, and from there developed a whole train of cooperative ventures. Foremost among these are a robust document delivery system among the three libraries that delivers not only books but also bound and microform periodicals upon request; cooperative collection development practices for both monographs and serials; consortial purchase of electronic databases and e-journal packages; and cooperative efforts in developing

locally created digital collections. Along the way, we cooperated in the purchase of a new ILS--Innopac in 1994, and again in upgrading Innopac to Millennium in various phases from 2000 to the present. We have always run our Innopac with the default as a single union catalog of all WNCLN resources, although of course limiting to a specific library by location is available to the user as well. [SHOW CATALOG]

Our Innopac (or Millennium) system is quite a large one altogether. Among the three of us, we have well over a million bibliographic records, over two million item records, and three separate acquisitions and serial control systems. We manage nearly 5,000 current print periodical subscriptions, and have access to around 15,000 electronic journals through our e-journal subscriptions and aggregator services. Most of our aggregator titles are available to us through a statewide program called NCLIVE. We maintain links to all e-journal titles through the library catalog as well as through our WebBridge resolution server. We have configured WebBridge for both in-out and out-in linking, i.e. we link from bibliographic records in the catalog to related resources on the Internet through context-sensitive links based on subject (actually Library of Congress classification in most cases) in the bibliographic records, and we use WebBridge as our library link resolver from a host of external indexes and full-text databases to other full-text databases to which we have access. We do not currently use the Article Finder part of WebBridge, but plans are under way to make this available on our web site as a convenient way of linking to full-text for known articles where a citation is in hand.

III. Task Force Planning for WebBridge Implementation.

When we purchased WebBridge, we knew from the information provided by Innovative and from demos of the product that implementation would be a considerable task. Our first question was, who should assume this task? WNCLN has a governance structure in place with standing committees charged to deal with collection development, patron services issues, technical service database issues, and various aspects of managing the ILS, but it was clear that WebBridge spanned across the traditional functions of these committees. A task force to deal with WebBridge implementation was clearly in order, with representatives from our existing collections, patrons services, technical services, and technology committees to be involved. This task force was officially formed in the last months of 2003 and quickly set about its work.

With a large project like this, a tried and true strategy, of course, is to divide and conquer. Accordingly the first task was to divide the project into logical parts that could be worked on simultaneously as far as possible, and that would allow subgroups of the task force to apply their particular expertise toward solution of the problems. Four subgroups were formed. These were: (1) the linking group, (2) the data group, (3) the configuration group, and (4) the public display group.

The function of these subgroups is broadly defined by their names. The linking group was formed mainly from our collection development and reference librarians within the network, and its task was first to determine the resources that our WebBridge could and should link to, and secondly to identify the linking syntax required for these

different targets. In the case of WNCLN, this turned out to be a considerable task indeed. One of the special challenges of implementing WebBridge in a consortium is that the target resources are of course the collection of the targets of all the libraries involved rather than those of a single library (more about this later). Taken together these can amount to a large number. Following our “divide and conquer” strategy, it was decided that the way to go about establishing links and associated information for these targets would be to divide them into four classes: a common list held by two or more of the libraries, and then unique lists held by the libraries separately. Each library would be responsible for contacting vendors and collecting as much information as possible about its unique target databases. The common list was divided up among members of the group based mainly on familiarity with the database and the vendor. Fortunately for us this common list was the largest of the four lists, since all of us share access to many databases through our statewide NCLIVE cooperative. Our task would have been significantly greater had it not been for this existing statewide cooperative which meant that many of our core databases were common not only in title but also in access from the same vendor. The final product of the linking group’s work was to be a report consisting of the following information for each potential target: (a) Title of database, (b) name of Provider or Vendor, (c) indication of the WNCLN libraries with authorized access, (d) contact person for the database, (e) phone number of support or contact person for the database, (f) code for OpenURL compliance, (g) SID for the database, (h) link syntax for article level linking to the database, (i) link syntax for title level linking to the database, (j) link syntax for subject searching of the database, (k) proxy server information, (l) notes on special connection requirements.

