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Taming Lightning in More Than One Bottle: Implementing a Local Next-Generation Catalog Versus a Hosted Web-Scale Discovery Service

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Introduction

This paper compares implementing the VuFind "next-generation catalog" and SerialsSolutions®' Summon™ "Web-scale discovery service" at an academic library. Different though complementary, and both positively disruptive, these systems each offer easier searching for users through leveraging metadata. The paper discusses aspects of each implementation including purpose, function, architecture and development model, faceted interface, metadata management and interoperability, governance and project management, and differing perceptions and feedback from librarians and users. Since Google emerged as the preeminent Web search tool in the early 2000s, library users have clearly indicated they desire simpler and easier searching (Head and Eisenberg 2009a,

2009b, 2010; Caruso, Borreson, Salaway 2008; Smith, Salaway, Caruso 2009, 2010). Many academic libraries now use vended and open source, local and hosted link resolvers, federated search, and discovery systems, in various combinations. Implementing and managing all of these in different ways involves different sets of challenges. A mixed environment with a variety of approaches offers both promise and pitfalls, but can teach us a great deal about how to and how not to operate.

The Problem

Beginning in 2004, Western Michigan University (WMU) Libraries collected LibQUAL+ (Association of Research Libraries 2011) data indicating users' "less than desired" perceptions of the library search experience (questions IC-6, "Easy-to-use access tools that allow me to find things on my own" and IC-7, "Making information easily accessible for independent use"; note each question's emphasis on *independent* searching by users, i.e. unmediated by library staff).

As of the 2005-2006 fiscal year, WMU Libraries offered users a Voyager WebVoyáge 6.5.x online public access catalog (OPAC), and approximately four hundred general and specialized abstracting and indexing (A&I) and full text article databases and ebook packages from a variety of vendors, with the SFX® link resolver to facilitate access. The January 2006 Western Michigan University Libraries strategic plan contained four major areas of focus. The second area, *Sus-*

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tain and Improve Collections and Resources, and Access to Them, listed objectives and actions that included:

A. Objective: Improve physical and virtual access to existing collections

    1. **Action:** *Assess and improve effectiveness of current interfaces between library and patrons, including library Web site, signage and location devices*

    2. **Action:** *Simplify/consolidate electronic access to information and information types*

    3. **Action:** *Investigate federated search interface*

    4. **Action:** *Conserve and preserve library collections*

B. Objective: Increase awareness of existing collections

    1. **Action:** *Emphasize library outreach and improve communication with users*

    2. **Action:** *Catalog uncataloged collections*

    3. **Action:** *Investigate opportunities to provide patrons with evaluative information about resources (e.g. TOC's, reviews in OPAC)*

WMU Libraries began a process to renovate its website in 2006 (A. 1. above), and administered the LibQUAL+ survey again in early 2007. Once again, users indicated "less than desired" perceptions of the library search experience. After having implemented SFX in 2004, the Libraries had begun investigating federated search systems in order to improve the user experience (A. 3. above). However, a confluence of events during this period prompted staff to question whether federated search was a good strategy. In 2006, North Carolina State University introduced its faceted catalog (Antelman, Lynema, and Pace 2006), which allowed users to find and discover items, and quickly narrow to smaller sets, organized into facets exposing existing catalog metadata. This began a move toward the "next-generation catalog," which allowed libraries to use their cataloging data in new ways that were independent of the integrated library system (ILS). In 2007, Voyager parent company Endeavor Information Systems and SFX parent company Ex Libris™ merged (Ex Libris 2006). While SFX was a market-leading product, Voyager had not kept pace with Web usability and other trends. While Endeavor and Ex Libris each had new products in development, it was unclear which products from which side of the merger would have long-term viability. Also in 2007, the Libraries took a major budget cut, which made it

difficult to sustain a proliferation of locally hosted services on distinct physical servers that had grown over the preceding several years.

