

LHCC Referee Meeting

June 2, 2015

ALICE Status Report

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CERN



ALICE

O2 TDR Presented to LHCC

Submission of the TDR & UCG to the LHCC

20/4/2015

Presentation of the TDR & UCG to the LHCC

2/6/2015

2015

February

March

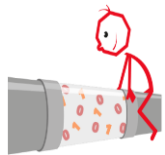
April

May

June



Architecture



Data flow



Data model



Computing platforms



Tools



Simulation



Calibration



Reconstruction



DQM



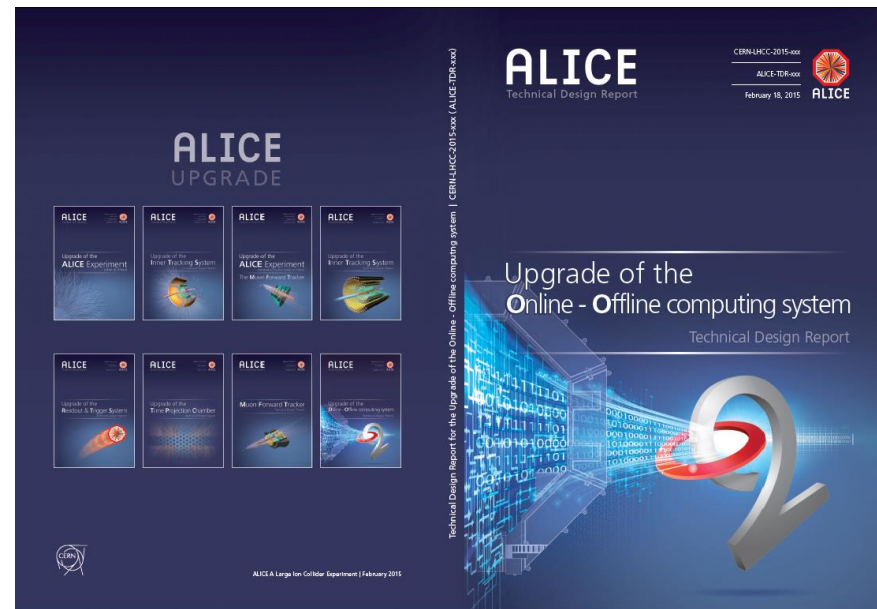
Control Configuration Monitoring



Software Lifecycle

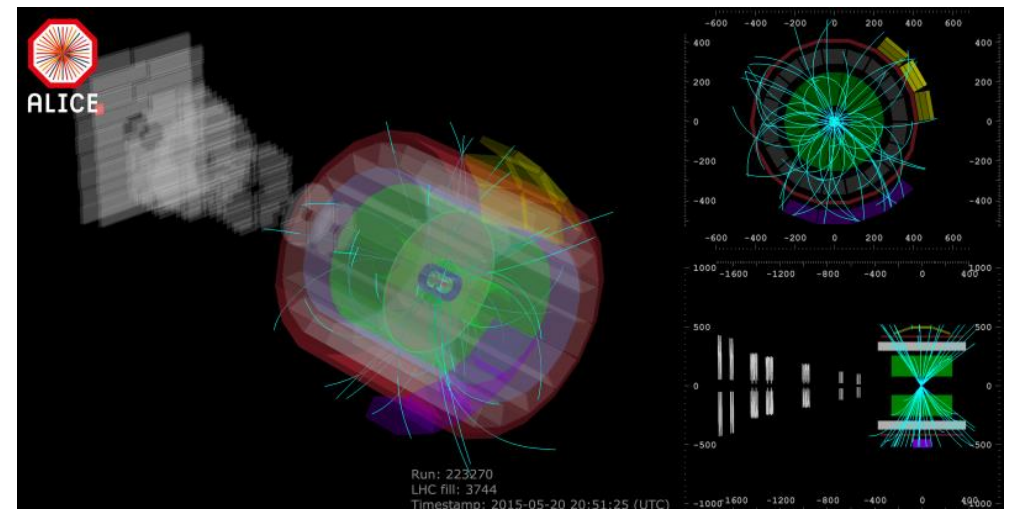
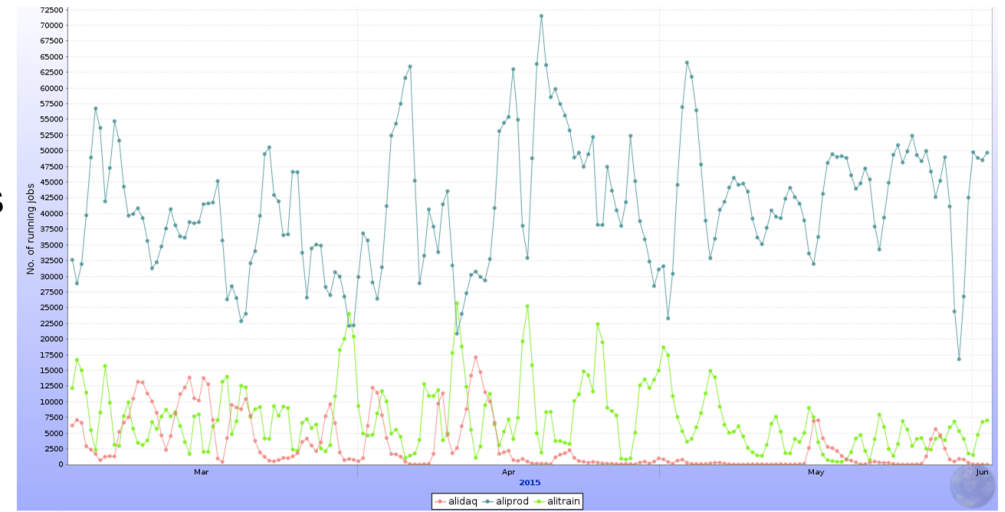


Software Framework



<https://cdsweb.cern.ch/record/2011297/>

- Very productive 3 months
 - Reaching new records, over 80000 concurrent jobs
 - Mostly simulation activity
- Wrapping up re-processing of Run 1 data with new software
 - It will complete by the end of June
 - Delays in production caused by a need to understand calibration issues in LHC13b
- ALICE is ready for start of Run 2 data taking
 - Resources request 2015-2017 endorsed by CRSG
 - Adequate to cover the ALICE needs



Protons collide at 13 TeV sending showers of particles through the ALICE detector

- OpenStack + HTCondor setup commissioned to the HLT production cluster
 - May 28 and 29: first tests on the commissioned setup
 - Only on some HLT nodes: others were busy for HLT tuning
- Test goals:
 - Scalability of VM deployment
 - Scalability of job filling
 - Reliability of OpenStack and control tool
 - Quickness of VM nodes removal
- Virtual machine deployment is fully automated by the elastiQ daemon, <https://github.com/dberzano/elastiQ>
 - 180 VMs running in less than 5 minutes
 - All 180 VMs deleted and all 180 hypervisors disabled in less than 5 minutes



