Global Virtual Research Organizations

FIM4R11
McGill University, Montreal, Quebec – Sept. 18, 2017
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National Institute of Allergy and Infectious Diseases, NIH
International Centers of Excellence in Research

- University of Bamako, Mali
- Ugandan Virus Research Institute, Uganda
- National Institute for Research in Tuberculosis, India

NIH

West Africa

East Africa

South Africa

Henan China

South Korea

Chennai India

Thailand & Cambodia
In the beginning we had this idea of a VRO....

• Many services
• Many users from many institutions
• Scientists around the world coming together to work
  • To collaborate
  • To innovate
• They would not need to have new credentials managed by us
• They would bring credentials from their own institution
• We would know them
• And because we knew them, we could group them with their collaborators
• And it was a good idea
NIAID VRO – Milestones and missteps phase 1 & 2
An entity in every pot

• Phase 1 – Distributed Service Providers – 17% success rate
  • Comanage
  • Shibboleth Service Providers – Comanage and SharePoint
  • Shibboleth Identity Providers at the African NIH sponsored centers
  • NIH Sponsored the sites in Mali and Uganda into InCommon
  • ADFS – Custom Attribute Store for SharePoint
  • Eduroam for International Center of Excellence in Research in Mali and Uganda through the local NREN/Trust Federations (WACREN/MaliREN and RENU)
NIAID VRO – Milestones and missteps of phase 1 & 2
One entity to rule them all

• Completed May 2017
• Phase 2
  • SaToSa: IdP-SP Proxy
  • Moved service providers behind the proxy
    • SharePoint
    • REDCap
    • BioLinux servers (OpenStack under development in Uganda)
  • Comanage
  • Internal Only Services
    • AWS
    • Slack
  • Eduroam and IdP for the site in India through INFLIB
Predict TB
Status of the TB epidemic and MDR-TB crisis - 2016

- 10.4 Million new cases
- 10% are < 18 years
- 580,000 new cases of MDR TB
- 45% of the MDR TB cases are in India, China, and the Russian Federation
- 1.4 million deaths
- .4 million TB+HIV deaths

Source - WHO Global Tuberculosis Report 2016
Globally there are almost 200 scientists, technicians, statisticians, monitors, data managers, and study coordinators.
The World Health Organization estimates that the global epidemic of tuberculosis (TB) was responsible for approximately 10.4 million TB cases worldwide in 2015 alone. This high prevalence of TB along with the growing number of drug-resistant cases urgently requires interventions to help shorten the duration of TB chemotherapy.

Shortening treatment for TB has been an important goal for over 30 years. During this time, the treatment duration for drug susceptible TB was successfully shortened from 24 to 6 months. Recent studies that attempted shortening to less than 6 months, however, all failed and thus six months remains the standard treatment duration for drug susceptible TB. Despite this, evidence suggests that most patients do not require such an extensive treatment duration but identifying those cured before 6 months has proven challenging. PredictTB makes use of state-of-the-art tools (specifically, [(18F)]-FDG PET/CT imaging and GeneXpert) to identify participants with a lower burden of disease who have a strong early response to treatment, and will test whether treatment can be shortened to 16 weeks in this lower risk cohort. The study hypothesizes that a combination of radiographic characteristics at baseline, the rate of change of these features at one month, and markers of residual bacterial load at the end of treatment will identify patients with tuberculosis who are cured with 4 months (16 weeks) of standard treatment.

PredictTB is a prospective, randomized, phase 2b noninferiority trial, with three study groups:

- a non-randomized higher risk cohort (Arm A), undergoing standard treatment, and
- two groups from a lower risk cohort, who are randomized to standard treatment (Arm B) or to shortened treatment (Arm C).
Predict TB – Lessons Learned for VROs

• Enrollment process
  • Incomprehensible to users
  • Conscription partial solution (for known IdPs)
  • Administrator training
  • Identity Aggregation critical but difficult to understand

• Authentication
  • Working with Federations
  • Working with Academic IdPs
  • Desperately seeking Commercial IdPs (in China)
  • IdPoLR

• Staffing operations vs development

• Confusion in Discovery
New Federation Development

CARS - CERNET Authentication and Resource Sharing Infrastructure

NIH
West Africa
East Africa
Henan China
South Korea
Thailand & Cambodia
Chennai India
South Africa

SAFIRE

INFLIBNET Centre
Information and Library Network Centre
Infcity Gandhinagar
Who am I and where do I come from?

Computer Centre in Gdansk (CI TASK)
Phase 3.5 - Discovery

NIAID Science Forum Login
Please select your login server

Select a previous choice
- NIH
- ICER - Mali

SHOW COMMON CHOICES
FIND MY LOGIN SERVER

NIAID Science Forum Login Login Server
Please select your login server

Select a common choice
- ICER - Mali
- National Institutes of Health
- University of Cape Town
- Google
- ICER - Uganda
- Windows Live Hotmail
- University of Maryland Baltimore
- NCSA
- Yahoo!
- University of Wisconsin-Madison
- Universitat Bern
- University of Florida

FIND MY LOGIN SERVER
Trust and the VRO

• How do we build trust behind the Proxy wall?
NIH – InCommon Metadata

- [https://www.incommon.org/federation/info/org.html?orgName=National%20Institutes%20of%20Health](https://www.incommon.org/federation/info/org.html?orgName=National%20Institutes%20of%20Health)

<table>
<thead>
<tr>
<th>Organization Name:</th>
<th>National Institutes of Health</th>
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<tbody>
<tr>
<td>Number of Entities:</td>
<td>3 IdPs; 12 SPs</td>
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<tr>
<td>Identity Providers:</td>
<td>ICER - Mali</td>
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<tr>
<td></td>
<td>ICER - Uganda</td>
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Published Proxy Services

Service Provider Information for federation.scienceforum.sc

This web application is a SATOSA deployment that supports the NIH/NIAID International Centers for Excellence in Research. Its entity ID is https://federation.icer.nih.gov/satosa.

This SATOSA deployment acts as a gateway (or proxy) to other web application servers deployed by the NIAID Science Forum. It is itself federated with many SAML identity providers by the publication of its metadata into the eduGAIN metadata feeds via the InCommon Federation and into the CARSI metadata feeds via a bilateral trust. It currently proxies for the following web applications:

- https://registration.scienceforum.sc/
- https://www.scienceforum.sc/
- https://agora.iceremail.org/
- https://mcp.scienceforum.sc/
- https://mcap.hsp.org/
- https://mcap.mirt.res.in/
- https://resurvey.scienceforum.sc/
- https://niad-science-forum.slack.com/
- https://console.aws.amazon.com/
- https://dashboard.meraki.com/
- https://dashboard.panovade.com/
- https://dev.scienceforum.sc/
- https://mcap.dev.scienceforum.sc/
- https://tableau-dou.intrep.org/

The gateway receives eduPerson Principal Name from a trusted identity provider and sends that attribute to proxied web applications listed above, as a claim.
What does it mean to have commercial services behind a proxy?
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