Collaboration: The Heart of Global Research and Education Networking

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GÉANT

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Collaboration – A Longstanding Cornerstone of Global R&E Networking

Building Networks and Communities

Enabling Access

Strengthening Interconnectivity

ANA | BEAA | NEA³R | CAE-1 | AER
Advanced North Atlantic (ANA) Collaboration

• **ANA:**
  • A collaborative effort to provide multiple, diverse links to support R&E collaboration across the North Atlantic
  • Individual Transatlantic links are provided on diverse paths by:

<table>
<thead>
<tr>
<th>Link</th>
<th>Bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAR-NY</td>
<td>100 Gbps</td>
</tr>
<tr>
<td>AMS-MONT</td>
<td>100 Gbps</td>
</tr>
<tr>
<td>LON-WASH</td>
<td>100 Gbps</td>
</tr>
<tr>
<td>NY-LON</td>
<td>2 x 100 Gbps</td>
</tr>
<tr>
<td>NY-AMS</td>
<td>4 x 100 Gbps</td>
</tr>
<tr>
<td>WASH-GEN</td>
<td>100 Gbps</td>
</tr>
<tr>
<td>BOST-AMS</td>
<td>100 Gbps</td>
</tr>
<tr>
<td>2 x NY-LON</td>
<td>100 Gbps</td>
</tr>
</tbody>
</table>
No Room to Stand Still...

Connectivity  
Trust & Identity  
Security

Credit: https://flic.kr/p/9ayzRe: Creative Commons
Connectivity Collaboration
Delivering GÉANT Intercontinental Connectivity for the Future

The GEANT Intercontinental Connectivity Team

- International Liaison
- Market Engagement
- Planning
- Implementation
- Finance
- Project Management
- Communications

Mid-2023
GÉANT & CSTNET interconnection increased Tenfold via 100Gbps peering in Singapore
Collaboration for a Step Change in Transatlantic Connectivity

- Two separate 400Gbps links on Amitié
  - One lands in UK and is backhauled to Slough near London
  - One lands near Bordeaux, France
- ESnet wants to reach ESnet PoPs in London Harbour Exchange and Geneva

- One 400Gbps link on Amitié
  - Lands near Bordeaux, France
  - Internet2/CANARIE want to reach GÉANT Open in Paris
Collaboration for a Step Change in Transatlantic Connectivity

- GÉANT is present in both Slough (London)
- GÉANT fibre Bilbao-Paris via Bordeaux

- GÉANT long-standing collaboration with Internet2, CANARIE and ESnet, e.g.:
  - ANA collaboration

- GÉANT supplies European ring connectivity to ESnet
The End Result

Going live imminently...

- ESnet 400G
- Internet2 / CANARIE 400G
- ESnet 400G

London
Amsterdam
Paris
Geneva

Montreal
Boston
New York
Washington

-- 2.4 Tbps
Where to Now?

New ANA incl. Amitié

Preparations underway to procure transatlantic spectrum

Hot off the press

GÉANT

New opportunities...?
Multiple Collaborations Creating a Truly Global Mesh
It Doesn’t Stop There…

Connecting North Africa

- €40m EU funding
- 200Gbps End-to-end international connectivity for Algeria, Egypt, Morocco & Tunisia
- EU landing points: Barcelona and Cyprus
- 10-year system paid for including O&M
- EU Grant funds channelled through EIB to Medusa operator (along with EIB loans)

Europe to Japan via the Arctic

https://nordu.net/polar-connect

Trust and Identity: Moving Forward
The only real problem for the Internet is scaling!

Mike O’Dell
Trust does not scale!

Taylor Swift
2002

GEANT

NREN

eduGAIN

2022

- 80 identity federations
- 5000 IdPs
- 3590 SPs
Federated Identity Management for Research Collaborations

Paper Type: Research paper
Date of this version: 28 August 2013

Abstract

Federated identity management (FIM) is an arrangement that can be made among multiple organisations that lets subscribers use the same identification data to obtain access to the services offered by all organisations in the group. Identity federation offers economic advantages, as well as convenience, to organisations and their users. For example, multiple institutions can share a single application, with resultant cost savings and consolidation of resources. In order for FIM to be effective, the partners must have a sense of mutual trust.

A number of laboratories including national and regional research organisations are facing the challenge of a deluge of scientific data that needs to be accessed by expanding user bases in dynamic collaborations that cross organisational and national boundaries.

Driven by these needs, representatives from a variety of research communities, including photon/synchrotron facilities, social science & humanities, high-energy physics, atmospheric science, transformation and fusion energy, have come together to discuss how to address these issues with the objective to define a common policy and implementation framework for Identity Management based on existing structures, federations and technologies.

This paper will describe the needs of the research communities, the status of the activities in the FIM domain and
2015-2020

GEANT
AII Services
NREN
eduGAIN
eduTEAMS
High Performance Computing
European Research Infrastructures
Education

GEANT NREN Infrastructures

Third Party

ORCID

INDIGO - DataCloud
Common platform
• Group management
• Third party IDs
• Protocol translation
Take-aways

- It took us over 20 years to build a (human) trust infrastructure
- This infrastructure serves billions of users each month
- It is integrated with (educational and research) business processes
- It is capable of responding to emerging new requirements
- The GÉANT core AAI platform allows for seamless integration across domains
  - While preserving the autonomy of communities to select their own (AARC BPA compliant) AAI

Core AAI is a scalable, independent, trusted and privacy-preserving integration layer of a wide range of AAI services!
Security & Privacy Bootcamps:
Developing Skills and Systems
NREN Security Bootcamps

- Cybersecurity threats evolving rapidly
- Small and Medium NRENs increasingly targeted
- Bootcamp concept developed by GÉANT to enhance security maturity of small and medium-sized NRENs in the GÉANT Community.

- Three-day tailor-made in-person workshop tailor made
- Two privacy and security professionals to focus on the NRENs specific needs
- Groups up to four NRENs with similar security maturity level

- First bootcamp to start in mid-March 2024 for Eastern Partnership countries
- Planning for other GÉANT NRENs in the works
What and How?

Security
- Security Baseline implementation
- Policies and Governance
- Training & Awareness
- Monitoring and Auditing process

Privacy
- Planning (Strategy, Structure, Training & Awareness)
- Data Protection Policy
- Inventory of Processing Activities
- Templates
  - Privacy Notice
  - Data Processing Agreements
  - Consent form
  - Incident / Data Breach reporting
  - And more ...

How – Three Stages
1. One-hour online evaluation & kick-off
2. Two-hour online assessment
3. Three-day in-person bootcamp
Going Global

- Global awareness of security importance is high.
- But knowledge and implementation have room for growth.

Security Bootcamp is Going Global.
- Pilot for Latin America in development with RedCLARA.
- Same trainers and methodology.
- Afterwards, will gather wider global interest.
- If interest is high, process for prioritisation will be developed.

For more information, speak to Ana Alves here in Chicago, or contact IR@geant.org
Thank you!