



KENET :Where we are..

Summer 2012 ESCC/Internet2 Joint Techs

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Kenya Education Network (KENET)

What I'll Cover

- KENET Background
- KENET Current Network
- KENET Services
- Capacity building for KENET Engineers
- UbuntuNeT

KENET Vision and Mission

- **Vision –**
 - *To be a leading research and education network driving quality higher education and research through ICT*
- **Mission**
 - *To be a key catalyst and driver of the integration of ICT in teaching, learning and research through quality, cost-competitive and efficient ICT services and to be a key partner in the development of the Kenyan ICT society*

KENET Core Values

- **Partnerships and collaborations.** We shall nurture partnerships and collaborations of value to our members.
- **Open access.** We shall be guided by the principles of open access in the products and services we provide or promote.
- **Diversity.** KENET shall promote gender, ethnic and university diversity in the recruitment of employees, capacity development and governance.
- **Sustainability and competitiveness.** We endeavor to be sustainable and competitive in the products and services we offer.
- **Integrity and ethics.** We embrace professionalism in our work and relationships and foster transparent and participative decision-making, accountability for decisions and ethical behaviour.
- **Innovation.** Drive member collaboration and provide value-adding services driven by continuous innovation on technology and partnership

KENET represents the Kenyan Higher Education Community

- *Created in 1999 with a \$1.1 million USAID Internet infrastructure grant*
 - *GoK directed the grant to the higher education community*
 - *KENET started as a Human Network!*
- KENET also operates a Physical Broadband IP Network
 - licensed as a private networks operator in the 2002
 - *All license fees waived by the government*
 - Alternative Network Facilities Network Operator
- KENET recognized by ICANN and AfriNIC as an NREN and allocated AS# and IP blocks for the education community
- KENET is a human network and is more than an NREN (i.e., > specialized ISP)

BW Pricing Policy and Sustainability

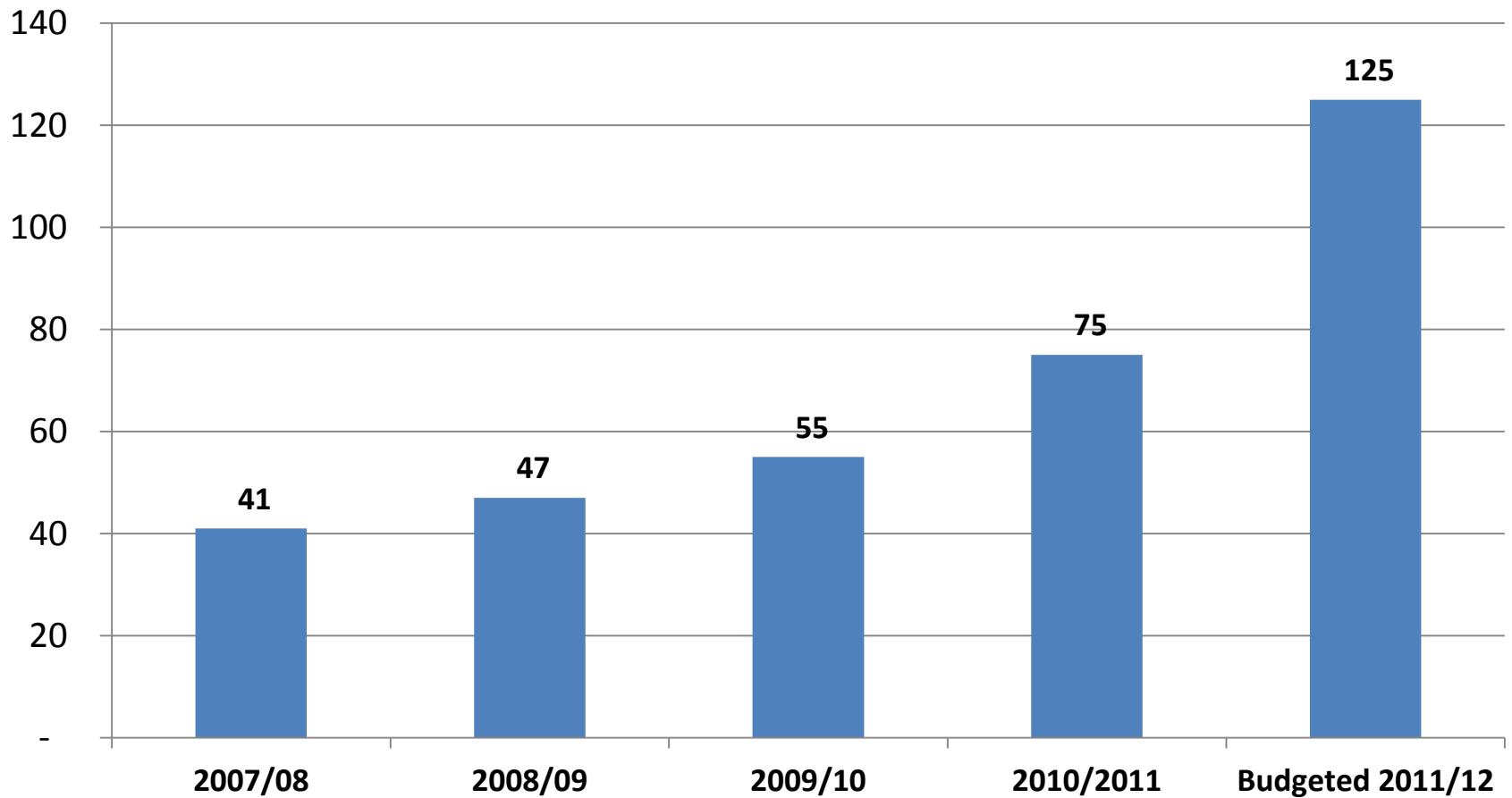
- KENET Pricing Policy
 - The World is Flat for All member institutions!
 - Bundled with basic services – IP addresses, e-mail scrubbing, web hosting
- Price = int'l + distribution costs + Other operational costs
- Uniform pricing at \$200 per Mb/s
 - But cost recovery for new leased lines and institutions
- Members sustain KENET

