



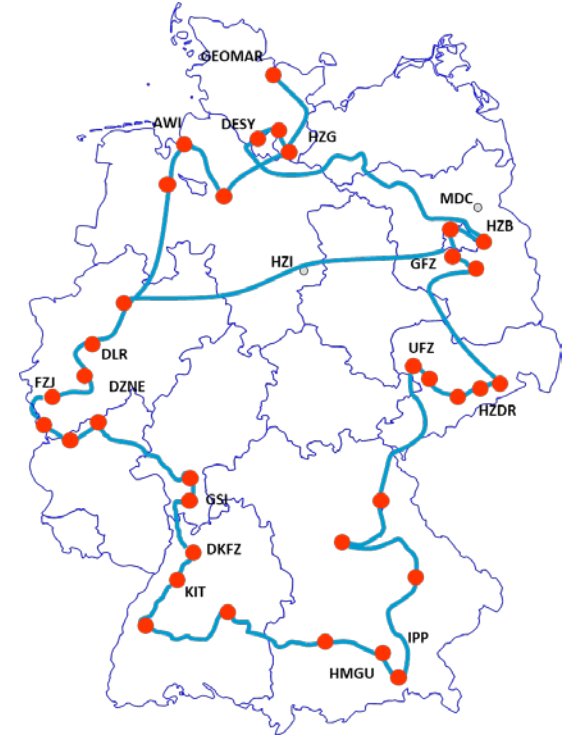
Status of the HIFIS Backbone Network

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DESY

HIFIS Meeting, Oct. 21./22. 2020

The networks of the individual Helmholtz Centers are to be interconnected on the basis of a high bandwidth network with mutual trust and increased overall security

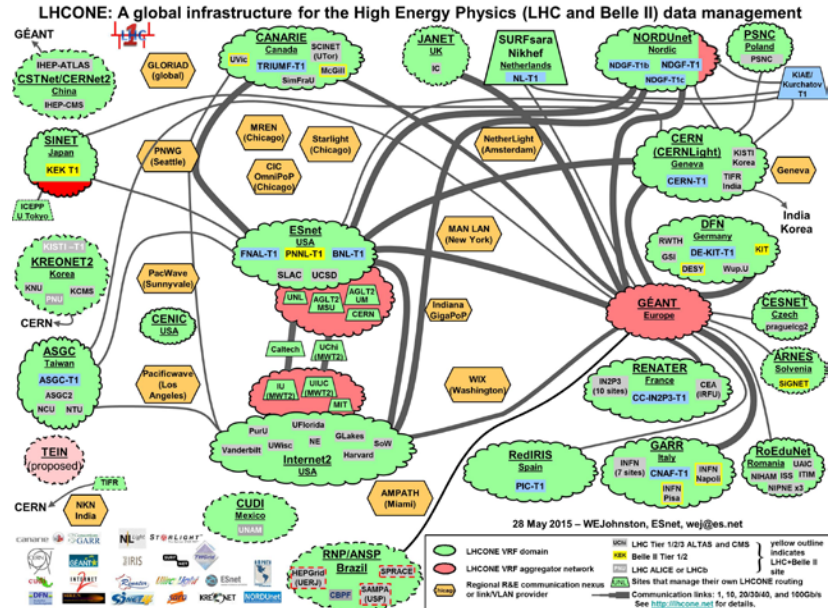
- Benefits
  - Trust and secure relationship
    - > less strict ACLs or firewall rules
  - Higher bandwidth
    - > e. g. Firewall bypass
  - Advanced Services
    - > e. g. realtime services via QoS
- “A Backbone, not a VPN”



# LHCONE: A Blueprint for an HGF Backbone



- Worldwide overlay network for analysis of LHC data on the infrastructures of the respective NRENs
- Routing protocols allow for high scalability and redundancy
- High trust level through coordinated routing policies
- Scalable connection via point-to-point lines or packet tagging on existing access ports



- „Dienstvereinbarung“ with DFN has finally been signed end of June 2020
  - Participating sites in the first step are AWI, DESY, DKFZ, GEOMAR, GFZ, GSI, HMGU, HZB, HZDR, HZI, HZG, KIT, MDC, and UFZ
- Started with regular bi-weekly video conferences in the last months

