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Finding the Right Fit for Article Delivery: Using Resource Sharing Technology to Provide Enhanced Access

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Abstract

Electronic subscriptions occupy an ever increasing majority of budgets and prevent libraries from expanding services in other areas. There are few attractive options for libraries who want to provide access to research materials to users in a way that is cost effective and simple for users. Libraries are caught between subscriptions to single journals, large packages, or article-level purchasing that is either not instant or must allow access to everyone, which can quickly become costly. The IDS Article Gateway platform, developed by the IDS Project and SUNY Polytechnic Institute Library, uses resource-sharing technology and workflows to deliver fast or instant access to research material to users in a way that involves little or no staff time and removes as many barriers to user access as possible. Where resource sharing has typically sought to deliver articles in one to two days, libraries using Article Gateway deliver articles either within a few minutes or a few hours.

Introduction

In the past, resource sharing and interlibrary loan (ILL) have helped users gain access to research material far beyond what their libraries could afford as a single institution. Going forward, resource sharing can offer many options for libraries to provide users instant access to research material in a way that is convenient yet cost effective, allowing users to have expanded access without the need to wait a day or more for access. The Article Gateway application integrates with various Web services, providing IDS Project libraries with more options for access to research materials while also removing the need for staff to review requests.

Using IDS-developed resource-sharing technology as the foundation, the IDS Article Gateway can automate verification of copyright and licensing for the requested article, determine the best price for purchase from article vendors, and can apply user profiles and system configuration that will allow more refined instant purchasing of research articles. The Article Gateway platform opens up another method for libraries to meet the information needs of its researchers and students and helps to ensure that content is delivered in the most seamless and cost-effective manner. IDS Article Gateway fully automates resource-sharing article requests and allows for automatic borrowing of articles from other libraries or purchasing articles from document providers. Article Gateway also standardizes and completes citations to ensure that the data used for the automated decision is accurate and that staff time is not needed to correct request information.

Literature Review

The development of modern library systems allows connections through applications or middleware that can provide increased options for patron access and enhance library services. Article Gateway utilizes IDS Logic, which is a recently developed middleware program that connects various library software systems and can serve to apply complex rules based configuration. In the past decade, there are many examples of individual libraries using application programming interfaces (APIs) or Web services to address issues, streamline work, or enhance library functions. Additionally, library vendors are beginning to include access to data within systems through APIs and allow for connection to systems via Web services and APIs. However, beyond developer networks such as Online Computer Library Center's (OCLC) developer's network (<https://www.oclc.org/developer/home.en.html>) or the Ex Libris Developer network (<https://developers.exlibrisgroup.com/>), which are meant for sharing ideas and code, there is not a large community based on technology integration and development. The IDS Project brings together a community with ideas and strategies about how to improve libraries and connects them with a platform and development expertise to integrate systems and foster innovation.

Recent examples of resource-sharing system integration through application and software development reveal how much effect software solutions can have on library functions. For example, in 2011, Wayne State University created an application that connected data from its two

systems, ILLiad and ArticleReach, and submitted orders to the Copyright Clearance Center (CCC) API, saving over 500 staff hours per year spent paying royalties (Sharpe & Gallagher, 2011, p. 137). Services such as CCC and the global library cooperative OCLC are ripe for integration, and the positive effect in saved time is evident, even with applications that are limited in scope.

As resource sharing and library cooperation expands, especially outside of North American libraries, there will be an increased need to connect disparate resource sharing and library management systems, as there are different systems used by international libraries. As OCLC has expanded resource sharing in Spain and other countries, Rodriguez-Gairin and Somoza-Fernandez (2014, p. 487) identified a need to connect OCLC's WorldShare Management platform with the GTBib-SOD interlibrary loan system already in use in Spain. Further, the solution identified by Rodriguez-Gairin and Somoza-Fernandez (2014, p. 487) suggests using web services and APIs to connect the two resource-sharing systems and remove the need for duplicate work in systems.

