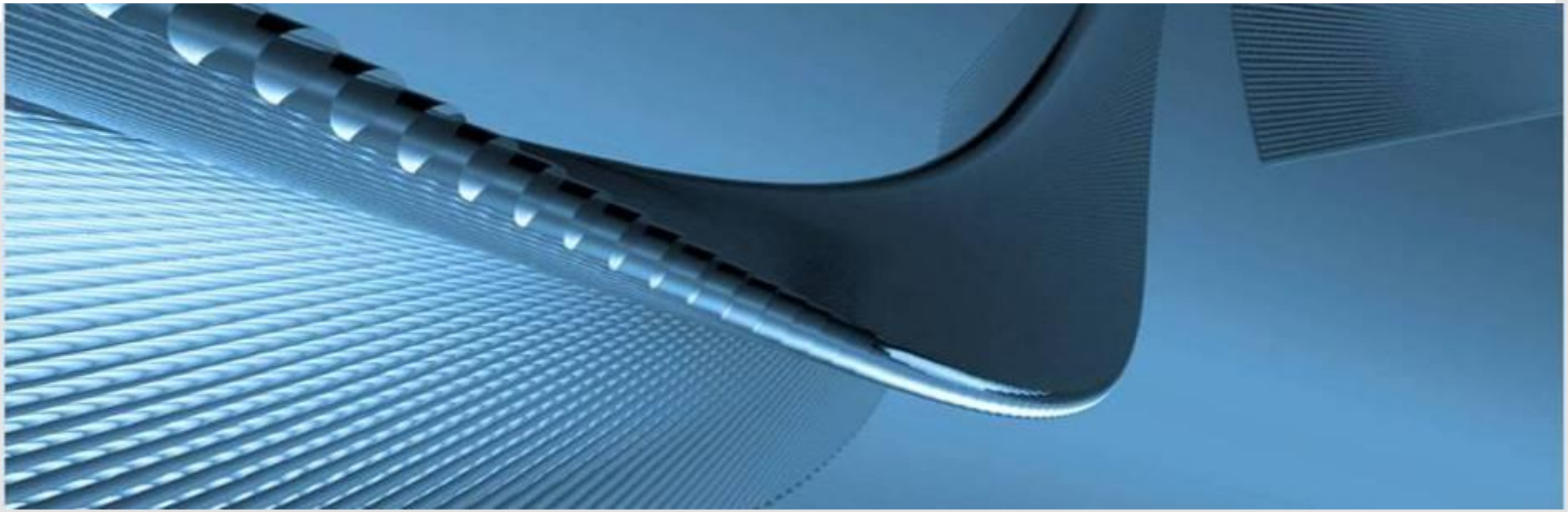
Karlsruhe Institute of Technology

Steinbuch Centre for Computing

Bruno Hoeft (KIT/SCC)

AutoKNF – status June 2013



AutoKNF

- **Auto**BAHN **K**IT **N**ORDUnet(Ndgf) **F**ermilab
  - Automated Bandwidth Allocation across Heterogeneous Networks the service architecture
  - Establish BoD P2P system based circuit → in five minutes
  - Reservation handling → **as easy as booking an air ticket**
  - Evaluation of dynamic infrastructure
    - Stable and Robust
      - 86,4 terabit in 24h, 86,4 *10^{12}
      - extreme low error ratio > 10^{-14}

CRC error	0 ✓
input/output error	0 ✓
packet drop	0 ✓
constant jitter	0 ✓

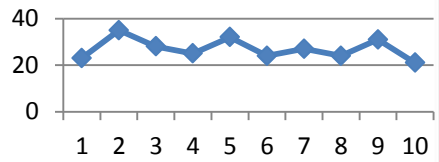


AutoKNF move to Production Env. ✓

- Circuit deployed between DE-KIT -- NDGF
  - deploy bgp instance @ border router of DE-KIT and NORDUnet
  - **activate dynamic circuit**
    - BGP instances exchanging routing prefix
    - routing table update
  - **decommission dynamic circuit**
    - BGP instances does not reach each other → timeout (? sec.)
    - Routing table update
      neighbor X.X.X.X advertisment-interval XX →default value 30 seconds (eBGP)
    - ssh session survive outage
- LHC project requirements
  - no time constraints
  - every thing within the TCP/IP protocol tolerance

