CALIBRATION: PREPARATION FOR RUN2

ALICE Offline Week, 25 June 2014

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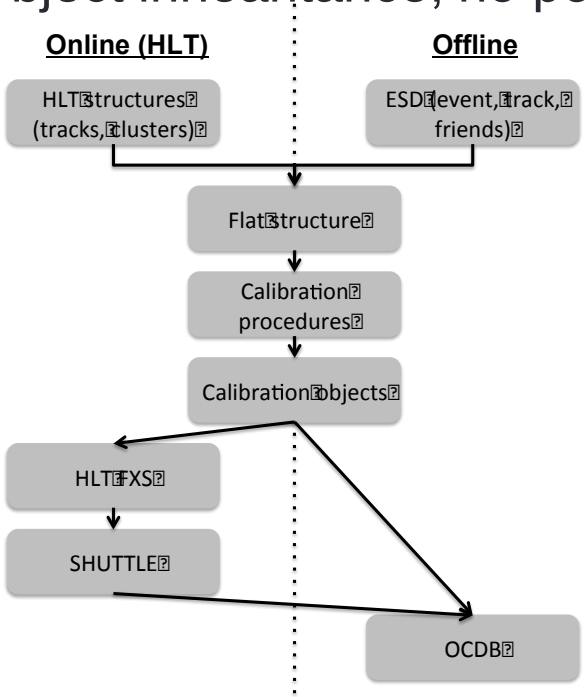
Run2 online calibration

- Goal: port (at least) TPC CPass calibration in HLT
  - Removing one Offline Calibration Pass, QA ready earlier
- Current limitation: ESD object very complex, packing and unpacking very demanding
- Solution: build a “flat” ESD, similar to HLT structure (plain C-structure, no TObject inhearitance, no pointers…)



- Flat structures filled in the HLT – instead of standard ESD objects
- First idea: convert offline ESDs to Flat ESDs

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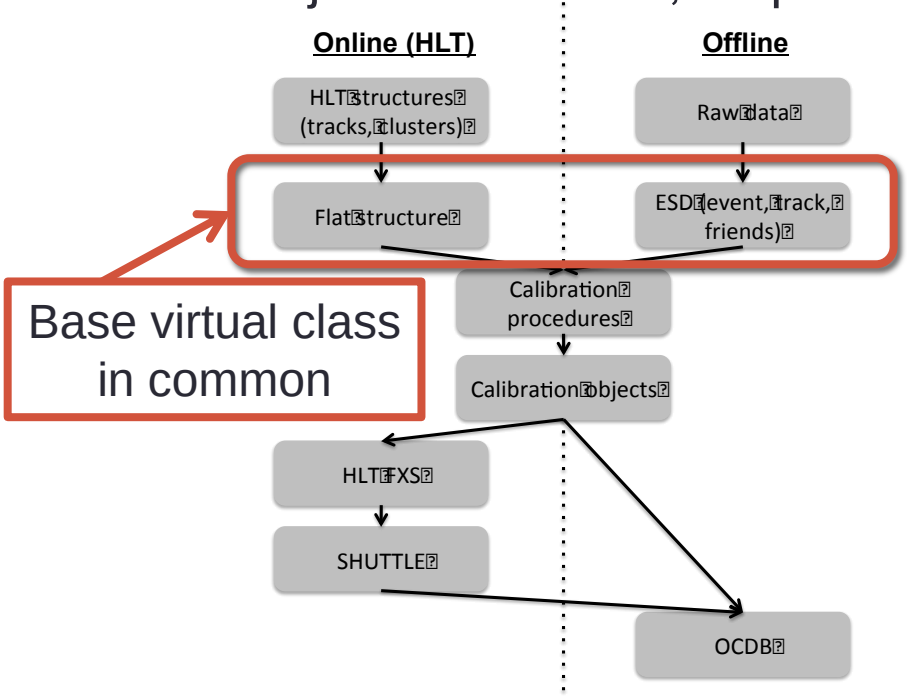

- Flat structures filled in the HLT – instead of standard ESD objects
- First idea: convert offline ESDs to Flat ESDs
- Second idea: base class for Flat and ESDs
  - No conversion needed when running offline

Run2 online calibration: work in progress

- HLT → Flat, ESD → Flat conversion
  - Performance study, implementation
- HLT friends creation
  - Implementation, so far not in HLT
- Analysis Framework in the HLT
  - First prototype done, need to include friends (see above)
- Base class for both Flat and standard ESD
  - First prototype done, need to include friends + consistency checks in AliRoot
- Merging of calibration objects
  - Only discussions now…
- Feedback loop
  - New implementation in HLT
- T0 and MUON DAs in HLT

Many people involved:
HLT, TPC, Calibration…

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Very useful also for QA!

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Analysis Framework in HLT

Code in flatdev branch of AliRoot

- Aim:
  - have a backup solution, to be seen also as an alternative solution, to conversion to Flat structures
- Current implementation:
  - AliHLTAnaManagerComponent: runs the analysis framework through the manager on ESD built from HLT structures (from GLOBAL-esd-converter)
  - Uses a custom Handler (responsible to set the event to the tasks – main difference wrt standard offline analysis framework and reconstruction)
    - Same base class as ESD handler
  - Tasks will have to use the virtual implementation of the handler, event, tracks… so that they can run both online and offline
- Test:
  - Done on some simulated events, everything runs ☺
- To do:
  - Include the access to friends (need conversion in HLT, see previous slide)
  - Avoid that the output is written to a file by the manager

Base class for Flat and standard ESD

- Aim:
  - Reduce to the minimum amount the changes in the calibration (and QA) code while having the same code running both in HLT and offline
- Current implementation:
  - AliVVEvent/Track…
  - Some issues to be fixed in the Flat when inheritance is included
    - If does not work, simply convert ESDs to flat ☺
- To do:
  - Try it in the HLT after GLOBAL-esd-converter, FLAT-esd-converter with the test task (being done)
  - Try it offline with the test task (done)

Merging of Calibration Objects

- Aim:
  - Merging of the calibration output, on which to produce the calibration parameters
- Current idea:
  - Implement a component that receives the data from the calibration ones and merges the output
  - Merging component will be a “sequential pushing” by the calib components (as in PROOF) in some cycles and not every node at the same time
- To do:
  - Write a merging component and attach it to the test task
    - Duplicate the same component on the same events, use this to try the merging

Luminous Region + TPC Vdrift calibration

- Need standalone ITS tracker to
  - Calibrate TPC Vdrift
  - Find precise vertex (either with standalone of global tracks after TPC Vdrift is OK
- Default plan: use Run3 tracker prototype
  - CBM CA tracker adapted for ALICE was pledged for May but did not materialize (some problems are found with track length)
  - In parallel, ITS develops its own CA code
  - Readiness by beginning of Run2 is not guaranteed
- Backup solution in development: fast tracker for primary tracks only; reconstruction by matching HLT SPD tracklets to outer layers
  - Initially assumed only SPD + SSD clusters
  - News: faster SDD cluster-finder is implemented, will probably allow to have all layers
  - Simultaneous vertex fit (no vertex finding)
- Luminous region algorithm to be ported to HLT
  - Work will start mid June
  - Alternative algorithm (based on old implementation) possible

Run2 online calibration: Plans

- Further HLT hands-on session
  - Should include both QA and Calibration related topics
    - QA both on raw data and (Flat) ESDs from HLT
  - Aim at September, after mini-week
  - Preceded by advertisement in August of usage of Analysis Framework in HLT, Flat objects…

    N.B. Not yet announced!!! Just a discussion last week