



GÉANT and the R&E development in Africa

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To support collaboration and development amongst researchers, the dissemination of information & knowledge, and provide access to a portfolio of services and infrastructure resources:



Runs a membership association for Europe's National Research & Education Networks (NRENs)
GÉANT Association



Coordinates and participates in EC-funded projects

Under Horizon 2020 the financial instrument for implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness



Operates a pan-European e-infrastructure

GÉANT network



Manages a portfolio of services for research & education

EduX



Organises and runs community events & working groups

TNC, task forces & special interest groups



Membership Association

GÉANT Association supports and represents over 40 NRENs across Europe.

Together they support over 10,000 institutions and 50 million academic users.





Revenue €35m

Bulk of Income (55%) from European NRENs subscriptions

Consortium subscriptions 43% funded by EC

Direct income from EC

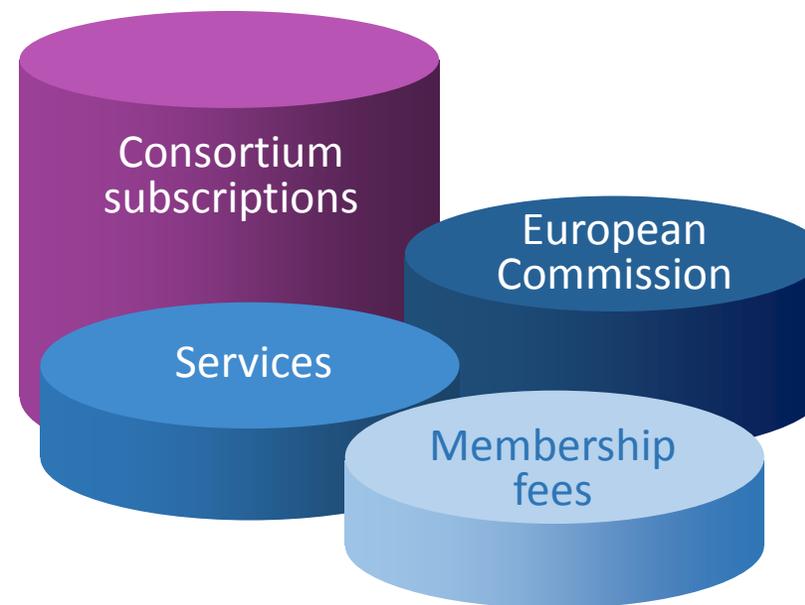
Project coordination and participation in EC projects

