

National Institute of Allergy and Infectious Diseases

**INTERNET<sup>2</sup>** 2017 TECHNOLOGY EXCHANGE

**A Successful collaboration between NIH  
ICER Uganda and the NREN - RENU**

October 18<sup>th</sup> 2017

NIAID



National Institute of  
Allergy and  
Infectious Diseases

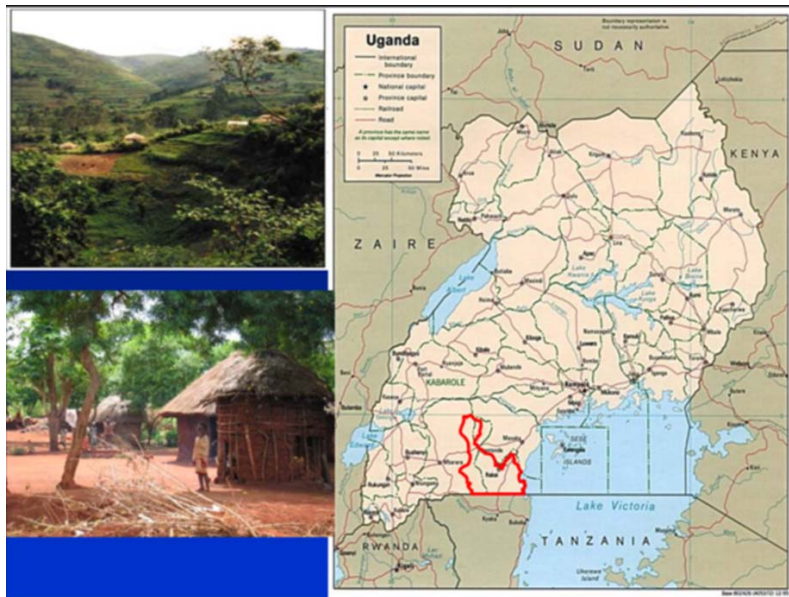
**Lloyd Ssentongo**

IT Site Leader, NIH ICER Uganda, NIAID/NIH  
Chairman IT Directors Forum, RENU

## Office Of Cyber Infrastructure and Computational Biology

- National Institute of Allergy and Infectious Diseases – NIAID
  - One of 27 institutes of the NIH whose mission is to conduct and support basic and applied research to better understand, treat, and ultimately prevent infectious, immunologic and allergic diseases
  - OCICB – IT service desk, infrastructure, software Development and computational bioscience consulting and support
  - OCICB International program began in 1998 to support scientific collaborations Of the NIAID to support malaria research in West Africa