By that time, Google had become the searching tool of choice for most people (Connaway and Dickey 2010, p. 4 "The evidence provided by the results of the studies supports the centrality of Google and other search engines. … Google is often used to locate and access e-journal content."). High recall with the most relevant results at the top of the search results had become the norm. In response, the library search market began to shift from relatively rigid, precision-oriented finding, indexing very specific MARC fields and subfields, toward more flexible, recall-oriented discovery which took advantage of a greater number of MARC fields and subfields (while B. above focuses on communication, cataloging, and adding value to records, it also foreshadows the idea of increasing awareness of library holdings through recall of unknown items). Another major trend that emerged was "discovery" (Yang and Wagner 2010, p. 691 "A discovery tool is often referred to as a stand-alone OPAC, a discovery layer, a discovery layer interface, an OPAC replacement, or the next generation catalog."), a means of allowing users to query a catalog and one or more databases simultaneously and have results displayed through one interface. The discovery layer operated independently from the catalog and the databases, but still relied heavily on those systems and their own interfaces, pointing users to them for fuller record display and fulfillment. While the search experience was improving, there were still challenges for users, who continued to need help finding the best items for their purpose.

By late 2007, after having considered two federated search products (one locally-hosted and one vendor-hosted), WMU Libraries had decided not to pursue federated search and systems that depended on it. It was felt that federated search was "only as fast as the slowest database," meaning that a system that queries multiple databases at once returns results based on how quickly those databases respond. A slow response can lead to frustration, and a lack of response can lead to incomplete results. In addition, library staff perceived that federated search prompted libraries to bundle smaller database "silos" into larger silos, while not necessarily merging, deduplicating, and ranking results (Way 2010). While a researcher may find it useful to search several discipline-specific

databases in a discipline simultaneously, the process of selecting even a set of databases ran counter to the broad Google-like searching that most general users preferred.

While library leadership felt that other systems may have arguably presented better user interfaces, replacing Voyager with another ILS was not yet warranted due to the time and money required, the fact that Voyager worked well enough for technical services and circulation functions, and most importantly, the nascent evolution from the traditional ILS model toward a future more in line with more current e-content management needs (Ex Libris 2009). Rather, the Libraries would look to faceted discovery systems that made searching easier (Calhoun 2009, p. v "An advanced search option [supporting fielded searching] and facets help end users refine searches, navigate, browse and manage large result sets."; Hearst 2008, p. 1 "… the overall goals of faceted navigation are to support flexible movement through the information space, provide suggestions of navigation choices at each point in the search process, provide seamless integration with keyword search, allow for fluid switching between refining and expanding, prevent empty result sets, and provide a feeling of control and understanding without confusion.") through more flexible metadata indexing and use than WebVoyáge allowed. Because discovery tools really only existed for catalogs (A. 2. above points to a more desirable approach, not available in 2008), and the Libraries had two LibQUAL+ surveys' worth of data and other evidence including public service experience suggesting catalog improvement was needed, the Libraries investigated discovery-oriented "next-generation catalog" interfaces in 2008.

Choice #1: VuFind

By early 2008, there were seven available alternatives to WebVoyáge 6.5.x as a catalog interface: AquaBrowser® (MediaLab); Encore (III); Endeca®; Primo® (Ex Libris); VuFind (Villanova University); WebVoyáge 7 (Ex Libris); and WorldCat® Local (OCLC). WMU Libraries considered the seven alternatives based on *cost* (initial outlay and ongoing costs), *flexibility* (in leveraging local metadata, indexing, searching, display and other configuration), *Voyager compatibility* (could the system interchange data with Voyager), *self-sufficiency* (could the product stand partially or completely alone, or would it require other systems in order to function,

and to what extent), and *install base* (how many other libraries were using it). Regardless of the choice, some degree of decision-making, learning curve and work would be necessary (e.g., for such tasks as automated data export, user interface design, and configuration where possible). In brief, WorldCat® Local would only display OCLC-hosted metadata and not local notes. Though more configurable, WebVoyáge 7 did not offer significant features over WebVoyáge 6.5.x, and was built using different technology and Voyager's less flexible indexes. Primo® could have integrated federated search and the catalog, but it depended on WebVoyáge for detailed record display, and WMU Libraries did not intend to implement federated search (e.g. Ex Libris' MetaLib®). Endeca's software was prohibitively expensive, and had a very low install base. Other libraries had tried and given up on implementing Encore with a non-III ILS. AquaBrowser was fairly expensive, and had what staff felt was a "busy" user interface. All of the aforementioned were proprietary products, some were more configurable than others, and several required either additional local hardware or relatively expensive hosting options.

