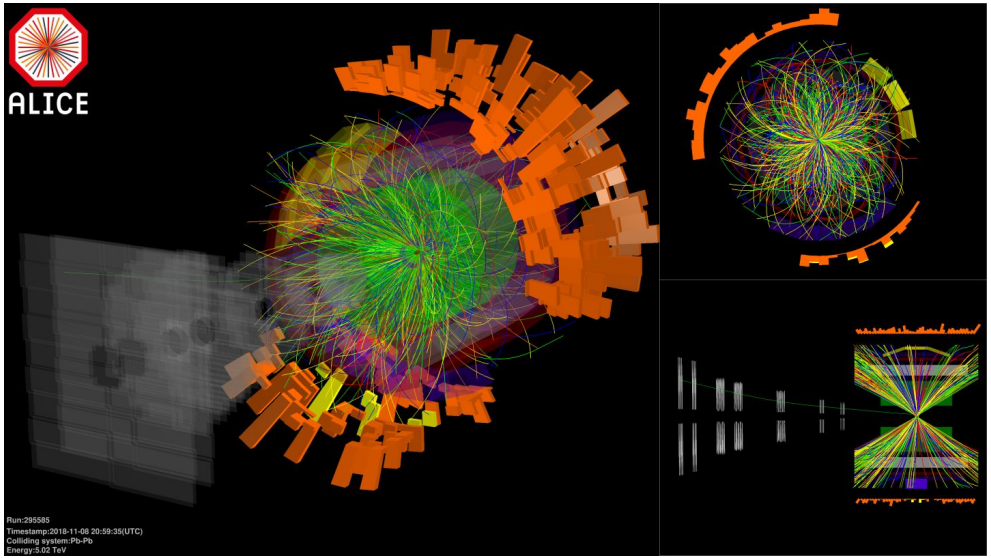
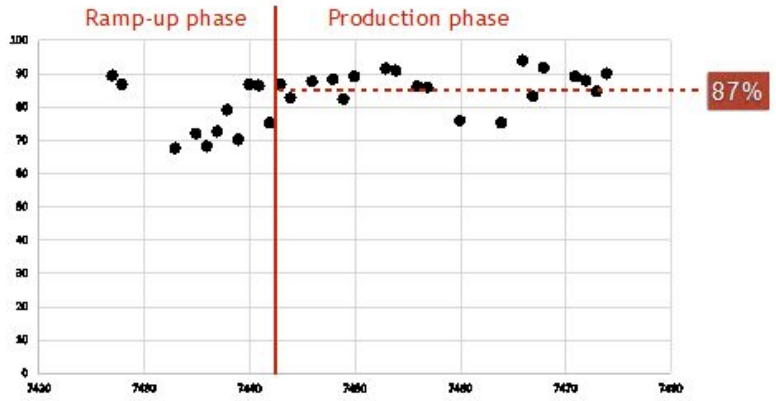
ALICE Status Report

