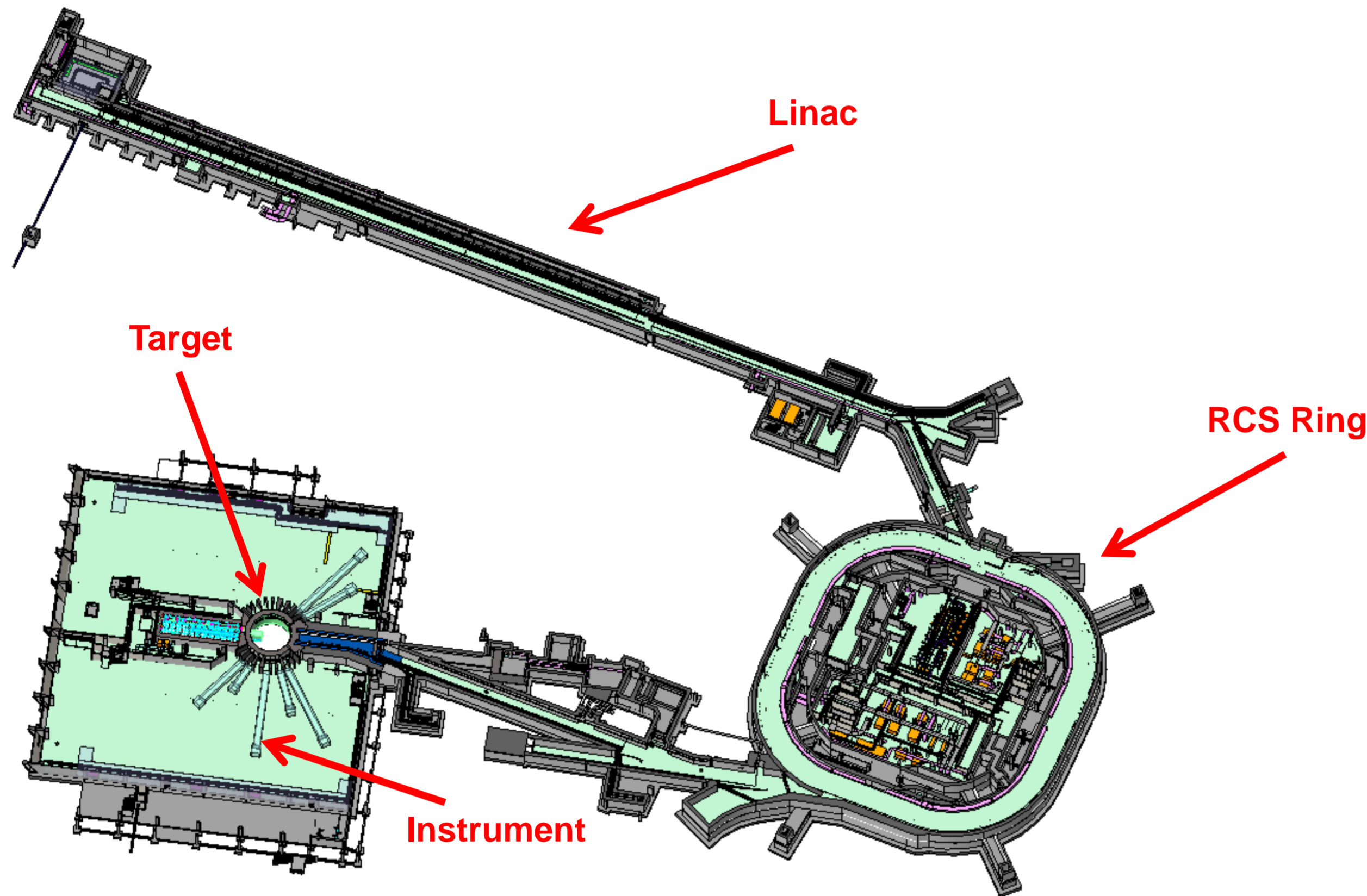


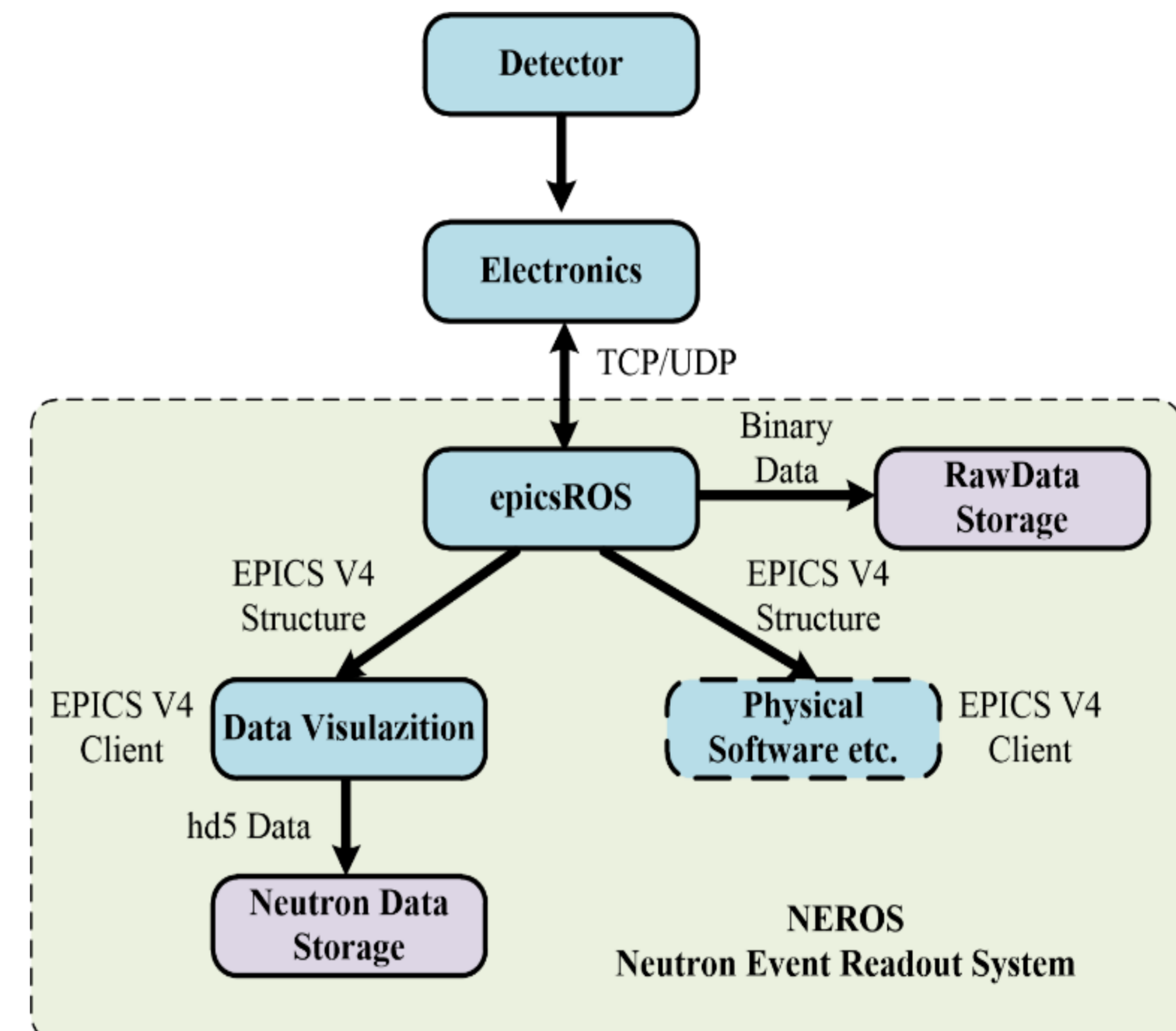
Data Acquisition System for CSNS Neutron Beam

