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Moving Toward Shibboleth Authentication: A Canadian Academic Library's Perspective

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Abstract

Moving towards Shibboleth authentication has been a slow process for Canadian academic libraries. This article is intended to provide an overview of the current status of Shibboleth implementation from a Canadian academic library's perspective. The author will begin with needs analysis for Shibboleth authentication for a Canadian academic library, then proceed to explore the issues and challenges surrounding Shibboleth implementation, and finally discuss the key roles of the stakeholders as well as potential collaborations among them.

Introduction

Shibboleth was developed specifically to address the challenges of accessing online resources inside and outside of a user's organization. More and more research and higher education institutions have adopted Shibboleth for its ability to control over an organization's data and to protect the user's privacy. It enhances user experience through its offering of Single Sign-On functionality, "where logging into one service automatically logs into all others."[1] Figure 1 illustrates how the system works.[2]

"*Shibboleth* is among the world's *most widely* deployed *federated identity solutions.*"[3] In Canada, the Canadian Access Federation (CAF) provides a trusted access management environment for Canadian research and higher education communities, currently operated and managed by CANARIE (Canada's Advanced Research and Innovation Network).[4] The CAF community is relatively small comparing to its sister federations in the United Kingdom and in the United States. Table 1 is a comparison chart.[5]
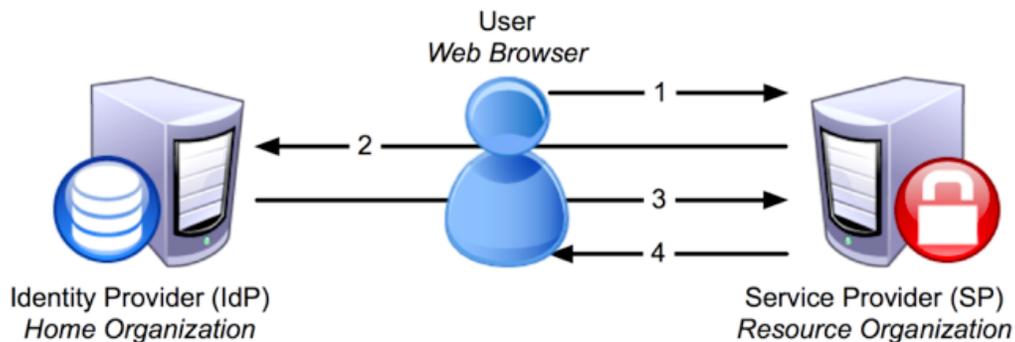
Figure 1. Interaction Between the User, the Idp, and the SP. Diagram Courtesy: https://wiki.shibboleth.net/confluence/display/SHIB2/NewUnderstandingShibboleth

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[1] http://pkp.sfu.ca/wiki/index.php/Setting_up_LDAP/ Shibboleth

[3] http://shibboleth.net/
[4] http://www.canarie.ca/en/caf-service/about
[5] https://refeds.org/resources_list.html

	InCommon (US)	UK Federation	CAF
Identity Providers	214	919	22
Shibboleth Service Providers	140	*	14
Enabled end users	> 5 million	~ 3 million	976k

Table 1: Comparison of InCommon, UK Federation, and CAF. See: http://www.ukfederation.org.uk/content/Documents/AvailableServices

Apparently, moving towards Shibboleth authentication in Canada still has a long way to go.

This article is intended to provide an overview of the current status of Shibboleth implementation from a Canadian academic library's perspective. The author will begin with needs analysis for Shibboleth authentication for a Canadian academic library, and then proceed to explore the issues and challenges surrounding Shibboleth implementation, and finally discuss the key roles of the stakeholders as well as potential collaborations among them.

Needs Analysis

There is an increasing demand for Single Sign-On on campus. For example, a student logs into a Learning Management System (LMS) using his campus login. When he tries to access a licensed online resource or a service provided by a third party, he will need to log in again, either using his campus login or another set of credentials obtained from the service provider. Since Shibboleth provides Single Sign-On capabilities, which allow a single user authentication action to serve multiple applications, the student will only have to log in once. Shibboleth has also been used in various library services, such as log in to an Interlibrary Loan (ILL) system or a library catalogue, etc. Other uses may include staff wikis, ticket tracking system, and so forth.

McGill University is on the move, too. It has recently implemented Shibboleth and started to use it for campus-wide systems, such as Desire2Learn, a cloud-based LMS, and for library services, such as direct access to e-resources provided by EBSCO, ProQuest, and Elsevier. We are also in the process of integrating Shibboleth with VDX, an ILL system developed by OCLC. The goal of this project is to authenticate users through Shibboleth, where campus-wide login will be used instead of VDX-specific login, which requires a patron registration process.

Shibboleth is essential for large-scale collaborative projects like HathiTrust.[6] HathiTrust only supports Shibboleth for inter-institution authentication to allow specialized services, such as PDF downloads for public domain works, for persons affiliated with partner institutions. With Shibboleth, McGill Library recently joined the HathiTrust Digital Library community. Access to HathiTrust digital repository has been enabled through McGill Shibboleth authentication system.

