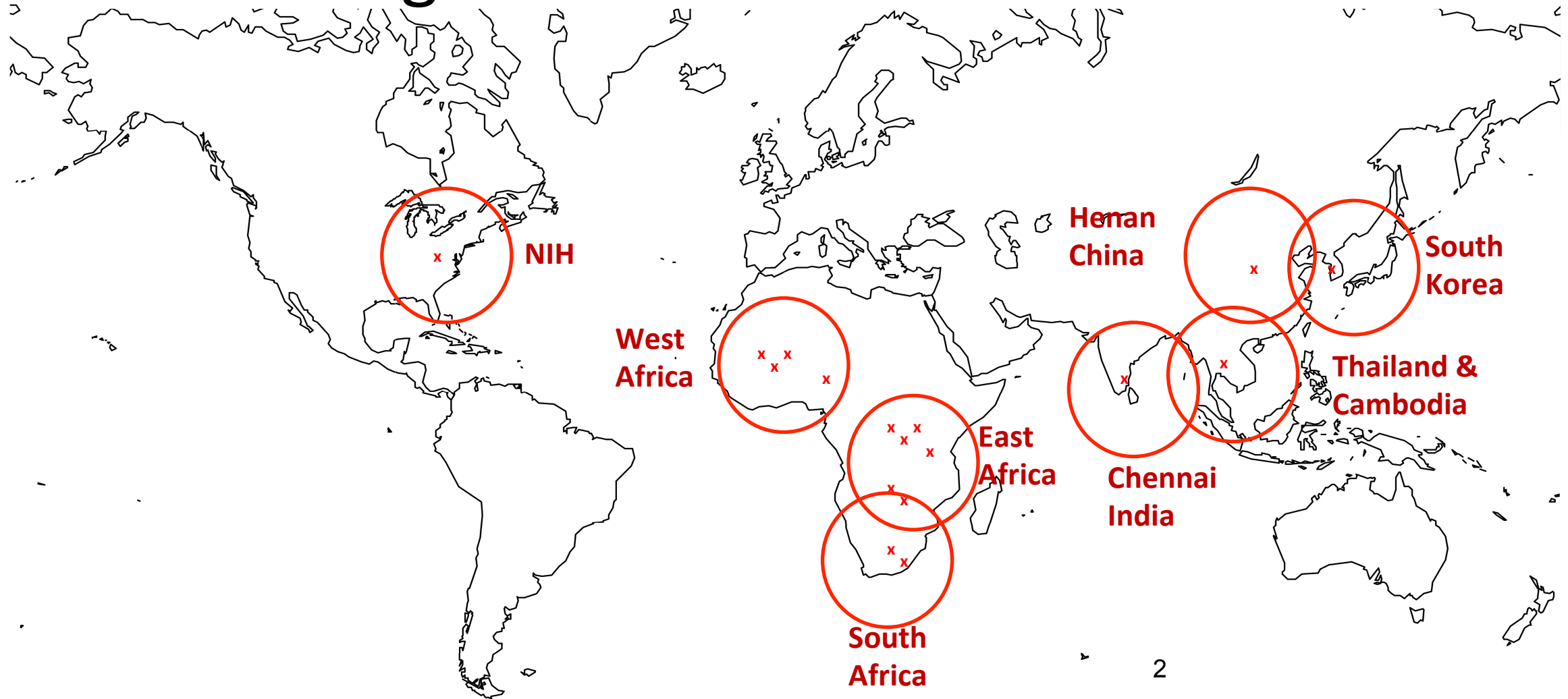


Virtual Organizations for collaboration at a West African Research Center

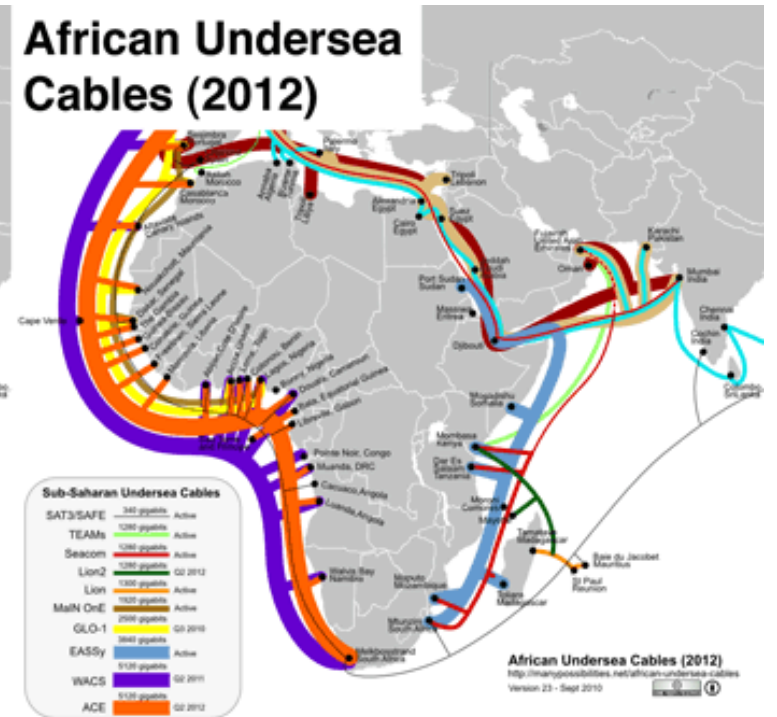
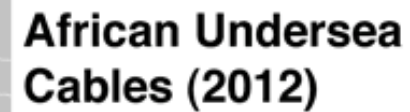
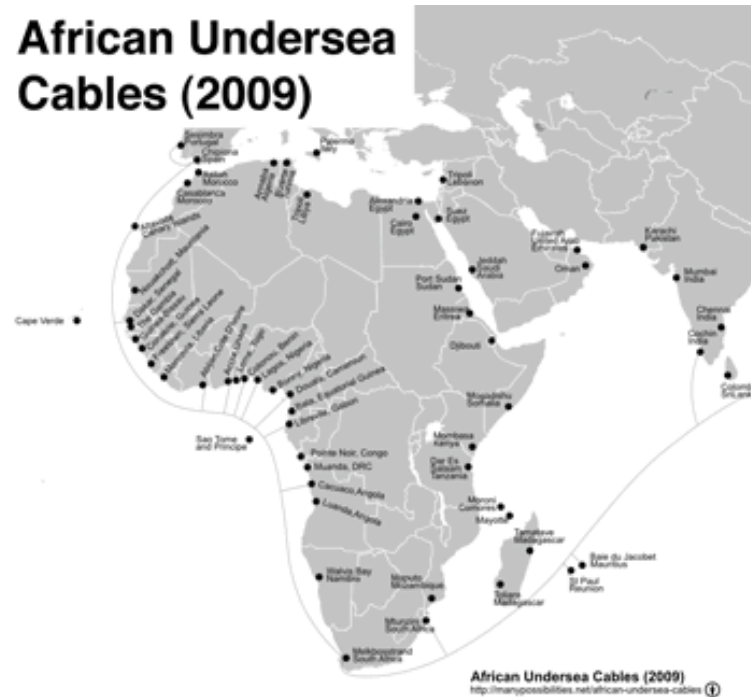
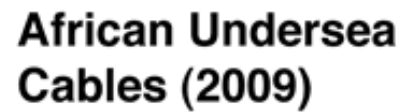
Christopher Whalen
Program Manager

