

GÉANT Overview



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GÉANT GN4-2 „Partner, Users and Stakeholder Relations“

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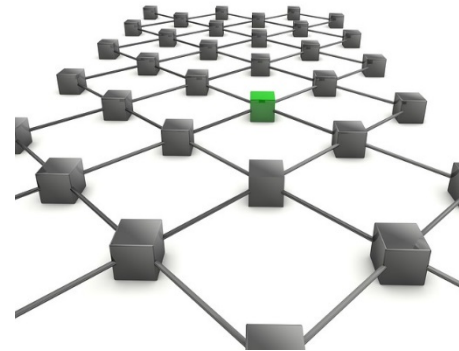


EaPEC 2016, Tbilisi, Georgia

6th October 2016

Presentation Structure

- GEANT Overview
- Global Research Collaboration
- GEANT Services



Objectives

- Inform about GEANT and its Services
- Get information about current or future research collaborations between GEANT and the EAP countries

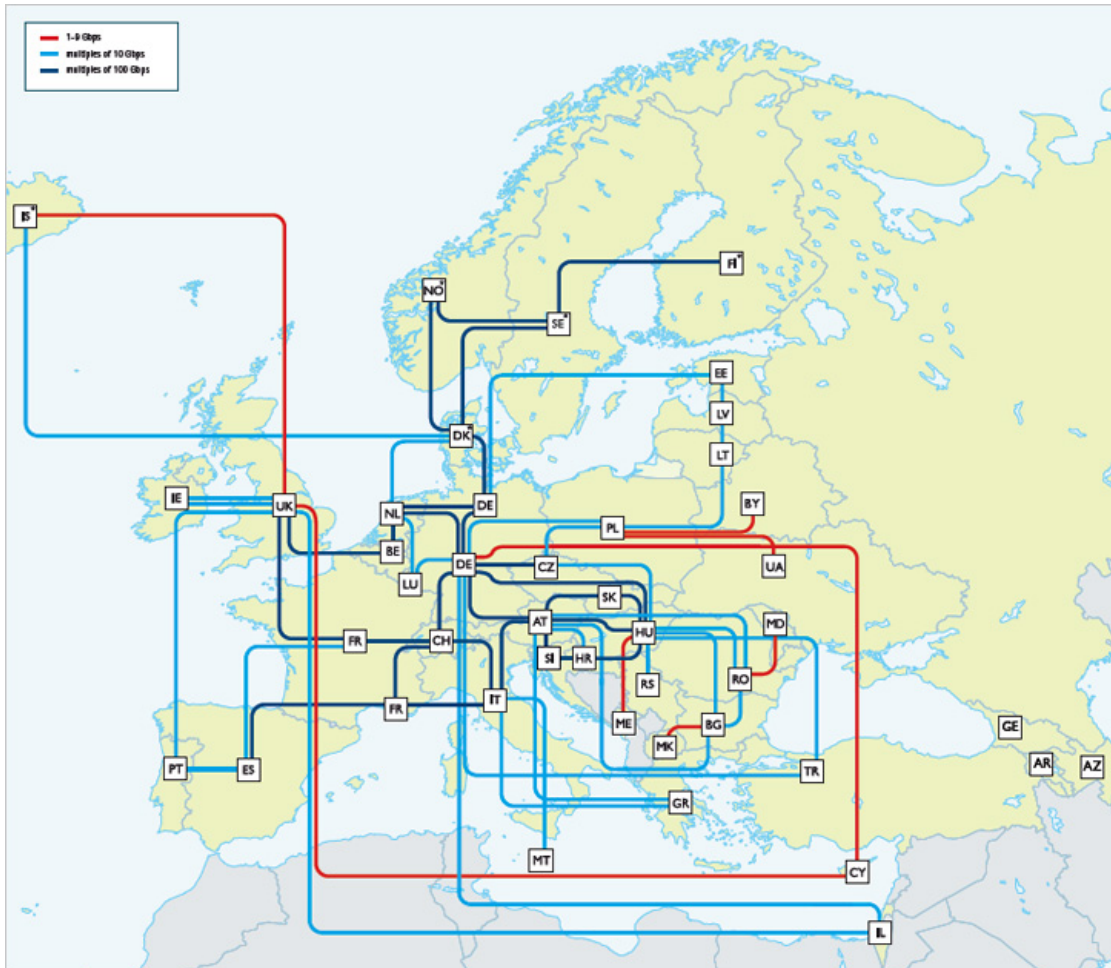
GÉANT Organisation overview

- GÉANT Organisation formed in October 2014 through merger of DANTE and TERENA
- Owned by 36 European NRENs and NORDUnet (representing 5 Nordic NRENs)
- Also associate members from industry and multi-national research infrastructures and projects
- GÉANT CEO Steve Cotter (ex REANNZ and EsNET)
- **GEANT focus is Networking. Services. People.**



