Global Platform for Labs (GP4L)

Sonja Filiposka (UKIM)
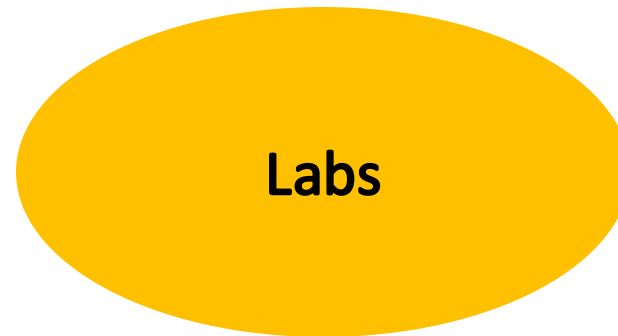
GN5-1

GÉANT Global Platform for Labs

Dedicated to advancing network transformation by providing a comprehensive ecosystem for experimentation, innovation, and collaboration in network programmability and new networking practices.

Testbed

Labs

Community

https://geant-netdev.gitlab-pages.pcss.pl/gp4ldocs/

GÉANT Global Platform for Labs

**Physical experimental infrastructure core**
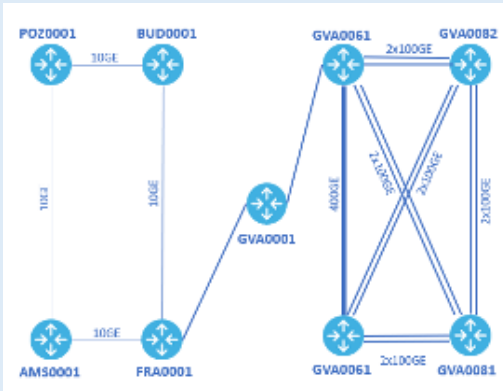
Community

- Network of experts
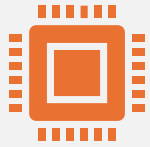- Support
- Open-source
- Reusability

Labs

- Investigate technologies
- Test network protocols
- Develop orchestration and automation solutions
- Implement NetDevOps principles
- **Virtual sandbox playground powered by** nmaas

European footprint

https://geant-netdev.gitlab-pages.pcss.pl/gp4ldocs/
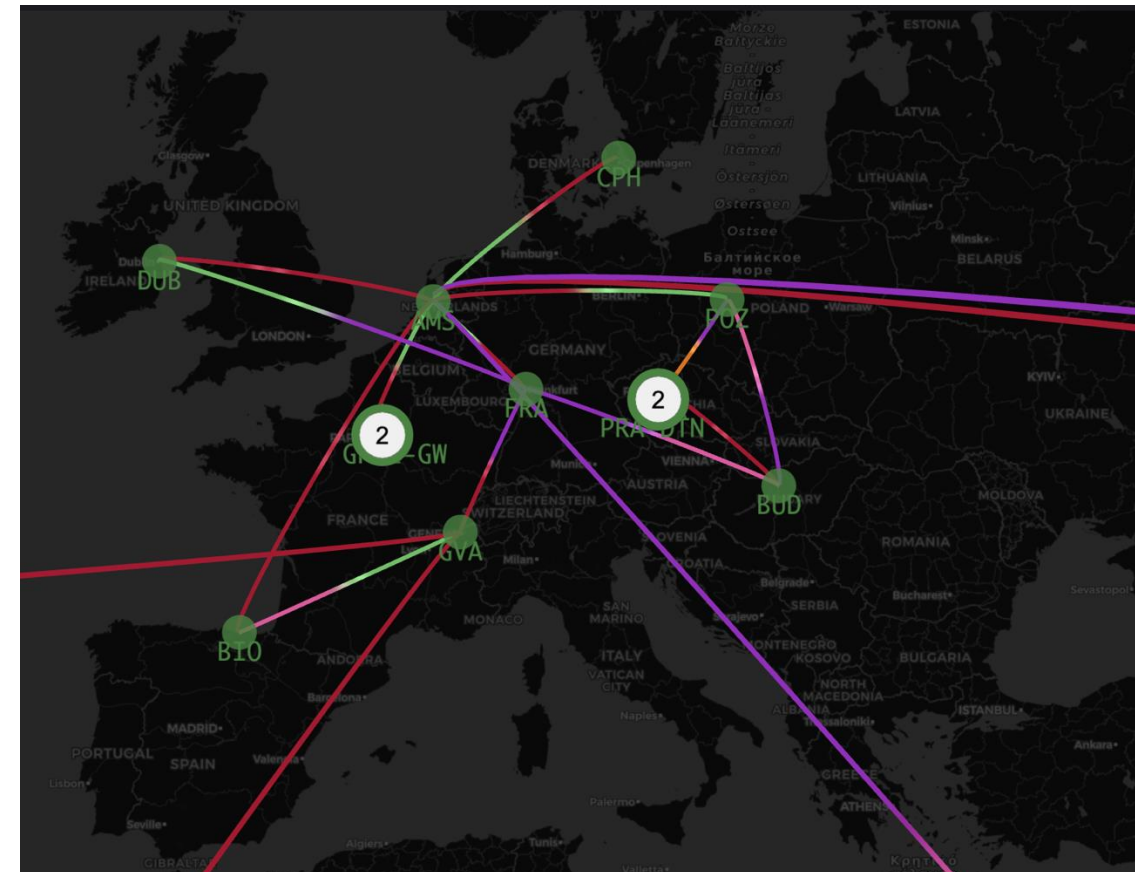
GP4L Objectives and Users

