UbuntuNet Report

Kevin Chege (KENET) and Duncan Martin (TENET)
UbuntuNet Alliance for Research and Education Networking

• The **regional REN** in eastern and southern Africa
  – Non-profit association of member NRENs
  – Incorporated in 2006 in the Netherlands
  – Now also incorporating in Malawi
  – Head office in Lilongwe, Malawi

• People
  – Chairperson: Prof Zimane Kadzamira (Malawi)
  – CEO: Dr F F (Tusu) Tusubira (Uganda)
  – Admin: Tiwonge Banda (Malawi)
UbuntuNet Members

Eb@le, DRC
EthERNet, Ethiopia
*KENET, Kenya
*MAREN, Malawi
*MoRENet, Mozambique
*RwEdNet, Rwanda
SomaliREN, Somalia
SUIN, Sudan
*TENET, South Africa
TERNET, Tanzania
RENU, Uganda
ZAMREN, Zambia

* = founding member
Thesis: Improved and affordable connectivity will...

• end the intellectual isolation of academics and researchers in Africa
• attract researchers to African universities
• enable African researchers to produce proportionate intellectual output
Some growing NRENs
Bandwidth spend by universities in the region

- **2008**
  - < 700Mbps
  - > $1.2million per month

- **2011**
  - 12Gbps and growing
  - *within the same total cost envelope*

- **The challenge is more the cost than the lack of funds!**
Network Overview - Backbone
Uganda National Fibre Backbone
(Operators’ fiber not shown)
International connectivity
Global Reach: 3 years ago....

UbuntuNet Alliance link to GÉANT2 enables faster collaboration for researchers and students in Sub-Saharan Africa

31 January 2008, Brussels, Belgium: African research capacity is to be boosted through a high speed network link connecting the UbuntuNet Alliance to the international research community via the GÉANT2 network. The connection between the UbuntuNet Alliance’s network hub in London and the GÉANT2 network enables researchers and scholars in Sub-Saharan African universities and research institutions to share information and data and to collaborate through a 1 Gbp/s link with their peers in Europe and the rest of the world.
…..To...Current Operations

Internet

Géant

LINX

UbuntuNet, London

10Gbps

UbuntuNet, Johannesburg

TENET/SANReN

KENET

TERNET

UbuntuNet, Johannesburg
Plus...planned new PoP in Amsterdam

Internet

Géant

LINX

AMSIX

UbuntuNet, Amsterdam

10Gbps

UbuntuNet, Johannesburg

KENET

TERNET

UbuntuNet, Johannesburg

UbuntuNet, London

TENET/SANReN
Some Challenges

• Working across 23 countries
  – differences in policy, laws and regulations
  – Obstacles to cross-border connectivity
  – Obstacles to NRENs transiting each others’ traffic
  – High costs for local loop

• Patchy de-regulation
  – Still many seriously monopolistic incumbents

• Different skill levels at the RENs
The challenge of Africa’s size is often forgotten...

Africa is Huge!

The following countries could fit within Africa:

<table>
<thead>
<tr>
<th>Country</th>
<th>Area (sq. mi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>3,705,390</td>
</tr>
<tr>
<td>United States</td>
<td>3,618,770</td>
</tr>
<tr>
<td>India</td>
<td>1,266,595</td>
</tr>
<tr>
<td>Europe</td>
<td>1,905,000</td>
</tr>
<tr>
<td>Argentina</td>
<td>1,065,189</td>
</tr>
<tr>
<td>New Zealand</td>
<td>103,736</td>
</tr>
</tbody>
</table>

11,664,680 sq. mi or 30,211,551 km²

Africa's area: 11,707,000 sq. mi. or 30,321,130 km²

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All international connectivity is via Europe

• Highly valued relationship with the EU and DANTE
  – DANTE provides “REN transit” to UbuntuNet
  – Also 10 Gbps p2p connectivity through London
  – However….

• Even African NRENs interconnect via London!
  – AfricaConnect Project addressing this

• Need lower latencies to western RENs
  – Internet2, CANARIE, RED Clara
  – Envisaged SAEx cable between Angola and Brazil?

• Need lower latencies to eastern RENs
  – TEIN3, APAN, AARNET, KIWINet
  – Exploring SEACOM link to Mumbai
Thanks for listening!