

A Large Ion Collider Experiment

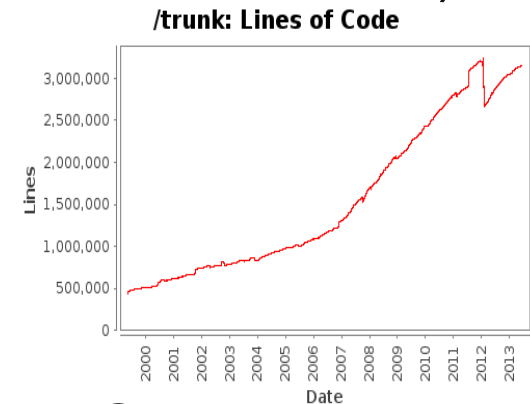


Introduction

Predrag Buncic

AliRoot

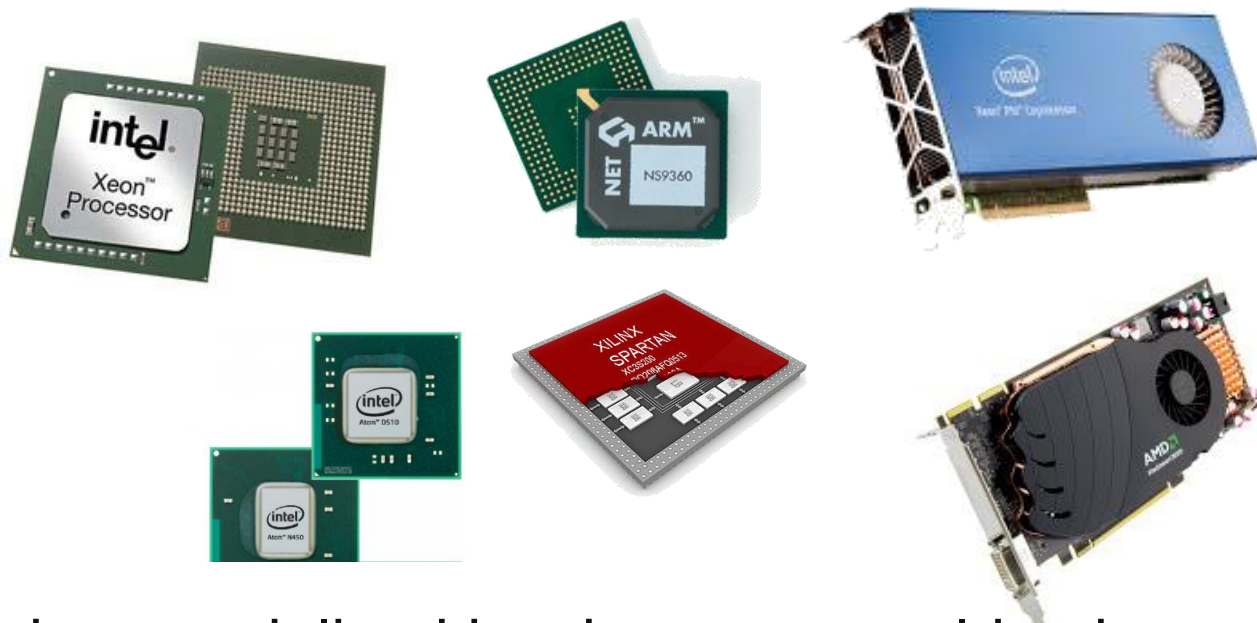
- ALICE Software Framework (written in C++)
 - 15 years old and still growing
- Built on top of ROOT (and using all ROOT features)
- Supports our basic use cases
 - Simulation
 - Reconstruction
 - Analysis
- But also
 - calibration, alignment, visualization, QA...
 - HLT reconstruction (different from offline)
- 3M SLOC, 180+ contributors