Access to Experimental Facilities

advanced data plane programming facilities to **test innovative and geographically distributed** network experiments
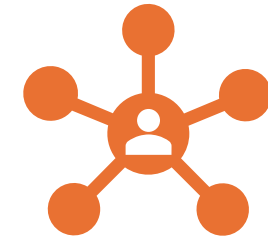
Enable testing and validation

empower users to **explore and validate various approaches** to network transformation

Co-Creation of Network Solutions

improve network operational efficiency
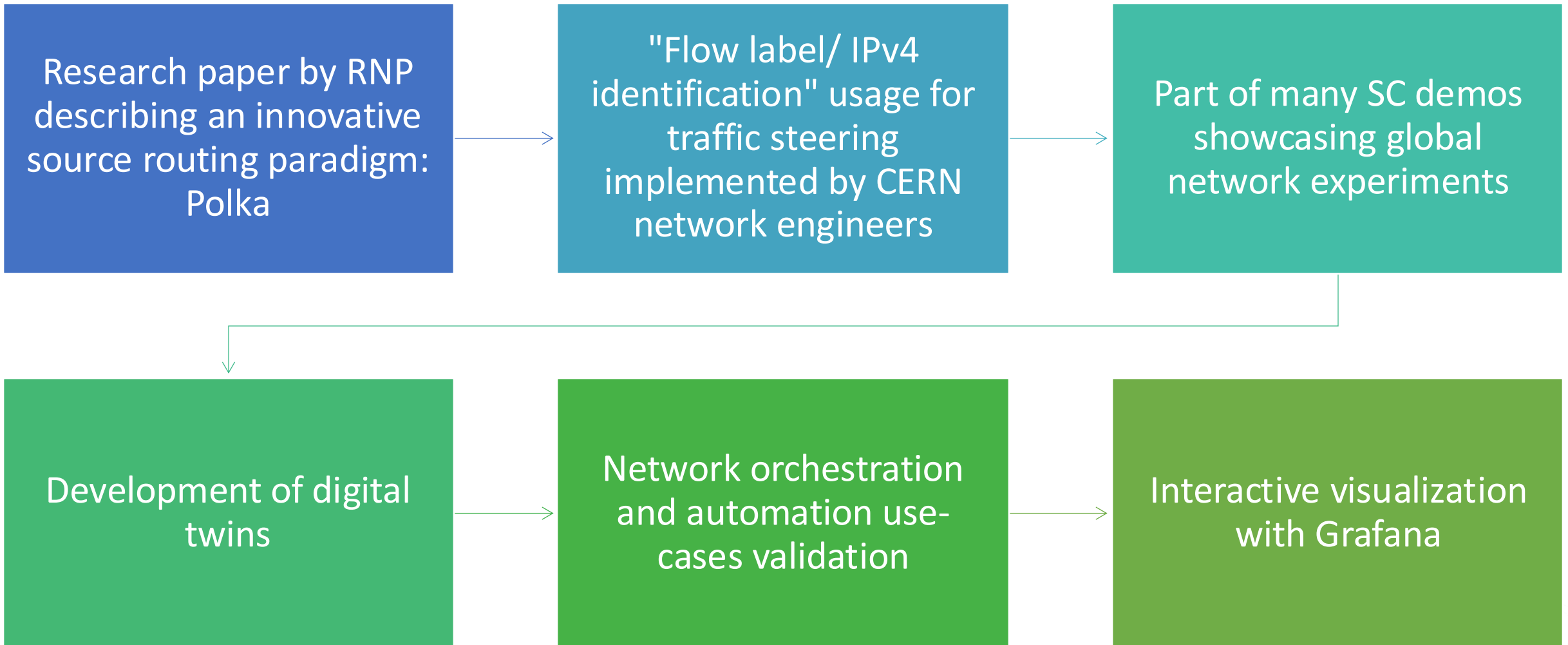
Network Engineers and Managers, NetDevOps Teams