Membership fees to GÉANT Association

NRENs & commercial partners

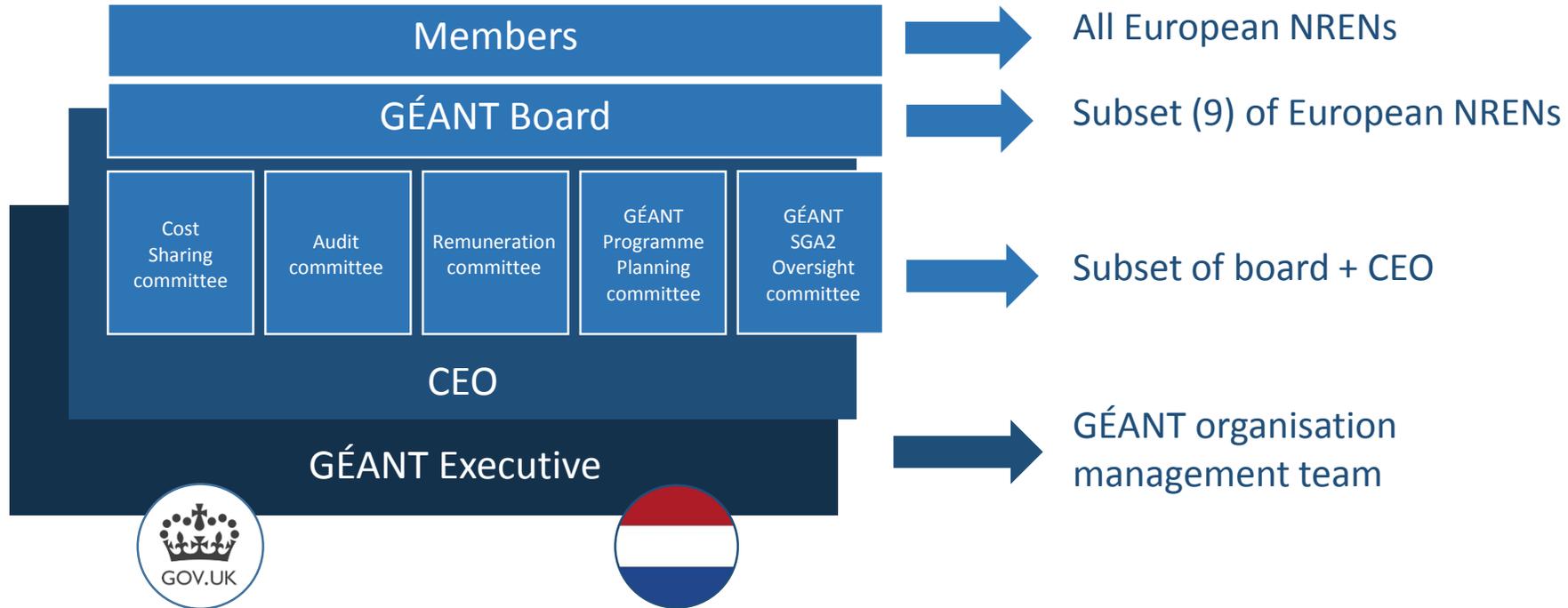
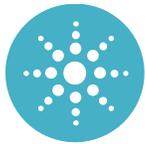
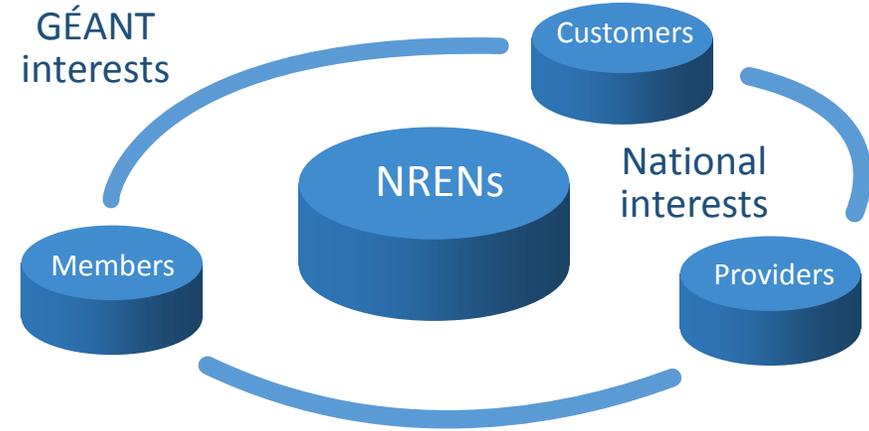
Revenue from providing bespoke services to R&E community

- Consortium subscriptions based on complex cost-share model to ensure digital divide issues are catered for
- Traffic doubling every 12 months - but subscription income declining 3% annually





Governance





Projects

GÉANT is a trusted European Commission (EC) partner in many global collaboration projects and initiatives through our special relationship with the European Union.



European
e-infrastructure
projects



Trust & identity
projects



Network
projects



Collaborative
projects



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Network

The GÉANT network interconnects research, education and innovation communities worldwide, with secure, high-capacity networks.

