RA21: Resource Access for the 21st Century
Simple, Trusted Access – Anywhere, Anytime, on Any Device

Seminar Format:

– P-D-R: A customer’s Perspective
– Update on final outputs
– The Zeitgeist of RA21
– The why behind RA21 and Libraries?
– Next steps and Implementation
– Discussion panel
Background

- June 2015: P-D-R holds a special meeting on Authentication Technologies
- June 2016: CCC hosts Universal Resource Access Forum
- July 2016: URA Task Force was formed
- Mid-2016: STM forms parallel effort, RA21, in partnership with NISO
- End of 2016: URA Task Force becomes Corporate Pilot of RA21
  — Concluded in June 2018
RA21: A Customer’s Perspective

Helen Malone
Director, Global Information Hub, GSK
and President, P-D-R
Our Connected World...

...Moving Beyond IP
What we decided we would need...

1. SOLUTION
   - Single Sign On (SSO)
   - Open Standards (eg SAML)
   - Inside/Outside Network

2. PUBLISHER SUPPORT
   - Standard Adopted by All STM Publishers
   - Granular Usage Stats
   - Privacy & Security
Focus for our RA21 Corporate Pilot

- Improve the **user login experience** at publisher websites
- Explore ways to capture **granular usage statistics**
- Investigate **easy set up/maintenance of SSO** with multiple publishers
Corporate Pilot:
Pharma Companies & Publishers

- abbvie
- BASF
- Roche
- gsk
- ELSEVIER
- NOVARTIS
- ACS
- SPRINGER NATURE
- WILEY
UPDATE ON FINAL OUTPUTS

Ralph Youngen RA21 Co-Chair
With thanks to Serena Rosenhan, RA21 UX Lead

6 December 2018
The need for RA21

Simple access to content needs to be fixed, especially for off campus use:

• Scholarly content & services are increasingly being accessed from outside of corporate/campus networks
• Publisher pathways for providing off-network access have not kept pace with our experience on the consumer web (e.g. Google, Facebook, LinkedIn logins across multiple sites).
• When accessing publisher platforms off-network, fully entitled end users are turning to alternative resources (e.g. SciHub, etc.) because of ease of access.
• RA21 has been established as the first step in the journey towards replacing the now outdated IP based access & authentication model.
Current Off-Campus Solutions are Unsatisfactory

- VPN/Proxy Servers
Current Off-Campus Solutions are Unsatisfactory

- VPN/Proxy
- Device Pairing
Current Off-Campus Solutions are Unsatisfactory

- VPN/Proxy
- Device Pairing
- Google’s Campus-Activated Subscriber Access (CASA)
Current Off-Campus Solutions are Unsatisfactory

- VPN/Proxy
- Device Pairing
- CASA (Google)

All Leverage Institutional IP Address Recognition

All Require User Setup In Advance
Surely there is a better way...

Access to scholarly content, especially off-network, needs to be fixed

• Federated authentication using SAML ("Shibboleth") solves most of the problem
  – Multilateral trust
  – Mature technology
  – Widely deployed and supported by scholarly information providers
  – Widely adopted and deployed by academic institutions
  – Increasingly deployed by corporate customers given the rise of SaaS platforms (if you’ve signed into Slack recently, you’ve used SAML!)
So why RA21?

The current Identity Provider discovery workflow is very difficult for users to navigate.
RA21 Goals

Recommend new solutions for access strategies beyond IP recognition in joint collaboration with software vendors, libraries, federation operators, publishers and service providers

• Test and improve solutions by organizing pilots in a variety of environments ✔️

• Establish best practices and publish via the NISO Recommended Practice process – in process, UX demo today

• Prepare for post-project phase by identifying potential parties to operate any necessary centralized infrastructure – in process
RA21 Industry Participation

- Individuals from more than 60 different organizations have been involved in RA21 since its inception in late 2016.
Strong support among the research community for federated identity management to improve collaboration