International Biomedical Research Support Program
NIH/NIAID Office of Cyberinfrastructure and Computational Biology

NIAID International Biomedical Research Support Program – Infrastructure and Clinical Data management Services



Collaborative networks starting with basic connectivity



Science depends on collaboration between researchers and institutions

- Collaboration is critical because of the increasing multidisciplinary nature of modern science
- Example: Molecular Biology research often encompasses both molecular and cell biology including structural and functional genomics, transcriptomics, proteomics, bioinformatics, biomedicine, molecular enzymology, molecular virology and molecular immunology, theoretical bases of biotechnology, physics and physical chemistry of proteins and nucleic acids.

Collaboration Tools for science

- Document Management
 - Storage and retrieval
 - Version Control
 - Search
 - Categorize
- Information Management
 - Calendar
 - Contacts
 - Blogs
 - Discussions
 - Wikis
- Collaboration
 - Access Controls
 - project workspaces
 - Task lists
 - workflows
 - data sharing
 - project discussions

Traditional approach to collaboration tools

	Collabaration Identity (username/password)	Institutional Identity (username/password)
Cloud Google Docs	cwhalen1234@gmail.com collaborator1234@gmail.com	christopher.whalen@nih.gov collaborator1234@university.ed.uk
Institutional infrastructure SharePoint @ NIH	christopher.whalen@nih.gov collaborator1234@nihext.nih.gov	christopher.whalen@nih.gov collaborator1234@university.ed.uk

Virtual organization/federation approach to collaboration tools

	Collaboration Identity (username/password)	Institutional Identity (username/password)
Cloud with VO Collaboration Tool	christopher.whalen@nih.gov collaborator1234@university.ed.uk	christopher.whalen@nih.gov collaborator1234@university.ed.uk
Institutional infrastructure SharePoint @ NIH using the VO	christopher.whalen@nih.gov collaborator1234@university.ed.uk	christopher.whalen@nih.gov collaborator1234@university.ed.uk

Scientific Tools for researchers

- Translational Science has experienced an explosion of data
 - Challenges of sharing databases
- High Performance Computing resources
 - Sequencing Analysis
- Data Management tools for clinical trials and studies
- Specimen, compound, databases
- Support Validation and auditing

Virtual Organization Executing Bioinformatics Analysis

Without Virtual Organization (Currently)

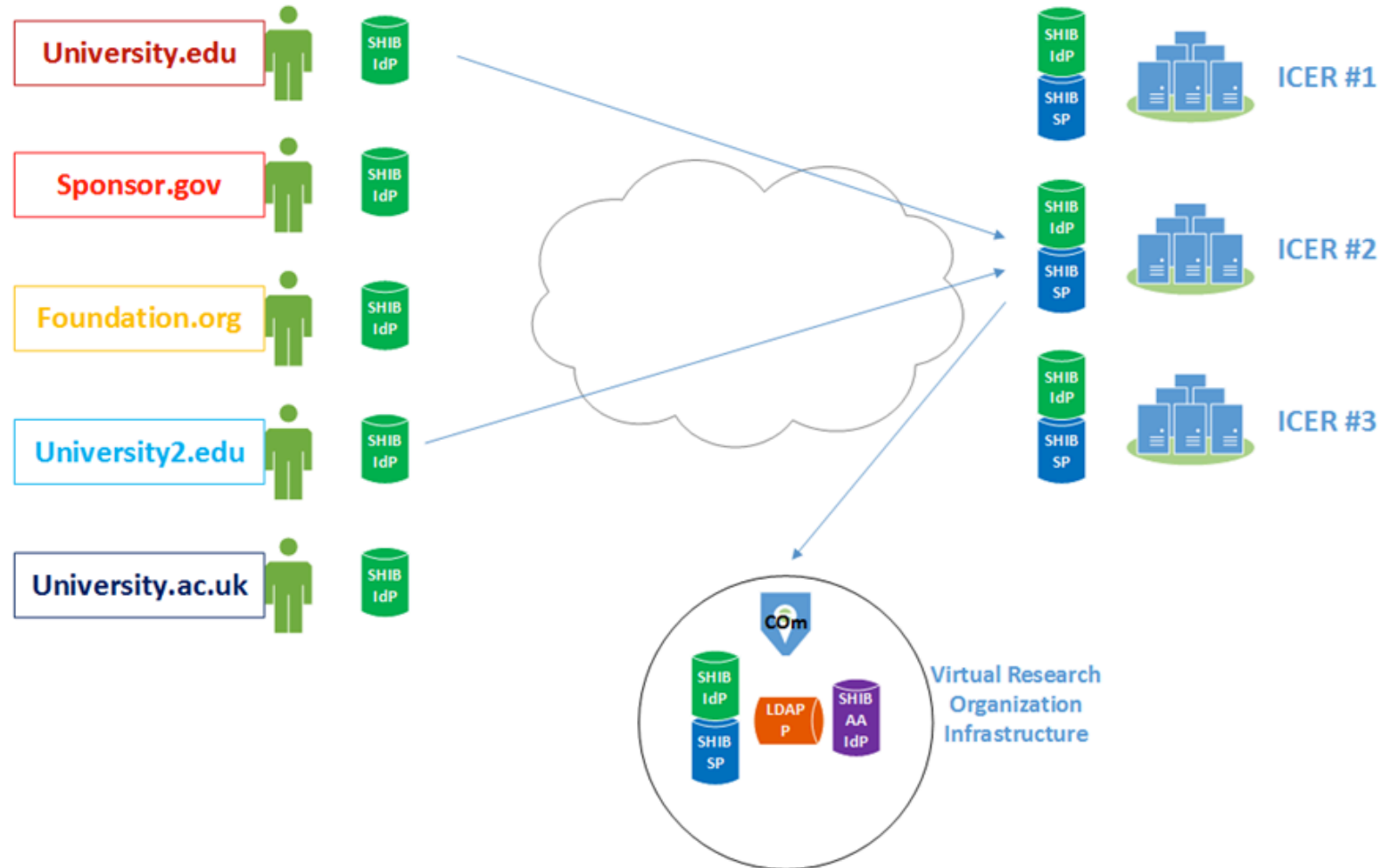
- NIAID HPC login
 - ssh squires@hpc.niaid.nih.gov
- Mali ICER login
 - ssh icermali/squiresrb@slipstream.icermali.org
- Uganda ICER login
 - ssh iceruganda/squiresrb@slipstream.iceruganda.org

