

# Workshop Introduction

Data Challenge 24 Workshop  
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- **WLCG has been mandated to execute data challenges for HL-LHC**
  - Demonstrate readiness for expected HL-LHC data rates
  - Increasing volume/rates
  - Increase complexity (e.g. additional technology)
  - A data challenge roughly every two years
- **DOMA is the coordination and execution platform**
  - Agreements across the LHC experiments and beyond
    - Suited dates
    - Reasonable targets
    - Functionalities
  - Help in orchestration
- **Dates and high level goals always approved by WLCG MB**

# Recap of (initial) modelling & resulting rates



## ATLAS & CMS T0 to T1 per experiment

350PB RAW, taken and distributed during typical LHC uptime of 7M seconds

- 50GB/s or 400Gbps

Another 100Gbps estimated for prompt reconstruction data tiers (AOD, other derived output)

1Tbps for CMS and ATLAS summed

## ALICE & LHCb T0 Export

100 Gbps per experiment estimated from Run-3 rates

WLCG data challenges for HL-LHC - 2021 planning

<https://zenodo.org/records/5532452>

## Minimal Model

Sum (ATLAS,ALICE,CMS,LHCb)\*2(for bursts)\*2(overprovisioning) = **4.8Tbps for the expected HL-LHC bandwidth**

## Flexible Model

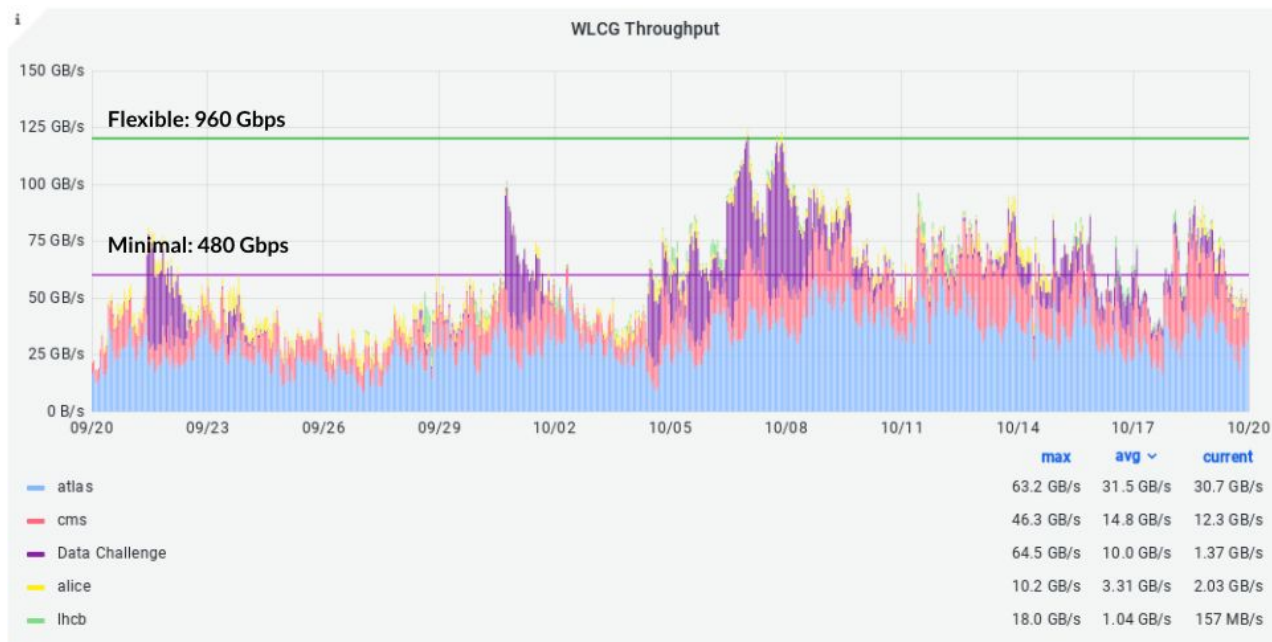
Assumes reading of data from above for reprocessing/reconstruction in 3 month (about 7M seconds)

Means doubling the Minimal Model: **9.6Tbps for the expected HL-LHC bandwidth**

However data flows primarily from the T1s to T2s and T1s!

Data Challenges target: general 50% fill of expected HL-LHC bandwidth

However, we managed to fill 100% of the DC21 (10%) target!



Network Data Challenges 2021 wrap-up and recommendations

<https://zenodo.org/records/5767913>

- Dates: **February 12th (Mon) to February 23rd (Fri)**
- Proposal to distribute different exercises over the challenge days, e.g.
  - Day 1-3: T0 export
  - Day 4-5: Reprocessing like traffic
  - Day 6,7 (weekend): Keep things running...
  - Day 8-9: MC like traffic
  - Day 10-11: Increase to flexible scenario
  - Day 12: Repeat things e.g. with adjusted setting
  - Day 13-14 (weekend): Hope that nothing completely broke
- Let's discuss the schedule so we can overlap as much as possible
- But, even with 2 weeks the schedule is tight

- Proposed: A short(!) daily call among experiment operators
  - E.g. at 16:00 every working days
  - Briefly discuss status, issues and plans for the next day
  - Not "everyone" needs to attend each of these meetings
  - Open for anyone interested
  
- We have Data Challenges Mattermost channel in WLCG team
  - <https://mattermost.web.cern.ch/wlcg-gdb/channels/wlcg-data-challenges>
  - Expect to use this as the main communication platform
  - Feedback from DC21
    - Don't split discussions among different channels
  
- Many thanks to everyone for the many contributions!



Let's go!



Bing Image Creator: "Worldwide LHC Computing Grid, Data Challenge Workshop, Happy Mood"

Bing Image Creator: "Worldwide LHC Computing Grid, Data Challenge Workshop, Serious Mood"