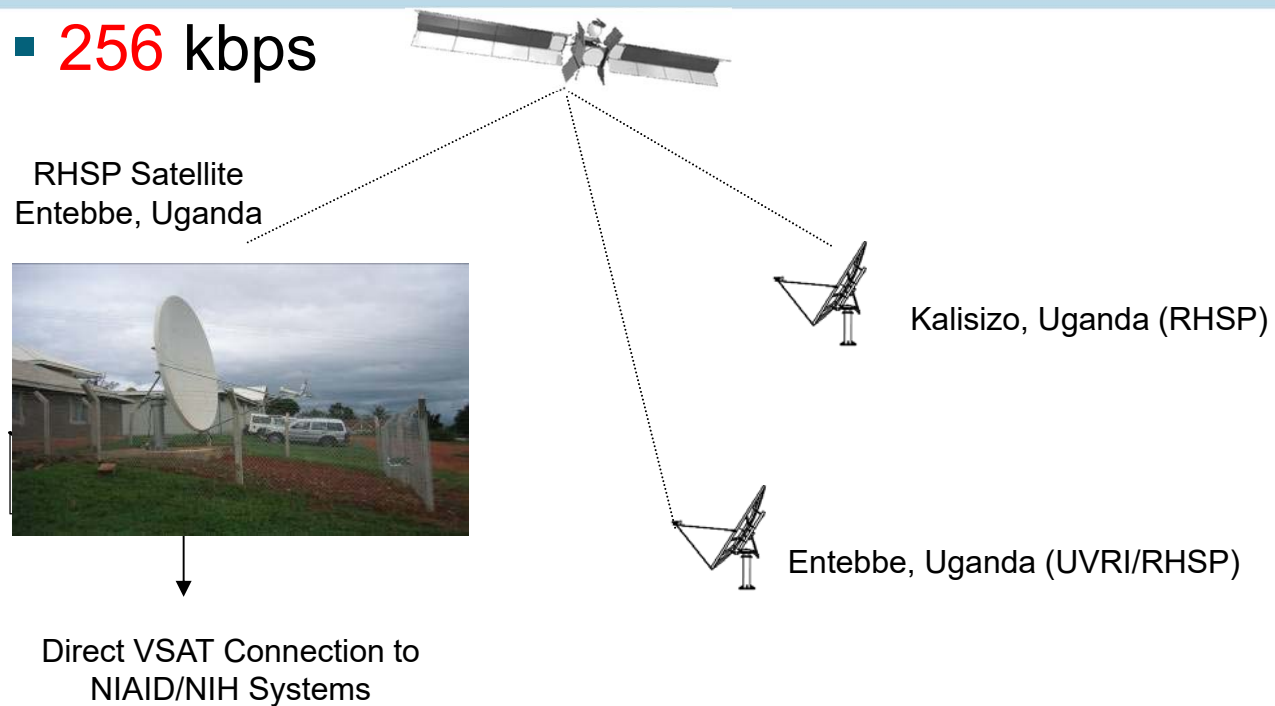
# NIH ICER Uganda- Rakai Health Sciences Program collaboration



In 2002, RHSP became one of the 3 NIAID-  
NIH supported International Centers of  
Excellence in Research Along with Mali and  
Chennai, India.