With Virtual Organization

- Log in
 - ssh squires@hpc.niaid.nih.gov
- Mali ICER login
 - ssh squires@hpc.niaid.nih.gov
- Uganda ICER login
 - ssh squires@hpc.niaid.nih.gov

The International Center for Excellence in Research as a virtual organization

Modern research collaborations stretch across many different organizations and national boundaries.



The world

Identity Providers IdP



Mali ICER

Uganda ICER



LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



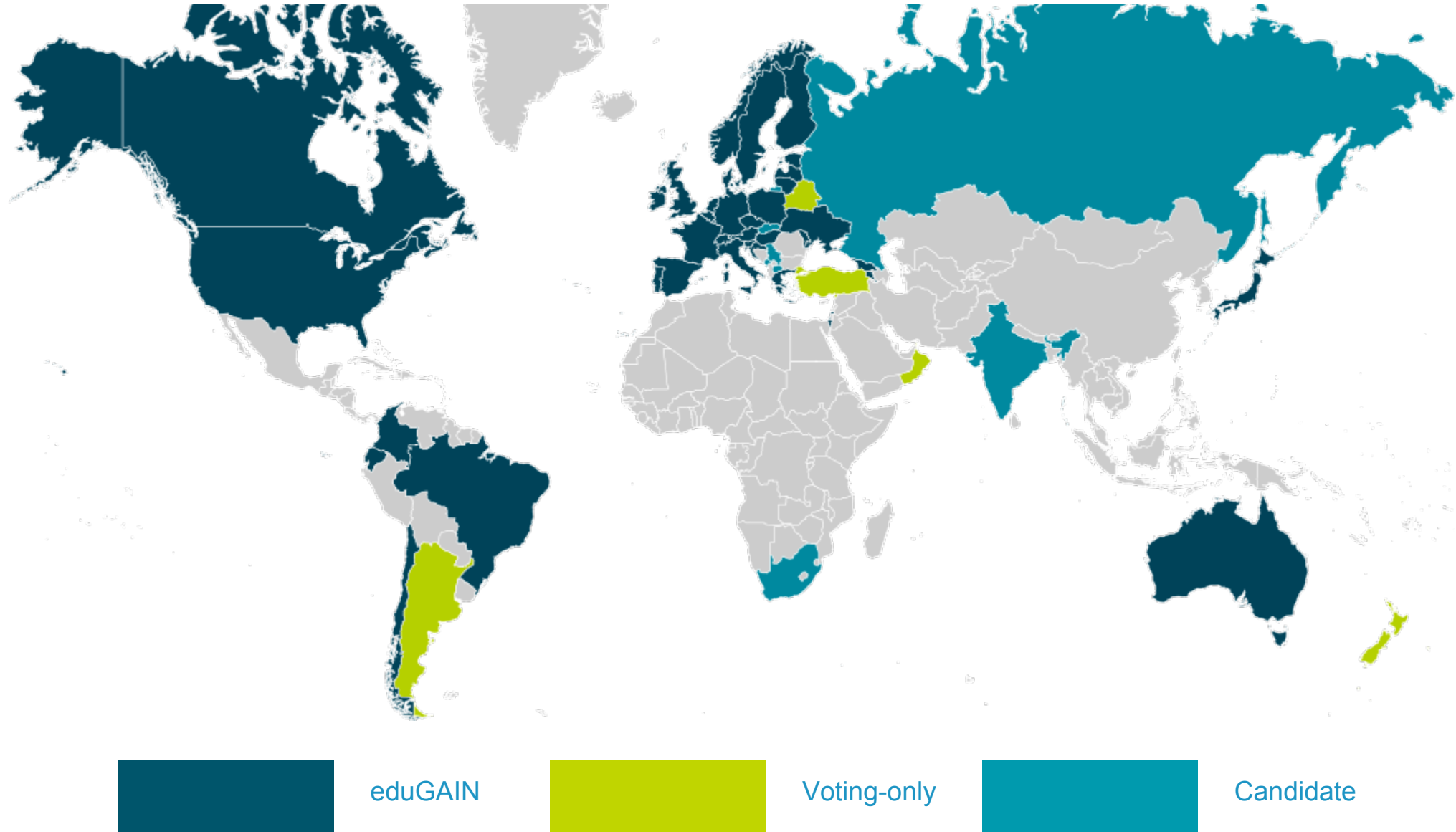
UCSF

Service Providers SP



QlikView

Interfederation: eduGAIN



Example: Collaboration => Virtual Organization

Polymorphisms in the K13-Propeller Gene in Artemisinin-Susceptible *Plasmodium falciparum* Parasites from Bougoula-Hameau and Bandiagara, Mali

