

# The OpenURL Framework and Toll Access

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## Problem Statement

The most authoritative information often remains inaccessible to many researchers due to high access charges. The OpenURL Framework cannot solve this problem, but it could be an important component of one approach to unlocking authoritative information. This speculative position paper discusses one example of the kind of services that are feasible within the OpenURL Framework.

I am a fervent supporter of and participant in the Open Archives Initiative. I also believe most scholarly literature should be available without any access barrier to readers. Nevertheless, much of the scholarly literature remains surrounded by toll-access barriers. Toll-access barriers around the scholarly literature may eventually give way to different business models, but they are most likely a permanent feature for many other – non-scholarly, but valuable – information resources. The development of effective payment methods for information could open up access to information that is currently hidden. While this approach might not get us to the ideal of free information, it may improve the current reality of no or very limited access.

Although most publishers have a subscription and/or pay-per-view service targeted toward individuals, this is a tiny portion of the market. Most readers rely on a sponsor. Typically, the library of the institute to which they belong pays for access. Sometimes, as is the case for PubMed, the government pays for universal access. From here, it is a small step to imagine a future where many other organizations step forward as sponsors of information: national or regional libraries, private charitable foundations, national and international development organizations, religious and political organizations, etc. Each of these organizations makes independent sponsoring decisions based on its specific priorities and negotiates access licenses with appropriate publishers for its target users.

In this imagined future environment, the user has the additional burden of finding the best gateway to his or her information needs. Typically, the best gateway would be the one where the user has access at the lowest cost. This could be quite complicated: How does the user find appropriate sponsors? How does the user find out the specific details of access deals negotiated between sponsors and publishers? How does the user find out that he or she is part of a group favored by a particular sponsor?

A first approach to making this scenario feasible is to construct a database containing essential data for each access license. The database entries might include the available information resources, details of the price discount, and target group of beneficiaries. Using standard techniques, it is possible to reduce the amount of public information. For example, only the target group of beneficiaries could be published, and only that target

group would have access to further details about the access licenses. For simplicity, let us assume that a single, public database of suitably described access licenses is available.

If the burden to seek the best information deals were placed on the user, such a database would be, at best, a marginal improvement. In fact, the OpenURL Framework makes it feasible to automate this process, even to make it transparent. Beyond cooperating on the database, sponsors can act independently of one another.

### **The OpenURL Framework**

For complete details of the OpenURL Framework, please refer to the documentation of NISO Committee AX, which was charged with developing the OpenURL standard. The Committee's web site is at <http://library.caltech.edu/openurl>. This is where the most up to date versions of the Standard, which is currently released for Trial Use, can be found. What follows is a minimal description needed to understand the proposed service.

In an OpenURL-enabled link, metadata is transmitted to a link-resolution service, known as a Resolver. The metadata is contained in an information construct known as a ContextObject. A ContextObject contains metadata about 6 Entities: the Referent, the Referrer, the ReferringEntity, the Resolver, the Requester, and the ServiceType. Entities are described any of four kinds of Descriptors. For the current purposes, the details of the different Descriptors are not important, and we need only three Entities: the Referent, the Requester, and the Resolver.

The Referent is the Entity about which a ContextObject was created. It is a resource that is referenced in a networked context. In the scholarly information community, the Referent could be, for example, a journal article, a book, or a thesis. The Referent is described by metadata, such as journal article title, author, date, volume, number, etc.

The Requester is the Entity that requests services pertaining to the Referent. It is the user, for example, who wants to read the full text of a journal article (the Referent). Delivering the full text is one of many possible services related to the Referent. Other services include, but are not limited to: get the abstract, get the bibliography, request the article by interlibrary loan, and perform a citation search on one of the authors.

The Resolver is the Entity at which a request for services is targeted. The Resolver uses the metadata contained in a ContextObject to provide services about the Referent to the Requester. In a typical OpenURL application, the Resolver provides the option of ordering a document through Document Delivery and/or Interlibrary Loan. In addition, the metadata are compared against the electronic holdings of the library, and if the Referent is available online, immediate access to the Referent is offered.

### **The OpenURL Framework and Inter-Institutional Cooperation**

This typical OpenURL application is, in fact, an example where the Resolver finds the best option to access the Referent: immediate online or document delivery or interlibrary

loan. When we consider a future with many sponsors, each with their own agenda, finding the best access option has two additional complications:

1. We are combining the holding records of many organizations that do not necessarily cooperate. Techniques for effective interoperability of Resolvers and effective sharing of holdings information need to be developed.
2. Users may not have formal affiliations with sponsors. This makes it necessary to describe Requesters through a reliable federated authentication scheme. Shibboleth, for example, makes it possible to share attributes about the Requester that are pertinent to decide eligibility for access. The Requester may remain anonymous, however. For example, an international organization could license a journal for use by researchers affiliated with universities from a select list of countries. Shibboleth could share the pertinent attributes about the Requester, such as nationality, university affiliation, and status (faculty, student, staff), without revealing his or her identity.

### **Conclusion**

This highly speculative position paper details how the OpenURL Framework could be used to coordinate the efforts of independent sponsors. This could be one of the ways in which expensive information could be made more widely available.

More important than this potential application is the observation that the OpenURL Framework allows us to provide complicated services in a way that hides the complexity to the user. In fact, at its most effective, OpenURL is transparent to the end user.

The OpenURL Framework is about the delivery of highly targeted information services in an intuitive way. This is a very general mission, and we invite everyone to think imaginatively about new ways of putting this tool to work.