

*Completing the REN Picture:
UbuntuNet Alliance*

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Deputy Chair



Mission

□ UbuntuNet Alliance has a simple mission:

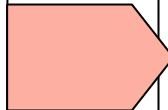
To ensure that African research and Education Institutions have efficient and affordable bandwidth for their member research and education institutions to participate in global research and networking worldwide!



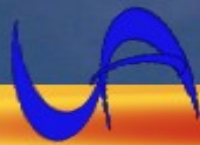
It's about sharing

Within each NREN, **institutions...**

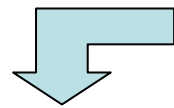
- **have their own**
 - IP address blocks
 - Connection circuits to the NREN



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



Do we need a RREN?

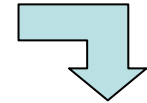


These countries

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

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.....all want



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

..and they want it all very

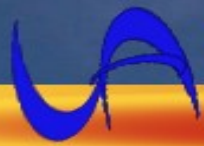
CHEAP !!

FIRST EUROAFRICA ICT, Brussels, 26 March 2009



Resources needed

- ❑ Cross-border (Backhaul) links operated by telcos, mobile operators, power companies,...
- ❑ Sub-marine cable connectivity in the Eastern Cost
 - SEACOM
 - TEAMS
 - East Africa Submarine System (EASSy)
- ❑ In some cases satellite capacity as an interim solution!



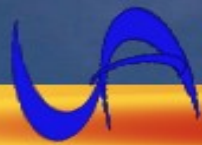
... and so ...

The UbuntuNet Alliance



UbuntuNet Alliance – The Entity

- ❑ Incorporated as a non for profit 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 has appointed the Chair
- ❑ Council of Members meet annually
- ❑ Current Board elected in February 2007 (the new Board to be elected during the COM meeting in Nairobi, April 2009)



UA fill a networking gap..

**Content Networks (Researchers,
Libraries, Universities
Management)**

Geant, I2 ...

