

# **Research and Education Networking in Sub-Saharan Africa**

## **An update**

**Internet2 Fall Member Meeting**

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# Agenda

- Some key data on Africa
- African research and higher education
- Why is REN crucial for Africa?
- RENs in Africa
- Enabling role players



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# Some key data on Africa

- Population: ≈955 m (14% of world Pop.)
- Telephone penetration: 3.8% (mobile: 27.5%)
  - Sub-Saharan Africa: 1.6% (18.3%)
  - World average: 19% (49%)
- 51 m Internet users (5.3% penetration)
  - World average: 22%; North America: 73%
- 0.2% of world's total Internet capacity (2004)



# African research and higher education (1)

## Research

- Most research carried out in higher education institutions
- Almost entirely financed by government
- Lack of resources (infrastructure, equipment, financial and other incentives)
- Little university-industry linkage
- Isolation of researchers/research teams



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# African research and higher education (2)

## Higher education

- Tertiary gross enrolment rate: 5%
  - World average: 24%; North America + Europe: 70%
- 600+ higher education institutions
- Majority are public: growth now mainly from private initiatives
- Some of the many challenges
  - Massification
  - Poor infrastructure
  - Aging faculty
  - Brain drain



# Why is REN crucial for Africa? (1)

- Bandwidth most expensive in the world (average of US \$5,000 per Mbps/month!)
  - Main reasons: lack of competition, costly technologies, regulatory environments)
  - Need to build bargain power (good example: PHEA-supported bandwidth consortium)
  - Need to sensitize policy and decision makers
- African scientists and researchers are isolated - generally no critical mass for successful research activities
  - Need to network and collaborate (at national, regional, continental and international levels)



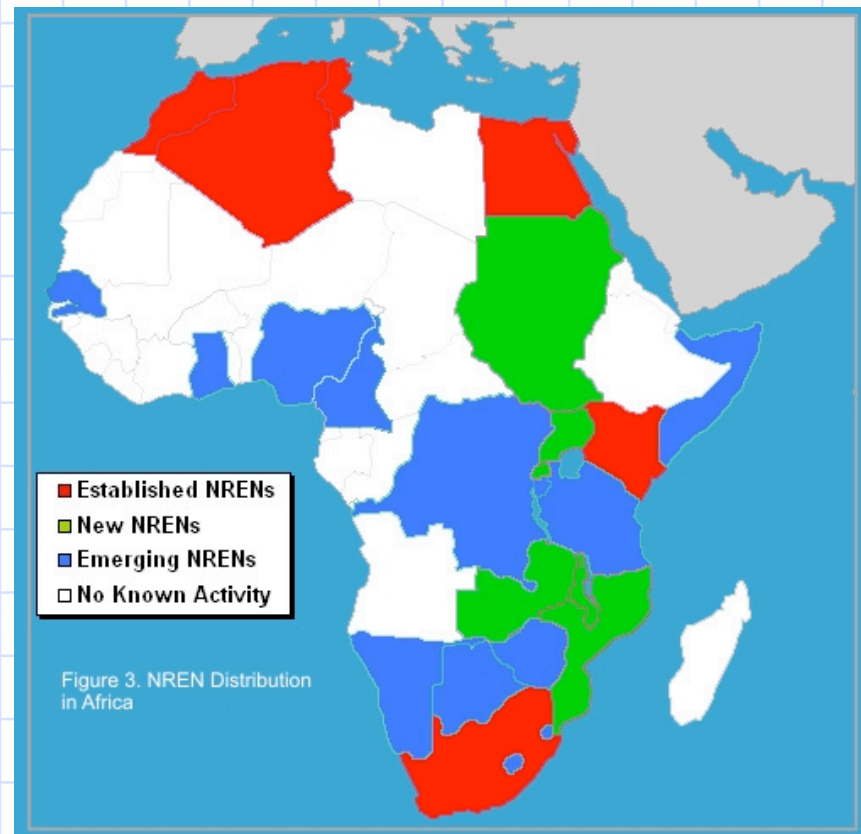
# Why is REN crucial for Africa? (2)

- Brain drain
  - Need to reduce brain drain as result of frustration (lack of intellectual reward due to isolation)
- Brain gain
  - Tap potential of diaspora for its contribution to African development from where it is
- Massification
  - Blended distance learning as one response to the problem
- Scarce resources
  - Need to share (not only information, knowledge, pedagogical resources, etc. but also human resources)
- Regional/continental integration
  - HEIs must spear-head and facilitate this process



# NRENs in Africa - global picture

- Can be categorized in 3 groups
  - Established (functioning) NRENs
  - New NRENs
  - Emerging NRENs (NRENs in formation)





# Established NRENs

- Active RENS essentially established in Northern, Southern and Eastern Africa
- Well established NRENs include:
  - TENET (South Africa)
  - KENET (Kenya)
  - MAREN (Malawi)
  - EUN (Egypt)
  - MARWAN (Morocco)
  - RNU (Tunisia)
  - CERIST (Algeria)



# New NRENs

- Several initiatives in all African regions for the formation of NRENs
- Most of the initiatives in Southern/Eastern Africa (UbuntuNet momentum):
  - Eb@le (DRC)
  - MoRENet (Mozambique)
  - RENU (Uganda)
  - RwNet (Rwanda)
  - SUIN (Sudan)
  - TERNET (Tanzania)



# Emerging NRENs

- Advanced initiatives include:

- ZAMREN (Zambia), NAMREN (Namibia)
- NgREN (Nigeria)
  - Commitment of 10s of VCs to have it established by end of 2008
- GARNET (Ghana)
  - Policy dialogue ongoing; reports of 2 working groups (policy and architecture) due for end of October 2008
- Cameroonian REN (embryo exists with RIC)
  - Commitment of government
- Senegal (RENER)
  - Policy dialogue ongoing. Meeting of decision makers in preparation
- Côte d'Ivoire
  - Policy dialogue ongoing despite difficult political situation



# Regional RENs

- First regional initiative in Africa: EUMEDConnect project
  - Funded by European Union
  - Links Mediterranean African countries with Europe through GEANT
  - Direct links from individual countries to GEANT
  - Now, over to interconnection between the countries
- Other major initiative: UbuntuNet
  - Alliance of several Southern/Eastern African NRENs to interconnect and share bandwidth
  - Strong commitment of members under difficult regulatory environments
  - Connected to GEANT since January 2008 through 1 Gbps link
- Initiative for a regional REN in West/Central Africa



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# Enabling role players

- Many enablers and supporters of the African REN community
  - Continental bodies: AUC, EU, AAU, AfNOG, AfriNIC, ...
  - Governments
  - Regional and national bodies: RECs (SADC, ECOWAS, WATRA, CRASA, national regulatory authorities, ...)
  - Development partners: PHEA, IDRC, SIDA, ACBF, Andrew W Mellon Foundation, ...
  - Various organisations: NSRC, IEEAF, OSI, KTH, ...
  - Private sector and other organisations (mainly through some of the above mentioned organisations)
  - Last, but not least: the international REN community (GEANT, DANTE, Internet2, RENATER, DFN, GARR, ... and many others)



***THANK YOU !***

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