

Research & Education Networks:

Infrastructure, Services, Opportunities, Benefits

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1st TANDEM National Policy Development Workshop

Friday, 6th November 2015

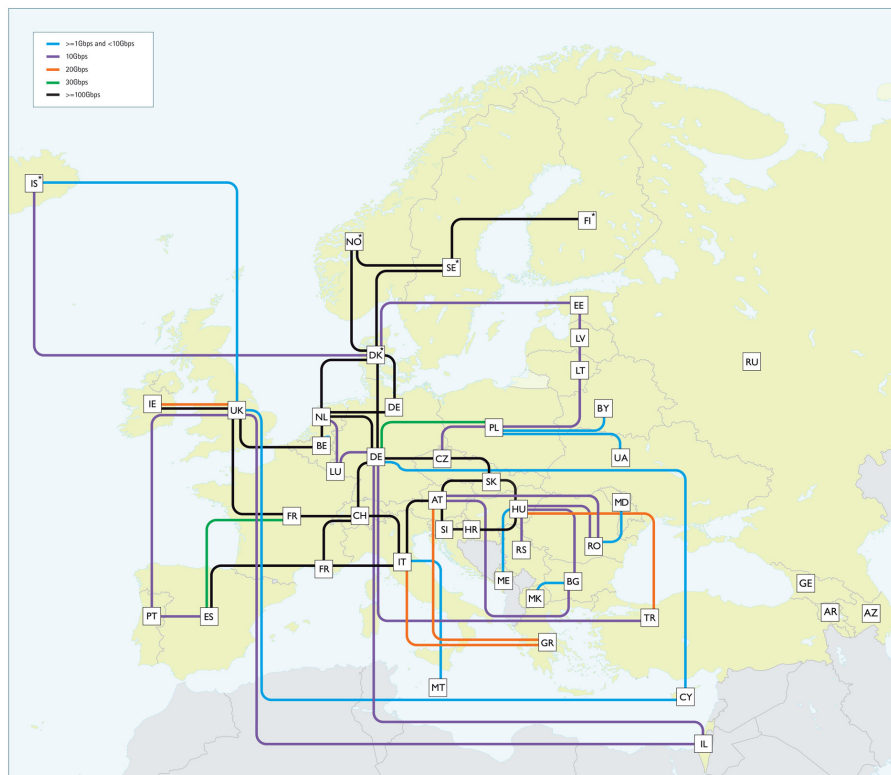
- NRENs: why are we here?
 - To provide for the collaboration needs of:
 - Researchers
 - Academics
 - Educators
 - Students
- Collaboration requires more than connectivity - NRENs are not just about big pipes!
- Essential to keep long-term sustainability in mind, for NRENs and WACREN:
 - TANDEM ends in 2017
 - AfricaConnect2 ends in 2019
- AfricaConnect2 provides for international connectivity, not in-country connectivity

What is GÉANT?

- Europe's leading collaboration on e-infrastructure and services for research and education.
- One organisation for:
 - Networks. Services. People
- GÉANT Project a major part of the organisation's work.
- We are owned by our core membership of:
 - 36 National Members (European NRENs)
 - 1 Representative Member (NORDUnet - on behalf of 5 Nordic NRENs)
- Associates also welcome:
 - including commercial organisations and multi-national research infrastructures and projects