Amed Ouattara, Aminatou Kone, Matthew Adams, Bakary Fofana, Amelia Walling Maiga, Shay Hampton, Drissa Coulibaly, Mahamadou A. Thera, Nouhoum Diallo, Antoine Dara, Issaka Sagara, Jose Pedro Gil, Anders Bjorkman, Shannon Takala-Harrison, Ogobara K. Doumbo, Christopher V. Plowe and Abdoulaye A. Djimde*

[-] Author Affiliations

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University of Maryland

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Karolinska Institutet

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Vanderbilt University

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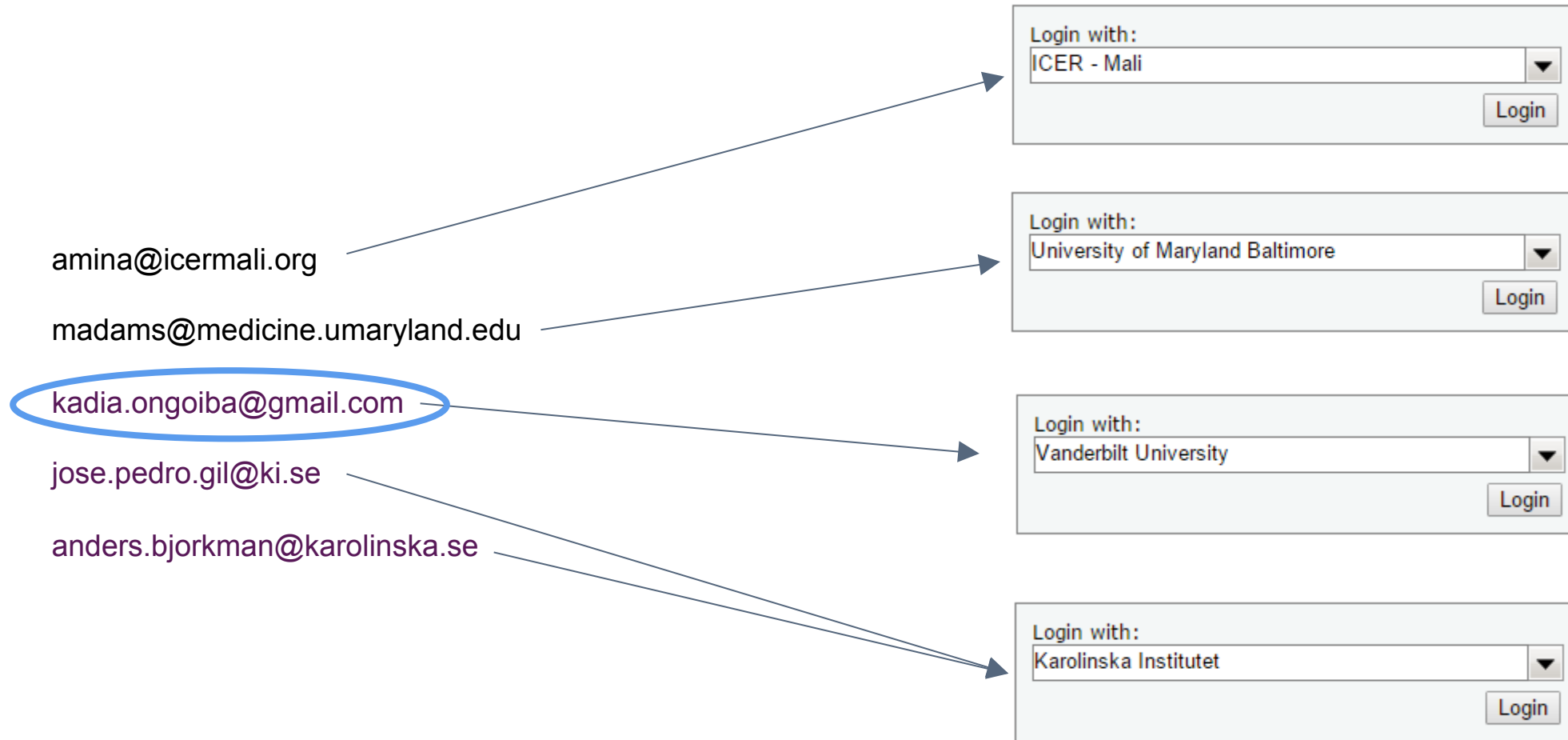
Universidade de Lisboa