L. Betev

Data taking progress summary





ALICE data taking efficiency

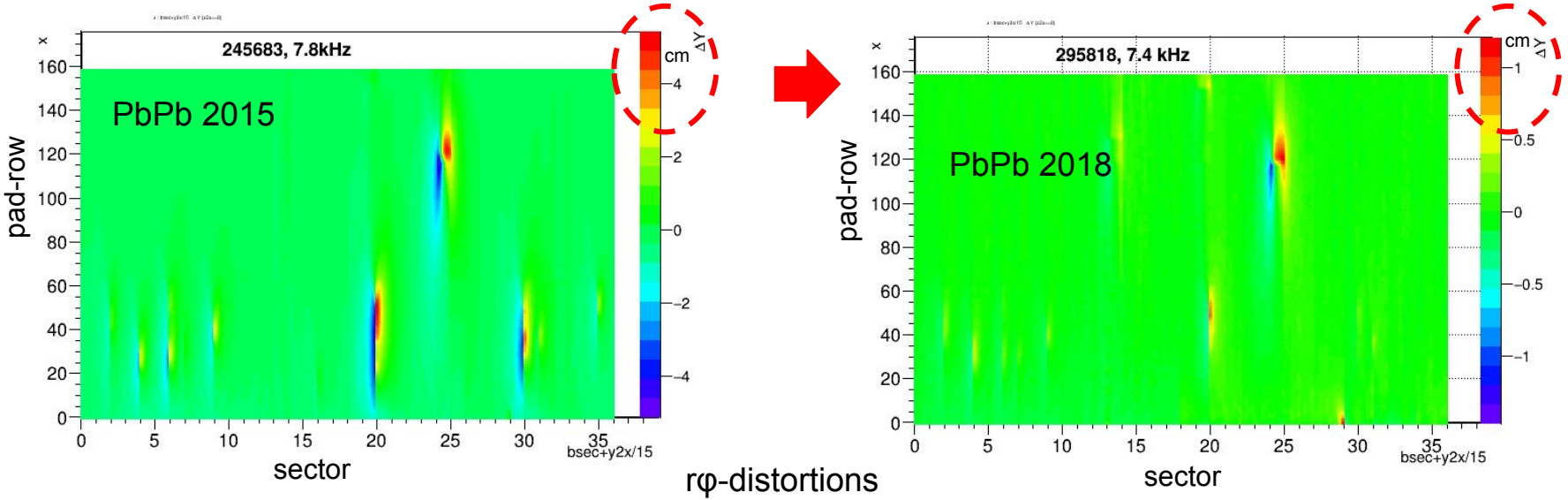
- p-p data taking - at the projected data volume and statistics
- Pb-Pb - data taking ongoing, good efficiency after ramp-up phase
- Detailed run coordination report on collected statistics, triggers, LHC and experiment efficiency at the ALICE LHCC referees meeting today

Processing progress summary

- All pp data from 2018 processed in Pass 1, ~85% validated by detailed QA process
  - General purpose MC - following the RAW data processing - on track
- Pb-Pb data, 2 reconstruction paths
  - “Fast” for di-muon and calorimeters - completed for 96% of collected data
  - 2x calibration passes for central barrel (TPC distortions) with detailed QA - completed for 83% of collected data
- First reconstruction on a fraction of Pb-Pb data, including both low IR and high IR data, for fast analysis
  - With preliminary calibrations
- Daily QA shows no issues with the Pb-Pb data

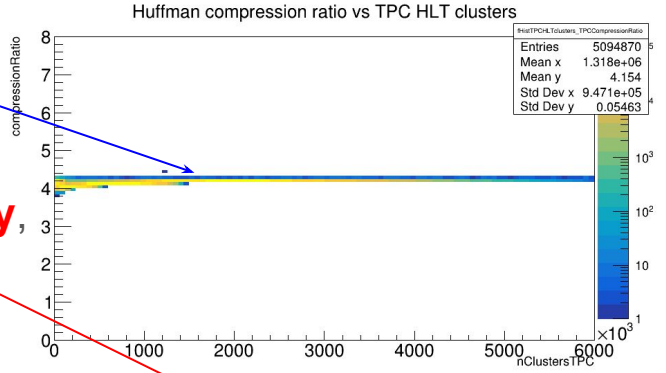
TPC distortions

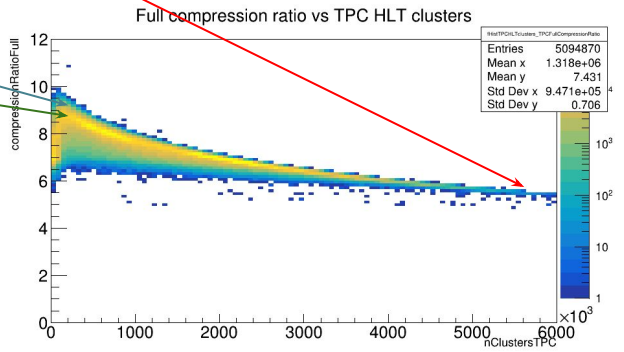
- Significant reduction of the distortions with respect to 2015
  - Tuned TPC operation settings
  - Very welcome news for the calibration process and final reconstruction quality

