



Using GP4L as a Security Testbed

Global Platform for Labs

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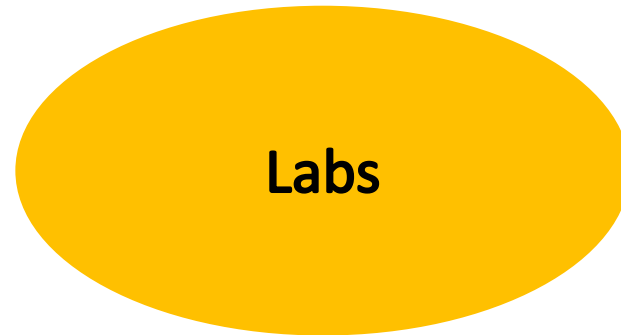
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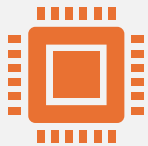
GÉANT Global Platform for Labs



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



GP4L Objectives and Users



Access to Experimental Facilities

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



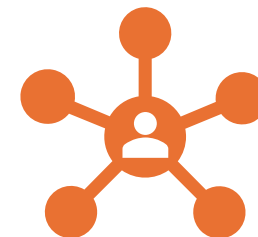
Enable testing and validation

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

GP4L components

01

GP4L Experimental Testbed

A P4 distributed infrastructure for researchers to run network experiments

GP4L Playground

Spin up network management containers on top of the testbed

02**03**

Community

Open discussion, support and collaboration on pilots

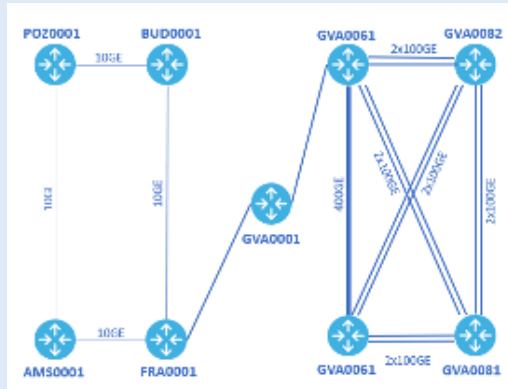
- Service Provisioning Pilot for PIONIER