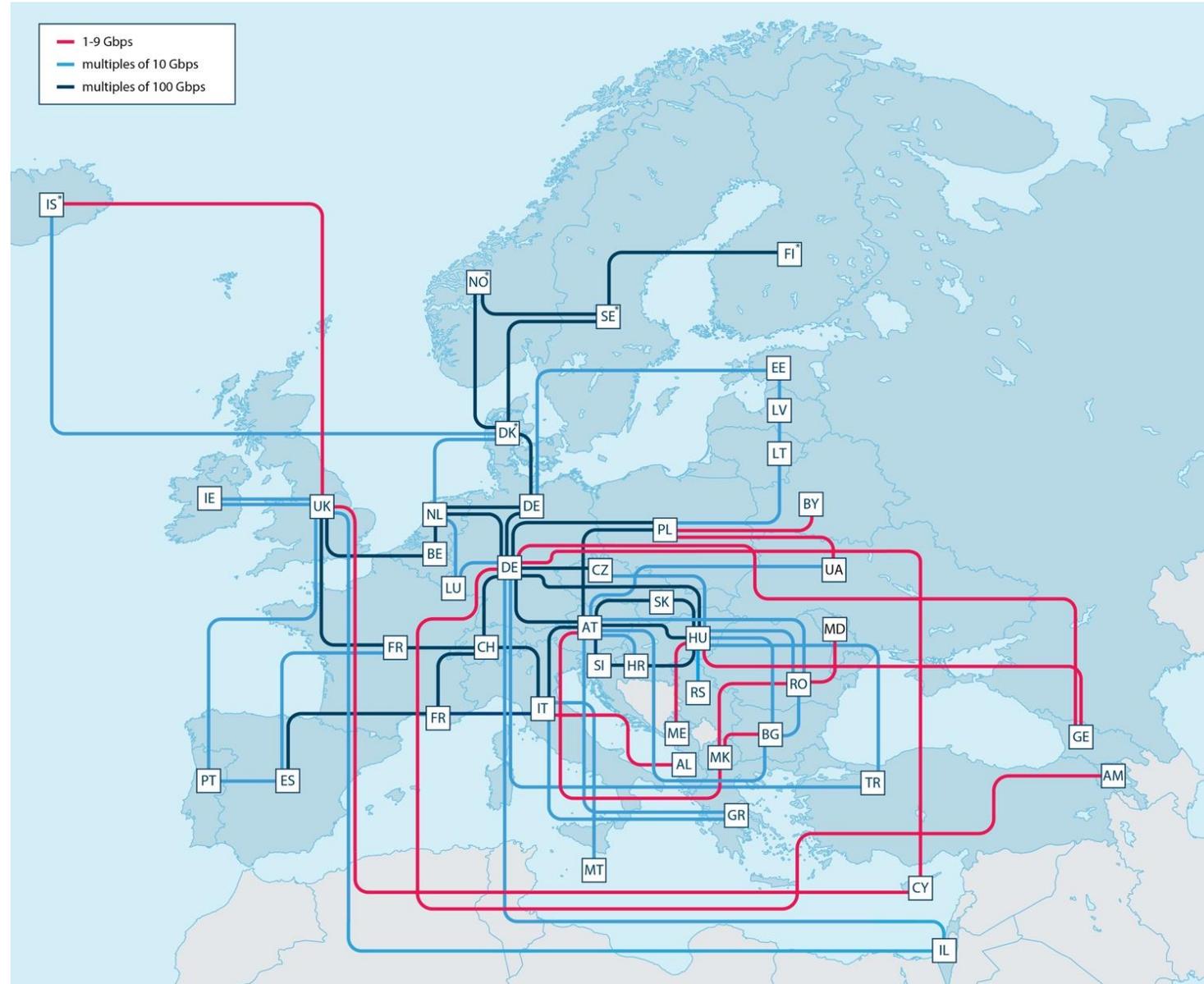
We design, plan, build and operate the large-scale, high-performance GÉANT network that connects European NRENs to each other and the rest of the world for sharing, accessing and processing the high data volumes generated by research and