What's Mine is YOURLS

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ABSTRACT

Hyperlink management is critical to website functionality because a site with dead links is not fully operable for the end user. In libraries, links used for marketing, course materials, electronic resources, social media, and other uses are laborious to maintain. Often, these links are long, unreadable, and unmemorable. In order to streamline link maintenance, improve link usability, and promote resources, an open source, short link manager called Your Own URL Shortener (YOURLS), was implemented at an academic library. This primer describes this process. Not only does YOURLS shorten links, it also acts as a database link manager. Long URLs are then shortened into compact readable formats on a hosted domain. With YOURLS, updating URLs for existing resources can be done in one place. This negates the need to update all instances of a URL on different platforms.

Keywords: Libraries, electronic resource management, hyperlinks

INTRODUCTION

Link management is a time consuming process and in the library environment this is compounded by the need to manage many links for electronic resources to which the library subscribes or has access. When changes to a resource link need to be made, there are multiple places that the link needs to be updated including the website, LibGuides (our research guide platform), social media, and classroom materials. Therefore, when a link is changed by a content publisher, every link location must be updated in order to prevent dead links, also known as "link rot". While most library websites and Libguides are updated regularly, social media links are often left to expire. In order to simplify the link maintenance process, librarians at the New York City College of Technology, CUNY, implemented an open source link shortener and manager called Your Own URL Shortener (YOURLS). It is similar in function to proprietary short link services such as: bit.ly, ow.ly, goo.gl, or tinyurl. By using YOURLS, we are able to update links within the link manager and then all instances of that link are automatically redirected through YOURLS to the new shorter link. This redirection is core to YOURLS functionality because it operates as a linking partner between the original link and the shortened link. For example, the short URL for EBSCO Academic Search Complete is: http://cityte.ch/asc, instead of its long proxied URL.

YOURLS also operates as a database of links that an administrator can search and update, which provides a clear advantage over the free versions of proprietary short link services. In these free proprietary services the links can be shortened, but there is no way to search or update them. Also for proprietary short links, if the vendor closes the platform all the shortened links on that server are now dead.

The YOURLS software is self-hosted by the library using a registered domain, http://cityte.ch. The domain is branded specifically to be City Tech, which is the local colloquial name for the New York City College of Technology, CUNY. It was hoped that through this branding end users would quickly become comfortable with the short domain. However, when the short domain was presented to students, some were a bit wary because it ends in .ch instead of .edu. While there may be an obstacle in getting users to come to trust our short domain, it is not insurmountable as there is also a function in YOURLS that tracks usage. Therefore, we can track the usage of our short links and have found that they are used frequently to access library resources. These usage statistics can demonstrate the rate at which short links are utilized in contrast to the longer form of the URL.

Many libraries utilize proxy servers to manage authentication for electronic resources. Links that authenticate through a proxy server have a proxy prefix which can make the link very long. These long links are

practically impossible for the typical user to memorize, so the end user must refer back to the library website to access the resources and be proxy-authenticated. In contrast, short links are easier to remember and the end user can simply memorize the custom URL. Even though the custom URL is short, it is still a proxied link and authenticates through the proxy server. This means that users visit fewer web pages to access the same resource.

The Web Services Librarian set-up a short domain name for the library and the Technical Services and Electronic Resources Librarian designed the workflow to replace long proxied links with YOURLS shortened links. In addition to shortening the links for use on the Library's website, the metadata in Drupal was exported to an Excel template provided by LibGuides, a popular research guide web CMS. Then, that spreadsheet was used to populate the A-Z list database assets in LibGuides. These assets standardize linking to our databases in our LibGuides even though we do not use it as our A-Z list platform.

Social media is also another place where using short links is beneficial. Most social media platforms have limitations, such as character length on Twitter or the inability to create hyperlinks on Instagram. In these environs, short links provide an advantage because they are compact, more easily read, memorized, and transcribed.

Short links can also be used in both print and digital promotional materials. The library has two plasma screens which display digital flyers to display library news and publicize events. It is much easier to read the short link from afar as students are entering or exiting the library. Printed flyers are sometimes used to promote a resource. Because the end user cannot click on the printed flyer, it is beneficial for the web address to be succinct for the end user to be able to replicate in their browser. Short links are also frequently used in classroom handouts, in order to simplify access for students. In the days of mobile phone ubiquity, short links are usually easier to use on mobile devices because they require fewer keystrokes, supporting better usability and accessibility.