GÉANT Experimental Testbed



Physical experimental infrastructure core

P4

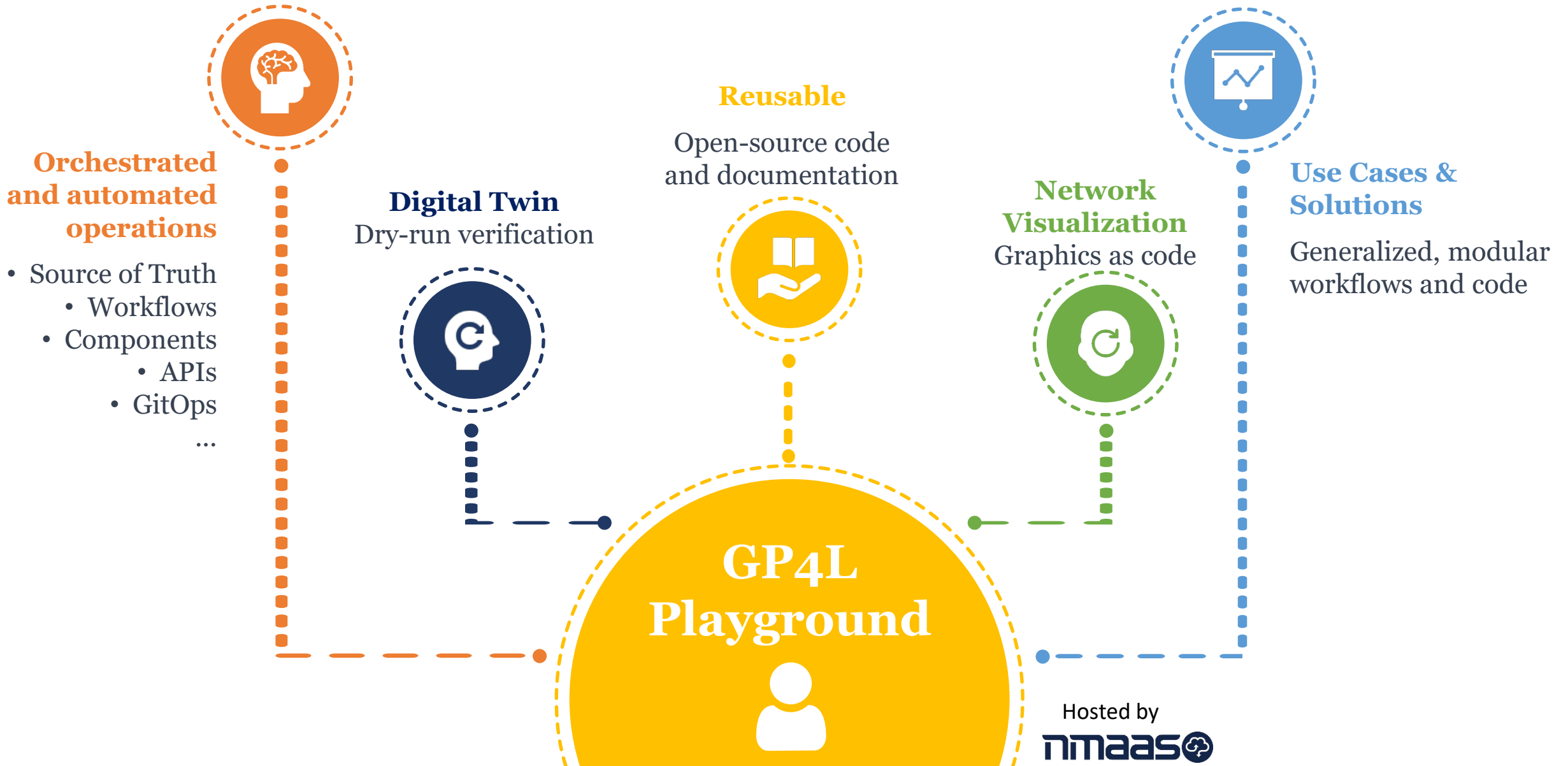


Global footprint



Part of a large-scale programmable network infrastructure that can be used to run cutting-edge network experiments.

Labs = The GP4L Playground



Experiments, Use-cases, Examples

Innovative source routing paradigm: Polka by UFES

Routing and forwarding of scitags-based IPv6 packets implemented by CERN

Part of many SC demos showcasing global network experiments

Development of digital twins

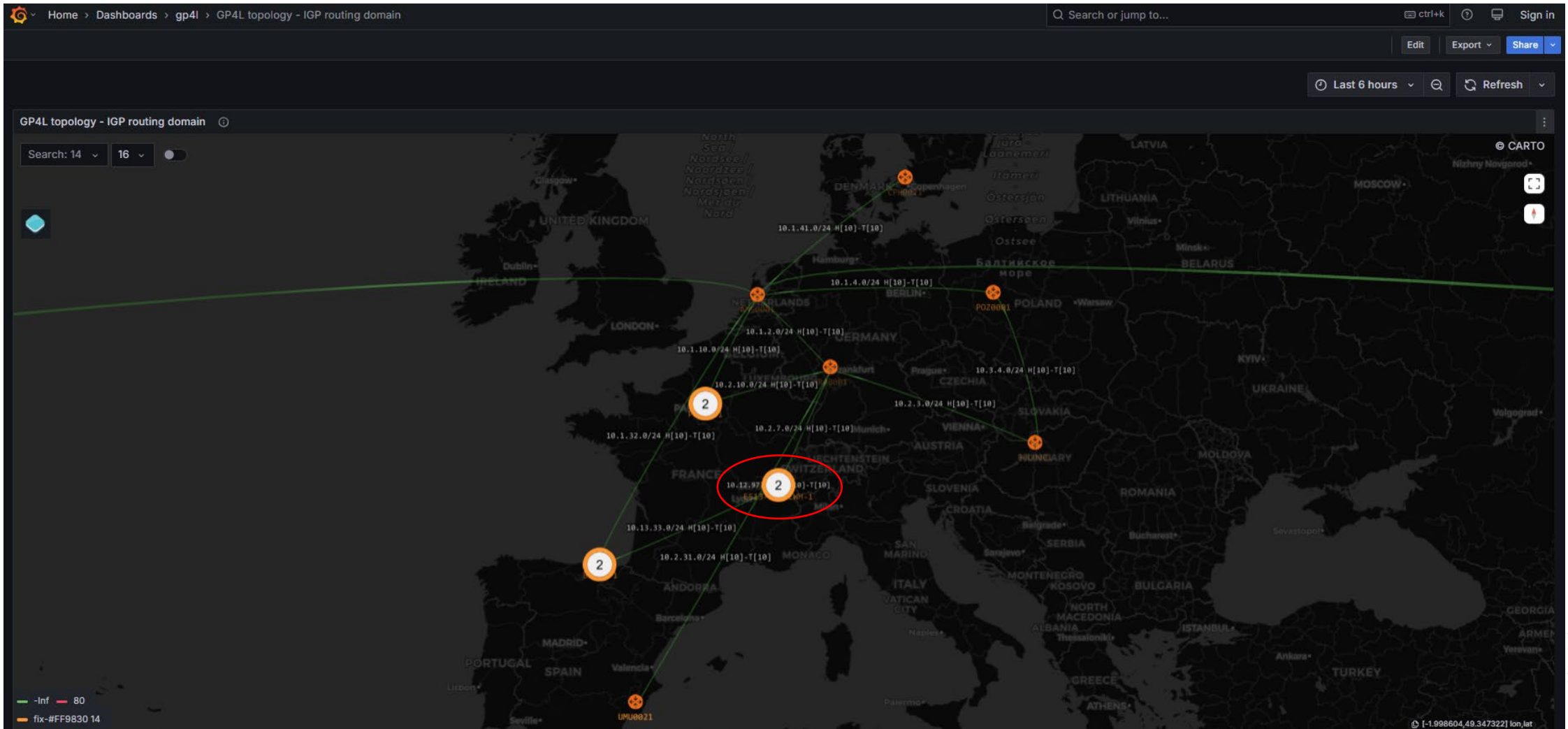
Network orchestration and automation use-cases validation