The GÉANT Pan European Network Topology



Key benefit of NRENs:
Dedicated operational support

Research and Education Networks Around the Globe

Canada



United States



NISN / NASA

C@ribNET

The Caribbean

Red **CLARA**

Latin America



North Africa & The Middle East



West and Central Africa

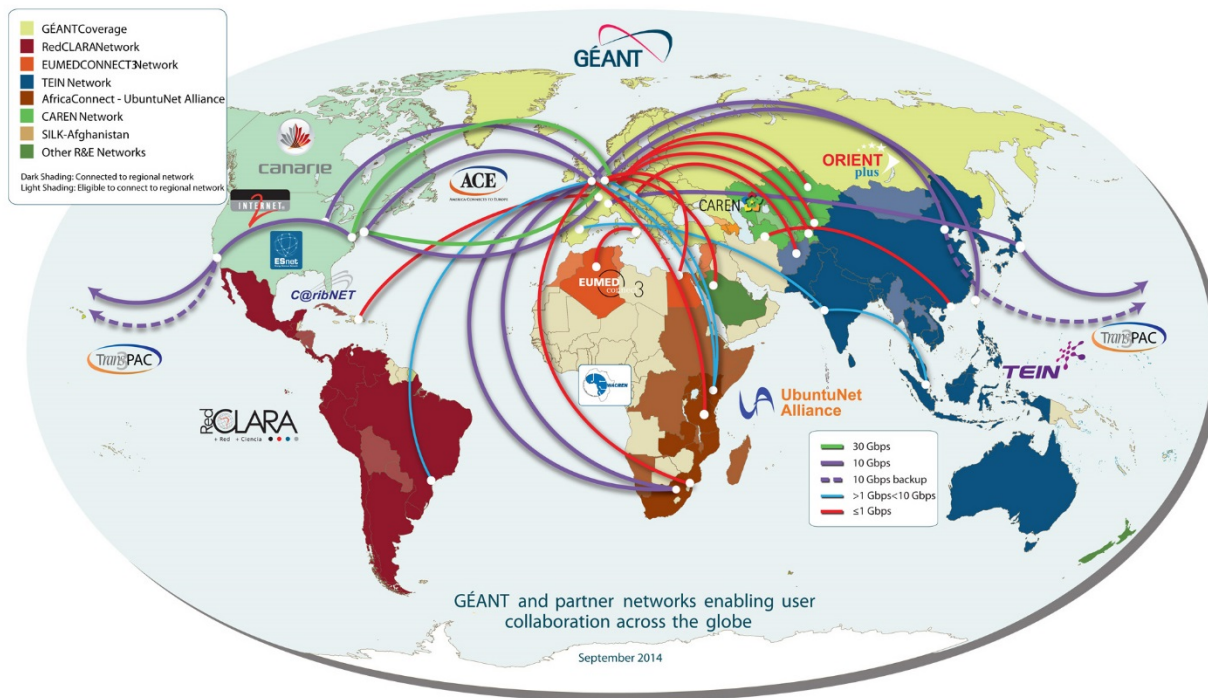


Southern and Eastern Africa

CAREN
Central Asia

TEIN
Asia-Pacific

GÉANT: Interconnecting with the rest of the world



What Kind of Additional Services do NRENs Offer?

perfSONAR

eduroam

NRENum.net

eduGAIN

TF-CSIRT
Trusted Introducer

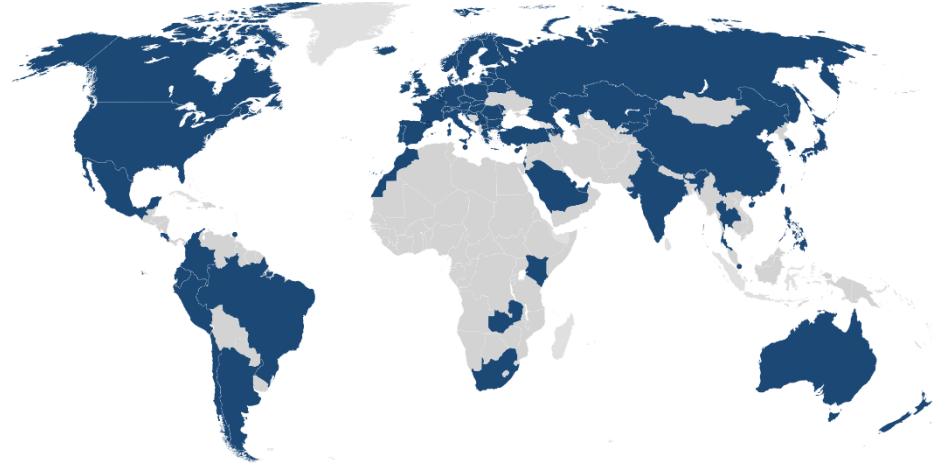
- Develop, operate and support innovative services relating to such areas as
 - Trust and identity,
 - Security and certification,
 - Mobility and access,
 - Flexible connectivity options and test bed facilities
 - Cloud Services and media and real-time communications
- Provide practical support for members, educators, researchers and other partners to collaborate, innovate, share knowledge and agree on policies and strategies



