



AfricaConnect

Implementing UbuntuNet – the Internet Network for
Research and Education for Sub-Saharan



Interconnecting sub-Saharan Africa



Building a high-speed Internet network for research and education in sub-Saharan Africa

AfricaConnect is implementing the regional component of UbuntuNet, the high-speed Internet for research and education in Eastern and Southern Africa. The project is interconnecting research and education institutions in the region through their National Research and Education Networks (NRENs). This upgrades and complements the existing interconnection between Southern and Eastern Africa and GÉANT, the pan-European research and education data network, enabling researchers and academics in Africa to collaborate seamlessly with each other and with research and education institutions in the rest of the world.

"Through its interconnection with GÉANT, the UbuntuNet network is boosting Europe-Africa collaboration, bringing research and educational opportunities unprecedented in Africa. The implications for socio-economic development go far beyond anything we could have dreamed of before, putting African research on the map and transforming the lives of millions. I am very proud that GÉANT is the first research and education network to connect to Africa!" Says Cathrin Stöver, Chief International Relations and Communications Manager at DANTE and Project Manager for AfricaConnect.

Rolling out the UbuntuNet

Based on country readiness to connect to the regional network, the UbuntuNet network, which was commissioned in July 2014, has been implemented in two phases. One more phase will be completed in the coming months, extending the reach of the network.

AfricaConnect project has procured long-term assets (undersea capacity) from WIOCC on the EASSy and SEACOM cable systems, and terrestrial capacity from various providers, interconnecting Europe and the coastal cities of Southern and Eastern Africa. Existing Points of Presence (PoPs) have been upgraded in London and Amsterdam and more have been established on the African soil in Dar es salaam, Kampala, Kigali, Lusaka, Maputo, Mtunzini, Cape Town and Nairobi serving the NRENs: TENET (south Africa), MoRENet (Mozambique), TERNET (Tanzania), KENET (Kenya), RENU (Uganda), RwEdNet (Rwanda) and ZAMREN (Zambia). Equipment and high capacity cross-border links have been procured forming the backbone on which the network to serve the entire UbuntuNet Alliance region will be created.

Procurement of equipment and installation of high capacity cross-border links connecting the NRENs of Eb@le (Democratic Republic of Congo), MAREN (Malawi) and a redundant link interconnecting ZAMREN and TENET will be completed in the coming months.

Meeting societal goals

While AfricaConnect has helped to establish an operational and sustainable data network, the societal objective supports the fulfillment of the region's Millennium Development Goals. AfricaConnect fosters the development of collaborative research programmes between the African and the European research and education communities. It does this by providing the e-Infrastructure that supports the development and deployment of research applications exploiting work done in Europe relating to the Information Society.

The project's purpose is to open up the research activities within the region and build co-operation with researchers in the rest of the world. Specific research application areas cover fields including: Health, Bio-Medical Sciences, Climate, Agriculture, Education and Environment.



Africa Connect combines ICT, science, technology, research and education intercessions to develop national and regional education networks. Thanks to the programme, research made in Africa is made more visible and today the connectivity between higher education institutions in Southern and Eastern Africa to Europe is a reality!

The European Commission in partnership with ACP Secretariat is proud to be part of this project that builds on precious technical input by African engineers supporting the work of Dante and the UbuntuNet Alliance and that paves the way for success.

Denis Salord, Head of Unit, Regional Programmes sub-Saharan Africa and ACP wide (Directorate-General for Development and Cooperation – EuropeAid) European Commission

AFRICACONNECT IN A NUTSHELL

- AfricaConnect funds the development of UbuntuNet, the high-capacity Internet network for academic and scientific collaboration in Eastern and Southern Africa
- It connects Southern and Eastern African partner countries: DRC, Ethiopia, Kenya, Malawi, Madagascar, Mozambique, Namibia, Rwanda, Somalia, Sudan, South Africa, Tanzania, Uganda and Zambia
- It connects African and European partners via GÉANT, the pan-European network
- It is jointly funded by the European Commission and African partners to reduce the digital disparity between African and European regions



Rwednet



Saving lives through telemedicine

AfricaConnect through the UbuntuNet is facilitating participation of African researchers and medical practitioners in telemedicine through collaborative symposiums on infectious diseases. It offers huge benefits for Africa as it reduces huge costs of travel that impede medical collaborations for the continent's health practitioners, policy-makers and researchers.