LITERATURE REVIEW

Link Management and the Dynamic Web

Managing electronic resources via a link shortener can be conceptualized as part of a larger trend in which the internet is becoming a more dynamic as opposed to a static structure. In dynamic webpages, the code is not static HTML, but rather is encoded to query a database and then present the results of that query on demand in the form of web content to the end user (Eye, 2006, p.31). Using a short link manager, links are not static but the shortened versions result in a database query to retrieve the long original links.

Some contend that link shorteners contribute to link rot because in the database query that prompts redirection, there is another opportunity for failure. This could mean that link redirection over the long term will significantly impede the efficacy of the Internet. If the server is no longer updated, then the short links will gradually become inactive as pages disappear or change location. This is of particular concern when using a proprietary service such as bit.ly. If a proprietary service ceases, then all the links will go dead and there would be universal link rot of the short links (Schiller, 2010, p.13).

Marketing and Promotion

Short links are often used in social media because they are cleaner looking and save space on character-restrictive platforms, like Twitter. In a study of short bitly URLs versus long URLs on Twitter, it was found that in comparison to the control set, the short URLs "generated orders of magnitude more clicks," (Kandylas, 2010, p.1127). Not only do short links save space, they can be useful in promotion because they can be branded using vanity domains. In a study of non-profits, it was found that most organizations are not using promotional venues, such as Twitter to their full capacity, and that in order to Tweet effectively, one must have short links (Lovejoy, 2012, p.314). Librarians at Eastern Illinois University utilized YOURLS to shorten links for their blog, and found it useful for promotion of electronic resources and blog posts. They branded their short domain with the name of their library to increase the effectiveness of promotion efforts (Vaaler, 2016, p.15). While short links are beneficial for promotion due to their size, there is a tradeoff in server response time.

Creating a short link saves space by about 91% for 51% of the links. While it is clear that link shortening saves space, there is an issue with timeliness of reaching the web address. Given that reaching a web address is the primary function of the internet, this is of concern. Researchers found that using a URL shortening service increases the amount of time it takes to access a website by 54%. While this delay is less than ½ a second, it still could be taken into account as a large scale internet slowdown around the world (Antoniades, 2011, p.722-23). Therefore, while short links are beneficial for

marketing and promotion, they are not as efficient in their actual purpose; connecting users to web content.

Spam and Privacy

One major contention regarding short URLs is that the actual address to which the short link redirects is not viewable to the user until they click on it. This ability to mask the web address by using a short link has been used by spammers and other cyber criminals to deceive unsuspecting users. To do this, spammers purchase inexpensive domains and then shorten links to inappropriate, unexpected, and malicious content. While these domains usually expire or are shut down, they are usually not stopped before they reach a lot of victims (Gupta, 2014, p.22). This is a privacy concern for the end user because they are not exactly sure to which site their data is being communicated. However, researchers found that by examining the behavior of the link, including who posted the link and who clicked on the link, they were able to accurately determine whether or not the link was nefarious. (Cao, 2015, p. 703) While YOURLS has its downsides, it is clear than the benefits for link management and promotion make it an appropriate tool for use in diverse settings, including libraries.

Implementing the short link server and registered domain

There are some prerequisites before installing YOURLS on a server. The server must have PHP and MySQL installed. PHP is a scripting language used to render web pages and MySQL is a database server. MYSQL contains the short links, proxied URLs, database names, and statistics for YOURLS. A YOURLS MySQL database is necessary for the YOURLS software to function.

Once the server has PHP and MySQL, the next step is to download the package from the YOURLS site (http://YOURLS.org/). YOURLS comes with a configuration file that requires important setup information. This includes the MySQL database name, domain name, user name, and password, which are entered into this file.

Although it is possible to install YOURLS as a subdirectory on a website, it is counterintuitive if the goal is to shorten URLs. The reason being, is that an additional subdirectory will create a longer URL. For example, if a site's domain is "www.domain.edu/YOURLS," the link will be much more to input into a device.