Jose Pedro Gil

The State University of New York, Binghamton

Jose Pedro Gil

Virtual Organization – Single username/password



Virtual Organization - Identity consolidation

Universidade de Lisboa

Jose Pedro Gil

The State University of
New York, Binghamton

Jose Pedro Gil

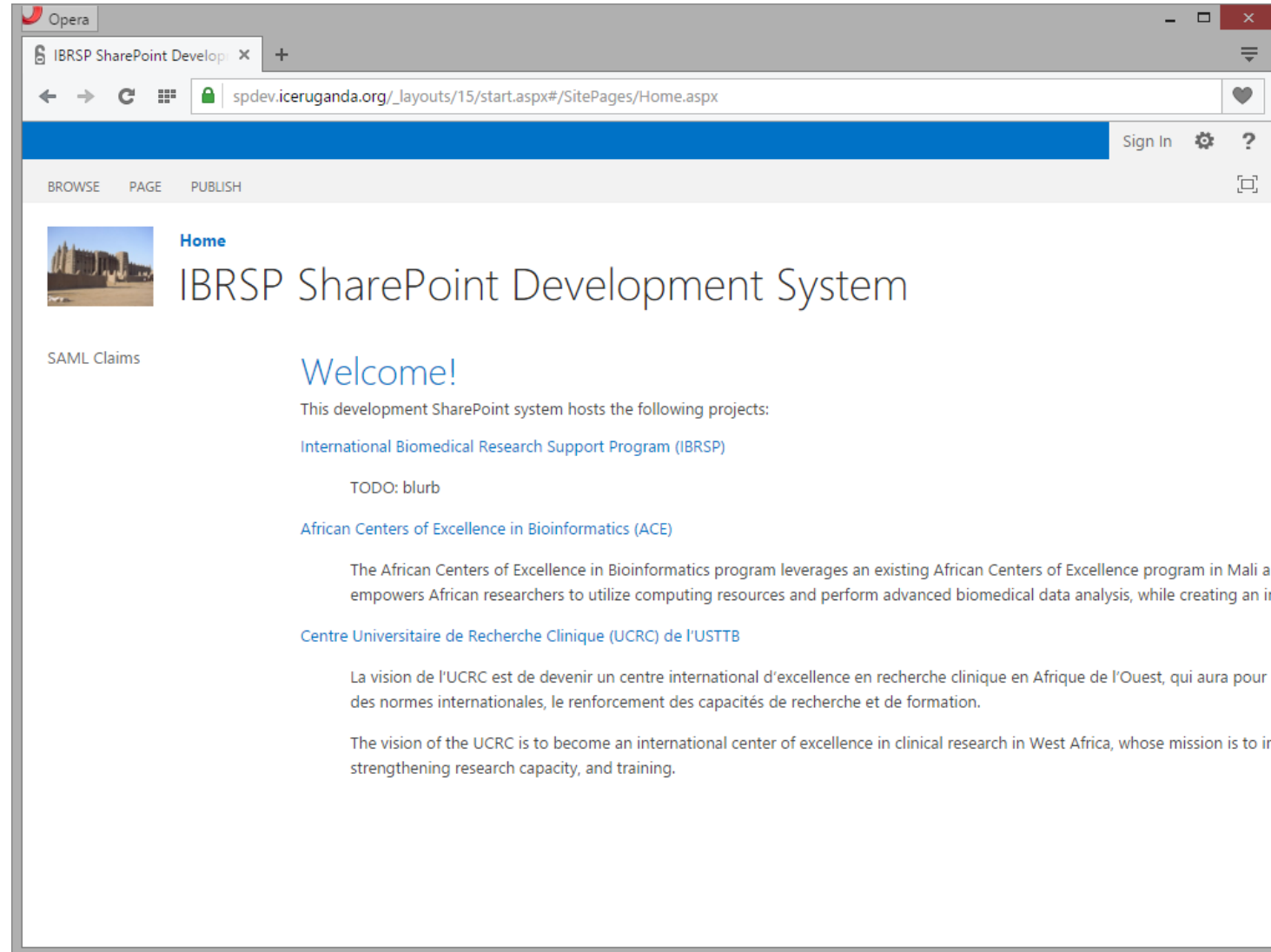
Karolinska Institutet

Jose Pedro Gil

☐ Organizational Identities

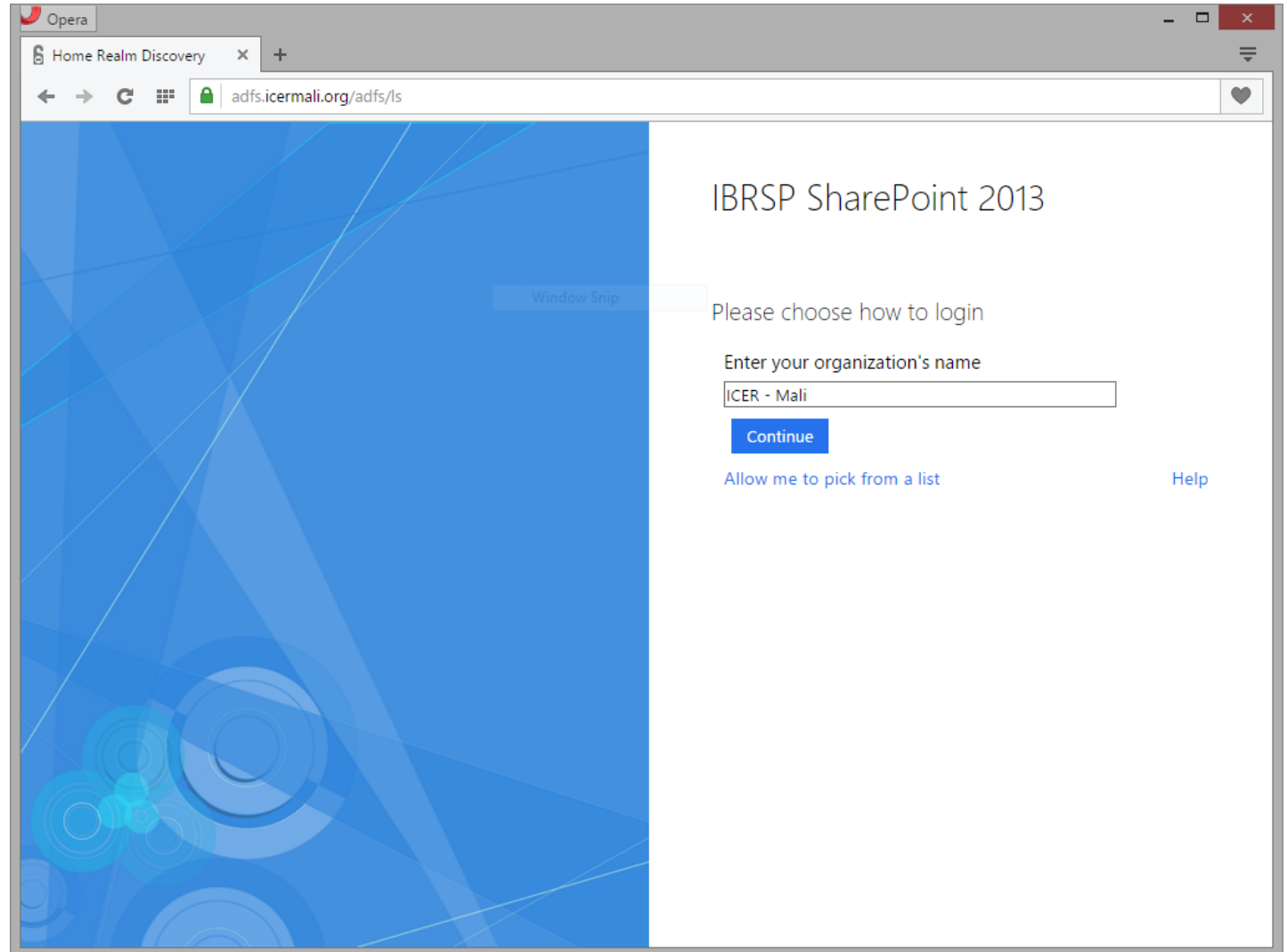
Name	Organization	Affiliation	Login Identifiers
Christopher Whalen (23)	National Institute of Allergy and Infectious Diseases		cwhalen@icermali.org (eppn) cwhalen@nih.gov (eppn) CWHALEN@nih.gov (eppn) cwhalen@iceruganda.org (eppn) nihcwhalen@yahoo.com (eppn)

