

GÉANT

Mission and Services

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GÉANT - Organization



- Merger Organization Between Two European Research Networks

- Terena, Amsterdam



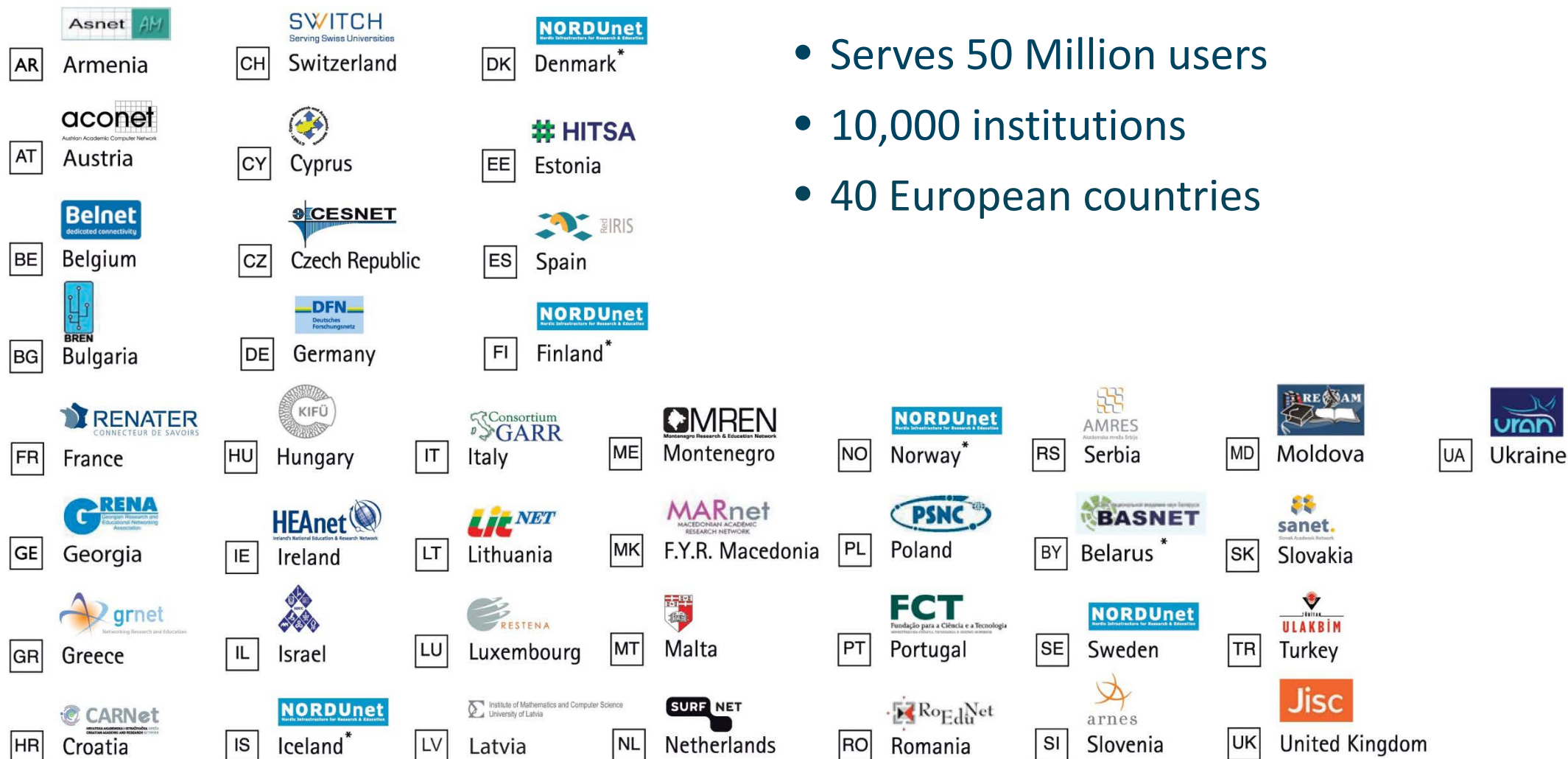
- Dante, Cambridge



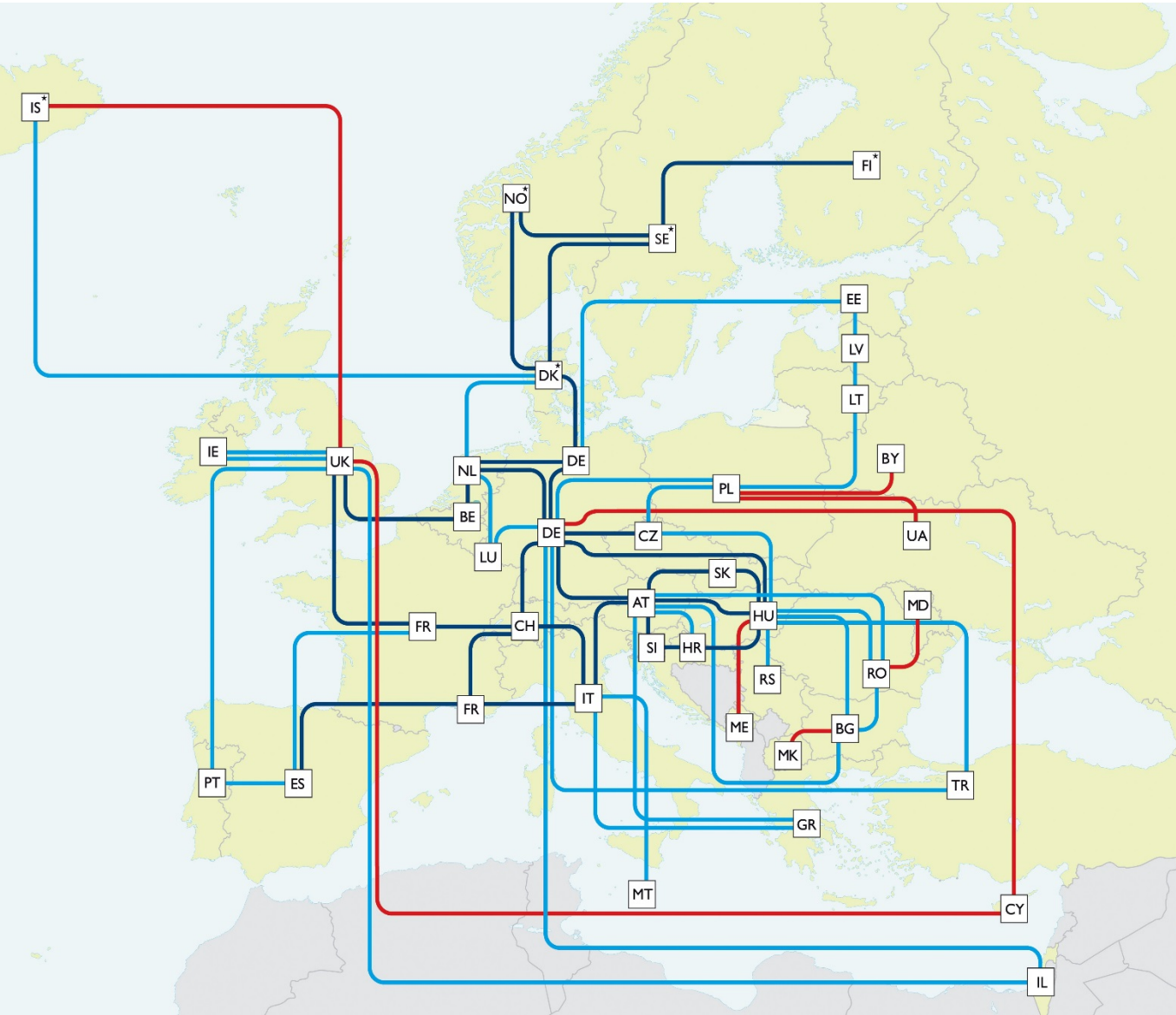
The GÉANT Community



- Serves 50 Million users
- 10,000 institutions
- 40 European countries



The GÉANT Pan-European Network infrastructure



- Widely diversified footprint
- Operates at speeds up to 1Tbps
- 50,000km network infrastructure on 44 routes
- Over 2,000 Terabytes/day of data transferred across network
- 100% average monthly IP service availability