In contrast, though it was still in beta release, VuFind (VuFind 2008) had been designed in an academic library to work alongside Voyager, was open source and built using state-of-the-art open source software including Apache Lucene Solr, an emerging enterprise search platform. It had a growing install base of libraries and offered much greater index and interface flexibility and customizability than ever before. It offered popular services from other sectors, including "more like this", comments and tagging, and it could connect to Wikipedia for biographical information. Though it required local hardware, a library could design its own desired hardware infrastructure, using as many instances as needed for public-facing production, internal development, and other purposes, with no licensing or annual maintenance costs (Figure 1). As locally hosted software, it required considerable human resources for system administration, local customization, backup and disaster recovery, and data interchange with other systems. Libraries technical staff installed VuFind 0.8.1 beta on a local server in summer 2008, importing bibliographic records and selected holdings record data from Voyager based on a process already in use for a statewide catalog. Though VuFind's set of component open source software made it more complex to work with than

any public-facing system WMU Libraries had ever offered, the staff determined that it would be viable. As such, the nascent VuFind instance became the basis for internal testing. In September 2008, several key stakeholders including the Associate Dean for Public Services and Technology, the Director of Systems, the Cataloging and Metadata Librarian and the Systems Librarian made a presentation to library staff explaining the choice of VuFind.

A group of several stakeholders defined an initial VuFind basic project scope of maintaining at least the same level of search functionality as staff and users were accustomed to in WebVoyáge 6.5.x, while overcoming WebVoyáge's limitations for a better user experience overall. Balancing the expectations of Libraries and other WMU users who had adapted to WebVoyáge, against different user expectations based on general Web searching experience, proved to be a significant challenge as the project began (Ho, Kelley, and Garrison 2009). This coupled with the fact that VuFind offered complete control over which MARC fields and subfields were included in which indexes and weighted in search results, as well as great latitude in interface design, prompted the creation of a VuFind task force including most of the core technical team, and public and technical services librarians. The task force began meeting twice monthly to discuss desired search, retrieval and display functionality and behavior, and the technical team began working to configure VuFind 0.8.1 beta to meet task force expectations as closely as possible, as expressed in a functional requirements document. The document contained specific requirements organized in sets including backend/server, basic and advanced searching, record display, and indexing. It was updated periodically to show whether each specific requirement had been fully met, was in progress, or not yet started. The functional requirements document helped keep task force discussion focused and on track, and most importantly, prioritize work. VuFind did not contain elements such as an authority index, highly desired by librarians, but less important than fundamental functionality such as search and retrieval functionality for users, so developing an authority index took lower priority. Individual library personnel reported VuFind problems and requests via email to the same Numara Track-It! help desk management system that the Libraries used for all technology support. Technical team members compared these tickets to each

other and the functional requirements to de-duplicate them, and discuss relative priority with the task force.

A task force subgroup carried out a usability study in fall 2008 comparing finding items in VuFind alpha versus WebVoyáge 6.5.x, and generally found that users were more successful finding items in VuFind, with less failure than in WebVoyáge (Ho and Bair 2008). Several participants cited Google as a searching standard in their comments. The study also revealed interface design suggestions pertaining to use of color in various interface elements, number and wording of choices in limit drop-down menus, left versus right facet placement within the browser window, and more.

Based on usability and other feedback, WMU Libraries released a series of public beta versions of its new catalog in spring 2009. The task force continued discussing progress toward required and desired functionality, and came to understand that due to software and staffing limitations, not all functional requirements could be met in the current iteration of the catalog's development. At that point in time, the technical team took a simple team approach to adding functionality on the Libraries' VuFind server as they developed and adapted it from other VuFind sites.

As beta versions (which moved to Villanova's VuFind 1.0 Release Candidate 1, or 1.0RC1) with progressively increasing functionality moved WMU toward a desired local "1.0" release in fall 2009, the technical team dealt with issues the task force and users had identified in searching, retrieval, relevance ranking, sorting and display. The team continued its initial approach of customizing WMU's existing instance, which was not synchronized with the official VuFind source code tree, adding code and files as needed and inviting the task force to test the improvements. While this approach meant that the team could implement improvements relatively quickly, it also caused the Libraries' VuFind instance to diverge significantly from how others in the community were proceeding (a process known in the open source community as "forking"). WMU's VuFind 1.0 release (highly customized from 1.0RC1) joined the "classic" WebVoyáge catalog search on the Libraries' website, as the "new catalog". Users could enter a search in a single box, choose a search index from a single drop-down box, and click a "new catalog" or "classic" button to search (with classic being the default if the user pressed enter rather than clicking either button).