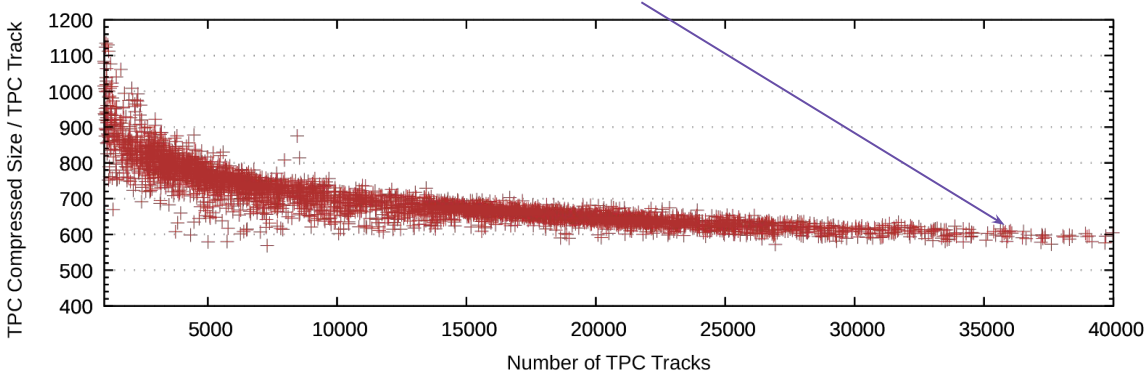


Data compression

- Huffman entropy compression **stable** vs occupancy
- Total TPC compression factor (cluster finder + entropy compression) is 6x to 9x, **decreases at high occupancy**, for minimum bias it is **8.5x** similar to pp.
- Less noise in central (relatively):
  → **Lower compression factor**
  but actually **smaller relative net data size**.