education communities and for testing innovative technologies and concepts.



Network

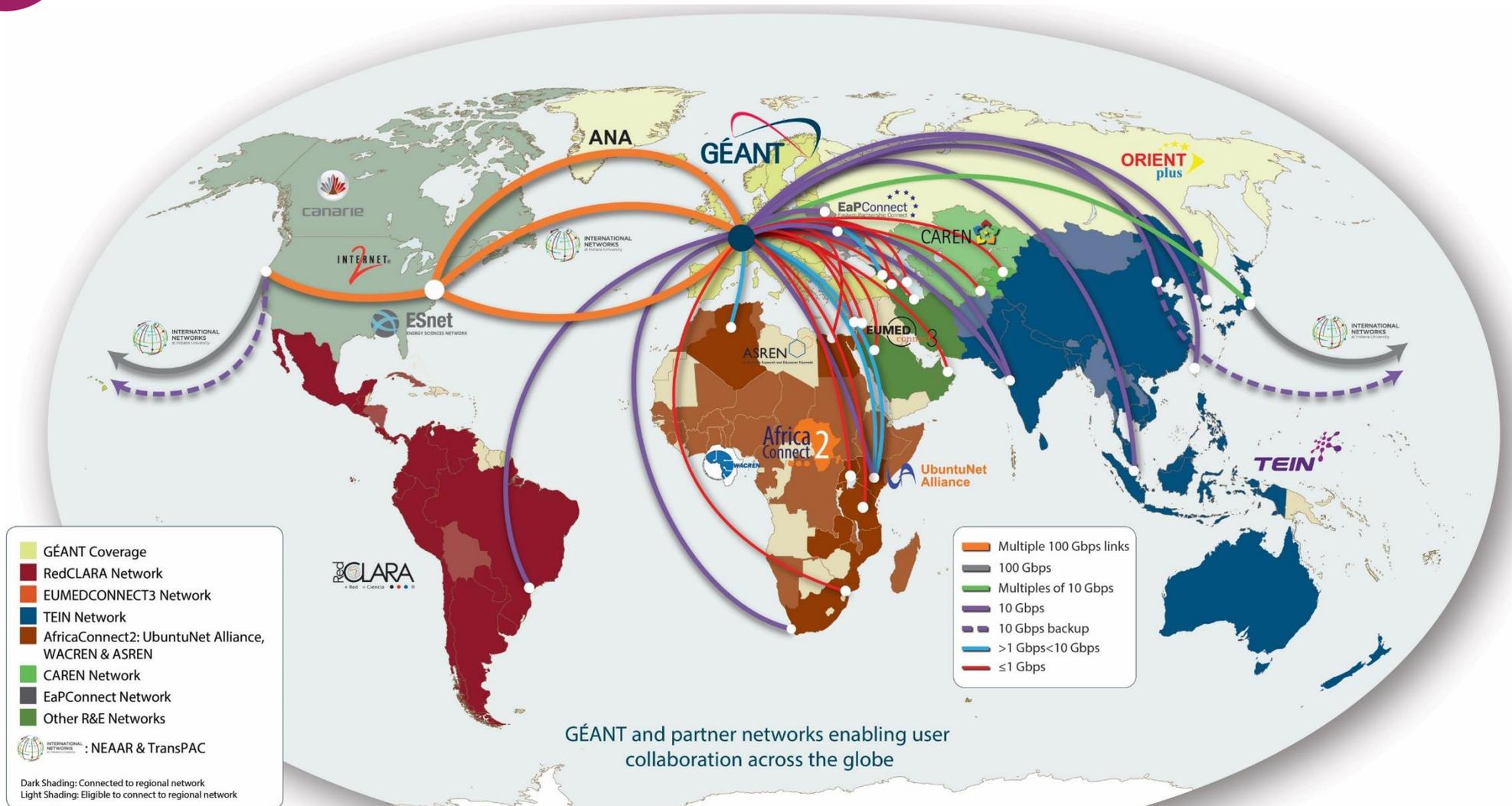
Interconnecting Europe's NRENs over a 500Gb highly-resilient pan-European backbone. NRENs serve 50 million users at 10,000 institutions across Europe.

