



CUCCIO-CDPIUC

Canadian University Council of Chief Information Officers

Conseil des dirigeants principaux de l'information des universités canadiennes

Federated Access Management Services for the Canadian Higher Education & Research Community

Canadian Access Federation

Lori MacMullen – Executive Director, CUCCIO-CDPIUC

Kent Percival (Guelph) – Chair Operations Committee

Alan Darnell – Manager, Scholar's Portal



The Canadian University Council of CIO's:

- ❑ Provides a national voice for information, communications and technology (ICT) issues in universities
- ❑ Supports the effective management, use and delivery of ICT services within and between its members institutions
- ❑ Enables partnerships with other IT or higher education related organizations in Canada and the world (e.g. CRKN, CAUBO, Educause, CAUDIT)
- ❑ Delivers solutions to address common and shared needs (e.g. federated access management services) to the membership and beyond
- ❑ Current membership = 45 small, medium and large universities from across Canada



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Context Setting and Definitions



Federating is defined as:

- ❑ A group of organisations agreeing to set of policies for exchanging information about users and resources in order to enable access and use of resources and services by those users
- ❑ As the authentication is carried out by the identity provider (e.g. institution) and the rights management is carried out by the service provider the relationship is dependent on the level of trust in each others processes
- ❑ That trust is established through the use of commonly understood and agreed to processes and policies and the availability of enabling technologies



Member is defined as

- ❑ the organization with which the end user is affiliated (e.g. university, college, department), or;
- ❑ the organization providing the service (i.e. electronic publishers, software as a service provider, universities providing access to shared services, data providers, compute resource providers, etc.).



End user is defined as

- ❑ any individual requiring access to services which:
 - reside outside their normal domain, and;
 - require some level of authentication for access

- ❑ In the Canadian context this includes:
 - faculty, students and staff of universities and colleges, and;
 - researchers within higher education, associated with other public funded organizations (such as NRC, federal labs, etc. and/or private sector collaborators)



Current Canadian Environment

- ❑ The policies, processes and agreements (i.e. management of the federated environment) is provided by CUCCIO-CDPIUC and overseen by a Management Committee
- ❑ The enabling technologies (i.e. servers, metadata management, etc.) are provided by core operators (BCNet and U of Toronto) through formal Service Agreements and overseen by an Operations Committee
- ❑ Technical oversight and operational support is provided by the Operations Committee
- ❑ Member support is provided by the core operators, the operations committee and a broader technical support community



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Current Participants

(Signed On or Planned)

H.E. & Research

Alberta	Queen's	Regina
Guelph	MUN	York
UNB	UBC	Victoria
Calgary	Ottawa	Saskatchewan
Manitoba	Laval	McMaster
UQAM	Western	Laurentian
Simon Fraser	Carleton	Montreal
McGill	Ryerson	Dalhousie
Mt Royal	Windsor	École Polytec
Toronto	Waterloo	

Service Providers

Scholar's Portal
Elsevier
ProQuest
Microsoft DreamSpark
eAcademy
BCCampus





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Benefits

- ❑ To end users:
 - Management, protection and use of personal information
 - Easier access to resources, facilitates collaboration
- ❑ To member institutions:
 - Facilitates compliance re: privacy & security
 - Easily integrates with institutional systems
 - Facilitates access to external resources for their community of users and vice-versa
- ❑ To service providers
 - Better able to provide and manage access to their services
 - Reduces complexity and increases efficiency in managing access



To Higher Education and Research in Canada

- ❑ Using a standard mechanism for “connecting the community” provides economies of scale by reducing or removing the need to repeat integration work for each new collaborative work
- ❑ Facilitates sharing of content and collaboration across the sector – nationally and internationally
- ❑ Current approaches (i.e. IP Based) do not scale
- ❑ Is considered a basic and necessary component of the technical infrastructure required to support higher education and research (i.e. part of required “middleware”)





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Federated Access Management takes off



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A quick picture of where we're at ...

❑ What is Federated Access?

- “feeling” the elephant
- Examples – current technology
- Viewpoint issues; Operational Challenges

❑ Success

- Broad Adoption
- Shared Resources
- Big Research
- Industry Government Adoption

❑ Evolution

- Levels of Assurance
- More Identities



Federation viewpoints

for the Resource Provider
e.g. Elsevier ScienceDirect

- Using Common standards
- to manage access
- to your resources
- by relying on Digital Identity
 - Assertions and
 - Attributes
- from another organization

for the Identity Provider
e.g. University of Guelph

- Using Common standards
- to facilitate access
- to “external” resources
- by providing Digital Identity
 - Assertions and
 - Attributes
- to a Resource Provider