Some librarians began to use the new catalog in their research instruction classes, though many continued using WebVoyáge due to its more precise results, better-understood relevance-ranking and sorting behavior. In order to continue improving the search experience and staff understanding, Systems hired a student to extensively test and document how WMU's VuFind searching functioned. The student developed an understanding of how results varied between WebVoyáge and VuFind, and submitted help desk tickets documenting search results that did not follow the appropriate pattern (generally, that VuFind retrieved more results than WebVoyáge due to the fact that its indexes included more MARC fields and subfields, and most searches combined Boolean AND and OR sets into one result set sequenced by AND results followed by OR ones). Under the guidance of the Systems director, the student also went on to work directly with reference personnel to involve them more closely in testing. A reference librarian also joined the technical team, and worked with the student and reference staff to continue enhancing internal communication about how VuFind functioned.

Given that initial implementation was complete, the smaller task force gave way to general VuFind open forum sessions during fall 2009. By spring 2010, Systems had made several advances in how the technical team carried out its work. The team used the Track-It! help desk system to triage and manage all VuFind requests, exporting tickets into spreadsheets (and sometimes lists on the library's internal wiki) and prioritizing them at forum sessions. These tickets steadily declined in number from 2009 into 2010 as VuFind was continually refined. Tickets effectively replaced the initial functional requirements document, and also served to help the team identify and manage the "scope creep" that can occur with a major project of this nature.

The Systems director had created a set of VuFind virtual machines (VMs) on a few physical development servers, so that each technical team member had a separate development workspace for functionality, indexing, Web interface, and other work. To resolve code conflicts and overwritten files that began to arise between the VMs, the director implemented the same subversion version control system that the VuFind project team used locally across all WMU VMs. Individual technical team members began to update their own VM from an internal standard code base, and commit their changes back to the base. All code committed was placed on a pre-production VM called "nextcat", which allowed Libraries staff to preview and critique changes that would appear in the next production release on the main VuFind server known as "catalog". Releases were "promoted" from nextcat to catalog. The Libraries moved from releasing improvements and new functionality once per semester to twice and even three times per semester. In addition to allowing the technical team to complete sets of tasks before moving on to new sets, this more agile release cycle has inspired greater librarian confidence in VuFind (see Williams 2010 for discussion of agile software development).

Systems' programmer/analyst also increased the frequency of Voyager extracts and reindexes for VuFind. Initially, VuFind received a monthly full index from Voyager, with nightly additions. The programmer/analyst later instituted weekly full indexes with nightly incrementals, which has served the purposes of ensuring deletions are removed more quickly, and improving overall system performance and retrieval speed.

Villanova released VuFind 1.0 in July 2010. Having implemented the vast majority of development requests in its heavily-customized 1.0RC1 environment, now two versions behind 1.0, WMU Libraries decided to freeze development of its local VuFind implementation in fall 2010 and spend the bulk of the 2010-2011 academic year resynchronizing its implementation back to the 1.0 codebase. The original VuFind development project manager had left Villanova in 2009 and a new project manager had worked with the community to rewrite/incorporate some functions. In addition, WMU Libraries had made enhancements that the technical team wanted to propose to the community for inclusion in codebase (such as a "bookbag" function also in use at Purdue as of December 2010). Systems hired an additional graduate student in summer 2010 to compare the Libraries' VuFind functionality to a fall 2010 1.0.1 release from Villanova. The graduate student continues working with a team to determine which locally developed code should be retained, and which replaced by 1.0.1 code.