Open your laptop
and be on-line



eduroam CAT (Configuration Assistant Tool)
cat.eduroam.org



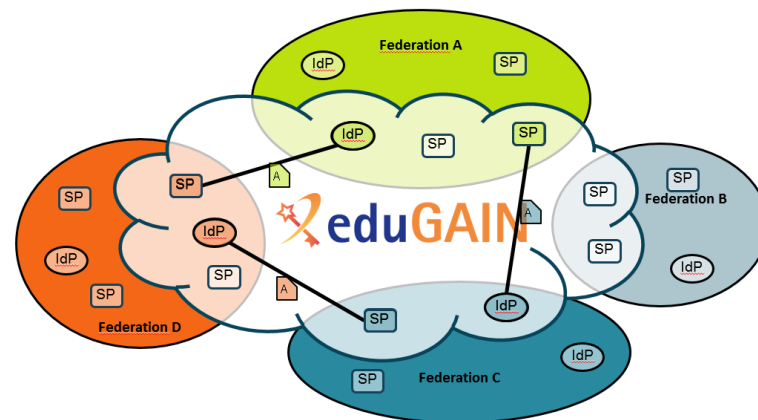
July 2015: available in 74 territories worldwide

eduroam-as-a-Service: to enable
deployment in small locations

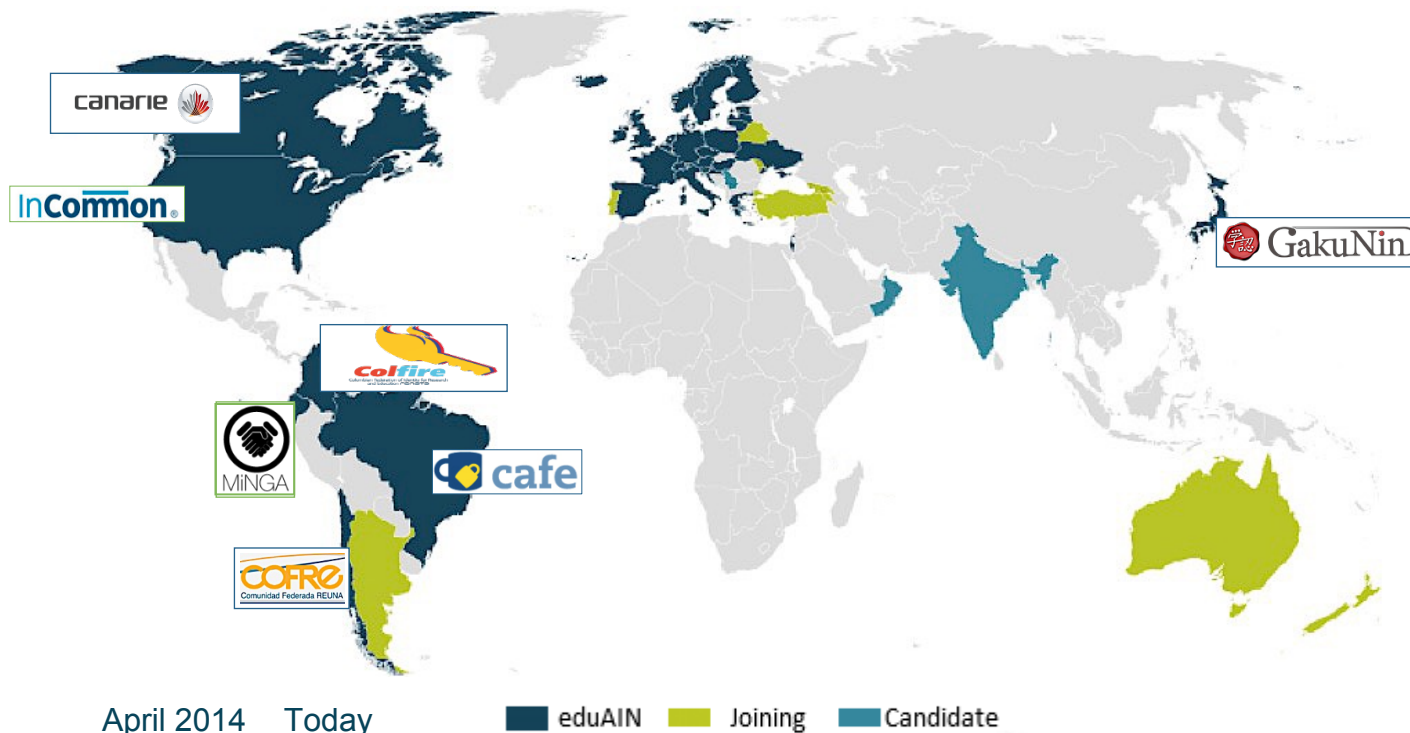
- National Identity Federations bring together:
 - Identity Providers
 - Service Providers
- End users access services registered with their federation using a single set of credentials.
- Identity Federations are based on trust!