- Manages research & education networking projects
- Procures, builds and operates large-scale, advanced international high-speed networks
 - GÉANT (Europe)
 - EUMEDCONNECT (Mediterranean)
 - AfricaConnect (Africa)
 - CAREN (Central Asia)
 - EAPConnect (Eastern Partnership Countries)
- Supports and assists other regional projects
 - ORIENTplus (Europe-China collaboration)
 - TEIN*CC (Asia-Pacific)
 - RedCLARA (Latin America)



Global connectivity



- GÉANT network is connected to all continents
- Interconnecting >100 countries globally

- **Connectivity & network management**

- Standard IP, up to multiple 100Gbps
- MD-VPNs (L2 and L3)
- Point-to-point circuits
- Wavelengths 10 -100Gbps
- Open Exchange for global & commercial collaborations 1, 10, 100Gbps
- GTS
- International and Commercial Peerings
- Firewall on-demand

- **End to end Performance**

- perfSONAR – *Real-time, multi-domain performance monitoring*
- eduPERT – *Performance troubleshooting*

- **Trust, Identity and Security**

- eduGAIN – *Secure access, single sign-on*
- eduroam – *Seamless Wi-Fi access for research and education around the world*

- **One Stop Shop**

- Consultancy
- International co-ordination
- Bespoke solutions

perfSONAR
PART OF THE GÉANT SERVICES PORTFOLIO

AARC
Authentication and Authorisation for Research and Collaboration

eduroam

eduGAIN

Connectivity Services



IP Connectivity



Lambdas up to
100Gbps



Static
point-to-point



Open Exchange



L3 VPN



Testbed service

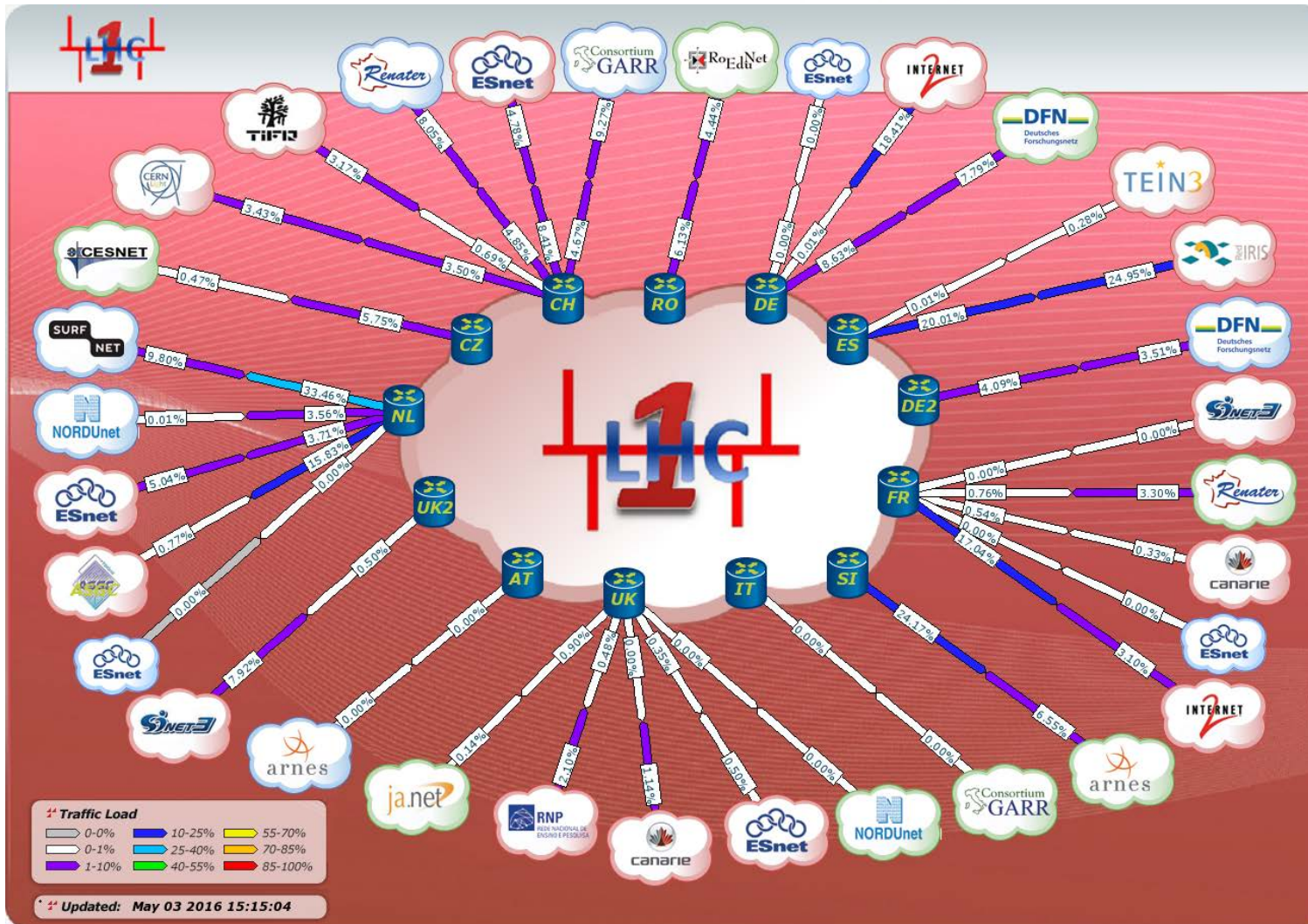


Multi-domain VPN



Internet peering
service

Connectivity Services: L3VPN Service LHCONE



Serving the LHC experiments:

- ATLAS
- CMS
- ALICE
- LHCb

But also:

- BELLE 2
- Pierre Auger Observatory
- NOVA
- XENON1T (in discussion)