The task of the second subgroup--the data group--was to determine the most efficacious way to obtain and load holdings data for our full-text resources. This group consisted mainly of the serials librarians from our three network libraries, who are of course most familiar with the complexities of serials holdings information. WebBridge as a link resolver requires a knowledge base of titles with associated holdings in order to know when to post a link for a specific article located in an indexing or abstracting service search. These titles and holdings ranges are loaded into the aptly named coverage files. Prior to our purchase of WebBridge, we had for several years been obtaining holdings or coverage data from SerialsSolutions in order to create links in our catalog records for full-text journals. With the purchase of WebBridge, it was agreed to review this arrangement. The data subgroup considered several alternatives: (a) continue to receive coverage data from SerialsSolutions, (b) contract with another vendor (Ebsco) for coverage data, and (c) harvest this data ourselves from vendor sites. For a variety of reasons, which we do not need to go into detail about here, we decided to contract with Ebsco for our coverage data. From Ebsco we would be able to obtain coverage data for most of our e-journals, as well as complete MARC records for periodical titles included in various e-journal packages that could be loaded into our catalog similar to what we had been doing with the SerialsSolutions data. It was the task of this data group to not only identify the source of these records and holdings data, but also to figure out the most efficient methods for importing this data into the coverage files and into the catalog.

The third subgroup--the configuration group--was charged with the task of learning and then configuring our WebBridge system. This group consisted largely of systems staff or their delegates from the three libraries. It was their task to come to know and love WebBridge Origins, Filters, Field Selectors, Data Tests, and Resource Definitions, the concepts from which WebBridge is built and that make it work internally. This group also worked closely with the data group to determine special processing needs that might be required in order to import MARC records into the catalog and titles, issn's, and holdings data into the WebBridge coverage files.

Finally, the Public Display group was concerned with how WebBridge should look and work for the end user. This included working with OpenURL-compliant vendors on the placement of the WebBridge icon in their displays, with designing buttons and display panels for the opac, and with displays provided by the link resolver. Another major task of this group was publicity and training in the use of WebBridge for faculty and student users.

IV. Special problems for consortia in implementing WebBridge

What are the special problems that confront consortia in implementing WebBridge in a single Innopac-Millennium system? We have already alluded to some of these. First and foremost is that our three libraries do not all have the same electronic resources that they may wish to link. Appalachian State, the largest of the three, has databases and e-journal collections, for example, that we at UNC Asheville either cannot afford or that would not be appropriate for our users. On the other hand, UNCA may have specialized resources designed specifically for our curriculum and our liberal arts mission that may not be of paramount interest to either Appalachian State or Western Carolina. How do we make these institution-specific resources available to the appropriate library while blocking them to other libraries that have not paid for access? And how do we do this in a way that is the least obtrusive and/or annoying to all our users? This problem is compounded by the fact that not only do we sometimes not have the same resources, but sometimes we do have the same resource but from different vendors. In other cases, we may all have access to the same resource from the same vendor, but different authorizations are required by the vendor, as in the case of OCLC FirstSearch databases, so that different links are required.

A second set of problems emerges from this variety of resources and vendors. Since effective use of WebBridge with many target resources requires coverage files, a variety of resources implies a variety of coverage files. In using Ebsco or SerialsSolutions to populate WebBridge coverage files, it is most efficient just to be able to check off an entire package as one to be downloaded for coverage file conversion. But in the case of consortia, this is sometimes not possible, since different libraries may have access to different portions of a package, the result being that smaller subsets of the package appropriate to each library must be identified and downloaded into separate coverage files. This has been the case with our JSTOR collections, for example, where some of the libraries have had access to all the JSTOR packages, while others have had only a portion of these. The result is that we need separate

coverage files for each of the more specific JSTOR packages that we variously subscribe to.

Further issues may arise simply as a result of different institutional decisions about what resources to present, and how and where those links are to appear. As we know, any Internet resource with a consistent URL can be a WebBridge target. Some of these resources, such as Google, Amazon, and a host of government sites are valuable sites and freely accessible on the Net--and thus common to all our network libraries. But there may be seriously different opinions among the members of a consortia about whether, when, and how to display these resources as WebBridge connections. At root, of course, these are differences of library philosophy, collection management, and style that go beyond WebBridge and that WebBridge cannot be expected to solve, and I am pleased to say that in our Network we have managed to work out these differences in a cordial and cooperative way through discussions among network librarians. Nevertheless this sort of issues goes to show the need for maximum flexibility in a product like WebBridge if it is to be used effectively in a consortial environment where these kinds of differences are bound to occur.

