

# Masaryk University IT services



**Břetislav (Bruce) Regner**

[regner@ics.muni.cz](mailto:regner@ics.muni.cz)

**Institute of Computer Science**



## ■ Service hierarchy

- **CESNET (Czech Education and Scientific Network), CR**
- **Institute of Computer Science, MU/Brno**
- **IT departments, faculties**
- **Employees (lab technicians, PhD students...) at departments**



## ■ **CESNET**

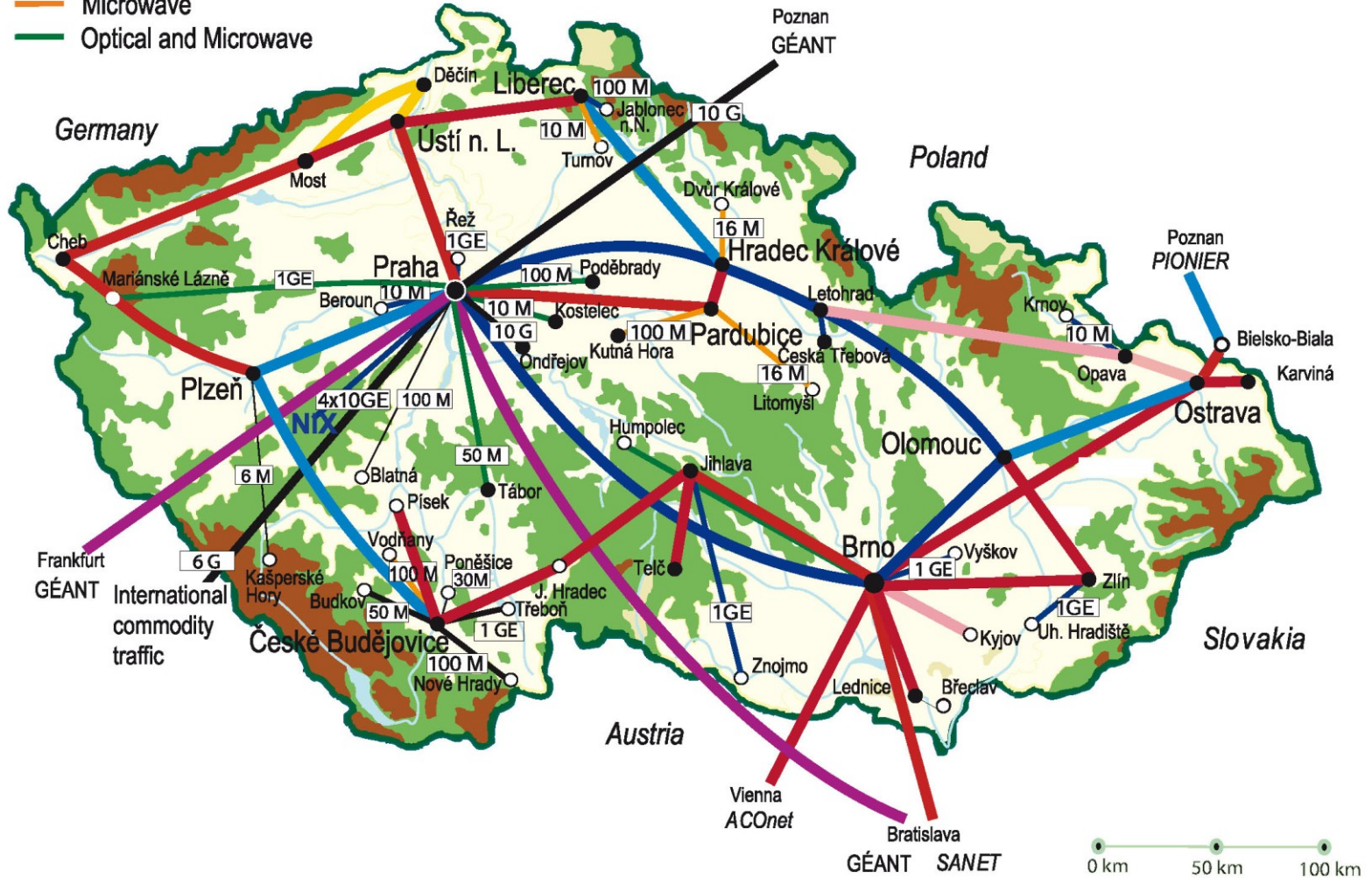
**Association of Czech Universities and the  
Czech Academy of Sciences**

**National (academic) IT services**

- **Networking**
- **Computing&storage**
- **Collaboration/communication support**
- **Security (CSIRT)**
- **Identity and digital certificates**

# CESNET2 Topology (June 2013)

- Cisco transmission system n x 100G
- Cisco transmission system n x 10G
- Infinera transmission system n x 100G
- Single colour transmission system
- Leased capacity
- Microwave
- Optical and Microwave
- PoP
- User Point
- CzechLight transmission system n x 1G
- CzechLight transmission system n x 10G started by 1G
- CzechLight transmission system n x 10G





