



UbuntuNet Alliance
 for Research and Education Networking

Completing the REN Picture: UbuntuNet Alliance

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Agenda


1. Background
2. Why Collaboration in developing infrastructure?
3. UbuntuNet Strategic Objectives
4. Planned Activities
5. Conclusions

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Background

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Genesis

.....EASSy –the promises

- ✓
- ✓ Will result in competitive prices for international connectivity
 - The objectives support the ultimate goals of reducing poverty and increasing economic opportunity for the citizens of the Region and in the efforts to facilitate the attainment of the UN MDGs
- ✓ EASSy promises a new era of better quality services at reduced operational costs and user charges.

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11 land-locked countries

Botswana Zimbabwe
 Zambia Malawi
 Lesotho Swaziland
 Burundi Rwanda
 Uganda Ethiopia
 DRC

8 coastal countries

Sudan
 Djibouti
 Somalia
 Kenya
 Tanzania
 Mozambique
 Madagascar
 South Africa


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Open Access Model

- ✓ Offered an opportunity for NRENs to invest in the cable and acquire capacity through the ring
- ✓ IDRC and SIDA supported the involvement of UbuntuNet by offering US\$1Million each for the investment to EASSy (total US\$2Million)
- ✓ So far we are still in the race though with time we are also seeking other opportunities as they arise across the continent


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Mission

- UbuntuNet Alliance has a simple mission:
To ensure that African research and Education Institutions have efficient and affordable bandwidth for their member research and education institutions to participate in global research and networking worldwide!


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Some quotes!!!

- According to Jensen (2006) “ in the absence of Fibre, currently means bandwidth per networked computer in Africa is less than 4 kb/s, yet costs are 50-1000 times more than in the West”
- Jensen sums up the Bandwidth situation :
 “too little, too expensive, poorly managed”!


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More quotes!!!

At WSIS 2005, Prof Bjorn Pehrson of KTH made a **Modest Request**

- “African Universities need the same network connectivity as their peers on other continents to fulfill their tasks”
 (-education, research, community interactions)




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Requirements


- Provision of adequate Bandwidth for research and tertiary education is a national, regional and international infrastructural issue!
- We need a multi-stakeholder partnership, concerted action and sustained advocacy to build infrastructure and bring down prices dramatically
- In many of our countries and at the international level, that concerted action must also target the Communication and Regulatory Authorities for example for requirements such as International Gateway Licenses for our academic networks!

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Collaboration


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It's about sharing (1)

Within each institution, **END-USERS...**

- **have their own**
 - PCs / workstations
 - Ethernet connections to first hub or switch
 - Printers (some times)
 - Storage space on file servers
 - Email accounts and mail folders



- **but share**
 - Campus backbone capacity
 - Access to licensed software
 - E-content
 - Network printers
 - Internet access
 - Mail domain e.g. mail.uem.mz

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It's about sharing (2)

Within each NREN, institutions...

- **have their own**
 - IP address blocks
 - Connection circuits to the NREN

➔

- **but share**
 - NREN's backbone capacity
 - NREN's network identity
 - NREN's peering agreements with other RREs
 - NREN's general Internet access
 - Other NREN services

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It's about sharing (3)

Within each Regional REN, NREs...

- **have their own**
 - Network identities
 - Connections to the RREN

➔

- **but share**
 - RREN's network identity
 - RREN's cross-border backbone capacity
 - RREN's peering with other RREs
 - RREN's general Internet access
 - Other RREN services

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Do we need an RREN?

These countries

- Botswana
- Burundi
- DRC
- Kenya (KENET)
- Egypt
- Malawi
- Mozambique (MoRENet)
- Sudan
- Rwanda
- S Africa (TENET)
- Swaziland
- Tanzania
- Uganda (RENU)
- Zambia
- Zimbabwe
- ...others...

.....all want

- General Internet access
- Connections to each other; and to
 - Géant
 - Abilene (Internet2)
 - CANARIE (Canadian REN)
 - TEIN2 (China, Japan, Malaysia)
 - AARNET (Australian REN)
 - ...others...