V. Coping with consortial issues.

Having posed our problem, how do we now go about dealing with it? There are several approaches available, and a couple that may be available some time in the future, provided Innovative chooses to make some of the enhancements we will talk about here. These are what we will call: (a) the Labeling approach, (b) the Filtering Approach, (c) The Proxy Server approach, and (d) the Enhanced WebBridge approach.

VI. Labeling.

The Labeling approach is one that is very familiar to us, and it is fact the approach that we use for the most part with WebBridge in our system. By labeling, I mean simply adding some kind of scope note to titles or resource names to indicate to the user in a straightforward way where there are restrictions of access. We have used this approach for a long time in our catalog, especially with links to e-journals, where, even before WebBridge, we had variegated access to electronic resources based on institutional subscriptions. Here, for instance, is a case in point with the catalog record for Journal of Physical Chemistry [SHOW CATALOG], where ASU and WCU currently have access to backfiles through the ACS Archives and UNCA does not, and then a another variation with the title Review of Metaphysics [SHOW CATALOG], where UNCA has access to the full-text through Wilson Humanities Full Text, whereas ASU and WCU do not. This record shows also that we have common access to the aggregator version of this title through our NCLIVE subscription to InfoTrac. It shows also that we attempt in our catalog to have a single record for each journal title, with various holdings, formats, and forms of access all attached to this single record. That has nothing to do with WebBridge, but I couldn't forbear showing it off a bit, for if you are a serials person you know that this is not an easy thing to achieve. What does have something to do with WebBridge, as we have implemented it, are the little notes embedded in the links

that indicate which libraries have access to the online text of this title. These notes are simply displayed as recorded in the subfield "z" of the 856 field that provides the displayed link in our Innopac. Where access is available to all the libraries, we do not have a note, absence of prohibition implying permission, I suppose, as here with a title from Project Muse that we all have access to. [SHOW PHIL AND LIT]

Being familiar with this approach from long practice with e-journals, it was natural for us to think of adopting it as our first approach to WebBridge. Fortunately WebBridge makes this possible through allowing us to name our resources anything we want in the Resource Definition, and that includes adding a note as part of the title of the resource. Through this simple procedure we were able to add "(ASU only)", "(UNCA and WCU only)" or whatever combination was appropriate to the Resource Definition title, and since this title displays in the WebBridge panel whenever that resource is suggested, it is a straightforward way to inform users of institutional restrictions where they apply, and has the added benefit of continuing the same procedure patrons are accustomed to from our e-journals. [SHOW RESOURCE DEFINITION]. In cases where we have access to the same database but different authorizations are required, we create a second Resource Definition for that database, distinguished from the first by the restriction qualifier. [SHOW RESOURCE DEFINITION-2]. There is a certain lack of elegance in this, but it does the job, and very importantly, as we shall see in more detail momentarily, it does the job for both on-campus and remote users, presenting identical screens to them in either case.

But lack of elegance is, in fact, more than a merely aesthetic problem with this Labeling Approach, because lack of elegance sometimes leads to confusion for our users. Despite our notes, users sometimes click on the wrong link and are denied access to a database, in some cases when if they had clicked the right link they would have gained access. In many other cases, I suspect they are frustrated by the fact that a relevant resource is available in the network, but not available to them at their institution. [SHOW OPAC PANEL-1] . [SHOW RESLINK PANEL-1] What we would prefer, of course, is that WebBridge be not only context-sensitive but that it also be location-sensitive or institution-sensitive, or even better, user-sensitive, meaning that it should display links and suggest resources to a user ONLY when that resource is really available to the user. This leads us nicely to a discussion of WebBridge filters.