Choice #2: Summon™

In January 2009, having had experience with a faceted, recall- and discovery-oriented catalog interface, WMU Libraries discovered SerialsSolutions' Sum-

mon™ (SerialsSolutions 2009) beta at ALA Midwinter. Initially described as a hosted "unified discovery service" (and later, "Web-scale discovery"), Summon indexed a library's catalog records, and hundreds of millions of articles' metadata and full text obtained directly from publishers and abstracting and indexing database sources, in one normalized Solr index (Way 2010). Metadata from Open Archives Initiative (OAI)-compliant systems such as CONTENTdm and Luna could also be harvested into Summon's index. Summon featured a Google-like single basic search box, and an advanced search simpler than Google's and WMU Libraries' VuFind in terms of Boolean searching, but featuring quick volume/issue, date, format, and content type limits. Whereas the Libraries' VuFind facets included subject, call number (LC classification), format (book, CD, etc.), location, author, era and publication date (represented by clickable centuries and decades), Summon's included content type (journal article, book, etc.), subject terms, publication date (represented by a graphical "slider" tool and dropdown menu-driven date range selection) and language. Based on user testing results consistent with the Libraries' own for VuFind, Summon facets appeared on the left side of the results display. Above its facets, Summon also offered easy search refinement to just online full text, or scholarly and peer-reviewed articles. Users could also expand their search to include results in Summon's index not in their own library's collection.

A library could maintain its database and journal holdings in SerialsSolutions' Client Center administrative system, to which their Summon instance referred to display only articles in journals to which that library subscribed. In March 2009, WMU Libraries became the last Summon beta partner, securing a Summon instance prior to its official July 2009 release. Systems' programmer/analyst modified existing Voyager extracts for VuFind, including all bibliographic record fields and more holdings record fields, and automated an extract and transfer process similar to the one in use for VuFind. WMU catalog records were searchable in Summon by early May, and articles were searchable by late July. The process of establishing article searching in Summon was a very labor-intensive one for the Libraries' Technical Services department, given a mixed SerialsSolutions and Ex Libris product environment. Staff exported data from SFX and the Verde electronic resource management system into spreadsheets, and imported the spreadsheet data into the Client Center for further refinement (Boston and Garrison 2010).

Coming so quickly on the heels of VuFind, Public Services staff had very mixed feelings about Summon. It was more like Google, and completely different than any product libraries had ever offered. It was a beta version of a "first-of-breed" product (DeFelice, et al. 2009), and though it used a similar Solr indexing system to VuFind's, its relevance ranking was still in the process of being tuned. It contained duplicate records from multiple publisher and A&I sources for some items. Summon was built for simple, fast user searching, and had relatively limited record display capability. Though it would have been ideal to link directly to articles, most WMU-licensed, OpenURL-compliant content was still retrieved via SFX. Summon also referred users to a catalog for fullest book and other "container" record display; from the beginning, it pointed to WMU's VuFind (and like VuFind, it displayed item circulation status from Voyager). As with VuFind especially prior to WMU's local customization, librarians were frustrated by the sheer number of results Summon retrieved for a simple search, in part because newspaper articles were often predominant in search results. Though it was possible to quickly narrow a search using facets, users had to notice facets and be able to apply them to distinguish items. Being designed for unmediated user searching rather than for librarians' complex and refined search strategies in well-understood silos, and though it allowed Boolean searching within simple text boxes, Summon lacked the kind of multi-box Boolean-oriented advanced search interface to which librarians had become accustomed and preferred.

Whereas the Libraries could make local adjustments to indexes, stemming, sorting, relevance weighting and more in VuFind, SerialsSolutions was responsible for one unified approach to adjustments, for all libraries' hosted Summon instances. SerialsSolutions had an even more agile two- to three-week release cycle for new features, but had not yet perfected the cycle to the point that a given feature's best iteration would persist from release to release. However, the Libraries did observe this rapid release cycle to be beneficial. One simple request the staff made in June 2009 was to have a choice of sorting the subject facet's full list display by not only the number of records in which a subject was present, but also in subject alpha-

betical order. That feature became available in Summon for all instances by the end of July 2009.

Following internal testing, a rollout task force began a phased launch for WMU's Summon instance in September 2009, placing an orange advertisement consistent with Summon's search button on the right side of its website's main page. Users could click on the advertisement and open a new browser window to try Summon's Google-like single search box. In January 2010, the advertisement was replaced by an orange block containing a Summon search box (labeled "Power Search" after some discussion of an appropriate term, given that like no tool or system, Summon did not, nor was likely to, expose everything the library held through a single search). To avoid user confusion midway through the academic year, the block was kept separate from the Libraries' tabbed search box featuring *Catalog* ("new" VuFind and "classic" WebVoyáge), *Articles* (ProQuest Research Library), *Journals* (SFX) and *Databases A-Z* (homegrown database displaying databases by title). In September 2010, Power Search was integrated into the tabbed box in the first position, becoming the default search option.

