Using NREN capacities to extend and enhance UbuntuNet

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Director and CEO: TENET
13 Member NRENs

Eb@le, DRC
EthERNet, Ethiopia
KENET, Kenya
MAREN, Malawi
MoRENet, Mozambique
XNet, Namibia
RwEdNet, Rwanda
SomaliREN, Somalia
SudREN, Sudan
TENET, South Africa
TERNET, Tanzania
RENU, Uganda
ZAMREN, Zambia
UbuntuNet starts in London

- LONDON, UbuntuNet
- Khartoum, SudREN
- Mombasa, KENET
- Dar es Salaam, TERNET
- Maputo, MoRENet
- Mtunzini, TENET
What happens in London?

- UbuntuNet provides Global Transit in London
  - REN transit thanks to Géant and DANTE
  - Commodity peering at LINX
  - Commodity transit purchased from Tier1 provider

- Five maritime NRENs use this service
  - Each acquired its own intercontinental circuit to London

- No land-locked NREN has done it
2010: 1\textsuperscript{st} UbuntuNet Hub in Africa

- Khartoum, SudREN
- Mombasa, KENET
- Dar es Salaam, TERNET
- Maputo, MoRENet
- MTUNZINI, UbuntuNet

LONDON, UbuntuNet
What was the idea?

• Agreement between TENET and Alliance

• Neighbouring NRENs could
  – connect to UbuntuNet there; and
  – Via UbuntuNet, could
    • Exchange traffic with each other and TENET
    • Use TENET’s intercontinental capacity at same price as TENET’s institutions

• Problem: Awful costs of cross-border connections
  – No takers for a long time
2012: ZAMREN decides to do it!

• ZAMREN rents an STM-1 from Liquid Telecom
  – from Lusaka, heading south
  – right through Zimbabwe
  – to TENET’s node in a Johannesburg INX

• TENET extends the circuit
  – within the SANReN infrastructure
  – to UbuntuNet’s Mtunzini Hub

• First border-crossing REN link in Africa
  – Two border-crossings!
It’s working!

Johannesburg => Lusaka
7 - 13 Nov
Peak inbound: 166 Mb/s
Peak outbound: 88 Mb/s

Intercontinental => Lusaka
7 - 13 Nov
Peak inbound: 117 Mb/s
Peak outbound: 76 Mb/s

But needs an alternative route!
How can established NRENs help new NREN’s connect to UbuntuNet?
ZAMREN’s case illustrates that UbuntuNet can use NRENs’ capacities…

- p2p capacity within an NREN’s backbone network

- Capacity to Europe within an NREN’s intercontinental circuit(s)

- Serviced rack space for U-HUB(s) within NREN’s facilities
NREN becomes a service provider to the Alliance

• Parties execute a proper service agreement

• The Alliance can be charged
  – for marginal costs incurred by the NREN; or
  – At NREN’s standard charge for the service

• The Alliance and TENET have signed such an service agreement covering
  – capacities used to support services to ZAMREN;
  – hosting the U-HUB at Mtunzini
  – operating the UbuntuNet network
Another way of assisting the Alliance: *Local Commodity Interconnections*
Last two slides...
Today: U-HUBs in Amsterdam, London, Mtunzini

AMSTERDAM, UbuntuNet

LONDON, UbuntuNet

Khartoum, SudREN

Mombasa, KENET

Dar es Salaam, TERNET

Lusaka, ZAMREN

Maputo, MoRENet

Cape Town, TENET

MTUNZINI, UbuntuNet
Liquid Telecom’s Fibre Map

- Lusaka
- Harare
- Bulawayo
- Beit Bridge
- Makhado
- Gaberone
- Johannesburg
Thanks for listening!