...and they want it all very CHEAP !!

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Resources needed

- Cross-border links operated by telcos, mobile operators, power companies,...
- Sub-marine cable connectivity
 - SAT-3 West Africa cable (WASC)
 - SAT-3 Far East cable (SAFE)
 - East Africa Submarine System (EASSy) (proposed)
- In some cases satellite capacity as an interim solution!

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So, should each do it on its own?


No way!

- ✓ Let's create and develop a Regional REN!
- ✓ Let's share a regional backbone!
- ✓ Let's share peering links!
- ✓ Let's share general Internet connectivity
- ✓ Let's share knowledge and other resources

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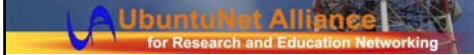
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 ... and so ...

The UbuntuNet Alliance

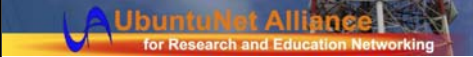
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UbuntuNet Alliance –The Entityc

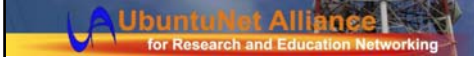
- ❑ Incorporated as a nonprofit company limited by guarantee
 - ✓ Wants to serve all bona-fide NRENS in Africa
 - ✓ Focused on optical fibre opportunities
- ❑ Members: VCs/D-VCs *nominated by NRENS*
 - ✓ AAU will facilitate the appointment of the Chair
- ❑ Council of Members will:
 - ✓ meet annually (normally)
- ❑ Initiators acting as Interim Board
 - ✓ One person from each of Kenya, Malawi, Mozambique, Rwanda, South Africa

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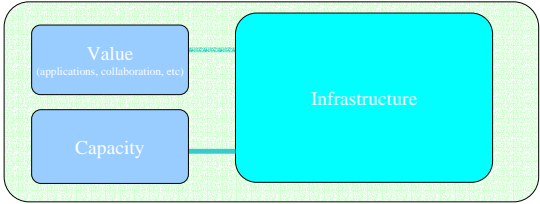


Strategic Objectives


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Pillars




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Objectives

- ❑ **Objective 1** -To build the UbuntuNet backbone using a staged approach which connects clusters of NRENS by building out from existing cross continental links using the opportunities provided by existing and planned fibre infrastructure projects.
- ❑ **Output** -A reliable and affordable (ideally dark fibre) gigabit backbone which links all NRENS in Africa


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Objectives

- ❑ Objective 2 –Foster, stimulate and support NRENS development
- ❑ Output -development of NRENS in Africa to promote research and education networking and collaboration

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Objectives


- ❑ **Objective 3** -Enhancement of functionality and performance of African academic networks and capacity building of human resources, in Internetworking and other relevant areas, in the region.
- ❑ **Deliverables** -The UbuntuNet Internetworking Programme, a framework for problem-oriented, project-driven development and learning, in Internetworking and other relevant areas, that can be associated with relevant academic programmes (CS, EE, IE, etc) at suitable universities connected to the member NRENS, and supported by a scholarship programme.

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Activities


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Developments in eastern & southern Africa

- ❑ Optical fibre is being deployed
 - national operators
 - cellular operators
 - electrical power companies
 - consortia
- ❑ NRENS are emerging rapidly as vehicles for:
 - inter-institutional collaboration
 - bandwidth procurement
- ❑ UbuntuNet Alliance has been formed
 - An African regional REN


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Drivers of fibre deployment


- ❑ amazing uptake of mobile telephony
- ❑ deployment of fibre by power and pipeline companies
- ❑ removal of the restrictive regulations
- ❑ prospect of the East Africa Submarine System (EASSy)
- ❑ Dramatic decisions by some countries, eg Kenya
 - The Government's TEAMS project
 - KDN's FLAG spur project

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A patchwork regional backbone for UbuntuNet?

