Contribution ID: **90** Type: **Oral Presentation**

Automatic recovery system in the Belle II operation

Monday 1 August 2022 16:00 (20 minutes)

The Belle II experiment is designed to search for physics beyond the standard model of particle physics exploiting the large number of B meson decays produced by the SuperKEKB accelerator.
We have maintained a good data-taking efficiency since the beginning of our operation on March 2019.
Nevertheless, we encountered various problems and errors during our operation.
The instantaneous luminosity of SuperKEKB is gradually increasing; in this phase, we occasionally suffer from huge background events induced by the beam operation.
For example, we encountered the problems in the nodes of the online software trigger, readout PCs of each detector component, and the status of the network connections among the components.
In order to minimise the time without data-taking, it is essential to establish a system which diagnoses errors and performs proper recovery actions quickly and automatically.
We adopted Elastic Stack to achieve this goal; this stack is consists of 1) a distributed analysis engine, 2) data-feeding applications, and 3) a web interface to visualise the data in the analysis engine.

This automatic recovery system is still developing with new functionalities being implemented; we present the current status of the system together with the difficulties experienced during the operation and the future plan.

Minioral

Yes

IEEE Member

No

Are you a student?

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Session Classification: Control, Monitoring, Diagnostics, Safety, Security - I

Track Classification: Control, Monitoring, Test, Diagnostics Systems