



Universal Resource Access: Finding a Solution

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Introduction

Corporate information managers, publishers, and academic librarians confirmed their commitment to finding solutions to the industry-wide challenge of providing seamless access to scholarly content at an event sponsored by Copyright Clearance Center (CCC) in Amsterdam on 8 June 2016. *The Universal Resource Access Forum: Connecting Researchers to Scholarly Content*, moderated by Jonathan Clark, included more than 40 delegates from three key stakeholder groups, and resulted in a commitment from many attendees to take specific actions toward identifying industry-wide solutions.

From the start of the day, Clark made it clear that the forum objective was to define a way forward that would result in actionable next steps. The format included brief presentations on the topic from the academic user perspective, the corporate user perspective and the publisher perspective. These opening comments consistently called for an understanding of potential solutions and clarity as to next steps and ownership to drive this initiative forward.

Roger Schonfeld of Ithaka S+R presented independent research which had been sponsored by CCC and Eefke Smit of STM facilitated a diverse panel including technology representatives from Wiley, Elsevier, Atypon, Semantico and CCC.

The largest portion of the agenda was dedicated to breakout discussion sessions where diverse groups of stakeholders were asked to brainstorm possible solutions and report back to the larger group. This was an extremely effective format which identified a number of areas of common ground and shared thinking:

- Problems and players are diverse and complex
- Current solutions work well enough to persist unless parties collaborate on a better way forward
- Time, cost, and resource burden to develop new approach is high across all stakeholders
- There are business models that have dependencies on IP authentication
- There is a lack of communication and coordination across stakeholders

There was a nearly unanimous call for multiple pilot projects. Participant surveys revealed that individuals left the meeting energized and focused on potential next steps.

CCC's President and CEO Tracey Armstrong kicked off the day's events with an introduction in which she acknowledged that it may not be immediately obvious to participants why her organization was choosing to sponsor such an event. Armstrong clarified that, given the company's unique role in the marketplace, CCC had been hearing significant feedback from multiple stakeholder groups about challenges with IP authentication, remote access, and in some cases inappropriate access by parties not subscribing to content. Armstrong noted that CCC did not itself intend to create a solution to URA, but was committed to facilitating ongoing dialogue among stakeholders to advance toward one or more practical solutions.

Informed Strategies was asked to document the day's discussions in support of actionable conclusions.

Multiple Perspectives

The Corporate Perspective

Representing the Pharmaceutical Documentation Ring (P-D-R), President Andrew Clark and Vice-President Helen Malone shared the view from the corporate information sector that it is time to move beyond the use of IP authentication. They spoke on behalf of 26 P-D-R member companies, many of whom had participated in a meeting in the UK in June 2015 entitled: ["Authentication Technologies – Challenges and Opportunities for the Scientific Corporate Information Centre."](#) Priorities for action resulting from that meeting included discussions with academic community leaders, publishers and technology vendors. Clark expressed optimism that this forum would result in meaningful next steps. Malone discussed the work the P-D-R companies have done since their June 2015 meeting to develop their requirements for a solution.

First and foremost, Malone told the audience, members say that the user experience needs to be seamless, intuitive, and consistent. Corporate users at these firms expect easy access to resources regardless of workflow, device or location. Malone emphasized that systems must be secure, compliant and enable granular access, and raised the concept of a single authentication solution supported by all STM publishers with a simple content licensing model.

Academic Perspective

Rich Wenger, E-Resource Systems Manager at the Massachusetts Institute of Technology (MIT), pointed out that the underlying assumptions that originally led the industry to implement IP access are no longer valid: devices are not tied to one location and the user does not usually

begin at the university portal. Wenger explained that IP access conflates identity with location, using proxy servers and VPNs to present remote users as if they were local. In a mobile environment with variable IP addresses, this approach is decidedly obsolete.

For example, users beginning searches outside the MIT portal encounter authorization issues in linking to the content because they did not first authenticate with MIT. Google Scholar attempts to address this problem by indexing the library's link resolver but this approach is clunky and error-prone, Wenger said. He noted that academic librarians may be unaware of the technical obsolescence and the need for change.

Wenger reported that Federated ID (FID) management solves many problems by focusing on individuals' identity rather than their location. Since identity and authentication are based on the users' institutional credentials, it does not matter where or when users begin their search as they will be authenticated when they need to access the content. If the user begins in the institution's portal, that user can be referred to the provider with a URL and persistent, opaque tokens that protect the user's identity. FID systems provide a Single Sign-On mechanism that limits the number of authentication cycles to one per browser session which is convenient for the user. In spite of these benefits, there has been slow adoption of FID systems in higher education.