Need for changes

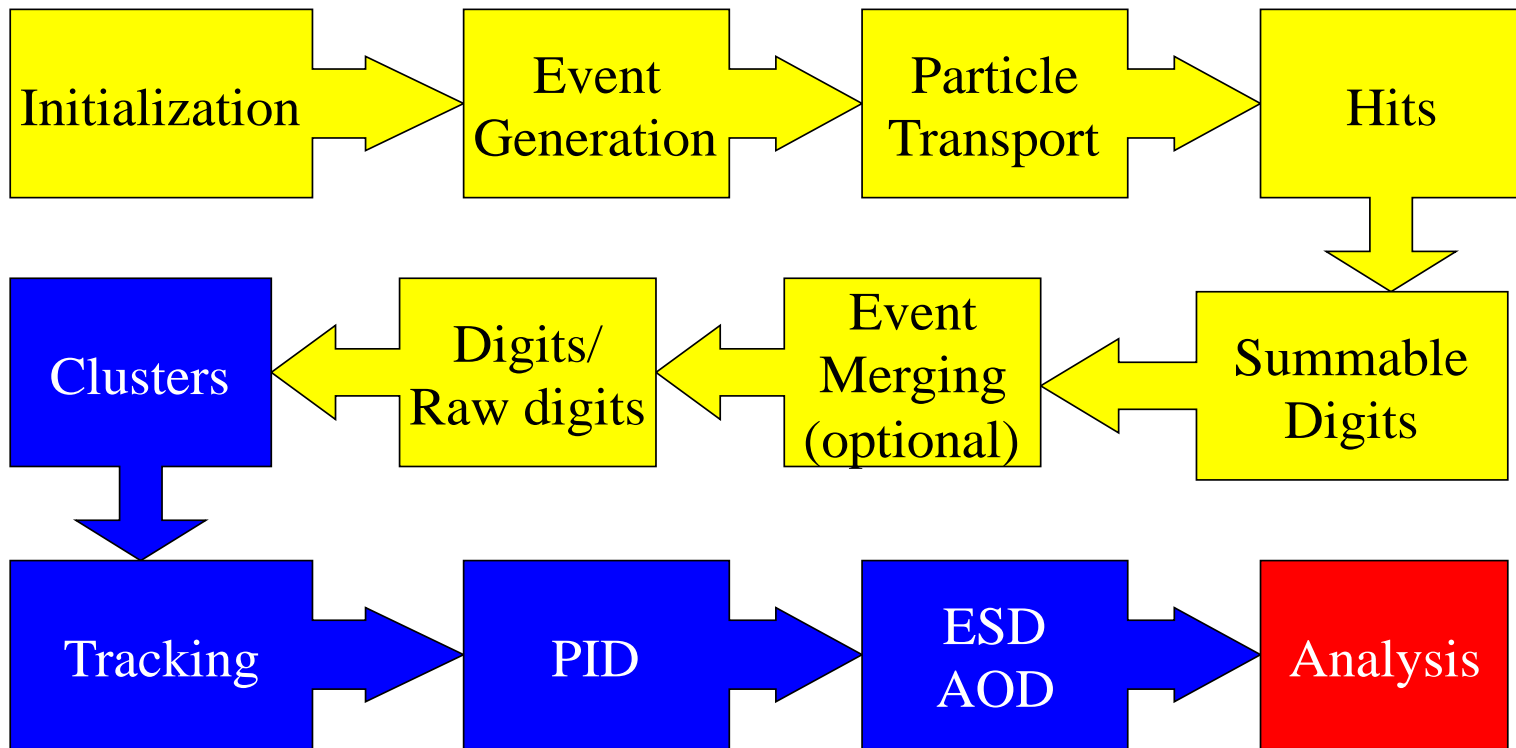
- We must adapt to changing environment and new technologies
 - ROOT 6, C++11
 - Multi and many cores
 - GPUs
- We must improve the performance
 - New algorithms
 - Memory issues
 - I/O is critical, needs a fresh look on data model
- We must converge to use the same framework in Online and Offline environment

Heterogeneous Platforms?