Network services: IP, Point-to-Point Services, VPN, Testbeds, performance monitoring





At the heart of global R&E networking



GÉANT and partner networks enabling user collaboration across the globe

August 2017



R&E networking in Africa



Eastern Mediterranean - EUMEDCONNECT



www.eumedconnect3.net

Scope

Regional network for the Mediterranean since 2004 – now in its third phase

Phase 3: 2011-2014, extended until end 2019

Partners

- Managed by **GÉANT**
- Regional partner **ASREN**  (The Arab States Research and Education Network)
- 5 EU NRENs (**CY, ES, FR, GR, IT**)
- Beneficiaries: **Jordan, Lebanon and Palestine**

Project update

- Lebanon connected for first time in 2016 and recently upgraded to 320Mbps, NREN being formed
- Jordan link connects SESAME to CERN via ASREN and GÉANT, NREN being re-connected
- Palestine interested in re-connection
- DG NEAR increased EC funding to 60%



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Africa – AfricaConnect2



www.africaconnect2.net

Scope

Connecting the R&E communities across Africa and interconnecting them with GÉANT.

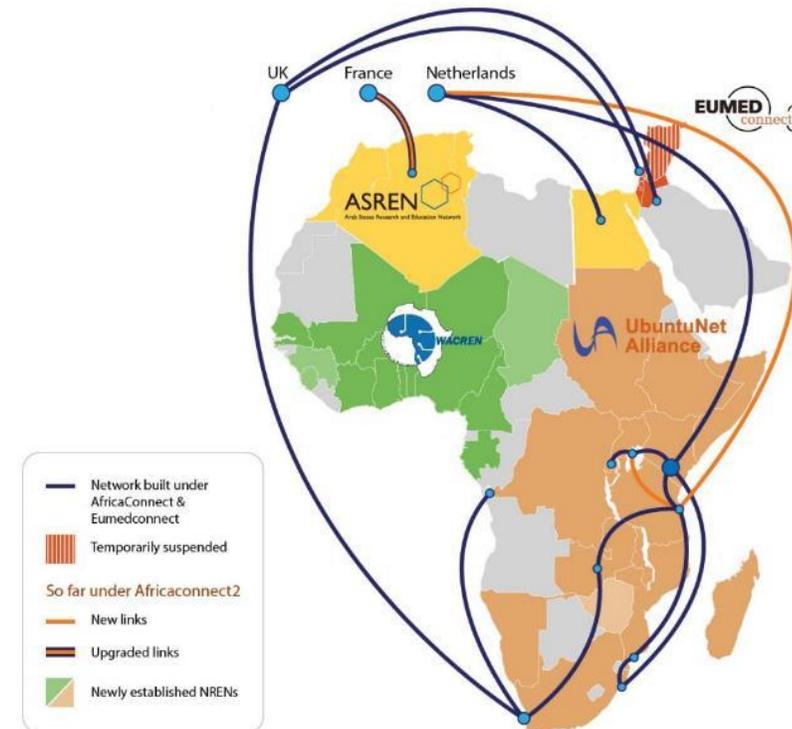
€20M EU funding for 3.5 years (from June 2015)