# In country connectivity before **RENU**

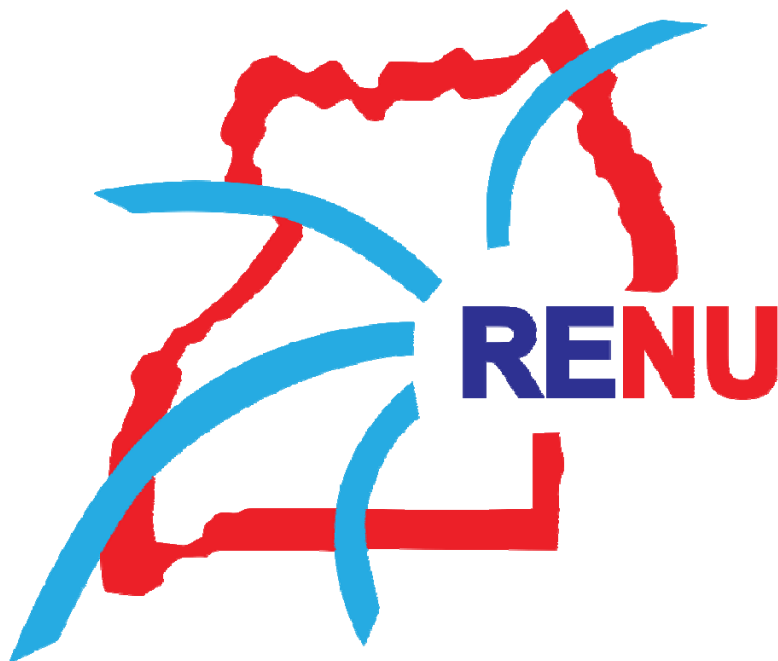
- **256** kbps



# Experience with ISP's before **RENU**

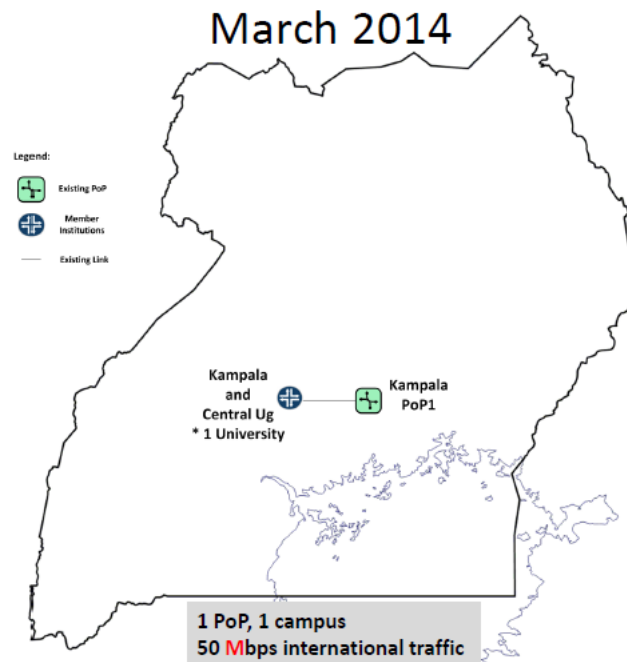
- WiMAX
- ADSL over copper cable
- VSAT
- E1 Circuits
- Microwave
- Very expensive to procure
- Low bandwidth capacity ~**128k** to 4MB able to procure
- **Expensive leased line to connect offices**
- One public IP address available
- No additional services offered besides internet
- **expensive to collaborate with local institutions as in country traffic is billed**
- Reliability issues

## RENU – Research and Education Network Uganda

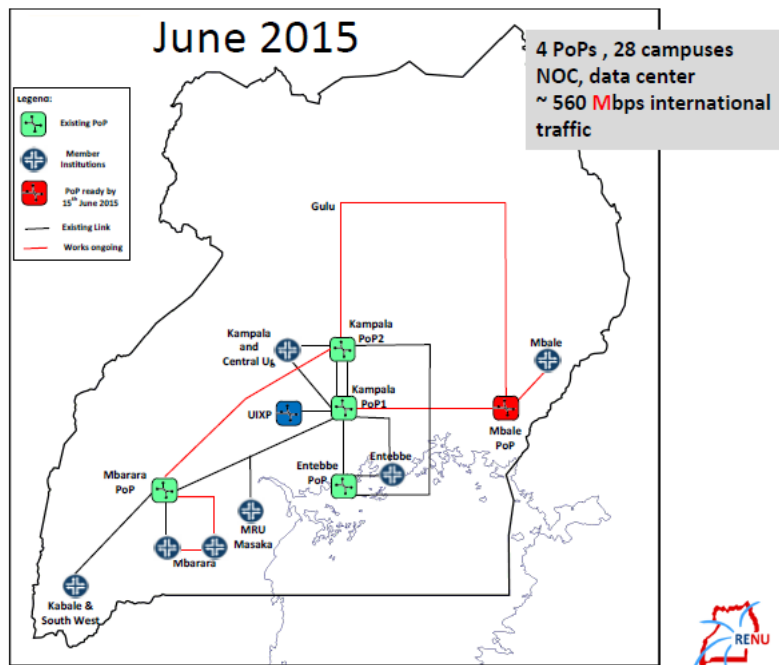


- Established January 2006 with the objective of connecting all **universities** and **research** institutions to an affordable country-wide **high speed fiber network backbone** for cheaper and faster national, regional and international collaboration.

