

Authentication Task Force Recommendations

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Overview

The Remote Authentication and Authorization Task Force began meeting in December 2005 to outline a new framework for users accessing electronic resources provided by the MBLC, Massachusetts libraries, and library consortia, including regions and networks. The Task Force comprised three network representatives, three regional representatives, an academic library representative, a public library representative, and a school library representative. Paul Kissman from the Massachusetts Board of Library Commissioners chaired the Task Force. A complete listing of task force members can be found at the end of the document.

The Task Force has investigated the criteria required for users to log into electronic resources, how they are authenticated, and how they are authorized to use the resources. It has also explored the potential for offering a single search box for users by employing a metasearch solution. A statewide library card program and online library card registration were also topics considered by the Task Force.

The Task Force has gathered information for this report by researching available authentication/authorization solutions, performing an environmental scan of what other states and systems have implemented, and conducting a Needs Assessment consisting of focus groups with library staff and surveys of library staff and end users. This recommendation will be broken down into three major sections: identity management, authentication & authorization, and a statewide information portal.

As users continue to gravitate toward the ease offered by Google and other online information services, the goal of this Task Force is to simplify the process for accessing high-quality electronic resources while providing sufficient security to protect the privacy of library users and ensure adherence to licensing agreements with content vendors.

The Task Force envisions an enterprise where simply sitting at a computer located in Massachusetts is sufficient to get a user into electronic resources provided by the MBLC. An easily-remembered login process, done from a user's preferred web site or portal, will get the user to all of the electronic resources available to them, without the necessity of logging in again.

Although this vision cannot be fully realized in the first iteration of a new authentication/authorization system, these recommendations should move us forward, addressing many of the fundamental problems, reserving the hardest and more technically and politically complex issues for the future. Improving authentication and authorization will be an incremental process, with gradual improvements and greater inclusion as standards are adopted, interfaces with library systems improve, and cooperation and trust between disparate libraries grow.

With the delivery and acceptance of this report, the work of the Authentication Task force will formally come to an end. The report includes recommendations that new working groups be established to issue requests for information and procurements, develop specific policy and procedural documents, and educate the library community. A statewide Portal

Task Force (discussed below) has already been convened to work on that portion of the endeavor.

Issues

Risk and Trust

Library authentication systems are not like e-commerce web sites. To gain access to newspaper or periodical content, libraries do not generally require credit cards or other personal or financial information about users. Therefore, the risk of damage is relatively low if the systems are compromised.

If someone were to break into a library's patron database, he could potentially steal a social security number, discover the titles of checked-out materials, or find out the topics that a patron has looked up online. He would also be able to share that personally identifiable information with others. In contrast, illegitimately gaining access to Gale databases would result only in the perpetrator viewing licensed content, which is not a high risk.

Indeed, database vendors appear to assume that a certain amount of unauthorized access does take place, though some vendors are stricter than others. As long as the breaches are not severe, vendors accept these "losses" as the price of doing business with libraries. Vendors' authentication requirements may be driven as much by the original print publishers as by the database vendors.

Gale, one of the statewide database vendors in Massachusetts, accepts a type of authentication called "remote IP authentication" for home users in Connecticut. Remote IP authentication carries a relatively greater likelihood that some non-Connecticut users will gain access than more traditional means of authentication. Similarly, out-of-state users can easily falsify their residence requirements in order to temporarily obtain access through the Boston Public Library current e-card registration process. Historically, vendors have agreed to the use of simple barcode patterns where live patron record lookups are not possible. Barcode patterns are easily spoofed. Massachusetts, which makes use of barcode patterns for some authentication, has had to develop a blacklist of such compromised patterns, so that illegal access using fake card numbers can be blocked.

We must examine whether there is sufficient need to move toward a more rigorous authentication infrastructure. Will the benefits of a system that can definitively identify and reliably authenticate a library user be of enough value to justify the effort of putting such a system in place?

As we think into the future, we may find that a system with tighter security is warranted. For instance, if libraries leverage the authentication system for e-commerce solutions, such as paying fines, purchasing digital prints, allowing portions of patron records to be cloned into a local circulation system, etc., the underlying infrastructure must accommodate increased levels of trust and security.

