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Implementing VuFind: A Public Library Improves Electronic Search Quality and Saves Searcher Time

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Web-scale discovery services (WSDs) are a widespread phenomenon sweeping university libraries across the world. In this article the authors discuss this trend and their experience working on a test server with the open source discovery layer VuFind. Developed by Demian Katz of Villanova University, VuFind's potential to index not only the library's catalog but also proprietary databases through the integration of application program interfaces (APIs) offers public libraries the opportunity to develop a seamless website-to-catalog experience, thereby building a true virtual branch for their patrons.

KEYWORDS Web-scale discovery services, discovery layers, website development, open source, VuFind, virtual branch

DEFINING THE NEXT GENERATION CATALOG

Web-scale discovery services (WSDs) are a widespread phenomenon sweeping university libraries around the world. Implementations of Serial Solutions Summon and BiblioCommons, among others, have become commonplace both on and off university campuses. Many librarians and students fresh out of graduate school likely are familiar with the faceted searching and the integrated electronic content that discovery services provide users. However, WSDs have not yet been adopted widely by public libraries. Yet, such discovery layers provide users with distinct advantages over traditional library

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catalogs. The most compelling of these is the collocation of metadata from the integrated library system (ILS) and other proprietary or open-source databases into a "central index," which enhances the discoverability of potentially useful library materials, both physical and electronic (Hoeppner 2012). Providing online access to remote users is not simply a hot topic in technical services and administration realms; WSDs provide ideal virtual branch opportunities for both public and academic libraries.

VuFind, an open-source discovery layer developed at Villanova University, is one such WSD that libraries on a limited budget but with a savvy technology staff can offer their patrons (VuFind.org 2013a). The potential to maximize the use of online materials is enormous, as VuFind rarely returns null results and can be configured to mine the wealth of resources often shut behind layers of clunky log ins and multiple web page navigation clicks. Its ability to be configured to cull data from both a library's ILS and external sources is part of what has made it so attractive at the university level where hundreds of databases provide access to millions of resources. At minimum, in a smaller library setting these external resources include the library's traditional catalog—its cache of bibliographic records—and its subscription databases through such vendors as OverDrive, ProQuest, or Ebsco. In addition to removing barriers between the patron and the database, VuFind's faceted searching essentially mimics an online shopping experience. It offers a single search box with autosuggestions and the ability to limit results after an initial search by format, language, author, subject area, or any other facet the library cares to define. Most compellingly, VuFind's appearance is customizable so that it looks identical to the library's website. Because it provides users with a seamless transition from the library's home page to the catalog, this is a highly desirable feature and is the essence of the virtual branch.

USABILITY TESTING AT UNIVERSITY LIBRARIES

The establishment of a virtual branch is essential in the new world of increasingly digital libraries. Usability tests at university libraries implementing their own instance of VuFind (Yale, the university system of Georgia, and the University of Illinois) found valuable insights into patrons' search habits, as well as advantages and disadvantages to the WSD (Bauer and Peterson-Hart 2012, 350; Skinner 2012; Han 2012, 169). In order to further enhance patrons' search experiences, these insights may be applied to the public library as well. For example, patrons more commonly perform title searching than any other type of search. Facets are used most when they are located on the left side of the screen rather than the right (Bauer and Peterson-Hart 2012, 350). In addition, Yale's YuFind team discovered that patrons commonly use facets after an initial search to narrow their results by format

(Bauer and Peterson-Hart 2012, 354). While facets provide added functionality, cross references and other data located within authority records were not indexed by VuFind and were considered losses to functionality that existed in traditional catalogs (Skinner 2012, 214). This may not be a deal breaker for most public libraries, and Demian Katz, the lead developer of VuFind, has suggested that Villanova is investigating further refinements and hopes to incorporate better use of authority data in future updates (Katz 2010). In fact, the newest version of VuFind, VuFind 2.0, does allow for the import of authority data. In general, testers also found that implementing VuFind did not significantly affect the use of subject headings (Bauer and Peterson-Hart 2012, 355). What was clear, though, was that faceted searches brought to the forefront inconsistencies in cataloging; for example, duplicate subject headings and inconsistent use of authority headings or genres (Han 2012, 169). This is not a new problem, by any stretch of the imagination, but it could become more apparent to patrons given the way in which VuFind displays its facets. Finally, the "granularity" of cataloging is relevant to the quality of search results (Han 2012, 169–70). That is, the more detail provided about an item within a bibliographic record, the more relevant the results could be to patrons, which leads naturally to thoughts of saving the time of busy subject searchers.

