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

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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

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