Global REN Infrastructure

Regional Infrastructure

UbuntuNet, etc

NREN National Infrastructure

**RwEdNet,
RENU,...etc**

Campus Infrastructure

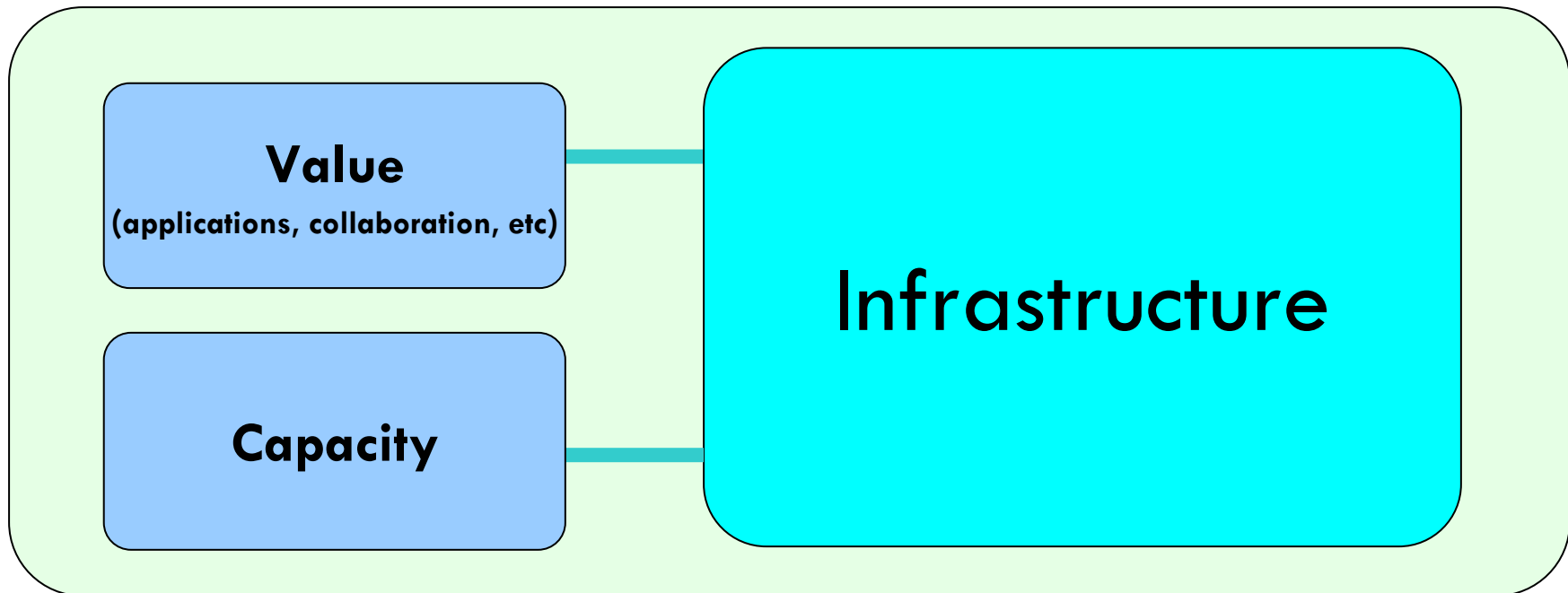
Campus level

**Teachers, Researchers, Libraries,
Classrooms, Labs, Management**





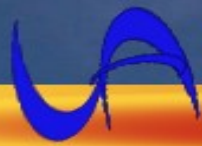
Pillars





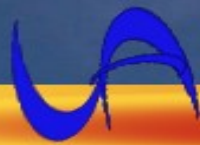
Objectives

- ❑ **Objective 1** - To build the UbuntuNet backbone using a staged approach which connects clusters of NRENS. The UA backbone will be made up by existing cross continental links and planned fibre infrastructure projects.
- ❑ **Output** - A reliable and affordable (ideally dark fibre) gigabit backbone which links all NRENS particularly in the Eastern and Southern African region with gateways to other parts of the continent and beyond



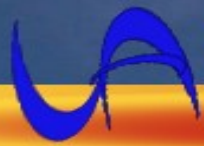
Objectives

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



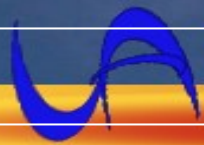
Objectives

- ❑ **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.



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.



Addressing challenges (1)

- ***A huge continent:*** Recognising the need to work through partnerships in a mutually supportive environment, based on common architecture and/or interface standards; & Cluster approach; *The African Union (AU) and the Association of African Universities (AAU) are key continental policy level partners.*



To the next map...

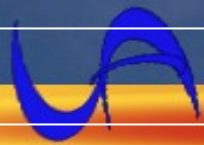
Africa is Huge!

The following countries could fit within Africa:

	Area (sq. mi)
China	3,705,390
United States	3,618,770
India	1,266,595
Europe	1,905,000
Argentina	1,065,189
New Zealand	103,736
	<hr/>
	11,664,680 sq. mi or 30,211,551 km ²

Africa's area: 11,707,000 sq. mi.
or 30,321,130 km²





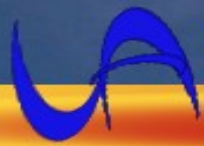
Addressing challenges (2)

- ***Disabling regulation:*** engagement of national and regional administrations, making a research-based case for liberalisation, and for special consideration for research and education networking as a development stimulant



Addressing Challenges (3)

- **Expertise scarcity:**
 - Share expertise (communities of practice)
 - Work with organisations like Afnog and others, and offer internships to address capacity deficits;
 - Create a network engineering group
 - Guide universities on improved curricula

