

Research on Streaming Data Processing of Neutron Instrument

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As an advanced detection spectrometer with the most advanced design concept, neutron sources are an important platform for conducting cutting-edge disciplines and research on high-tech. In recent years, its performance and technology have made rapid development. With the evolution of upgrades, the traditional file-based data transmission framework is under great pressure in the face of high-bandwidth and high-concurrency data transmission and historical backtracking tasks, seriously affecting its overall performance indicators and operational efficiency. Therefore, neutron sources have proposed a new generation of neutron spectrometer data acquisition and transmission systems based on mature streaming transmission platforms. However, the distributed nature and optimized deployment requirements of the streaming transmission platform will bring new challenges to the processing of spectrometer experimental data. Therefore, the spectrometer needs to adapt a general data stream processing framework that links the streaming transmission platform and the spectrometer data processing tasks to standardize and simplify the data processing process and user application development. For neutron spectrometer experiments, the design and development of a general data stream processing framework is the basis for carrying advanced experimental methods and efficient operational efficiency.

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