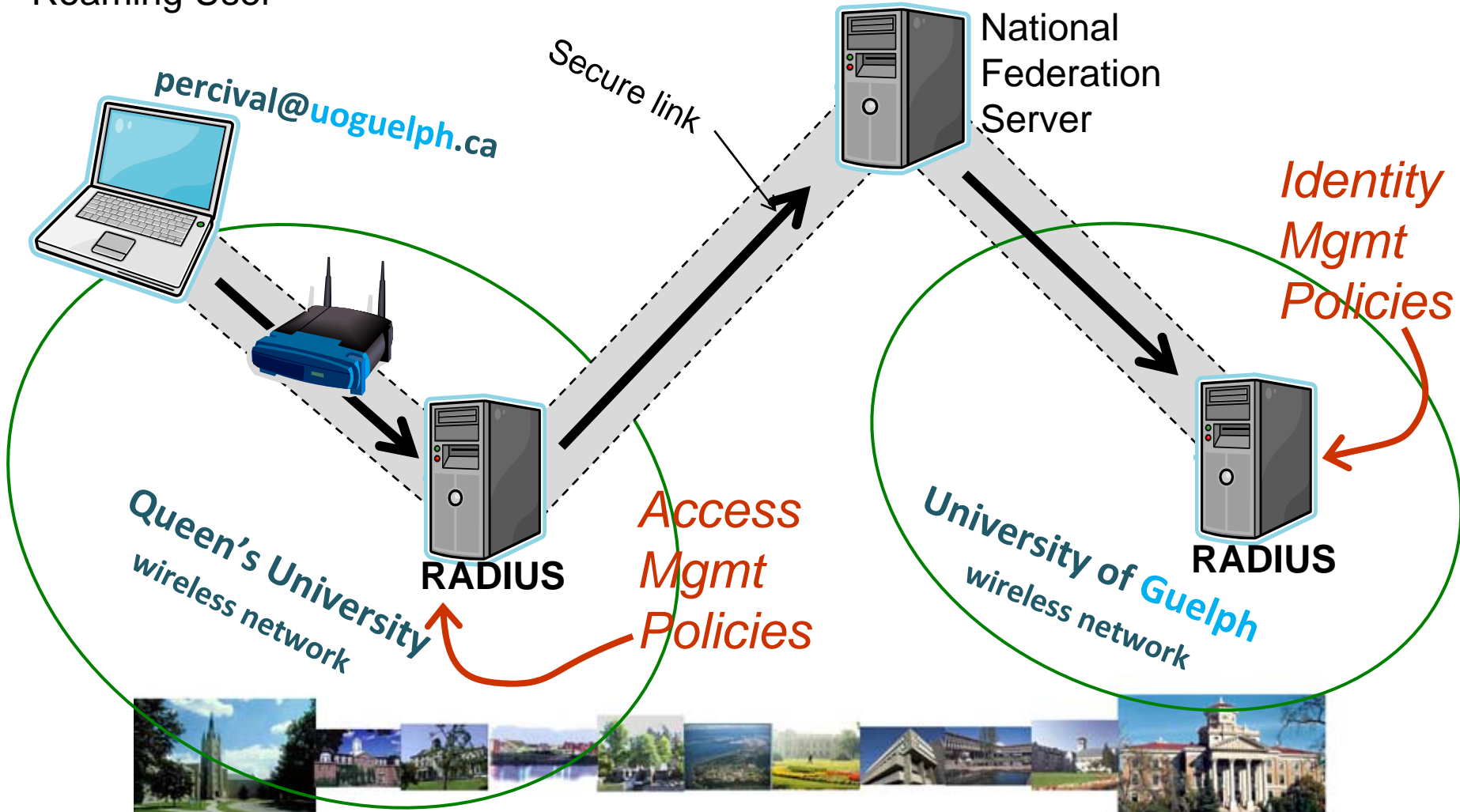


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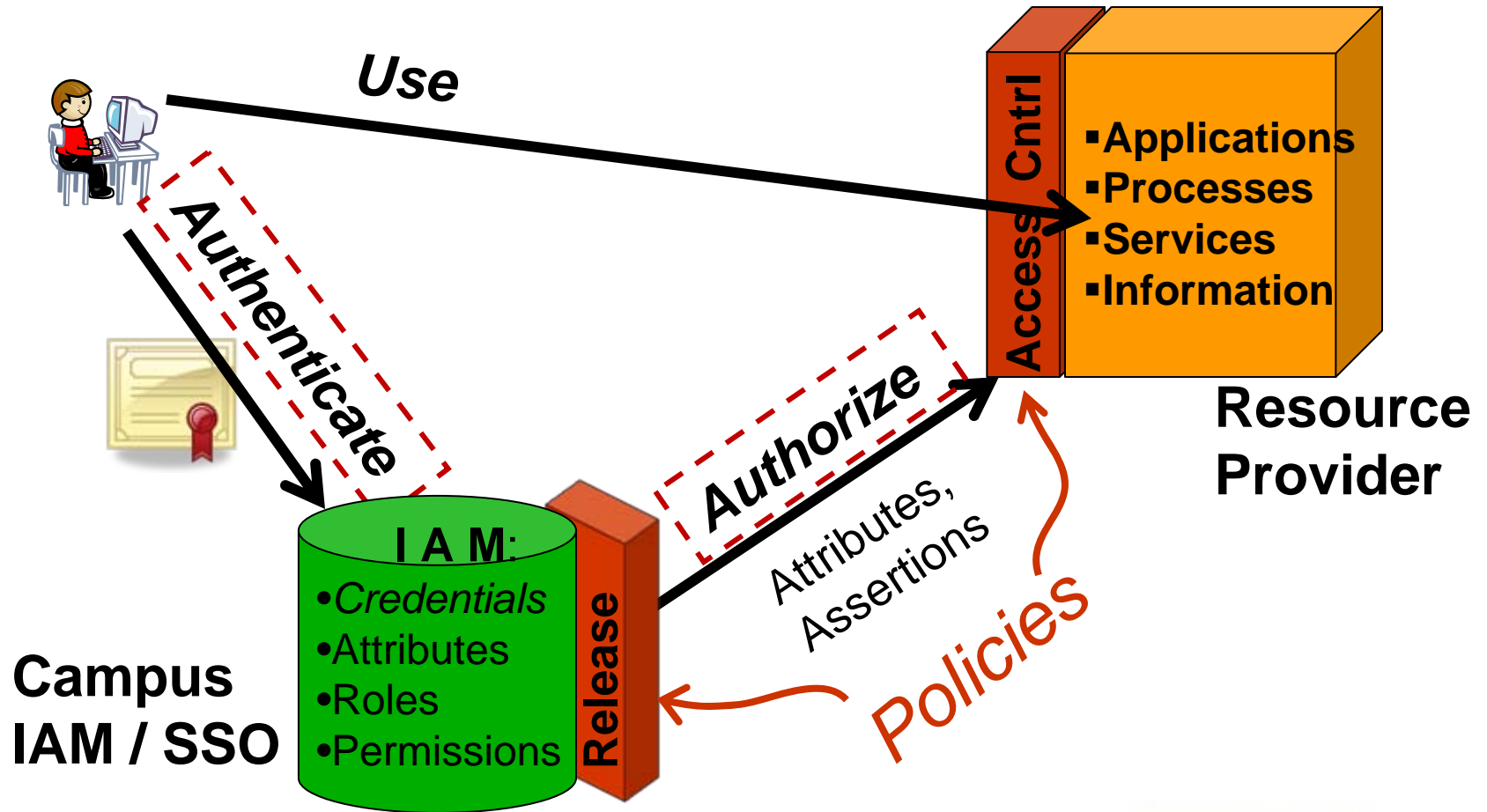
Roaming User



