The NISO IOTA Project: Improving OpenURLs Through Analytics

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The inspiration for the IOTA (Improving OpenURLS Through Analytics) project came in 2008, when Adam Chandler of Cornell University started thinking about OpenURL quality issues. Chandler had been puzzled as to why OpenURLs some-times would not resolve properly to lead users to the desired resource, so he began reading about the problem. At about the same time, Cornell professor Eric Rebillard wanted to improve linking out of the database L'Année Philologique, so Chandler and his colleague David Ruddy teamed up with Dr. Rebillard to see if they could find a way to measure OpenURLs from L'Année Philologique and determine how they could be improved. This project was awarded a Mellon Planning Grant, and during the project Chandler and his colleagues developed a method for extracting metrics from OpenURLs to determine how "good" an OpenURL is (i.e., how likely is it that a particular OpenURL will resolve with success and lead a user to what s/he is looking for). The final Mellon Grant report is available at

http://metadata.library.cornell.edu/oq/files/200902
%20lannee-mellonreport-openurlquality-final.pdf

From this, the OpenURL Metrics Working Group, later renamed the IOTA Working Group, was born.

Chandler approached NISO with some of the findings of the L'Année Philologique work and began to gather data and to build the working group. IOTA is a two-year research project attempting to examine OpenURL data and determine if it is possible to develop a qualitative report that would help an OpenURL provider (a publisher or online hosting service) to quickly compare their OpenURL quality to that of their peers, using a method that is fair, transparent, and scalable across millions of OpenURLs and hundreds of providers. Users, of course, benefit greatly from OpenURL and the resolver system that currently exists, and OpenURL has enabled them to reach the scholarly information they are looking for much faster now than in the time before link resolvers. Nevertheless, following a reference link in an attempt to access the full text frustrates users too often when full text actually is available. Often this is because the metadata in the OpenURL sent by the source vendor is not sufficient to link the user to available full text.

The IOTA Working Group hopes to achieve a number of outcomes. The group intends to develop a qualitative report that will help an OpenURL provider to quickly compare their OpenURL quality to the quality of OpenURLs from other OpenURL providers. It may also be possible for the group to

make recommendations for link resolver vendors, as parsers and link-to syntax also play an important role in successful OpenURL resolution, and currently each link resolver vendor uses its own parsers and link-to syntax for OpenURL resolution. The group hopes that its work will lead to better OpenURLs across the industry, and ultimately to more success for library users. The work the group is doing will determine whether these outcomes will be possible, and how recommendations might be made that will allow the scholarly information community to achieve them.

The IOTA Working Group has been gathering data for several months, and Chandler and others have built an OpenURL quality metrics reporting system at http://openurlquality.niso.org/. The system allows an operator to use analytics and run reports to examine the types of elements that are showing up in OpenURLs and the frequency with which a variety of OpenURL elements (such as article title, ISSN, DOI, authorlastname, startpage, endpage, etc.) show up in OpenURLs from a wide variety of source databases and source vendors. There are currently approximately nine million OpenURLs in the system, which have been supplied by libraries and intermediaries. Available reports are described more fully on the project Web site.

Another desired outcome of the project is a vendor completeness index. One of the premises the group is working with and attempting to test is that the more information a source provides as part of an OpenURL, the higher the likelihood that that OpenURL will enable a user to reach the full text, if it is available. One question the group is trying to answer is "Is it possible to show the relative ranking of source vendors based on how complete their OpenURLs are?" Of course it is not just the *number* of elements present in an OpenURL that lead to success. It also matters *which* elements are present. For this reason, the group is also trying to determine if it is possible to create a weighting index for the elements that are likely to show up in OpenURLs, to create an accurate picture of the overall quality of the OpenURLs coming from a particular source.

There are a lot of variables and ways of approaching the problem. As not much work has been done in this area, and the group is making progress on the initiatives mentioned here, IOTA is off to a good start.

To follow the IOTA Project:

Reports:

http://openurlquality.niso.org/

NISO page:

http://www.niso.org/workrooms/openurlquality

Blog:

http://openurlquality.blogspot.com/

Twitter:

http://twitter.com/nisoiota

or @nisoiota

To post comments on the IOTA page via Twitter, use #nisoiota

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http://www.uksg.org/sites/uksg.org/files/uksg_link_resolvers_final_report.pdf

Some statistics about librarians' confidence in the quality of OpenURLs can be found in an article by Adam Chandler, "NISO IOTA: Improving OpenURLs Through Analytics, in Context", in the journal *Against the Grain*
http://ecommons.cornell.edu/handle/1813/19495

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