- eduGAIN is a federation of identity federations
- Enables users registered with one federation to access services made available via a different federation



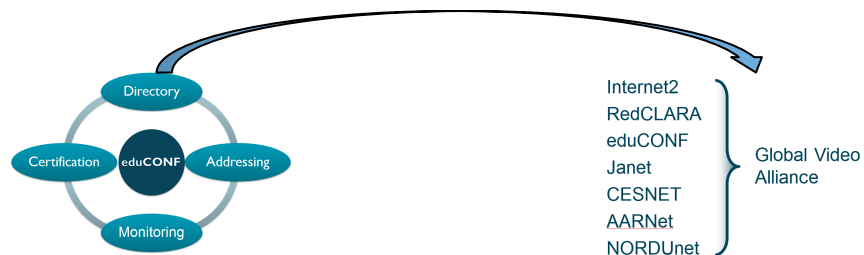
eduGAIN Around the World



Brazil – CaFe
Canada – Canadian
Access Federation
Chile – COFRE
Colombia – COLFIRE
Ecuador – MINGA
Japan – GakuNin
U.S. – InCommon

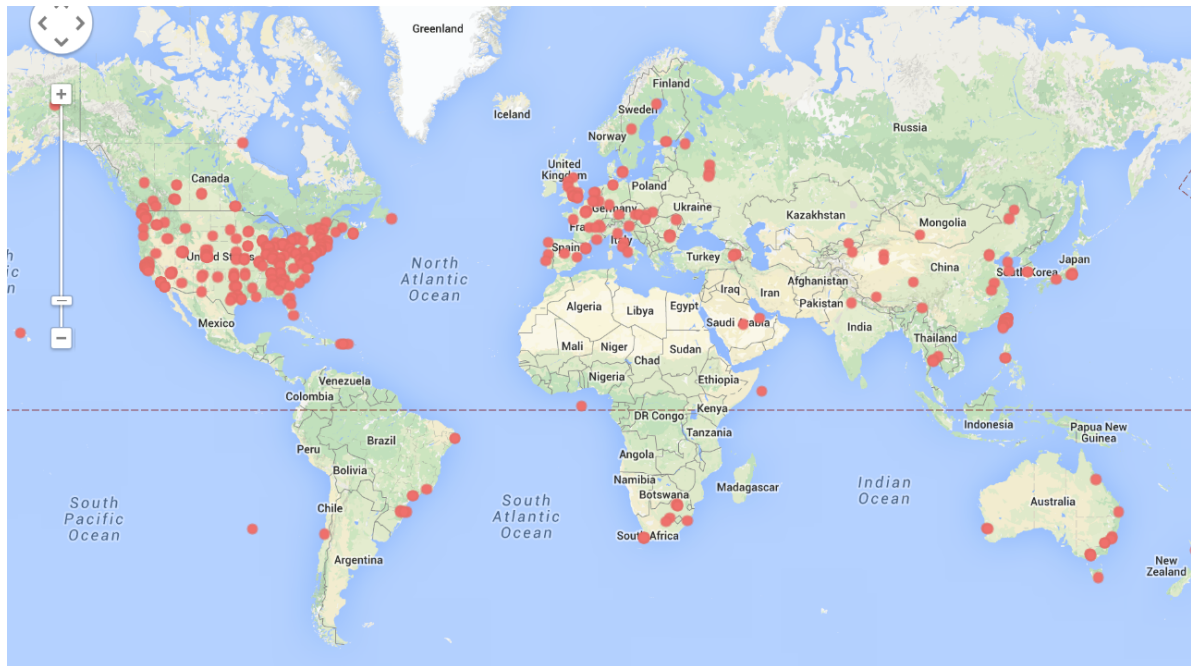


Improving the Videoconferencing Experience



Web real-time communication

- perfSONAR
- Tool to monitor network performance:
 - Bandwidth / Latency / Jitter / Trace route





