

e-infrastructure CZ, GÉANT

*Jan Gruntorád
CEO CESNET, A.L.E.*

Based on the recommendations of the International Review Panel Ministry of Education, Y & S decided to fund starting from 2020 e-Infrastructures in CZ via one consolidated project in both programs:

- Large Infrastructures II (VI - operation)
- Structural Funds (OP VVV II -capital investment)

One project already included in Roadmap of Large Infrastructures for Research, Technology Development and Innovation of the Czech Republic

Large infrastructure basic data

Name: **e-infrastruktura CZ**

Acronym: **e-INFRA CZ**

Host institution: CESNET, A.L.E.

Partner institutions:

Masaryk University

VSB – Technical University of Ostrava

Responsible person: Jan Gruntorád

Web pages: www.e-infra.cz

e-INFRA CZ – unique e-infrastructure for research development and innovation in CZ

Main components of e-infrastructure:

- 1) high performance national communication infrastructure
- 2) national grid and cloud infrastructure
- 3) the most powerful and the most modern supercomputing systems in CZ
- 4) high capacity data storages
- 5) AAI, security, multimedia,

E-infrastructure e-INFRA connects together all 3 national e-infrastructures in Czech Republic:

- 1) CESNET (e-infrastructure CESNET)
- 2) CERIT-SC (CERIT Scientific Cloud)
- 3) IT4Innovations (IT4Innovations National Supercomputing Center)



e-INFRA is national node in Czech Republic for following pan-European and Global e-infrastructures:

- Communication infrastructure GÉANT
- European Grid infrastructure EGI
- European HPC infrastructure PRACE (Partnership for Advanced Computing in Europe)
- Global experimental infrastructure GLIF (Global Lambda Integrated Facility)

It is also active in the following European initiatives:

- EOSC (European Open Science Cloud)
- EuroHPC (European High-Performance Computing)
- ETP4HPC (European Technology Platform for High Performance Computing)

GÉANT Association (merge of DANTE and TERENA)
will submit two project proposals on
13th November 2018:

GN4 – 3 (H2020 SGA – INFRA – GÉANT 2018)
39 participants

GN4 – 3N (H2020 – Adhoc – 2014 – 20)
39 participants

GÉANT topology - Today

- 2012 design in place since... with very little change
- DF and lease capacity on short procurement cycles and driven by short term requirements
- Regional connectivity hub and spoke with central part of the network