After WMU Libraries began testing Summon in summer 2009, the product was continually refined, and discussed in internal open forum "Summon Sessions". A SerialsSolutions email newsletter, email list for Summon clients, and webinar series publicized early adopters' work with the product to date and new developments. By fall, session-based citation saving and export through email and popular bibliographic management software became available. An "exclude newspaper articles" search refinement was added. Major improvements in Summon's relevance ranking began to occur by early 2010, as the Summon development team replaced the existing relevance ranking algorithm with an entirely rewritten one. The team replaced the system's stemmer, and made major strides in deduplicating the index (though some duplicate records persist for individual libraries as of January 2011). By spring, a database recommender displayed specific library-subscribed databases at the top of search results for very broad searches. Client libraries began using Summon's API and search scoping options to offer searching and present results in different ways (Klein, 2010). By fall, times-cited counts appeared for Summon-indexed items that were also indexed in Web of Science. Local LibGuides became integrated into Summon, appearing at the top of

search results. During all of this development, new publishers continued joining the index, and the Summon customer base grew from the initial seven beta partners to over 150 libraries. WMU Libraries perceived that SerialsSolutions' support response slowed during the period of high adoption, though the increasing number of libraries brought faster peer response to client email list questions. Additionally, the centralized nature of Summon's functionality meant that when an improvement was made upon one library's request, it became available to all libraries.

Conclusion

In the 40-plus-year history of library automation, libraries have arguably faced the greatest flux, uncertainty and disruption in the information marketplace since 2006. Google, Web 2.0, e-content, e-commerce, and especially the technology underpinning and delivering those developments, have offered user experiences to which libraries must adjust and aspire in order to remain relevant. While they have both involved a great deal of work, learning, communication and collaboration, and need much more user research and statistical analysis, both VuFind and Summon have helped WMU Libraries meet its objectives of exposing more of its collections more simply than ever before. Considering that WMU has had Voyager since 1997, VuFind since 2008, and Summon since 2009, it is still relatively early in the implementation of the latter two systems.

Local open source systems offer local decisions, control, and costs. While this can accommodate local traditions and practices, that very idea can also make it very difficult to reach, and especially maintain over time, agreement on how to proceed. Though a library may be able to rapidly iterate a feature, it is critical for staff to thoroughly test each new development against a documented set of expectations. Local hardware and staff costs have been considerable given how many individuals have been involved in WMU's VuFind implementation. Hosted commercial systems offer much less local control and a different cost, which can mean no local hardware and much less library staff time for implementation, but can also breed greater skepticism and distrust toward a new system (i.e. in a new class of systems), especially if the development process is not as transparent as it can be for a local open source system. In both cases, the recall-oriented Solr has proven to be a very disruptive indexing technology for li-

brarians accustomed to traditional indexes. While it is easier to understand VuFind's Solr index due to its more limited content, Summon's index containing normalized library, publisher, and database metadata requires a major mind shift. The authors have heard anecdotally from multiple Summon clients echoing that their librarians have had great difficulty understanding exactly what Summon indexes, thinking of it in terms of databases, rather than the published content indexed in those databases.

Though it does not yet offer all of the functionality that staff have requested, WMU Libraries' VuFind implementation had far fewer open development tickets by fall 2010 than previously. Overall, staff agreed that the system had reached an acceptable development stopping point for the project of merging local customizations and the 1.0.1 codebase. Once the merge project is finished, the technical team hopes to rely more on community code, and develop less local code. One major benefit of the merge project is that it prompted the technical team to create a new consolidated set of spreadsheets containing all work done on VuFind to date, as requested by Libraries staff as well as internally among the technical team members.