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Issues from the Viewpoints

For the Resource Provider
e.g. Elsevier ScienceDirect

- Level of Assurance (LOA)
- Security of application
- Attribute standards

- Trust

For the Identity Provider
e.g. University of Guelph

- Privacy and security
- Communities
 - User - Resource consumer
 - Library - resource contract
 - IT - manages IAM system

- Trust



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Operational and Technology Challenges

❑ Simplifying the process

- Multi-lateral relationships, rather than by-lateral
- Common metadata distribution service
 - Secure channel distribution
 - Compliance checking

❑ A trust community

- Shared goals / common policy ... achieving trust quickly
- Open documentation of Policies
 - Institutional IAM policies –who, how, why
 - Service Provider Privacy and IAM data management



US InCommon Growth

- ❑ 2009 Business plan: New fees: Growth targets; Bus. Dev. resources
- ❑ Active growth in 1Q10 ... **EDUCAUSE** new flagship resource provider
- ❑ Active discussion about higher LOAs (gold/platinum) with US eGov
- ❑ Several active Interest groups -- e.g. InCommon Library Services
 - InC-Library on Internet 2 "Spaces" wiki
 - Developing Use Cases for Library community
 - Engaged with Vendor community to enhance best practices
- ❑ Active support of OSS development
 - **next Shibboleth release**
 - IAM tools: **Grouper, PerMIT, CoManage**



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Library Resource Providers - USA

- Atlas Systems, Inc.
- Ebook Library - EBL
- EBSCO Publishing
- Elsevier
- JSTOR
- OCLC
- ProQuest LLC
- RefWorks, LLC
- Safari Books Online
- The H.W. Wilson Company
- Thomson Reuters
- Pending
 - MetaPress (Springer?)
 - LexisNexis
 - Ovid
 - Royal Society of Chemistry
 - Cambridge University Press
 - Oxford University Press
- More signed up with JISC in the UK
- iTunes



Deep-Linking to Library resources

- ❑ Direct access to a provider resource
 - User finds reference to paper in the Library catalogue
 - Catalogue reference contains URL to the paper
 - User clicks reference and receives paper in pdf.
 - Note ... no interaction with provider system.

- ❑ Requirement
 - Library must construct appropriate extended URL
 - Provider implements an alternate access app.





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“WAYF-less” “deep-link” URL

Provider applicationlink

<https://res.provider.com/direct-app ...>

Home Identity Provider **

[?https://shib.university.edu/shibboleth-idp/SSO ...](https://shib.university.edu/shibboleth-idp/SSO ...)