Fibre 'core' in **green**

Leased capacity in **black**

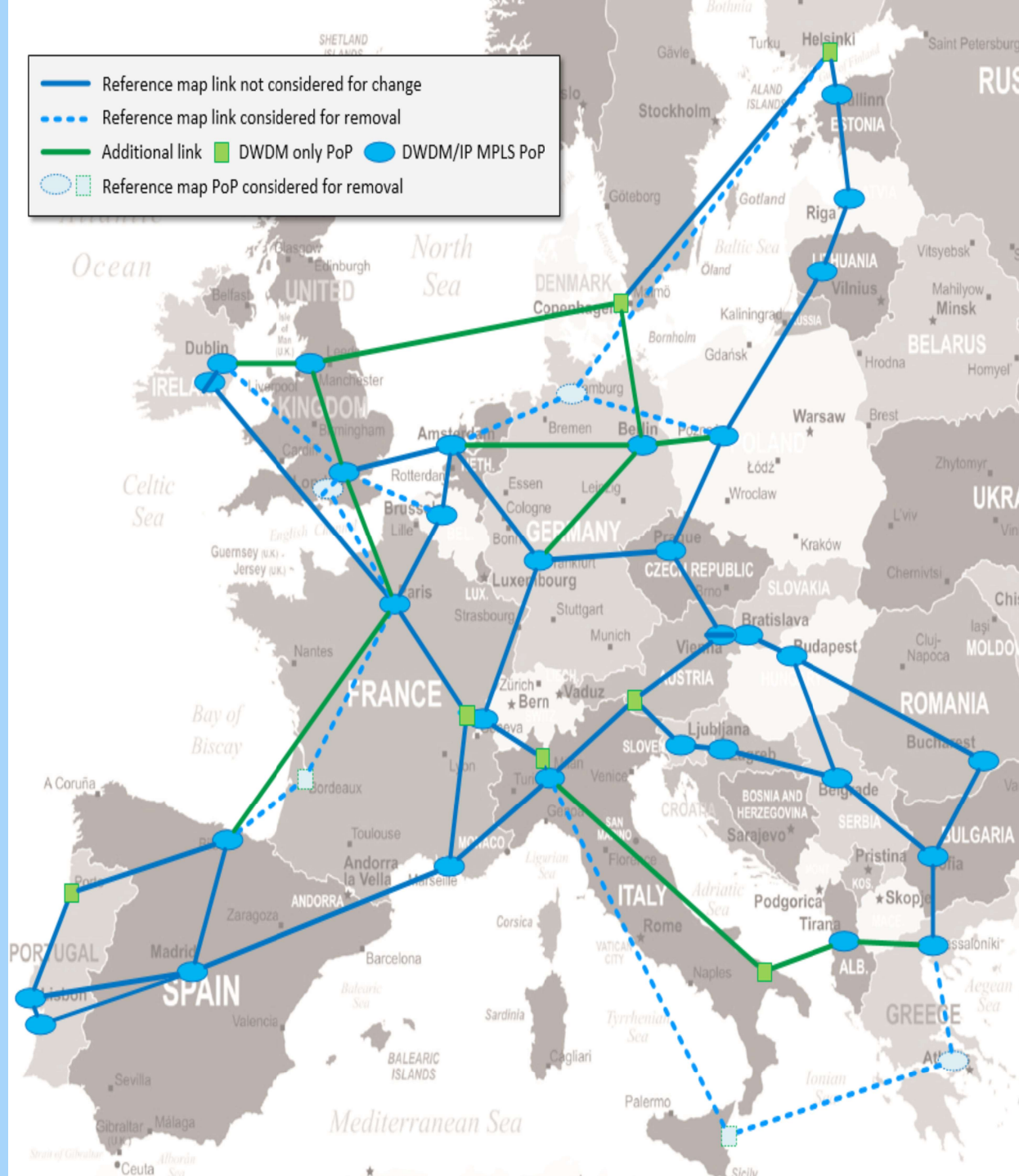
Spectrum in **orange**

PoPs **blue circle**



GÉANT topology – where next

- This is an evolving map and a number of options are being considered
- .. including countries not on the footprint and synergies with the other international projects
- Use of IRU (Indefeasible Rights



Traffic and growth

Network Traffic 2017

Average volumes were 3.13PB per day for the IP/MPLS network, average daily rate of 289Gbps

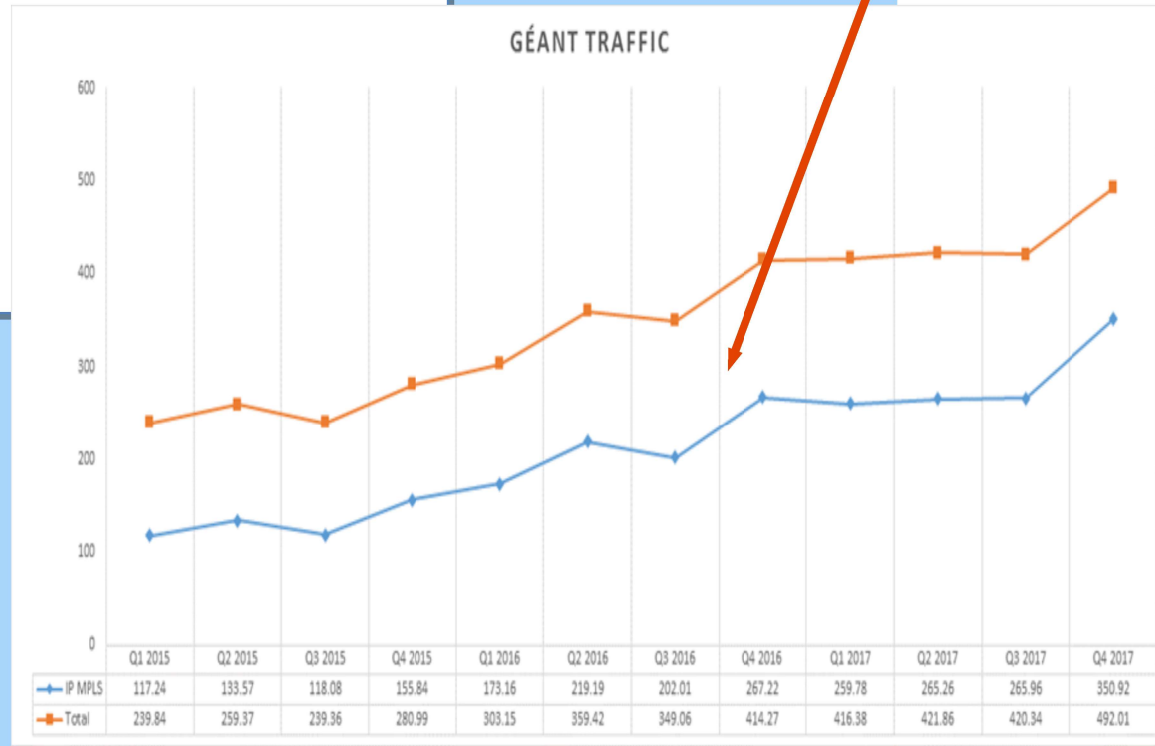
Average volumes including Lambdas are 4.79PB day or an average data rate of 444Gbps

Science traffic growth: 43%

Internet traffic growth: 26%

Growth of science traffic almost 2x internet service growth. Solution tailored for ISPs might not be enough for GÉANT.

IP/MPLS grow rate 58% over 2 years



Thank you for your attention