Currently spanning three continents

- Europe
- North and South America
- Asia

Connectivity Services: Multi-domain VPN

Lead-time reduced

Easy to deploy
No Capex
VPN multiplexed

High scalability

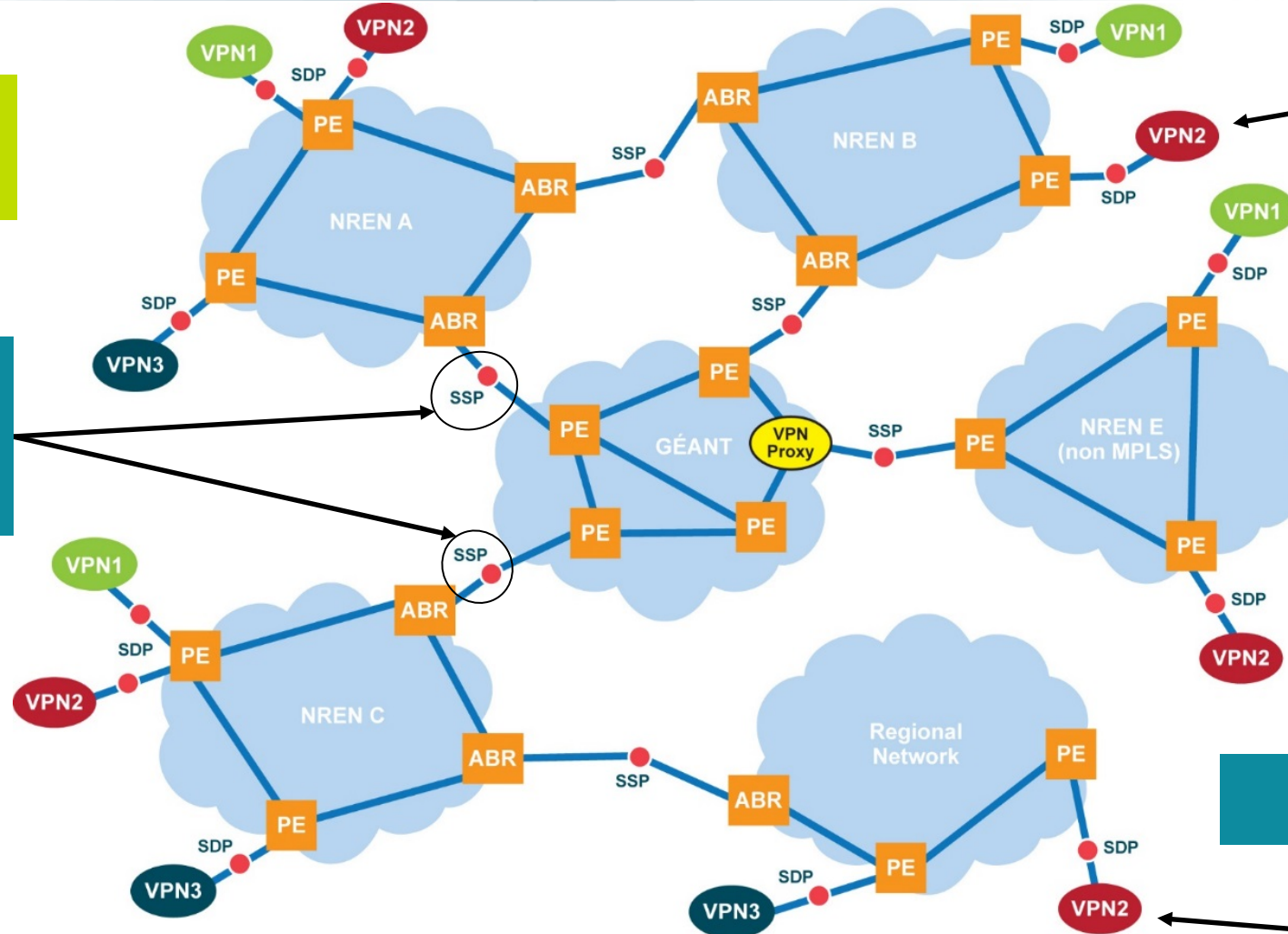
Configure only at
the edge

VPN
Provisioning
as easy as in a
single-domain

An end-to-end
extensible
and
flexible service

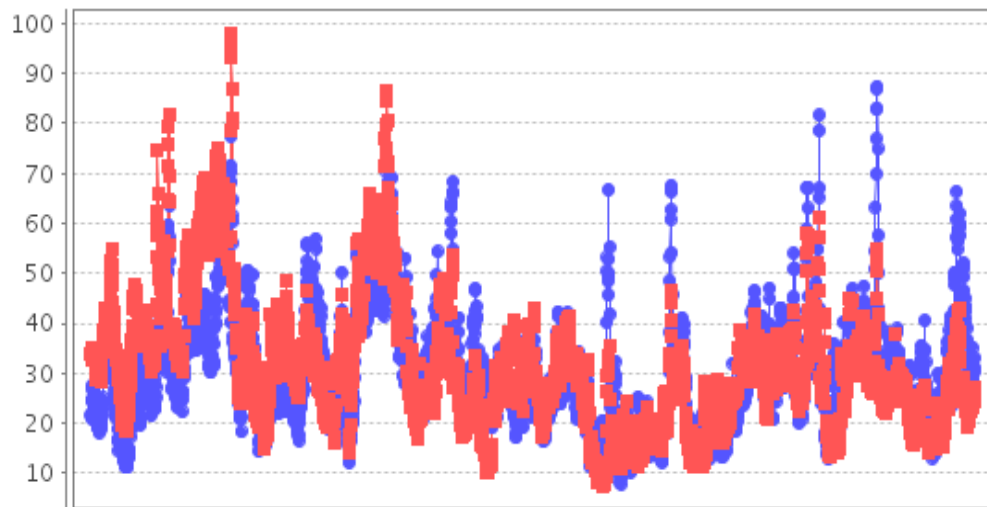
NREN OPEX Reduced