Partners

- **UbuntuNet Alliance:** Eastern & Southern Africa – Cluster 1
- **WACREN:** West & Central Africa – Cluster 2
- **ASREN:** North Africa – Cluster 3
- **GÉANT:** Administrative (Clusters 1, 2) + Coordination
- EU NRENs (**CY, ES, FR, GR, IT, PT**) also supporting
- Beneficiaries: **30 African NRENs**

Project update

- Tendering underway for Clusters 2 and 3
- Regional partners working with AfriGEOSS to support Earth observation programmes across Africa
- Regional partners participating in NSF-funded NEAAR project to improve connectivity with North America
- Planning started for project continuation beyond November 2018



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What is the situation in Africa

- 2011 – 2015: EU co-funded AfricaConnect project brought to life the 1st sustainable regional research and education network in Sub-Saharan Africa, interconnecting 7 NRENs and connecting the region to the rest of the world via the European regional network
- Started in 2015: AfricaConnect2 aims to build other sustainable regional networks in Africa to create a pan-African network fully connected to the global research and education network.



Southern and Eastern Africa
DG DEVCO co-funding
2011-2015

[ubuntunet-map-latest-may2015.jpg](#)

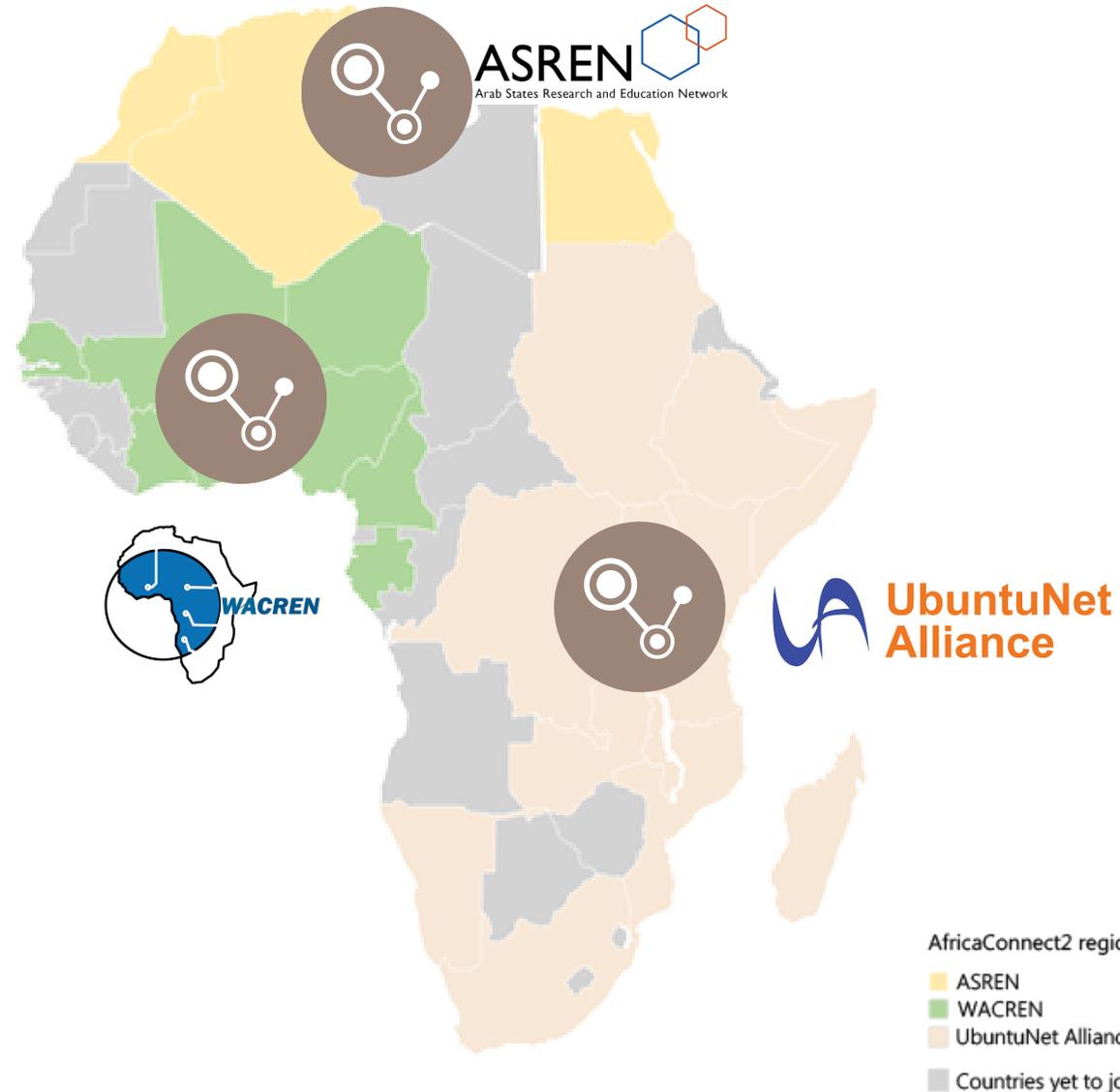


Pan-African
DG DEVCO co-funding
Started in 2015



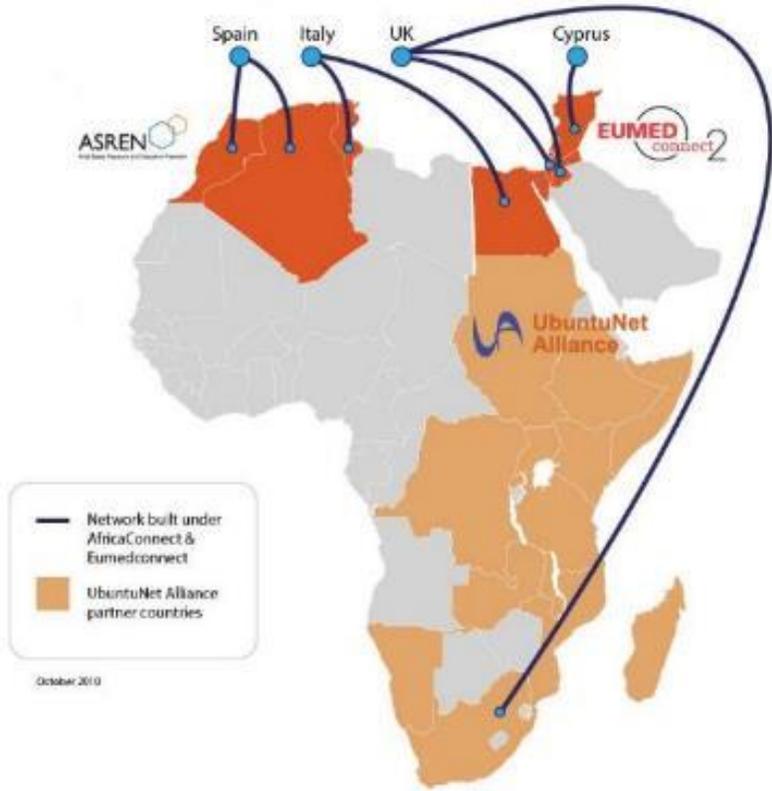
What are the African regional partners involved?

- The regional approach allows to adapt to the size of the continent (nearly 3 times Europe) and its existing regional specificities (regulations, political integration, language, stage of NREN development, etc.) in order to facilitate the building of a viable pan-African network.
- The AfricaConnect2 project is self-inclusive, i.e. all interested and ready countries are invited to participate to expand the network.
- Interconnections will take place either via international routes and/or direct routes depending on costs and funding.