Publisher Perspective

Publishers at the event emphasized their willingness to move away from IP authentication and many of them currently offer alternative authentication mechanisms. Jochem Banki, Head of Content Strategy of Wolters Kluwer pointed out that many publishers have created a navigation platform for their content which uses a single sign-on solution. He mentioned that replacing IP access with individual logins would allow better and more effective methods for collecting user data which can be used to offer customized and personalized services. Banki also envisioned a federated authentication solution sitting above all solutions.

Meltem Dincer, Vice President, Platform Capabilities at Wiley pointed out that while publishers need to know who accesses their content to protect against misuse and theft, they are aware of the need to balance this approach with giving users easy and rapid access to content while respecting data privacy and intellectual freedom. Dincer asserted that the industry problem was not one of technology, but rather one of industry organization and collaboration. Eefke Smit, Director, Standards and Technology at STM, who while moderating a technology panel at the URA event polled attendees on this topic. The poll confirmed that nearly all agreed with Dincer's view.

Within the last year publishers concerned with IP authentication standards drafted a paper to outline industry challenges and proposed solutions. At their meeting in Frankfurt in October 2015, STM invited Roger Schonfeld of Ithaka S+R to speak on the topic. Roger presented a strong case study outlining his own challenges in accessing content from a mobile device and a desktop in a presentation entitled ["Dismantling the Stumbling Blocks that Impede Researchers' Access to E-Resources."](#) The presentation was well-received as STM member concerns about the IP authentication model grew. Almost simultaneously, the STM Board began to discuss the need for a special STM task force to study the challenges associated with content access and IP authentication.

Following Schonfeld's Frankfurt presentation, CCC pre-released a white paper entitled ["Universal Resource Access in a Global Digital World, Where do we go from here?"](#) that provided an overview of the technology landscape and current infrastructure for accessing scholarly digital resources. It defined the hurdles and root causes of the problem as stemming from IP authentication, metadata management and mobile-ready content which corporate users at roundtable events in Boston and Basel confirmed during discussions on the topic. This paper was then shared with a small group of those invited to the 8 June URA Forum.

Ithaka Research

As a follow-up to the paper and prior to the URA Forum, CCC sponsored independent research conducted by Roger Schonfeld at Ithaka S+R. Ithaka S+R subsequently published a report entitled ["Barriers to Discovery and Access of the Scientific Research in the Corporate Sector."](#) Schonfeld presented his findings at the URA forum. He echoed other speakers' sentiments that expectations and workflows have changed with discovery beginning from a variety of locations, often outside of the institution's network. Schonfeld walked the group through the path of user workflows illustrating how the growing array of starting points makes proxy solutions for off-site access untenable.

This point was also emphasized by CCC CTO and Vice President Babis Marmanis who referenced an OpenAthens survey conducted in 2014, in which nearly all of the 545 librarians surveyed agreed that demand for offsite access is growing, many felt behind the curve and most ranked "seamless user journey" as a top priority.

Further, Schonfeld's research found that multiple mergers and acquisitions increased the administrative burden on managing and maintaining IP data. VPN and remote access solutions were seen as satisfactory for accessing licensed resources although some respondents preferred a single sign-on solution.

Schonfeld noted that his research revealed differences between market segments. For example – corporate information managers at larger corporations [those with more than 1,000 employees] feel pain from the need for seamlessness of large research populations in their complex environments, while those at smaller corporations have lower expectations for seamlessness and increasingly effective article-purchasing solutions.

Possible Solutions

Several speakers addressed solutions in their remarks, beginning with Chris Shillum, Vice President Product Management, Platform and Data Integration at Elsevier who acknowledged that there is a universal desire to simplify access; it needs to be as simple as possible for the user to understand what they can do. He suggested working with industry standards bodies with a goal to make the user experience more consistent. Shillum highlighted Security Assertion Markup Language (SAML) as the only Identity Management (IDM) standard that supports contextual rather than just individual authentication. He emphasized that because users can start their journey from anywhere on the web, on any device, from any physical location, the Where Are You From (WAYF) question needs to be solved.

Richard Padley, Chairman at Semantico, highlighted four aspects problematic to identity management and potential solutions to address them:

1. Proliferation of individual identities which could be addressed by using a small number of identity providers
2. Some individual identities lack a mechanism for explicit affiliations which could be addressed by establishing a trusted mechanism for specifying affiliation
3. Implicit affiliations are grounded on shaky infrastructure which could be addressed using individual identity and affiliation
4. Lack of a standard way to describe organizational identity which best addressed with an industry standard.