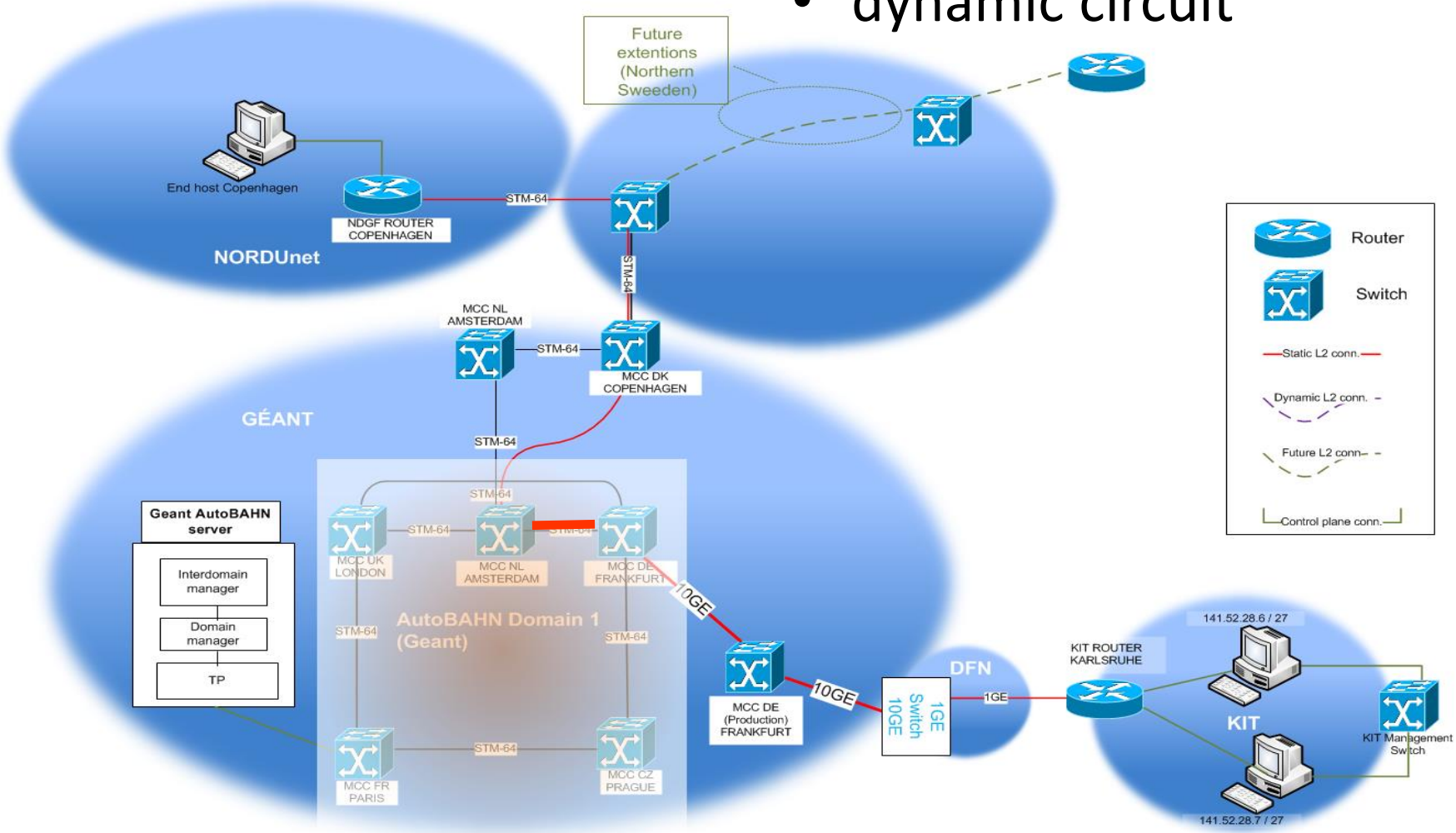
No outage
0 packet lost

sec.