The GÉANT Network

e-Infrastructure for the data deluge



- 41 European countries connected
- Latest transmission and switching technology
- Routers with 100Gb capability
- Optical transmission platform designed to provide 500Gb super-channels
- About 27 000km of dark fibre
- Over 100 000km of leased capacity (including transatlantic connections)
- NRENs serve 50 million users at 10 000 institutions across Europe.

GEANT connectivity as of October 2015. GEANT is operated by GEANT LTD on behalf of the GEANT Association.

What does GÉANT do?

Networks - Services - People



Physical networks



Services



TF-CSIRT



Human Networking



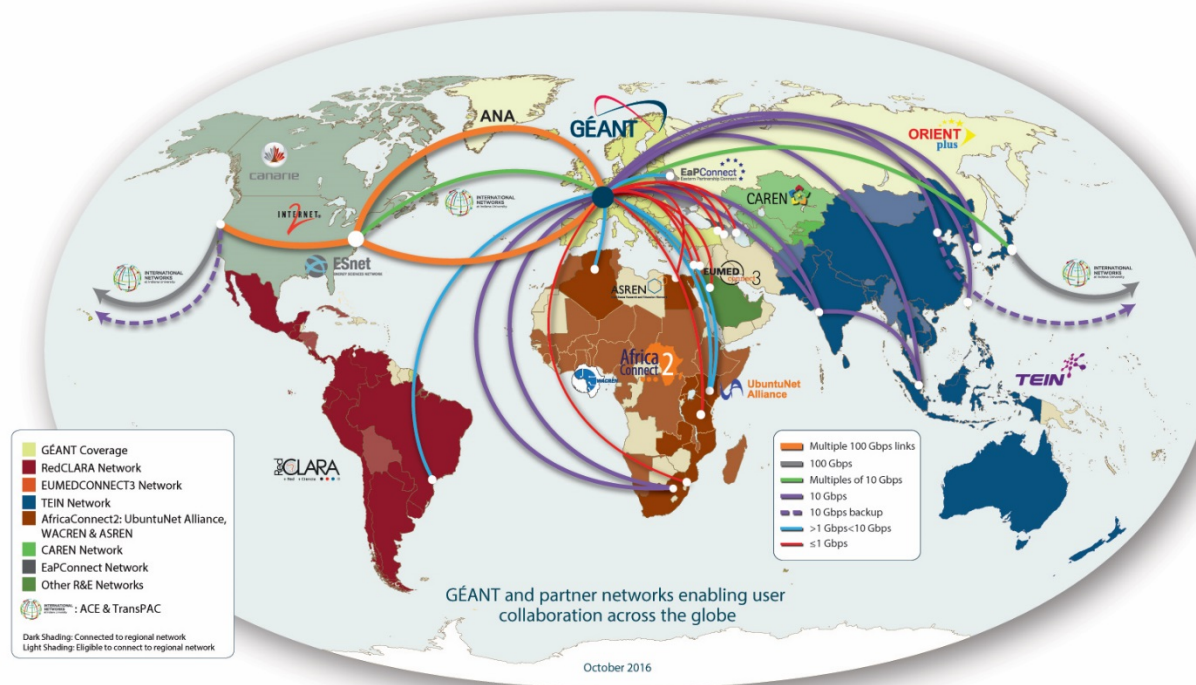
At the Heart of Global R&E Networking



GÉANT reaches over 100 countries worldwide
<http://global.geant.org>



At the Heart of Global Research and Education Networking



This document is produced as part of the GÉANT Specific Grant Agreement GMA-2 (No. 731122), that has received funding from the European Union's 2020 research and innovation programme under the GÉANT2020 Framework Partnership Agreement (No.653998).
In addition to GMA-2, the following projects have received funding from the European Union: AfricaConnect2, CAREN3, TEIN4 and AsiaConnect (DG DEVCO); EaPConnect and EUMEDCONNECT3 (DG NEAR).
The content of this document is the sole responsibility of GÉANT and can under no circumstances be regarded as reflecting the position of the European Union.

