

Ubuntu Connect 2014

Developing Appropriate Research Services for Kenyan Researchers

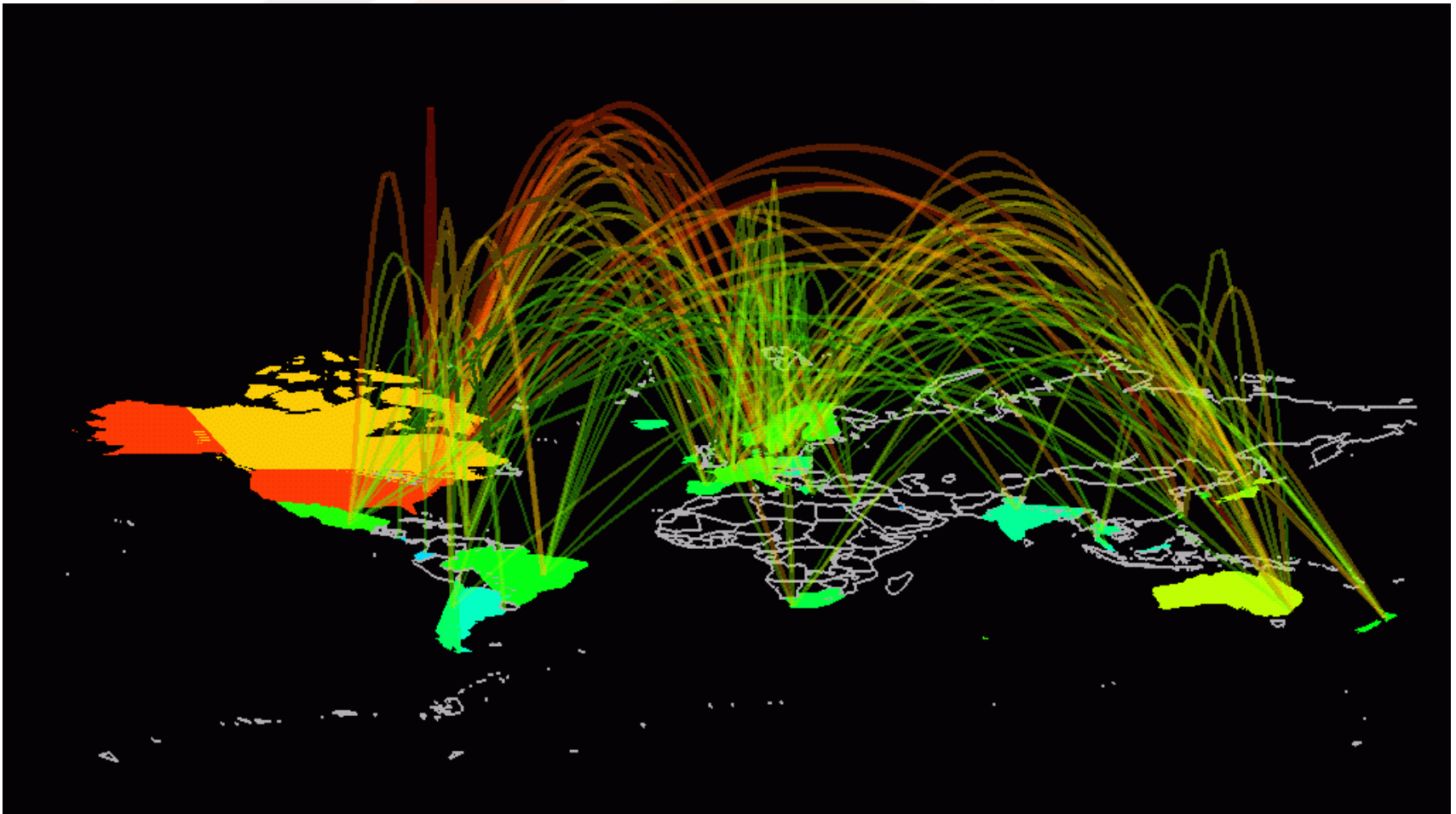
Authors:

1. *Peter Muia - Senior Systems Administrator, KENET*
2. *Ronald Osure - Applications Developer, KENET*
3. *Meoli Kashorda, PhD, MIET, MIEEE – Executive Director, KENET*

Agenda

- KENET, Kenya and Africa
- Community cloud based research services
- Research and collaboration platforms
- Advanced research infrastructures
 - KENET CA
 - IDP
- Staff capacity and resources