Demo: Landing Page for the SharePoint server in Mali



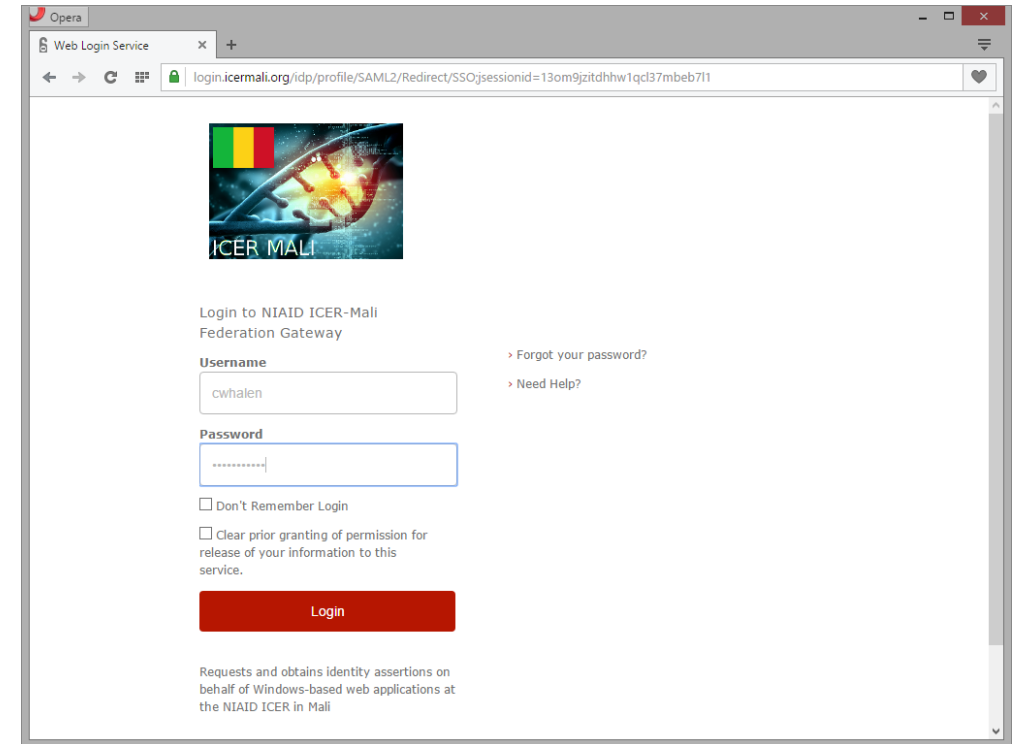
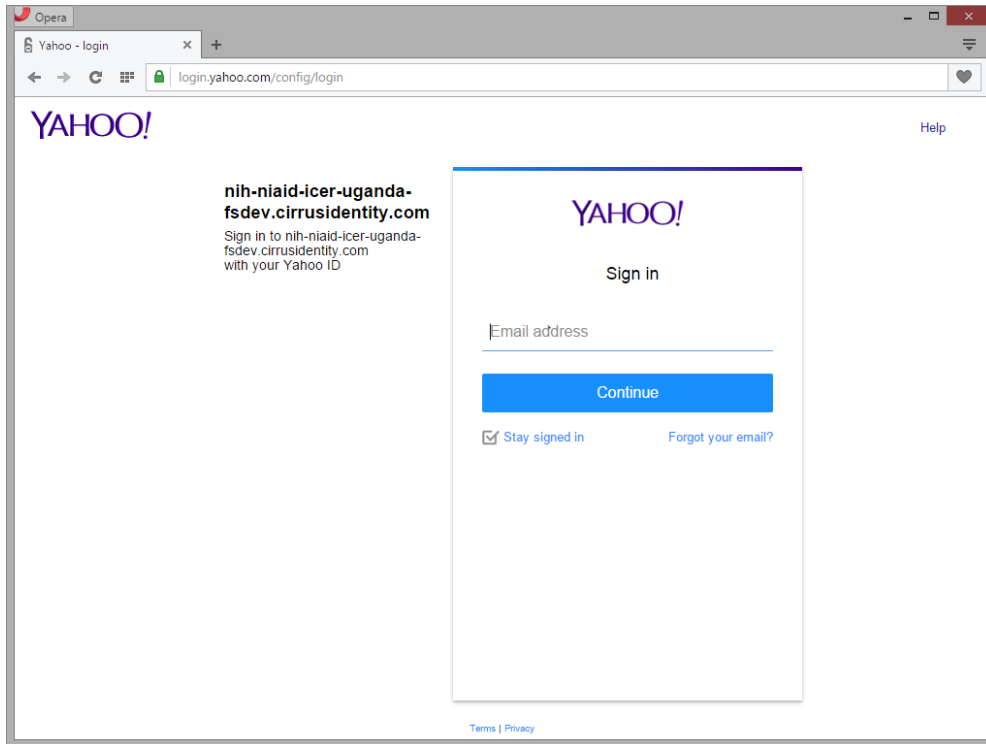
Connect to the SharePoint collaboration platform in Mali

Select the institution that you use for your identity



The SharePoint server sends your web browser to your chosen institution's authentication server

Enter your username and password –
or it can support any enhanced
authentication your institution requires




Release of your information to the Service Provider (the Mali ICER SharePoint server)

Opera

Information Release

login.icermali.org/idp/profile/SAML2/Redirect/SSO



You are about to access the service:
NIAID ICER-Mali Federation Gateway of
National Institutes of Health

Description as provided by this service:
*Requests and obtains identity assertions on behalf
of Windows-based web applications at the NIAID
ICER in Mali*

[Additional information about the service](#)

Information to be Provided to Service	
displayName	Christopher J. Whalen
eduPersonPrincipalName	cwhalen@icermali.org
eduPersonScopedAffiliation	member@icermali.org
givenName	Christopher
mail	cwhalen@icermali.org
sn	Whalen

[Data privacy information of the service](#)

The information above would be shared with the service if you proceed. Do you agree to release this information to the service every time you access it?