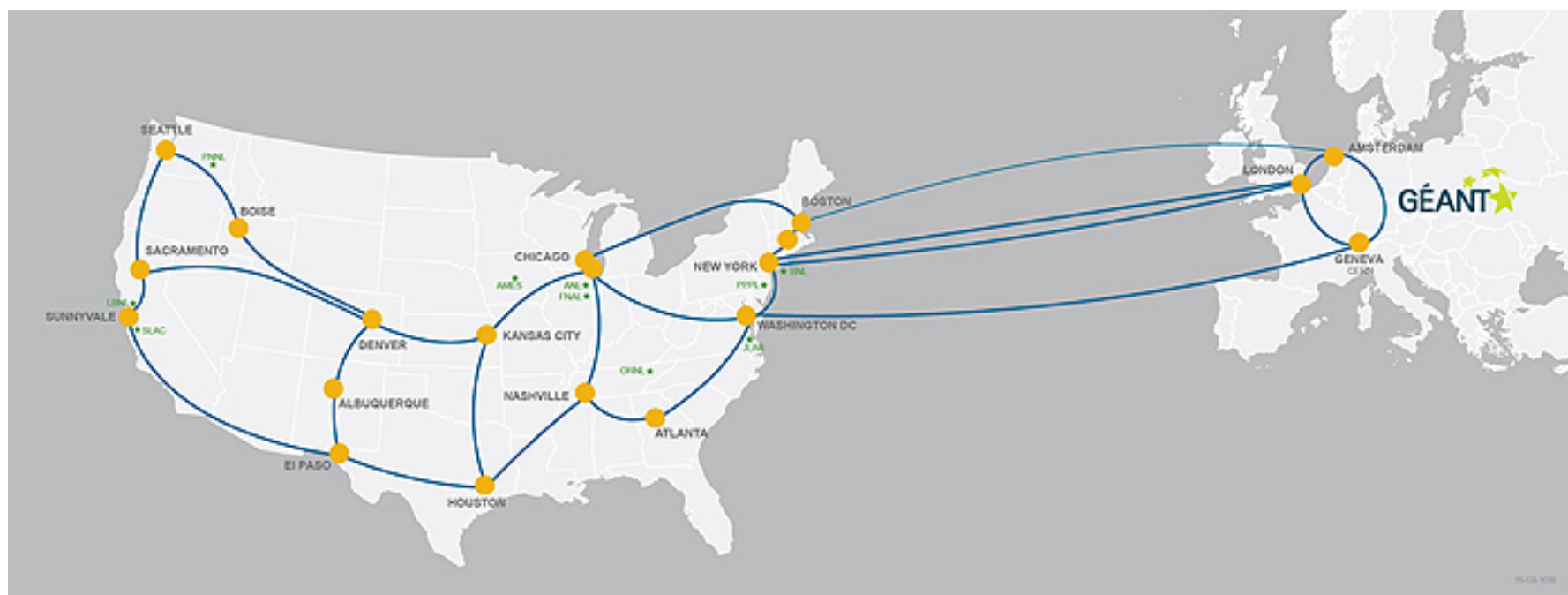


Funded by the European Union

- GÉANT interconnects with:
 - CANARIE (Canada)
 - ESnet (USA)
 - Internet2 (USA)
- Transatlantic Capacity:
 - 30Gbps– funded through the US NSF
 - 100Gbps – funded via GÉANT
- New initiatives: ANA-300G, CEO Forum - GNA



GÉANT: Extending ESnet Transatlantic Connectivity in Europe



ESnet
ENERGY SCIENCES NETWORK

★ Department of Energy Office of Science National Labs
Ames Ames Laboratory (Ames, IA)
ANL Argonne National Laboratory (Argonne, IL)
BNL Brookhaven National Laboratory (Upton, NY)
FNAL Fermi National Accelerator Laboratory (Batavia, IL)
JLAB Thomas Jefferson National Accelerator Facility (Newport News, VA)

LBNL Lawrence Berkeley National Laboratory (Berkeley, CA)
ORNL Oak Ridge National Laboratory (Oak Ridge, TN)
PNNL Pacific Northwest National Laboratory (Richland, WA)
PPPL Princeton Plasma Physics Laboratory (Princeton, NJ)
SLAC SLAC National Accelerator Laboratory (Menlo Park, CA)