Both systems remind the library community of problems that preexisted them. In addition to the idea that link resolvers developed in the early 2000s were not designed to work with the discovery systems that followed them, a significant proportion of vended content is not OpenURL-compliant, making some link resolver links fail. While users may not be fazed by very large Google result sets, they require top results to be highly relevant. Students may consider Summon "Like Google but for the library" (Crystal 2010), but libraries have only just begun to reconcile retrieving and displaying library content based on finely-honed, very specific metadata through systems that behave more like Google's much more liberal algorithms. Fagan has done an excellent literature review on faceted system usability, including recommendations for those conducting future studies (Fagan 2010), but some users have not yet adapted to the concept of facets. An anonymous WMU user commented that Summon does not work for searching for musical scores; upon executing the user's search, the authors surmised that the user did not notice that the Content Type facet in fact showed the same six musical score results that VuFind returned through the same search. While WMU Libraries took an initial approach of offering both VuFind and Summon with little marketing or user documentation given their utility for those beginning research and those with interdisciplinary interests, it has become clear that more marketing and instruction are needed to help users understand which materials found are the most appropriate ones for their purpose. Further study in usability, session, search, and other statistics, and especially user satisfaction with results, is needed, to understand how to better leverage tech-

TABLE 1 **SFX Usage Statistics for Summon**						
Query 2 : Number of requests and clickthroughs per source (for Summon)						
2010	**Source**	**Requests**	**Click-throughs**	**% Requests**	**% Click-throughs**	**Ranking**
January	info:sid/summon.serialssolutions.com	2,302	2,044	4.80%	8.46%	4
February	info:sid/summon.serialssolutions.com	4,054	3,798	6.27%	5.87%	4
March	info:sid/summon.serialssolutions.com	3,765	3,564	5.05%	7.89%	6
April	info:sid/summon.serialssolutions.com	3,236	3,023	5.42%	8.98%	5
May	info:sid/summon.serialssolutions.com	1,154	1,056	3.23%	6.90%	7
June	info:sid/summon.serialssolutions.com	1,690	1,575	4.11%	7.90%	5
July	info:sid/summon.serialssolutions.com	1,154	995	3.19%	6.61%	7
August	info:sid/summon.serialssolutions.com	4,263	3,814	12.51%	27.06%	2
September	info:sid/summon.serialssolutions.com	13,144	11,660	20.66%	33.43%	2
October	info:sid/summon.serialssolutions.com	30,385	28,123	31.99%	44.16%	1
November	info:sid/summon.serialssolutions.com	36,928	33,905	38.16%	50.93%	1
December	info:sid/summon.serialssolutions.com	15,952	14,264	40.00%	54.50%	1

niques such as search scoping that WMU Libraries and others have begun to apply (e.g. searching for only books/ebooks, only articles, or everything in the index), and how to incorporate discovery systems into information literacy programs in multiple modalities.

In January 2010, when VuFind was the default search on the Libraries' website, Google Analytics showed its basic search had 8,867 page views, compared to 4,185 for the classic catalog and 1,314 for Summon. By October 2010, when Summon was the default, it received 15,641 page views to VuFind basic's 3,136 and classic's 1,981. In January, 713 users reached SFX from Summon, and that number reached 8,113 in October. As expected, once Summon became the default, it began to receive vastly more use than other tabbed box choices. Consistent with Way's 2010 study of Summon's impact on use, WMU Libraries found that in March 2010, Summon was the sixth-highest referrer to SFX, representing 7.89% of clickthroughs. By November, Summon had become the top referrer to SFX, representing 50.93% of clickthroughs (see Table 1). Summon's recently released statistics tool should help staff better understand traffic flows and content use patterns in the context of clickthrough, COUNTER, and other data.

While most catalog use has already shifted to VuFind, WMU users and librarians are gravitating to Summon, with some especially interdisciplinary users asking librarians why they would need to search specific databases any longer. Some users have begun to report that Summon saves them time, as compared to needing to search multiple databases. Improving the catalog searching, retrieval and display experience prior to implementing Summon has proven very beneficial due to Summon's limited record display functionality (a problem Summon shares with other early discovery systems briefly mentioned on p. 6). Each system offers a similar experience, and WMU Libraries is considering how make them more similar. The technical team has begun to consider how to offer an integrated and refined view of both not only in Summon, but also in VuFind, for different constituencies. Though highly disruptive at its nascent stage, and offering many interesting problems yet to solve, WMU Libraries has embraced the discovery landscape. The increasing number of libraries adopting VuFind, Summon, and a number of other similar systems indicates that the library field as a whole is truly working to remain relevant to today's ever-evolving user.

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