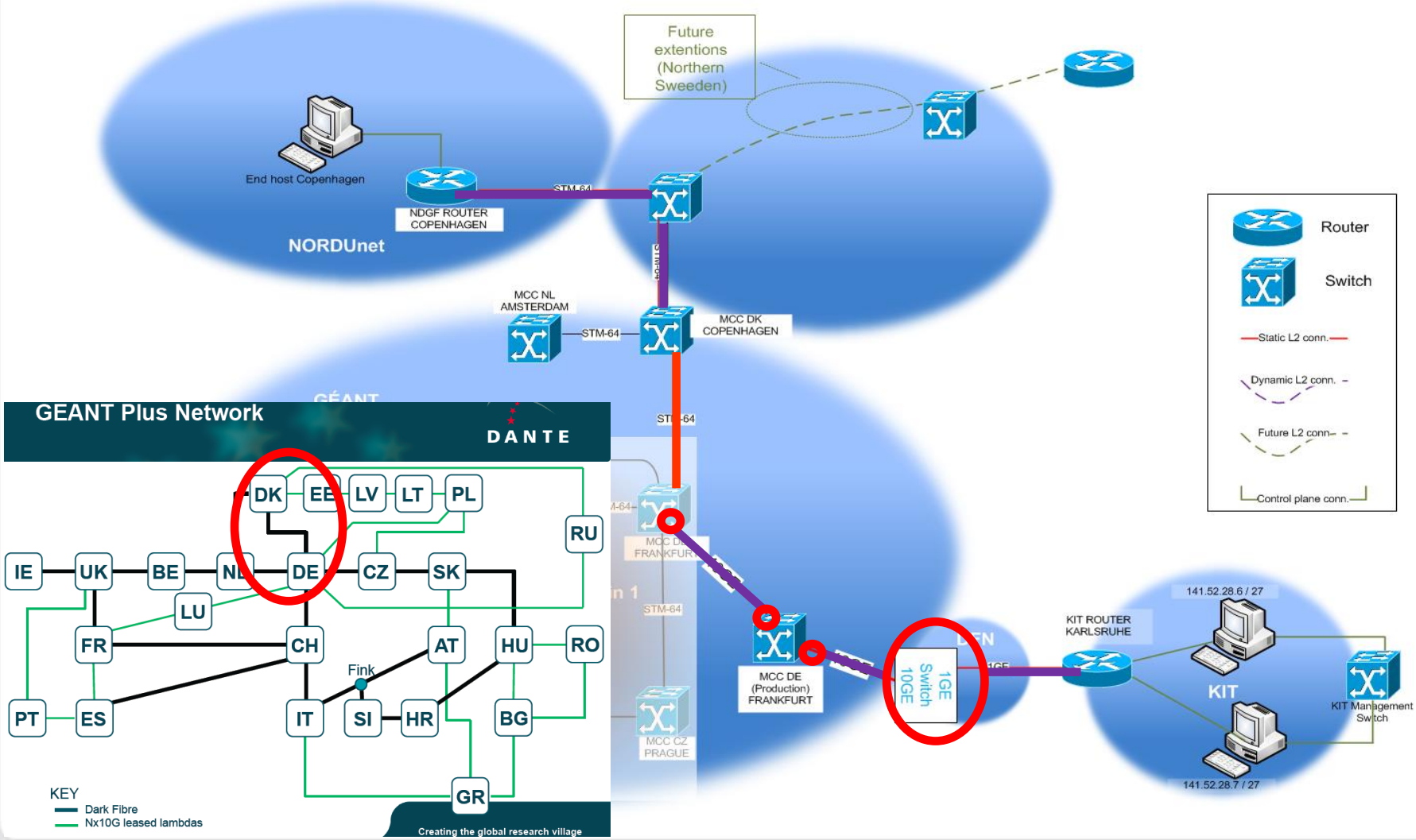


AutoKNF

- topology map
- dynamic circuit



New Geant BoD layout



gains

previous

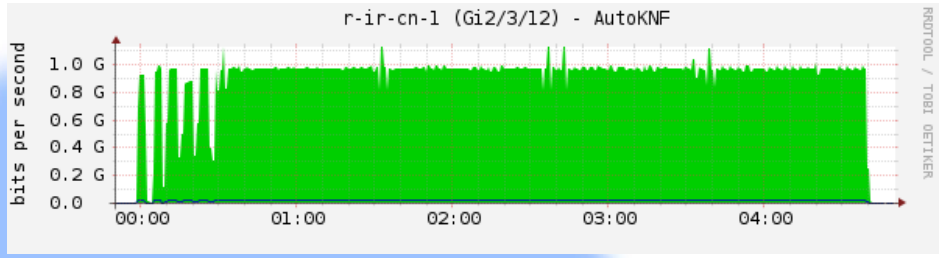
- rtt = 34.5ms
- BGP restore routing
  - Everage 32 sec
- BoD circuit establishing ~ 5 min

actual

- Shorter fiberpath → rtt = 23 ms
- BGP restore routing
  - Everage 28 sec
- BoD circuit establishing ~ 1.5 min.

P2p BoD -- DE-KIT ←→FNAL

- Dynamic circuit can be reserved
- AutoBAHN / OSCARS via IDCP
- host testbed pools at FNAL/KIT
  - Evaluate “stability” of transatlantic dynamic circuit
  - Error rate



P2p BoD -- DE-KIT ←→FNAL

Further plans:

- Connect the two tier-1 sites temporarily
- Current 2*1GE “direct” link between DE-KIT and FNAL
  - Add the dynamic circuit
- Connect other OSCARS participating us sites to DE-KIT
- Getting part of the “Inder ‘e2e’” testbed

Karlsruhe Institute of Technology

Steinbuch Centre for Computing

Bruno Hoeft (KIT/SCC)

AutoKNF – status June 2013