KENET Employees

- 24 full-time employees including 6 graduate trainees in the technical and administration department.
- KENET has two offices hosted at two of the member institutions, at University of Nairobi and USIU-Africa.

KENET Membership is Growing

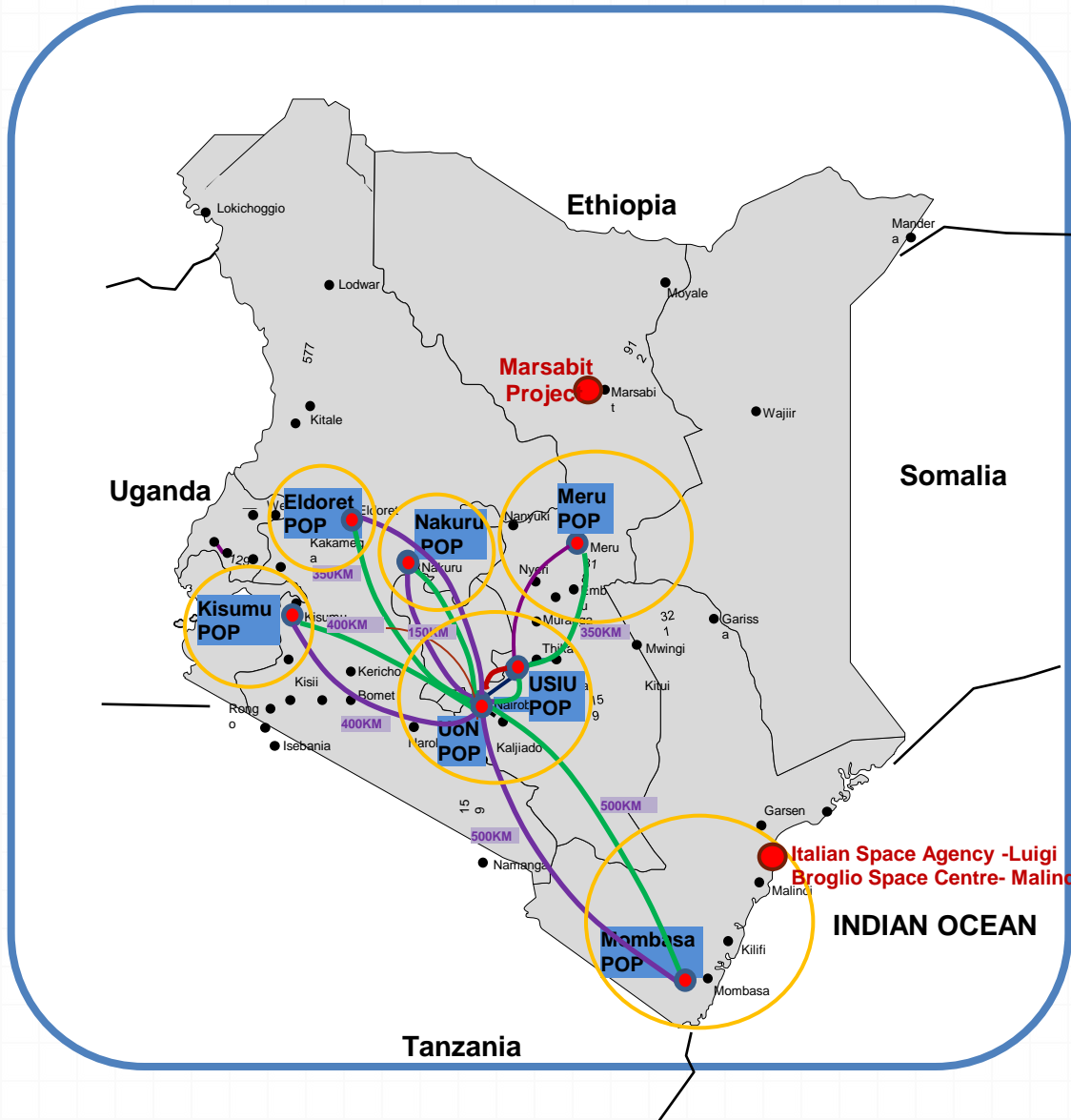
No. of Member Institutions



Broadband Connectivity

- KENET broadband network starts in a campus up to London / Amsterdam
 - International BW – 1350 Mb/s + 300 Mb/s Google cache; 2 Gb/s in July 2012
 - Only South Africa has a bigger pipe
- KENET national network – 60% on last mile fiber!
 - Over 2 Gb/s of distribution capacity
 - 110 KM of Nairobi Fiber MPLS ring – 10 Gb/s

KENET Rapid Growth in Connected Campuses (over 40 new campuses in FY 2011-2012)