Jian ZHUANG, Ke ZHOU, Lijiang LIAO, Lei HU, Jiajie LI, Yongxiang QIU
State Key Laboratory of Particle Detection and Electronics, Beijing, P.R.China
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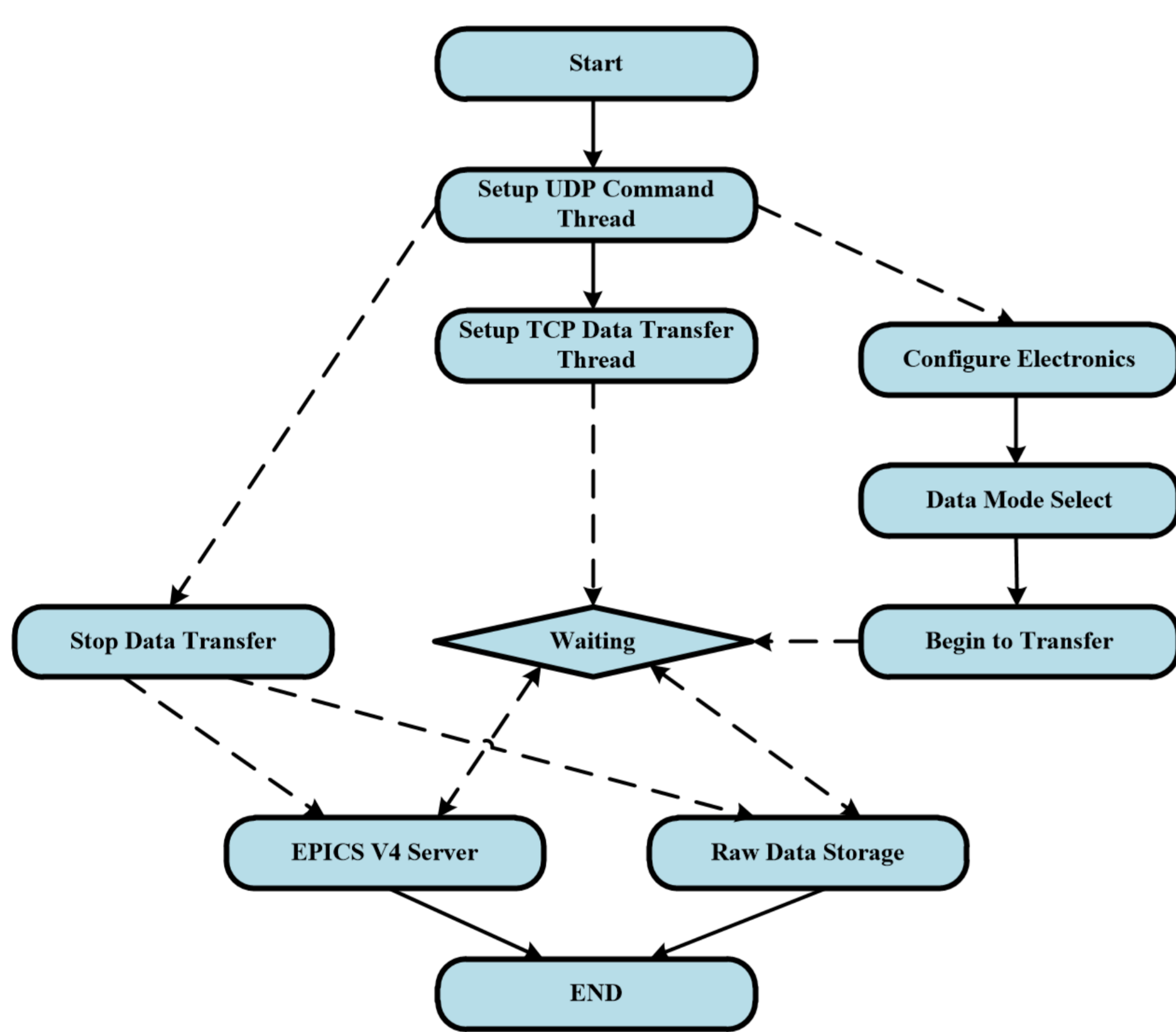
China has built a world-class spallation neutron source (CSNS) to provide users a neutron scattering platform with high flux, wide wavelength range and high efficiency.