Link Shortening Workflow

Before embarking on the project, the Technical Services Office Assistants checked all the links on the A-Z list to ensure that the links were up to date and that the resources were still active. Most of these links go through our proxy server, which requires a long proxy prefix in front of the web address to the resource. For example, a proxied link for Science Direct would look like this: http://citytech.ezproxy.cuny.edu:2048/login?url=https://www.sciencedirect.com/. These proxied links are functional for authentication, however they are not user friendly, are difficult to type on a mobile device, and are not easily shared through print materials.

The workflow provided to the Instructional Design Intern was as follows:

1) On A-Z list, copy proxied link address to the database.

2) Enter the acronym for the resource to be the unique key for the custom URL in YOURLS.

3) Copy link address of the short URL and paste the short URL into the library's A-Z page on the Drupal powered library website

4) Export the data from the A-Z list in Drupal to the A-Z list in LibGuides.

The Technical Services Librarian and Instructional Design Intern then shortened the links for every resource by inputting the long proxied URLs into YOURLS. The resulting URL is much shorter and is easier to work with on all available outlets. For example, a shortened URL for ScienceDirect would look like this: http://cityte.ch/scd.

Finally, we copied the shortened link in YOURLS and pasted it into the A-Z list in Drupal. This way, the links on our A-Z list are much more compact, user friendly, and easily updated. The Technical Services Office Assistants then checked the links again to ensure that any errors that were made were caught and fixed.

Takeaways

The following sections are reasons of how YOURLs can be beneficial when properly implemented. This includes the management and stabilization of links, promoting materials digitally, promoting materials offline, maintaining LibGuides, and harvesting statistics. Although this primer focuses on electronic resources, this can be applied to link management of learning management systems, electronic reading lists, or

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situations that require the coordination of multiple URLs.

YOURLS MANAGES & STABILIZES LINKS

Not only does YOURLS effectively shorten links, it also acts as a link manager, allowing an account administrator to update short URLs in one place. This ability to manage the third party linking structure enables greater link stability. However, it must be noted that if the short link server goes down, then access to all resources is suspended. While server disruptions can be problematic, utilizing YOURLS for link maintenance has significant advantages over the traditional model of link maintenance.
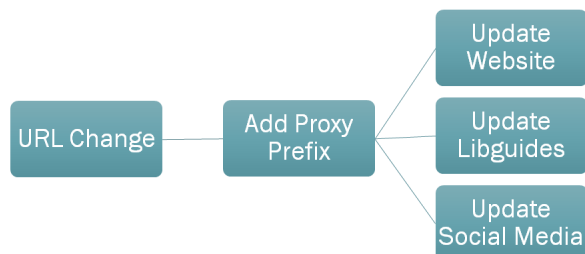
Figure 1. Traditional Model of Link Maintenance

In the traditional model of link maintenance, when a content provider changes a URL there are typically multiple instances of that link that need to be updated. Therefore all instances of the link on the website, social media, research guides, and on printed material need to be updated to ensure seamless access to the resource for end users. If there are few instances of this URL, it is not very time consuming. However, updating links is often much more involved than just a few link changes. Also, although the website and LibGuides have link crawlers that detect dead links, preventing link rot is a more timely approach versus waiting for a crawler to determine that the link is no longer operable. YOURLS offers a much more straightforward method of updating URLs, which streamlines, simplifies, and standardizes the workflow. See Figure 1.

In the YOURLS model of link maintenance, when a content provider updates the URL to an electronic resource, one only has to update the link in YOURLS. Then, all instances of the short link will be automatically redirected to the new link via YOURLS. Therefore, YOURLS is the nexus by which the links relate to one another. See Figure 2.

Figure 2. YOURLS Model of Link Maintenance

One major benefit to utilizing YOURLS is that it is compatible across all the platforms the library manages, this makes it ideal for standardizing promotion of library resources and services.

YOURLS CAN PROMOTE MATERIALS DIGITALLY

The library has multiple avenues for which we promote materials and services. The library has two plasma screens that rotate digital flyers. It is very important that the links remain short on these flyers, so they can be read from afar. See Figure 3.

