PPP News

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ROOT

Data Analysis Framework

https://root.cern

Good News from CMS

- TBufferMerger: allows writing the same tree from multiple threads
- In process merging, one single file in output

Production CMSSW Job

POM: PoolOutputModule
What CMSSW uses to write out data

20-core AOD-MINIAOD Results

	Module	Total Loop Time	Efficiency CPU/Real/ thread	Throughput Events/ Second	RSS	# of AOD stalls	Total AOD stall time
IMT OFF	POM	3877	0.337	2.58	6733	9986	65765
IMT ON	POM w/IMT	2053	0.603	4.87	6148	9996	32414
IMT ON + TBufferMerger	Parallel POM	1079	0.960	9.27	13398	1492	339

4x Throughput

Even Better News From PPP

We are not yet done optimising:

- No helper thread but rather buffer merging in tasks (ideas already available: task waking up the thread, open the file for merging in the task …)
- Even more parallelisation phasespace possible with parallel TTree::Fill

… And this is only one of the many results achieved in 2017!

More Good News: We Have A Room

"Habemus Conclave" for 2018

- 2018: 4-S-30 (for a handful of weeks, 4-S-20)
- Keep current format of the meeting: informative, decisional, topical
- More emphasis on the topical instances: spotlight on **PyROOT and Data Parallelism**
- **Reflect this in the planning and its incarnation in JIRA**

The Future of LHC

LHC and Detectors plans: ambitious to say the least

Now	1 EB of data, 0.5 million cores
Run III	LHCb 40x collisions, Alice readout @ 50 KHz (starts in 2021 already!!)
HL-LHC	Atlas/CMS pile-up 60→200, recording 10x evts

My Proposed Directions for 2018

More speed

- **Demonstrate** accelerator aided HEP data analysis at O(100) threads.
- **Consolidate** accelerator aided HEP Monte Carlo studies at O(100) threads.

More usability

- **Focus on ROOT analysis tools**, both in C++ and Python
- Generate value for HEP specific tasks - make our product the most attractive.

More throughput

- **Engage with the experiments** with the goal of maximising throughput of parallel RunIII (and beyond) data processing.

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What is your proposal?