What's Best for the User

The Task Force has tried at all times to keep the end user at the forefront as it has considered solutions. Barriers to access should be reduced, while ensuring that commercial licensing agreements are not abrogated. One recommendation in particular, calling for the implementation of remote IP authentication, will challenge librarians to think of access to the statewide licensed databases in a new way.

The Task Force's Needs Assessment did not attempt to argue for a particular type of solution, or for any strategic changes to programs currently supported by the Board that might alter the relationship of the library user to his/her library.

If libraries want to provide quality service in a virtual environment and truly break down barriers to accessing electronic resources, they will need to expand their idea of who a library user is. Some library users may never set foot in the library, but may frequently use the library through its online presence.

Identity Management

Identity Management and the Identity Lifecycle are concepts which describe how digital user identities (*e.g.*, library patron records) and credentials (*e.g.*, library cards) are created, how they are verified, kept current and/or modified, and finally destroyed. Some entity must own, and some system must hold the user's credentials. In the current environment, this someone is usually the library or the automated network that supports the library with a shared patron database. However, it may also be a college registrar or an institution-wide electronic directory. Or, there may be no digital identity record at all.

Some of the identity problems inherent in the current system include:

- Small public and school libraries have no way to create and maintain digital credentials for their users. Members of MassCAT, the five-region union catalog system, do not have patron records¹, nor do "online affiliate" libraries of C/W MARS.
- Library identities get stale, especially in a school or academic environment, as students move through a two- or four-year program and then leave. There are no standard policies or procedures by which automated networks determine when and how they will purge old patron records. Old records may live in the system long past their lifespan.
- Academic libraries have distance-learning relationships that may or may not be covered by content licenses (*e.g.*, out-of-state students, satellite campuses in Florida).
- User credentials may be from registrars' offices, learning systems (*e.g.*, Blackboard) or other institutional structures. Much of the data may be restricted (including legal restrictions, such as for school student records), so that it becomes hard for a

¹ MassCAT may have the capability to create and store patron records as the result of a procurement that is currently underway. Nevertheless, there would undoubtedly be member libraries in MassCAT that would not avail themselves of this new functionality, even if offered.

statewide authentication system to access the data used to identify the student as a legitimate library user.

For the purposes of statewide access to content we must understand how to find and verify user identities that are currently held in many different locations. The MBLC can explore one or more of the following options in managing identities:

- i. Massachusetts can follow a “federated” identity management model, where identities are owned and held by the library, network, school student ID system, college registrar or college library. These records would probably be the most up-to-date. In addition, because the creation and maintenance of the user identity record happens right at the user’s own institution, it increases our level of confidence that user records are accurate. Since the user’s identity record stays at the home library system and doesn’t leave, legal and privacy concerns may also be mitigated.
- ii. Identities can be aggregated into a large database, which is updated either dynamically or in batches. Using batch mode (*e.g.*, overnight) for updating would mean a delay for access to databases. This delay might be overcome by offering some sort of one-time temporary access.
- iii. There is a new, leading-edge model where users control and own their digital identities (*e.g.*, OpenID, CardSpace, Higgins Trust²). The user might set up an electronic library card template on his or her computer. The user’s home library system would issue credentials associated with this card that can be shared with other web sites, such as the statewide portal. When the statewide web portal offers to register the user, it would indicate the components required for basic services, such as credentials showing Massachusetts residency. This model may see a lot of uptake over the next few years with the rollout of Windows Vista, as concern with user privacy escalates, and as social networking sites continues to grow in popularity.

Resident or Registered Library User

A crucial question about access to statewide electronic content is whether the user needs to show residency or library credentials. In some states (*e.g.*, New York, Michigan), other forms of identification such as a driver’s license permit the resident to access statewide database content. In Massachusetts, access to these resources has always been via a library card number or via in-library use.

The recent closure of a public library in Massachusetts illustrated that the Board of Library Commissioners continues to provide statewide database access to residents via their library card, even if the library is no longer functioning. However, these residents will not necessarily be able to access databases provided through a region or automated network.