From NRENs or affiliated R&E organizations, interested in conducting advanced network experiments or exploring specific use cases in network transformation

Research Organizations and Teams

Individuals or groups looking to test and collaborate on innovative network research projects and solutions

Experiments, Use-cases, Examples

Research paper by RNP describing an innovative source routing paradigm: Polka	"Flow label/ IPv4 identification" usage for traffic steering implemented by CERN network engineers	Part of many SC demos showcasing global network experiments
Development of digital twins	Network orchestration and automation use-cases validation	Interactive visualization with Grafana

Our GP4L Management Approach

Platform management based on orchestration and automation
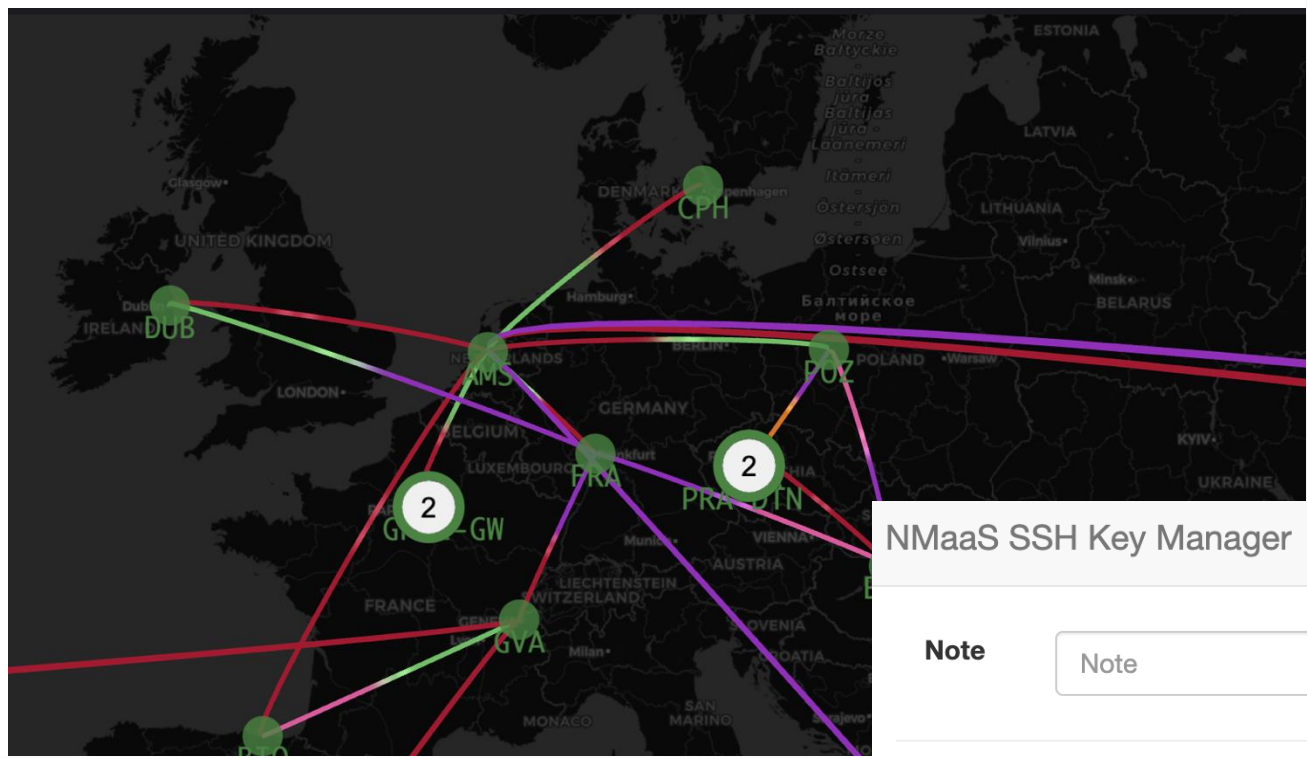
Inventory