The layout of CSNS

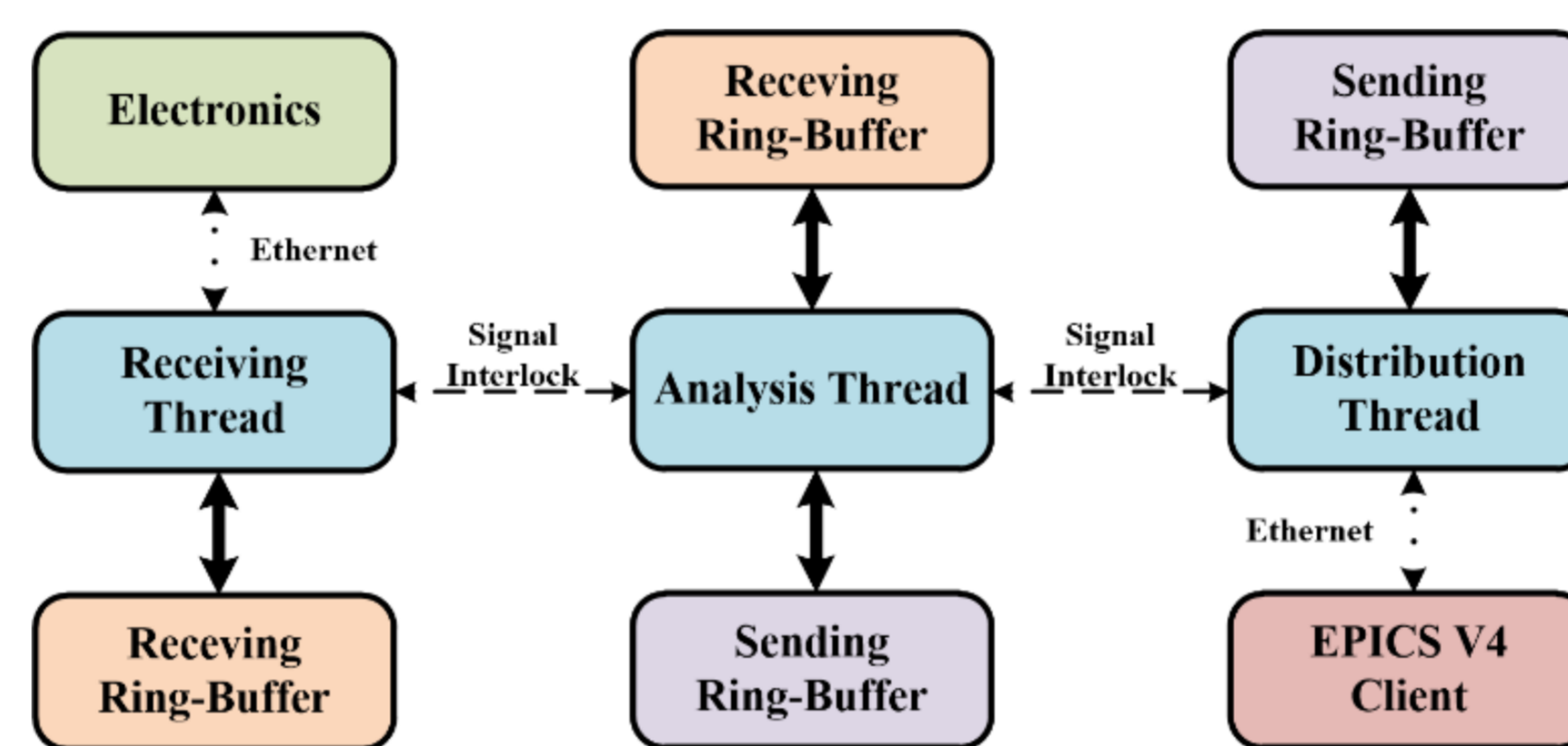


Flow of epicsROS

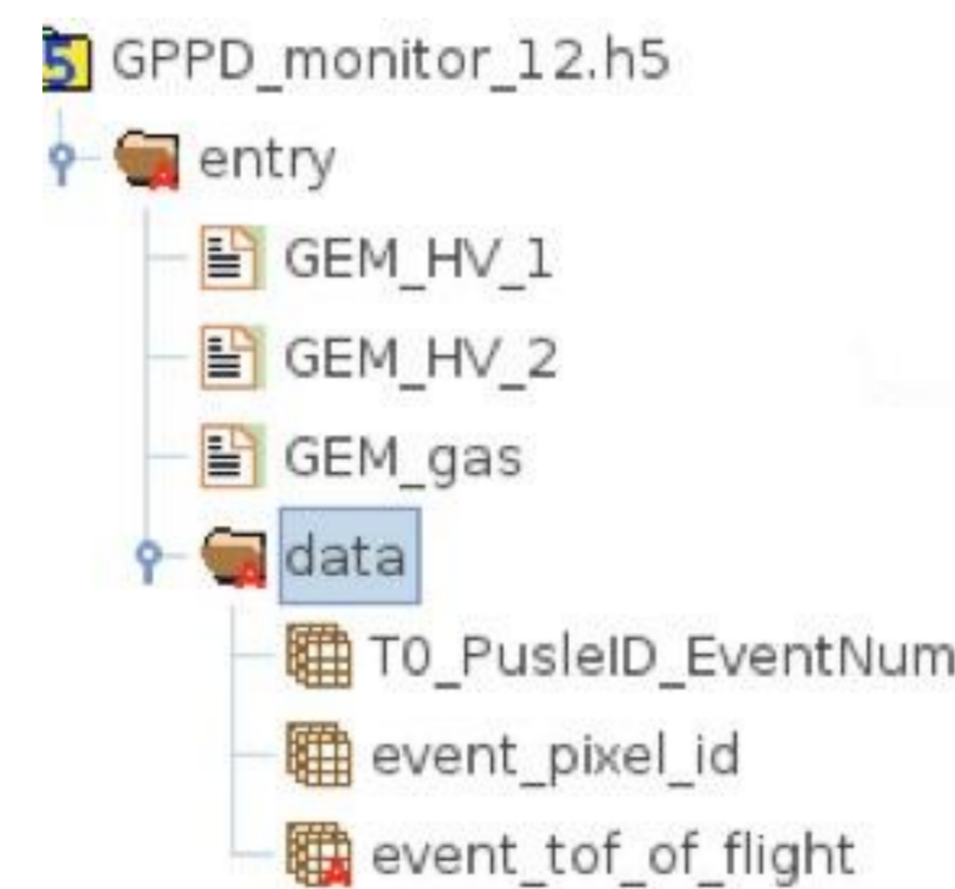


Design