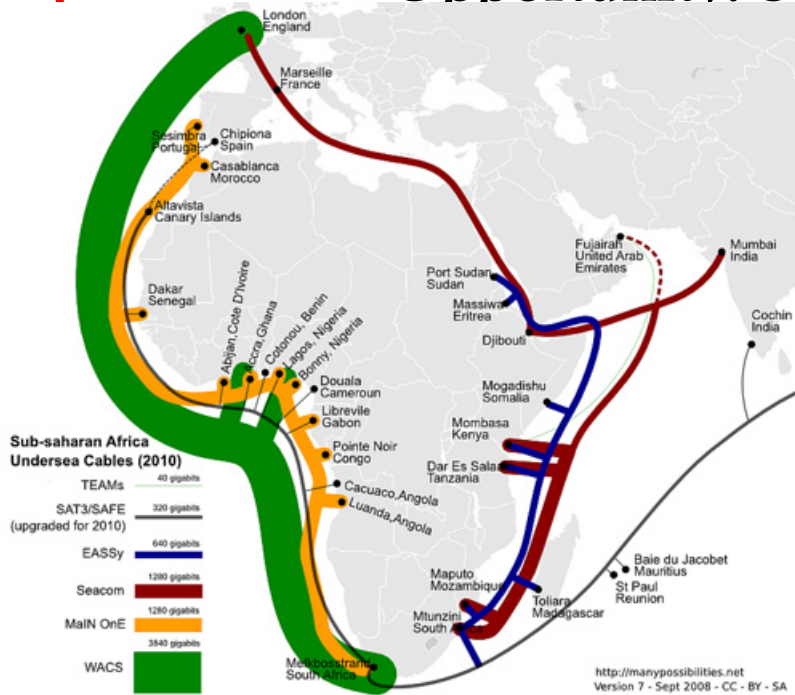


Addressing challenges (4)

- **Cost of Fibre buy-in:**
 - Seek for IRUs either as donation or applied discount where possible on up-coming fibre cables
 - Secure IRUs at concessionary rates

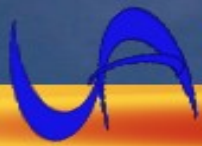


Opportunity: Submarine cable initiatives



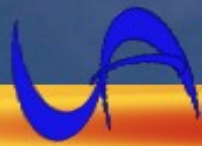
Legend	Cable
	SAT-3 (WASC-SAFE) 2003. Operator Club
	SEACOM (E. Africa to London) 2009. Investors. Open access.
	TEAMS (Mombasa to Fujairah) 2009. Kenya Govt.
	EASSy (E. Africa to Port Sudan) 2010. Operator consortium
	WACS (Cape Town to London) 2010. Operator consortium
	MalN OnE (W. Africa to Portugal) 2010. Investors. Open access Phase 2: Luanda, Cape Town

Map: Thanks to Steve Song.
<http://www.manypossibilities.net>



Addressing challenge (4)

- ***Isolation of Africa:*** We urge a new mindset: “bringing the world to Africa”. The message – “Come and meet us at the cable landing points in Africa – It is an investment. Not only are you better able to afford it, we shall all benefit”



Addressing challenges (5)

- **Limited NREN Activity:**
 - Promote awareness of benefits of REN activities
 - Organise events in countries with emerging NRENs
 - Work with continental and regional organisations (AAU, E-Africa Commission, Nigerian ICT Forum, etc)

