LHCb Computing

Preparing the TDR

Concezio Bozzi
CERN and INFN Ferrara

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Milestones

COMPUTING			2014				2015				2016				2017				2018			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
4.1		Roadmap for the upgrade									♦											
4.2		Computing TDR																♦				
4.3		Computing model for the Run 3																♦			♦	

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Documents to be submitted to the LHCC

Two documents

- Technical design report
  - Describes the technical choices made for software and computing for Run 3, their motivation, and their detailed implementation plan
  - To be reviewed by the LHCC in the context of the LHCb experiment
- Computing model for Run 3
  - Presents the computing infrastructure, the dataflow and workflow models for all processing stages, and the needed storage and compute offline resources
  - To be reviewed by the LHCC in the context of WLCG

When

- Due by the end of 2017
- Internally reviewed by end of november
  - At the computing workshop
- Finish writing by end of september
  - Allow for last-minute addition of results in e.g. core SW
- Intermediate check end of july

→ Tight schedule!

→ We need to start now!

What

- Introduction
  - Scope
  - Physics overview
  - Computing overview
- Core software
  - Framework
  - Event model
    - vectorisation
  - Non-event data
    - Conditions database
    - Detector description
  - Hardware architectures

What

- Distributed computing
  - Software environment
  - Dirac and Distributed analysis
  - Summary of Computing model → to be further detailed in a separate document
- Simulation
  - Requirements
  - Implementation of various options
- Collaborative working
  - Tools and policies
  - Data preservation
  - Analysis preservation
- Externals
- Project organization
  - Scope and responsibilities
  - Schedule
  - Milestones

In practice

- For each chapter
  - state the relevant issues that need to be tackled
  - Describe work that has been done in order to choose technology and motivate choice
  - Give implementation plan for Run 3
  - In absence of technological choices, discuss the possible options and the plan that will allow us to choose
- No more than 10-15 pages per chapter
  - 60-90 pages in total
- One editor per chapter

- Use latex, lhcbdocs and svn
- Progress will be reviewed at the upgrade meetings on a monthly basis
  - Tentatively: Jul 3, Jul 31, Aug 28, Sep 25, Oct 23
- Complete TDR will be reviewed at the November computing workshop to be held in Frascati

Readiness of contents

- Core software
  - Framework
  - Event model
    - vectorisation
  - Non-event data
    - Conditions database
    - Detector description
  - Hardware architectures
- Framework:
  - Basic concepts deployed and implemented
  - Need to prepare and benchmark application
- Event model
  - Significant amount of work needed
  - Try to factorize
  - E.g. "what is a trigger line"

Readiness of contents

- Core software
  - Framework
  - Event model
    - vectorisation
  - Non-event data
    - Conditions database
    - Detector description
  - Hardware architectures
- Conditions DB
  - Design developed
  - Implementation will follow
  - Not a showstopper for FWK and EvtModel
- Detector description
  - Workplan well defined

Readiness of contents

- Core software
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- Baseline is x86
- Work on GPGPUs and FPGAs promising
- Key point is how to embed all this in Gaudi
- Schedule is tight and person-power is small

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