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Real-time monitoring of operational data in the Belle II experiment

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Belle II is a luminosity frontier experiment designed to search for physics beyond the standard model of particle physics, and has successfully started the physics data taking on March 2019.
We use seven sub-detectors to record the enormous numbers of events that are produced by the SuperKEKB accelerator.

There are many components to be monitored in our system for smooth data taking, such as the nodes of the online software trigger, readout PCs for each of the sub-systems, and the status of the network connections among the components.
In order to provide quick error recognition, we adopt the Elastic Stack as a central monitoring system, to which we put all the log outputs.
This monitoring tool allows us near real-time interactive visualisation of errors.

To achieve an unprecedented luminosity, the accelerator team still continues its commissioning works, and gradually increases its instantaneous luminosity in 2019 runs.
In such a situation, we build up our data acquisition system, facing up to many troubles; for example (1) sudden death of data-taking processes, (2) instability of readout PCs, and (3) data-taking deadtime due to unexpectedly large event size.

We present the development status of our monitoring tool, which detects any troubles in our system and hence minimise the data-taking inefficiency.
We still build up the monitoring system; we discuss the difficulties experienced during the operation.

Minioral

Yes

IEEE Member

No

Are you a student?

No

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