- FIM4R.org has produced two whitepapers recommending improvements to the federated identity infrastructure to support research collaboration
- Participants include
  - CLARIN, European Research Infrastructure for Language Resources and Technology
  - DARIAH, Digital Research Infrastructure for the Arts and Humanities
  - ELIXIR, Life Sciences
  - ESA, European Space Agency
  - INAF, Italian National Institute for Astrophysics
  - LIGO, Laser Interferometer Gravitational-Wave Observatory
  - Umbrella, Photon and Neutron Science
  - WLCG, Worldwide LHC Computing Grid (High Energy Physics)

“Every researcher is entitled to focus on their work and not be impeded by needless obstacles nor required to understand anything about the FIM infrastructure enabling their access to research services. The recommendations … highlight well-established practices … whose widespread adoption would represent a huge boost to usability of federated access mechanisms by users engaged in collaborative research activities.”

RA21 vs. “Access Brokers”

Position statement was recently published contrasting RA21 with “Access Brokers” (e.g. Kopernio, Anywhere Access, and CASA)

<table>
<thead>
<tr>
<th>“Access Brokers”</th>
<th>RA21</th>
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<tbody>
<tr>
<td>Typically require creation of individual user accounts, potentially compromising privacy.</td>
<td>RA21 follows long-standing practices in scholarly federated identity management in the academic sector by providing the option for users to remain anonymous.</td>
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<td>Often capture and store a copy of the user’s institutional username and password, potentially creating a security risk.</td>
<td>RA21 ensures that the user’s institutional username and password are only visible to the user’s home institution.</td>
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<td>Are often paid services, provided by libraries and configured by end users.</td>
<td>RA21 will be free for subscribing institutions and require no configuration on behalf of end users.</td>
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<td>Access Brokers may enable the provider of the software/solution to gain insights on end user behavior and reading habits across publisher sites.</td>
<td>RA21’s decentralized, federated model provides no mechanism for tracking user behavior across publisher sites.</td>
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<tr>
<td>Must be installed or configured by end users prior to starting a research discovery journey. Must be installed on all devices under the user’s control.</td>
<td>RA21 eliminates the need for any additional software or end user configuration. RA21 will ensure simple access to scholarly resources from anywhere, on any device, at any time.</td>
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Current Status

Work on pilots has concluded and reports published
- Positive coverage from Outsell

Final user testing in progress, demo today.
User Experience
RA21 UX Challenge

• Seeks to implement seamless, convenient access to scholarly content while still preserving user privacy.

Typical Research Discovery Workflow

On Campus
RA21 UX Challenge

• Seeks to implement seamless, convenient access to scholarly content while still preserving user privacy.

Typical Research Discovery Workflow

Off Campus
RA21 UX Challenge

• Seeks to implement seamless, convenient access to scholarly content while still preserving user privacy.

Typical Research Discovery Workflow

- PubMed
- Web of Science
- Google Scholar
- SciFinder
- Scopus
Preserving Privacy

Publishers receive attributes about the user, not the user’s identity.

User: 12345
Role: Student

User: 56789
Role: Student

User: 55555
Role: Student
RA21 UX Approach

• Informed by user feedback.....

• Over 50 usability tests with range of users (undergraduates, librarians, faculty, academic and corporate researchers, physicians) from 5 countries have helped validate the core UX hypothesis
UX Recommendation Building Blocks

1. Consistent visual cue and call to action signals institutional access

2. Flexible and smart search
   - Search by institution name, abbreviation or email
   - Typeahead matching and URL

3. Remembered institution on next access
RA21 UX Goals

1. A user only encounters a discovery process once (per browser).

2. The user’s institution is persisted in browser local storage and subsequently rendered in the RA21 button across all participating publishers.
RA21 UX Demo
UX key findings and recommendations are positive

• Overall experience is successful; majority of academic participants ranked experience easy or very easy.
• Users quickly recognized the repeated visual cue.
• Users expectations align with their experience. They expect to get to the full text in the same manner when working with different articles.
• Users are slowed down by too many access options on provider pages, especially when those options are in many locations on the page.
• Users identify more with their institution than with a specific email address or account
• Corporate users are used to current workflows and often know what they have access to, so a generic call to action is not effective. Recommend pre-populating button with recognized institutional name.
The Zeitgeist of RA21

Dan Ayala ProQuest
Usage is king; Access drives usage.
Build trust and transparency.
Being involved, makes it yours.
The why behind RA21 and Libraries?