**Figure 3. Digital flyer promoting chat reference.**

A few times a semester email blasts are sent to blanket lists for faculty and staff promoting electronic resources or library services. One may at first think that link length is not as important in an email, however, the proxied links are very long and can be bulky in the email body. If the link is too long for the space in the email, it can wrap in some systems, making it unclickable and ineffective. Also, because the long links are not memorable to the average end user, the user will have to keep going back to the link location that they know, such as the library's A-Z list, in order to access the resource. Therefore, a compact URL could mean less clicking for the end user in the long term.

On various social platforms it is clear that shorter is better. Twitter, for instance, has a 140 character limit, although long links are automatically shortened in the process of posting. Instagram does not support linking out. Therefore, short links on Instagram are practically

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essential if you want users to utilize posted links. In the traditional model of link maintenance, links on blogs and social media are rarely updated. By utilizing YOURLS, these links will remain active as long as they are updated in the database.

YOURLS CAN PROMOTE MATERIALS OFFLINE

Print flyers are occasionally used to promote electronic resources or library services. When designing print flyers, it is also important to use short URLs, because the user has to transcribe the URL from the print material to reach the web address. A short link is more effective and efficient as it can be easily typed when compared to a long proxied link. See Figure 4.
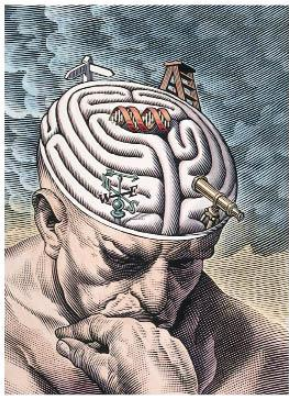
Figure 4. Print flyer used to promote chat reference using a short link.

MAINTAINING LIBGUIDES AND AVOIDING LINK ROT

LibGuides has an A-Z list feature, which are used to organize electronic resources by name, description, and URL. While we do not use LibGuides as our A-Z list platform, we wanted to populate the A-Z list in that platform to standardize linking in our guides. We exported the data from the A-Z list in Drupal into an import template spreadsheet provided by SpringShare. Then we uploaded the data into LibGuides and updated existing links with the standardized assets. This means that each of the databases is an asset in the system. Therefore, if the asset in the system is updated, all instances of that asset in all Libguides will be updated. By standardizing assets in LibGuides, we can lessen the impact of link rot on our LibGuides which will create less maintenance work in the future. Since the short links were used in the assets list, LibGuides will need to be less frequently updated if the link changes.

HARVESTING STATISTICS

YOURLS keeps analytics of how many times short links were clicked. This provides information on what electronic resources are the most popular. These statistics can be used as evidence to justify continuation or cancellation of resources. See Figure 5.

Figure 5. Most popular databases according to YOURLS statistics.

The columns represent different aspects of the URL. The first column is the shortened URL that goes have the domain. The second column is the proxied URL. The date the short URL was created is in the third column, with the IP address of where it was created in the subsequent one. The final column is the number of clicks for that short URL.

Google Analytics (GA) can also be used to keep track of what short URLs are being clicked on. There is a discrepancy between YOURLS and GA statistics, since YOURLS was implemented long after GA was adopted. However, as time goes by, there will probably be more synchronization of these tallies. In GA, the "Total Events" column represents the number of times the short URL has been clicked on. The "Unique Events" represents the first time a user clicks on a resource. For our library, however, these statistics aren't completely accurate since computers in the library are used by multiple users and not single unique ones.

A CAVEAT

One problem we experienced with replacing the long links for the YOURLS links on the A-Z list is that one weekend when maintenance was performed on the servers, the YOURLS server went down. Our users had no access to resources on the A-Z list webpage. If we had not been utilizing short links on the A-Z list, we

would not have encountered a problem with these links. However, once the problem was identified, it was resolved quickly and involved restarting the server. The impediment is that if YOURLS goes down, then all of the links go down.

CONCLUSION

Short links can be of great use when promoting and teaching users how to access library resources efficiently. This improves accessibility for our end users as the domain is memorable and efficient to transcribe. Also, YOURLS can be used to transform the hyperlink management workflows for new and updated materials. By utilizing short links on the A-Z list, administers can more easily manage link updates, and ensure that links used on all the various platforms are standardized and kept current as long as YOURLS is systematically maintained and updated.

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