Perhaps the simplest way to implement access to statewide databases is not to require any identity information at all. We merely need to know that the person is in Massachusetts. This can be accomplished with some (uncertain) degree of assurance via remote IP

² For OpenID, see openid.org. For Windows CardSpace, see cardspace.netfx3.com. For Higgins Trust, see www.eclipse.org/higgins.

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authentication, or “geolocation,” a technique that determines the geographic location of a user by analyzing their computer's public IP address.

The remote IP solution means that no identity management is required at all, at least for the statewide database offerings. Accessing electronic resources will be much easier for those Massachusetts residents who do not yet have a library card, or who do not have their library cards readily available.

It is true that the library may lose the opportunity to connect with a potential new patron since a library visit will no longer be required to use statewide resources. The library also may lose statistics that could prove useful in showing the value of local library services to funding authorities. However, with the development of virtual library services, libraries' relationships with users are evolving. Users no longer need to physically visit the library to be considered library users. In addition, users are more likely to come away with a positive image of the library if they can easily access and navigate online library resources, rather than being required to make a special trip to the library to use or register for these resources. In fact, instead of registering for a library card, users may just find their information elsewhere.

Remote IP access would require discussion and a clearly understood policy decision by the Board that access to databases no longer requires that the resident establish him/herself as a registered user. It would also require a financial investment. IP tables must be continually maintained, and an annual service fee might be required to keep this data current.

The Needs Assessment showed that there is not significant support among librarians for the concept of Massachusetts “resident” access. Librarians are concerned about any solution that does not require some sort of formal association with the library. Users should be registered library users.

Libraries want to:

- have the opportunity to connect or reconnect with users who have not visited the library for many years
- have the ability to teach users which products to use, and how to use them properly
- have users appreciate the connection between their library and contemporary library services such as online content; the use of a library card as a credential is perceived as reinforcing this connection
- maintain statistics which show funding authorities the benefit that the community receives by virtue of the library
- show the benefit of membership in a Massachusetts regional library system. School library advocates in particular use the reward of licensed database access through regional membership to press for school systems' hiring of qualified library professionals.

Statewide Library Card and eCard Registration

The Needs Assessment found significant interest in the concept of a statewide library card program, without gaining detailed insight into how the program might work. There is

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currently no MBLC task force or sitting committee designated to undertake the development of a statewide library card program.

At a minimum, a Statewide Library Card program would include the following elements:

- 1) Patrons could walk into any public library and borrow materials using a single card with minimal staff effort to obtain registration information.
- 2) Libraries, including academic libraries, would need the ability to set up permissions for in-library use of selected databases to non-residents, while retaining the right to limit other databases to their own residents or students.
- 3) The state could provide an opportunity for libraries to “co-brand” the statewide library card.
- 4) An online card registration component would make it easier for more residents in the state to participate in the program.

The Needs Assessment showed that there is great interest in online library card registration. If a Massachusetts resident without a library card would like to access a full set of resources, this program would allow the user to sign up for a card at his/her convenience online and immediately use the databases. A mechanism should be incorporated to provide some assurance that the user is truly a Massachusetts resident.

Authentication & Authorization

Authentication tells us who you are (what library you belong to), and authorization identifies which resources you are allowed to see. After users present their credentials (*e.g.*, a library card), they are checked against a patron database (authentication). Once the user’s library is confirmed, the content that the user is entitled to see can be determined based on their library, network, and regional affiliations (authorization).

How a user is authenticated will be determined by the identity management infrastructure. The authentication system must first know where to look for the user’s patron record. The system must then be able to query the identity system while at the same time observing privacy policies. The authorization system must have a knowledge base containing the vendors’ licensing agreements at the state, region, network and library levels.

Single Sign-On

Users should be able to log in once and traverse all of the licensed resources to which they have legitimate access. Known as Single Sign-On (SSO), this concept has been a goal since the formation of the Task Force. SSO has many solutions, including packaged Web SSO products used in both industry and the academic library world. The Single Sign-On “form” (*i.e.*, the login box) should be made available from any system that can support the underlying technology.

The authentication system should provide seamless access to all resources to which a user has access rights, even if the user is associated with more than one type of library (*e.g.*, Salem State College and Salem Public Library). However, in its first iteration the authentication solution may only be able to handle one institution at a time. This means a “Where Are You

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From?” (WAYF) service should be established. The WAYF service would allow the user to arrive at the web site of Library A, type in credentials and select his or her home institution (Library B), so that authentication (and authorization) can take place. Library A’s site would remain in control of the user’s experience.