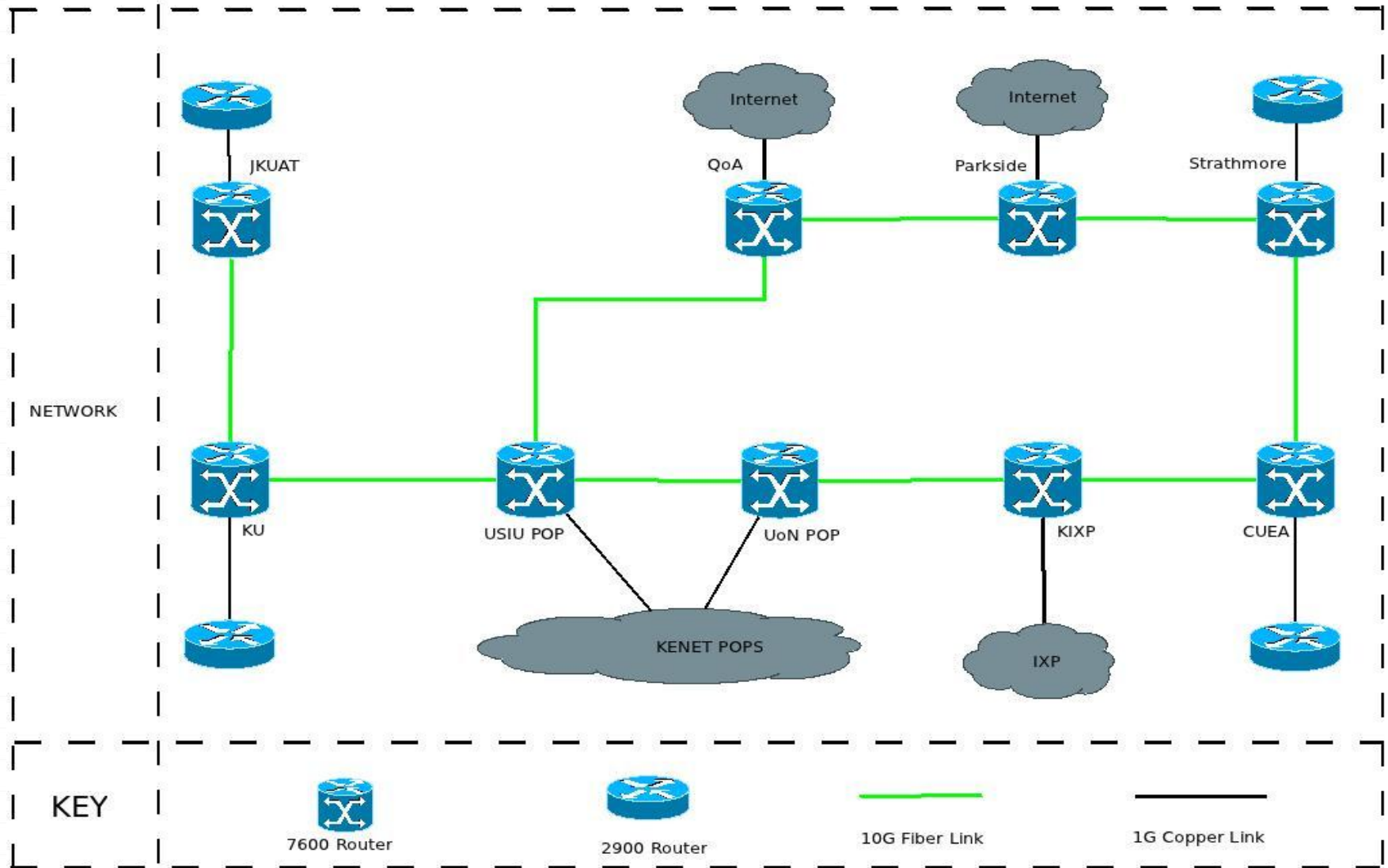


- KDN fiber-underground (Primary)
- FON dark fiber-underground
- Jamii fiber-overhead(Backup)
- KENET POP