# ■ Storage & Computing

**16 PB storage (including tapes)**

**Coordinator of MetaCentrum (NGI, part of EGI)**

**National e-infrastructure coordination (IT support for R&D)**



# ■ Collaboration support

**Video - and webconferencing**

**National (academic) installation of Adobe Connect (MUST, Friday Afternoon)**

**IP telephony (free telephony within CESNET, IP connection abroad)**



# ■ Identity and certificates

**eduID.cz federation (Shibboleth)**

**TERENA certificates (personal and server)**



# ■ Institute of Computer Sciences

IT Service provider for MU (and Brno)

Central MU facilities

Close cooperation with CESNET

- Common projects





# ■ Faculties

## IT departments

- Local IT support (installations, repairs)
- Local mail/webservers, local networks,  
...

## Technicians at Departments

- Lowest-level IT Support or Specialized Services



# ■ Identity management

UČO

Primary and Secondary Password

Identity Cards



# ■ Information systems

## MU Intranet (INET) (MUST, Thursday Morning)

- Developed by ICS
- Economics, accounting
- HR, personal data
- Project management
- Financial control
- ...



# ■ Information systems

## MU Information System (IS MU) (MUST, Thursday Afternoon)

- developed by FI
- Study administration (enrollment, exams, e-learning, timetables)
- Discussion forums, e-votes, document server
- ... and much more



# ■ Libraries

**(MUST, Wednesday Afternoon)**

**Support for library services (ALEPH system)**

**Information resources – e-magazines,  
scientific publications (Wiley, Springer,  
Elsevier...)**



# ■ Networking

**Brno's Academic Computer Network (BAPS)**

**– 150 km of optical cables**

**10 Gbps Core Network**

**Customers: Courts, Schools, T-Mobile**

**WiFi AP – Eduroam and MUNI (captive portal)**

**VPN**

**MU network management and monitoring**

## **Telephony – internal phone system**

- **free calls within the MU (and other Universities in CR and Slovakia over CESNET)**
- **Cheap calls abroad (VoIP to peers, over CESNET )**
- **Currently preparing new Phone System (?? Including Instant Messaging, Videocalls)**



## ■ Data Storage

**“standard” – small (20 GB/employee), fast, reliable**

- **Samba, SCP**
- **Every Employee**
- **Students/Partners on Demand**
- **Self-Service, Web Interface**

**“middle” – 100s of GB – best effort**

**BIG – 10s to 100s of TBs (CERIT SC in cooperation with CESNET) (MUST, Wednesday Morning)**



# ■ (Super)computing

## CERIT SC (MUST, Wednesday Morning)

- project/national storage and computing center, part of national e-infrastructure
- 3,5 PB storage (incl. Tapes)
- 3500 processor cores
- Scheduling, job planning, resource allocation



# ■ Hosting and Virtualization

**Webhosting (CMS Umbraco) (MUST, Thursday Morning)**

**Linux hosting (Linux Account, OpenVZ containers)**

**VMWare virtualization system (100 cores)**

**Virtual machines on CERIT “cloud” – Open Nebula over KVM/Xen/VMWare)**



## ■ **Audio/Video**

**(MUST, Friday Afternoon)**

**Lecture recording support, transcoding,  
publishing**

**Videoconferencing (Adobe Connect,  
Tandberg/Polycom)**

**UltraGrid – support for Ultra-High Definition  
low-latency video – up to 4k, algorithm  
development**



# ■ **Central Computer Management**

**(MUST, Tuesday Afternoon)**

**Deployment – OPSI system**

**Management - Active Directory**

# ■ Software

## Campus-wide licences

- **Servant Salamander**
- **Statistica, SPSS, SAS**
- **ArcGIS**
- **ASPI (juridicial SW)**
- **Matlab 5**

# ■ Software

## Concurrent licences

- Maple
- Matlab

## MS Software - MS Select

Adobe - Adobe contract (Creative Cloud coming soon☹)

Antivir – NOD/AVG



# ■ Computer rooms

**(MUST, Tuesday Afternoon)**

**About 1000 computers accessible for students**

**University computer centre – 130 computers available 24/7 at Komenskeho square**

**Printing/scanning**



# ■ IT Security

**(MUST, Friday Afternoon)**

- **Network Traffic Monitoring**
- **Incident Handling**
- **Research, Cooperation with Industry**
- **Cooperation with National Security Authority and Police**





## ■ Others

**Large-format prints (up to A0)**

**Identity cards printing**



# ■ ICS structure

## Divisions:

**Communication infrastructure**

**Computational and Storage infrastructure**

**Information Systems**

**User Support**

**Q&A?**

**Jméno Příjmení**

**[jmeno@ics.muni.cz](mailto:jmeno@ics.muni.cz)**

**<http://www.ics.muni.cz/~jmeno>**