Conquering the digital divide



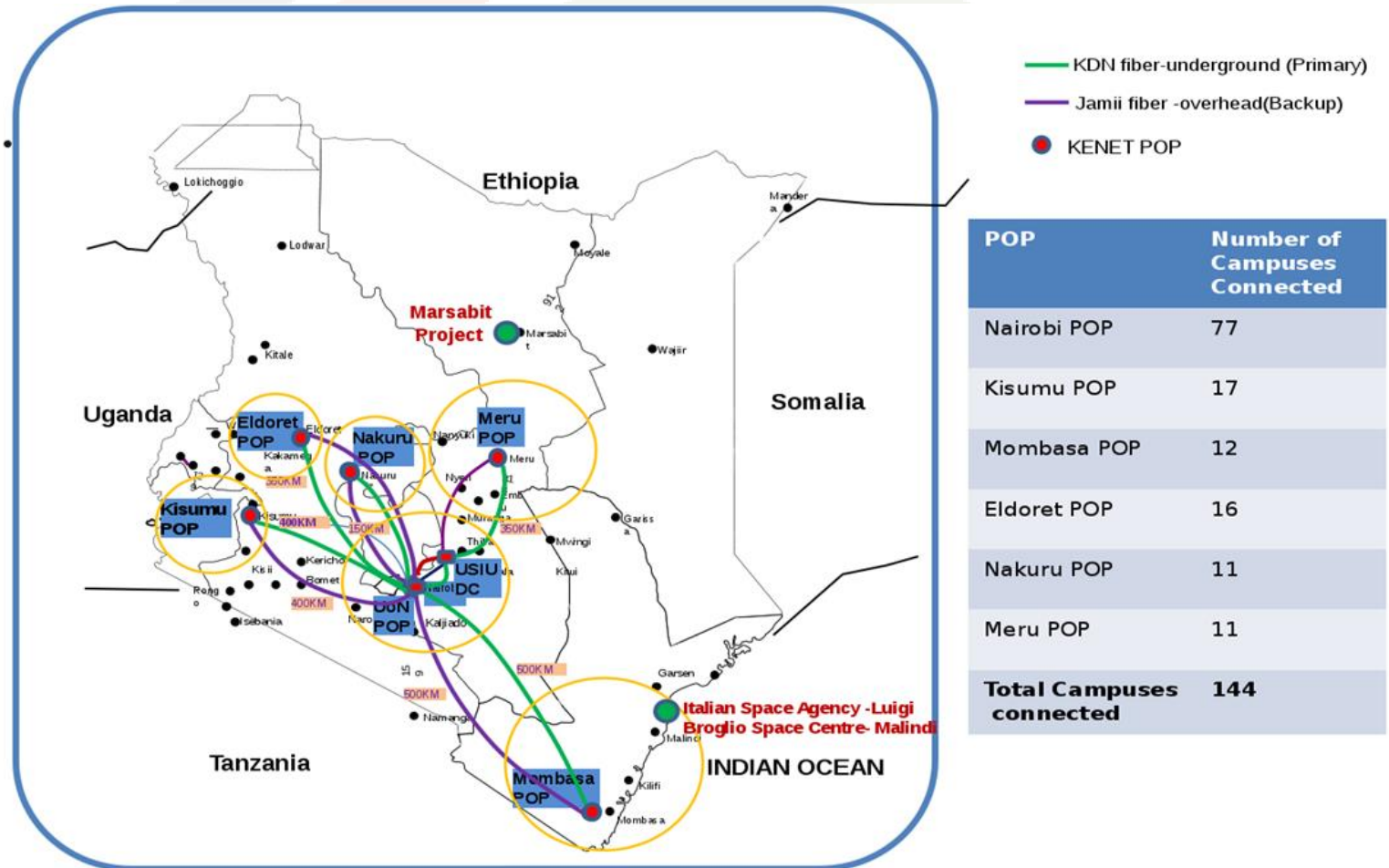
<http://mikwaldron.wordpress.com/2014/04/19/oers-and-conquering-the-digital-divide/>