Interactive visualization with Grafana

GÉANT Experimental Testbed topology



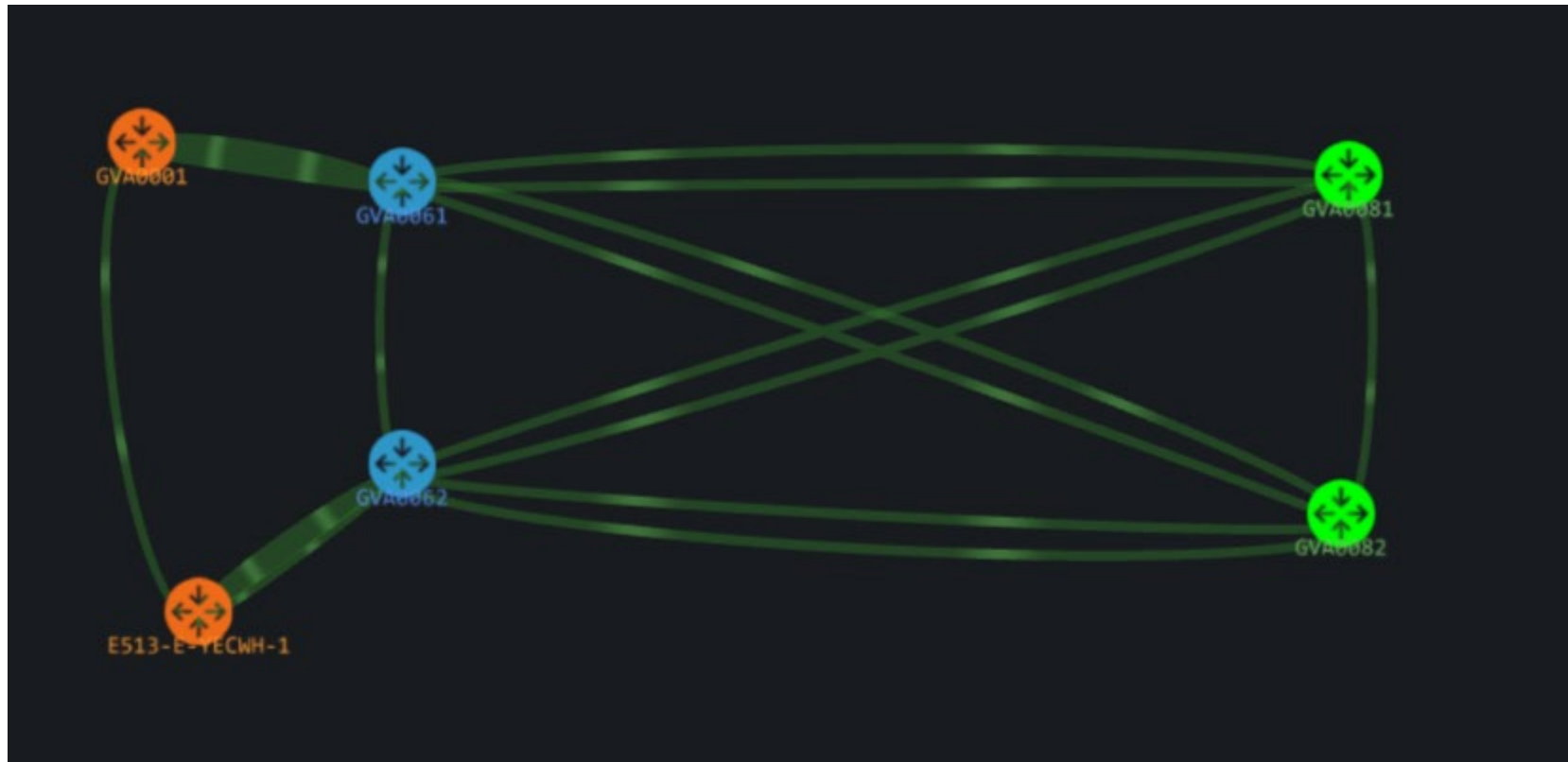
Physical experimental infrastructure core



GÉANT Experimental Testbed topology: GVA cluster nodes



Physical experimental cluster @ GVA: Use case: Security Scrubbing Cluster node



GP4L cluster @ GVA

- EdgeCore WEDGE BF100-32X
 - 2xTOFINO switches
 - 100GE capable switch
 - 6.4 Tbps ASIC
- EdgeCore AS9516-32D
 - 2xTOFINO2 switches
 - 400GE capable switch
 - 12.8 Tbps ASIC
- AsterFusion X312P
 - 2xX312P
 - TOFINO1+2 DPU
- Symmetrical cluster design
 - 2x400GE capability with P4
 - 2x200GE DPU processing capability with DPDK

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

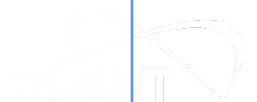
- Might request additional information via the system

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!





Thank You

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

gp4l-admin@lists.geant.org

www.geant.org



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