Select an information release consent duration:

☐ Ask me again at next login

- I agree to send my information this time.

☒ Ask me again if information changes

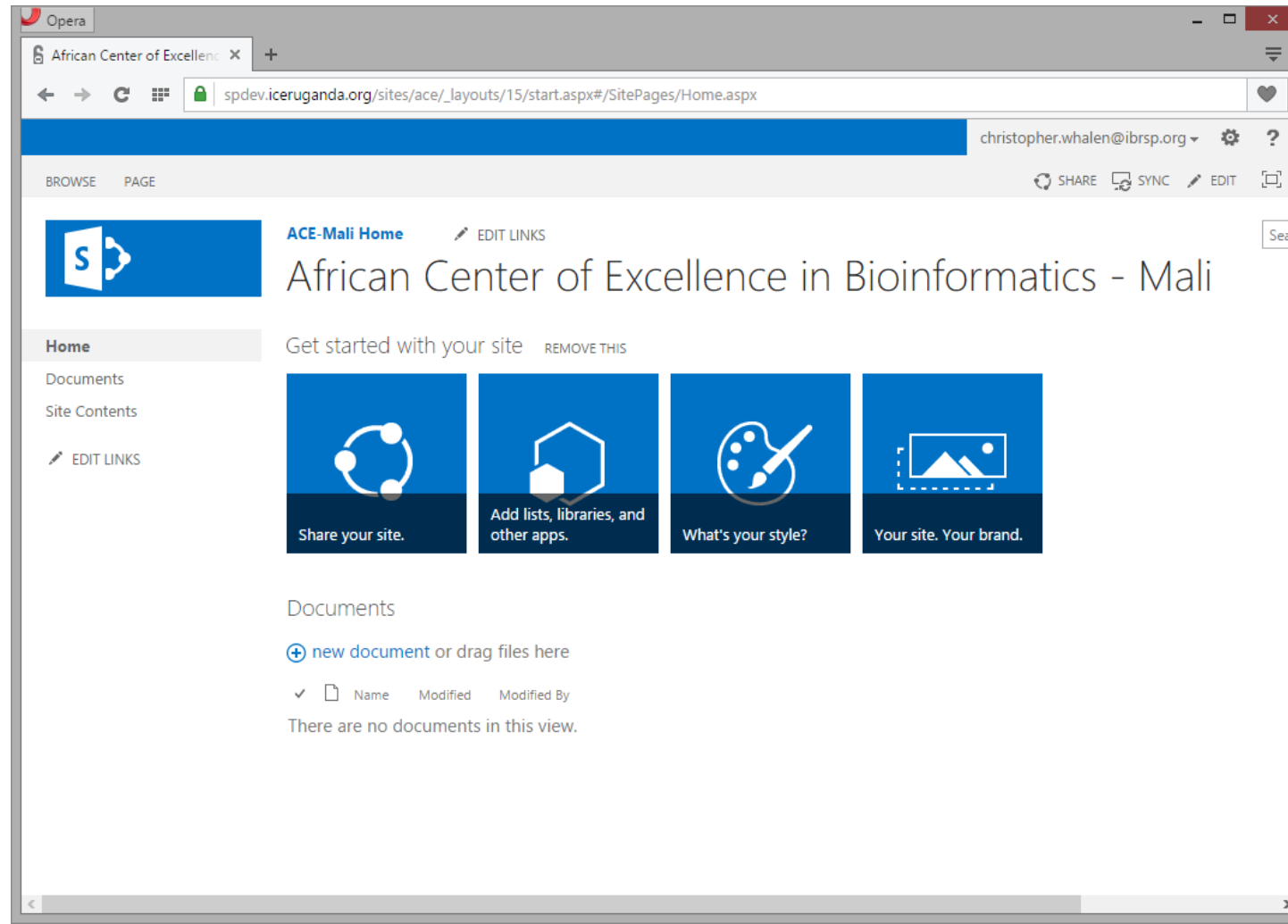
- I agree that the same information will be sent automatically to this service in the future.

☐ Do not ask me again

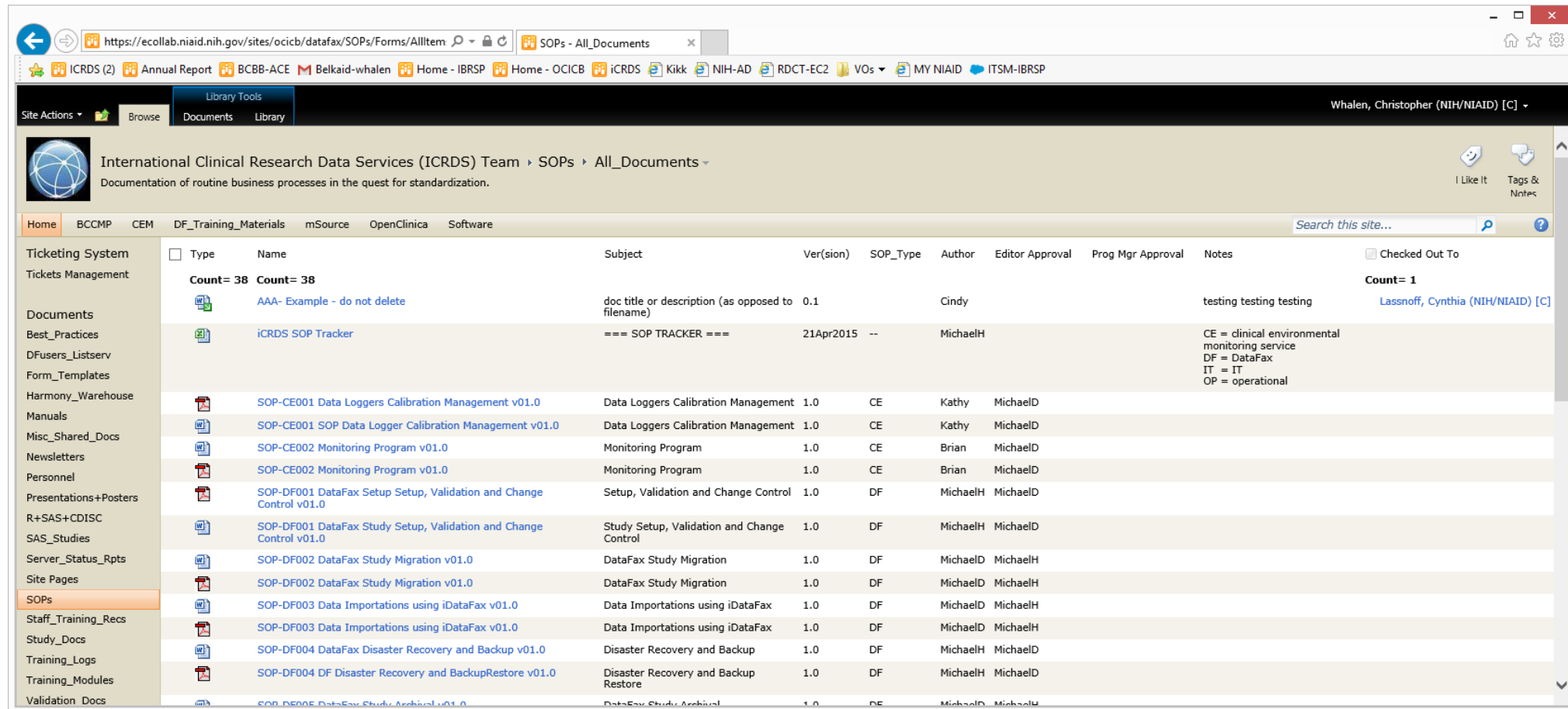
- I agree that **all** of my information will be released to **any** service.

