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Creating Intra-African & Global Connectivity & Linkages
Highlights from Internet2 Spring Member Meeting
Africa Track Session

Tom Fryer (DANTE, UK)

Internet2 Spring Member Meeting - Emerging NREN SIG

World Bank

Arlington, VA, USA

Thursday, 21st April 2011

UbuntuNet Alliance

WACREN AAU

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REN Development: ASREN Region

- ASREN: Arab States Research and Education Network
- Launched in December 2010
- Can be considered as expansion of EUMEDCONNECT2 (connection of Mediterrean countries to GÉANT)
- EUMEDCONNECT: project funded by the EU; direct links from participating NRENs to GEANT
- Attempt to establish regional REN for North Africa by connecting the NRENs directly the NRENs did not succeed (CAMREN)
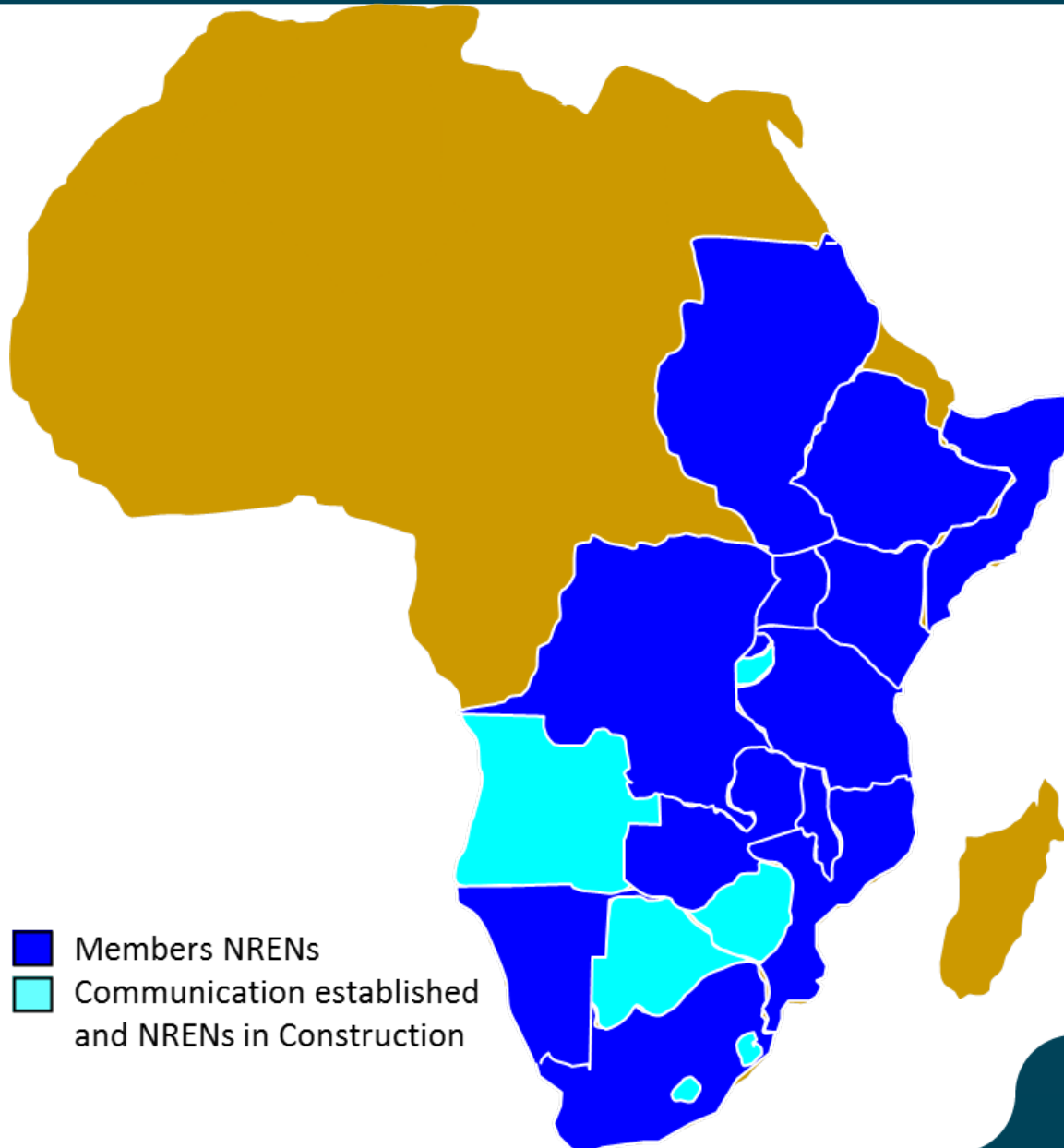
REN Development: WACREN Region (1)

