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

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
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<tbody>
<tr>
<td>2007/08</td>
<td>41</td>
</tr>
<tr>
<td>2008/09</td>
<td>47</td>
</tr>
<tr>
<td>2009/10</td>
<td>55</td>
</tr>
<tr>
<td>2010/2011</td>
<td>75</td>
</tr>
<tr>
<td>Budgeted 2011/12</td>
<td>125</td>
</tr>
</tbody>
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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)

- Uganda
- Tanzania
- Somalia

**MAP:**
- KDN fiber-underground (Primary)
- FON dark fiber-underground
- Jamii fiber -overhead (Backup)
- KENET POP
- POP
- Number of Campuses Connected

<table>
<thead>
<tr>
<th>POP</th>
<th>Number of Campuses Connected</th>
</tr>
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<tbody>
<tr>
<td>Nairobi POP</td>
<td>59</td>
</tr>
<tr>
<td>Kisumu POP</td>
<td>14</td>
</tr>
<tr>
<td>Mombasa POP</td>
<td>9</td>
</tr>
<tr>
<td>Eldoret POP</td>
<td>12</td>
</tr>
<tr>
<td>Nakuru POP</td>
<td>9</td>
</tr>
<tr>
<td>Meru POP</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total Campuses connected</strong></td>
<td><strong>114</strong></td>
</tr>
</tbody>
</table>
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
Recently held Unix/Linux System Administration and Network Services training at the KENET training room

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
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 $3,000 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
*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
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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