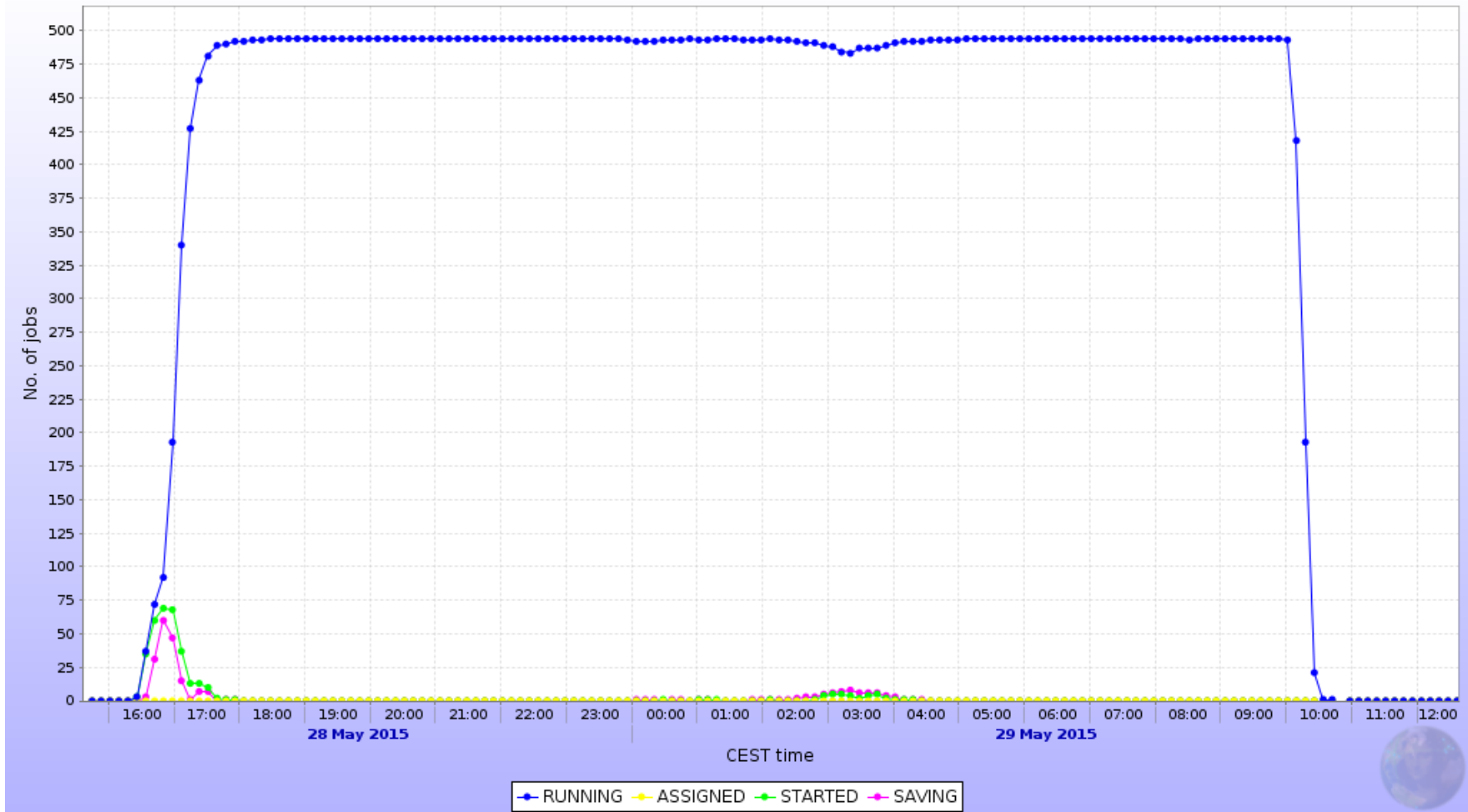
First tests on HLT cloud

- In our setup, VM deployment is transparent for HLT operators
 - They have a control interface to selectively enable nodes
- Virtual machine deployment is fully automated by the elastiQ daemon, <https://github.com/dberzano/elastiQ>
 - 180 hypervisors enabled and 180 VMs launched (with no jobs):
 - Scalability problems with more than 30 VMs: solved by replacing qpidd with RabbitMQ
- With RabbitMQ and image pre-caching: 180 VMs running in less than 5 minutes
- All 180 VMs deleted and all 180 hypervisors disabled in less than 5 minutes



First tests on HLT cloud

Active jobs in CERN_HLT





From CAF to VAF

- ALICE has decommissioned its PROOF-based “physical” cluster
 - This is going to be replaced with a Virtual Analysis Facility
 - Running PROOF with PoD as HTCondor jobs
- Easier and more effective management
 - See <http://iopscience.iop.org/1742-6596/513/3/032007>
- Can automatically scale using the same technology used for the HLT cluster: elastiQ, <https://github.com/dberzano/elastiQ>
- Will run on CERN OpenStack: requested a project
 - We will start with 200 cores but we can scale upon need
- New Virtual CAF will be running in two weeks providing that the resources are granted
 - In addition to VM instances, we will need an equivalent disk capacity in EOS to host another replica of files that will be accessible to CAF