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Diagnostic Data Real-time Publishing System based on ZeroMQ for EAST

In the past, data collected during plasma fusion could not be accessed until the end of experiments. But in the near future, plasma fusion discharges will last for hours. If experimental data cannot be viewed in real time by researchers, it will cause problems for scientific research. Therefore, I designed the diagnostic data real-time publishing system for EAST, which can real-time publish the collected diagnostic data according to the sampling rate specified by the researchers. There are two difficulties in this topic. One is to improve the throughput of the system by reducing the useless data in each data frame (such as host IP address and frame serial number) and optimizing the network structure. The second is to ensure that the system can run stably, and facilitate the maintenance and upgrading of the system in the future. Based on the above two points, I chose ZeroMQ framework to develop the core functions of the system. ZeroMQ is currently the mainstream message queue framework, which provides an API to enable the system to efficiently and stably exchange data.

The system is currently undergoing preliminary tests, and the overall performance meets expectations, and can complete real-time publishing of diagnostic data.

Minioral

No

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No

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