This report is presented as received by IDRC from project recipient(s). It has not been subjected to peer review or other review processes.

This work is used with the permission of Duncan Martin.

©2008, Duncan Martin.
Research and Education Networking in Sub-Saharan Africa

2. Infrastructure Developments

Duncan Martin

Director (non-exec): UbuntuNet Alliance
Director and CEO: TENET, South Africa
Backbone network development in Sub-Saharan Africa

Some countries are developing “National” Backbones

• Government-led projects
• Capacity intended to be available to all operators
• Often public-private partnership
• NREN is often part of the motivation
• May compete with existing operator’s network
  – Especially in metropolitan areas
• DRC, Ethiopia, Ghana, Rwanda, Sudan, Tanzania, Uganda, Zambia
Some countries have liberalized telecommunications

• Several licensed operators
  – Operators all tend to deploy backbones in the same areas (“concentration”)
  – Each backbone typically used only by its owner
  – Little wholesaling of backbone capacity

• Benefits
  – Prices tend to fall
  – Cross-border connections stimulated
Concentration

Legend
Percentage of population living with range of:
incumbent’s backbone
more than one operators’ backbone

### Submarine cable initiatives

<table>
<thead>
<tr>
<th>Legend</th>
<th>Cable</th>
</tr>
</thead>
</table>
| ~      | SAT-3 (WASC-SAFE)  
  2003. Operator Club |
| ~      | SEACOM (E. Africa to London)  
| ~      | TEAMS (Mombasa to Fujairah)  
  2009. Kenyan Govt. |
| ~      | EASSy (E. Africa to Port Sudan)  
  2010. Operator consortium |
| ~      | WACS (Cape Town to London)  
  2010. Operator consortium |
| ~      | MaIN OnE (W. Africa to Portugal)  
  2010. Investors. Open access  
  Phase 2: Luanda, Cape Town |

Map: Thanks to Steve Song.  
http://www.manypossibilities.net

Map: Sub-saharan Africa Undersea Cables (2010)  
- TEA1a: 664 km  
- SAT’S/SAFE: 4464 km  
- EASSy: 440 km  
- SEACOM: 4454 km  
- MaIN OnE: 1624 km  
- WACS: 1530 km

Map: http://www.manypossibilities.net

Legend:  
- Green: African  
- Red: European  
- Blue: Middle Eastern  
- Orange: Western African
UbuntuNet’s “Thrust to connect NRENs to Géant”

Dear Member NREN!

Connect to the Global REN:
- via your VSAT, and
- courtesy of Géant!

You’ll need your own ASN and IP space
- AfriNIC’s 50% discount
UbuntuNet operations today

- Internet
- Géant
- UbuntuNet, London
- VSAT connection. GRE tunnel to UbuntuNet
- SAT-3 submarine cable
- UbuntuNet, Johannesburg
- TENET/SANReN
- Swaziland
- Botswana
- Namibia
- MoRENet
- Leshotho
UbuntuNet by end-2009

Kampala → Nairobi
Kigali → Mombasa
Dar es Salaam
Lusaka → Lilongwe
Lesotho
Namibia
Swaziland
Jo’burg
Maputo
Mtunzini

SAT-3 cable to London
SEACOM cable to London

AFRICA

INDIAN OCEAN