Kenya ICT in Higher Education and ICT Context

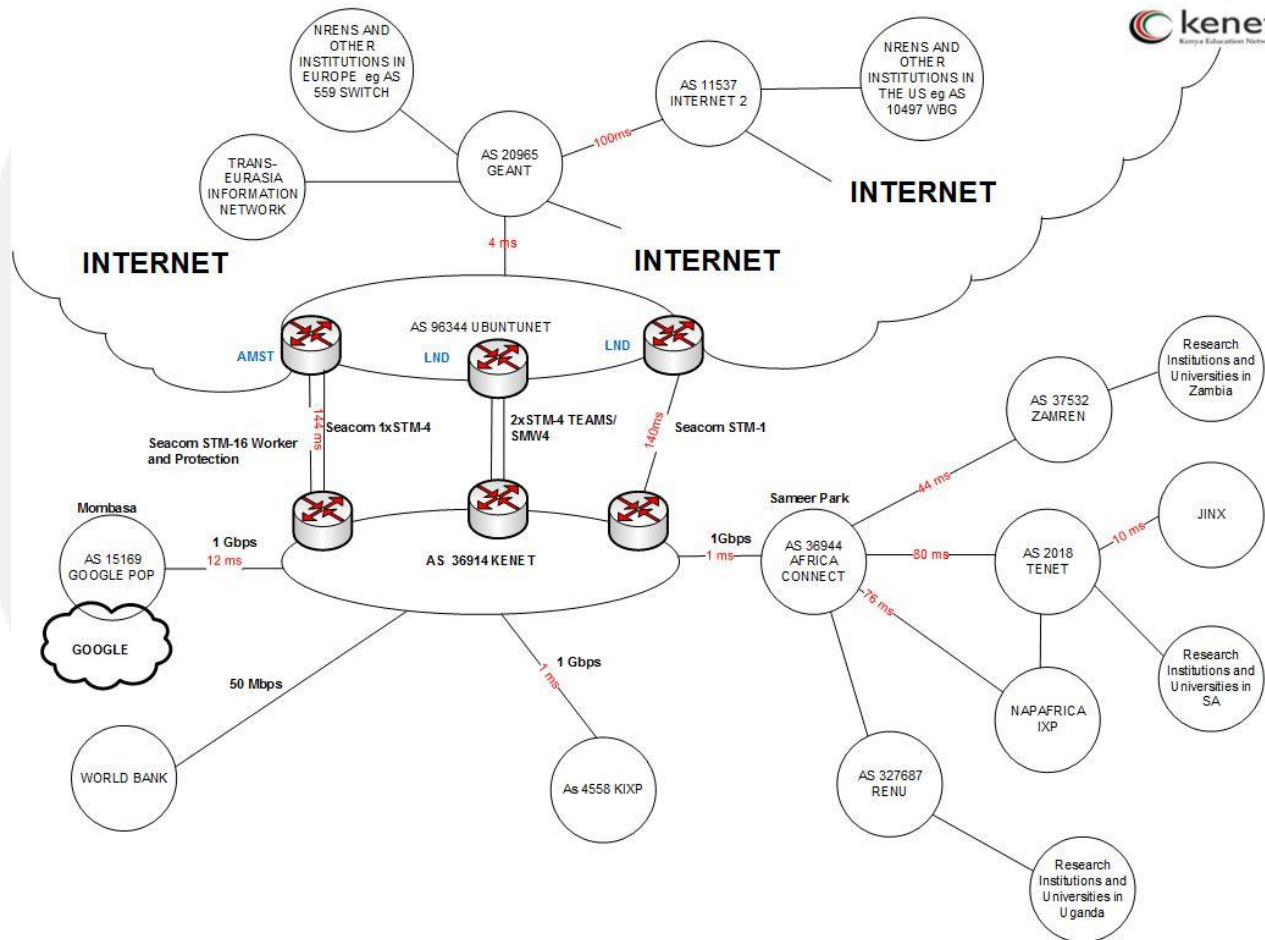
No	Parameter	Dimension
1	Size of Kenya (in Sq. KM)	582,646
2	Population (Millions)	43.18
3	Mobile Subscriptions (Millions)	31.3
4	Mobile Money Transfer Subscriptions (Millions)	21.1
5	Internet Users (Millions)	19.2
6	International Internet Bandwidth Available (Gb/s)	862.8
7	Number of Undersea fiber cables at Kenyan Coast	4
8	Number of Universities / Enrollment 2014	66 / Approx 500,000
9	Number of Research Institutes	12

KENET Network Coverage

March 2014



KENET peering



Community cloud based research services

- Virtual Hosting
 - Virtual Private Servers (VPS)
 - Dedicated Servers
 - Storage
- Internet Measurements Lab node in Nairobi
 - <http://www.measurementslab.net>
 - Internet performance – visualizations, network state etc

Research and collaboration platforms

- Mailing lists and discussion forums
- Video and Web conference
 - Video conference installed on 5 sites
 - Usage is free

Advanced research infrastructures

- There's need for access to high performance computing infrastructures
- Need for a trusted entity to provide infrastructure
- KENET's approach
 - KENET Certification Authority (KENET CA)
 - Identity Provider (IDP)

KENET CA

- Project started in collaboration with eI4Africa in March, 2013
- KENET CA is a self signed root certification authority.
- KENET CA will issue certificates to mainly research and higher learning institutions
- Certificate types
 - User certificate (People)
 - Service certificate (Computers)
 - Host

KENET CA Accreditation Process

- Acceptance and being added to the trust hierarchy
- Process being overseen by the EUGridPMA
- Certificates can only be issued after accreditation

Identity Provider (IDP)

- KENET IDP is a catch-all identity provider
- IDP is a member of Grid Identity Pool (GrIDP)
- IDP will allow cross-domain single sign-on
- IDP will provide access to the Africa Science Gateway
- Also developed in collaboration with eI4Africa
- COMODO certificates

Staff capacity and resource requirements

- KENET staff working on research infrastructures
 1. Senior Network Engineer (1)
 2. System Administrators (2)
 3. Application Developer (1)
- Resources required
 1. Hardware such as servers
 2. Data Centre (KENET is a Tier 3) - availability

International research and doctoral programs in Kenya

- IBM Research Lab
 - Potential for collaboration with African research universities
- University partnerships with others abroad
 - Collaboration among three schools of medicine – Tufts, University of Nairobi, and Moi University schools of medicine
- International and national research institutions in fields like medicine, agriculture, marine, resources mapping etc.

Conclusions

- Promoting KENET research infrastructures
 - Among researchers
 - Doctoral students
- Possible participation in research infrastructures in Africa

Questions



*Transforming education
through ICT*

Thank You

www.kenet.or.ke

Jomo Kenyatta Memorial
Library, University of Nairobi
P. O Box 30244-00100, Nairobi.
0732 150 500 / 0703 044 500