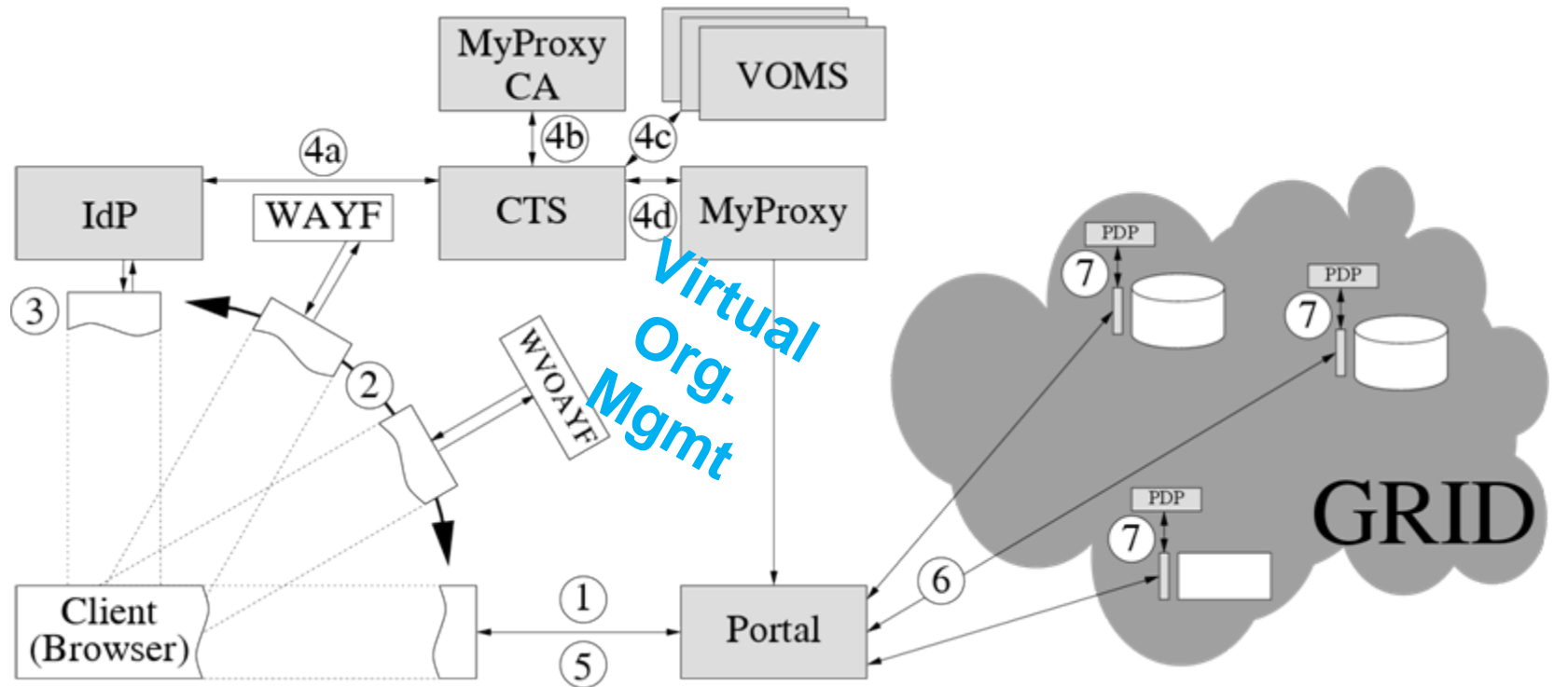
Requested resource

[?recid=0bc0562248a92294d51df84446d22ac4&fmt=C](https://res.provider.com/direct-app ...?recid=0bc0562248a92294d51df84446d22ac4&fmt=C)

**** Security: IdP lookup in Federation metadata to get channel certificate.**



UK National Grid Service ...More detailed Architecture



< -- Federated Access -- >

< -- PKI Certificates -- >





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Big Research

□ UK

- National Grid Service (NGS)

□ US

- Cyberinfrastructure
 - National Science Foundation / National Institutes of Health
 - CASC / EDUCAUSE-CCI
 - Key Middleware components including Access Management
- TeraGRID
- caBig - Cancer Bio Informatics Grid
 - GAARD - combining SAML access management and PKI Certificates

□ Australia



External Resources (in the Cloud?)

❑ Commercial

- Microsoft DreamSpark
- E-Academy
- UniversityTickets.com
- Turnitin
- WebAssign
- SumTotal

❑ Shared

- KUALI Foundation
- National Student Clearing House
- Shared eLearning? ... e.g. Switzerland, Croatia



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IT Industry

❑ TERENA

❑ Industry/government Leadership

- Kantara Initiative - beyond (Sun) Liberty Alliance
 - Government of Canada -- Identity Mgmt Steering Committee

❑ IT Vendor Support

- Oracle
- IBM
- Microsoft -- Active Directory Federation Services
- Ping Identity Corp.
-



Levels of Assurance (LOA)

- ❑ Higher - more privacy; more security
 - Research
 - Commercial Providers
 - Government

- ❑ Lower - more community; more collaborative
 - Mashups with Social Networking
 - Broader access using Social networking identities



Seeming Paradox

The Goal of IAM: reduce complexity

- One user $\leftarrow \rightarrow$ One set of credentials

But

- One of the great things about identities is that we can have so many of them ...

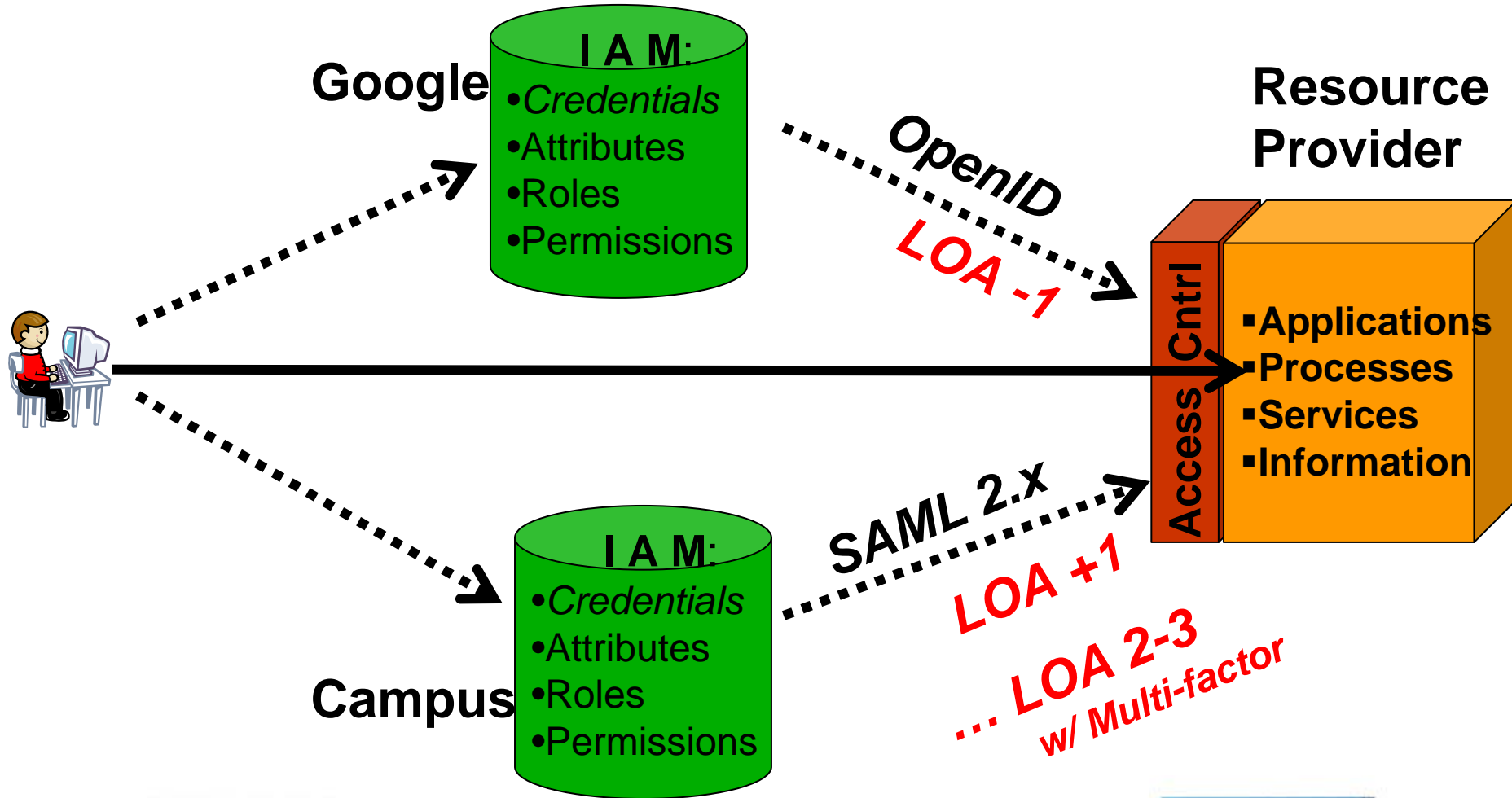
Digital Identities are Relationships



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Alan Darnell

SCHOLARS PORTAL



Background

- Service of the Ontario Council of University Libraries (OCUL)
- Founded in 2002 to develop a shared technology infrastructure to support the delivery of electronic resources to Ontario's universities