- Pan-African regional networking project, building on AfricaConnect (S and SE Africa) and EUMEDCONNECT (N Africa) projects
- Main contractors: GÉANT and UbunutNet Alliance, also supported by WACREN and ASREN
- Duration: 2015 - 2018
- Funding: € 20Mio EC funding



- Objective: Enable better end user collaboration around the globe
- Partners: RedCLARA, GÉANT, and 19 R&E networks in Latin America, Europe, Africa, Asia, Australia and the Pacific
- Duration: 2 years (June 2015 to May 2017)
- Funding: Horizon 2020 contribution of €1.4 Mio

User Groups we work with

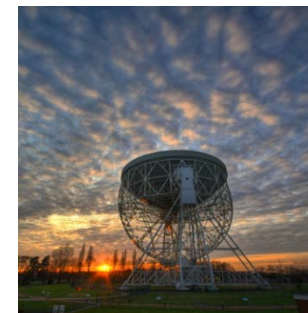


Arts & Humanities

DARIAH,
CLARIN

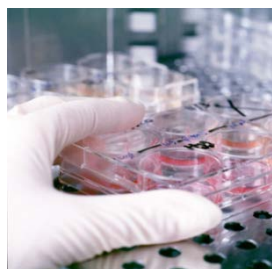


Physical
sciences
LHC/CERN,
BELLE II, SKA



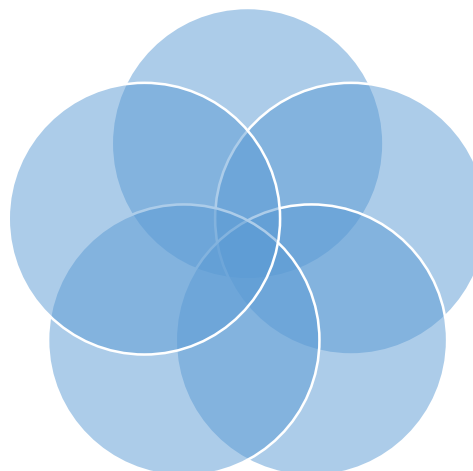
Earth Sciences and Earth Observation