The Task Force envisions that the login process will originate from many different places: library web sites, network web sites, regional web sites, the MBLC web site, library and network catalogs, metasearch tools, and large portals like Google and Yahoo. If the authentication and authorization mechanisms are locked into one web site, such as the statewide portal, they may be of little or no use to many libraries, which have invested heavily in their own sites. Therefore, these mechanisms need to be built in such a way that they can be leveraged from different web sites.

Persistent Linking to Databases

There are various ways in which libraries may wish to link to electronic content. They may want to establish links to:

- a specific database family: Gale Group
- a specific package: Expanded Academic ASAP
- a specific journal title: Journal of American Folklore
- a specific article: Demokratizatsiya 9.3 (Summer 2001): p446(15)
- a search result set: recent articles matching the subject of "home buying"
- a list of selected articles: recommended articles for the first-time homebuyer

This means that:

- a) If the user has already authenticated in some way, the links must carry an authentication token.
- b) If the user has not yet authenticated, then the authentication mechanism will be invoked by a method that preserves the original content request, so that the user will be automatically redirected to that content after authentication and authorization occurs.

Example: An automated network puts a MARC record in its OPAC for title level access to Consumer Reports. The “856” field provides the clickable electronic link to the Gale database containing Consumer Reports. At some point, the system must determine whether the user is in a library or not. If so, which library is the user in? If not, which library does the user belong to (for both authentication and library-level statistics), and is this user authorized to access Consumer Reports?

Patron Privacy

Authorization into electronic resources must provide for end-user security, meaning that the service provider and auditing system do not know the actual identity of the individual using the resources. Rather, the service provider knows that the user is entitled to the resource and may know some user attributes (e.g. the library where the user registered, the user's home community.)

At the portal level, users may opt to share personal information in order to take advantage of advanced portal services, including recommender systems and personal customizations.

Licensing Agreements

While planning for and implementing this system, we need to ensure that libraries and users are following licensing agreements with content vendors. Staff and user education, as well as web site language, will need to explain that just because Single Sign-On is available, users do not suddenly have access to every resource in the state. We should provide language for libraries that contract with licensors to ensure that licenses support the basic concept of the statewide system.

Improved Search and Navigation Tools

The Needs Assessment indicated clearly that users have difficulty finding the resources they need once they have logged in. Users are faced with a collection of database names but very little guidance. Users do not know which product to look in for a particular magazine title or subject.

Over the last several years, many larger libraries have deployed metasearch tools to ease the discovery process. Much progress has been made in user interface design over the same period of time. “A to Z” title lists clearly lay out the magazine titles contained in licensed databases. The metasearch itself can connect to multiple databases held by multiple vendors. Initial search results can be organized with links provided to specific time periods, types of material, subject headings, and source (faceted classification). Behaviors that users have long since come to expect when shopping online can now be provided in the library portal.

The Task Force will recommend the deployment of a statewide metasearch tool on the Statewide Portal, but only if it can search more than the statewide licenses from Gale, Proquest, and EBSCO. We recognize that from any individual library’s point of view a statewide metasearch solution will have inherent compromises; however, we deem that the added discovery tools will be, overall, a tremendous improvement over the experience that users have today.

The Task Force also recognizes that larger libraries, especially those academic libraries with substantial additional databases, will prefer that their users continue to go to their institutional web site for searching. The Statewide Web Portal should be designed in such a way as to quickly redirect these users to the institution’s own portal.

Statewide Web Portal

The Authentication Task force realized early on that the lack of coordination between the MBLC, regional, network and library web sites was contributing to the disarray that users experienced when attempting to use electronic resources. These conclusions were supported by the Needs Assessment, which found that the biggest challenge is not in the authentication to databases, but in getting the word out to patrons that these wonderful resources exist. There was also a commonly held feeling that the many points of access to databases are confusing for patrons and library staff. Librarians themselves do not

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necessarily have a clear understanding of the best way to provide access from their own web sites.