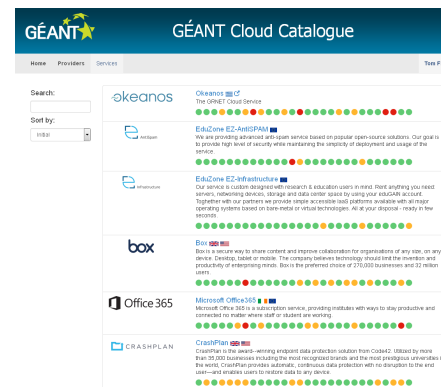
- A world-wide Open Community for Performance Enhancement Response Teams,
- A virtual community covering performance issues for R&E networks.

- Discussion group: pert-discuss@geant.net
- Knowledge database: <http://kb.pert.geant.net>
- Monthly calls
- Performance Workshops / Performance U!
- ...
- <http://services.geant.net/edupert/Pages/Home.aspx>

Questions, Remarks, Inputs are very welcome!
Please contact eduPERT:
pert-discuss@geant.net



- Identify cloud services which meet the needs of the European R&E community



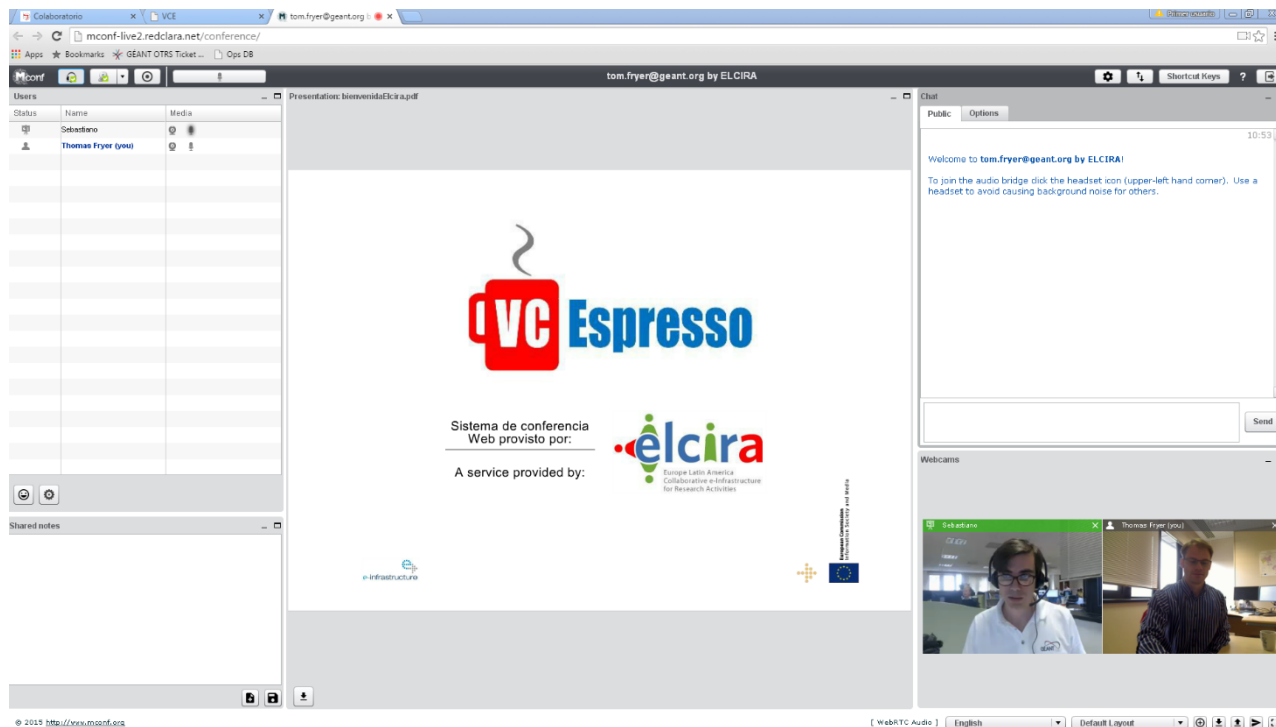
- Next step: Europe-wide procurement of commercial services and delivery methods to NRENs
- Interaction with rest of the world:



- It's not always possible to fulfil all objectives



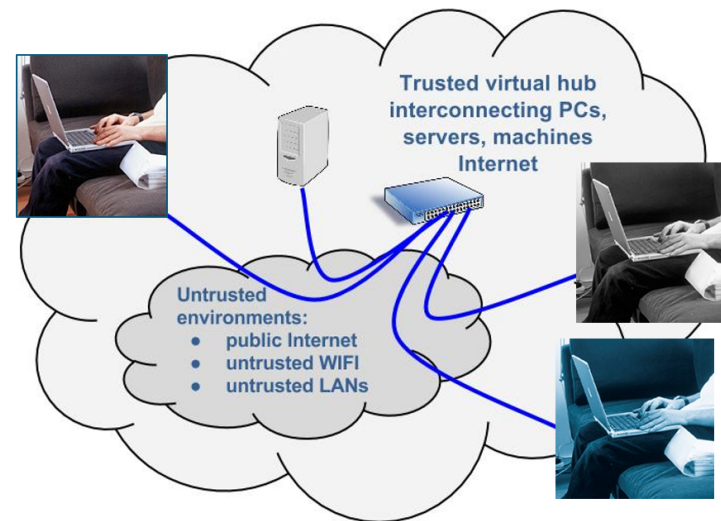
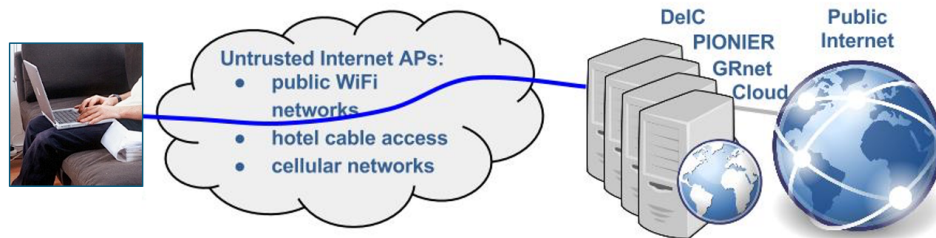
- Webconferencing
- Videoconferencing
- File Transfer
- User Group Management
- Event Calendars
- Access via federated identity (i.e. eduGAIN)



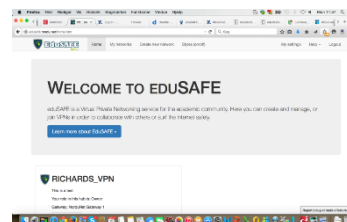
Connectivity Services in Development

EduSAFE – VPN Service for R&E community

- Other “network” challenges:
 - How can I securely share my hard drive remotely?
 - How do I secure my traffic on public networks?
 - Can I do this in a simple way?



- In Beta testing



How are the services funded?

The GÉANT Model



- The GÉANT Project is funded by
 - The European Commission (successive projects – currently GN4)
 - European NRENs
- Funding from NRENs is calculated by a cost-sharing model:
 - The cost-sharing committee develops a cost-sharing model regarding services delivered by GÉANT to members.
 - The cost-sharing committee also calculates the individual costs to members and tariffs for services delivered to other parties.
 - Cost-share model is approved by the general assembly

Setting out the Case for NRENs

The Case for NRENs

A REPOSITORY OF RESOURCES TO SUPPORT FUNDING, ADVOCACY
AND THE ADVANCEMENT OF NATIONAL AND REGIONAL R&E NETWORKS

[MAKING THE CASE](#) [CASE EXAMPLES](#) [RESOURCES & TOOLS](#) [CONTACT US](#)

AR | ES | FR | RUS

Search this site



Welcome to the Case for NRENs website

Friday 06 Nov 2015 | Time - 10 40

Welcome to the Case for NRENs portal

A pool of resources to assist national and regional R&E networks (NRENs and RRENs) 'make a case' towards their users, funders and partners.

A toolkit of guidance materials to support in particular new and emerging NRENs.