Shared servers located at the University of Toronto

Serving 21 universities in Ontario and 50 more universities and colleges across Canada for selected services



Data Repositories



Journals (8500 journals and 17 M articles)



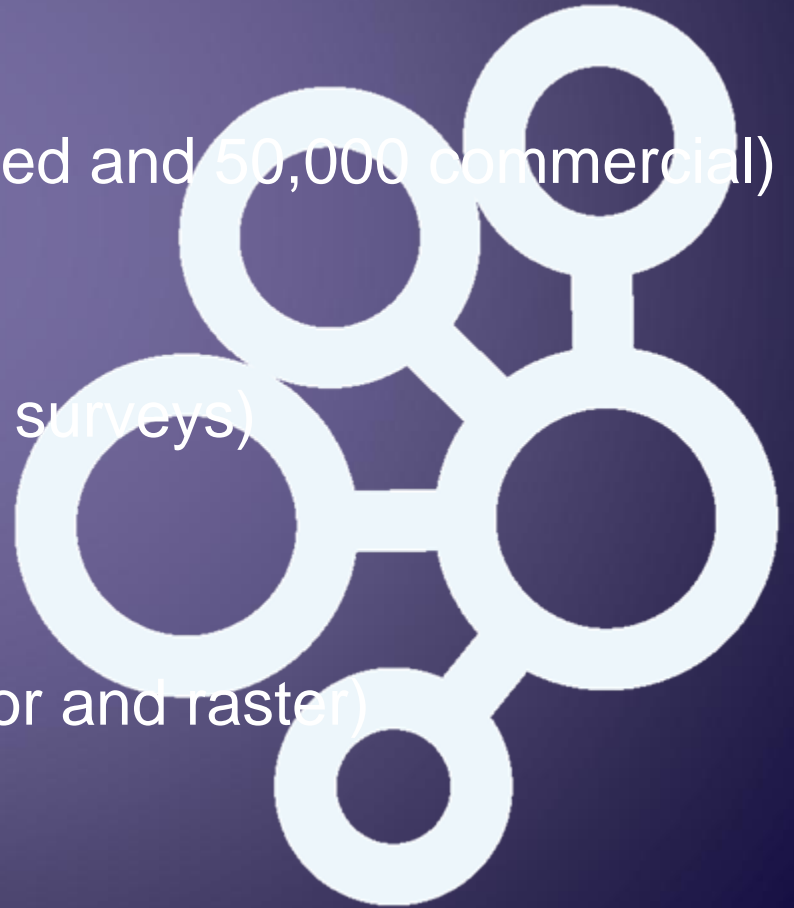
Books (200,000 digitized and 50,000 commercial)



Numeric Data (10,000 surveys)



Geospatial Data (vector and raster)



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Anthony Costello; Mustafa Abbas; Adriana Allen; Sarah Ball; Sarah Bell; Richard Bellamy; Sharon Friel; Nora Groce; Anne Johnson; Maria Kett; Maria Lee; Caren Levy; Mark Maslin; David McCoy; Bill McGuire; Hugh Montgomery; David Napier; Christina Pagel; Jinesh Patel; Jose Antonio Puppim de Oliveira; Nanneke Redcliff; Hannah Rees; Daniel Rogger; Joanne Scott; Judith Stephenson; John Twigg; Jonathan Wolff; Craig Patterson

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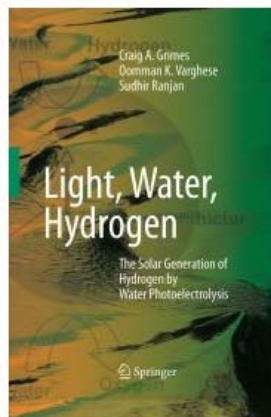
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Topic: Chemical Technology