The Task Force concluded that a new web portal should be designed specifically for the public. This new site would have an easy-to-remember URL and would not have any librarian “business content,” such as information on LSTA grants, library usage statistics, or MBLC program information. The new site would be designed from the outset to coordinate with library web sites, so that the user ends up at the best location for searching electronic content. The new site would be “good enough” that a library felt comfortable sending users to the portal if the library could not offer better access of its own.

The Needs Assessment asked libraries how they felt about a statewide web portal. Libraries strongly favored the statewide portal if aspects of the portal were configurable by the library. Issues such as library branding, the library’s own web site, and the ability to localize content were important considerations. Only a very few library respondents thought a web site that was not configurable by the library would be acceptable. Similarly, though many academic and some larger public libraries, or automated networks are able to deploy more advanced enabling discovery tools such as a metasearch, other libraries find this more advanced functionality out of reach. Therefore, a state web portal would provide a platform where even users of smaller libraries could find and obtain better resources more easily and more comprehensively.

The Public Relations Advisory Committee and the Joint Portal Task Force

Another group, the Public Relations Advisory Committee, has similarly recognized the need for a dedicated web portal to meet their stated goals. The Public Relations Advisory Committee requires a portal that will serve as a common URL for marketing, and as a tool to drive users - and prospective new users - to their libraries, either physically, or virtually to the libraries’ web sites.

In late spring of 2007, an ad hoc group, the Portal Task Force, consisting of two members of the Public Relations Advisory Committee, two members of the authentication task force, and four MBLC staffers was convened to integrate each committee’s goals into an overall vision and set of specifications for a new statewide portal project. The Public Relations Advisory Committee brought with it a compressed time frame for portal development due to tight integration into the Board’s three-year marketing plan. The joint Portal Task Force has identified a set of initial functionality as well as longer term functional specifications. A developer has already begun work. Due to the very rapid rollout of the first portal iteration, modest goals have been set, while larger questions about how best to configure a portal - questions that hinge on the acceptance of recommendations contained in this document - are not addressed in the initial plans.

Web-Site Coordination and Education

With the development of the statewide portal comes the need for introducing the library community to the portal, educating librarians about how the portal can be leveraged locally, and what the portal will and will not be able to accomplish. Should the library just point to the Statewide Web Portal? Should the library put up its own login box that sends users to

the portal site along with their login credentials? How can a library organize topical links to subject-oriented databases on its reference pages? Can a library avoid the necessity of putting up separate “in-library” vs. “home” links on its web pages³? If not, what should those links look like?

The Web Portal Task Force will outline how individual libraries, regions and networks ought to coordinate their web sites with the statewide web portal. Sophisticated library sites, perhaps offering their own proxy services, will have a completely different authentication process than libraries without this sort of complex technical infrastructure. For these more technologically advanced libraries, the statewide portal may redirect the user to the library web site. For many public and school libraries, however, the statewide portal should prove to be the best point of access.

Portal Phase I

Phase I portal implementation, scheduled for January, 2008, will have very limited goals with regard to improving authentication and access to content:

- A user-friendly URL
- “Single Sign-On” capabilities
- A cleaner, more streamlined path to the statewide database offerings, including a search box for “magazines” (Gale) , “newspapers” (Proquest), and “books/returnables” (the Statewide Virtual Catalog)
- “Remember Me” functionality, so the user does not have to re-enter his/her library card each session
- The ability to do live lookups on most automated networks’ patron databases, and thereby obtain more accurate identification of the user’s “home library”

Longer-term portal goals are enumerated in the recommendations below.

Recommendations

The Task Force recommends the following actions regarding identity management, authentication and authorization:

1. Remote IP authentication for statewide content

The Task Force recommends that remote IP authentication should be established in Massachusetts for anonymous access to the statewide electronic resources. Although the Needs Assessment revealed little support among librarians for a solution not requiring some sort of formal association with a regional library member, when successful, remote IP authentication will break down many of the barriers that make access to electronic resources so difficult.

- a. Remote IP authentication should occur immediately when the user reaches the Statewide Web Portal. No mouse clicks or other actions need be taken by the user to IP authenticate.