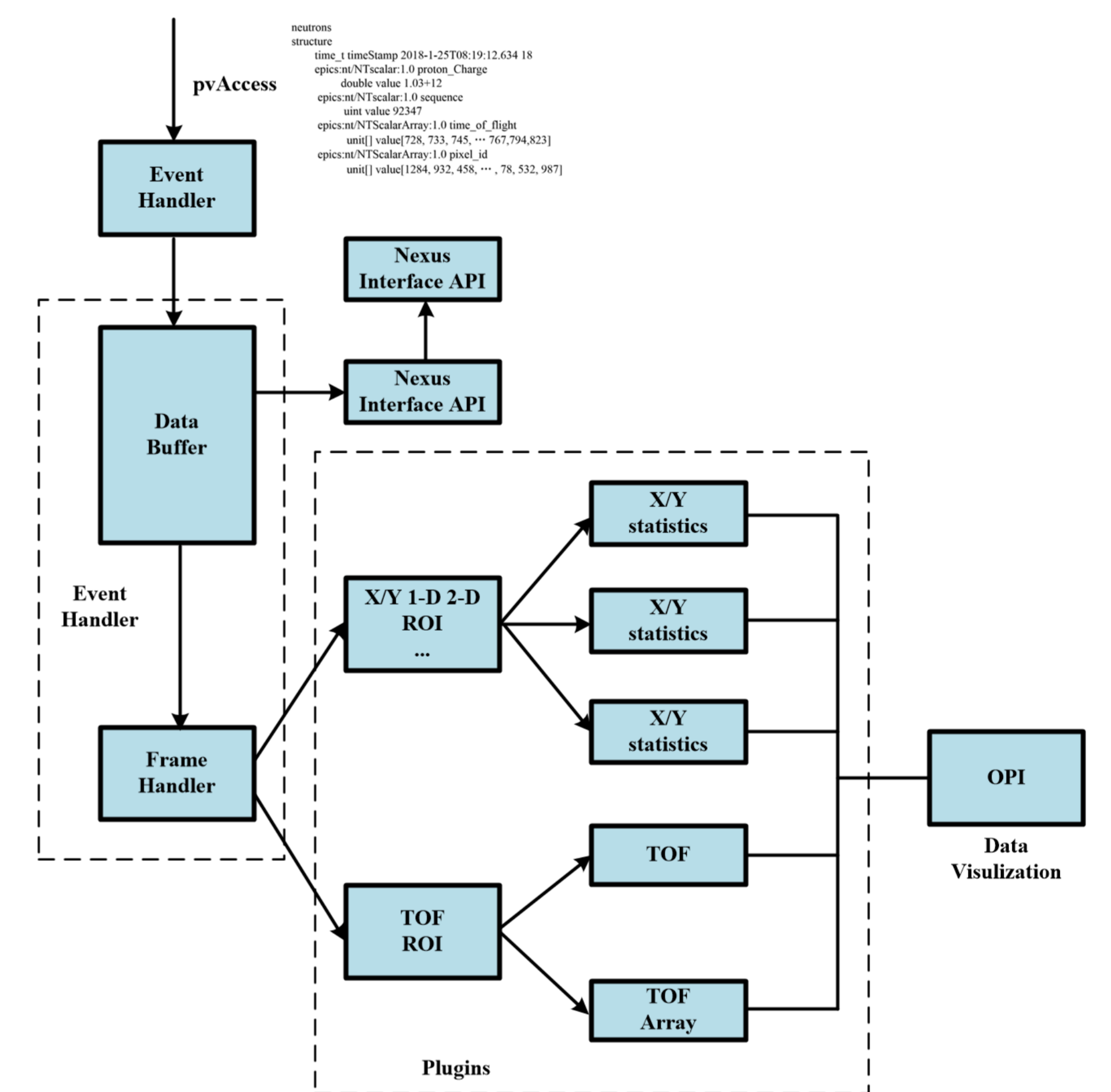
Buffers and Threads



Data storage in Nexus file

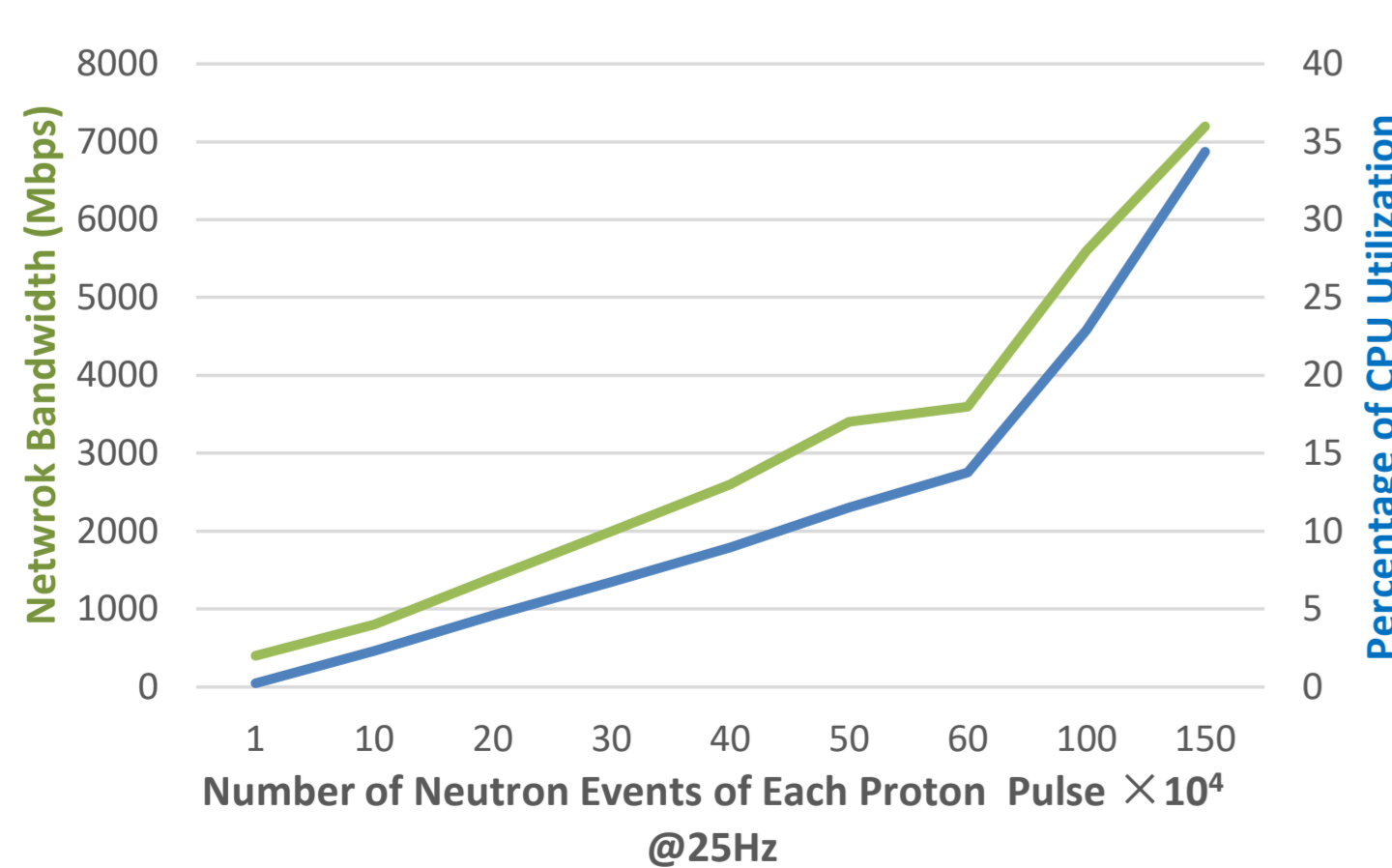


Data Visualization



