



Using **RENU** Identity Federation (**RIF**) to Access HPC resources at ACE Uganda

31st October-1st November 2024 – Dar es Salaam, Tanzania

PRESENTED BY

Lloyd Ssentongo

Uganda Site lead, Research Data + Communication Technologies

lsentongo@researchdata.us

UbuntuNet
CONNECT | 2024

RIF



- Service that enables participating RENU member institutions to leverage home organizations' digital identities to access resources by implementing common standards for interoperability

Why RIF is important to ACE - Uganda



- Simplified Access for Students, Faculty, Researchers
 - Single Sign-On (SSO)
 - Access to Shared Resources
- Inter-Institutional Collaboration
 - Cross-institutional Research
 - Access to External Resources
- Security and Privacy
 - Improved Security
 - Data Privacy Compliance

Why RIF is important cont'd



- Access to Global and National Academic Networks



- Cost and Resource efficiency

AFRICAN CENTERS OF EXCELLENCE IN BIOINFORMATICS (ACE)



- The NIAID and its partners inaugurated the **first ACE center** in April 2015 at Bamako, Mali.
- **2ND ACE center** launched March 2019 in Kampala, Uganda, in collaboration with
 - the **Foundation for the NIH (FNIH)**,
 - the **Infectious Diseases Institute of Uganda (IDI)**,
 - **Makerere University**, and
 - **RENU**.

Research and Education Network of Uganda

RENU



Current Member Institutions

39

Universities

43

Research Institutions

185

Schools

31

Other Tertiary Institutions

9

Hospitals

11

Support Institutions

African Center of Excellence in Bioinformatics – Uganda	∨
Bishop Stuart University – (BSU)	∨
Infectious Diseases Institute – Uganda (IDI)	∨
International Center for Excellence Research (ICER)	∨
Kyambogo University – (KYU)	∨
Lira University	∨
Makerere University – (MAK)	∨
Makerere University Business School – (MUBS)	∨
Mengo Hospital – (MNS)	∨
Research and Education Network for Uganda (RENU)	∨
Rakai Health Science Program – (RHSP)	∨
Uganda Christian University – (UCU)	∨
Uganda Martyrs Hospital Lubaga	∨
Uganda Martyrs University – (UMU)	∨
Uganda Virus Research Institute – (UVRI)	∨

19 IdPs and 9 SPs



RENU Identity Federation
Member Institutions

RDCT Supported Institutions

- African Center of Excellence in Bioinformatics-Uganda
- Rakai Health Sciences Program