The software platform that allowed the most customization and optimization has been ILLiad, developed by Atlas Systems, and supported by OCLC. In many cases, ILLiad has been extended beyond its core purpose of being a complex hub for resource sharing into a core system that libraries have integrated into many areas and departments. With the experience developed by many libraries and the IDS Project in integrating library services platform components, OCLC services, ILLiad, and other software systems, the potential is great for further development.

As the IDS Project developed a community of talented librarians and staff, and systems matured to become more open to integration, there is now the ability to connect "mission critical" systems that will "support better, more informed decisions and free employees to undertake higher-value tasks," which will ultimately "offer the capability to unlock talent and time" (Oberlander, 2012, p.15). The promise of freeing time and talent through improved systems was at the core of many of the software projects that have come from the IDS Project, which has resulted in staff who have more time for professional development, are more engaged with an innovative community, and can contribute more to their individual libraries and the IDS Project community.

The development of resource-sharing systems has automated many tasks in interlibrary loan work, but requests from patrons to borrow an article from another library or purchase from document delivery providers have not been fully automated due to a variety of obstacles. One obstacle is that even though OpenURL linking systems have been commonplace for several years, users still often manually enter requests, and sometimes data is not correctly imported through the link resolver. In Leykam's (2013, p. 106) study of four years' worth of ILL borrowing requests, he found that 59% of requests were manually entered rather than through the library's link resolver, SFX. Surprisingly, students manually entered ILL requests more often than faculty and did not use the direct linking capabilities of the OpenURL resolver (Leykam, 2013, p. 110). In addition to incomplete or inaccurate citations due to OpenURL mapping or manually entered information, the issue of checking copyright status of the request is another barrier that typically requires staff to review a resource-sharing request. The need to have staff review all requests for copyright is even more necessary with increased usage of article purchase-on-demand options, which are often less costly than paying a copyright fee to borrow the article from another library. Heather L. Brown (2012, p. 101), in studying the comparison of copyright payments with purchase on demand of articles, found that over \$500 could have been saved in the course of a semester, with purchases being filled in almost half the time of traditional ILL. In addition to article purchasing via interlibrary loan, libraries are also considering whether pay-per-view unmediated services such as CCC's Get It Now are cost-effective options for delivering access to journals.

Many libraries are exploring multiple models to deliver research material that includes article purchase on demand, subscriptions, and resource sharing. In the case of Loyola Health Sciences Library, the use of a hybrid approach using CCC's Get It Now to deliver journal content saved the library over \$640,000 in related access costs (Hendler & Guden, 2016, p. 368). In addition, Hendler and Guden see the value of ILL to deliver material in a cost effective and very quick manner (for Loyola under 11 hours), but also acknowledge that article purchasing has its place in the merged world of access and collection management (Hendler & Guden, 2016, p. 369). For the users in a health sciences library, "if it is the weekend or if the user wants the article immediately, they might not elect

to use ILL. Get It Now fulfills that need for immediacy and prevents customers going outside of the library to meet their needs" (Hendler & Gudenas, 2016, p. 369). As libraries move toward different models for providing access to research material, there will certainly be a need for more complex configuration of delivery options based on user need and user status.

IDS Technology Development Methodology

The development of technology to provide extended access to patrons has always been the focus of the IDS Project community and the interlibrary loan community as a whole. One of the major IDS Project developments was the Getting It System Toolkit (GIST) that allowed staff to "easily route requests between ILL and acquisitions depending on a number of factors, such as user recommendations, the borrowing cost versus the purchase price, regional library holdings, and more" (Pitcher, Bowersox, Oberlander, & Sullivan, p. 224, 2010). Another development focusing on user needs for ease of discoverability across siloed member catalogs was the consortial catalog IDS search, providing users with an "intuitive search experience which enables libraries to easily customize the search interface and add geographic search limits" and a tool allowing for an almost instant submission of ILL requests for items held at regional libraries (Oberlander & Rivenburgh, 2012). The focus of Article Gateway has been to take the approach of GIST and IDS search in which different options for purchasing or borrowing are weighed and firmly connect the role of resource sharing workflows and methods of delivering journal access that is not provided through subscriptions.