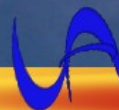
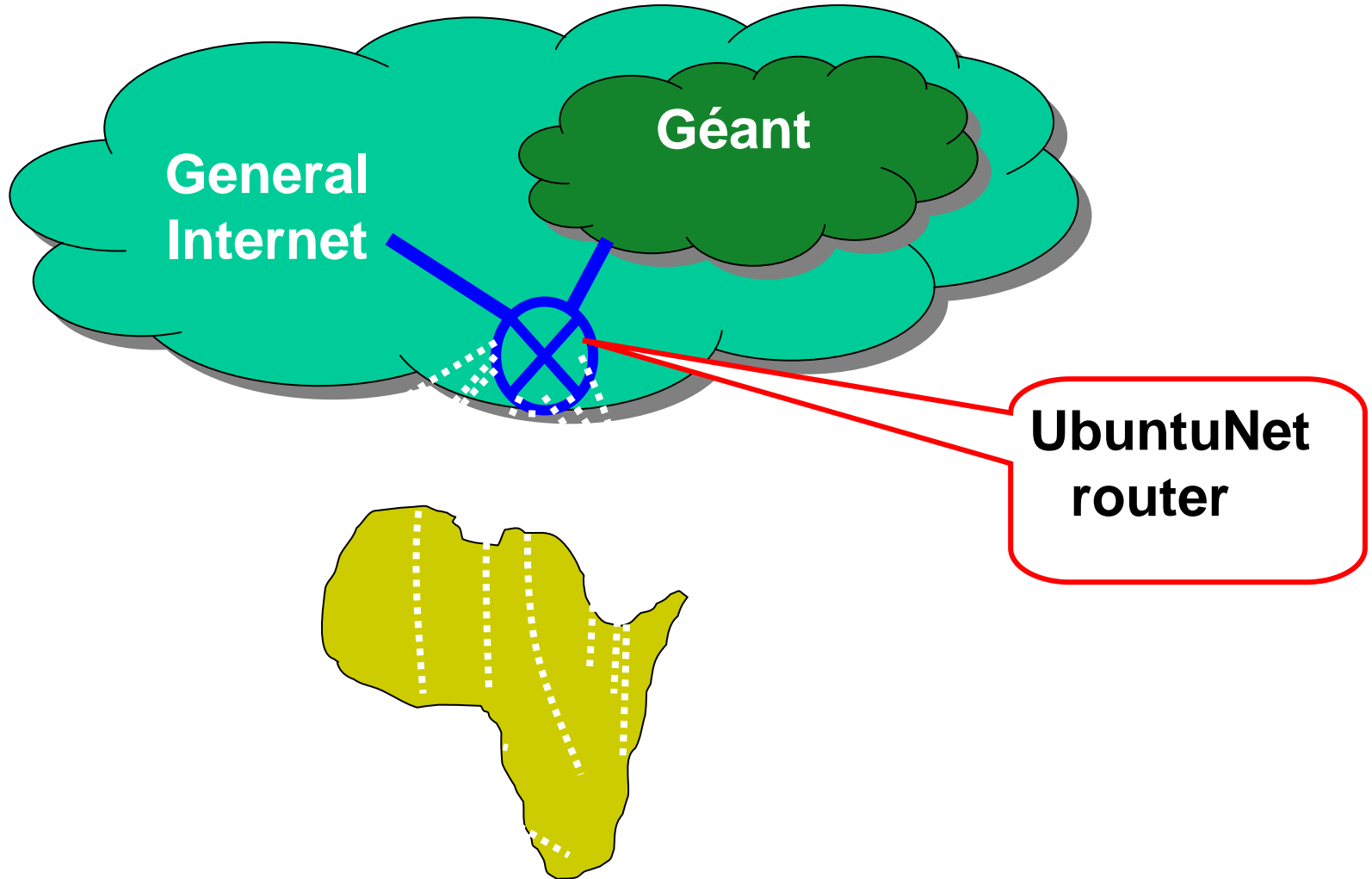


Addressing challenges (5)