How RIF has been an enabler for ACE

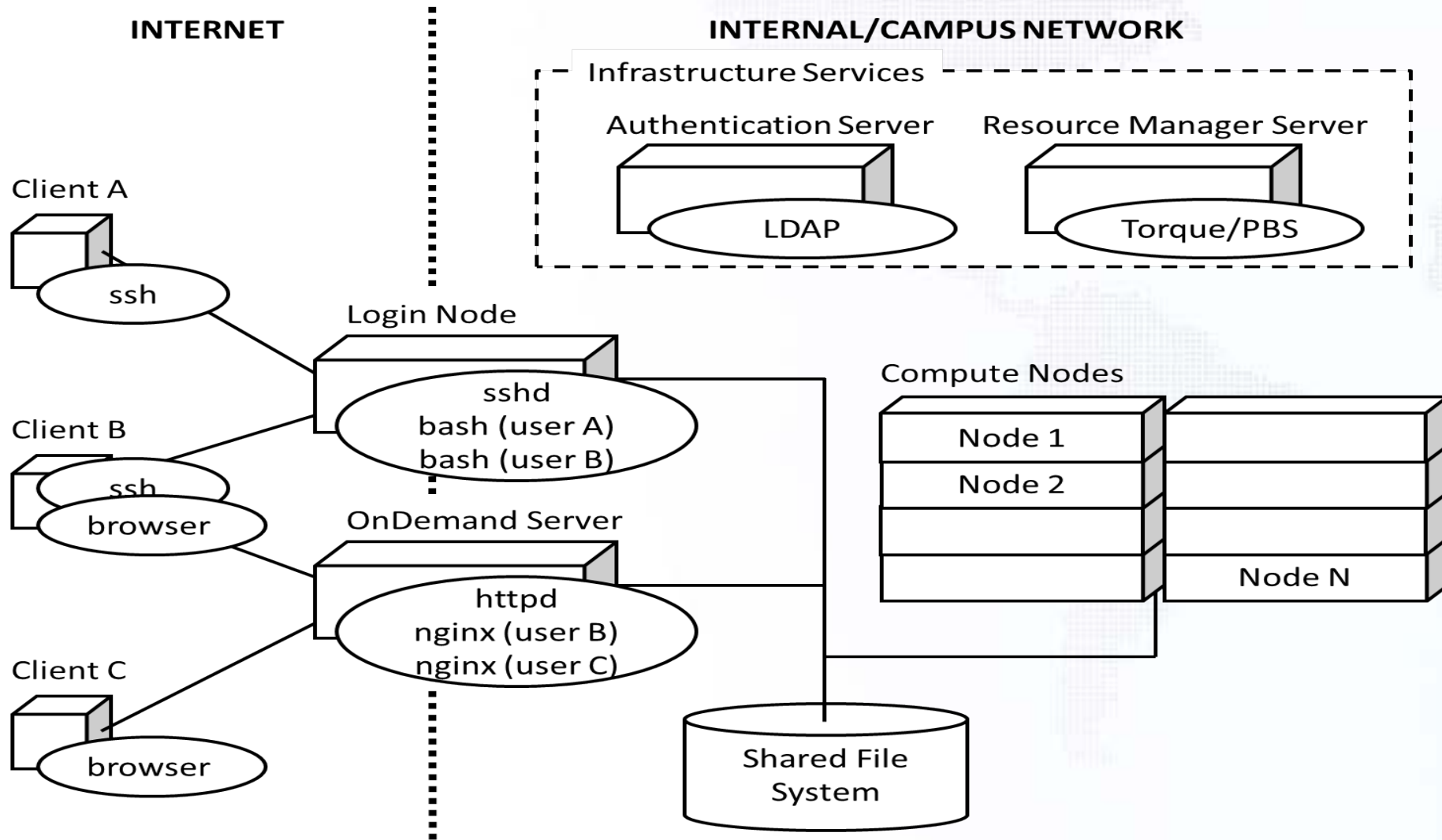


OPEN OnDemand



- Normally, Scientists and researchers would like to concentrate on their science without having to worry about the underlying technology
- IT support staff are able to support a wide range of clients by simplifying the user interface and experience
- Installable for an HPC cluster
- Helps computational researchers and students efficiently utilize remote computing resources by making them easy to access from any device globally
- Instead of using SSH, users use browser

Adding Open OnDemand to configuration



Open OnDemand features




- Single sign-on (Using RIF)
- User needs:
 - url: <https://ondemand.ace.ug>
 - username: xxxx@ace.ac.ug
 - Password: *****(12)*****(12)
- Single point of entry for HPC Center's services

Open OnDemand login



Browser address bar: <https://login.ace.ac.ug/idp/profile/SAML2/Redirect/SSO?execution=e1s2>

ACE Uganda Web Log...



**AFRICAN
CENTERS
OF EXCELLENCE**
IN BIOINFORMATICS

Username

Password

Don't Remember Login

Clear prior granting of permission for release of your information to this service.

Login

Browser address bar: <https://ondemand.ace.ac.ug/pun/sys/dashboard>

Open OnDemand Files Jobs Clusters Interactive Apps

>_ACE HPC cluster Shell Access

OPEN
OnDemand

OnDemand provides an integrated, single access point for all of your HPC resources.

powered by
OPEN OnDemand

OnDemand version: v2.0.23



eduVPN



Institute Access

African Center of Excellence in Bioinformatics - Uganda

eduVPN



African Center of Excellence in Bioinformatics - Uganda

Support: ace@idi.co.ug
ace.idi.co.ug/



Connected



Successful Logins and Unique Users of the Top 10 Locations in 2024

Successful logins for top 10 locations

Location	Successful Logins
Metro eduroam	12,736,243
Managed IdP	7,459,130
Metro eduroam (Solar-powered routers)	4,411,672
eduroam on the Go	744,311
Kyambogo University	673,582
Makerere University	469,493
RENU Secretariat	271,993
Kampala International University	255,569
Uganda Christian University	235,676
Home links	235,346

Unique users for top 10 locations

Location	Unique Users
Metro eduroam	48,303
Managed IdP	21,492
eduroam on the Go	21,066
Metro eduroam (Solar-powered routers)	19,154
RENU Secretariat	8,370
Home links	6,971
Makerere University	6,253
Kyambogo University	3,255
Uganda Christian University	3,056
Infectious Diseases Institute - African Center Excellence	1,625

Challenges



- Governance and Decision-Making
 - Diverse stake holders
 - Conflicting interests
 - Distributed leadership
- Technology and infrastructure
 - Interoperability
 - Data security and privacy
 - Scalability
- Legal and policy issues
 - Data Ownership and Sharing:
 - Compliance with Local Regulations

Challenges cont'd



- Collaboration and Engagement
 - Engagement of Institutions
 - Collaboration Tools
- Cultural and Operational Differences
 - Diversity in Institutional Culture
 - Communication Barriers

Acknowledgements

Michael Tartakovsky, NIAID CIO

Christopher Whalen, RDCT President

Nicholas Mbonimpa, CEO RENU

Hellen Nakawungu - eduroam global governance committee | RENU

Ivan Frank Nsiimbi – Identity and single-sign-on solutions, RDCT

Rodgers Kimera – Systems Engineer, ACE | RDCT



AFRICAN
CENTERS
OF EXCELLENCE
IN BIOINFORMATICS &
DATA-INTENSIVE SCIENCE



**GSA Contract #47QTCA22D008/140D0424F0200 for the
National Institute of Allergy and Infectious Diseases, NIH**

Thank you



Lloyd Ssentongo

Uganda Site lead, Research Data + Communication
Technologies

lsentongo@researchdata.us