VII. Filters.

When I first began configuring WebBridge--while at the same time trying to continue my job of managing technical services in our library--I decided that I would not worry with filters. The manual, while saying little else about filters, did say that they were optional, and like a lot of busy people, when something is optional, I don't do it. But filters, as I'm sure some of you other WebBridge administrators have learned, are pretty neat and pretty powerful. A filter is a way of blocking a resource from appearing when otherwise it would appear. One of the neat things we did with filters was to solve what our reference librarians called the "looping" problem. This happens when a user is searching an external database like Academic Search Elite, finds a citation but not full

text there, clicks the WebBridge button in ASE to find full text, and the link resolver comes back to suggest that full text is available in Academic Search Elite. In other words, a kind of erroneous self-referencing is going on because of a disconnect between what is really covered full-text in the database and what our coverage files say is full-text in that database. By defining a filter for ASE as an origin and installing that filter in the Resource Definition for ASE, we eliminate ASE from referring to itself. The same can be done for other databases obviously, thus eliminating the self-referencing looping problem.

In these cases, the filters are based on Origin, i. e. SID=EBSCO:ASE or whatever. Filters can also be based on scopes, accounting units, and login name. [SHOW FILTERS] A first look might suggest that filtering through scopes might entirely solve our problem, since scopes can be based on location. We simply apply a filter based on location to block resources that UNCA does not have access to, and so on, and these resources will not appear in WebBridge within those scopes. However this is a case of the remedy being too strong for the malady. We do not like to use location scopes in our catalog, since the main reason for sharing the catalog is to present a union catalog of all our collective library resources. Through our excellent document delivery service, users on all three campuses do have access to almost all these library resources, even if they do not have access to all the electronic resources one or another of us may subscribe to. Moreover, users can change scopes unless we lock them into a single scope with the lockscope option, and we certainly would not want to do that.

A more promising option appears to be filtering by login name, which effectively allows filtering by ip range, since a login name can be assigned to a range of ip numbers. We associate a login name with the ip range for each of the three campuses, create and apply filters based on these login names, and voila we have accomplished our goal: ASU students will see only ASU WebBridge resources, WCU students will see only their WebBridge resources, and UNCA students will see only UNCA WebBridge resources, while all will still be able to search the WNCLN union catalog. This solution works beautifully for users on campus, but therein lies the rub--it does not work for our remote users, i. e. user off-campus, and already it appears from our statistics that these constitute more than half our total users. Since these users may be coming in from a variety of ip addresses from all over the world really, we simply have to assign them the login name REMOTEWEB. And of course we cannot associate that login name with a particular set of resources because at login to the webpac, we don't know who they are. Thus it would appear that despite its considerable power and flexibility, filtering--either by origin, scope, login name, or accounting unit (which really doesn't apply here to a public user) cannot completely solve our problem. of allowing users to search the unscoped consortium catalog but see only those external WebBridge resources to which they have access.

VIII. Proxy Server.

A couple of other approaches do come to mind. Since we have seen that filtering

by ip address through login name works nicely for on-campus users, a general solution would be to make all users look like on-campus users--and of course we do that through proxy services. We route all remote users through a proxy server on campus--requiring a login of course--and then send them to the webpac with an on-campus ip address. Filtering by login name associated with ip range then takes place, and our problem is solved. But this solution means, of course, that we would have to run a proxy server on campus--in fact we would have to run three proxy servers, one on each campus. This becomes a very expensive solution in terms of staffing and maintenance, one that we would prefer to avoid. One of the reasons we purchased WAM was so that we would not have to run on own proxy servers.

IX. Enhanced WebBridge.

A far better solution--and the one we want to recommend to III--is (a) to develop a mechanism to allow manual login to the webpac (or really verification at the webpac) in a way that will pass login parameters to WebBridge and (b) to enhance WebBridge filtering to allow filtering by p-type. Whether the login is through My Millennium or a simple login button at the webpac is immaterial. As long as the login information can be captured and passed to WebBridge, and WebBridge has the capability to filter by p-type, then resources for specific users can be customized and displayed when appropriate and suppressed when appropriate. For in-out linking, from the catalog to external resources, this would work straightforwardly from the p-type collected at webpac login; similarly for out-in linking, from external databases back to the resolution server, Innopac already has that information from the verification required by the WAM table. When that information is available to the link resolver, again resources can be customized for an individual user based on filtering by p-type. In either case, in-out or out-in, patrons would see only those WebBridge resources to which they truly have access, regardless of their location. [SHOW CLEAN SCREENS] It is not for me to say how difficult it would be to add these enhancements to Innopac and WebBridge, but I'm sure our ingenious friends at III can manage that part of it. Creating this interface between patron types and WebBridge through My Millennium would appear to be a natural way to evolve both products, as the point of My Millennium is to be able to customize the webpac interface for individual users. As the manual puts it:

"My Millennium allows libraries to set up their Web OPAC so that users can log in to the system. Web OPAC can then present customized screens based on patron type. For example, you can suppress Web OPAC options based on the user's patron type. Users can have access to different menu screens, search help screens, and form input screens that display according to their patron type. In addition, you can specify that logged in patrons need not further validate for Web OPAC functions that normally require patron validation."

Implementation of these features would make WebBridge as flexible and customizable for consortia as it is for a single library, and thus make a good product even better.

X. General Enhancements.

Let's shift gears now for a few minutes to talk about a couple of other features that we believe would truly add power and convenience to WebBridge. These have

nothing to do with a consortial environment, but would apply in either a single library or a consortial implementation.

XI. Print Journal Coverage Files.

First, I think it is kind of ironic that we usually have better WebBridge coverage information about an external vendor's journal collection than we do about our own print and microform serials that are represented in the catalog. We all know there are good reasons for this: generally we can download information about an electronic journal package either from the publisher's site or from SerialsSolutions or Ebsco, and holdings information for titles in these packages is usually continuous, from the first electronic volume to the present. Neither of these things is true for our print/microform journals. Our catalog is the inventory for these titles, and these catalog records and attached checkin records cannot be used as *is* for a WebBridge coverage file. In WNCLN we do create a coverage file for these titles by running a list of all print journals, exporting fields from that list, and then passing this through a Perl script to create a properly formatted file that can be uploaded using MILSER into our system as a WNCLN LIBRARIES coverage file. But at present this file only contains the journal title and the issn. Because of the complexities and inconsistencies of some of our holdings data, we have not yet worked out a way to include holdings data in this file. Thus a search for an article in *Utne* through the link resolver will show that we have that title and that some volumes are available in WNCLN, and a link to search *Utne* in the library catalog is posted, but we can't tell the user whether that particular volume is available. A really nice enhancement to WebBridge would be to have a utility that could search the library catalog directly for titles and holdings information, or, short of this, a utility that would build a WebBridge coverage file from data exported from a list that includes title, issn, and the LIB HAS fields from the checkin record. I realize this is a tall order. In either case, any such program would require a standard format of one sort or another for the holdings data in order to build reliable coverage files. This part is clearly the library's responsibility; but once that is done, being able to search or extract that information for WebBridge to build a coverage file would be a nice feature that the system could provide.

Accurate identification of holdings data for our print journals would allow us to accomplish another objective that we have had in mind for our library, namely to be able not only to post a WebBridge link indicating that we have a particular volume of a particular title in our print collection, but also to make this an active link from which the user could request the article to be delivered by e-mail, fax, or photocopy. Such a system would look something like this [SHOW JOSS], where citation information is passed from the OpenURL to our Serials Store service.

XII. Subject Content in Resource Definitions.

Finally, while we are asking, how about adding some subject content to WebBridge Resource Definitions? As some of you no doubt know, the information we receive from vendors in their A-TO-Z lists includes library classification and subject

heading information for many of the titles. How could we use this information in WebBridge? If we include this subject content in WebBridge Resource Definitions, through defining another field for the Resource, we then have the capability to take title-issn information coming from the OpenURL and link it to subject information for that title in the coverage file the same way we do with our famous \$...\$ syntax where we use OpenURL metadata to link to a field in the coverage file not included in the metadata. We then (all behind the scenes of course) use this subject information to suggest other resources to the user based on this subject coding in the Resource Definition in much the way we do with WebBridge in the webpac, where we use subject information from the bibliographic record to suggest other resources to the user. Here's a mock-up of how this might look in practice using LC classification ranges as subject content indicators. [SHOW ENHANCED LINK RESOLVER]

In conclusion, WebBridge is a powerful and flexible product that has added immensely to the value and usability of our online catalog and our electronic database and e-journal subscriptions. We expect it will only get better.