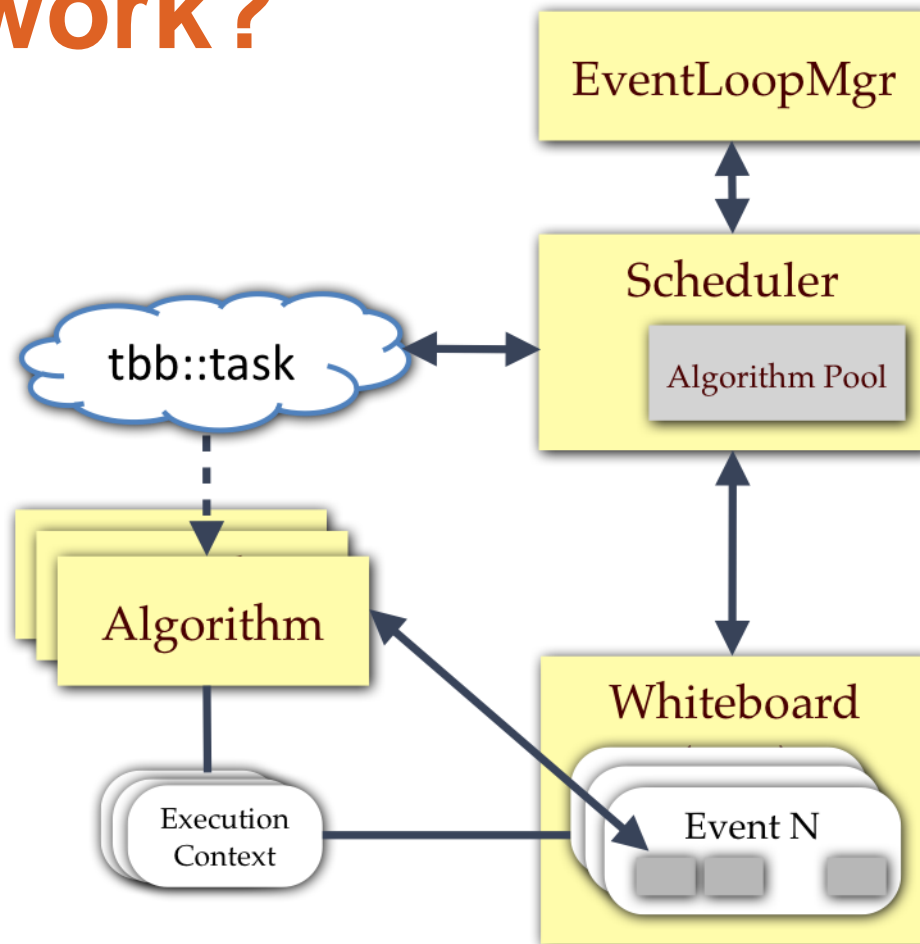


- Using specialized hardware we could gain performance and save power
 - At the expense of having to program and operate in heterogeneous computing environment

