



# ***CESNET – from NREN to e-Infrastructure Provider***

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## *Facts about the Czech Republic (since 2004 Member of the EU)*

*Location: In the centre of Europe*

*Neighbor countries: Austria, Germany, Poland, Slovakia*

*Area of the CR : 78 866 square km*

*Population of the CR : 10,54 million inhabitants*

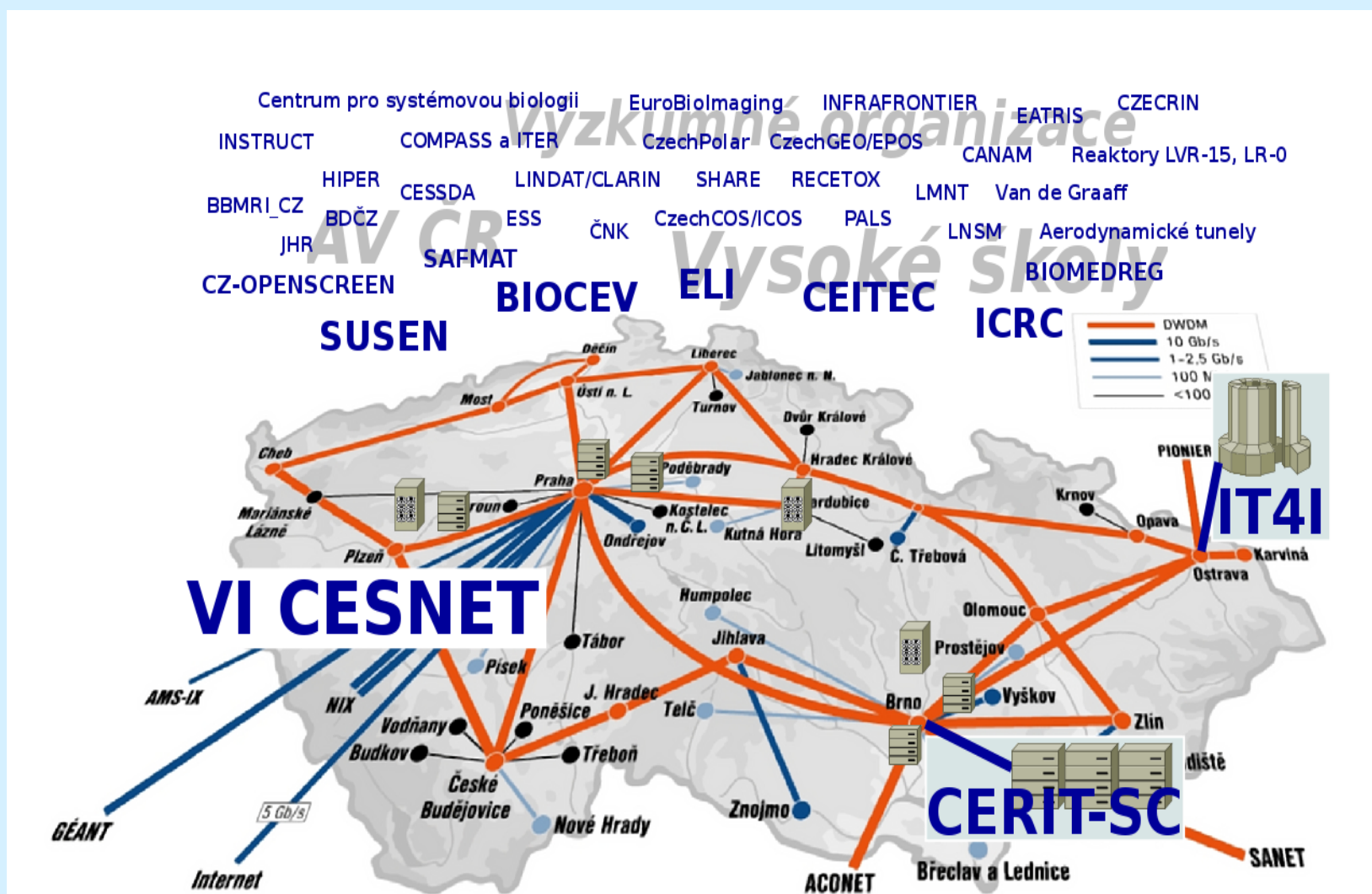
*Location of Prague : In the centre of Czech Republic*