Access to library licensed e-resources through IP-based authentication, such as VPN and EZproxy, requires a vendor maintain a database of IP ranges for all its customers, either by the vendor itself or by the customers via an admin interface provided by the vendor. This is not convenient for customers either, because they need to inform all the vendors of any IP changes or to update their records in the database. The fact is that many academic libraries subscribe to databases from hundreds of publishers and aggregators. Librarians have spent too much time setting up IPs and dealing with vendors on IP-related issues, which are not really their jobs.

Shibboleth can be enabled for direct access to vendor databases from off campus. This is particularly attracting mobile users because no pre-setup is required. EBSCO, ProQuest, Elsevier, and some other vendors offer a Shibboleth authentication option. McGill has recently completed the set up with EBSCO, ProQuest and
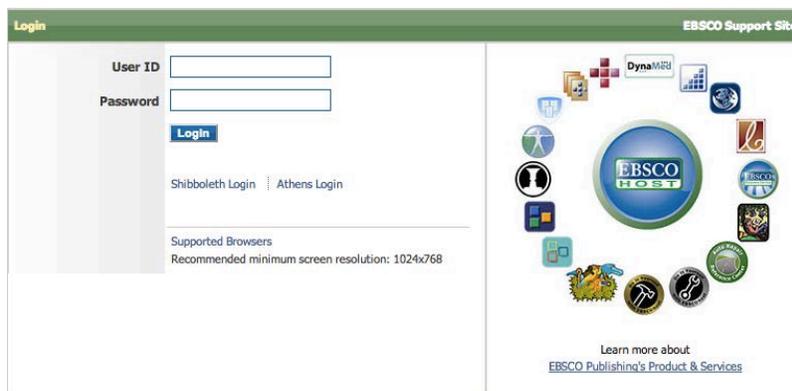
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[6] http://www.hathitrust.org/

Figure 2. EBSCO Login Interface

Elsevier. Configurations with other major vendors are currently underway. Figure 2 shows EBSCO login interface, which contains a link to Shibboleth authentication page.

Issues and Challenges

As mentioned above, there are not many CAF participant vendors. What stops the vendors from joining the CAF? For smaller vendors, the lack of technical staff prevents them from implementing and supporting Shibboleth; for bigger vendors, since many of them are from the US, even though they do support Shibboleth, they may not be willing to join a federation in another country, not only because of another process, but also the membership fee and sponsorship requirements. In addition, since the Canadian market is relatively small, they may not see much benefit from joining the CAF. As a result, some Canadian academic libraries may not be interested in Shibboleth implementation, because they may see little advantage by doing that. This perhaps can explain why there are not many CAF member institutions as a whole.

Implementation of Shibboleth increases the level of complexity to the campus access management, presented by the co-existence of the traditional IP-based authentication (e.g., VPN, EZproxy) and the identity-based authentication (e.g. Shibboleth). This hybrid model will likely continue to exist for a while due to the fact that not all vendors will shift to Shibboleth, or otherwise, not at the same time. As such, integration of Shibboleth with the proxy system will become an on-going effort.

Shibboleth is a service to multiple campus applications, such as ILL, LMS, and EZproxy. The integration of Shibboleth with all these systems can be very difficult. The difficulty may not just be the technology itself, but also the data integrity among the systems.

In many cases, Shibboleth (plus LDAP) servers and proxy servers are managed by campus IT and library respectively. Since setting up Shibboleth with vendors also requires some special expertise from the campus IT, the setup usually has to be done by campus IT; however, library e-resources are managed by the library. This operation model can potentially introduce some conflicts in the configuration of the two systems.

Shibboleth is implemented for many services on campus, not just for library services. A library priority project may not necessarily be a priority project of campus IT. Communication plays an extremely important role in such collaborative projects across different campus units.

Moving Forward

As indicated above, Shibboleth implementation re-defines the roles and responsibilities of the stakeholders: campus IT gets involved with library e-resources access management by working directly with the vendors; library, on the other hand, becomes a coordinator, overseeing implementation by the campus IT and coordinating projects among the parties; vendors work with both the library and the campus IT. It is essential that communications among the stakeholders be transparent and in a timely

manner to ensure successful implementations and delivery of quality services. All challenges are also opportunities. Stakeholders can learn from others through collaborations.

With the above overview, the author would like to propose the following suggestions:

- For CAF
  - o Initiate and build a platform for information sharing and collaboration.
  - o Build connections with other federations and standards organizations, such as NISO, to promote best practices in Canada.
  - o Encourage and support more service providers to join the CAF by simplifying the process and reducing or even waiving membership fee.
  - o Work with CRKN and CANARIE to streamline access for Canadian Universities to electronic publication services.
- For institutions
  - o Adopt Shibboleth and join the CAF.
  - o Offer sponsorship for vendors to join the CAF.
  - o Set up a joint library-campus IT committee to address campus-wide access management issues.
  - o Offer professional development opportunities to staff involved in access management.
- For service providers
  - o Support Shibboleth and join the CAF.
- For system vendors
  - o Support standards for Shibboleth integration.

Shibboleth is a standards-based, open source software package. It is anticipated that Shibboleth will be adopted by many more institutions around the world and used in a broader range of systems and applications. It is a critical mission for Canadian academic libraries to foster and facilitate world-wide collaboration in research and learning. Moving towards Shibboleth authentication is an important step in fulfilling the mission.

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