# First institution connects to RENU



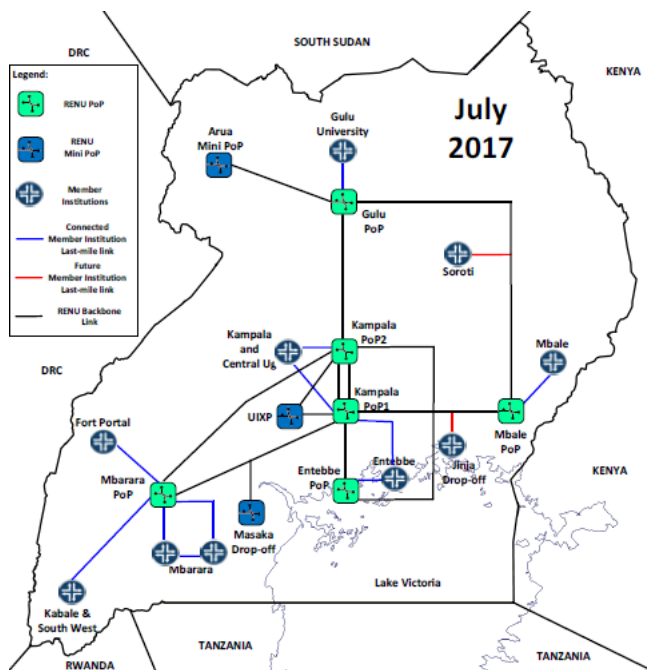
# RENU Network expands



- 4 Pops
- 28 campuses connected
- Data Center
- NOC



# Current **RENU** network status

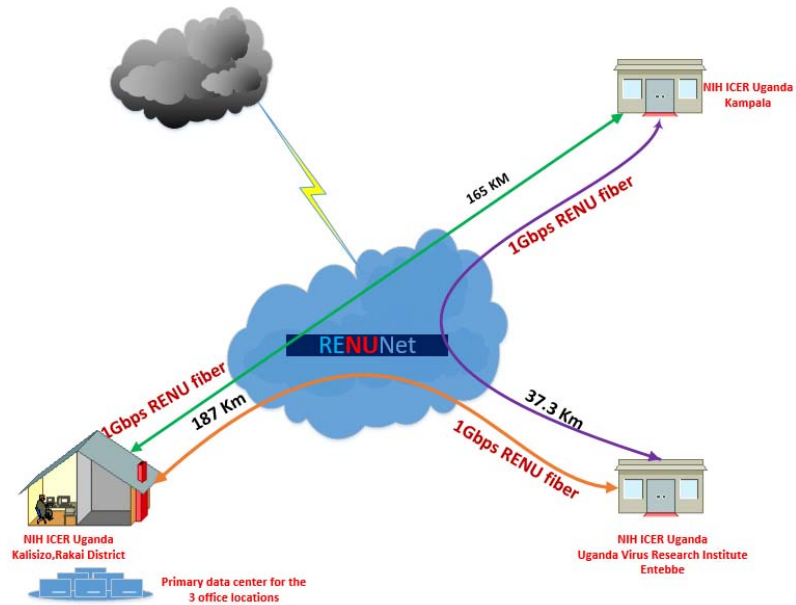
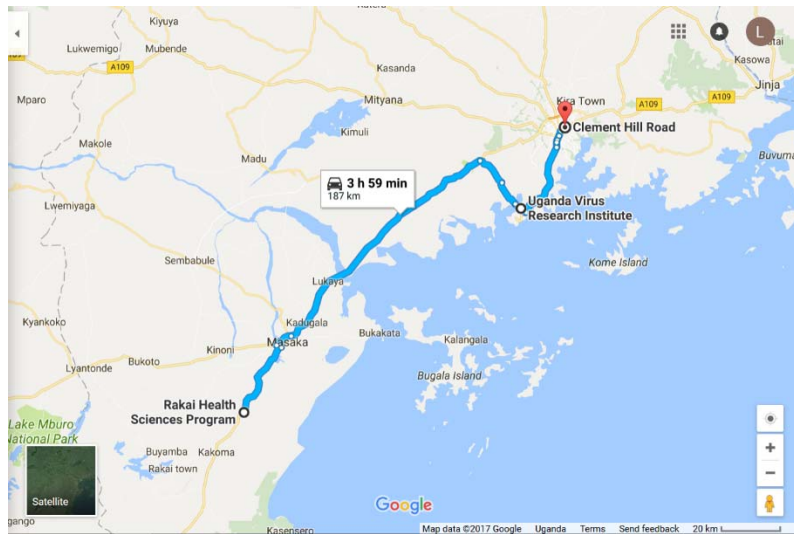