As IDS Logic serves as the platform that integrates multiple systems, determining a way to streamline maintenance of electronic holdings information and license information with the resource sharing workflow was necessary. This need led to the development of the Article License Information Availability Service (ALIAS), which is now a component of the IDS Logic platform. ALIAS harvests data regarding electronic holdings that libraries already have in their knowledgebase software, such as EBSCO's Full Text Finder or Serials Solutions 360 Link, and combines this data for all 100 IDS Project member libraries to provide a basic local article availability

lookup and an unmediated request system. Thus, libraries have less maintenance responsibility, benefit from identifying items they own, and are able to send requests only to libraries who can deliver the article they need with extremely high success rates at an accuracy typically over 97%. Rather than create a separate system, ALIAS uses OCLC resource sharing for sending these requests, which keeps more transactions in one familiar workflow.

One major positive of IDS Logic is that, on a nightly basis, all the data for each of the 100 member libraries (except for unique patron information such as name, ID number, and username) is pulled from each library's ILL system. This data is then aggregated so that reports can quickly be run across the consortia to find areas in ILL workflows that are affecting services. In many cases, the data and analysis provide insights into how much effect specific steps or aspects of ILL workflows have on patron services. In October 2016, using ILLiad data for all 100 IDS Project libraries from January 1, 2016, through October 24, 2016, we found that ILL borrowing requests remained in an ILLiad queue "awaiting copyright clearance" for an average of 8 hours. The awaiting copyright clearance queue is typically designated for requests that need staff review to determine if license fees need to be paid, or whether the CONTU limits have been met. The total number of IDS Project requests analyzed were 228,019, with a total of 1.824 million hours (or 76,000 days) that ILL requests sat waiting for staff to review copyright. Clearly, copyright clearance has a major effect on ILL delivery time.

Article Gateway

Article Gateway (AG) features the depth of what is possible with the complex middleware software platform IDS Logic combined with configurable workflows and options. The AG workflow streamlines and automates fixing of citations, checking for copyright clearance and compliance, and, when needed, checking multiple article vendors for best prices, ultimately leading to an unmediated delivery for most requests. To ensure that copyright checking is as accurate as possible, borrowing articles all must have ISSNs and have fairly consistent citations. To achieve an all ISSN process without forcing staff to open many requests, citation data is sent to the PubMed Web service and to the OCLC Worldcat and xID Web service to harvest ISSNs,

PMIDs, and other citation information that is then ultimately inserted back into the transaction for a verified and standardized citation. In addition, the date, volume, issue, and other citation information are then run through custom scripts that standardize citation information so that years and other citation data can be clearly compared. Additional queries such as the “rule of 5” query, which checks to see if five requests from the same ISSN have been filled within the past year, is run to prevent the need for staff to review requests. If copyright limitations have been reached, then the Article Gateway platform checks copyright licensing fees, pricing from CCC’s Get It Now service, and Reprints Desk Article Galaxy service. Whichever option offers the best value is then selected by Article Gateway, and the request is fulfilled with no staff intervention or delays. Whether a request with an incomplete citation, no ISSN, or a request for an article where a copyright payment is needed, IDS Logic and Article Gateway work to facilitate almost instant delivery.

The Effect of Article Gateway

Two of the major goals of the Article Gateway platform is to significantly reduce the average turnaround time for ILL articles while also reducing the number of requests that staff need to manually process. One of the major users of the Article

Gateway system is the University at Albany which saw major benefits of Article Gateway, including a much improved turnaround time in addition to a decreased need for staff intervention for processing, as outlined in Table 1:

Although SUNY Polytechnic Institute is a much smaller institution than the University at Albany, the effect of Article Gateway on article delivery was significant in improving service for a large percentage of the roughly 2,250 article requests placed from Fiscal Year 2015–2016. Table 2 shows the total percentage of requests at SUNY Polytechnic Institute in Fiscal Year 2015–2016 that were delivered in 4 hours or less, indicating that by having Article Gateway remove obstacles in the ILL borrowing article workflow, ILL can become a near instant option.