[Find out how to use and contribute to this portal](#)

NRENs are essential in providing advanced ICT services to the research and education communities. Whilst they are well established in Europe, countries in other parts of the world **face difficult challenges** **persuading stakeholders of the inherent value in operating an NREN.**

There is **no one-size-fits-all model for a successful NREN**. However, many share similar challenges and can benefit from being part of a **learning and sharing community**.

In that spirit we have gathered materials to assist NRENs, particularly novice ones, find the **information, messages and tools to demonstrate the role and value of NRENs and progress towards sustainable organisations.**

Affiliations

The portal was developed in response to demand from a number of regional networks where NRENs are starting up to share global experiences and best practice.



About us



NREN Case Review Group

Members of the Review Group that compiled this portal include veteran R&E networking professionals and representatives of the regional network organisations from outside Europe.

[Find out more.](#)

Latest contributions

Feasibility Study for a UN Technology Bank for the Least Developed Countries

Proposal submitted by an expert panel to the UN in Sept 2015, which outlines the role of NRENs in facilitating a Technology Bank for LDCs.

[download the pdf](#)

Cookbook for ZAMREN applicants

Guidelines to assess the ICT maturity level of institutions applying to join ZAMREN, applicable also to other emerging NRENs.

[download the pdf](#)

[Implementing NRENs in landlocked](#)



ALL STORIES

CATEGORIES

REGIONS

R&E NETWORKS

SORT BY



Finding valuable data in a massive amount of noise

Japanese researchers – together with colleagues from around the world – are analysing data from the Joint ALMA Observatory, located in a remote part of Chile on the Atacama plateau, 5000 metres above sea level. High-speed research networks enable researchers to carry out their studies whenever they are situated, without needing to be at the observatory.

[READ MORE](#)



Digital exams – Norway is leading the way

Several research and education networks are breaking new ground in their effort to develop a system for digital exams. But still there is a long way to go.

[READ MORE](#)



Mapping the landscape, managing the future

Moroccan and French researchers are using high-speed networks to combine their expertise in Geographic Information Systems (GIS) and remote sensing to produce new thematic maps of Aggadia, Morocco and to monitor this fragile landscape.

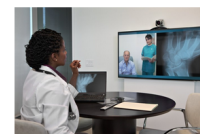
[READ MORE](#)



Training doctors in minimally invasive surgery across Asia

The surgeons at Seoul National University Bundang Hospital, Korea, are pioneers in minimally invasive surgery. This technique helps patients recover faster and leaves a much smaller scar than traditional techniques. Through live streaming of operations Prof. He-Sung Han and his staff have been able to train hundreds of surgeons across Asia, without need or cost for them to travel to Korea.

[READ MORE](#)