Monitoring and configuration backup

Open Reservation System

Orchestration layer

Admin reservation approval

Controlled access to testbed via Bastion

In action

Resource Availability

Available
Default

ℹ AMS0001	There are no upcoming reservations in next 30 days		Reserve
ℹ BUD0001	There are no upcoming reservations in next 30 days		Reserve
ℹ FRA0001	There are no upcoming reservations in next 30 days		Reserve
ℹ PAR0101	There are no upcoming reservations in next 30 days		Reserve
ℹ POZ0001	There are no upcoming reservations in next 30 days		Reserve
ℹ PRA0101	There are no upcoming reservations in next 30 days		Reserve
ℹ test	There are no upcoming reservations in next 30 days		Reserve

NMaaS SSH Key Manager   List   New   Admin

Note		Added by	---------- ▾	Active	Unknown ▾	Filter

Note	Added by	Active	Enable date	Disable date	Date added	Details
Default (auto add)	—	✔	—	—	05/28/2024 6:11 p.m.	Details
send from airflow	admin	✘	28.05.2024 18:30:17 UTC	28.05.2024 19:30:00 UTC	05/28/2024 6:30 p.m.	Details
send from airflow	admin	✘	05.09.2024 12:00:21 UTC	29.09.2024 22:00:00 UTC	09/05/2024 noon	Details

User	Resource	Title	Description
Frédéric LOUI	BUD0001 ●	holo + vpp/dpdk SC24 demo preparation	Demo objectives: Emphasize Open Network Programming Technological opportunity and immediate availability by showcasing OSPF intrerworking between: - holo RUST control running on top of VPP/DPDK dataplane - RARE/freeRtr control plane running on top of P4 dataplane
Created 9/5/24 12:52 PM		**Last Modified** 9/5/24 9:07 PM	**Check In Time**
Frédéric LOUI	POZ0001 ●	holo + vpp/dpdk SC24 demo preparation	Demo objectives: Emphasize Open Network Programming Technological opportunity and immediate availability by showcasing OSPF intrerworking between: - holo RUST control running on top of VPP/DPDK dataplane - RARE/freeRtr control plane running on top of P4 dataplane

How to use

Obtain a VPN profile via gp4l-admin@lists.geant.org

Make a reservation on https://book.gp4l.nmaas.eu/

- New users self-register
- Provide reservation details
  - start and end time, chosen list of resources, title and description of the reservation

GP4L testbed admin is notified via email

- Might request additional information via the system

User receives reservation status notification

- Reservation has been authorised or declined
- Auto notification of reserved resource status change

On start time

- Check in
- Connect to Bastion
- Enjoy!