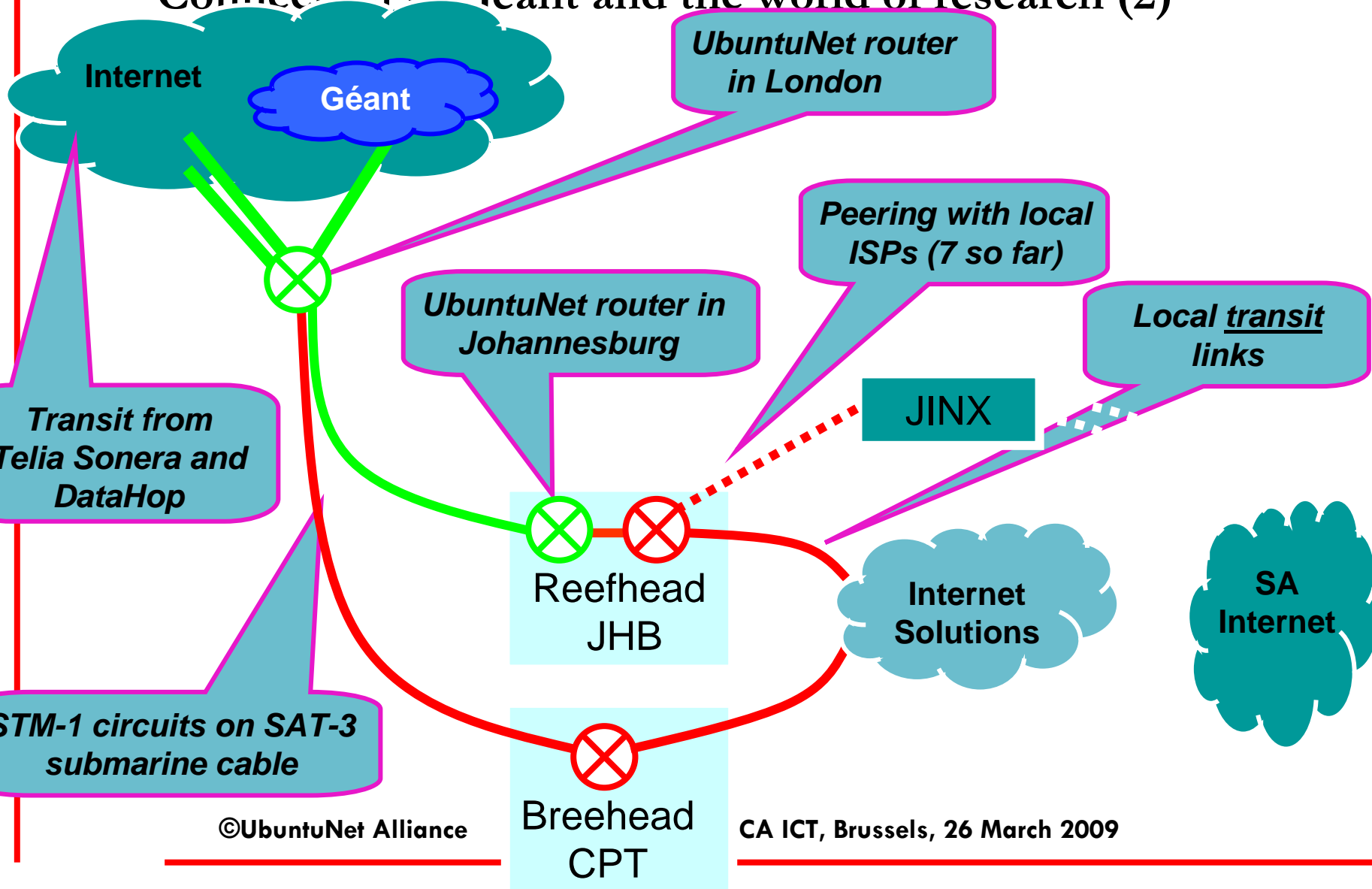
- **Limited funding for NRENs:**
 - Support lobbying and advocacy at national level to increase public funding for the growth of connectivity and NRENs (it is working)
 - Develop a clear business case and model that will create continuing relevance and withstand competition
 - Develop a clear master plan as a basis for engaging development partners (CORENA – Our response, standing for Consolidating Research and Education Networking in Africa)

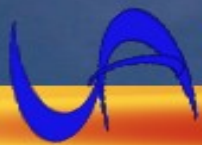


Connection to Géant and the world of research (1)



Connection to Géant and the world of research (2)