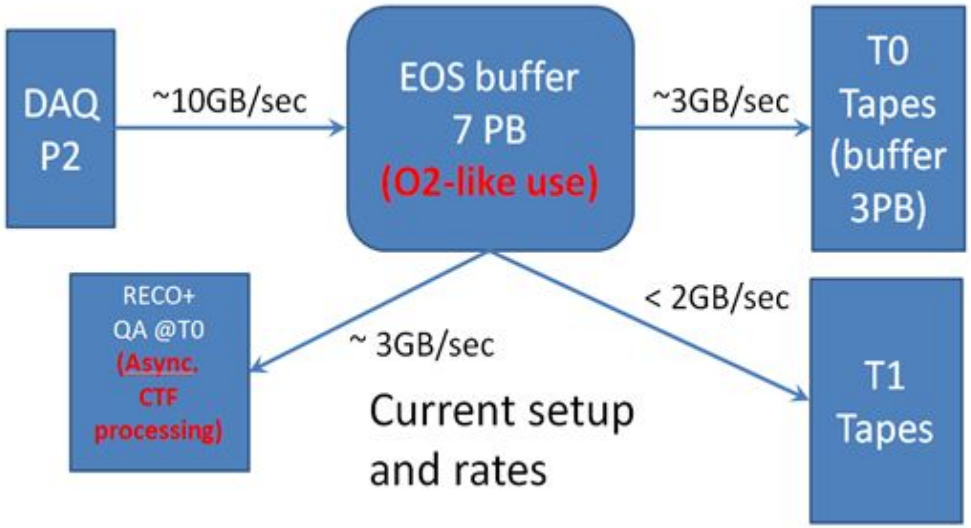






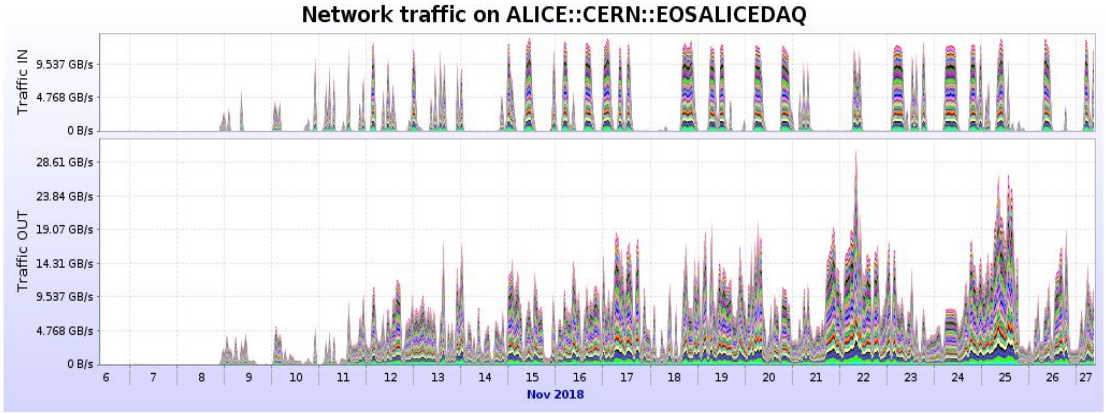
Data recording

- Entirely new RAW data path
- Includes EOS buffer to cope with 10GB/s data rates from ALICE DAQ
  - In addition to the reconstruction and replication activities
- EOS buffer composition - 4PB on loan from IT, the rest from ALICE EOS disk instance



Data recording (2)

- Setup prepared and tested for rates, data flow and client connections prior to Pb-Pb period (LHC MD3 - 12-16 September)
  - ***Many thanks*** to CERN IT for assembling the buffer, the capacity migration and the organisation of the tests - quite non-trivial!
- Rates during the Pb-Pb data taking are largely above the initial requests
  - Allowed ALICE to do the data reconstruction and replication faster