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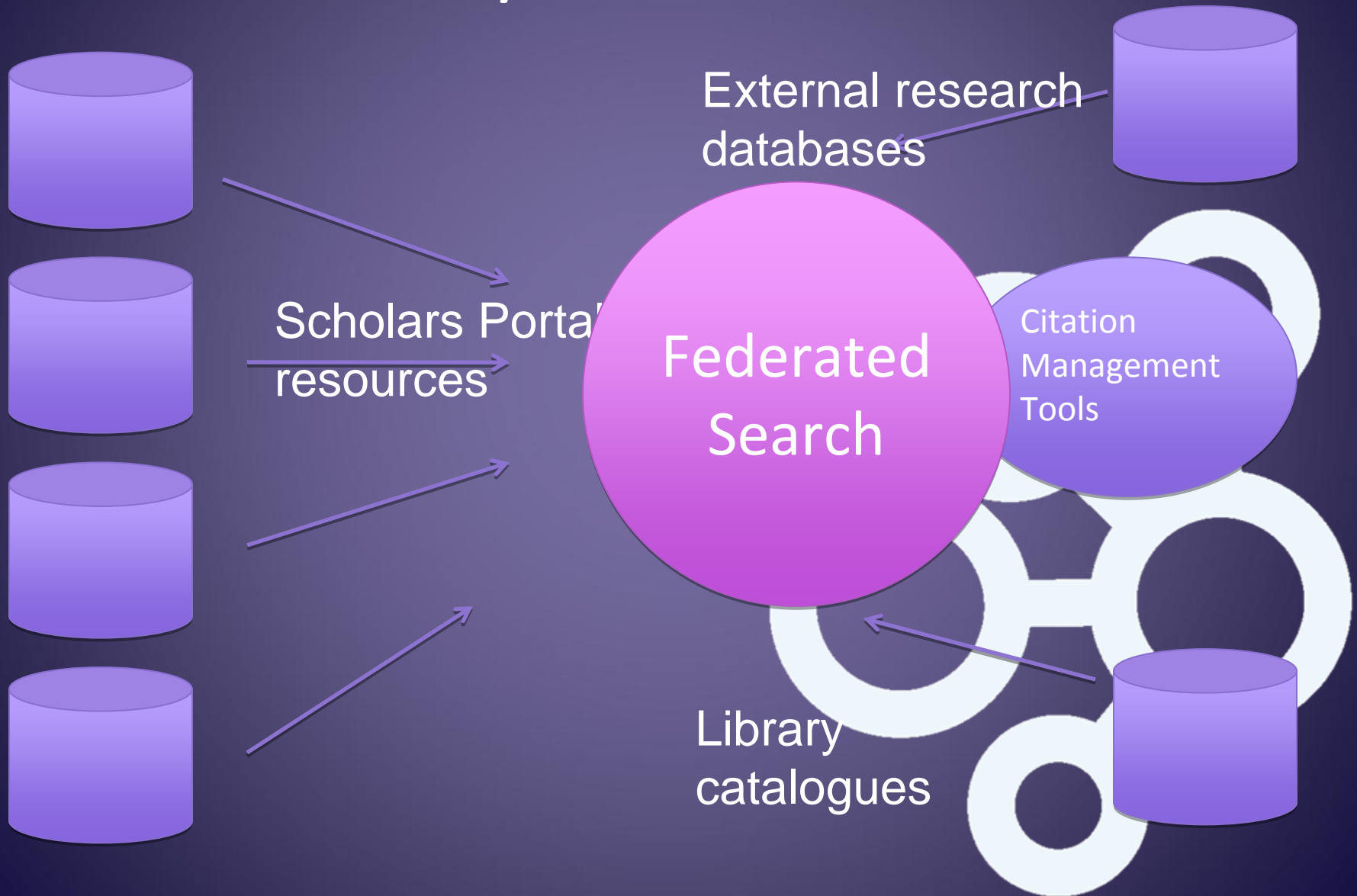
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Reverse osmosis desalination: Water sources, technology, and today's challenges

Water Research (May 2009), 43 (5), pp. 2317-2348

Lauren F. Greenlee, Desmond F. Lawler, Benny D. Freeman, Benoit Marrot, Philippe Moulin

Abstract Reverse osmosis membrane technology has developed over the past 40 years to a 44% share in world desalting production capacity, and an 80% share in the total number of desalination plants installed worldwide. The use of membrane desalination has increased as materials have improved and costs have...



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Review

Reverse osmosis desalination: Water sources, technology, and today's challengesLauren F. Greenlee^a, Desmond F. Lawler^b, Benny D. Freeman^a, Benoit Marrot^c, Philippe Moulin^{c,*}^aThe University of Texas at Austin, Center for Energy and Environmental Resources, 30100 Burnet Road, Bldg 133, Austin, TX 78758, USA^bThe University of Texas at Austin, Department of Civil, Architectural, and Environmental Engineering, 1 University Station C1786, Austin, TX 78712, USA^cUniversité Paul Cézanne, Europe de l'Archie-Panlton Labenc 3P80, Laboratoire Mécanique, Modélisation et Procédés Progress, 13545 Aix en Provence Cedex 4, France