Myung-Ja Han's (2012, 167) article on discovery services details a list of useful fields within the bibliographic record that are part of VuFind's indexing scheme and are covered in more detail on VuFind.org's (2013b) SolrMarc page. Those fields include location, subject area (or Dewey number), author, title, format, and general topics or genres found in the 655 field. Although these fields represent only those that the University of Illinois chose to display, they illustrate the extent to which VuFind may be configured to reflect a local sensibility and the necessity for quality cataloging. Public libraries that wish to have more local headings could simply alter or add tags to SolrMarc's index as they see fit.

SUBSCRIPTION DATABASE ACCESS

Currently, further innovations in the development of WSDs may be found in application programming interfaces (APIs) that are available from OverDrive, free of charge, and are offered by other subscription databases such as Ebsco. While Ebsco's API is not free, it and other proprietary services are worth investigating in order to make full use of the library's resources. These APIs allow VuFind to access subscription metadata and can provide real-time information on the status and medium of a digital item. In effect, a patron can log in to the library's website, type in search terms, and have results returned that include not only the physical items on the library's shelves but also the digital items in the library's collection. In addition, subscription

database services can act in place of MARC records in the ILS. This is good news for the public library that wishes to make its digital collection readily available to its patrons. However, it is important to note that the information may not be as complete as a library's bibliographic data. Here again, there could be issues with duplicate subject and/or author headings in VuFind's facets. Libraries that are considering relevant search retrieval should investigate the vendor's available data for completeness and weigh whether the library can afford the staff time to create or import quality records in place of some of the API's accessed information.

IMPLEMENTING VuFIND IN THE PUBLIC LIBRARY

As the district library for Centre County, Pennsylvania, Schlow Centre Region Library strives to provide access to information where and when patrons need it. Located in the heart of downtown State College, Schlow serves approximately 40,000 cardholders and has a physical collection of about 400,000 items. With a site that is juxtaposed between a rural community and a university campus, Schlow Library's patrons are diverse in their needs and their expectations. Circulation statistics have shown a growing reliance on electronic access to e-books and digitally downloadable materials (Schlow Centre Region Library 2013). This growth occurred despite a cluttered and hard-to-use website. When the library opened the doors on a new building in 2005, it also launched the Drupal-based site. At that time the site was streamlined with usability vastly improved over the previous one. The website has since been updated and maintained by the library's systems administrator and by the library staff. But, nearly eight years have passed and staff members, as well as patrons, began to comment on the busyness of the site and on their difficulty navigating to databases or finding the almighty *Consumer Reports*. It was determined that something needed to be done to address their growing frustration.

A complete redesign was in order and a small committee was formed to investigate the possibilities of building a new site—one that offered patrons a streamlined and easily navigable experience. Benchmarked data was used to identify libraries similar in size, population, and budget (Alloway 2012). Two committee members analyzed several of those libraries' websites and uncovered a compelling trend in the larger libraries: an integrated catalog and website experience. This integrated experience was largely aesthetic. Yet, the collocation of digital materials next to physical items was something of a light-bulb moment. We had been including links in bibliographic records to OverDrive for a few years, but had not thought that separate records might allow these e-books to be more immediately accessible for download, or that separately cataloged database materials might increase the usage of them. The systems administrator was aware of VuFind and suggested that such an

open-source tool might be just the functionality Schlow needed to fulfill its mission to "open doors" to the public online (Schlowlibrary.org 2013). It was decided that in order to redesign the website, the catalog, too, would need to be overhauled. VuFind was our choice.

The Web Authors Committee proceeded with their investigation of website design companies and is in the process of composing a request for proposal that will not only deliver a new site but also integrate a seamless instance of VuFind. In the meantime, Nathaniel Rasmussen, the systems administrator and I, a library technician, began work on a test installation of our own. We devoted approximately six hours a week for three months to the project. Those months consisted of research, implementation, and testing. During that time we had the unique opportunity to learn the ins and outs of the software in preparation for the future upkeep after a full-blown implementation.