Configure only
at the edge



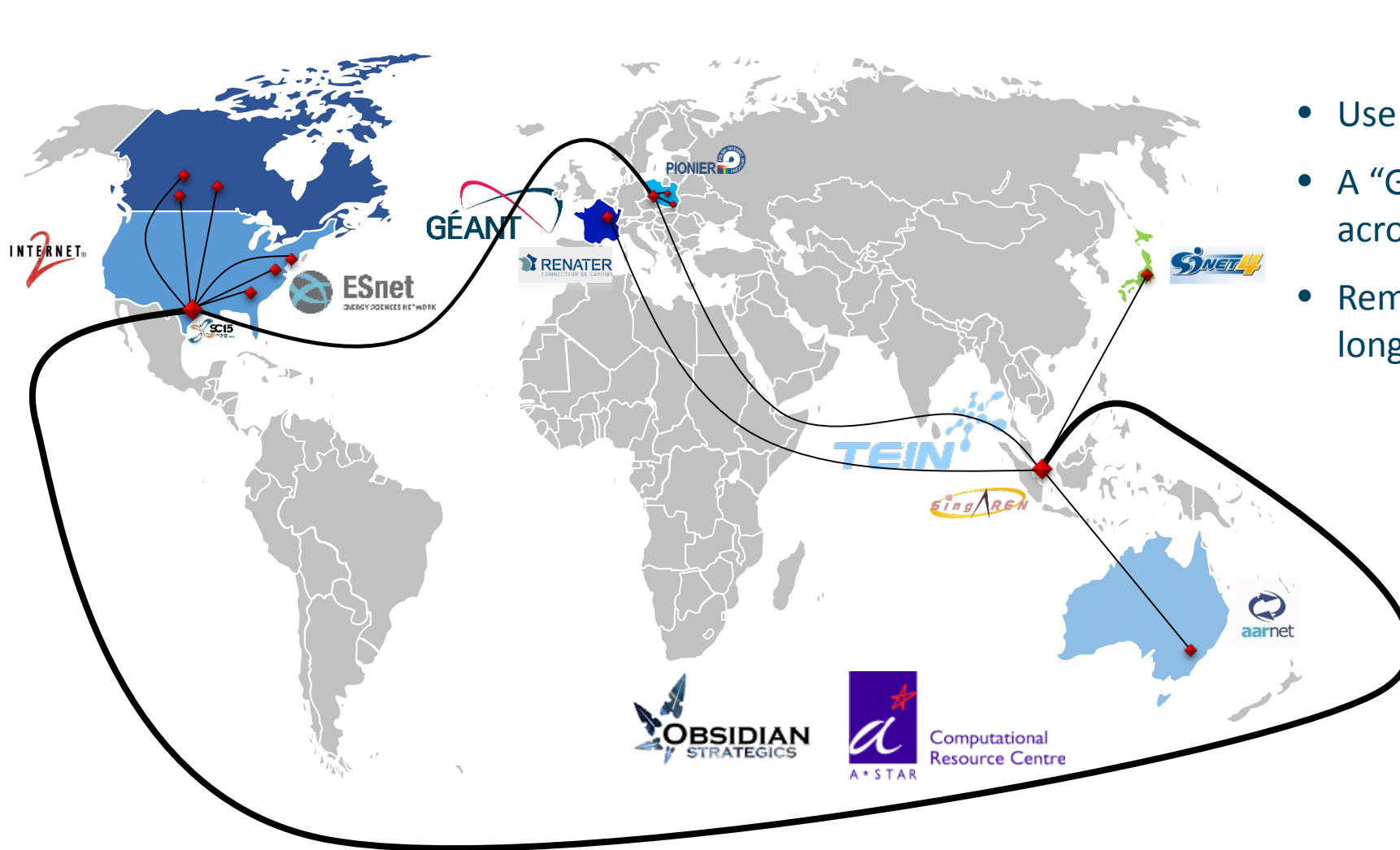
Connectivity Services: lambda service *CERN*

- Connection to the remote data centre in Budapest
- First ever 100G user service in R&E community
- In operation since 11/2012
- A second 100G has been deployed in January



Connectivity Services: GÉANT+ circuits

InfiniCortex project



- Use of InfiniBand on the WAN
