Recent Developments in ICT Infrastructure and Connectivity: New Capacities, New Opportunities.

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International Connectivity - Dramatic Developments

- In late 2007, report noted that
  - “Of the 14 SADC countries, only three (Angola, South Africa and Mauritius) have access to one international fibre (SAT3/SAFE)
  - Most countries’ international bandwidth is still below 100 Mbps.”

- In July 2010,
  - South Africa has SAT3/SAFE, Seacom and Eassy
  - Tanzania and Mozambique have Eassy and Seacom
  - Madagascar has Eassy and LION (connecting to SAT3)
  - Most countries’ international BW is **over** 100 Mbps with South Africa having several Gbps

- By end of 2012
  - Africa Coast to Europe (ACE)- South Africa, Namibia, Angola, DRC
  - West African Cable System (WACS)- South Africa, Namibia, Angola, DRC
  - (and recent announcement that Seacom will tie up with Main One)
International fibre for Africa
National Backbones/ regional connections- significant change

- Regional connections
  - Significant improvements for landlocked countries
  - In 2007, no fibre links for landlocked countries Malawi, Zambia, Zimbabwe and Island nation Madagascar
  - All these countries now have fibre links to neighbours: Malawi through Mozambique, Zambia through Namibia, Zimbabwe through Botswana and Madagascar via LION
  - More cross-border fibre connections on the way as national backbones rolled out, extended
  - Increased competition in South Africa as main transit point is also changing landscape

- National Backbones
  - In 2007, DRC, Malawi, Tanzania had no backbone to speak of. Zimbabwe, Zambia and Mozambique had some fibre.
  - Government backed Backbones with increasingly extensive reach now active in Tanzania, Zambia, Mozambique, Madagascar and Malawi
  - BUT some monopoly issues are cropping up
  - Watch for private sector backbones from big cellular players like MTN, Zain
The Last Mile and Campus Networks - a potential constraint

• The last mile— a new constraint
  – Less emphasis, fewer developments concerning fibre in the last mile
  – Significant developments in South Africa, Zambia and soon Malawi
  – Last mile likely to become the biggest constraint and **most expensive part of the network**.
  – Look out for Mobile telephony companies to build out Metropolitan Area Networks (MAN)

• Campus networks
  – IN 2007, only 33% of universities surveyed had Gigabit capacity in the campus backbone.
  – Has this changed? Could this be another constraint?
Opportunities- Galore?

• Dramatic improvement in available international Fibre and tumbling prices making affordable high speed connections to the global research community a real possibility
  – SANReN now active and South Africa has first Gigabit NREN in SSA with connection to Geant

• Increasing reach and coverage of national backbones and cross-border links making it possible to interconnect, share resources, communicate and collaborate in-country and regionally
  – NRENs are no longer nice to have, they are a MUST have
  – Regional NREN a real possibility (collaborate with UbuntuNet Alliance?)

• The last mile- on the positive side
  – Dramatic increase and lower costs of broadband through 3G mobile technology
  – What does this mean for universities? Extending services outside the campus

• Funding for NRENs increasingly available
  – EU approves funding for interconnecting NRENs in Africa with Geant and UbuntuNet will be a key player
  – WB funding for NRENs increasingly available
But......Some issues for reflection

• NREN development
  – 2+ years later, still only 2 NRENs providing services (Malawi and South Africa) - WHY limited progress in operationalizing NRENs?
  – Are universities ready to “walk the talk” to collaborate in building NRENs?
  – In 2007, it was noted that advanced research (demand side) was almost non existent. Has this changed?

• Funding
  – Ministries of Education in many countries in Africa have plans to provide connectivity to educational institutions BUT focus is on secondary schools and teacher training colleges! Are universities speaking up and is their voice being heard?
  – Higher Education ministries are increasingly focused on technical and vocational training and “Skills Development” with special emphasis on ICT Skills. Could universities lose out in this policy and political shift? What can universities do?

• Infrastructure/ connectivity are here, where are the Applications?
  – Cloud computing
  – Web 2.0 or social media
And for further reflection- from the IT managers’ view

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Role of SARUA

• Model similar to Educause and SIM
  – Advocacy and awareness raising of key issues and developments
  – Print and electronic resources
  – Professional development
  – Identification (and Awards?) for innovative practices and exemplary leadership for ICT
  – Applied research to inform evidence-based policy and strategy
  – Fostering communities of practice in some areas