This setting can be revoked at any time with the checkbox on the login page.

SharePoint collaboration platform for protocols and investigators at the Mali Faculties of Medicine and Pharmacy



Document tracking and versioning with Audit Trails and access controls



The screenshot displays a web application interface for document tracking and versioning. The browser address bar shows the URL: <https://ecollab.niaid.nih.gov/sites/ocicb/datafax/SOPs/Forms/AllItem>. The page title is "SOPs - All Documents". The user is logged in as "Whalen, Christopher (NIH/NIAID) [C]".

The page features a navigation menu on the left with categories like "Ticketing System", "Documents", "Personnel", "Presentations+Posters", "SAS_Studies", "Server_Status_Rpts", "Site Pages", "SOPs", "Staff_Training_Recs", "Study_Docs", "Training_Logs", "Training_Modules", and "Validation Docs". The "SOPs" category is currently selected.

The main content area displays a table of documents. The table has the following columns: "Type", "Name", "Subject", "Ver(sion)", "SOP_Type", "Author", "Editor Approval", "Prog Mgr Approval", "Notes", and "Checked Out To". The table contains 38 documents, with the first few rows visible below.

Type	Name	Subject	Ver(sion)	SOP_Type	Author	Editor Approval	Prog Mgr Approval	Notes	Checked Out To
	AAA- Example - do not delete	doc title or description (as opposed to filename)	0.1		Cindy			testing testing testing	
	iCRDS SOP Tracker	=== SOP TRACKER ===	21Apr2015 --		MichaelH			CE = clinical environmental monitoring service DF = DataFax IT = IT OP = operational	
	SOP-CE001 Data Loggers Calibration Management v01.0	Data Loggers Calibration Management	1.0	CE	Kathy	MichaelD			
	SOP-CE001 SOP Data Logger Calibration Management v01.0	Data Loggers Calibration Management	1.0	CE	Kathy	MichaelD			
	SOP-CE002 Monitoring Program v01.0	Monitoring Program	1.0	CE	Brian	MichaelD			
	SOP-CE002 Monitoring Program v01.0	Monitoring Program	1.0	CE	Brian	MichaelD			
	SOP-DF001 DataFax Setup Setup, Validation and Change Control v01.0	Setup, Validation and Change Control	1.0	DF	MichaelH	MichaelD			
	SOP-DF001 DataFax Study Setup, Validation and Change Control v01.0	Study Setup, Validation and Change Control	1.0	DF	MichaelH	MichaelD			
	SOP-DF002 DataFax Study Migration v01.0	DataFax Study Migration	1.0	DF	MichaelD	MichaelH			
	SOP-DF002 DataFax Study Migration v01.0	DataFax Study Migration	1.0	DF	MichaelD	MichaelH			
	SOP-DF003 Data Importations using iDataFax v01.0	Data Importations using iDataFax	1.0	DF	MichaelD	MichaelH			
	SOP-DF003 Data Importations using iDataFax v01.0	Data Importations using iDataFax	1.0	DF	MichaelD	MichaelH			
	SOP-DF004 DataFax Disaster Recovery and Backup v01.0	Disaster Recovery and Backup	1.0	DF	MichaelH	MichaelD			
	SOP-DF004 DF Disaster Recovery and BackupRestore v01.0	Disaster Recovery and Backup Restore	1.0	DF	MichaelH	MichaelD			
	SOP-DF005 DataFax Study Archival v01.0	DataFax Study Archival	1.0	DF	MichaelD	MichaelH			

Why NREN Identity?

Why not Google, Facebook, Yahoo!, Twitter..?

Interfederation Research Participants (eduGAIN *via* InCommon, Canarie, etc.) are responsible for investigating and compliance with international privacy law of the countries where research occurs or research subjects reside - *Susan Blair, Chief Privacy Officer, University of Florida, Internet2 Global Summit 2015*

- Google Policy: “Information we collect when you are **signed into Google**, in addition to information we obtain about you from partners, may be associated with your Google Account. When information is associated with your Google Account, we treat it as personal information.”

Acknowledgments

NIAID CIO - Michael Tartakovsky

InCommon - Ann West, Tom Scavo, Ken Klingenstein, John Krienke

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Salimata Traore, Issa Ba, and Aoua Coulibaly

NIAID OCICB - Matthew Economou, Jake Jester, Jaskiran Singh

Spherical Cow - Heather Flanagan, Scott Koranda, Benn Oshrin

NIH - Jeff Erickson, Sandeep Sathyaprasad

Participants at Advance CAMP 2014 Internet2 Technical Exchange

VOs that have paved the way - LIGO, CERN, Elixir, and others