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## Low Latency, High Bandwidth Streaming of Experimental Data with EJFAT

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Thomas Jefferson National Accelerator Facility (JLab) has partnered with Energy Sciences Network (ESnet) to define and implement an edge to compute cluster data processing computational load balancing architecture. The ESnet-JLab FPGA Accelerated Transport (EJFAT) architecture focuses on FPGA acceleration to address compression, fragmentation, UDP packet destination redirection (Network Address Translation (NAT)) and decompression and reassembly.

EJFAT seamlessly integrates edge and cluster computing to support direct processing of streamed experimental data. This will directly benefit the JLab science program as well as data centers of the future that require high throughput and low latency for both time-critical data acquisition systems and data center workflows.

The principle benefits of the EJFAT architecture include (a) reduction in latency of experimental data processing by allowing it to be processed in real time or near real time (b) redirect streamed data dynamically without needed to reconfigure or restart the data source (c) decoupling of dynamic cluster resource management from the data source

The EJFAT project will be presented along with how it is synergistic with other DOE activities such as an Integrated Research Infrastructure (IRI), and recent results using data sources at JLab, an EJFAT LB at ESnet, and computational cluster resources at Lawrence Berkeley National Laboratory (LBNL).

### Significance

### References

### Experiment context, if any

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