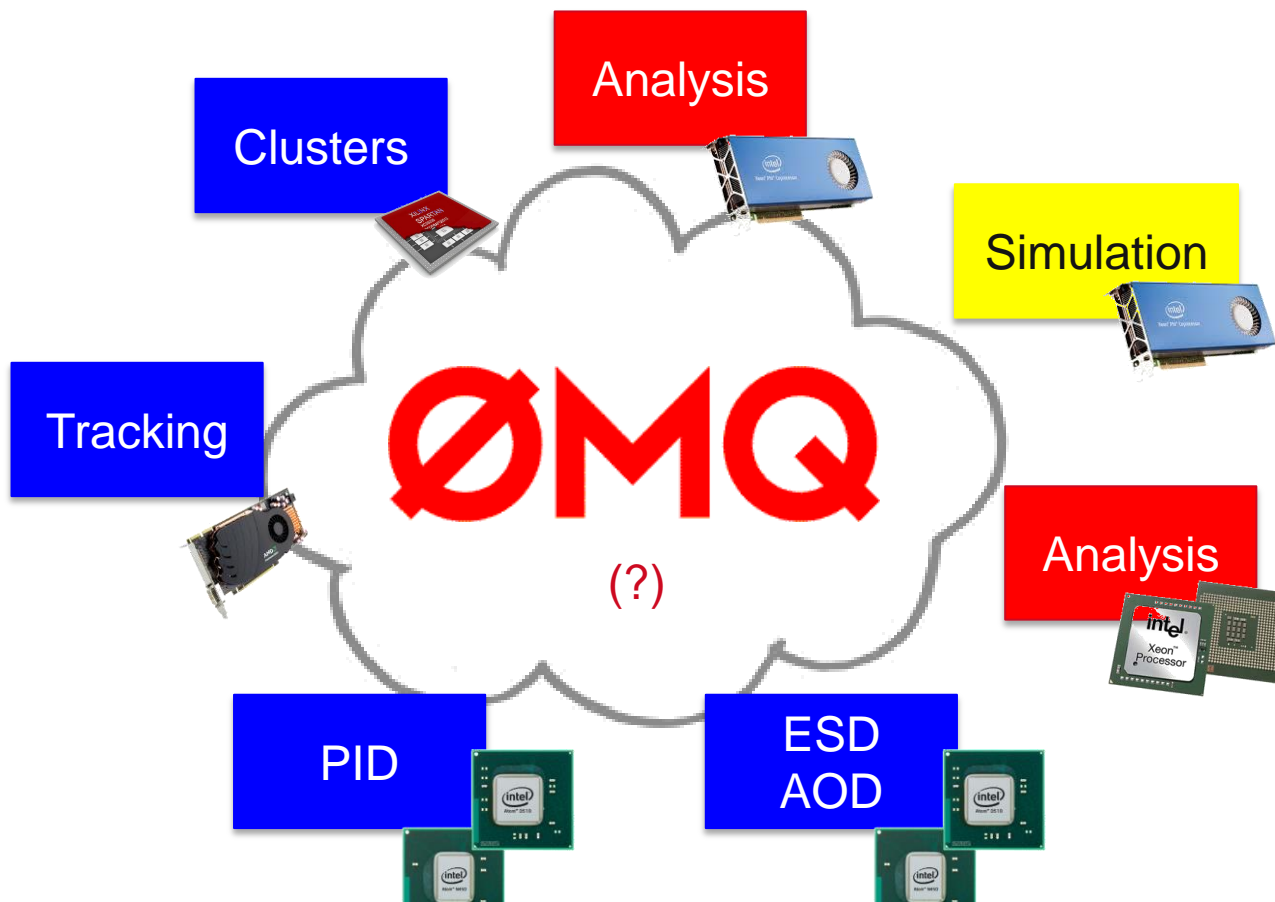
Single process framework



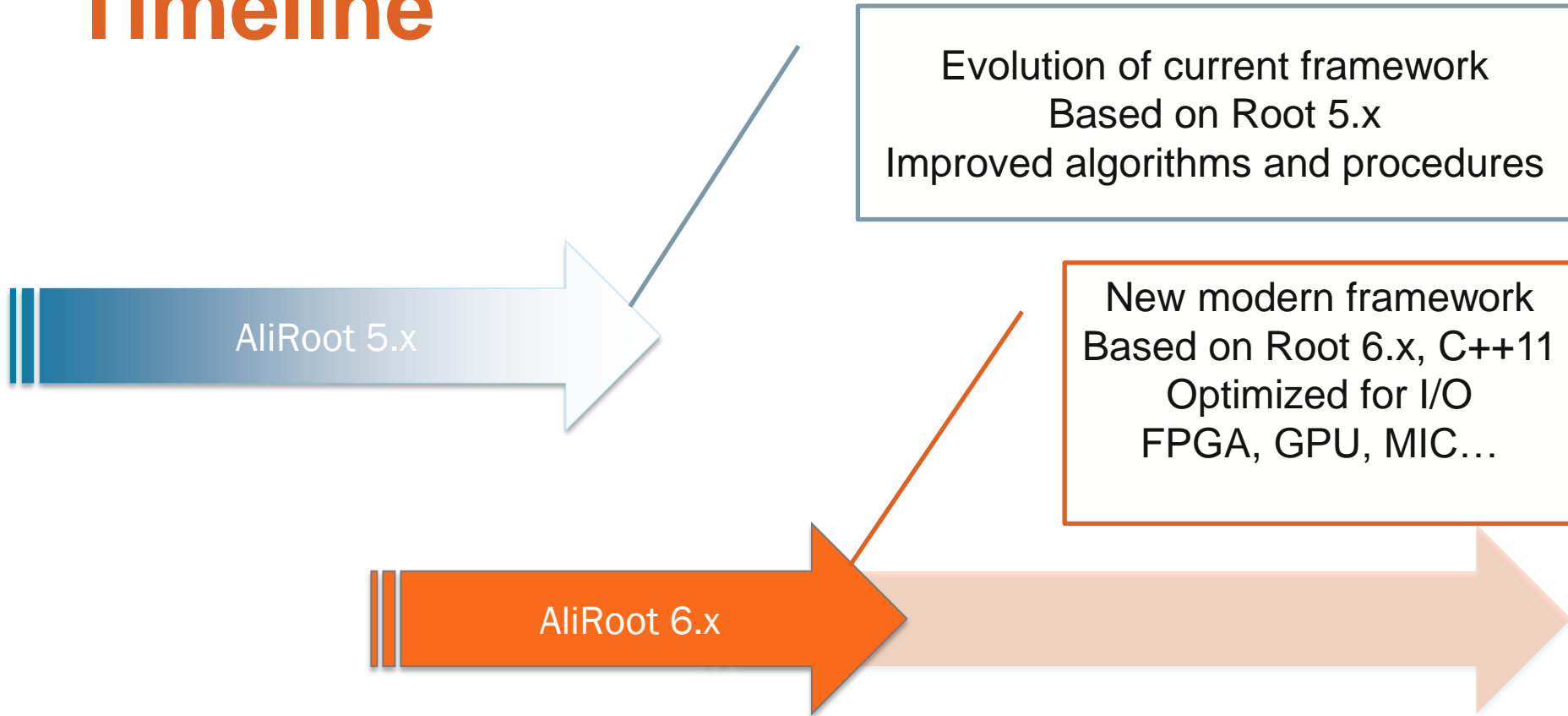
Multithreaded concurrency framework?



Or distributed multiprocess concurrency framework?



Timeline



ALICE@LHC Resource Review 18-11 April