³ The task force identified this type of linking as a major impediment to easy and clear access for users. Also, experience has shown that many libraries either use incorrect URLs from the outset, or do not make changes over time as URLs to databases change.

- b. Traditional login with credentials (library card/PIN or username/password) would always be available for legitimate users that are temporarily out of state, or for whom remote IP authentication fails.
- c. When remote IP authentication fails, and when the user has no library credentials to input, a backup method (*e.g.*, e-card registration) should be established so the user might have immediate access to statewide resources. On the Statewide Web Portal, a function to immediately email the user a password reminder or reset the user's password should be established.
- d. Licensing agreements for statewide products must clearly allow for remote IP authentication.
- e. There would be some loss of granular statistics, since usage could not be assigned to a specific library. Some statistics could be generated based on geography, however.
- f. Remote IP authentication would not be sufficient for any database product where exact location is required, such as regional or library-specific databases.

The Statewide Web Portal would offer access to additional regional, network and local resources via user login. It is important that the Statewide Web Portal design make this extra step attractive to users for several reasons:

- i. users will be able to access all the content to which they are entitled
- ii. residents will be more inclined to register as a library patron with their home library
- iii. usage statistics may be collected at the library level

2. Enterprise Identity Management Infrastructure

The state must build an enterprise for managing user identities. A digital identity is required if the user wants to search regional, network and local electronic resources, borrow materials on the Statewide Virtual Catalog, or personalize their user experience. There needs to be an understood means of creating, copying, updating, deleting, transferring and querying identity records across the state. An enterprise identity management infrastructure is prerequisite for a statewide library card program and a broadly-available electronic library card registration program.

- a. The Task Force proposes that we begin with some or all of the nine automated resource sharing networks and a selection of other standalone library systems that have an ILS with a live patron file and a standardized program interface (API) to patron records. These networks/libraries will manage their users' identities within their own ILS' patron databases, or other user systems.
- b. An RFI process will be undertaken during the winter of 2007/2008 to investigate the system used to coordinate/manage these identities. Rough costs for the enterprise will be examined as well.
- c. After selecting this system, an Identity Management Group (to be established) will deal with any consequent issues, including the development of policies and procedures, investigation into possible legal and regulatory implications, and development of best practices for patron record management.

3. **Database for Library Users With No Electronic Patron Record**

Solving the problem of users without accessible electronic library patron records is one of the most difficult to overcome. The Task Force feels that a comprehensive solution will involve a statewide library card program, electronic library card registration, and the Statewide Web Portal.

The current methodology of matching against barcode patterns must remain in place as an authentication option until true patron records can be created for registered users of libraries that cannot maintain accessible patron files

As a next step, the Task Force recommends providing a digital identity for individuals that are not in any usable patron database by implementing one or more of the following procedures:

- a. A single new database could be established to hold records for these individuals. This database might be leveraged later to hold some variation of a statewide electronic library card if such a program is undertaken in Massachusetts.

Identity data held for these users should be kept to a minimum. If the user is not going to borrow materials from a library, then perhaps even a name is not required. However, the Task Force feels that a working email address should be required for any user that registers electronically. The email address need not reveal the actual name of the user.

The notion of importing batches of patron updates from small standalone systems (*e.g.*, Follett, Winnebago) into a larger system was considered and rejected by the Task Force. It is unlikely that small libraries would have the staff, time or interest to generate patron file updates frequently enough to ensure an up-to-date system. In addition, managing such a process would require additional staff and resources at the state level.

- b. An electronic registration process is a prerequisite for addressing the problem of patrons with no electronic patron record. It is not reasonable to expect a user in a small town in the Berkshires to travel to a library in another town in order to obtain access to statewide and regional electronic content. Today, with the exception of the Metro Boston Library Network (MBLN), automated networks do not offer online library card registration; however, a number of networks have indicated interest in this type of functionality from their integrated library system (ILS) providers.
- c. An alternate possibility to a single, separate database would be to establish a pseudo-branch in a current automated resource sharing network. For example, C/W MARS, which serves central and western Massachusetts, might create a library branch to hold user identity records for residents of small towns who do not already have cards from larger neighboring towns. This approach would undoubtedly involve additional costs to the network that should be offset by the state.
- d. MBLN's current statewide e-registration should also be considered as a potential solution. MBLN has the advantage of an existing e-card program, and has made a commitment to serve residents throughout the state. The possible drawback of the MBLN program, as it is currently configured, is that it lacks a solid verification

process. This might cause problems when licensing content from vendors, and does not lead to trustworthy patron records when trust requirements need to be higher⁴.

