

DE-KIT(GridKa) – 100G @ LHCONE

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The Steinbuch Centre for Computing (SCC) at Karlsruhe Institute of Technology (KIT) is running the German LHC Tier-1 site and therefore involved in design and development of LHCOPN and LHCONE from the very beginning. KIT had previously established for the LHCOPN, the vpn network connecting tier-1 sites to tier-0 (CERN), 10Gbps links to multiple tier-1 sites in Europe. These links connected DE-KIT(GridKa), not only to tier-0, but also directed tier-1 to tier-1 traffic and provided the backup facility in case of a tier-1 to tier-0 link failure. The move towards 100Gbit technology was already highlighted at a talk at Chep 2012 “Status and Trends in Networking at LHC Tier1 Facilities”. However, it was only affordable with the latest range of emerging 100G technology products. With the last development of LHCONE, the dedicated LHCOPN links could be merged as part of the current 100G LHCONE uplink of DE-KIT.

Beside discussion the current LHCONE deployment at DE-KIT the talk will contain a view of the historic involvement of KIT of the fairly early development of 100G technology environment, e.g.:

- The first 100GE wide area network testbed over a distance of approx. 450 km - initiated by DFN - which was deployed between the national research organizations KIT and FZ-Jülich in 2010.
- In 2013, KIT joined the Caltech SuperComputing 2013 (SC13) 100GE “show floor” initiative using the transatlantic ANA-100GE link to transfer LHC data from a storage at DE-KIT (GridKa) in Europe to hard disks at the show floor of SC13 in Denver (USA).

The talk will cover the connection to LHCONE, based on DE-KIT(GridKa) as an example of a tier-1 center and will further discuss different possibilities of LHCONE connections in a more abstract manner. The requirements and restrictions for a LHCONE connected site as described in the LHCONE-AUP will be debated as well.

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