



# CERN T0 tape outlook for HI run

30/08/23 - Julien Leduc for CTA team

# Total available throughput for LHC experiments: 40GB/s to 52GB/s

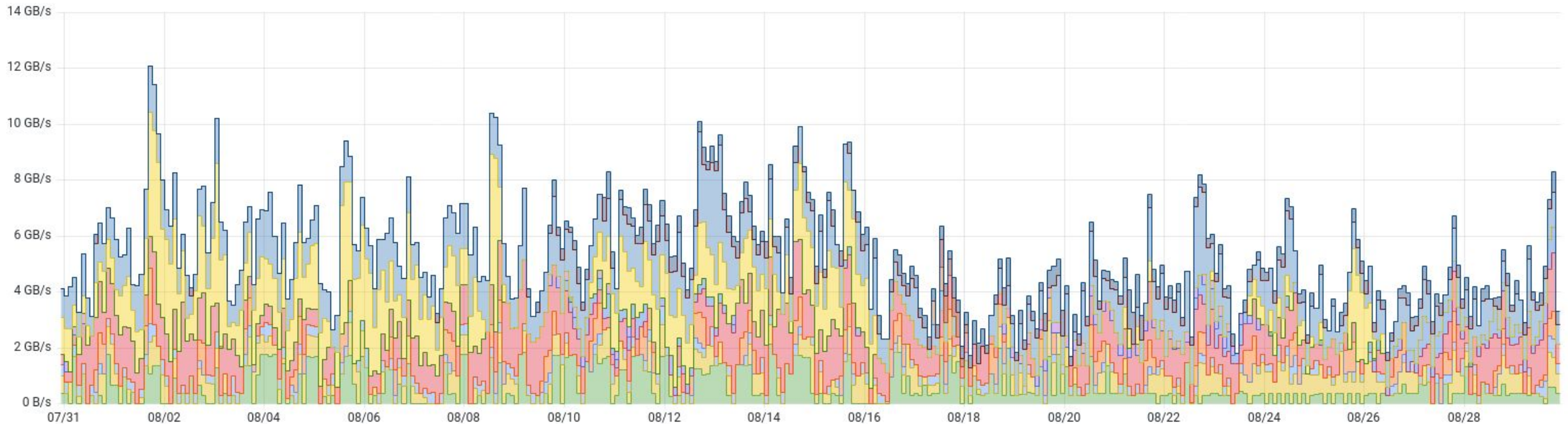
- **Per LHC experiment:**
  - SLA bandwidth to tape per LHC experiment: **10GB/s**
  - Maximum 20GB/s on a single instance (subject to total bandwidth constraints)
  - Archive tape buffer of approximately 200TB
- **Total shared throughput to tape:**
  - 60GB/s distributed over 5 tape libraries
  - Meant to cover library/drive losses:
    - 1 library loss removes 12GB/s of throughput leaving T0 tape with 48GB/s of throughput
      - Guarantees LHC traffic 4x10GB/s + non LHC traffic (6-8 GB/s)

**Depending on tape hardware availability and non LHC traffic:  
40 to 52 GB/s shared between LHC experiments**

**10 to 20 GB/s of archive traffic per experiment depending on others activity**

# Non LHC archive traffic: 8GB/s reserved

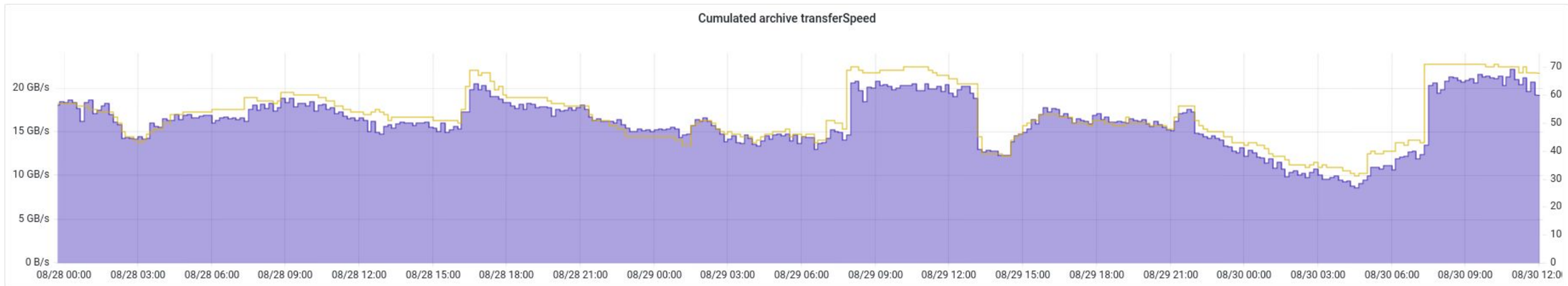
- **Up to 10GB/s of throughput over last 30 days**
  - SMEs
  - various backups to CTA
- **CTA must reserve 8GB/s for non LHC traffic**



# Additional throughput above 10GB/s SLA is on Best Effort basis

- **Archive Best Effort over SLA rules**
  - No tape staging allowed in the previous envelope
    - Assumes all tape hardware dedicated to archival
    - Staging activities will be delayed outside of archive peaks with low rate
      - Lowered staging rate according to global archival needs
  - **Experiments with high priority staging will get lower archive throughput**
    - for example: 3 drives allocated for staging means 1GB/s of archival bandwidth removed for this experiment

# Best Effort archive throughput example



- **Constraint-driven real life throughput**

- ALICE is currently archiving to tape from ALICE O2 between 10 and 20GB/s of throughput
- Fixed number of streams, single class of traffic
- Tape bandwidth fluctuates depending on external constraints

# Move non DAQ traffic (derived data/MC data) when there is no beam or after HI