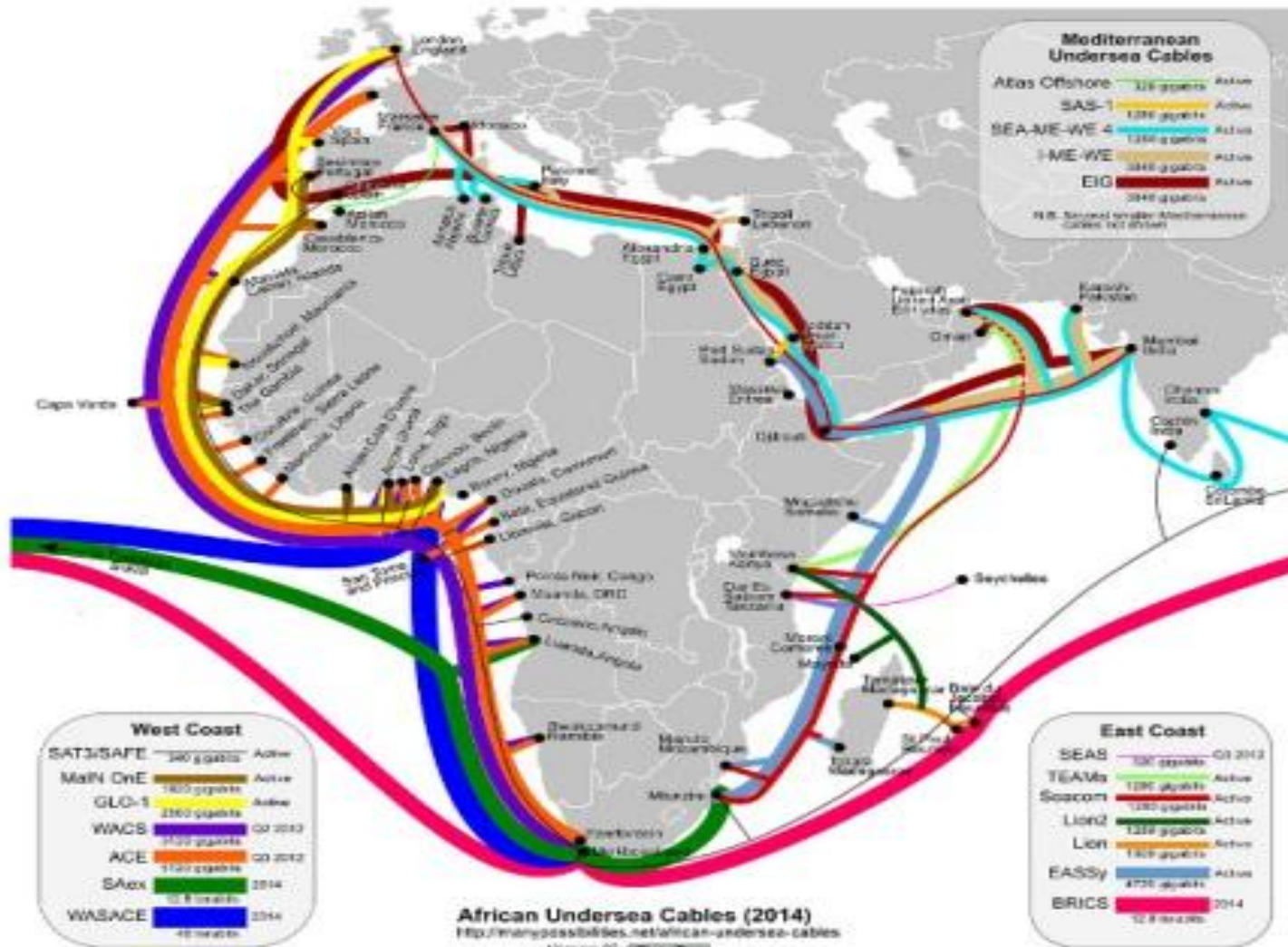
POP	Number of Campuses Connected
Nairobi POP	59
Kisumu POP	14
Mombasa POP	9
Eldoret POP	12
Nakuru POP	9
Meru POP	11
Total Campuses connected	114

