

KEK Central Computer System

Thursday, March 17, 2016 4:30 PM (30 minutes)

High Energy Accelerator Research Organization (KEK) plays a key role in particle physics experiments, as well as supporting the communities in Japanese universities. In order to ensure those important missions, KEK has two large-scale computer systems: the Supercomputer System (KEKSC) and the Central Computer System (KEKCC).

The KEKSC is mainly used by collaborative researches in theoretical elementary particle and nuclear physics, condensed matter physics, as well as for accelerator simulations. The system is composed of two different systems: Hitachi SR16000 model M1 (System A) and IBM Blue Gene/Q (System B).

The KEKCC caters to the research demands of particle physics, nuclear physics, the photon factory, neutron science, accelerator development, theory computation, etc. In addition, this system provides information infrastructure environment such as Web, e-mail, and Grid (EMI/iRODS) services and supports the research activities and collaborations of KEK.

As mentioned above, the EMI Grid middleware is deployed in the KEKCC for analysing and sharing experimental data over the distributed systems. The system is operated under the Worldwide LHC Computing Grid (WLCG) project. The Belle II, T2K, and ILC experiments do their data analysis using the Grid infrastructure to manage large amount of experimental data.

We would like to share our experiences and challenges in the security, the operation, and experiment-specific applications, as well as requirements for storage resources and computing resources particularly focusing on Grid through nearly 4 years operation of the current KEKCC. Also we discuss the outlook for the next KEKCC system, which will be newly introduced in September 2016.

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Session Classification: Networking, Security, Infrastructure & Operations Session V

Track Classification: Networking, Security, Infrastructure & Operations