NETWORK AND SECURITY RESEARCH AND PROVISIONING

High-Speed Networking and Security

- in HPC and Cluster Computing

- in local and European infrastructures and projects

GCS and HGF

- Operation of a 100 Gbit/s communication infrastructure between the three German GCS centres

- Assessment and optimization of the connectivity on the national and European level

- Participation in a VPN among Helmhotz centres on top of the DFN X-WiN network

HBP Human Brain Project

- EU – FET Flagship 2013 – 2023

- JSC leads
    - Work Package 6 - EBRAINS Computing Services
    - and contributes to Task 6.10 Policy management and security

HPC Networking

- Tailored network solutions

- Heterogeneous HPC environment
    - Multi-Terabit Switch Fabrics
    - Low-Latency Interconnects
    - Design, deployment and tuning

- Technology evaluation for HPC
    - Emerging network standards
    - Proprietary developments jointly with industrial partners
    - Addressing current & future HPC networks

- Monitoring solutions for HPC networks

LOFAR

- Virtual radiotelescope

- > 45 antenna stations generating sustained observation data-streams of 3 Gbit/s each

- JSC: Coordination & support of data and network for German partners
    - Bundling, archiving and local processing of data at JSC
    - Multi 10 Gbit/s star network (center at JSC)
    - 2 * 10 Gbit/s uplink to Groningen
    - Participation in network- and data-infrastructure preparation projects for next generation distributed radiotelescope Square-Kilometer-Array (SKA)
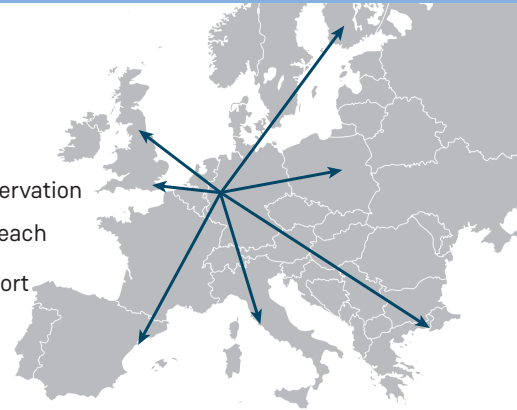
Security for FZJ and participation in projects

- High-speed firewalling

- Intrusion detection

- Security policies and procedures

- Secure operation of HPC systems in VOs

- Security within Collaborating Infrastructures WISE, HBP/EBRAINS, EOSC-Hub, GCS and others

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Version: 2022

PRACE

- European Tier-0 HPC Infrastructure (since 2010)
- EU Implementation Projects coordinated by JSC (2008 – 2021)
- Distributed HPC environment for Tier-0 & Tier-1 systems
- JSC: Responsible for design, implementation and operation of the PRACE Multi-Domain VPN network

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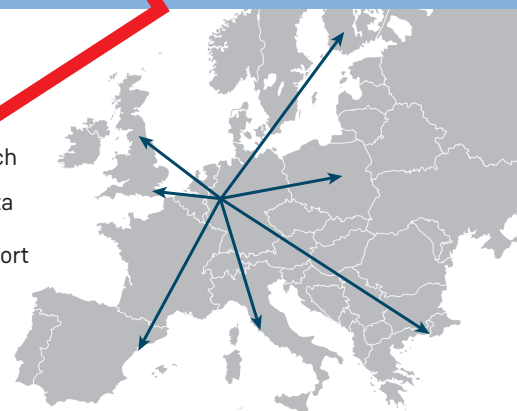
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