Assignment 3: Tools Report

Discussion within the library, archive, and museum (LAM) community often centers around the "global" nature of our work, and therefore why access to information should not be gatekept or confined to the four walls of an institution's building. Organizations are increasingly making their content available online and even joining with other institutions virtually to create digital consortiums of information. While most of this content is easily available with the click of a mouse and a stable internet connection, one segment in this space remains technologically guarded: licensed third-party content. Accessing restricted content while physically inside of an institution's building has always been possible but what does a user do if they are not physically in or near that building? Reviewing the history behind the technology that makes this possible, discussing what that technology looks like today, and analyzing its impact on libraries will be the focus of this paper.

Gone are the days when students spent most of their class time on a physical campus or public library patrons searched databases in-person. Between online degree programs, branch closures, and global pandemics, the ways in which people interact with libraries' digital content has continued to experience rapid changes. However, providing access to licensed content off-site is not a new problem. In the late 1990s, librarian Chris Zagar created a tool — that is still in use today — to solve a

then-incipient problem: EZproxy. True to its name, EZproxy is a server software program that makes it easier for libraries to restrict content without requiring end users to conform to specific browser settings or hardware requirements (Bunton, 2017). Working as an intermediary between library users and the restricted content they want to access, EZproxy first authenticates a user's identity and then provides access to the vendor content by swapping the user's IP address with EZproxy's own (OCLC, 2023). In order to understand how this works, it is helpful to review how vendors use IP addresses in general.

According to Bunton (2017), vendors use IP addresses supplied by a subscribing institution to determine whether to allow or restrict access to content. Traditionally, this restriction was determined by location, and not the individual, as a campus can set a range of allowable IP addresses that are assigned to devices when they connect to the network on campus (p.119). EZproxy works because although the user's IP address would identify their location as being off-campus or off-site, the vendor instead receives the proxy server's IP address, which has already been registered with the vendor by the institution. Therefore, the content can be accessed by the user as if they were on-campus or on-site. Bunton (2017) refers to this process as *URL redirecting* (also referred to as *URL rewriting* by OCLC*)* because the EZproxy server redirects (or rewrites) the URL request that is sent to the vendor.

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OCLC's (2021) EZproxy product documentation provides insight into the code behind the software. Whether an institution self-hosts the server tool or uses OCLC's hosted option, the technology is the same. The URL rewriting process is made possible by a *config.txt* file that contains a list of an institution's available database resources, along with instructions called "directives" that describe which resources users have access to. When combined, the resources and instruction directives are referred to as *database stanzas* that EZproxy will then read to a) offer or deny access to content, depending on user authentication and b) determine how to rewrite the URLs. Stanzas can include a variety of configurations, but most consist of six directive statements: *title*, *URL*, *Host*, *HostJavascript, Domain*, *and DomainJavascript* (OCLC, 2021). Besides *title*, the other statements in the stanza are different ways to list available databases or resources in the config file that EZproxy will then compare the URL request from a user to. If the user has been authenticated for access, EZproxy will then rewrite the request URL in a way that the vendor recognizes as coming from the institution, not the individual user.

While the foundational technology has not changed much over the years, EZproxy's ownership has. A 2008 OCLC press release announced that less than ten years after its release, the nonprofit library services giant had acquired EZproxy with the aim of expanding its authentication capabilities and ensuring long-term

development support for the tool. Referring to EZproxy's widespread adoption, Zagar said, "When Harvard and MIT were among the first to sign up for EZproxy, I knew I had underestimated the problem of authentication and access to these licensed materials" (OCLC, 2008). OCLC also has a tool called IDM-Connector (Identity Management Connector) that appears to be a part of the rewritten URL that is used for authenticating users at their institution and authenticating institutions with vendors.

As briefly mentioned earlier, OCLC offers institutions the option to either locally host EZproxy, although this might only be available for pre-acquisition customers, or to subscribe to their hosted version of the software (OCLC, 2023). West Virginia University (WVU) libraries found that while self-hosting was more cost-effective and gave them greater control over server settings and database stanza updates, migrating to OCLC's hosted version saved them staff time, offered increased usage analytics, and allowed them to create specific user groups that reflected the variety within their academic community (Heady, 2021). Similarly, library staff from Buswell Library at Wheaton College found that most of the staff's time was spent updating stanzas for EZproxy to read — a burden that was relieved when the library migrated to OpenAthens' single sign-on (SSO)-based proxy system which included

staff resources at OpenAthens specifically dedicated to updating IP addresses with vendors on behalf of the library (Ruenz, 2022).

Ultimately, EZproxy is a simple technological solution to a common business dilemma: in the digital age, how do companies make it easy for authenticated users (customers) to access paid content while preventing those who are unauthorized from doing the same? For almost 25 years, the server-side tool has helped thousands of institutions in over 100 countries offer their users off-site access to content and is still a popular choice among libraries (OCLC, 2023). However, in the same way that EZproxy was an innovative response in its time to a changing digital landscape, newer tools are now emerging that rely on interoperable SSO authentication protocols which provide an even easier and more streamlined experience for users and information staff alike. No matter where remote access trends find LAM institutions in the future, EZproxy is undeniably the “shoulders of giants” that newer technologies stand upon and is worthy of its place in the canon of library technology innovations.

References

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