COPERNICUS,
EUMETSAT, ESA,
EIDA



Life sciences

ELIXIR,
BioMedBridges



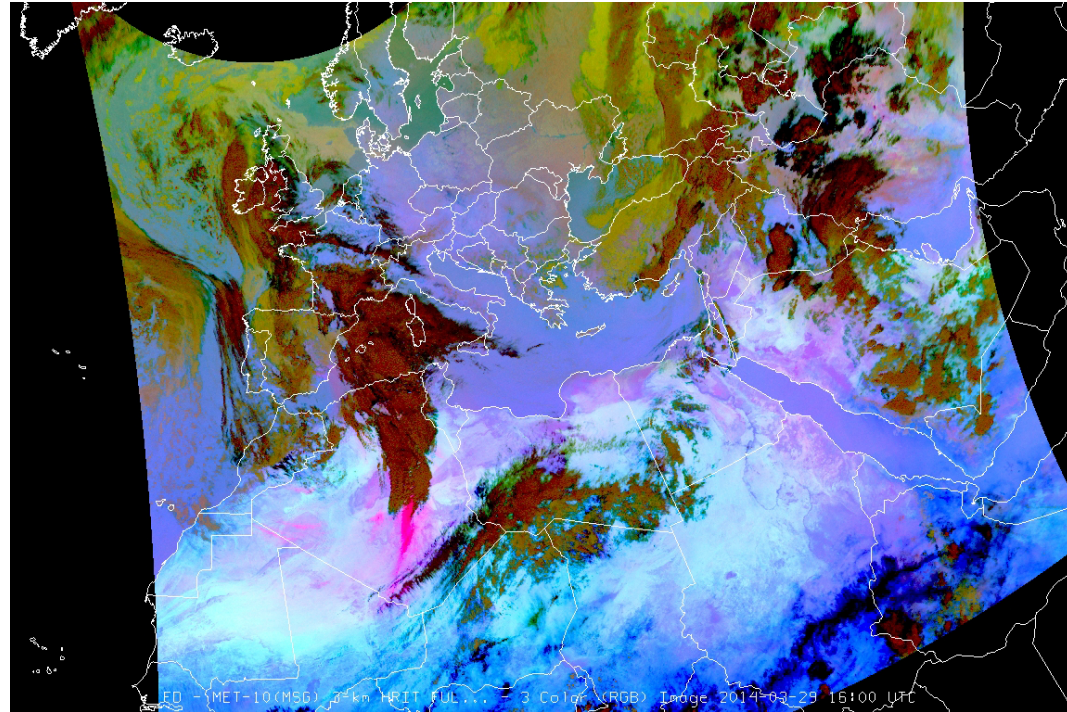
E-Infrastructures



Showcase: EUMETSAT - global Multicast of Environmental Data

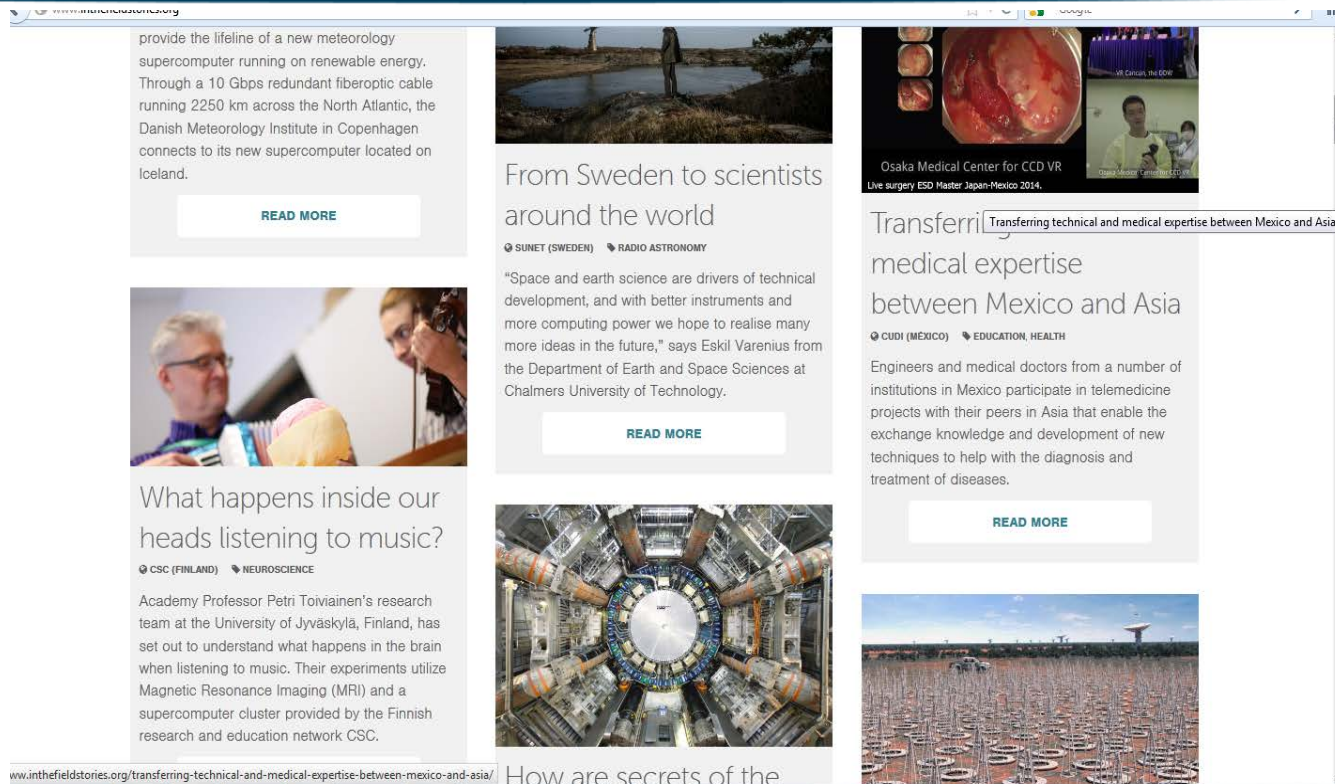


- Meteorological data from **EUMETSAT** satellites need to be distributed to sites in Europe, Asia and USA.
- **EUMETSAT** requires network infrastructure that enables terrestrial multicast dissemination to end sites.



- **EUMETSAT** and GÉANT are running a two-year multicast prototype emulating operational scenarios from the **EUMETSAT** HQ in Darmstadt, using GÉANT infrastructure in Europe and global connectivity
- Agreement provides a Single Point of Contact to EUMETSAT for the related network services across GÉANT and the corresponding National Networks.





