



ALICE Status Report

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Processing progress summary

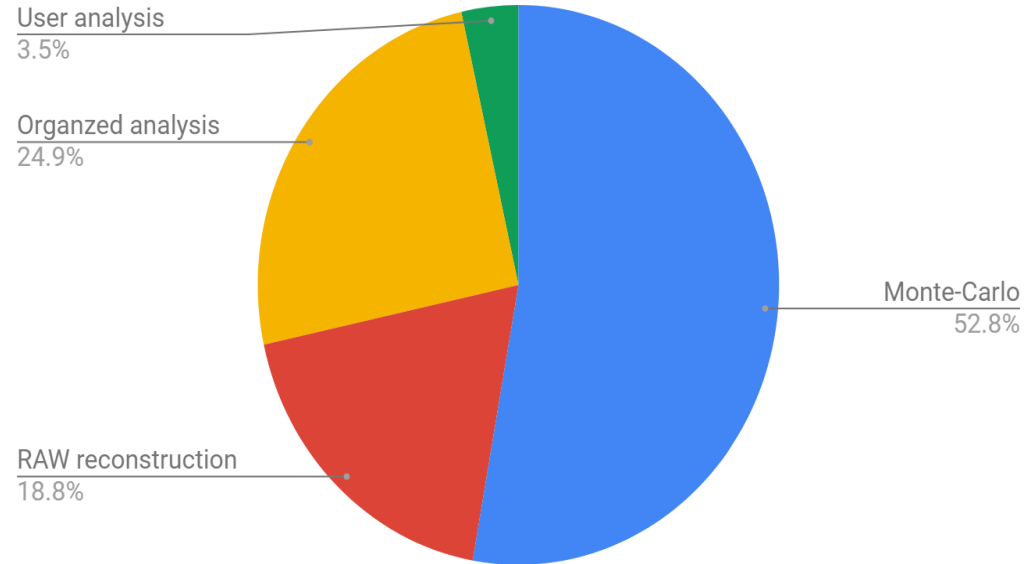
- p-p data
 - All 2018 periods processed in Pass 1 and passed detailed QA
 - General and special MC productions completed
- 2018 Pb-Pb data:
 - Pass1 reconstruction completed
 - General and special MC productions completed
- Focus on physics analysis for major summer conferences
 - SQM - June
- Pass 2, Pass 3 RAW of various p-p periods ongoing
 - As per production plans
 - Pb-Pb pass 2 - later in 2019

Resources utilization

- Continuous high utilization
 - Stable resources delivery at all tiers, no major incidents
- Several sites/regions - pledges for 2019 installed
 - Gradual migration of sites to CentOS 7 (ALICE software fully compatible)
 - Migration from CREAM CE to others - ARC, HTCondor

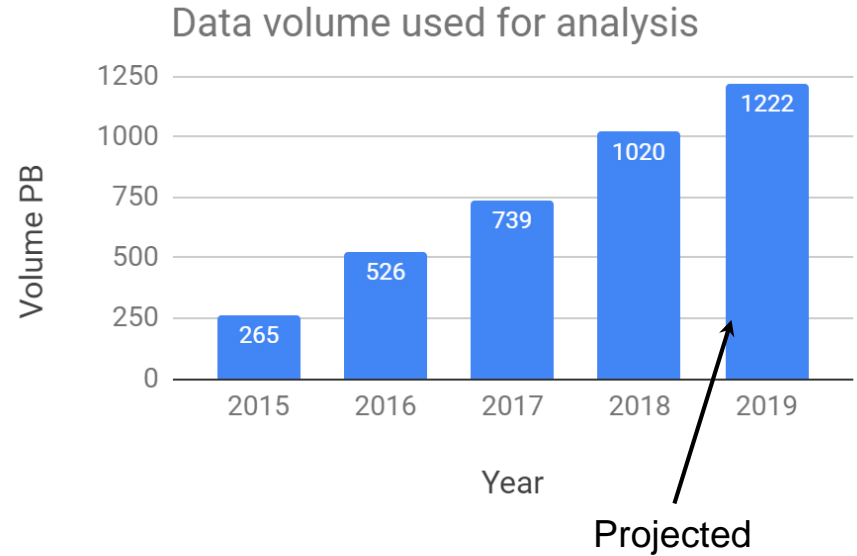
Resources utilization in 2019 (April-May)