Telemedicine and telehealth change the reality of health in Brazil

The Case for NRENs website:
<http://www.casefornrens.org>

In the Field Stories
<http://www.inthefieldstories.net/>

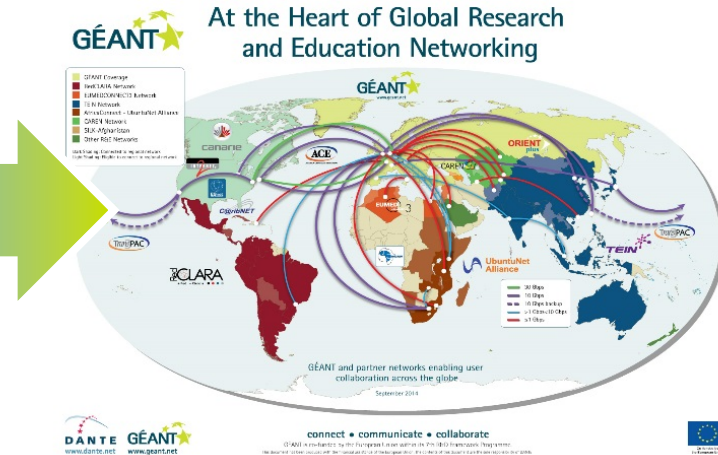
Bringing the Benefits to W&C Africa



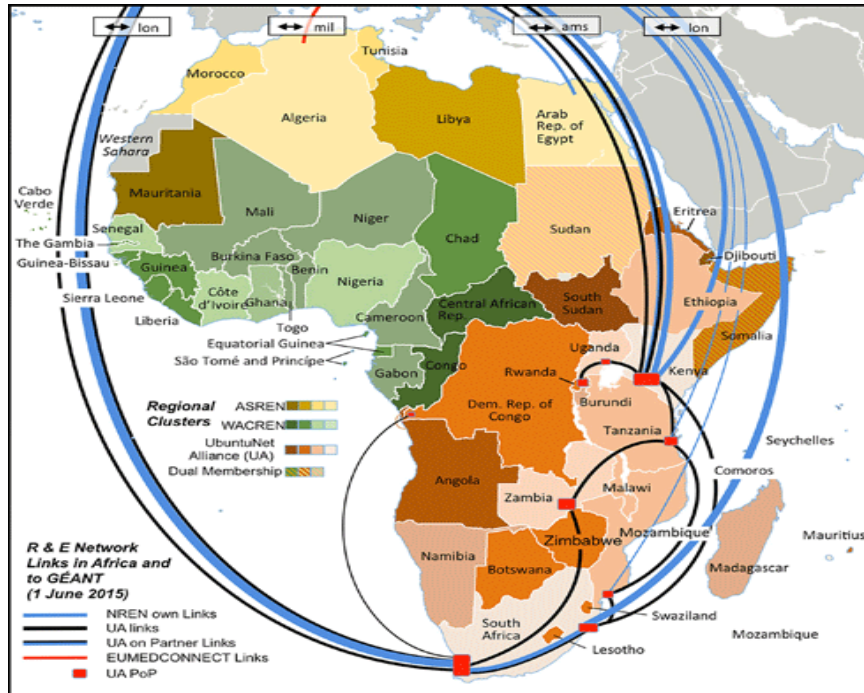
Objective	⇒ Enable better end user collaboration around the world, by expanding eduroam and eduGAIN ⇒ Allow NRENs to share end user collaboration tools among themselves
Duration	2 years from 2015 to 2017
Partners	RedCLARA, GÉANT, and 19 NRENs and regional networks across Latin America, Europe, Africa, Middle East, Central Asia and Asia-Pacific
Funding	Horizon2020 contribution: €1.4m
Website	www.magic-project.eu/



- International R&E collaboration is increasingly Global
- Global means Global
- GEANT's Global IP capacity continuous to Increase
- West Africa is still not part of the Global R&E Fabric – but we're getting there



African Challenge



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The boundaries, colours, denominations, and other information shown on this map do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Map developed by
Michael Foley,
consultant to World Bank

- AfricaConnect2
 - Pan African, funded through DG-DEVCO
 - 3.5 year Project 2015 – 2018/19
 - Three Clusters
 - Southern and Eastern Africa
 - Contracted directly between the EC and the UbuntuNet Alliance
 - Western Africa
 - Contracted between EC and GEANT with leadership provided through WACREN
 - North Africa
 - Contracted between EC and GEANT
 - Follow-on Project from EumedConnect for North Africa with leadership provided through ASREN

- AfricaConnect2
 - Total Contract Value Euro 26.6M (with EC contribution at Euro 20M)
 - Funding Levels:
 - Southern and Eastern Africa: 70:30
 - West Africa: 80:20
 - North Africa 60:40
 - EU Member State endorsed AfricaConnect2 at the DCI Committee meeting on 30 October 2014
 - Final EC Decision to award contract was taken November 2014
 - Final details being dealt with. Contract signature due any time now



Preparations Carried out so far

- Prior Information Notice (PIN) carried out for:
 - Connectivity West and Central Africa
 - Connectivity North Africa
 - Equipment
- UbuntuNet Alliance Connectivity Procurement ongoing
- Training Course on Network Monitoring and Measuring carried out in Abuja, Nigeria at the end of September 2015
- AfricaConnect2 website and press release ready for take-off
- AfricaConnect2 meetings scheduled:
 - Cluster 1 and Coordination Meeting – Maputo, November
 - Cluster 2 Meeting – Montpellier, December
 - Cluster 3 Meeting – Casablanca, December

- A pan-African graphic identity:



- Online & Offline presence:

- Project website
- Twitter
- Events
- Training Workshops

- Targeted content:

- Press releases (regional & international)
- Brochures
- Videos
- Case studies
- Facebook and LinkedIn
- Presentations in and out of Africa



Thank you

More information:

<http://www.geant.org/>

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Networks · Services · People
www.geant.org