- 6 PoPs
- 6 Mini Pops
- 83 connected campuses
- Eduroam
- **RENU** Identity Federation (RIF)

## Bundled **RENU** services to NIH ICER Uganda

- 256 IPV4 public address
- Local Network traffic within **RENU** Network
- eduroam – We are eduroam service provider
- Identity federation (RENU Identity Federation (RIF))
- Video conferencing
- SSL certificates (COMODO)
- Capacity building workshops and DEAs
- Monthly CERT security reports
- Network traffic monitoring – Deep packet inspection

# NIH ICER Uganda Office Locations



# How we have benefited from **RENU**

- **RENU** has connected our 3 in-country offices at Kalisizo, Entebbe and Kampala sites on fiber.
- At the 3 offices, we have a VoIP network and all phones register with the Call manager back at the field office in Kalisizo.
- scientists and administrators are able to access and back up there files at a central location.
- Easily connect to other **RENU** member institutions while collaborating
- Super Fast internet speeds while using email, video conferencing, VoIP, webcasting.
- Scientists and researchers from eduroam participating institutions are able to use eduroam at the NIH Uganda ICER.

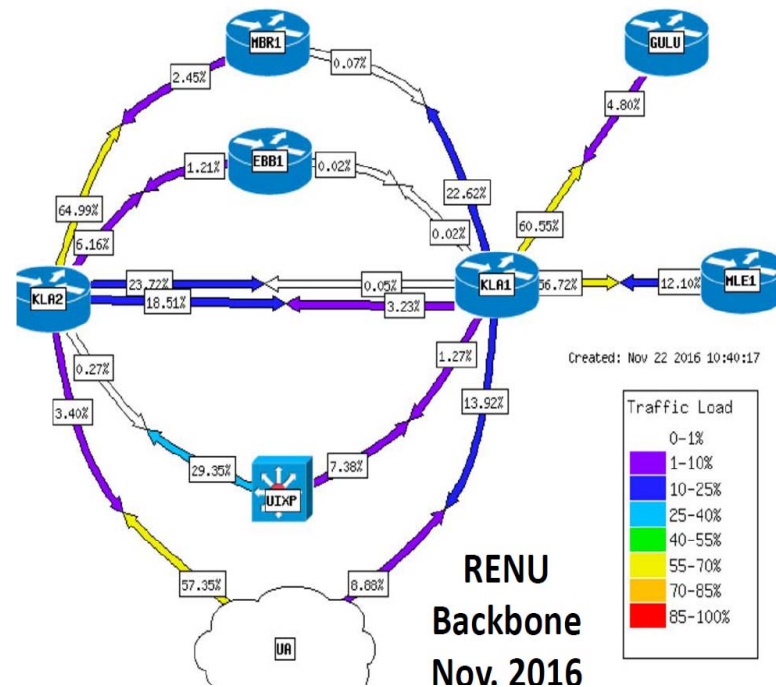
# Major Challenges

- Fiber link availability at
  - Kalisizo
  - Entebbe
  - Kampala
- power availability at
  - Our 3 offices
  - **RENU** Pops



# Solutions to the challenges

- RENU has installed backup fiber circuits and this has addressed the issue of fiber availability.
- Solar , inverter and generator backup solutions have been installed at our offices and **RENU** Pops to address the issue of power availability.



# Acknowledgements

- Michael Tartakovsky, CIO NIAID/NIH, Director OCICB
- Christopher J Whalen, IBRSP/OCICB/NIAID/NIH
- Economou Matthew , IBRSP/OCICB/NIAID/NIH
- Brian k Moyer, IBRSP/OCICB/NIAID/NIH
- Isaac Kasana, CEO, RENU
- Nicholas Mbonimpa, CTO, RENU
- Ben Kakeeto, NIAID Uganda ICER
- Rodgers Kimera, NIAID Uganda ICER
- Moses Mubiru, NIAID Uganda ICER