*Population of Prague : 1,26 million inhabitants*





[http://www.infrafrontier.eu/docs/national\\_roadmaps/Roadmap\\_CR.pdf](http://www.infrafrontier.eu/docs/national_roadmaps/Roadmap_CR.pdf)





## *About CESNET a.l.e.*

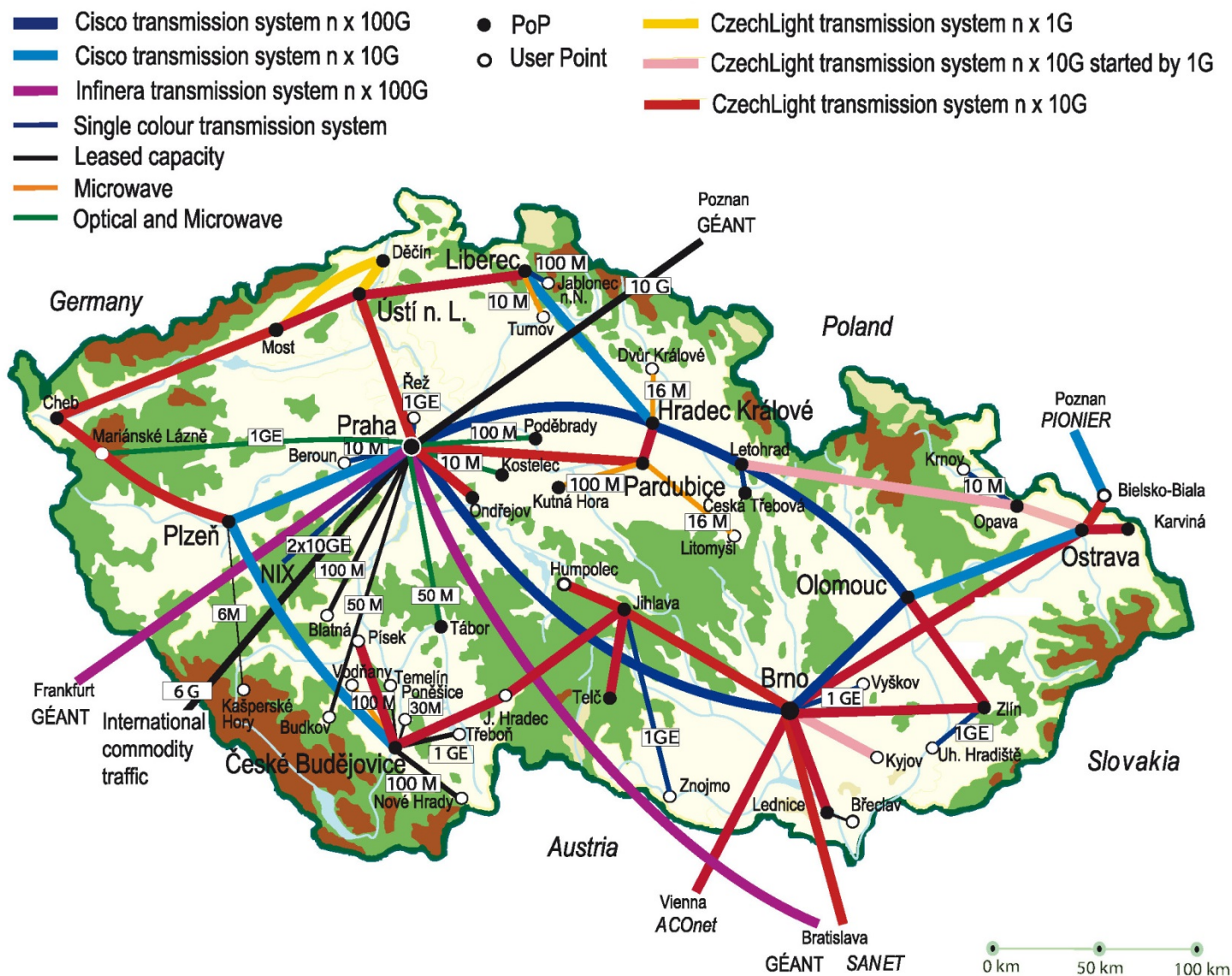
- *CESNET, Association of Legal Entities, was established in 1996 by the Czech universities and Academy of Sciences*
- *Non-profit organization oriented to major activities:*
  - *Development and operations of e-infrastructure in the Czech Republic to support science and research (non-public operator)*
  - *Research and development of advanced network technologies and applications*
  - *Participation in many international projects*
    - *GN4, GLIF, EGI (European Grid Infrastructure)*
    - *GÉANT Association Member, Internet2 affiliate member*
  - *CESNET2 members are all government founded Czech universities and Czech Academy of Sciences*
- *More information on <http://www.cesnet.cz>*