4. Statewide Library Card Program

The Task Force recommends that the Board begin the planning and implementation of statewide library card program that would

- a. provide a clear mechanism for a user registered in any Massachusetts public library (certified for state aid) to borrow materials from any other public library similarly certified
- b. have an electronic registration component
- c. include the ability to transfer/clone patron records from one system to another, as is done through Maryland's MPOWER program
- d. allow for co-branding by the state, and the home library
- e. formally define parameters that could be used by academic and research libraries to allow limited privileges to statewide cardholders visiting the campus

5. Single Sign-On

The Committee recommends that Single Sign-On be implemented for all statewide and regional databases and as many automated resource sharing network databases and individual library subscriptions as possible.

- a. Single Sign-On should function not only from the Statewide Web Portal, but across the enterprise. The Single Sign-On login box should be made available from any system that can support the underlying technology.
- b. Transparent login to the Statewide Virtual Catalog should be provided so that any user with credentials in a system that participates in the Virtual Catalog is not required to log in again.
- c. In a later stage of the project, the statewide web portal may implement a service that allows a user to save and manage multiple library associations under one account.

6. Simplified Login

Logging into an account should be as simple as possible for the users while also offering sufficient security to prevent others from logging into their accounts. The login process should look similar across the state.

- a. Username/password authentication - as the de facto standard on the Web - should be established as the default credentials. However, the system should be flexible enough to allow individual institutions/systems to use whatever credentials (e.g. library card, student ID) they want to authenticate, as long as minimal validation requirements are met. A username/password may be tied to a traditional library card and PIN, so that either set of credentials will work.

⁴ For instance, a library user may, during registration, indicate that she lives in Stoughton by typing in a Stoughton address and zip code in the online registration form. However, the Stoughton library may not be willing to accept this address assertion without further confirmation.

- b. For institutions that require both library card and PIN, both credentials would be maintained; however, the Task Force does not recommend that a PIN be established for users unless it is necessary for accessing the underlying electronic resources.
- c. A “remember me” checkbox should be implemented that is able to store the user’s credentials on his/her home computer⁵. This recommendation, which would vastly improve usability for the home login process, is specifically intended for the Statewide Web Portal project. However, it might also be applied to any participating Single Sign-On site.
- d. Password reminder functionality should be part of the specification. Users should be able to retrieve or reset their lost passwords via email.
- e. The enterprise should create a login box that can be added to the user’s web site or portal of choice. For example, the MBLC might create a Google “widget” that can be placed on the user’s “My Google” page.

7. **OpenURL Link Resolvers**

The Task Force recommends the deployment of a statewide OpenURL⁶ link resolver. OpenURL resolvers help users find the best available copy from an article citation. The statewide link resolver must show available resources based on the user’s authorization. The statewide link resolver must integrate with the statewide metasearch interface (Recommendation 8).

In addition, the enterprise authentication solution should accommodate OpenURL link resolvers that are already in use by participating libraries.

OpenURL will provide:

- a. a clear path to available full-text content from services such as Google Scholar
- b. a simplified mechanism for redirecting failed user searches to ancillary services, such as regional interlibrary loan
- c. the ability for libraries to provide standardized links, and for the user to obtain the best copy available

If the home library system has more advanced OpenURL capabilities than can be provided at the state level, the Statewide Web Portal should clearly offer users the ability to choose those better tools.

8. **Statewide Metasearch Interface**

The Statewide Web Portal should deploy a metasearch solution that has the following capabilities:

- a. negotiates with the authentication and authorization system so that only authorized products are searched, and results displayed

⁵ Visual cues and perhaps IP checking should be used to prevent user’s from attempting to use the “Remember Me” function on a library’s shared kiosk or public workstation.