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Seawater

Drinking water

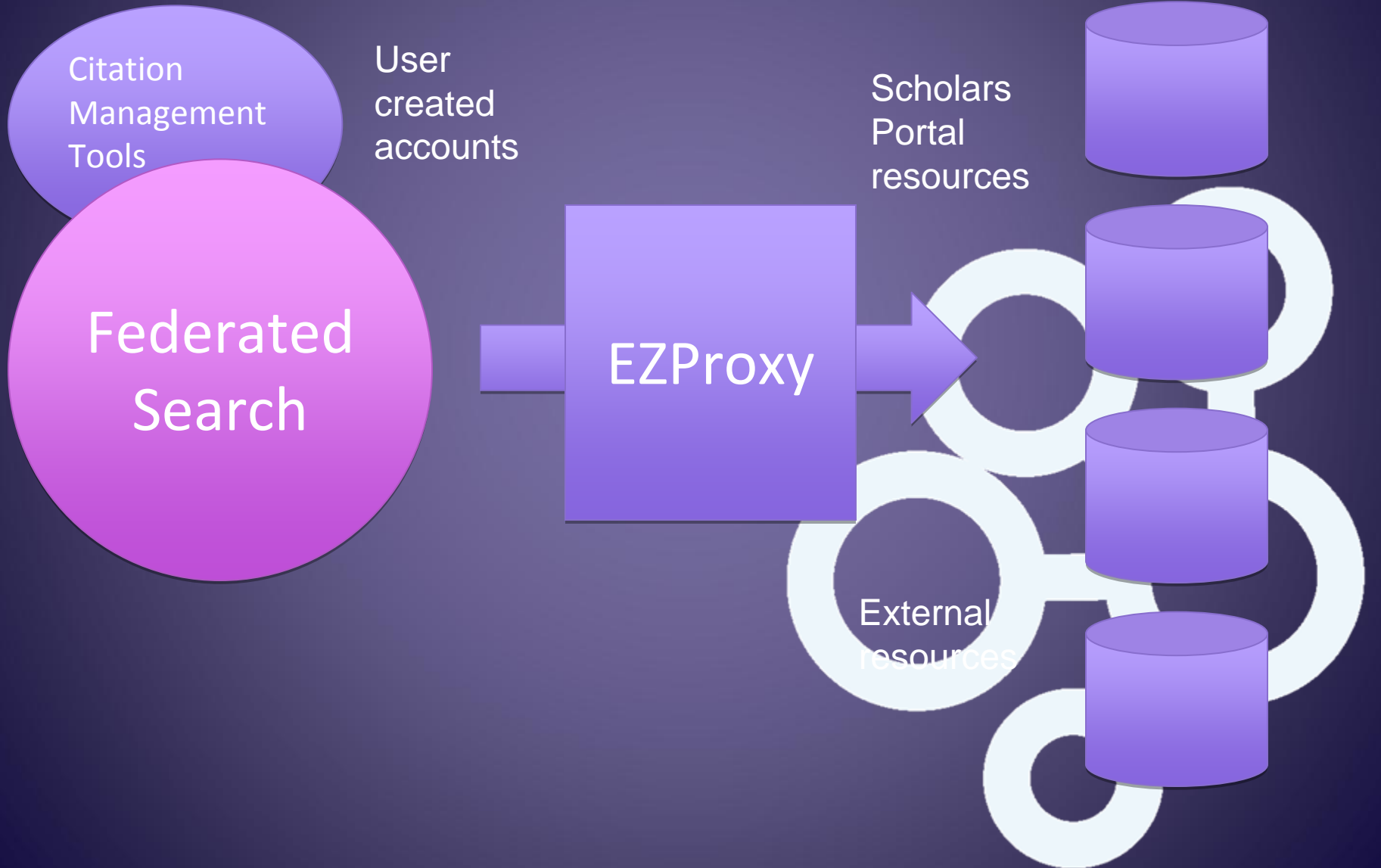
Membranes

ABSTRACT

Reverse osmosis membrane technology has developed over the past 40 years to a 44% share in world desalting production capacity, and an 80% share in the total number of desalination plants installed worldwide. The use of membrane desalination has increased as materials have improved and costs have decreased. Today, reverse osmosis membranes are the leading technology for new desalination installations, and they are applied to a variety of salt water resources using tailored pretreatment and membrane system design. Two distinct branches of reverse osmosis desalination have emerged: seawater reverse osmosis and brackish water reverse osmosis. Differences between the two water sources, including foulants, salinity, waste brine (concentrate) disposal options, and plant location, have created significant differences in process development, implementation, and key technical problems. Pretreatment options are similar for both types of reverse osmosis and depend on the specific components of the water source. Both brackish water and seawater reverse osmosis (RO) will continue to be used worldwide; new technology in energy recovery and renewable energy, as well as innovative plant design, will allow greater use of desalination for inland and rural communities, while providing more affordable water for large coastal cities. A wide variety of research and general information on RO desalination is available; however, a direct comparison of seawater and brackish water RO systems is necessary to highlight similarities and differences in process development. This article brings to light key parameters of an RO process and process modifications due to feed water characteristics.

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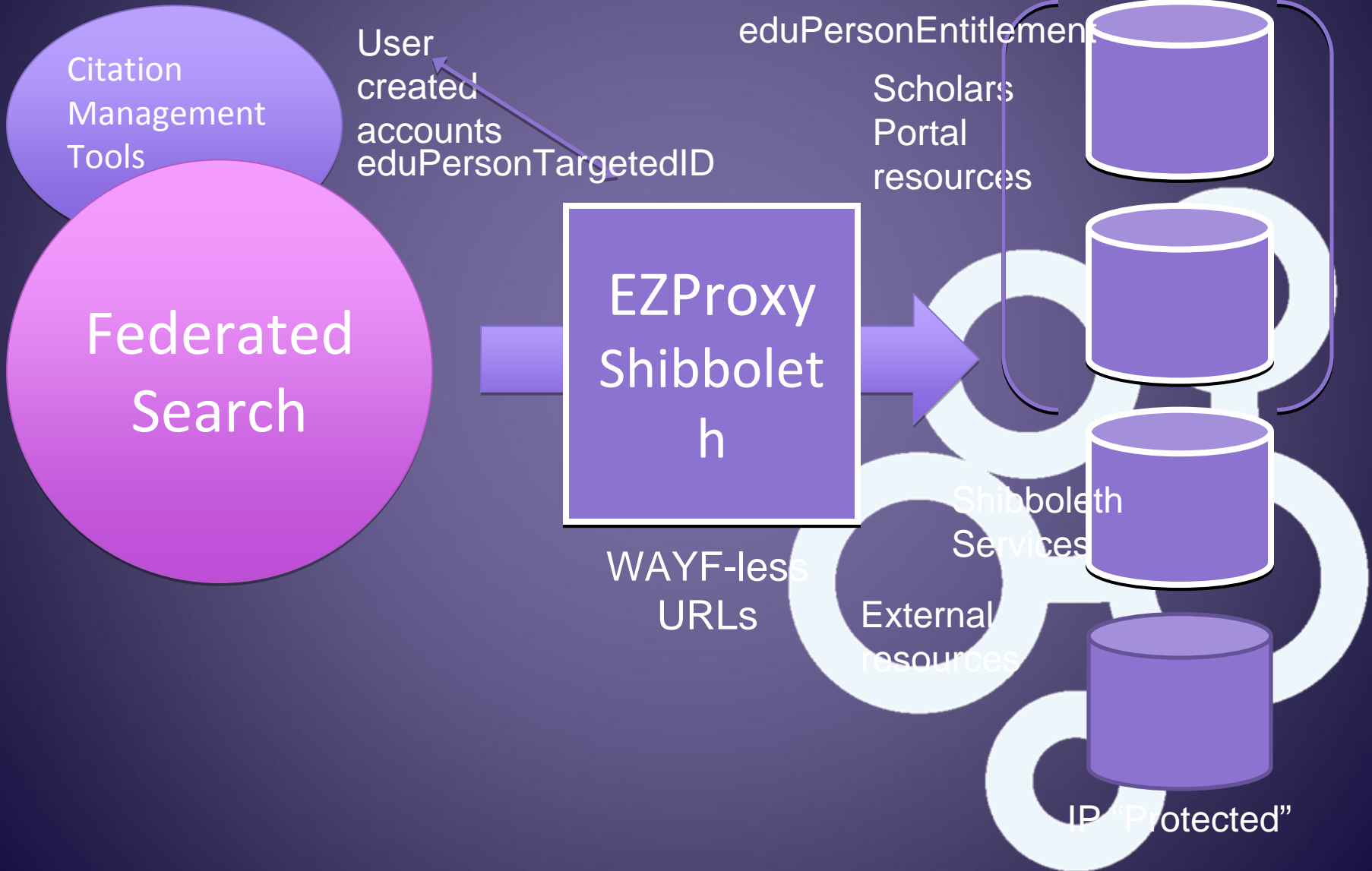
Current Access Model



