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KENYA EDUCATION NETWORK (KENET) INFRASTRUCTURE
(Current & Future Infrastructure; Potential & Emerging Possibilities)

Kennedy Aseda
Assistant Network Engineer
Kenya Education Network Trust
kaseda@kenet.or.ke
KENYAN & EDUCATIONAL INFRASTRUCTURE

• Inherent Problems
  – Costs
    • Satellite
    • Exploitation
  – Uptime
    • SLA's

• Kenyan Educational Infrastructure
  – Power Of Teamwork
    • Relative afford-ability
  – Need for high speed connectivity
    • Research work
    • Telecommunication
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• KENET as Kenyan NREN
  – More than 8 years operation
  – July 2008 Network
    • 10 members directly served
      – Local traffic
      – International traffic
    • 12 members not served directly
      – Only local traffic
    • Total International traffic 32,000 Kbps
  – Currently upgrading network
    • Potential 75 Institutions
    • Current 52 Institutions
      – Local & international traffic
  – KENET Research
    • E-readiness research
      – 2007
      – 2008
CURRENT KENET INFRASTRUCTURE

• Enjoying government support
  – KTCIP Project
    • Initiated by government
    • Funded by world bank

• Potential 75 institutions
  – Local connectivity
    • Minimum 10Mbps
    • Last mile lease line
      – Fiber preferred
      – Radio also used
  – International connectivity
    • Satellite
      – Expensive
      – Higher Latencies
    • Slightly over 200Mbps Capacity
      – Capacity always maxed out
      – Need to increase allocations
Kenya Education Network

KENET POPs

Transforming Higher Education Using ICT
KENET SERVICES & CHALLENGES

• Current Services
  – IPSec VPN
  – Network design & support
  – Technical training
  – Server co-location
  – Hosting services
  – Custom server setup
  – DNS services & domain registration
  – E-learning & multimedia content
  – Mirroring services
    • OpenOffice, Mozilla Firefox, Linux, FreeBSD, etc.

• Challenges
  – Bandwidth pricing
  – Terrestrial fiber network
    • Extensive in Nairobi only
    • Unexplained downtimes
      – Inter-operator sabotages
      – Network upgrades
EMERGING OPPORTUNITIES

- Emerging Services
  - Video conferencing infrastructure
  - VOIP telephony
  - Security Key Infrastructure
  - Secure VPNs
  - IPv6 & MPLS network
    - Core
    - Edge
  - E-learning & Multimedia content
    - CD content provision
    - Web content provision
  - Local content
    - Less than 5% local traffic
    - KENET encouraging content creation & provision
EMERGING OPPORTUNITIES

- Emerging Infrastructures
  - Terrestrial fiber network
    - NOFBI Project
    - KPLC Project
    - Telcos (KDN, JTL, Access Kenya, etc.)
  - Under sea fiber connectivity
    - Seacom
      - Operational
    - TEAMS
      - KENET allocated STM-4
      - Challenges with activating capacity
        » Equipment purchase
        » Transit services
  - EASSy
    - Not operational yet
  - Connectivity to GEANT
  - Fiber cable costs
    - Terrestrial fiber (10Mbps over 1 year equals 1 STM1 IRU!)
    - Possibility of owning last mile fiber and/or IRUs
EMERGING OPPORTUNITIES

Transforming Higher Education Using ICT
UNDER SEA FIBER OPPORTUNITIES
CONCLUSION

• Benefit of TEAMS
• Last mile fiber
  – Own the last miles
• Need for teamwork
  – Educational institutions need to work as a group
• Need to empower educational institutions
  – Affordable infrastructure
  – Content creation
THANK YOU

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