Todd Carpenter, Executive Director, National Information Standards Organization (NISO)

NISO-STM RA21 Outputs Meeting
December 6, 2018
Some Context About RA21 and Authentication in Libraries
IP -Address Authentication

Your IPv6 Address Is:
2606:f180:0:45b:45b:be23:53f3:a2db

Your IP Details:

ISP: EGIHosting
City: San Jose
Region: California
Country: United States

Hide My IP Address
Click Here

Click for more details

See your IP address? See your location?
That's why people use a VPN.
Learn More
Implemented when your OS looked like this
It worked well in this environment
Until, people began connecting from everywhere
Until, people began connecting via different devices
IP Address Authentication

Your IPv6 Address Is:
2606:f180:0:45b:45b:be23:53f3:a2db

FAIL!!!
IP Authentication isn’t all that great

- *IP Authentication has it’s own headaches for the library community.*
  - IP Address range management is no small task when you have dozens of publisher-suppliers
  - Proxy Servers/VPN systems need maintenance
  - Security issues abound
  - Risk of having the proxy servers shut down by publishers when abuse is noted.
  - Tracking data about who does what online still exists, it just is handled ‘internally’.
What do patrons want?

• Seamless access to content.
• Seamless access to content.
• **Seamless access to content.**
  – ("OK, Privacy is nice. Security, I guess. Customization is fine. One password, please. And did I mention seamless?")
Expectations of Privacy

• Librarians have an ethical, and often a legal duty to protect the privacy of the patrons that they serve, regardless of whether that patron cares about it

• Data gathering should be minimal, and as anonymous as possible.

• Informed consent, if done appropriately, can mitigate these issues
“Don’t take away my proxy server!”

What Will You Do When They Come for Your Proxy Server?

RA21 aims to replace IP address authentication (and proxy servers) with federated identity authentication – but have we thought through the implications?

By LISA JANICKE HINCHLIFFE | JAN 16, 2018 | 39 COMMENTS

• Controlling the proxy, means controlling the data and the services. Passing that to IT is scary.
• Integration of RA21 into existing technology services stack will help.
"The Proxy is a Firewall for Identity"
-- Cody Hanson (U. MN Library)

• “We control the server, we control the logs”
• The proxy server protects the patrons identity by masking it via the authentication system, based on the network one is one, rather than who a person is

• It is NOT the case that these data don’t exist
• SAML could do the same thing, through different means – the use of pseudonomous IDs
The IT reality for most libraries!

- IT and identity management is not run out of the library and doesn’t often report through the same structures.
- IT establishes norms and best practices that are not always in keeping with library values, especially privacy:
  - For example, SAML is used for authenticating course management systems, which require detailed information about the user to be shared.
Demands of the library community

• Dual Stack solution – This can’t move too quickly
  – Not every library has the same resources, the same
    skills, nor the motivation to move first.
• Broad adoption from publishers is necessary to motivate
  libraries.
• Single solution, not multiple approaches
• Support from vendor community to turn to when there
  are questions or implementation needs
Interactions between the library and campus IT need to improve

Staff person dedicated to library support from campus IT?

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<th>Large</th>
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</tr>
</tbody>
</table>

Amy Pawlowski and Mark Beadles (OhioLink) Authentication and Access of Licensed Content in Ohio: A Summary
Interactions between the library and campus IT need to improve

• Increasingly, institutions will be driven to integrate their disparate IT systems. Multiple systems doing similar things will be rationalized, in part to improve the user experience, but more likely to reduce costs.
RA21 will require greater interactions between libraries and IT

And this should be viewed as a good thing.
CRITICISM OF RA21

- “SciHub is a motivator of RA21”
  Yes, but... it is not the only motivator.
- This project began with outreach from LIBRARIES!
- There are a variety of reasons why libraries would like to improve access control
- Evil twins? Come on....
MORE CRITICISM OF RA21

