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### Data Cache system at Belle II experiment

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- **1. Belle II experiment**
- 2. Requirement of data handling system
- 3. Belle II Metadata service system
- 4. Data Cache system at Belle II experiment

#### 5. Summary





# 2. Requirement of data handling system

#### @ Belle II experiment

- At least, we need MC(data X 3)/data for an analysis.
- We suppose 50 times larger data than that of Belle.
- Then, it will take 20 days for skimming on using Belle system.
- If we suppose that the technology be improved two times, then we can estimate 500 days for Belle II pre-selection works.

## We suggest the meta system of the event-level and Data Cache system.

If we have the good information at metadata system, then we can reduce the CPU times for pre-selection.

ex) Fox-Wolfram momenta, number of tracks and so on



## 4. Data Cache system at Belle II experiment

- Every pre-selection data is stored in "Mdst" format.
- However, these files occupy so much disk space. Then, we start suffering from the lack of disk space.
- Basically, Index file has information of the exp#/run #/event # of events which have been passed the selection.
- So, the size of file can be reduced very much.
- However, the current system has a demerit because it can be used only at local network, not on Grid.
- Therefore, we have developed the Data Cache system which works on Grid.





Belle II

available



#### The estimation of Data Cache

- We select the sample data for the estimation of Data Cache.
- We obtain the metadata from event-level searching.
- The results show same between Belle and Belle II.
- We reduce the size of index file.

Data Cache system at Belle II experiment
The estimation of Data Cache



Data Cache system at Belle II experiment

4.



- Constructed the searching service system
- Designed and developed the Data Cache system
- Connected the Data cache system and searching system
- Estimated the Data Cache system
- Applied Grid system