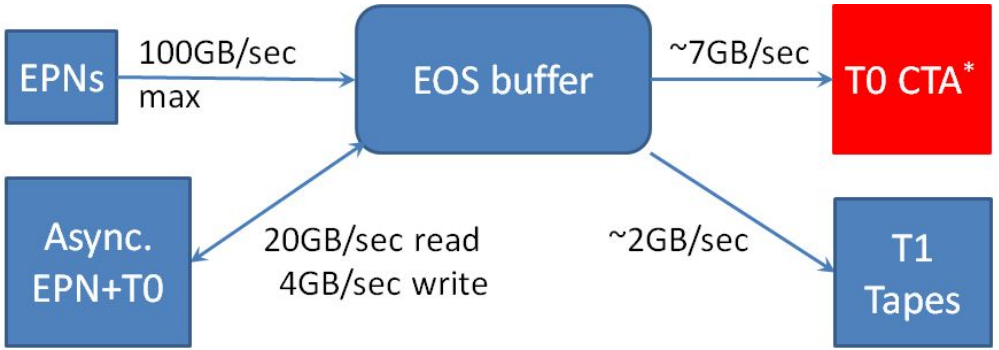


Data IN (from P2), max 12GB/s

Data OUT (to processing, CASTOR, T1s), max 30GB/s

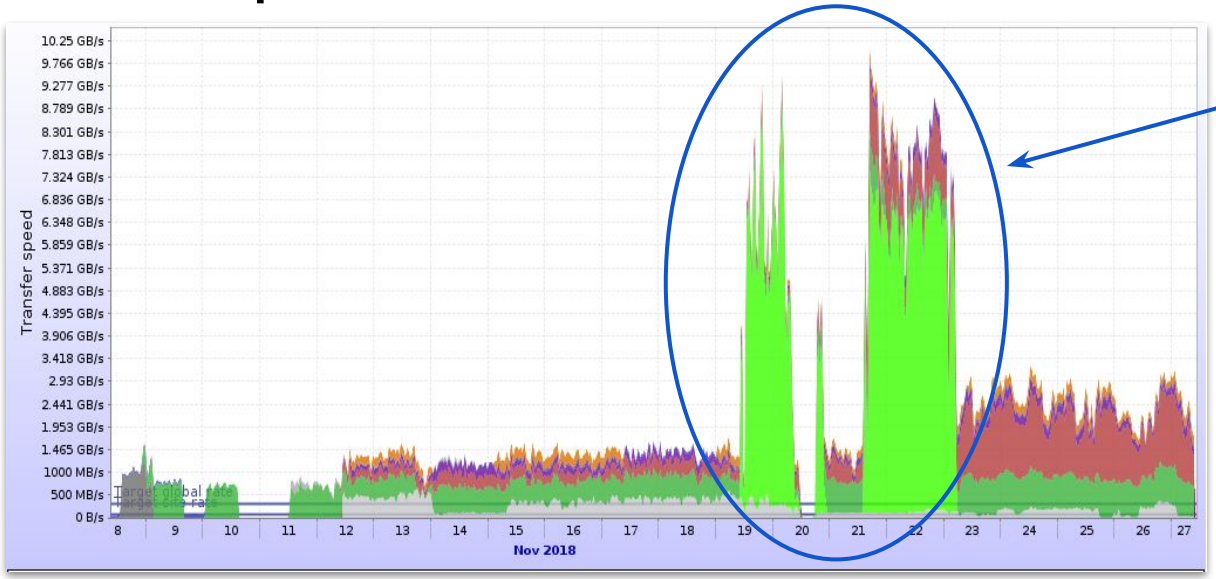
Side note

- The data management arrangement and capacity used for Pb-Pb was also a scale test (10%) of the planned O2 storage system
- It validated the choice of storage technology and the processing paths, as well as the data replication
- Fulfillment of important upgrade milestone



* CTA – CERN Tape Archive

Data replication



Maximum transfer speed test to CASTOR@CERN

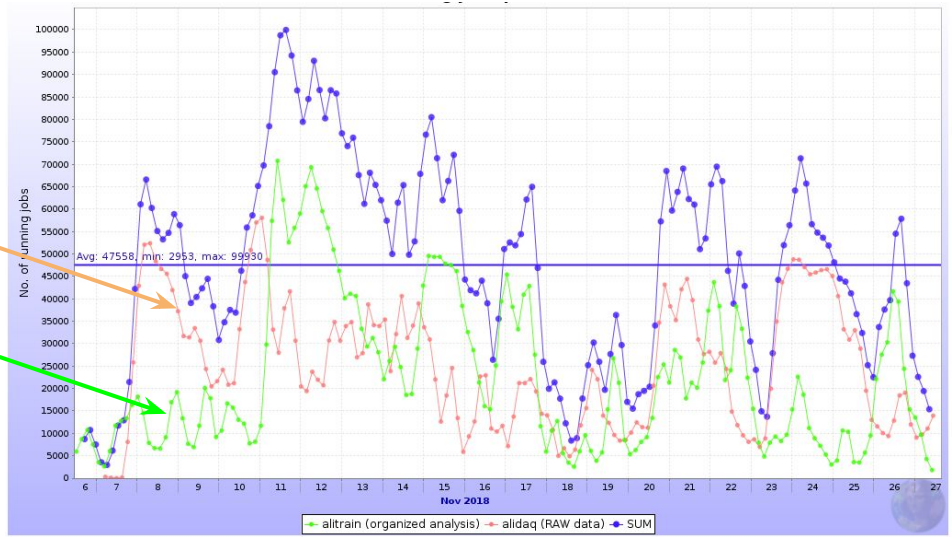
- Equally smooth to all custodial storage (CERN, T1s)
- Possible data rates well above the conservative estimate
- Data replication ongoing as planned, T0 and T1s performance is excellent

Job distribution

- Large proportion of RAW data reconstruction jobs - up to 60K
- Possible due to better than planned EOS performance
- Organised analysis focused on QA of Pb-Pb data and first reconstruction
- Up to 70% of Grid resources

RAW data reconstruction

Organized analysis



Summary

- The data taking in the last year of RUN2 is progressing well
- p-p data volume and statistics - objectives fully reached
  - Pass 1 reconstruction and MC are on track
- Pb-Pb ongoing without major issues
  - Calibration and QA without backlog, preliminary reco done on limited dataset
- ALICE is looking forward to the end of data taking and start of processing of the large Pb-Pb data sample