A presentation at the Internet2 Spring Meeting 2012

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Did You Know – some facts about Africa!
Africa is Huge!

The following countries could fit within Africa:

- **China**: 3,705,390 sq. mi.
- **United States**: 3,618,770 sq. mi.
- **India**: 1,266,595 sq. mi.
- **Europe**: 1,905,000 sq. mi.
- **Argentina**: 1,065,189 sq. mi.
- **New Zealand**: 103,736 sq. mi.

Total area: 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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IEEE Africon 2009
So Many African Undersea cables!

African Undersea Cables (2014)
http://manypossibilities.net/african-undersea-cables

Meoli Kashorda
McKinsey’s Africa Lions on the Move 2010 Report

• Africa’s Economy in 2008 = Brazil’s at $1.6 trillion!
  – $860 million consumer spending in 2008
• 20 companies had revenues > $3 million
  – Private sector is growing
• 60% of the World Uncultivated Arable Land
• 52 Cities have a population > 1 million
Fast Forward to 2020 – 2040

• Collective GDP $2.6 trillion
• $1.4 trillion consumer spending
• 1.4 billion Africans in Working Age by 2040
  – Labor force larger than China’s’s
• 50% of Africans will be living in Cities
• 128 million African households will have discretionary income
Africa is RICH … and Poor

• Rich in Land, resources and young population
  – EA countries of Uganda, Kenya, South Sudan, Tanzania Oil
  – Angola is leading supplier of Oil

• But poor in GDP terms
  – Conflicts (for resources)
  – Low education levels, especially higher education

• UA is one of the Change Agents
UbuntuNet Alliance – the organization
The UbuntuNet Alliance

The Regional REN for Eastern and Southern Africa

• Incorporated as a non-profit association in 2006
• Board elected by Member NRENs
  – Chair, CEO + 7 independent directors
• Head office in Lilongwe, Malawi
Who Has been Leading the UbuntuNet Alliance?

KENET founding member in 2005
Eng. Victor Kyalo Founding CEO,
Now Deputy CEO, Kenya ICT Board that
Funds KENET using World Bank / KTCIP funds

Current CEO, Eng. Dr. Francis Tusubira,
Former ICT Director, Makerere University
Kampala, Uganda
13 UbuntuNet Alliance Members

Eb@le, DRC
EthERNet, Ethiopia
*KENET, Kenya
*MAREN, Malawi
*MoRENet, Mozambique
XNet, Namibia
*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
Who has been operating the network!

- TENET provides the NOC services in Europe on behalf of UbuntuNet
- KENET has the capacity to provide NOC services to Eastern Africa
- UA is also building technical capacity at center
  - Network Development Engineer
  - Technical Manager
UbuntuNet as a Physical Network
African R & E Traffic is following Content in Europe and US

• Over 95% of KENET traffic international
  – Google traffic alone is 400 Mb/s
  – KIXP traffic still low – need to attract international content providers
  – TENET and KENET both host Google caches
  – Students watching Kenyan videos on YouTube

• Intra-Africa Traffic low
  – Content Networks and Content Development initiative crucial
  – Who will put existing R & E traffic online?
  – Focus of African NRENs
So UbuntuNet Backbone in Europe

Internet

Géant

AMSIX

UbuntuNet, Amsterdam

LINX

UbuntuNet, London

TENET/SANReN

UbuntuNet, Johannesburg

KENET

TERNET
Current and Future services to NRENs

• Worldwide REN connectivity via Géant

• Worldwide commodity Internet
  – It is the cheapest IP transit service at about $3 per Mb/s – commercial decision for KENET!

• BUT not delivered in Africa!!!
  – Delivered in London or Amsterdam; NREN! Get thyself to Europe!
  – AfricaConnect and other initiatives will fix this

• Restoration and Africa Backbone Services
  – Alternative to SEACOM?
Undersea Capacity to Europe Not the Problem!

• TENET had 10 Gb/s SEACOM capacity
  – Enough spare capacity for all the African NRENs
  – Get thyself to Mtunzini in South Africa!
• KENET has a spare TEAMS STM-4
  – Enough for EA NRENs to start
  – Get thyself to Mombasa on Nairobi
• Intra-Africa links are the problem
How are the Africa Regional commercial operators doing?

• SEACOM has established a Africa-wide MPLS IP network with nodes in many UA cities
   – Mombasa, Kampala, Dar es Salaam, Kigali, Mtunzini
• In March 2012 SEACOM used the network to provide restoration capacity to Eastern Africa countries
   – TEAMS and EASSy had fiber cuts!
• Regional Mobile operators have Intra-Africa links – possible to get leased lines
• Altech-KDN has a fiber network spanning EA countries and selling leased lines
   – Cheap to interconnect EA NRENs even now!
So what is stopping us?

• Lack of sustainable business plans
  – African NRENs are on the whole not supported by Governments

• Commercial operators have access to political leadership
  – They are telling them they do not need NRENs!
  – Ethiopia, Sudan, Rwanda, etc

• Build it and they will come!
  – Who will lay the first stone? EU, AU, African Governments,

• It will be African NRENs and Universities through UA!
Thank You

• Do you want to be part of the action?

• More Stories Next Year!

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