We opted to run our test implementation on an Ubuntu server and downloaded the software necessary to run VuFind through the command-prompt interface. These included MySQL, PHP, Apache, and Java. Following the instructions from the documentation on Vufind.org, the installation took only a single afternoon. Initial configuration of VuFind took another hour and required reference to documentation on our individual ILS—in our case, SirsiDynix's Horizon. The first noticeable improvement over the traditional catalog was the speed with which VuFind indexed the records. There were obvious problems too; specifically, VuFind's inability to communicate fully with the ILS. For example, we could not control hold pick-up locations, renewals, or canceled holds. We also quickly discovered that there were missing records through the use of wildcard (*) searches and a comparison of the total records counted using the freely available MarcEdit. All e-books and downloadable audio books had failed to import. Subsequent tests proved that this was due to a lack of item information in the export file—part of the parameters set during the initial export from the ILS. Future exports from Horizon would take into account those records in the ILS without items—all the electronic resources—and records with errors, such as non-numeric tags. This will become part of a script and will run each night in order to ensure that VuFind is kept up to date. However, the larger issue with the import was found to be in the marc_local.properties in /usr/local/vufind2/import in which we had altered SolrMarc to look at the 999 field instead of the 001—VuFind's default configuration. When designating the 999, we neglected to specify \\$a. As is often the case, the larger issue came down to missing only a few characters. Once those characters were added, subsequent imports and indexing was speedy and all records were discoverable. Tuning VuFind followed installation and indexing. Most of this happened in the config.ini file. Here the library's Syndetics content was added and we began to adjust and remove facets in the facets.ini file. Finally, the config.ini file was tweaked one final time, thanks to advice gained from an active VuFind user forum. Holds,

pick-up locations, and renewals began working much to our excitement. We then created lists and tags to demonstrate the possibilities for patron interaction and reader's advisory lists. These aspects would prove exciting to the rest of the library staff in the forthcoming test catalog reveal.

While we did not attempt to adjust VuFind's style sheet, a brief presentation was conducted at the end of the implementation period. In it, a member of the website redesign committee presented the redesigned site's larger goal—the virtual branch. VuFind was then introduced to the staff in order to demonstrate the differences between a discovery layer and the traditional catalog. After underscoring its customizability and the improvements VuFind might offer patrons should it be implemented alongside a new website, staff responded favorably. They even expressed interest in knowing when they could expect this new, improved catalog to go live. Such a positive reaction was the desired outcome of our implementation efforts and we considered the project a success.

After the success of the project, we are now looking forward to a full implementation of VuFind with the coming website redesign. With the introduction of WSD, even we, a midsized public library, can build a virtual branch for our users. While VuFind is only one of many options available, public libraries interested in such innovations should consider investigating it as an open-source solution that may be implemented by one or two people working diligently.

CONTRIBUTORS

Maria K. Burchill is a twenty-two-year library veteran and a recent graduate from the University of Pittsburgh's Library and Information Science program. She is now head of adult services for Schlow Centre Region Library. With a strong background in cataloging and circulation services, she is interested in enhancing collection discovery and in improving the patron experience both in person and online. Because there is a growing need for digital content management, she focused her coursework on developing skills in open-source ILSs, in XML, and in content management systems such as Drupal and Dspace. Her passion for art and art history (Hogarth's works bear a striking resemblance to modern graphic novels) brings a creative perspective to the user-experience discussion.

Nathaniel Rasmussen is computer systems administrator for Schlow Centre Region Library and has been working there for most of his adult life—he started shelving books when he was fifteen. His interest in technology has always been through the lens of how to best provide public access to information, which is probably why he is so interested in the freedom that open-source software provides. His civic interests include serving

on two nonprofit boards, helping regional nonprofits and small businesses find sustainable technology, and buying whatever he can fresh and local. Personally, he enjoys playing electronic and folk music, collecting vintage vinyl (especially jazz), and spending time with his wife, two-year old son, and two dogs.

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