UbuntuNet Alliance

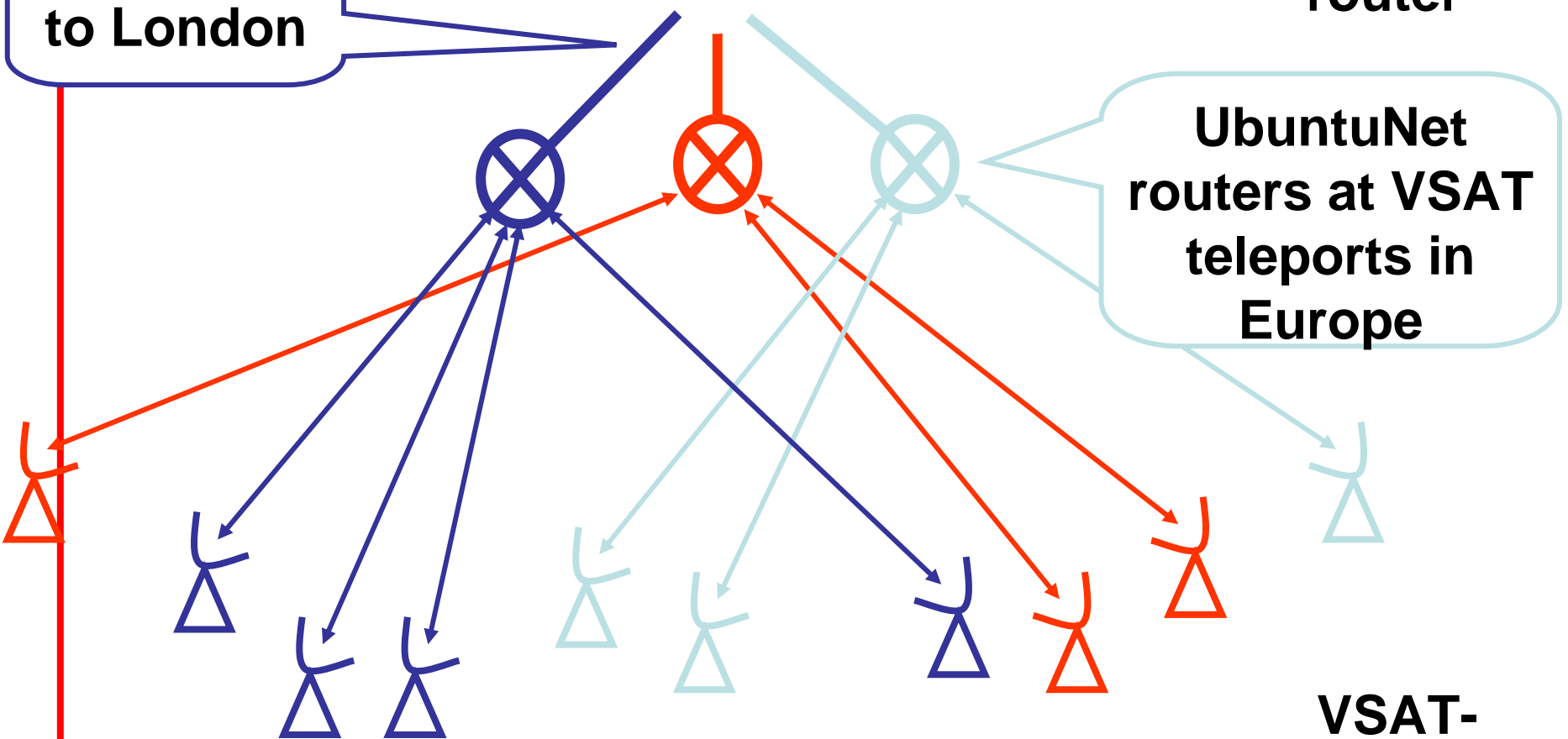
for Research and Education Networking

Plans for VSAT Virtual RENs

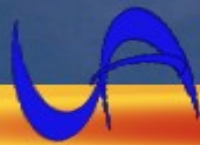
Backhauls to London

UbuntuNet router

UbuntuNet routers at VSAT teleports in Europe

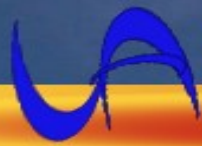


VSAT-dependent campuses all over Africa



Appreciation to our supporters to-date

- **IDRC and Connectivity Africa**
- **USAID**
- **IEEAF**
- **GEO/GMRE**
- **Cisco**
- **DANTE**
- **Open Society Institute**
- **Open Society Initiative for Southern Africa**
- **TENET's FRENIA (Fostering Research and Education Networking in Africa) Program, funded by The Andrew W Mellon Foundation.**
- **KTH (Sweden)**
- **University of Washington**



Thank you