"As you know we have bioinformatics research currently being conducted in Zambia at the Copperbelt University, this is one of the research areas that will benefit from the network."

Bonny Khunga, CEO of ZAMREN.

Reducing the cost of connectivity for African research and education

The link between Dar es Salaam in Tanzania and Lusaka in Zambia was completed at the end of May 2014 drastically reducing connectivity costs to nearly nothing for the Zambian research and education community.

The impact of the AfricaConnect project on prices is evident to the research and education community in the region. Connectivity prices have fallen 97% from an average of US\$4000 per megabit per second per month to \$135 per megabit per second per month indicating a 97 percent price reduction in just four years. The vision is to reduce connectivity to US\$85 per Mbps per second at UbuntuNet Alliance inland POPs by the end of the 2014–2018 planning period.

Eng Dr FF Tsubira, CEO UbuntuNet Alliance adds:

"We are delivering international and regional bandwidth to NRENs in these counties at a consolidated price of \$135 per megabit per second per month. I find this exciting, because, at last we have eliminated one barrier to regional participation in global research and education collaboration,"

Apart, from lowering the cost of bandwidth, providing resilience and potential for future network growth is yet another benefit of the UbuntuNet.

Building network engineering capacity

Although Internet penetration in the region is increasing at a rapid rate due to the growing availability of fibre infrastructure, there is a major challenge in the shortage of skilled technical, operational and managerial staff available in this geographical area. In a multi-partner initiative, AfricaConnect is supporting capacity building for the relevant personnel in NRENs in sub-Saharan Africa countries, enabling operational NRENs. Since the start of the project over 40 network engineers have benefited from capacity building initiatives implemented collaboratively with UbuntuNet Alliance, the Network Startup Resource Center (NSRC), the International Network for the Availability of Scientific Publications (INASP), the Internet Society (ISOC), the Association of African Universities (AAU).

Funding and Organisation

The total budget for AfricaConnect is €14.75m over a period of four years to 2015, with 80% of funding provided by the EDF (European Development Fund) following an agreement between the African Caribbean Pacific Islands (ACP) Secretariat and the European Commission (DEVCO). The remaining 20% of funds (€2.95m) is being provided by the African partners on the basis of a cost-sharing model.

Geographic Scope

AfricaConnect project's main focus has been to develop the UbuntuNet network in Southern and Eastern Africa. Participating countries are DRC, Ethiopia, Kenya, Madagascar, Malawi, Mozambique, Namibia, Rwanda, Somalia, South Africa, Sudan, Tanzania, Uganda and Zambia. In addition, the project also fosters the development of NRENs right across sub-Saharan Africa. Thus AfricaConnect is stimulating the establishment and growth of new NRENs in West and Central Africa. A feasibility study was conducted for interconnecting NRENs to WACREN. This will enable WACREN and its members to participate in future regional networking projects.

Which organisations are involved in developing the AfricaConnect project?

The AfricaConnect project is coordinated by DANTE (Delivery of Advanced Network Technology to Europe) and partnered by the UbuntuNet Alliance, representing 15 NRENs of Eastern and Southern Africa (DRC, Ethiopia, Kenya, Madagascar, Malawi, Mozambique, Namibia, Rwanda, Somalia, Sudan, South Africa, Tanzania, Uganda, Zambia and Burundi); European NRENs Germany (DFN), Ireland (HEAnet), Italy (GARR), the Netherlands (SurfNET) and Portugal (FCCN); and WACREN, the West and Central Africa regional REN representing the emerging NRENs in west and central Africa.

DANTE

DANTE is a not-for-profit organisation that operates GÉANT, the pan-European research network which provides the data communications infrastructure essential to the success of many research projects in Europe. Established in 1993, DANTE has been fundamental to the success of pan-European research and education networking. DANTE is involved in worldwide initiatives to interconnect countries in the other regions to one another and to GÉANT. DANTE currently manages projects focused on the Mediterranean and Central Asia regions through the EUMEDCONNECT and CAREN projects respectively, and now AfricaConnect.