A pan-African research and education network in the making



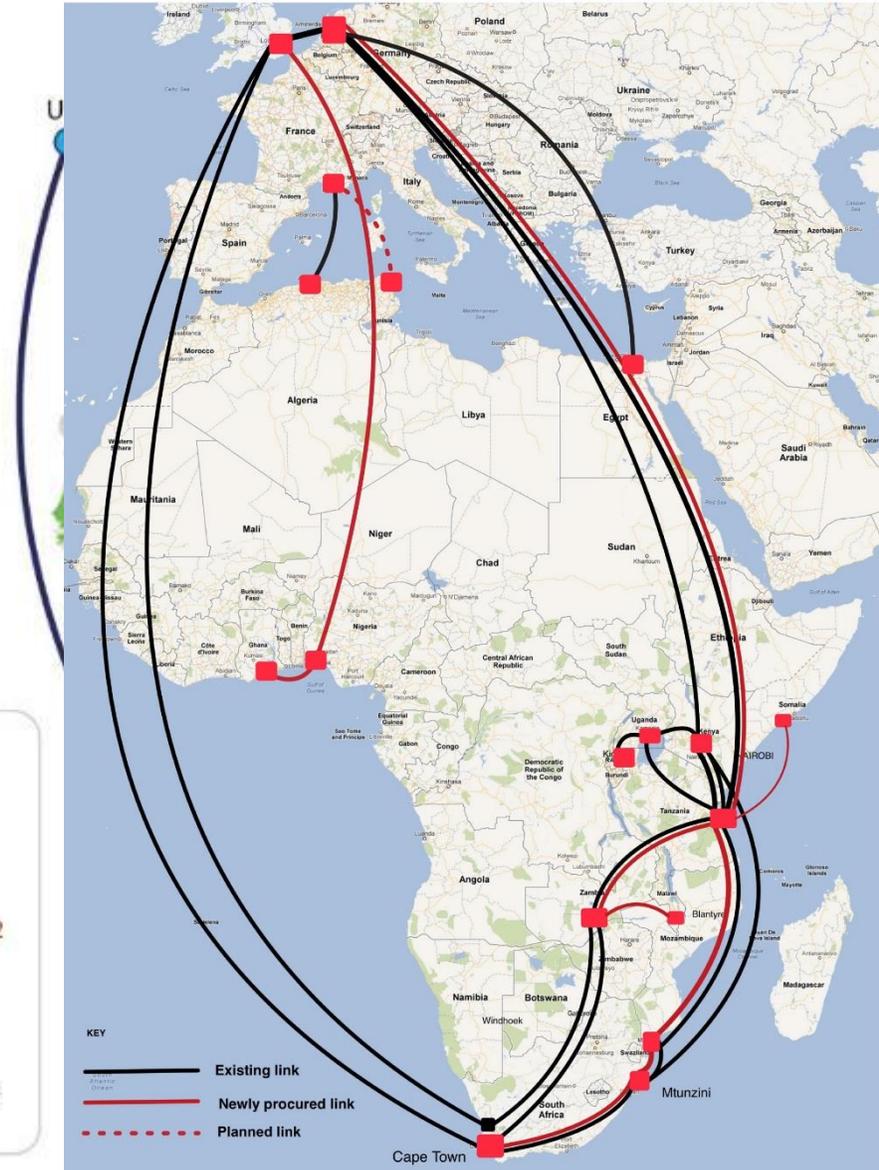
— Network built under AfricaConnect & Eumedconnect

■ UbuntuNet Alliance partner countries

October 2010



October 2016



*Northern African NRENs once part of the EU-funded EumedConnect project now contribute to AfricaConnect2



Africa still has low Internet penetration rates



Source: World Bank



Connecting African research and education communities

Connected Countries (NRENs)	Institutions (Higher Ed & Research)
ASREN North Africa	154
Algeria (ARN)	124
Egypt (EUN)	30
Ubuntunet Alliance	513
Kenya (KENET)	180
South Africa (TENET)	86
Mozambique (MoRENet)	83
Uganda (RENU)	42
Zambia (ZAMREN)	75
Tanzania (TERNET)	27
Rwanda (RwEdNet)	20
WACREN <i>Network under construction</i>	n/a
TOTAL 2016	667

- Out of 33 existing African NRENs, 9 are connecting over 650 institutions to the global research and education network:
 - training, developing and retaining local talents
 - helping to connect remote users
 - allowing international researchers and students to gain valuable input from their colleagues in Africa

All three regional networks are still being developed or consolidated



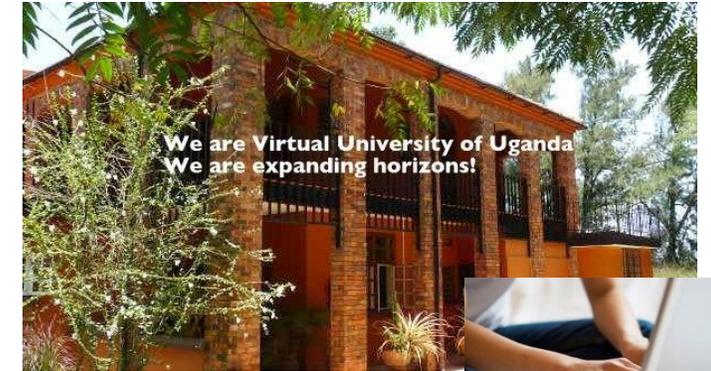
Enabling scientists to feed the world



- Challenge: Agriculture is a key driver of Sub-Saharan economy and at the heart of the food security challenge. One difficulty is identifying soils that are suitable for agriculture.
- Solution: Use the AfricaConnect network to access, process and modelize satellite maps to identify soil properties and classify lands.
- Benefit: Provide input to sustainable land management in Zambia.



