

The 21st Century Mobile Library: Refining the Concept of the Anywhere, Anytime Library within the Global Context

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Abstract

Libraries increasingly are moving services online in order to meet the global shift towards a information that is available anytime and anywhere. Many tools are now available to facilitate this process, including online subscription resources, proxy servers, and online repositories. The growth of open access resources such as journals, theses and dissertations, and electronic books and images have further accelerated the idea that scholarly information can be available online. There are also tools such as Zotero, Delicious, and Really Simple Syndication (RSS) that aid library users with their research, and libraries should promote and utilize these tools. Finally, a discussion of mobile library interfaces will be brought forth as the next generation of the online library.

The 21st Century Mobile Library: Refining the Concept of the Anywhere, Anytime Library within the Global Context

Since their creation, and especially since the beginning of the Internet or Information Age, libraries have adapted to changes in technology and clientele. Since the Internet has rapidly changed the distribution channels worldwide, libraries and their vendors have evolved by offering an increasing number of services online. Additionally, as library users worldwide become accustomed to using the Internet as their primary source of information, they place demands on libraries as never before, further accelerating the need for a library that is available on demand at any convenient place. Since some countries such as Finland have declared high speed internet access a fundamental right¹ and it has become nearly ubiquitous in the developed world, the ability of a library to meet user needs anywhere and anytime has become imperative. In the developing world, where infrastructure is often prohibitive to high speed internet access, the use of cellular networks becomes an important source of information. This paper will focus on free and low cost tools that libraries can utilize in order to achieve the mobile library.

Online Access to Library Tools

Online resources for scholarly study are nearly ubiquitous as vendors see that library users prefer online access to print indexes. As a result, most scholarly material published in the 21st century has been, at least in part, distributed electronically, with many vendors making a complete switch to online only access. However, because most scholarly material is not open access, many vendors put their content behind “walls”, requiring a subscription be limited only to users of a particular library. Access to such content is usually limited by geography with Internet Protocol (IP) addresses of computers that are located in a small area, such as the physical library or to a single campus for academic institutions. However, accessing walled content is difficult to for mobile users, who want to have the same access to scholarly information as they do for other information conveyed over the Internet.

Since the vendor model is based fundamentally on allowing access, for a fee, to a small number of dedicated users, problems occur when users with proper affiliation to a library attempt to use resources at a remote location. Some vendors have responded with their own proprietary systems to authenticate local users in order to access resources. However, these are inconsistent in their interface and often involve sharing passwords, which is a less than ideal form of authentication. In order to have a consistent login among multiple library resources, many academic institutions have set up proxy servers, such as Ezproxy (<http://www.ezproxy.com>) that uses one of several authentication methods (LDAP, Shibboleth, SIP, etc.) to allow a library user to enter their library account information and be authorized to utilize library resources outside of the physical library. Ezproxy, originally an open source project developed by a librarian was recently purchased by OCLC and requires basic server administration and knowledge of Unix. However, it is a low cost method of increasing a library’s presence in the online, mobile world.

With a proxy authentication method, library resources are truly available to all users, even without being physically present within the library or tied to a respective academic institution. Since users are accustomed to information online that is freely accessible any time they have Internet access, library resources that have walled subscription models open up to library users.

Open Access Movement

As stated above, library resources that have a subscription model are not ideal because they lock valuable scholarly information behind a wall that can only be access by users with access to a costly subscription. Since many members of the public are not aware that scholarly information can be accessed through a library, they often are

frustrated by the costs they are expected to pay in order to have access to walled content. In response to this, many libraries, educational institutions, organizations, and other entities are now providing some original content online free of charge. Created because many scholars believe research should be accessible to all, and in particular government funded research, these organizations have created “open” repositories of scholarly information and research.

There are numerous examples of open repositories. Universities worldwide have developed digital libraries of their institutions theses and dissertations and some institutions provide access to other scholarly content as well. These institutional repositories routinely utilized open source software such as DSpace (<http://www.dspace.org>), Fedora (<http://www.fedora-commons.org>), or Greenstone (<http://www.greenstone.org>) and can be set up with web server expertise. Institutional repositories then become resources of scholarly information provided by researchers affiliated with the organization that set up the repository. Many universities now require students to deposit theses and dissertations in their repository, making that content available to everyone online. Previously, dissertations and theses in the United States were only available through a third party and often at a large cost to the requestor. Other countries are beginning to develop this model further through projects such as the Networked Digital Library of Theses and Dissertations, EThOS (<http://ethos.bl.uk>) in the United Kingdom, and DART-Europe (<http://www.dart-europe.eu>).

Institutions and cultural organizations are also utilizing repositories by digitizing their collections and making them available online. These collections do not require a user to be physically present in the library nor do they require any fees for access. Collections are varied and can include items such as digitized out of copyright books, historical newspapers, image and photo collections, and virtually any other resource that can be digitally scanned. There are many collections currently available on the Internet, including the Google Books project (<http://books.google.com>), the Internet Archive (<http://www.archive.org>), the Library of Congress (US) Digital Collections (<http://www.loc.gov/library/libarch-digital.html>), and the British Library (<http://www.bl.uk>).

Another aspect of this movement has been the development of numerous periodicals that operate as open access journals. These journals, primarily in the sciences and often with a strong international scope, operate under the belief that scholarly information, especially when funded by a public entity, should be freely open to all. Additionally, because many scholarly publication subscriptions are quite expensive for an individual or institution to subscribe to, open access journals provide a no or low cost alternative. However, in order to recoup costs, many journals place the financial burden on those submitting articles for publication. Lists of open access journals are available at the Directory of Open Access Journals (<http://www.doaj.org>).