- A Global Blog on how R&E networks support science, research and education
- Case study material collected from across the globe
- Excellent resources page giving guidance on how to blog case studies successfully

So what are the GÉANT Services? And how do they relate to us?

Connectivity Services



IP Connectivity



Static
point-to-point



Bandwidth on
Demand



L3 VPN



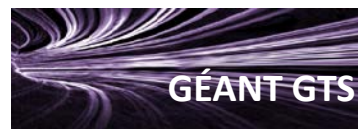
Multi-domain VPN



Lambdas up to
100Gbps



Open Exchange



Testbed service



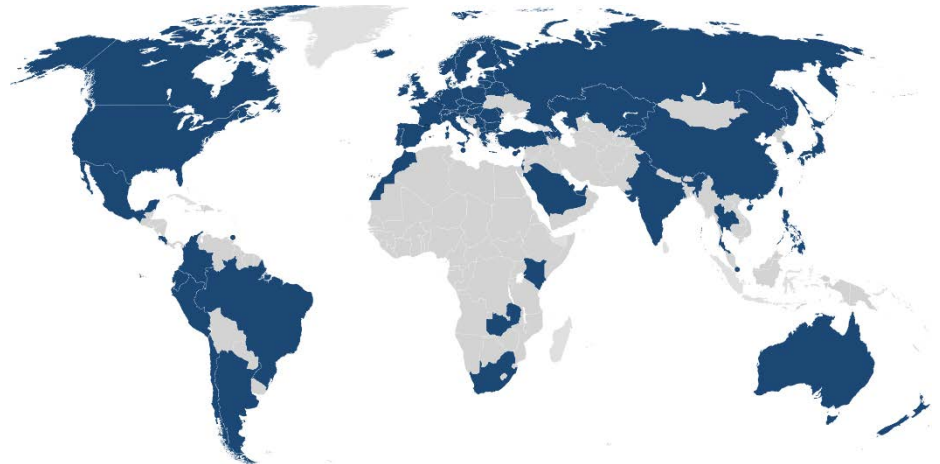
Internet peering
service



Open your laptop
and be on-line

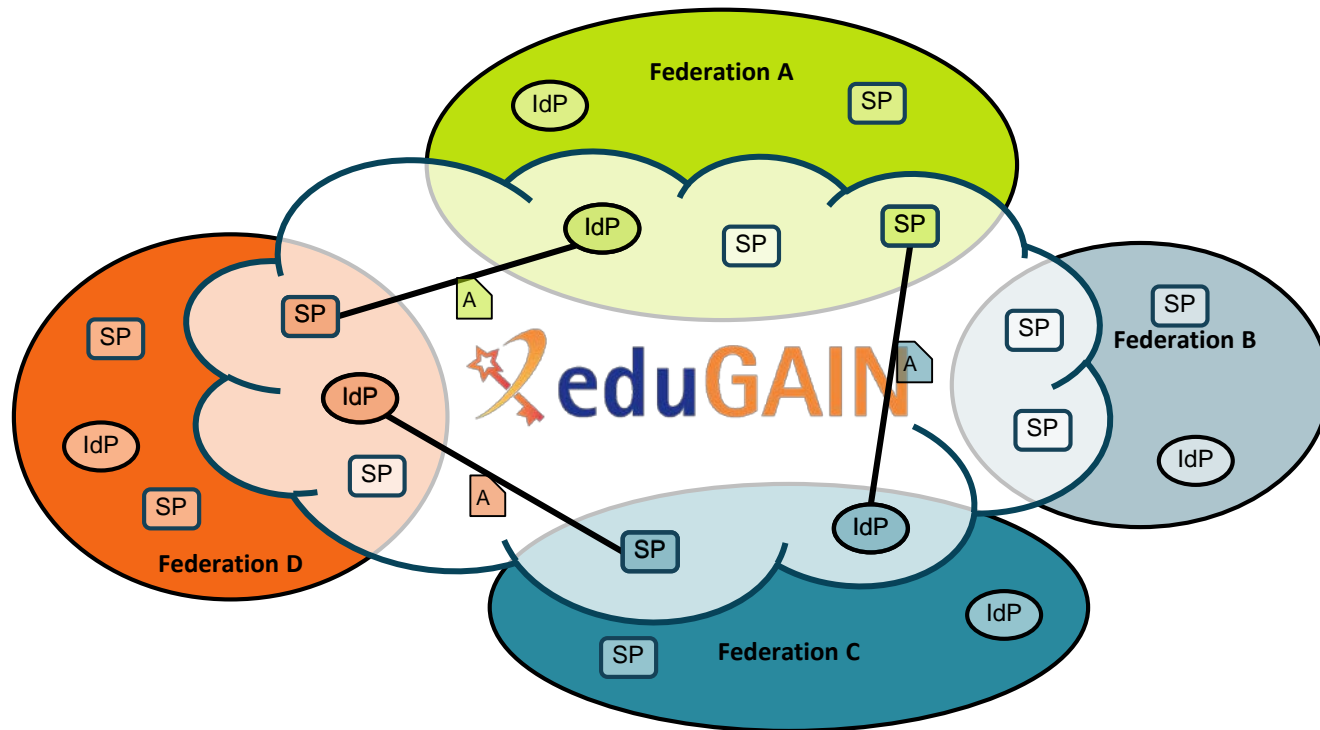


eduroam CAT (Configuration Assistant Tool)
cat.eduroam.org

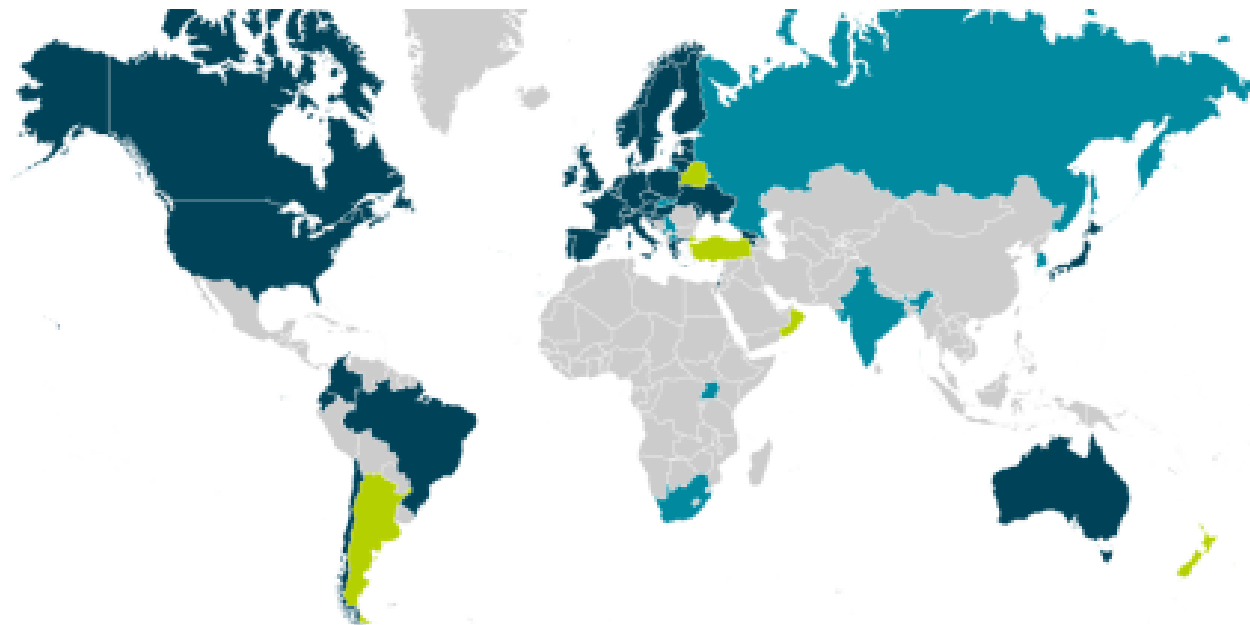


July 2015: available in 74 territories worldwide

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



eduGAIN Around the World



Today

■ eduAIN ■ Joining ■ Candidate

Trust and Identity A Bit More

What Federations Offer:

<https://technical.edugain.org/entities4.php>

The screenshot shows the 'eduGAIN' entities4.php interface. It includes a navigation bar with links like HOME, edugain status, CONTACT US, FORMALITIES, TOOLS, and HELP. Below the navigation bar, there are search filters for 'Entity type' (with options like Identity Providers, Service Providers, etc.), 'Entity category filter' (with a dropdown menu), and 'Entity filter' (with checkboxes for 'Entity id search', 'Whole entity fulltext search', and 'Federate whole entity fulltext search'). A 'Global statistics' box shows counts for All entities (2110), IdP (1318), SPs (342), and Federations (44). At the bottom, there is a table titled 'Listing of all service providers (6)' with columns for ID, Name, and Entity type.