Values

Network Evolution

Real-World Network Experimentation

Isolated Test Environment

Accessibility

Accelerated Research
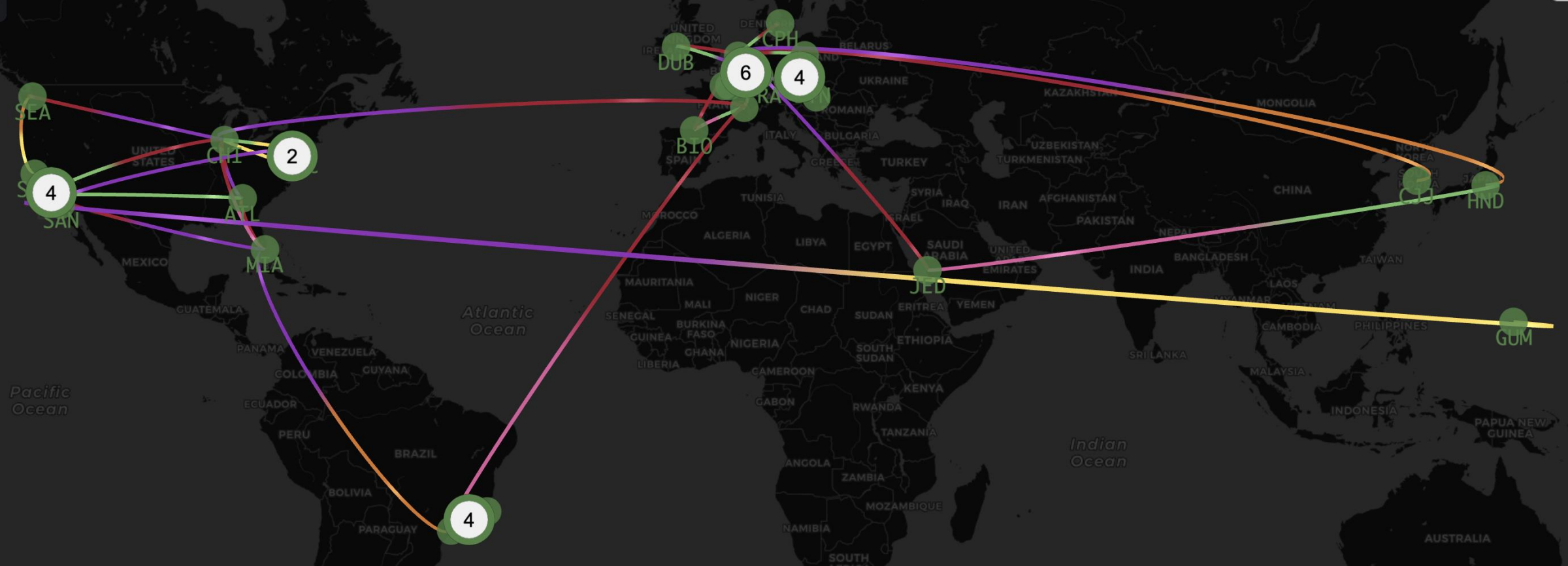
Collaborative Ecosystem

Community Building

Education

The Truly Global Potential

Global Coordination Efforts

Coordination	Shared Responsibilities	Communication Channels	Standardized Operational Procedures
• Coordinated user support • Improved facilitation of collaborations	• Roles and responsibilities for each provider, entity, node • Management of local resources	• Schedule regular meetings • Facilitate communication and knowledge sharing by using common tools	• For tasks such as user onboarding, resource allocation, and incident response

Strategies

Thank You

Contact:
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https://geant-netdev.gitlab-pages.pcss.pl/gp4ldocs/
GP4L infoshare: Feb 10th 2025, https://events.geant.org/event/1808/

www.geant.org