- ❑ Some 23 countries in the region
- ❑ Each determines its own regulatory regime; issues its own licenses
- ❑ Cross-border tariff barriers
- ❑ NRENS will need to transit each others' traffic
- ❑ UbuntuNet contracts and manage



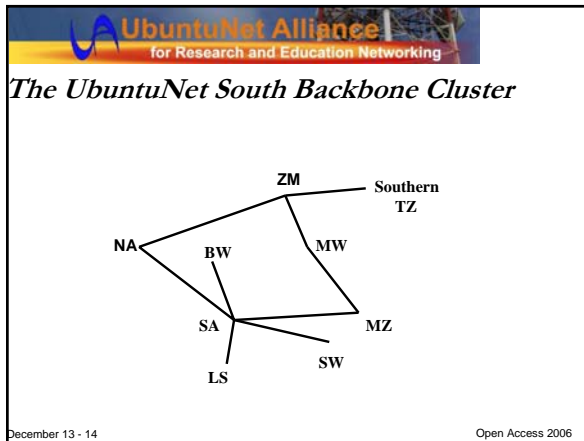
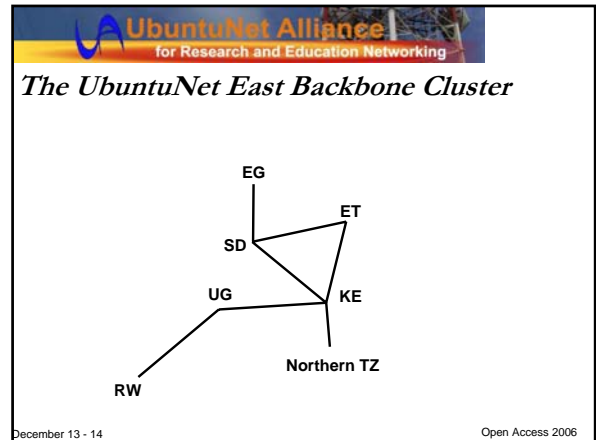
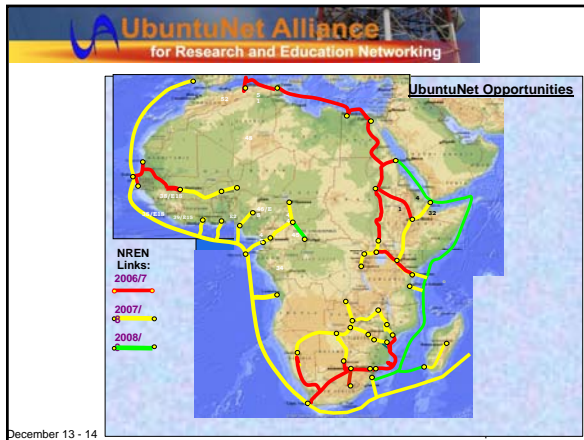
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Backbone development strategy

- ❑ opportunistic approach with two legs:
 - gain access to optical fibre cables as a spin-off from other general infrastructure developments; and
 - develop parts of the backbone in different sub-regions, called **UbuntuNet backbone development clusters**, as complementary projects.

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-
- Connecting to Géant and Abilene!*
- Now!
 - Deploy UbuntuNet Routing Hub in Amsterdam
 - Connect Hub to Géant
 - Use GRE tunnels through NREN's existing Internet access circuits to the Hub
 - This will:
 - Teach the NRENs about BGP and routing policies
 - make Africa part of the REN movement!
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- Partnerships**
- Work closely with partners to build the GEANT of Africa:
 - ✓ AAU –policy, advocacy and coordination
 - ✓ AAU, FRENIA, Afrinog, Afrinic, other institutions –technical capacity and NRENs development
 - ✓ Members –to build NRENs and the UbuntuNet network
 - ✓ Donors and Friends –in all areas
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- Acknowledge**
- The Interim Secretariat hosted at University of Malawi, Kamuzu College of Nursing
 - Startup admin funding came from IDRC, OSI and OSISA
 - AAU -has accepted a Constitutional role in the Alliance
 - Friends –Bjorn, Anders, Mike Jensen, Minister Massingue, Minister Butare, many others
 - Members NRENs –continued commitment
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Asanteni Sana