- Potential membership base: NRENs in the 22 West and Central African countries
- WACREN formally registered in August 2010
- Board elected in March 2011
- Senegalese NREN designated for WACREN NOC to GÉANT through RENATER (French NREN)

REN Development: WACREN Region (2)

- 2 NRENs formally established in 2010 (Ghana and Senegal)
- Development in many other countries, e.g.:
  - **Nigeria:** many clusters being established
  - **Cameroon:** Réseau Inter-universitaire du Camroun (RIC) already interconnects 6 universities
  - **Togo:** interconnection of the 2 public universities in progress; other higher education and research institutions to join
  - **Benin, Burkina Faso, Gabon, Mali:** national policy dialogue workshops in preparation, with AAU facilitation

UbuntuNet Alliance Membership Status

Members NRENs
Communication established and NRENs in Construction

What is Happening Among NRENs? (1)

- **Sudan:** International connectivity (155Mbps) and staff costs supported by government;
- **Ethiopia:** Extensive national backbone connecting universities via fiber and international connectivity (all government)
- **Somalia:** Universities setting up an NREN; support from Sweden
- **Kenya:** $20m from government for connecting institutions; capacity on national backbone; 760 Mbps International Bandwidth

What is Happening Among NRENs? (2)

- **Uganda:** Dark fiber pair on national backbone; USAID funded equipment ordered to light backbone and first batch delivered; Also working with IEEAF through a PPP arrangement for external connectivity;
- **DRC:** Planning to connect through WACS in Kinshasha;
- **Rwanda:** Gigabit capacity on national fiber; 150Mbps International Bandwidth. Procedural holdups in activating capacity.

What is Happening Among NRENs? (3)

- **Tanzania:** Extensive national fiber, also connecting to borders; 150Mbps external connectivity to Alliance router;
- **Zambia:** NUFFIC intervention of €2.25m to support NREN infra. and capacity development.
- **Malawi:** Still fighting the challenges of limited connectivity and high cost with only 12Mbps.
- **Mozambique:** benefitting from WB funding through government for local and international connectivity; project commencing.

What is Happening Among NRENs? (4)

- **Namibia:** Low cost capacity on Telecom operated national backbone; working with TENET,

- **South Africa:** 10Gb government funded R&E Backbone and 10Gb International bandwidth

- UbuntuNet Alliance has worked with DANTE, the contractor for AfricaConnect (regional network), to develop all pre-contract documentation

- UbuntuNet Alliance working to bring content networks to the center

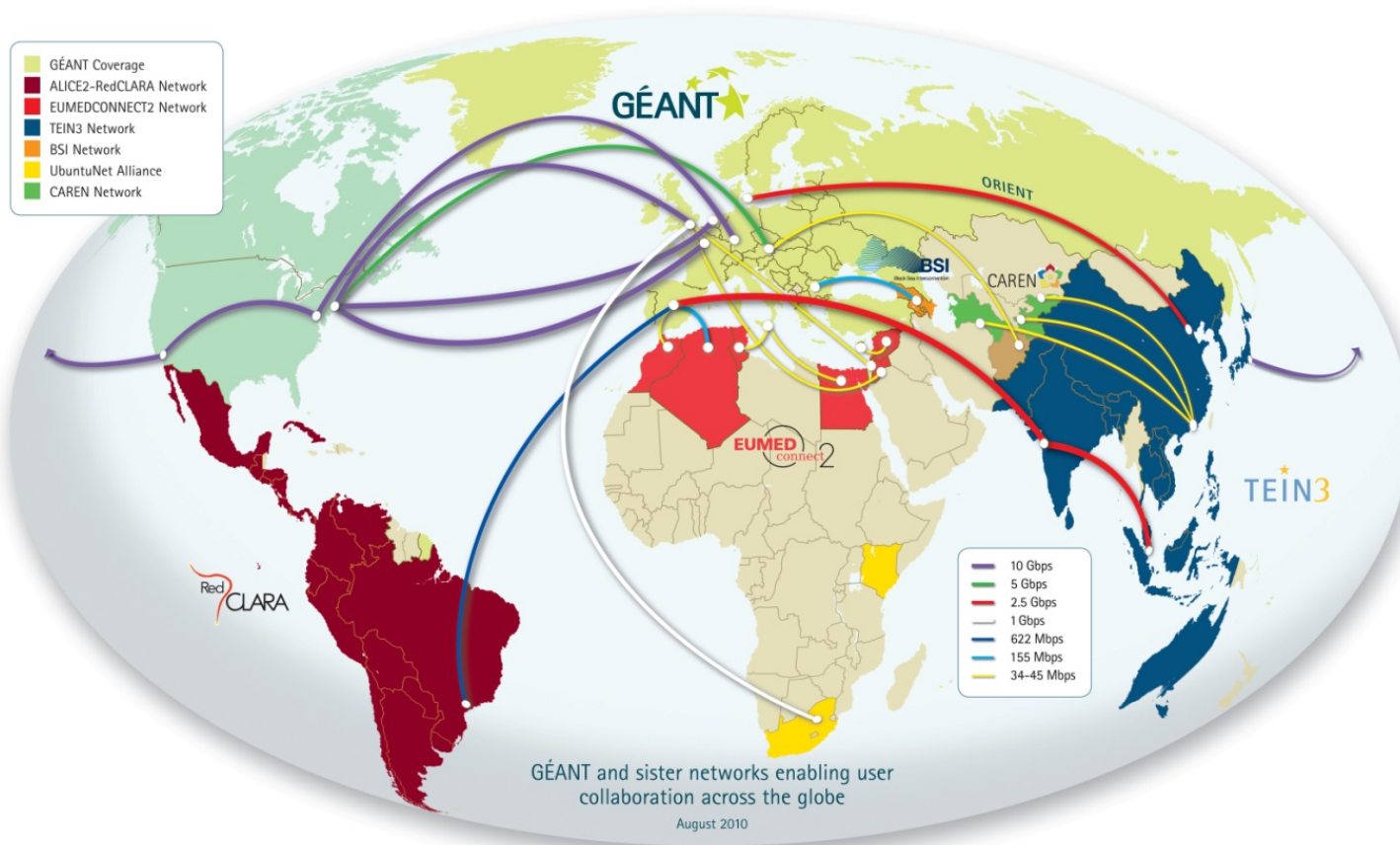# Association of African Universities: Activities