First Nairobi Dark Fiber IRU Coverage Map

NETWORK DIAGRAM



Undersea Cables



KENET campus network design services

- KENET providing consulting services to member institutions on campus networks
 - Cost-recovery basis;
 - Limited KENET engineering capacity at and demand increasing
- KENET design team and engineers will be a shared resource for member institutions
 - Most unable to attract and retain high-end ICT talent

KENET Services contd...

- Server set-up and administration: DNS, DHCP, Squid Proxy, network monitoring tools, mail, etc.
- Video conferencing facilities setup at the 5 PoPs.
- Domain registration: ac.ke, or.ke,
- E-learning hosting
- VPN setup
- Website hosting
- Co-location

KENET Training

The following courses are taught :

- Unix/Linux Systems Administration and Network Services
- Scalable Campus Networks
- Bandwidth Management
- Wireless Network Design and Implementation
- IPv6
- Internet Governance and ICT Policy



Recently held Unix/Linux System Administration and Network Services training at the KENET training room

Capacity building of KENET engineers

- DFN – KENET MoU supposed to provide advanced capacity building
 - Exchange of engineers between DFN and KENET
 - Each KENET engineer exchange costs KENET about \$5,000 in travel and per diem (14 days)
 - Each DFN engineer costs KENET about \$,3000 in accommodation and local travel (14 days)
- Each exchange requires planning because of time from office involved;
 - needs to be scaled up to include other NRENs in Europe and also US

International Partnerships and Capacity Building Partnerships

- DFN – KENET Twinning Agreement
 - Exchange of engineers and researchers
 - Thomas Schmid, Network Engineer from DFN
- TENET – KENET collaboration
 - TENET operates the UA router in London
 - Technology and business models
- Google – KENET
 - Google cache, Server and Switch donations, Financing wireless Campus networks
- KENET – NSRC – Training and research partnerships

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

13 UbuntuNet Alliance Members



- Eb@le, DRC
- EthERNET, Ethiopia
- *KENET, Kenya
- *MAREN, Malawi
- *MoRENnet, 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

Tanzania-TERNET

- TERNET was formally registered as a trust on 11th April, 2008
- TERNET secretariat is composed of executive secretary, deputy executive secretary, accountant, e-library specialist, and two (2) network engineers
- Hosted by the Open University of Tanzania (OUT). With the exception of the 2 engineers who are full time staff,

Tanzania-TERNET contd..

- TERNET Network Operation Center (NOC) is hosted at Commission for Science and Technology (COSTECH) building.
- TERNET has a STM 1 connection from SEACOM, which is now distributed to 8 institutions.
- TERNET offers its members services like e-library system and training services.
- The Tanzanian government has started the initiative to connect some universities (27 out of 300+ TERNET members) to the TERNET NOC

Thank You

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