Georgios Papadopoulos, CEO at Atypon proposed three possible solutions to address the failings of IP authentication:

1. Use of SAML by institutions to identify their users
2. Publisher agreement on standard classes of membership such as scholar, staff, or alumni
3. Convenient WAYF solutions in which the user is directed to the correct server for authentication.

As the event neared its end, breakout groups were then asked to address “What is the best possible move we can make that would move us towards a solution?” With clarity about a way forward the group quickly converged on the idea of one or more pilots that would develop specifications and a working model. There was consensus that a neutral third party with no commercial stake in the outcome should be identified to lead this effort. Atypon and Semantico expressed willingness to work on the technical solution for SAML to route users to the institutional and corporate portals/intranets.

Pilots

The group determined that a small working group should be organized to identify the specific objectives of pilot project(s) with short-term deliverables to build on the sense of momentum among all the stakeholders. The pilots should develop use cases based on workflow of the user and the associated technical requirements. The group will communicate throughout the remainder of 2016, which may include planned gatherings at key industry meetings to review progress and to advance the discussion.

The model will likely involve a federation of organizations to implement a consistent approach to SAML, and the P-D-R has offered to bring groups of corporate libraries together to create a federation. In North America some of the large academic research libraries are using Shibboleth which is SAML compliant authentication and authorization software and their federation is InCommon.

SAML

Throughout the course of the event, many participants mentioned SAML as a way forward since it is an established standard for exchanging user authentication and authorization data.

However, some also raised concerns that may need to be addressed:

- Since SAML implementation can be customized, there is currently no standardization in implementation, creating extra work for organizations
- There is a persistent WAYF issue that will need to be addressed
- In the academic environment, a provision for walk-in users is needed and dedicated terminals with certificates could be a potential solution.

Institutional Identifiers

Several attendees suggested that non-profit Federations (such as Shibboleth, InCommon) could possibly handle centralized verification of institutional affiliation. However, standard institutional identifiers are a significant missing link in the scholarly research landscape and would be needed for an industry wide effort. In November there is a meeting on persistent

identifiers in Reykjavik, Iceland organized by CrossRef, ORCID, DataCite, and California Digital Libraries which will address building an open identifier infrastructure.

Communication

Enthusiasm for how a SAML environment would work led to ideas about the need for a market communications effort to engage a wider audience that would be needed to support adoption of a new infrastructure. Additional stakeholders such as CrossRef, NISO, OCLC and aggregators such as EBSCO and ProQuest should be involved in a larger process. Expanding the conversation will raise awareness regarding the users' access issues and the need for change.

Summary and Outlook

The momentum for multiple pilot projects reflects the attendees' confidence that the most pressing problems can be addressed. During the URA Forum, concerns arising from both corporate information center managers and publishers coalesced on several points of agreement:

- 1) IP access authentication is outdated as it is site-based and:
 - a. it doesn't provide efficient access to authorized users but
 - b. instead could provide access to unauthorized users.
- 2) A SAML-based approach improves access as it:
 - a. provides users content access regardless of their location or workflow and
 - b. provides better security that precludes unauthorized access.

This approach provides a win/win for all participants. Corporate information centers and academic libraries can receive full use of content while publishers can have better usage statistics. Developing a SAML-based approach to replace the outdated IP access model will provide researchers with access to content anytime, anywhere, and from any device.

With content access associated with the user rather than a location, some privacy concerns remain because of publisher interest in offering customized or personalized services directly to users, potentially bypassing information center managers. While academic libraries want the users to be anonymous, corporate information managers may wish to know who is using what for internal accounting purposes, but do not want anyone outside the company knowing which journals or articles are being accessed and/or used and by whom.

The group agreed to establish a task force and following the URA meeting, Jenny Walker, a well-known industry consultant, was selected to lead it. The URA Task Force will comprise the following confirmed participants:

- GSK – Helen Malone
- UCB – Andrew Clark
- MIT – Rich Wenger
- Elsevier – Chris Shillum
- ACS – Ralph Youngen
- Nature – Andy Halliday
- Wiley - Meltem Dincer
- STM – Eefke Smit
- ALPSP – Audrey McCulloch
- CCC – Tracey Armstrong

The group is in its initial phase with the objective to define and agree on milestone(s) to be reached by year end; ideally to create pilot projects to address at least one of the many issues raised during the URA event. CCC, Elsevier and ACS have agreed to fund Jenny's participation in this Task Force.

If you would be interested in participating in a prototype project, please let Jenny know (jenny-walker@msn.com). If you, or your colleagues, would like to be kept informed on progress of the URA Task Force, please also let Jenny know and your name(s) will be added to the distribution list.