- Average 125K parallel jobs from 1 April 2018 to today
- Larger fraction of CPU for RAW data reconstruction and organized analysis
 - Related to ongoing RAW data reconstruction and preparation for conferences
- CPU efficiency stable



Analysis traffic

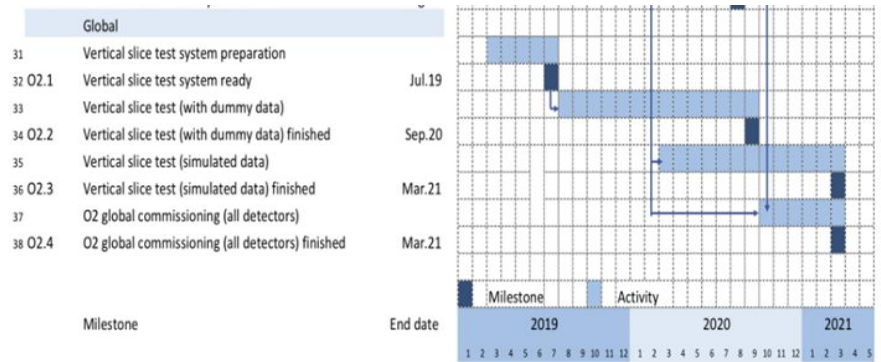
- Passed Exabyte of read data in 2018
 - 95% of it is organized analysis
- CPU Efficiency of analysis continues to be about 80%
 - Improvements of analysis framework, consolidation of tasks
- Site infrastructure is in general not overloaded
- Sharing plans with sites and gradual infrastructure upgrade helps a lot



Changes in Computing Management

- New O2 project structure
 - O2/FLP (Pierre Vande Vyvre),
 - O2/EPN (Volker Lindenstruth)
 - **O2/PDP (Andreas Morsch)**
 - **Computing Technical Coordination (Massimo Lamanna)**

- New Computing Coordinator
 - Needs to be endorsed by the Collaboration Board




Focus on upgrade for Run 3


















O2 Vertical Slice

- Vertical Slice
 - Continuous integration tests
 - Performance evaluation
 - Support detectors commissioning
 - Test for the final O2 deployment



- Status of O2.1 milestone 
 - New containers wiring advancing (EPN+FLP) + necessary connectivity to the Computer Centre
 - ~10% capacity, recycling Run2 computing equipment
 - On-track to have all the elements on the floor by July

Simulation - status of detector implementation

	 Start	 Planning	 Geometry	 Hits	 Digits	 Ready
Passive*			✓	na	na	
ITS			✓	✓	✓	
TPC			✓	✓	✓	
MFT			✓	✓	✓	
EMCAL			✓	✓	✓	
TOF			✓	✓	✓	
FIT(T0+)			✓	✓	✓	
FIT(V0+)			✓	 ✓		Q2/'19
TRD			✓	✓	✓ 	Q2/'19
PHOS			✓	✓	✓ 	Q2/'19
MUON			✓	✓	✓ 	Q2/'19
HMPID			✓	✓	✓	
ZDC			✓	 ✓		Q2/'19

- Excellent progress, main parts ready for Vertical Slice Test (next slides)

Simulation

- On-going efforts to optimize impact of simulation on computing needs in Run 3
 - Embedding techniques
 - Computing time reduction - digitisation and avoid redundant calculation steps
 - AOD size reduction by factor 10
 - Review of O2 TPC digitization code
 - Substantial improvement in CPU performance while keeping constant physics quality
 - Largely simplified GEM Amplification scheme
 - Optimization of transport time (G3/G4)
 - Transport cuts and geometry configuration depending on physics
 - Virtual MC supports simulation using several transport engines
 - Integrate fast and slow simulation
 - Physics models from different (or the same) transport engines
- More information and specific details on in the September report