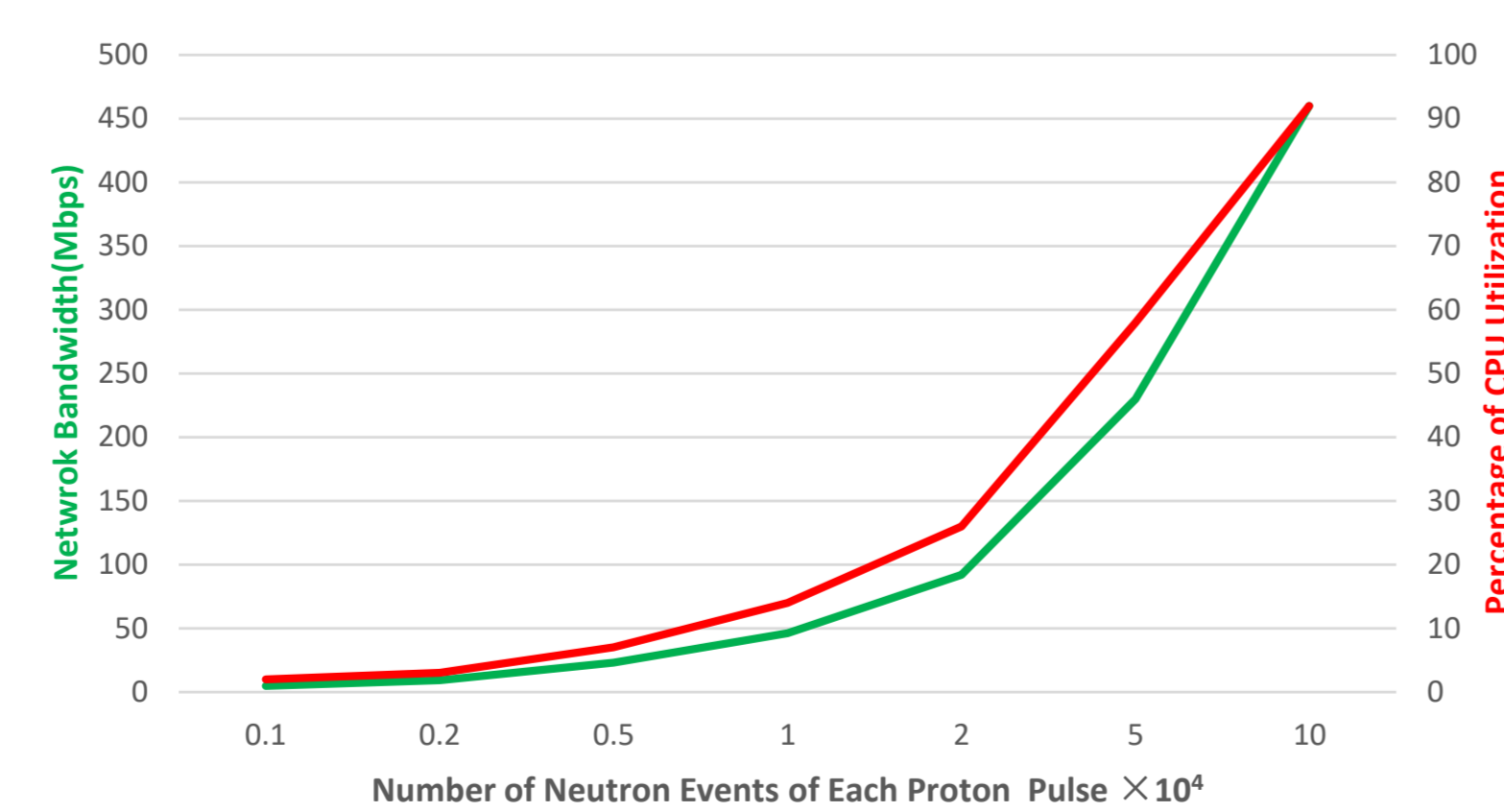
To be integrated into neutron instrument control, a new DAQ software for neutron beam monitor is developed, called NEROS (Neutron Event Readout System). NEROS is based on EPICS V4 and a unified data format for CSNS neutron beam monitor is defined.