- A “Galaxy of Supercomputers” scattered across the world
- Remote Direct Memory Access over long-distance connection

Network Performance Monitoring: *perfSONAR*



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/>



PerfSONAR

Please log in using your perfSONAR UI account or a Federated Identity Provider

perfSONAR UI:
Login using embedded user database

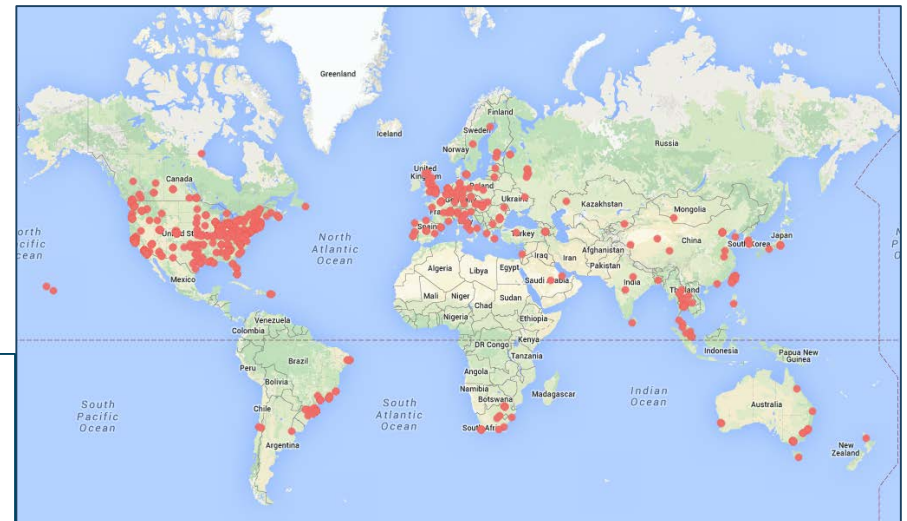
[perfSONAR UI Login](#)