Bringing knowledge to students in remote areas



- 1st online-only university in Sub-Saharan Africa
- Enabled and supported by Research and Education Network for Uganda, RENU
- Created in 2011
- 4 diploma and master programmes in key subjects (Public Health, ICT for Development, International Development, and Business Administration)
- Students from Uganda, Tanzania, South Africa, Burundi, and other African & European countries.



African Earth Observation Group

- Challenge: ensure scientists, regulators and technology work together to tackle climate change.
- Solution:   supported by 
- Benefit: speed up global research on climate change (incl. water management and food security) by allowing pan-African and international exchange of earth observation data.





Enabling scientists to tackle climate change

Land preservation in Morocco

- Challenge: Agadir protected UNESCO Biosphere Reserve plays a key part in Morocco's fruit and vegetables export BUT the land is very vulnerable to man-made and climatic changes.
- Solution: Moroccan and French researchers have used the Eumedconnect network to download, process and analyse satellite images to produce thematic maps of the area.
- Benefit: Monitor land cover, water resources or the progress of natural hazards, which could have socio-economic impact on the region.

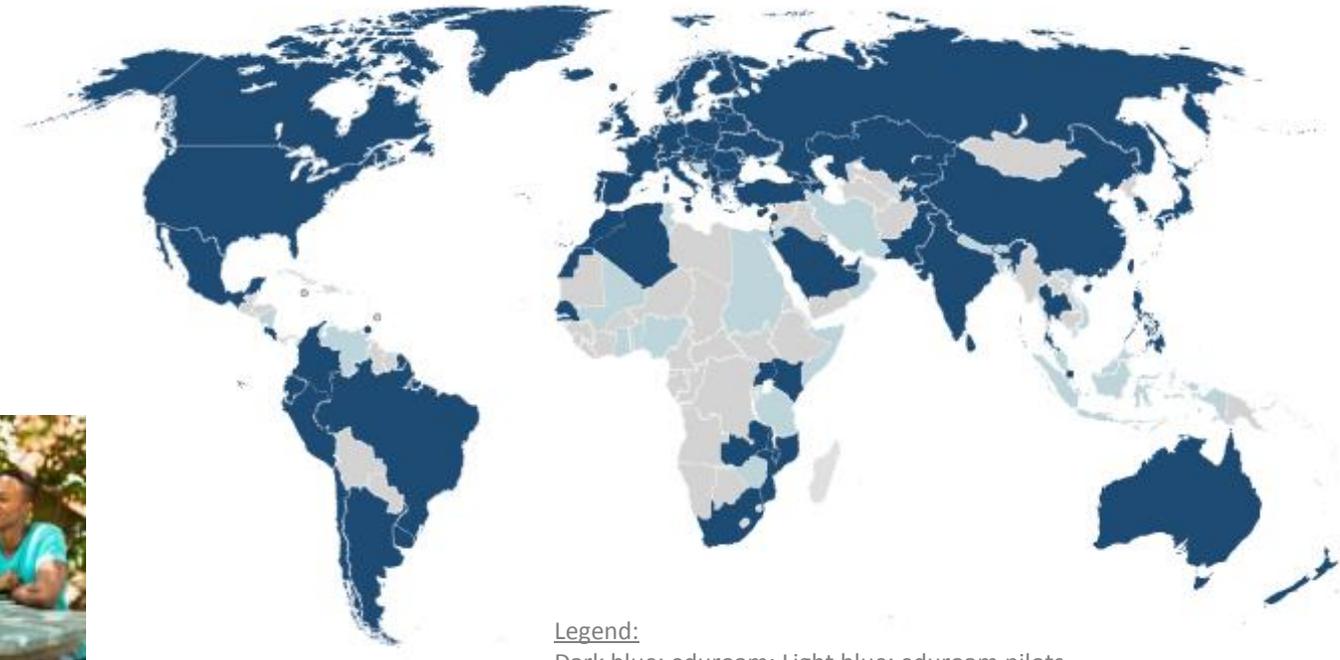


- Free secure wifi provided by NRENs between campuses.
- A global network of users across 80 countries. Over 2 billion international authentications and counting

eduroam in Africa

- 6 African NRENs have deployed eduroam
- 9 are conducting pilots

- Kenyatta university connects **70 000 students** thanks to eduroam
- In Zambia, **over 40 000** can access digital resources on and off-campus thanks to eduroam





Thank you

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