Commissioning

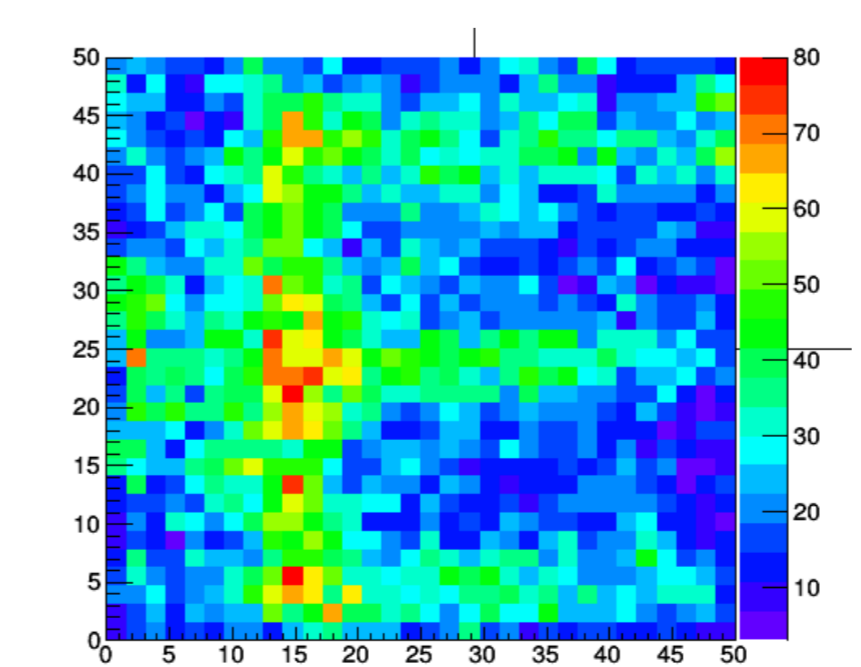


The Performance of NEROS Framework

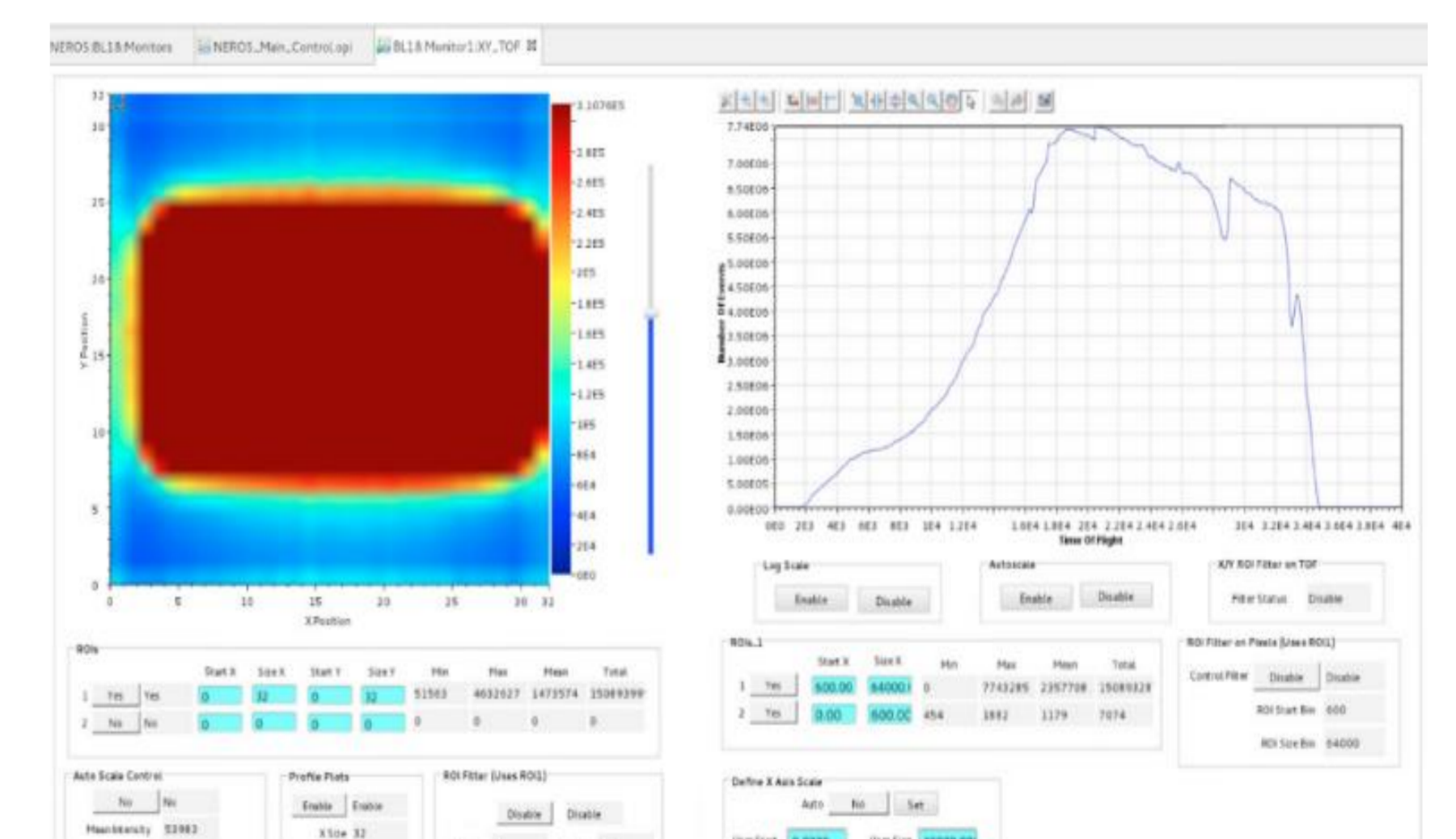
Data Throughput Performance



The Performance of NEROS With Real Data Analysis



Mask Test



Result under Real Neutron

In the future, the thread of analysis will be split into several parallelized threads to improve NEROS performance.