- AAU REN Unit established in 2006 with the following objectives:
  - Act as focal point for ICT initiatives for the HE sector
  - Set up and maintain a clearinghouse for resources on ICT policy and research and education networking
  - Promote the establishment of RENs
  - Advocate for access to adequate and affordable bandwidth for African HE and research institutions
  - Raise Awareness of policy and decision makers
- AAU REN Unit is carrying out these activities since its establishment
- AAU has been instrumental for the establishment and strengthening of the UbuntuNet Alliance and WACREN

Fibre To and Within Africa

© 2010 Europa Technologies
© 2010 Google
US Dept of State Geographer
© 2010 Tele Atlas

www.ubuntunet.net/fibre-map

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Global R&E Connectivity Through GÉANT

GÉANT and sister networks enabling user collaboration across the globe

August 2010

- EUMEDCONNECT2
- TEIN3
- CAREN
- ALICE2

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e-Learning:
MIT Open Courseware

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- **e-Learning applications** are one of the most common **Content** applications.

- Of course one of the groundbreaking e-learning resources is the **MIT Open Courseware** which this month celebrates 10 years, operating in many African countries.

- In Malawi, for example, the MIT server was one of the first resources available on the MAREN infrastructure

- www.ocw.mit.edu

e-Health: Magnetic Resonance Imagine (MRI) in Malaria Research in Malawi

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Strategic Alliances:
An Overview

- Procurement and Network Design: An Exchange of Experiences

- Supporting and Promoting Research and Collaboration

- User Services: Support, Interoperability and Sharing Experiences

Towards AfREN

- Ingredients for realizing the objective of creating a continental REN for Africa in place:
  - UbuntuNet Alliance getting strengthened
  - Emergence of WACREN (many "not formalized" NRENs)
  - ASREN
- Strong, collaboration-oriented community (AfREN Forum)
- More players enabling affordable interconnection options
- Endorsement and support from continental and regional institutions (AUC, AAU, ECOWAS, WATRA and others)
- A dream that is to be realized: interconnection of ASREN, UA and WACREN

Main challenges

- Inadequate telecommunications regulatory environment in most countries
- Mis-understanding by operators of what REN trafic is, in comparison to commodity Internet trafic
- Near-monopoly position of operators in many countries
  - At continental level: 80% of international traffic controlled by only 8 operators
- Costly technology still used in many countries (VSAT)
- Human resources
- Power supply

Conclusion

- The REN Network is rolling out at a varied rate across the continent
- There are many content applications already utilising what is available but hoping for better
- Opportunities for intra African and inter continental collaborative research and learning initiatives abound
- Let us share and partner to the fullest!

Thank You!

- Boubakar Barry - Association of African Universities
- F. F. Tusubira – UbuntuNet Alliance
- Tiwonge Msulira Banda – UbuntuNet Alliance
- Margaret E Ngwira – UbuntuNet Alliance
- Tom Fryer - DANTE