Federated Login:
On the next page please select your Identity Provider from the list and complete login with your credentials

[Organizational Login](#)

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

- Over 1100 BWCTL and OWAMP MP's deployed globally



The GÉANT Performance Community for All: *eduPERT*



- 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



Trust and identity: *AARC and eduTEAM*



The GÉANT eduTEAM service was developed to provide a platform as a service Authentication and Authorization infrastructure for Collaborative Organizations (VOPaaS)



By adopting a collaborative and user-requirements driven approach, AARC works to deliver a framework that builds on eduGAIN but it is interoperability with existing AAls.



TNC17 Largest European Networking Conference <https://tnc17.geant.org/>



TNC17 - The Art of Creative Networking

Linz, Austria 29 May - 2 June 2017

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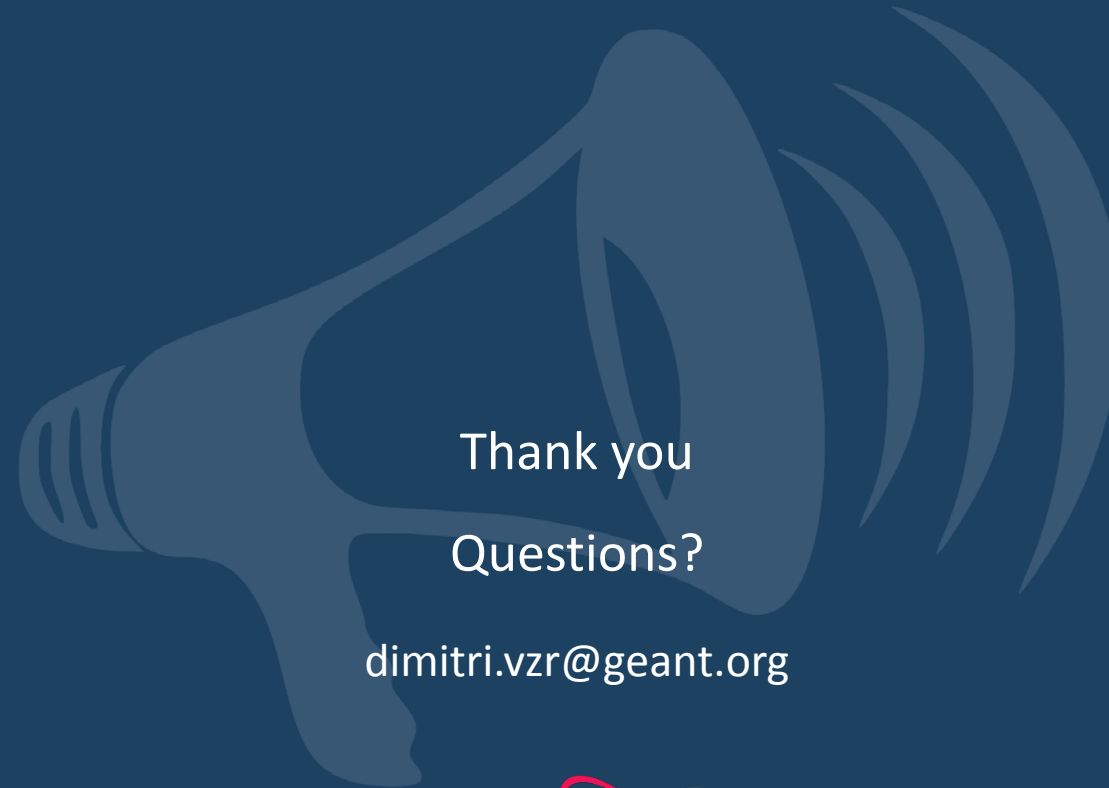


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Thank you
Questions?

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