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# Overview and Highlights of the Belle II Computing and Software (25' + 5')

*Thursday, 4 August 2016 12:50 (30 minutes)*

The Belle II experiment is the next-generation flavor factory experiment
at the SuperKEKB accelerator in Tsukuba, Japan.
The first physics run will take place in 2017, then we plan to increase
the luminosity gradually. We will reach the world's highest luminosity
L=8x10^35 cm-2s-1 finally and collect a total of 50ab-1 data by the end of 2024.
Such a huge amount of data allows us to explore the new physics possibilities
through a large variety of analyses in quark sectors as well as tau physics
and to deepen understanding of nature.

In terms of the software and computing, the Belle II experiment is
highly challenging. The higher luminosity leads to higher background levels
and requires a major upgrade of the detector. As a consequence, the simulation,
reconstruction, and analysis software must also upgraded substantially.
Most of the software has been redesigned from scratch, taking into
account the experience from Belle, the predecessor of Belle II, and other
experiments and utlizing new technologies.

The Belle II computing system is expected to manage the process of
massive raw data,
production of copious simulation and many concurrent user analysis jobs.
The required resource estimation for the Belle II computing system shows
a similar evolution curve of the resource pledges in LHC experiments.
Eventually, we have to handle several tens of Petayte of beam data per year.
Here, the Belle II is a worldwide collaboration of about 700 scientists
working in 23 countries and region. It is natural to adopt a distributed
computing model based on existing technologies and infrastructure.
We chosen DIRAC as a workload and data management system, which provides us
an interoperability of heterogeneous computing systems such as grids
with different middleware, academic/commercial clouds and local
computing clusters.

This year, we will experience the first beam data from the SuperKEKB
accelerator,
the advanced Trans-Pacific network and the full replacement of the
central computing system
at KEK with upgraded resources.

We will present the overview and highlights of the recent achievements
and present status of the Belle II computing system and software in
this presentation.

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