## Dienstvereinbarung

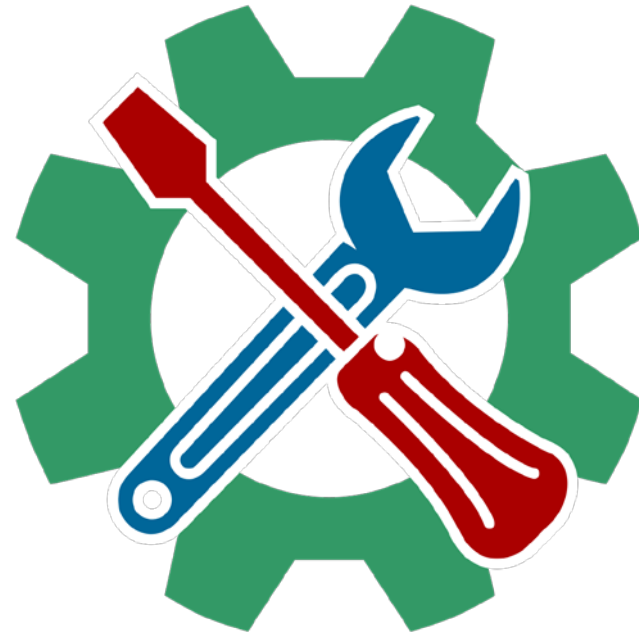
zwischen

dem Verein zur Förderung eines Deutschen Forschungsnetzes e. V.  
Alexanderplatz 1, 10178 Berlin,  
– in der Folge als „DFN-Verein“ bezeichnet –

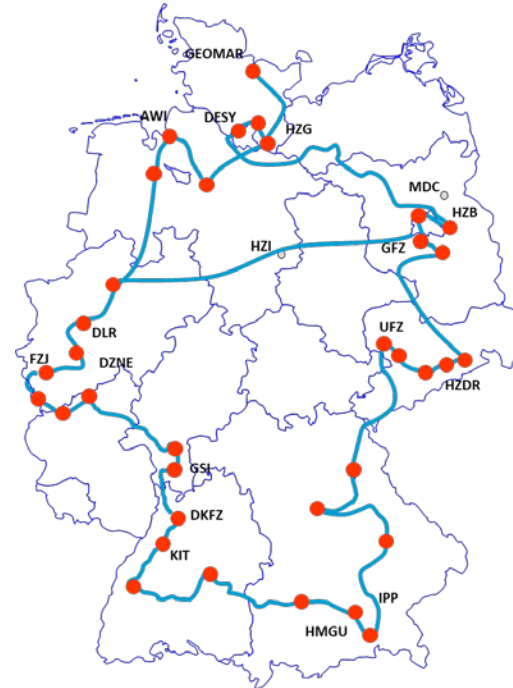
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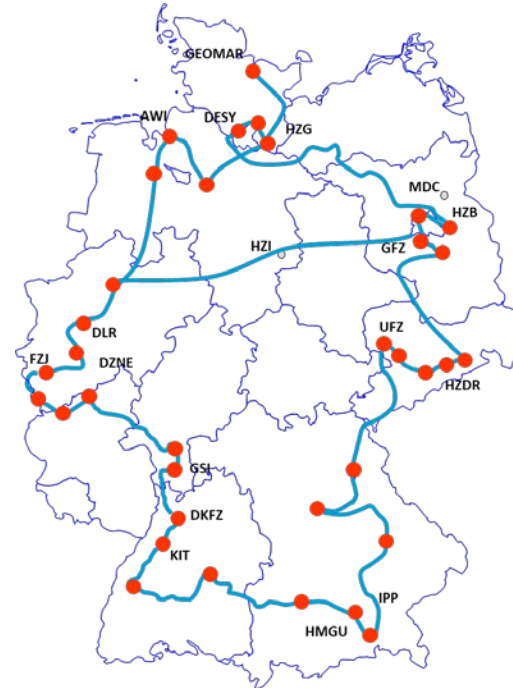
- Realization as an overlay on the DFN X-WiN
  - Uses existing X-WiN connections, no new links or additional bandwidth at the beginning
- Implementation will be done on a site per site basis
- Starting with sites which have already experience with overlay networks
  - DESY and DKFZ was first pilot implementation
  - Currently working on the HZDR connection
  - First steps for KIT have been initiated



- Setup of further sites
  - Focus is not on bandwidth etc. but about the logical layout
- Proof of concept an testing for
  - Routing policies
  - Possible hardware and software issues
  - Firewall bypassing
  - ...
- Documentation and Monitoring



- Definition of network prefixes to be exchanged
  - Entire sites or just some subnetworks?
- Definition of Routing Policies and Firewall Rules / ACLs
  - Which services are going to use the network?
- A first possible use case is to "directly" connect HZDR equipment at the European XFEL via DESY to the HZDR networks



- With the signature of the DFN contract implementation work has started with DKFZ, HZDR, KIT and DESY as first sites
- Additional sites within the next weeks
- Routing policies have to be defined when services start to use the HGF-Backbone