⁶ For the OpenURL standard (Z39.88 -2004), see www.niso.org/standards/standard_detail.cfm?std_id=783

- b. searches licensed magazine and newspaper content, library catalogs, and other selected web content together, providing de-duplicated and ranked results
- c. provides additional links via OpenURL to location-appropriate ILL services and journal document delivery providers
- d. provides “A to Z” listings of magazine and newspaper titles, and e-resources that may be searched by the authorized user
- e. provides broad topical headings enabling users to drill down to a more focused, guided search
- f. shows a faceted result set display, with material types
- g. provides additional links to products that the user is authorized to see, but cannot be included in a metasearch (*e.g.*, an auto repair product)
- h. sends results to a library’s web site via a “portlet,” i.e., when a specific result is selected, the full article is shown in a new window as part of the vendor’s interface
- i. has configurable results listings, allowing both site administrators and users to show or hide additional information (*e.g.*, full citation, abstract, type of material - video, book, pdf)
- j. has sufficient administrative capabilities to allow for configuration of databases at the state, region, network, and - possibly - library level

If the home library system has more advanced metasearch capabilities than can be provided at the state level, the Statewide Web Portal should clearly offer users the ability to choose those better tools.

9. Best Practices and Training

The Task Force recommends that the Web Portal Task Force create best practices documents to guide libraries in establishing logins, authenticating links and search forms to database products and other electronic content. Training opportunities, brochures and manuals should be made available to libraries to ease the burden on library staff.

Timeline

As was stated at the beginning of this report, all of these recommendations cannot be implemented at once. The Task Force has organized the recommendations into short-term, medium-term and long-term goals to provide a sense of what can be accomplished in the first build of the enterprise, what can be added shortly thereafter, and what needs to be kept in the mind for the future to make sure this enterprise keeps pace with the use patterns and expectations of library patrons.

Short-term goals (6 to 18 months)

- Plan and implement remote IP authentication for electronic resources.
- Build the initial system to work with the existing patron files from the automated sharing networks and standalone libraries, as identified in Recommendation 2.a, to authenticate live patron data. These users will be able to access statewide, regional, and network databases at the outset.

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- Implement the initial version of the Statewide Web Portal, including Single-Sign-On to statewide, regional and selected network resources, library catalogs, and the Statewide Virtual Catalog.
- Continue to use barcode patterns for libraries that do not have a usable patron database or are not participating in the initial rollout of the system.
- Offer username/password authentication as a replacement for typing a library card on the Statewide Web Portal.
- Implement a “remember me” checkbox that stores the user's credentials on his/her home computer.
- The Web Portal Task Force will create best practices documents to guide libraries in establishing authenticating links to particular database products/content.

Medium-term goals (18 months – 3 years)

- Plan and implement a metasearch user interface on the statewide portal.
- Provide a statewide OpenURL link resolver via the statewide portal.
- Plan and implement a solution for individuals who are not in any usable patron database.
- Expand user access to content and Single Sign-On capabilities by giving libraries the ability to add their own subscriptions.
- Create widgets that can embed a Massachusetts libraries login box on users’ portal pages.

Long-term goals (3 years +)

- Plan and implement a statewide library card and electronic registration program.
- Implement a service on the portal that allows a user to save and manage multiple library associations, fully realizing the goal of Single Sign-On.

Throughout this timeline, MBLC and the library community shall stay abreast of broader trends in the area of web identity, such as the user-centric Higgins Trust Framework and Windows Card Space projects, which allow users to control their own identity information on their own computers. As these initiatives develop, the Massachusetts library community should investigate ways that these new paradigms can be incorporated into library authentication and authorization.

Task Force Composition

Current Members

Paul Kissman, MBLC (Chair)
Linda Beeler, Thomas Crane Public Library, Quincy
Martha Driscoll, NOBLE
Patricia Fontes, Nashoba Regional High School
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Rick Levine, Central Massachusetts Regional Library System
Kathy Lussier, Southeastern Massachusetts Regional Library System
Ken Peterson, MBLN / Boston Regional Library System
Don Richardson, Worcester Polytechnic Institute

Past Members

A number of people have served on the task force and have provided valuable input, but were unable to remain on the committee for its duration.

Emily Alling, UMass Amherst
Edee Edwards, Babson Library, Springfield College
Susan Grabski, Northeast Massachusetts Regional Library System
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