



Contribution ID: 263

Type: Oral

## Network simulation of a 40 MHz event building system for the LHCb experiment

*Tuesday 5 November 2019 12:15 (15 minutes)*

The LHCb experiment will be upgraded in 2021 and a new trigger-less readout system will be implemented. In the upgraded system, both event building (EB) and event selection will be performed in software for every collision produced in every bunch-crossing of the LHC. In order to transport the full data rate of 32 Tb/s we will use state of the art off-the-shelf network technologies, e.g. InfiniBand EDR.

The full event building system will require around 500 nodes interconnected together via a non blocking topology, because of the size of the system it very difficult to test at production scale, before the actual procurement. We resort therefore to network simulations as a powerful tool for finding the optimal configuration. We developed an accurate low level description of an InfiniBand based network with event building like traffic. We will present a full scale simulation of a possible implementation of the LHCb EB network.

### Consider for promotion

Yes

**Authors:** PISANI, Flavio (Universita e INFN, Bologna (IT)); COLOMBO, Tommaso (CERN); NEUFELD, Niko (CERN); MARCONI, Umberto (Universita e INFN, Bologna (IT)); KRAWCZYK, Rafal Dominik (CERN); GALLI, Domenico (Universita e INFN, Bologna (IT)); SCHWEMMER, Rainer (CERN); DURANTE, Paolo (CERN)

**Presenter:** PISANI, Flavio (Universita e INFN, Bologna (IT))

**Session Classification:** Track 1 –Online and Real-time Computing

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