

# Building a Regional Research and Education Network

## *Lessons from UbuntuNet Alliance*

Tiwonge Msulira Banda

[TBanda@UbuntuNet.net](mailto:TBanda@UbuntuNet.net)



TANDEM National Workshop, Accra, Ghana, 6 November 2015

# In 2005

- It started with 5 emerging and established NRENs of Kenya, Malawi, Mozambique, Rwanda and South Africa on recommendations from AAU Meeting



# Reason... driving Vision

- Very **high** cost **slow** Internet...roughly about US\$8000 per Mbps per month

## Driving vision (that time)

- To secure affordable bandwidth for the research and education community from the current kilobits per second to megabits per second

# The formative years

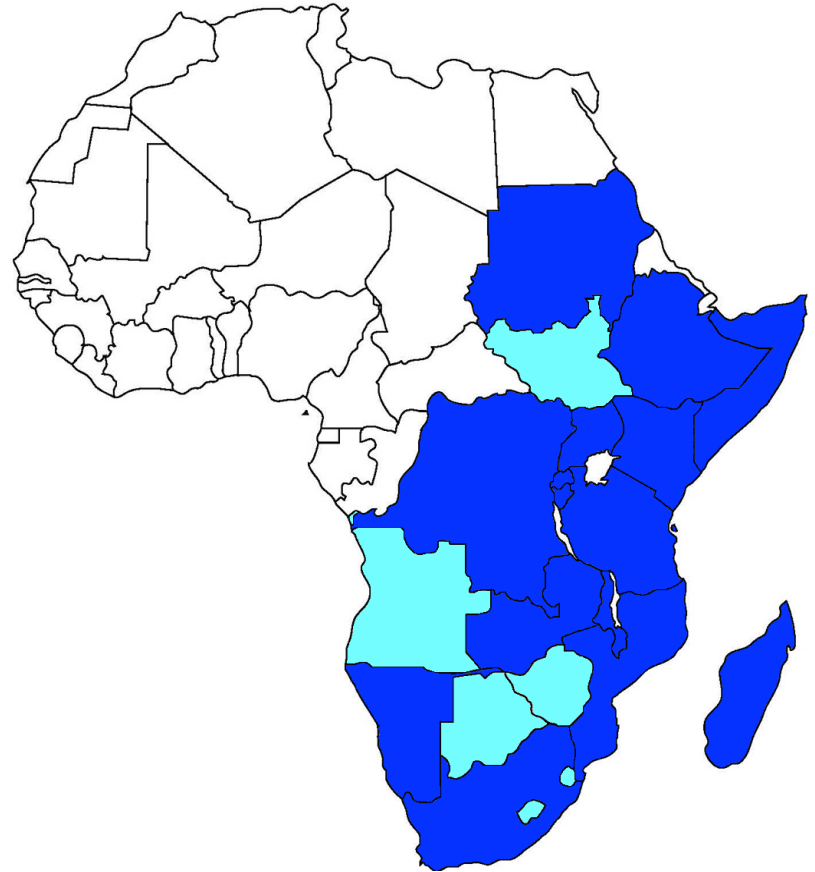
- Five Founding Directors with supporters
- IDRC, OSI and OSISA provided initial funding
- Secretariat established at Kamuzu College of Nursing, University of Malawi
- Registered in the Trade Registrar of the Chambers of Commerce and Industry in Amsterdam
- Over the years, membership has grown from 5 to 15 today
- For many years, the Alliance was a community of NREN people with a dream
- AfricaConnect made the difference

# What is UbuntuNet Alliance?

- Regional Research and Education Network for Eastern and Southern Africa
- Dedicated to the data communication needs of research and education communities in ESA
- Registered in Malawi as a Trust, operates as a not-for profit business entity
- Supports the development of NRENs... interconnects NRENs and connect them to other regional RENS of the world through GEANT
- Secretariat in Lilongwe, Malawi
- Membership-based: NREN; Affiliate; and Industry Members