Shibboleth Services

EZP/Shibboleth Hybrid

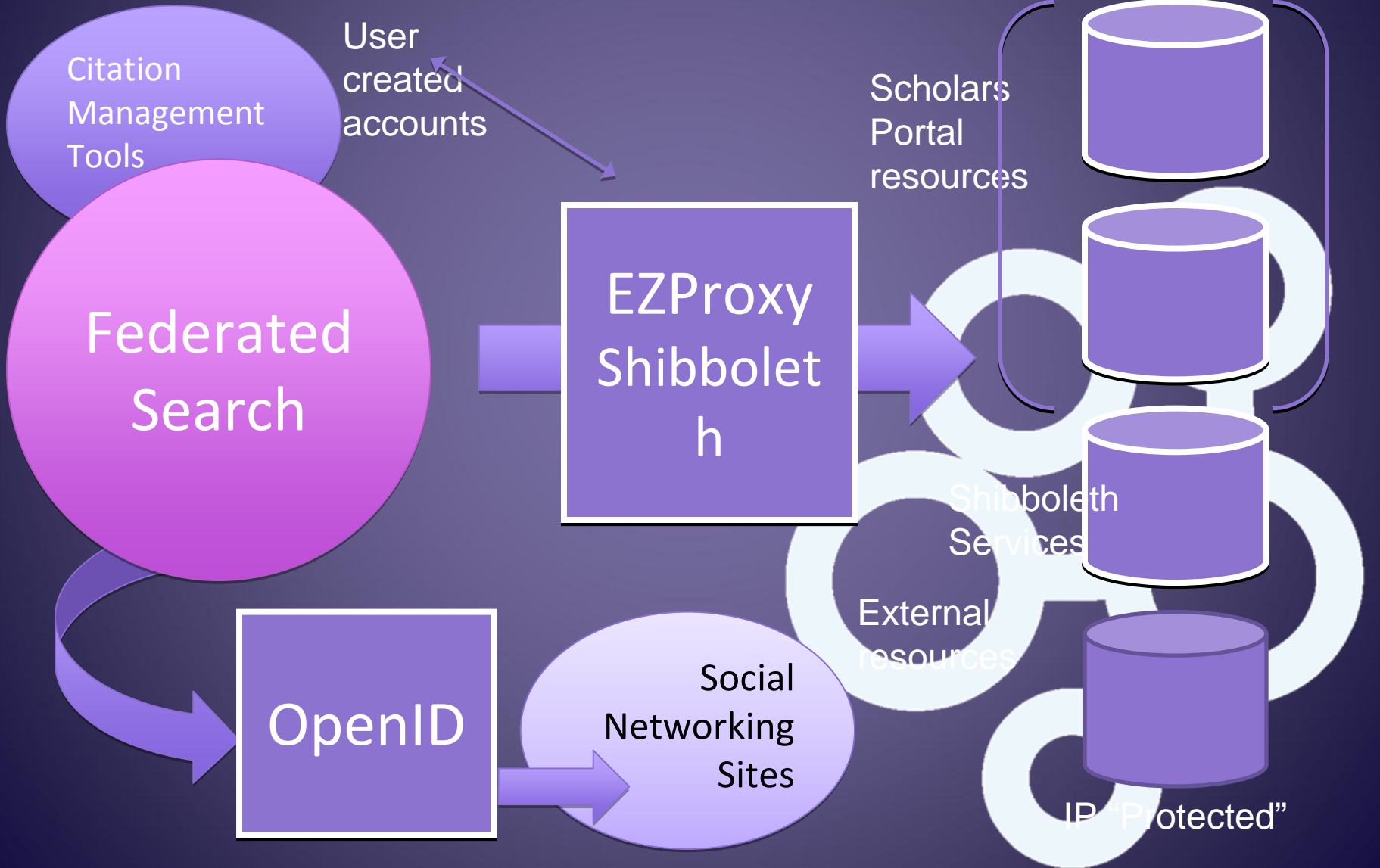
Shibboleth Services



Web Identities

Shibboleth Services

Shibboleth Services





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Evolving and Growing Federated Access Services in Canada





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Discussions currently underway with:

❑ CANARIE

- As a partner for the continued operation and development of federated access services, and;
- At a future date, transition these services to CANARIE as a service offering

❑ Regional networks

- Possible supporting roles and/or complimentary services

❑ Service providers

- More services = more users

❑ Other communities of interest

- Identifying services to meet their needs





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Why are we here?

- ❑ How can the availability of federated access management services benefit you as an end-user, your organization as a potential member and/or as a service provider?
- ❑ Are there service providers you would like (i.e. sponsor) to become members of the federation?
- ❑ Are there are other access management services that you feel should be part of a federated offering?
- ❑ Answer any other questions you may have with respect to becoming a member, end user or service provider?