It is arguable to state that the entire open access movement would not be possible without the Creative Commons License (<http://creativecommons.org>). The organization Creative Commons as worked with various nations copyright laws to develop several licenses of material to make information available online. These licenses can be restrictive in terms that it may only be posted online or more open so that others can share it and derive other works from it. Many online repositories require users to select a Creative Commons license before submitting materials.

Organizing Research

There are many free tools available that allow library users to organize their research online and access it any time and anywhere. Tools such as Zotero, Delicious, and RSS Readers can organize information and feed the library directly to users. Libraries can encourage their users to utilize these resources as a virtual extension of the library itself.

Zotero (<http://www.zotero.org>) is a free citation manager that runs as an extension to the Firefox browser. Its primary function is to collect and cite data collected throughout the Internet, which is essential in an age that nearly all information is online. When a user finds a resource worth saving, whether it is a print item in a library catalog, an article in an online library database, or a website of interest, they can easily save it to their Zotero account. Once an item is saved, a user has many options to organize the information, note it, share it, and cite it directly from a word processing program with a plug-in. Another competing product that some libraries utilize is RefWorks (<http://www.refworks.com>), which has a paid subscription model, but has very flexible licensing terms. RefWorks allows users to import citations directly from many library databases, organize the citations, and integrate them directly into a word-processing program. The Refworks resource is oriented more to a research or university audience, while Zotero is easy to use for anyone.

Delicious (<http://www.delicious.com>) is another tool that can be used to organize information found on the Internet. Delicious is a bookmark organizer that utilizes user created taxonomies, or folksonomies, to organize links that are inputted by other users of the site. Delicious also has a browser plug-in that allows users to save links of interest and add "tags" to them. Tags are single word user generated descriptors that aid users in identifying, categorizing, and popularizing specific links. With the power of thousands of users tagging the sites they find interesting, user generated keywords emerged, as do popular sites based on a particular tag or keyword. Users can find new sites based on others with similar interests and tags. Delicious also enables users to save their bookmarks and access them from any computer or browser. Libraries can

utilize delicious for links they recommend to users because users can add tags that are worthwhile to them, creating a folksonomy of keywords that can be easily interpreted by non-librarians. It also allows libraries to show off their links and organize them into categories and tag clouds. Furthermore, users can tag items of interest with a library's name and can add personal content to a library's link resource.

A final tool that is instrumental and is incorporated into library services and resources is RSS, or really simple syndication. RSS are "feeds" that allow websites to push information out to users utilizing an RSS reader without forcing users to check a site for updates manually. RSS feeds have developed a near ubiquitous presence on the Internet and nearly all sites that provide regular updates have integrated them into their sites. The feeds have developed alongside blogs and other easily updated user created content, and many libraries integrate RSS feeds into their library news, lists of new books, links of interest, and to issue warnings of due materials. Updated information is then "fed" to users who have an RSS reader such as Bloglines or Google Reader, where they can see all of their feeds in one central place. RSS readers also allow users to organize feeds and subsequent information and save them for later use. Many library database and journal vendors, have also developed complex RSS feeds to inform users of when new articles are added within a certain search parameter.

The Library on your Phone

A new development to the library anywhere concept has emerged in the past couple of years: mobile websites viewable on devices such as "smart" phones. As mobile phones have become increasingly sophisticated and data cost rates have decreased, more users are using their phones as an important information tool. In the developing world, mobile phones are becoming increasingly ubiquitous, as cellular networks are less expensive and easier to install than wired networks. Much of the developing world never developed wired phone or data networks and the advent of wireless has allowed these countries to leap directly into the wireless world. As a result, mobile phone use is high in the developing world and is a major source for information and communication.ⁱⁱ

In the United States, libraries and library vendors are beginning to adapt their web presence into mobile sites. Most of these resources are fairly new and not very sophisticated. Libraries and vendors are beginning to emphasize mobile development and it is believed that there will be growth in the next several years. Examples such as the University of Illinois (<http://m.library.illinois.edu>), the University of Tennessee at Chattanooga (<http://www.lib.utc.edu/m/>), and the University of North Carolina (<http://www.lib.unc.edu/m/>) show what is capable of mobile sites at the present time.

Library vendors are also beginning to develop mobile versions of databases and journals, such as WorldCat (<http://www.worldcat.org/m/>), EBSCO, and IEEE (<http://ieeexplore.ieee.org/mobile>). Library online catalogs are beginning to get online interfaces, but many require extensive programming or operational costs.

Additionally, libraries are starting to supplement existing online chat reference services with AOL (America Online) Instant Messenger (<http://www.products.aim.com>), QuestionPoint (<http://www.questionpoint.org>), and Meebo (<http://www.meebo.com>) with text messaging or SMS services. There are several ways to accept questions through SMS or text messages, including a third party vendor such as with Mosio (<http://www.mosio.com>), or utilizing free services like Google Voice (<http://www.google.com/googlevoice/about.html>) in the United States or LibraryH3lp (<https://libraryh3lp.com/docs/h3lp>). An SMS reference service can be integrated with a mobile library website as well as be integrated into other chat reference services.

Conclusion

There are many ways in which libraries worldwide are redefining the library anywhere and anytime concept, often using free tools. Online library resources can be made available anywhere with a proxy server and open access and digitization is providing an increasing number of resources free online. Additionally, libraries and library vendors are developing resources that can be utilized over cellular networks on small devices, making the library even more accessible to the public.

ⁱ Ahmed, S. (2009). Fast internet becomes a legal right in Finland. *CNN Online*. Retrieved from <http://www.cnn.com/2009/TECH/10/15/finland.internet.rights/index.html>

ⁱⁱ Wright, T. and Yuniar, Y. (2008). Poorer Nations Go Online on Cellphones. *Wall Street Journal – Eastern Edition*, p. 84.