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A generic and efficient aggregation method within neutron spectrometer data process framework based on the synchronous trigger and tagging system

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In the recent project of China Spallation Neutron Source (CSNS), a new designed distributed stream-processing framework is applied as the fundamental schema of data process system on user cooperative instruments. It is constructed with the open-source Apache Kafka software, which aims to aggregate the big data for manipulation sharing, and also with a synchronous trigger and tagging system, which provide synchronous ID for data correlation among different target hitting cycles. Correlated data could be identified among different measurements for aggregative analysis in a high efficient way, which greatly improve the performance of data processing.In concert with the real-time capability on stream-processing platform, WYSIWYG characteristics is achieved either. Performance and adaptability of this technique has been validated during the operation of constructed user cooperative instruments in CSNS. An increasing number of data-processing functions and experiment methods have got benefit from it.

Footnotes

Funding Agency

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Yes

Primary author: TENG, Haiyun (Chinese Academy of Sciences)

Co-authors: LI, Jiajie (Chinese Academy of Sciences); ZHUANG, Jian (Institute of High Energy Physics, Chinese Academy of Sciences); SHEN, Peixun (Institute of High Energy Physics); QIU, Yongxiang (Chinese Academy of Sciences)

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