# NREN Members from 15 Countries

- Eb@le, DRC
- EthERNet, Ethiopia
- iRENALA, Madagascar
- KENET, Kenya
- MAREN, Malawi
- MoRENet, Mozambique
- XNet, Namibia
- RwEdNet, Rwanda
- SomaliREN, Somalia
- SudREN, Sudan
- TENET, South Africa
- TERNET, Tanzania
- RENU, Uganda
- ZAMREN, Zambia
- BERNET, Burundi



# Current Network (1 of 2)

- 10 POPs in total
  - 8 in Alliance region
  - 2 in Europe (London and Amsterdam)
- Backbone covering 7 countries in ESA region
- 2.18Gbps capacity between Africa PoPs and European PoPs
  - 2 links along the west coast
  - 2 links on the eastern coast
- Some NRENs connecting directly to our European PoPs
  - KENET(Kenya) – (approx. 4 Gbps)
  - TENET(South Africa) – 2 x 10Gbps
  - MoRENet (Mozambique) – 1xSTM-1
  - TERNET (Tanzania) – 1xSTM-1

# Current Network (2 of 2)

- 6 NRENs connected to PoPs in Africa
  - RENU (Uganda), connected to Kampala PoP – 622Mbps
  - KENET (Kenya), connected to Nairobi PoP – 155Mbps
  - ZAMREN (Zambia), connected through Lusaka PoP – 622 Mbps
  - MoRENet (Mozambique), connected through Maputo PoP – 155 Mbps
  - TENET(South Africa), connected through Mtunzini and Cape Town PoPs – 155Mbps
  - RwEdNet (Rwanda) connected through the Kigali PoP
- Peering with GÉANT in London and Amsterdam
  - Transit to Research and Education community world-wide
- Peering at London Internet exchange (LINX)
- Peering at Amsterdam Internet Exchange and (AMS-IX)
- Peering at NAPAfrica (Johannesburg)
- Transit to Internet at LINX and AMS-IX

# Network

- Own links
- NREN Partner links
- Leased links



# How did we get here?

- Establishment of London Routing Hub (January 2008) – allowed NRENs to connect using existing connectivity contracts
- AfricaConnect project co-funded by the EU and partner NREN provided the financial muscle to build the regional network (2011 - 2015)

# How did we get here? AfricaConnect

- Procured long term IRUs, >10 years (watch terrestrial links!)
- Procured equipment and set up PoPs
- Supported training through a multi-partner programme involving NSRC, INASP, (ISOC and AAU at some stage)
- Collecting the 20%
- Different sources:
  - Government – DRC, Malawi
  - NREN own resources – Kenya
  - Development Partners – Mozambique (World Bank)
  - Regulator – Zambia
  - Small payments, then Regulator - RENU



# How did we get here? EU Projects

## FP7 Projects

- While we focused on rolling the regional network, FP7 projects helped raise awareness on e-Infrastructure applications (GLOBAL, ERINA4Africa, CHAIN, CHAIN-REDS, eI4Africa)

## H2020 Projects

- Continuing with awareness raising, but more importantly giving an opportunity for engagement with Communities of Practice with real applications and services, e.g. Science Gateways, IdP/IdF strategy for Giving the opportunity to role out additional services for end users (TANDEM, Sci-GaIA, MAGIC)

# How did we get here? Training

- Training is very important... building a critical mass of skilled engineers to operate the backbone
- Training-as-a-Service (TaaS)
  - Advanced Routing Training
  - Training of Trainers
  - Direct Engineering Assistance
  - Campus Network Design
  - AfNOG
- NSRC and INASP have been important partners

# One Important thing

- Community! Community! Community
- Before we had a service to offer we were a community or NRENs
- Today we have the network and offering services, the community remains important
- NRENs
  - Network and Connected
  - Network and not connected
  - No network
- We remain a cohesive community of NRENs

# The Future

- SomaliREN\*
  - Supported by WorldBank
  - Contract signed
  - Planning procurement



[www.ubuntunet.net](http://www.ubuntunet.net) | [info@ubuntunet.net](mailto:info@ubuntunet.net) | @ubuntunet

**ZIKOMO KWAMBIRI**