Belle II Data Management System

Content:
We introduce Belle II data management system based on grid farm. Belle II is the successor of the Belle experiment. The Belle II data management system has to handle an amount of data eventually corresponding to 50 times the Belle level by the end of 2020.

The existing Belle data management has problems with performance, scalability, and robustness, which makes it inappropriate for Belle II. Moreover, the solution applied by Belle is not intended to be used in a distributed environment. Therefore, the goal of Belle II data management system is to make reliable and efficient metadata system based on grid farm.

In this paper, we explain the architecture, characteristics, components and interactions of them for the Belle II data management system. We also show the user scenario for data management. To determine where the files are located on the grid and thus to which sites the jobs that process these files should be submitted, we use the LCG File Catalog (LFC).

In conclusion, we have designed and constructed Belle II data management system. We have also tested the process of data transfer, metadata extraction, scalability and replication based on the prototype of the grid systems at KISTI (Korea Institute of Science and Technology Information) and University of Melbourne. We report the achievement of our test - performance, scalability, and robustness.

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