## *About CESNET a.l.e.*

- ***CESNET e-infrastructure services components:***
  - ***Network communication infrastructure***
    - ***Advanced DWDM optical and IP/MPLS infrastructure (connected to GEANT, GLIF)***
  - ***Grids (clouds)***
    - ***Advanced national grid infrastructure and its integration with the European environment of the EGI (European Grid Initiative)***
  - ***Data storage***
    - ***Provide storage capacity implemented as Hierarchical Storage Management (HSM) solution***
  - ***Collaborative environment***
    - ***Complex collaborative environment for research institutions and project teams***
    - ***IP telephony, high-quality videoconferencing, high-quality videostreaming, user identity management and others***







## National Grid Infrastructure (NGI) in CZ

- *clusters and powerful servers, storage facility*
  - *11 centers – Plzeň, Prague, Brno, České Budějovice*
- *currently 11 500 cores (4 734 CESNET, 4 936 CERIT-SC)*
- *2,5 PB of disk storage (scratch, semi-permanent)*
- *permanent storage provided by CESNET directly accessible from all NGI resources*
- *central management of clusters, accounts, software, computational jobs*
- *another 4000 cores and 2 PB accessible via Institute of High Energy Physics to EGI (LHC)*
- *Access provided via grid, cloud and Hadoop interfaces*

