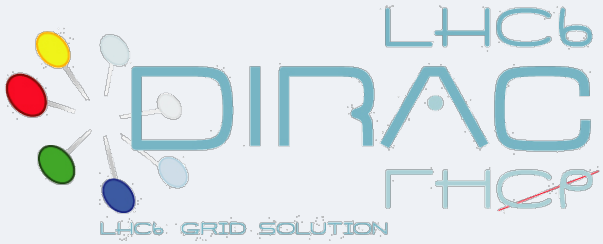
International Symposium on Grids and Clouds 2016
13-18 March 2016, Academia Sinica, Taipei, Taiwan



Evolution of the LHCb Computing Model for LHC run 3

Christophe HAEN
on behalf of the LHCb Computing team
ISGC 2016

Challenges of RUN 3

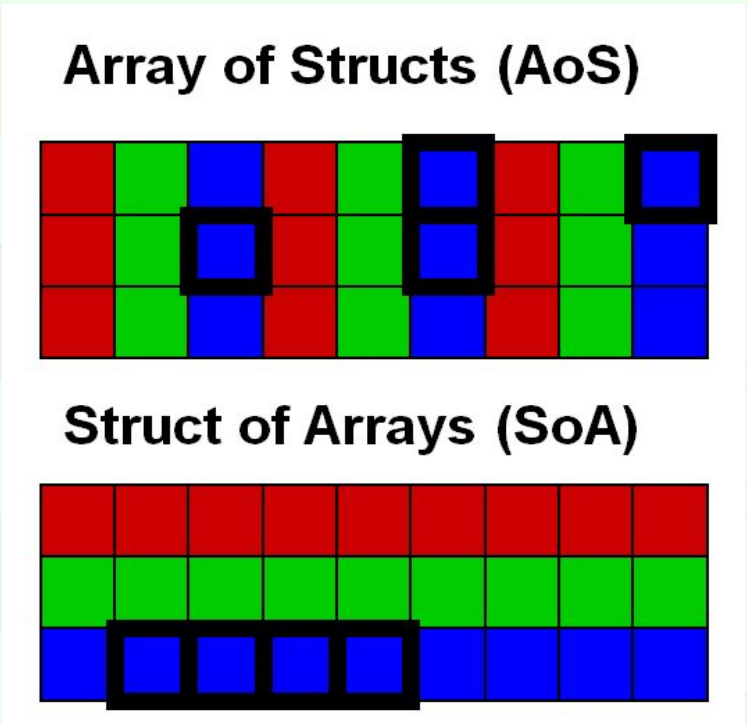
LHCb Run 2015

- Continuous full software trigger readout @40MHz
- Bigger events and an order of magnitude higher rate exported to Tier0
- Event selection very effective online: stripping no longer required
- Not enough CPU for MC

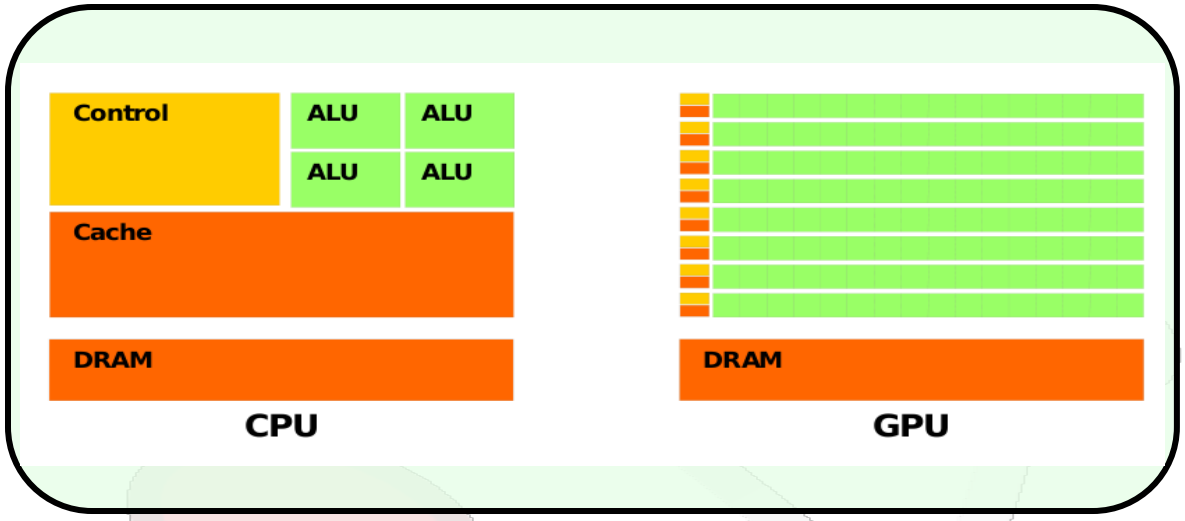
Software stack

- Smaller processing time per event
- Optimize memory footprint
- Backward/forward compatibility ?
- Various architectures?
- Reproducibility and emulation across platforms

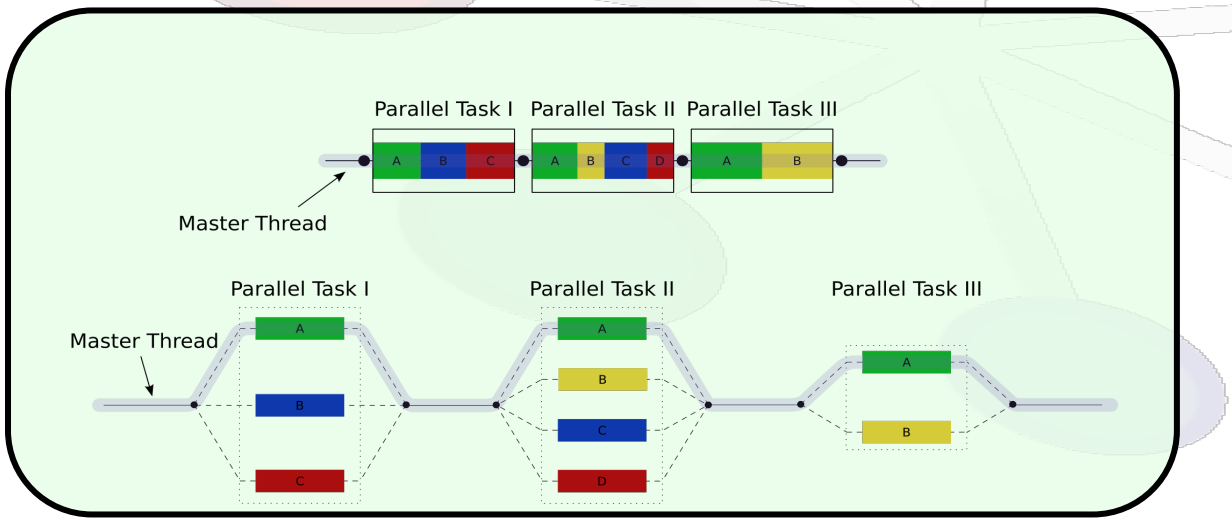
Event Model



HARDWARE



FRAMEWORK



Event format

- Reduce event size
- Full event not always needed
- Cone of interest around candidate particle

Turbo stream

- Full online reconstruction
- No offline reconstruction possible
- Smaller event
- Fast analysis
- Less processing steps

Event Index

- Tagging replaces streaming
- Finer grain selection
- Random access of events
- Production management validation
- File vs Service based

Analysis trains

- Group analysis by datasets
- Easier data management
- More efficient access pattern

Collaborative tools

- **Code review**
- **Analysis reproducibility**
- **Documentation**
- **Tests**
- **Data preservation**