ID	Name	Entity type
1	edugain - BEL-LARA	IdP
2	edugain - BEL-LARA	IdP
3	edugain - BEL-LARA	IdP
4	edugain - BEL-LARA	IdP
5	edugain - BEL-LARA	IdP
6	edugain - BEL-LARA	IdP

- Other focus points at GÉANT
 - From pilot to production
 - Non-web authentication
 - Federation-as-a-Service



- Two-year EC-funded project, started 1st May 2015
- Coordinated by GÉANT with 19 funded and 2 unfunded partners
- Objectives:
 - Improve adoption of federated access
 - Design and pilot missing components
 - Develop training packages
 - Make identities 'consumable' by different e-infrastructures

Want to collaborate internationally online?
Take a postcard to your IT Department!

Work effectively with your peers worldwide

Unlocking collaboration

eduGAIN

eduroam

simple access to content, services and resources, wherever they are

simple, secure and fast network access, wherever you are

www.geant.net/collaborate

EUROPEAN UNION

GÉANT

perfSONAR: Network Performance Monitoring



perfSONAR

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

- Previously two versions: perfSONAR MDM and perfSONAR PS
- Now just one version for use globally by R&E Networks and Institutions!
- Single website: <http://www.perfsonar.net/>



- Web User interface
<http://psui.geant.net/>
- In eduGAIN

- Over 1100 BWCTL and OWAMP MP's deployed globally





- 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



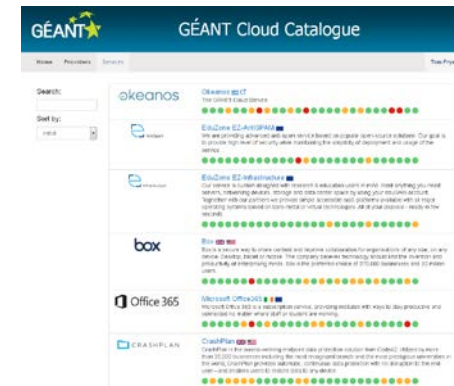
Security is an issue for global collaboration. Incidents on one network can affect multiple networks and end users.

- TF-CSIRT Trusted Introducer
 - Computer Security Incident Response Teams
 - Community-building
 - Increasing skill set globally
 - Go-to place for security teams with 120 accredited CERTS.
- Firewall as a Service
- NSHARP - an Automated Incident Notification & Handling System
- TRANSITS provides training programme





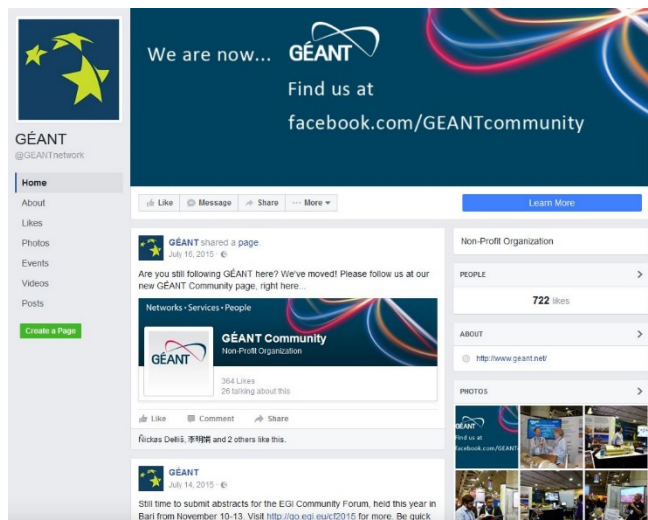
Support to Cloud Services

- Identify cloud services which meet the needs of the European R&E community
- GÉANT Cloud catalogue: presenting capabilities of providers and helps in the procurement of cloud services
- IaaS: Just completing first pan European procurement of commercial Cloud services – making IaaS available through NRENs and GEANT
- Acting as a service delivery gateway



More Information!

- For more information on GÉANT:
 - www.geant.org
 - <http://www.geant.net/MediaCentreEvents/CONNECT/Pages/default.aspx>
 -  @GEANTnews
 -  www.facebook.com/GEANTcommunity





Questions ?

Thank you!

schaefer@dfn.de

GÉANT

Networking • Services • People

www.geant.org