Through the case studies at SUNY Polytechnic Institute and University at Albany, the effect of Article Gateway in making ILL a nearly instant option that requires significantly less staff time is clear. With more configuration and by enabling Article Gateway to trigger purchases during certain days or times, ILL can become an increasingly favorable option for patrons to access articles not held by their institution.

Table 1. Effect of Article Gateway.

ILL Workflow Issue	Effect of Article Gateway
Turnaround time for articles.	Improvement of 16 hours, from 1.58 days in the fall of 2016 (before use of Article Gateway) to .91 days in the spring 2016 (after Article Gateway was implemented).
Requests with incomplete or citations needing standardized information such as full years.	67% (5,720) of article requests had citations fixed or standardized.
Number of requests requiring copyright review.	2,637 requests identified as copyright not required and automatically sent. 589 identified as needing copyright payment or article purchase.

Table 2. Article Gateway turnaround time at SUNY Polytechnic Institute.

% of Total Requests	Delivery Time
1	Under 10 minutes
4	15 minutes and under
10	30 minutes and under
17	60 minutes and under
24	2 hours and under
30	4 hours and under

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Current State of Article Gateway

As of November 2016, beta testing has been underway for over nine months at three libraries,

with 15 more libraries currently in production. Additional libraries are being added weekly, with the goal of having 30 libraries using IDS Article Gateway by the end of calendar year 2016 and 60 libraries using Article Gateway fully functional by the end of Fiscal Year 2016. As more libraries adopt IDS Article Gateway, new features and functionality will be added, such as open access filtering, expanded delivery configurations, and a customizable analytics dashboard.

References

- Brown, H. L. (2012). Pay-per-view in interlibrary loan: A case study. *Journal of the Medical Library Association*, 100(2), 98–103. <https://doi.org/10.3163/1536-5050.100.2.007>
- Hendler, G. Y., & Gudenas, J. (2016). Developing collections with get it now: A pilot project for a hybrid collection. *Medical Reference Services Quarterly*, 35(4), 363–371. <https://doi.org/10.1080/02763869.2016.1220751>
- Leykam, A. (2013). The road not taken: SFX, ILLiad, and interlibrary loan submission methods. *Journal of Interlibrary Loan, Document Delivery & Electronic Reserves*, 23(2), 97–121.
- Oberlander, C. (2012). Why mission critical systems are critical to the future of academic libraries. *Computers in Libraries*, 32(8), 14–18.
- Oberlander, C., & Rivenburgh, E. (2012). The IDS project: Promoting library excellence through community and technology. *Interlending & Document Supply*, 40(2), 76–80. <https://doi.org/10.1108/02641611211239533>
- Pitcher, K., Bowersox, T., Oberlander, C., & Sullivan, M. (2010). Point-of-need collection development: The getting it system toolkit (GIST) and a new system for acquisitions and interlibrary loan integrated workflow and collection development. *Collection Management*, 35(3/4), 222. <https://doi.org/10.1080/01462679.2010.486977>
- Rodriguez-Gairin, J., & Somoza- Fernandez, M. (2014). Web services to link interlibrary software with OCLC WorldShare. *Library Hi Tech*, 32(3), 483. <https://doi.org/10.1108/LHT-12-2013-0158>
- Sharpe, J., & Gallagher, P. (2011). Developing a web API for interlibrary loan copyright payments. *Journal of Interlibrary Loan, Document Delivery & Electronic Reserves*, 21(3), 133–139. <https://doi.org/10.1080/1072303X.2011.585099>