• “The only type of access libraries should care about is Open Access”

• Open Access is not the end-all be-all of library access control issues.
  – First, even if every journal article were OA, not all content provided by libraries will be freely available
  – A variety of services libraries provide still need authentication, regardless of whether they’re free or not
  – To presume that RA21 is a fight against open access is to have a very narrow and dim view of what libraries do and provide.
EVEN MORE CRITICISM OF RA21

• “RA21 is a nefarious plot by publishers to hoover up all sorts of patron data.”
  – First, SAML data released by identity federations is under the control of institutions, who can set limits on what data is released or not, it is NOT controlled by publishers
  – Second, RA21 will only be storing user preference information about which IDP to pass credentials – NOT the credentials themselves
  – Finally, if they wanted, publishers could use other methods to track user behavior, but are often limited by contracts and laws.
RA21 and the future of authentication

The last system, the one you know and have used for years will always be perceived as better, because you know the flaws and have built workarounds to address them.

The known knowns are easier than the unknown issues caused by change.
RA21 and the future of authentication

• There is an adopted infrastructure that RA21 is built upon
• Institutions have years of experience working with it
• SAML-based identity is demonstrably better than IP
• RA21 just makes sense
Next Steps and Implementation

Chris Shillum RA21 Co-Chair
Remaining RA21 Work Oriented Around Two Goals

• Establish best practices and publish via the NISO Recommended Practice process – final user testing in process
  – Continuing to optimize, prototype and test the RA21 user experience
  – Broader group of UX experts recently established to provide feedback and insure buy-in from publishers
  – Best practices recommendation being drafted – expect to issue for public review in early Q1 following NISO process for ratification

• Prepare for post-project phase by identifying potential parties to operate any necessary centralized infrastructure – in process
  – Discussions underway with candidate organizations capable of providing required central infrastructure to support the RA21 user experience
RA21 Roadmap

Now through Q1 2019
- Finalize user experience
- Document recommendations
- Follow NISO Recommended Practice public review process

Now through Q2 2019
- Establish governance structure for central infrastructure and enable the service

Second half of 2019
- Publishers begin to deploy RA21 recommended practices
Implementation: What will institutions have to do?

- For institutions which are already members of an academic identity federation no additional setup will be required
- Current reach: >5,000 institutions representing >30m individual identities
- Institutions not in a federation will need to join a federation and implement an IdP
- Likely to be some outreach and education of users required
Implementation: What will publishers and service providers have to do?

- Implement common “Call to Action” UI element
- Integrate with central IdP Persistence service (via Javascript)
- Integrate with central IdP Discovery Service; or
- Develop local IdP Discovery Service following guidelines
Implementation: Central Infrastructure and Services

RA21 looking for long-term home for identity provider persistence service and potentially a central discovery service

Requirements
• Hosting and maintenance of centralized infrastructure
• Support and outreach for publishers and subscribers
• Legal framework for trust

Criteria
• Perceived as neutral by publishers, librarians, federation operators, etc.
• Capable of supporting 24/7 infrastructure
• Experienced running high availability critical infrastructure
• Willing and able to support a global model
• Financially sustainable long-term

Exploring options for governance via a consortium non-profit organizations representing the various stakeholder groups
Implementation: Roll-out Strategy

• Initial focus will be on adopting RA21 recommendations as broadly as possible as a supplement to IP for remote access (off campus)
• Also suggested as the primary/only access method for organizations that can’t use IP (e.g. corporate customers using cloud ISPs such as zScaler)

• This will allow us to monitor and measure success rates through the CTA and discovery progress
• And build a case for RA21 as the primary access method for all customers
DISCUSSION PANEL
Questions?

Visit: https://www.RA21.org

Contact:

Julia Wallace
Julia@RA21.org

Heather Flanagan
Heather@RA21.org

Chris Shillum c.shillum@elsevier.com
Ralph Youngen ryoungen@acs.org