

Theme: New Computing

- Sub theme: Intelligent, Reliable, and High efficient Storage for HPC

We are looking for innovative storage architecture and solutions with high performance, high reliability, strong robustness, and high efficiency in face of drive failures, which is becoming critical for next-generation HPC and Deep Learning workloads in exascale supercomputing datacenter environments. We are highly interested in (but not limited to) the following list of topics;

- 1) Fundamental Study of the impact of drive failures in storage systems on the overall performance of supercomputing datacenter environments (**the Blast Radius issue**) and the evaluation of various redundancy protection schemes (RAID vs Erasure Coding) on the performance of storage in degraded mode and recovery mode.
- 2) Extensible **data provenance framework** designed for realistic supercomputing environments such as US government national laboratories that can enable scientific data lineage tracking, workflow & scientific data prediction & reproduction, and workflow diagnosis and optimization;
- 3) Development of State of The Art **high performance storage architecture** and solution for HPC Deep Learning in supercomputing environments
- 4) Development of **Highly Reliable and Robust storage architecture** and solution with efficient recovery against drive failures
- 5) Study **storage characteristics** of challenging next-generation deep learning benchmarks and exascale AI workloads in supercomputing environments

※ The participants are also encouraged to propose new ideas outside the topics listed above.

※ Funding: Up to USD 150,000 per year