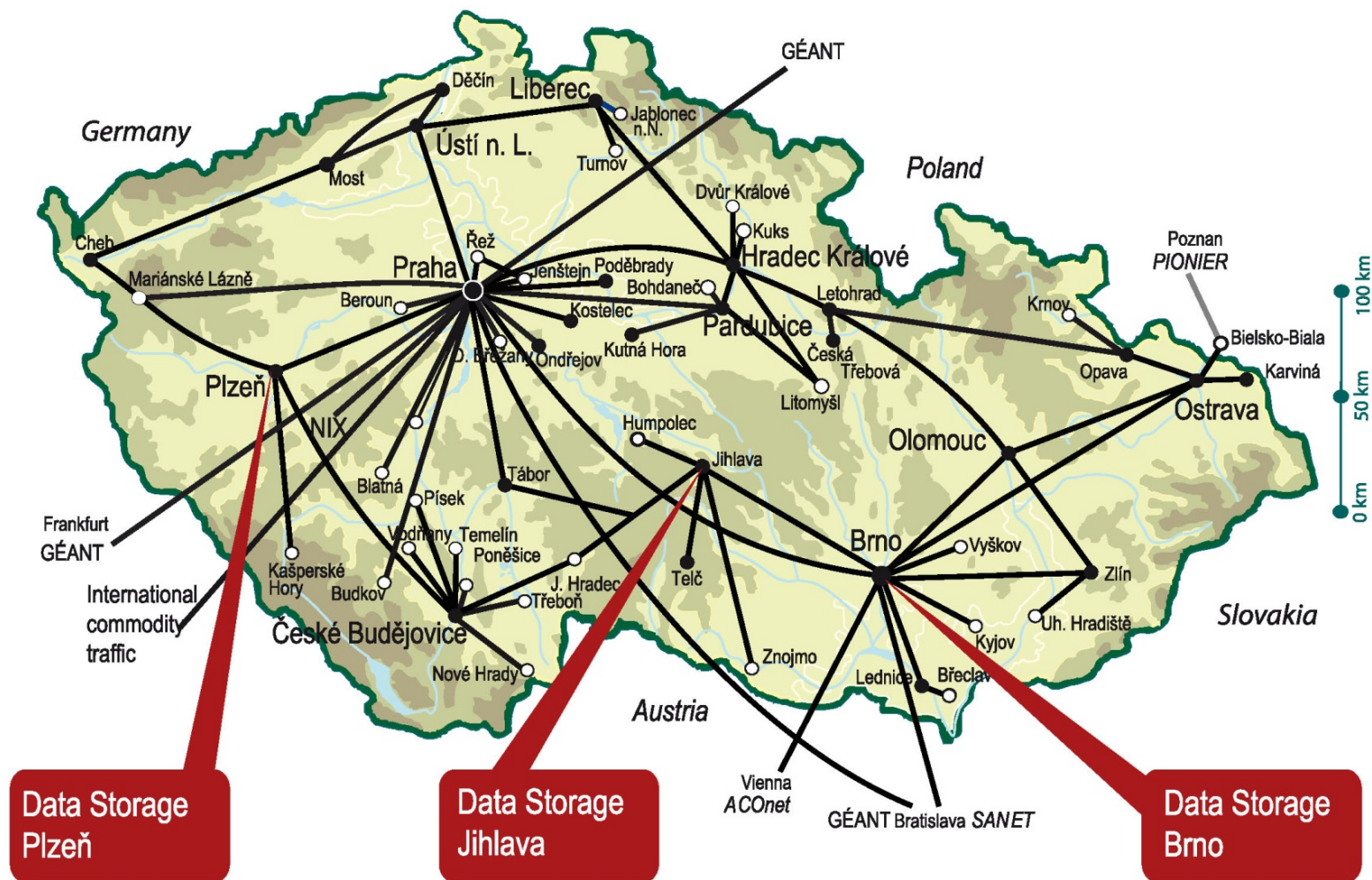
## *NGI in the Czech Republic*



# Data storage infrastructure

- *three storage sites: Plzeň, Jihlava, Brno*
- *hierarchical storages: disks/tape library/MAID*
- *total raw capacity approx. 21 PB*
- *facility in Plzeň (approx. 9 PB) in operation since May 2012*
  - *500 TB disks, 4800 TB tapes, 3584 TB MAID*
  - *SGI data migration facility, CXFS*
- *Jihlava and Brno (about 6 PB each)*
  - *installed in 2013*
  - *2.4 PB disks+3.7 PB tapes in Jihlava, 2.6+3.5 in Brno*
  - *both based on IBM GPFS and TSM*
- *utilization 60 % Plzeň, 62 % Jihlava, 80 % Brno*
- *available through various protocols for file system access*
- *special services: FileSender, ownCloud*

## CESNET data storage







# *15th Annual Global LambdaGrid Workshop*

*September 28 – 30, 2015*

*Hotel International, Prague, Czech Republic*





## *Tuesday, September 29th*

*18.00 – 20.00 Reception & Demonstrations*

*Hotel International - Šárka, Krok and Teta Rooms*

## *Wednesday, September 30th*

*19.00 – 21.00 Dinner*

*Sightseeing Cruise on the Vltava River*

*- bus transport arranged from Hotel International*





*Gold sponsor*



*Bronze sponsor*



*Sponsor*



*Have a nice stay in Prague!*