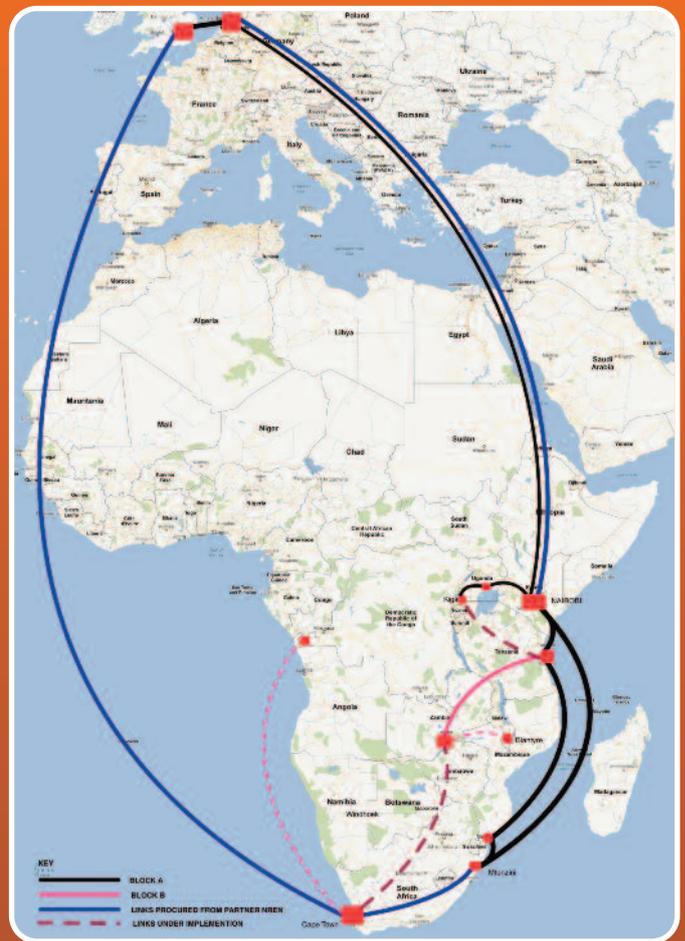
UBUNTUNET ALLIANCE

The UbuntuNet Alliance is a not-for-profit regional association of NRENs in Africa, primarily in Eastern and Southern Africa. It was established in the latter half of 2005 by five established and emerging NRENs in the region and now has a total of fifteen NREN members. The Alliance aims to interconnect African NRENs to each other and connect them to other regional RENs and to the Internet at high speeds to enable researchers, educators and students to collaborate effectively and participate in regional and global research and education networking activities.

There are currently fifteen NRENs in the region: Eb@le (Democratic Republic of Congo); eThERNet(Ethiopia); iRENALA (Madagascar); KENET (Kenya); MAREN (Malawi); MoRENnet (Mozambique); RENU (Uganda); RwEdNet (Rwanda); SomaliREN (Somalia); SudREN (Sudan); TENET (South Africa); TERNET (Tanzania); XNet (Namibia); ZAMREN (Zambia) and BERNET (Burundi).

WACREN

WACREN is the West and Central African Research and Education Network registered in Ghana in August 2010 as a "non-profit association". It is the regional network for sharing knowledge and promoting the establishment of interconnections between NRENs. WACREN currently has 8 established NREN members: Côte d'Ivoire: RITER, Ghana: GARNET, Gabon: GabonREN, Mali: MaliREN, Niger: NigerREN, Nigeria: ngREN, Senegal: snRER, Togo: TogoREN. An embryo NREN also exists in Cameroon as the Cameroon Inter-University Network (RIC). The SnRER is the Network Operations Center of WACREN.



UbuntuNet Topology



'AfricaConnect has helped us to accelerate the rollout of the regional component of our network, and for this, we shall always be grateful to the people of Europe. What is interesting actually is that we have already achieved the specific project objectives, thanks to the strong partnership and rapport that has developed between the Alliance and DANTE: connecting more than the stipulated minimum number of countries... and building capacity, especially engineering capacity where we have worked a lot with the Network Startup Resource Center of the University of Oregon, the International Network for the Availability of Scientific Publications, the Internet Society, and AfNOG.'

Eng Dr FF Tsubira, CEO UbuntuNet Alliance

Visit the AfricaConnect Website

Further information can be found on the AfricaConnect project, visit www.africaconnect.eu. Here you can find the latest news on the project as well as links to partner sites.

www.africaconnect.eu | www.ubuntu.net | www.dante.net | www.geant.net | www.wacren.net