Reconstruction

Major reconstruction tasks

		CPU	GPU
TPC	Tracking (*)	done	done
	dE/dX	In validation (Q2/2019)	In validation (Q2/2019)
	Compression	Q2/2019	Q3/2019(*)
ITS	Tracking finding (*)	done / extra passes: Q2/2019	done
	Track fitting	done	Q2/2019
	ITS-TPC matching	done / afterburner: Q2/2019	Q3/2019
	Compression	Q2/2019	Q3/2019(*)
TRD	Matching to ITS-TPC	done ("HLT", simulation progressing)	done
TOF	Matching to ITS-TPC	done	Q2/2019
EMCAL	Clustering	Q2/2019	-
PHOS	Clustering	Q2/2019	-
MUON	MCH clustering, tracking	Q4/2019	-
	MID	done (in validation)	
MFT	Tracking (standalone)	PR pending	-
	Matching to MCH	Depends on MCH schedule	
FIT	T0+ reconstruction	done	-
	V0+ reconstruction	(simulation progressing)	
HMPID	Clustering, matching	Q2/2019	-
ZDC	ZDC reconstruction	Sim/Rec sprint planned for May 2019	

(*) TPC, ITS, T0 reconstruction, ITS-TPC matching are operational as DPL devices, others still need to be interfaced to DPL.

(*) Feasibility of entropy compression on GPU is under study, so far promising results are obtained (CHEP abstract)

- On track for Reconstruction Barrel Detectors EDR (Q2 = end of June)

O² major milestones and planned reviews

● Done ←

- FLP.1 (Ready for FLP tender) review D. Francis, F. Mejers, N. Neufeld + input from IT-CF/E. Bonfillou and IPT-PI/H. Gerster and F. Najeh
- Concluded on May the 9th, Tender being validated

● Imminent ←

- PDP.1 (Reconstruction for barrel detectors) review S. Ponce, F. Pantaleo and G. Stewart

● Upcoming ←

- PDP.2 Out-of-Barrel detectors (Dec 2019)
- PDP.4 Ready for disk buffer tender” (Nov 2019) - Collaboration with IT restarted (based on the 2018 disk-buffer for HI daq)
- EPN.1 Dimensioning of computing nodes and network (Dec 2019)

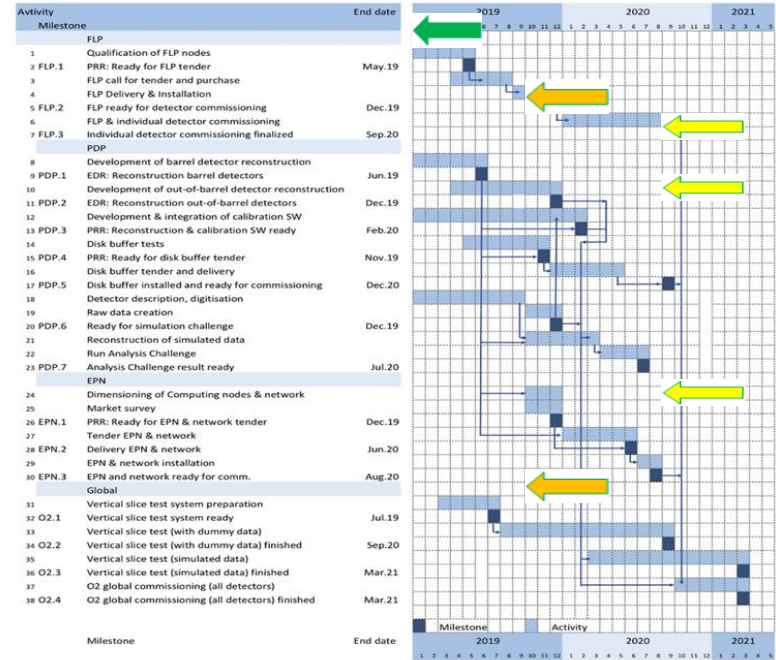


Figure 5.1: O2 milestones.

Summary

- The Pass 1 RAW data reconstruction of all 2018 data is completed
 - MCs are completed for the entire collected data sample
- Current activities - physics analysis and Pass 2/3 of RAW data
- Focus on upgrade activities and preparation for Vertical Slice Test of O^2
- Internal reviews in progress
- Long term outlook for computing resources remains unchanged
 - compatible with fixed funding until end of LS3