

HEPnOS: Fast Event-Store for HEP on HPC

Scientific Achievement

A custom data service for HEP, optimized for state-of-the-art HPC systems.

Significance and Impact

Extend the physics capability of HEP experiments by allowing HEP data analysis programs to harness the ever-increasing power of ASCR (and other) supercomputers.

Research Details

- Manage physics event data from simulation and experiment, through multiple phases of analysis
- Bypass file system to accelerate data access throughout analysis process
- Designed to seamlessly integrate into HEP software frameworks
- Leverage elements of ASCR *Mochi* project to rapidly develop and customize for HEP needs:
 - Physics object data stored in NVRAM, RAM, or SSD
 - Metadata stored in modern index (e.g., LevelDB)
 - RDMA used for client access to physics object data

