

DAOS on 400 Gbps HPC Fabrics

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The Distributed Asynchronous Object Storage (DAOS) is an open source software-defined high performance scalable storage system that has redefined performance for a wide spectrum of AI and HPC workloads. This PDSW25 WiP session presents first performance results of DAOS running on NVIDIA NDR InfiniBand, HPE Slingshot 400, Cornelis Omni-Path 400, and 400GbE Ethernet fabrics.

CCS CONCEPTS • Information systems ~ Information storage systems ~ Storage architectures ~ Distributed storage

Additional Keywords and Phrases: DAOS, Parallel Filesystem, Object Storage, HPC fabrics.

1 DAOS Performance on 400 Gbps Fabrics

The DAOS storage stack [1] supports all modern high performance networks for its data plane, including NVIDIA InfiniBand, HPE Slingshot, Cornelis Omni-Path, and high performance Ethernet [2]. DAOS systems currently deployed in production are mostly using the 200 Gbps generation of HPC fabrics. This WiP session will present first performance data for PCIe gen5 based DAOS servers and DAOS clients on several 400 Gbps fabrics:

- NVIDIA NDR InfiniBand, with ConnectX-7 NICs in IB mode and QM9700 switches (with NVIDIA UCX)
- HPE Slingshot 400 NICs and switches (with the HPE libfabric CXI provider)
- Cornelis 400Gbps Omni-Path with CN5000 switches and adapters (with the libfabric TCP provider)
- 400Gbps Ethernet switches and ConnectX-7 NICs in Ethernet mode (with the libfabric TCP provider, RoCE testing is ongoing)

These experiences are useful for sizing next-generation storage systems based on DAOS, and to motivate future DAOS software development activities to keep up with the increasingly more powerful networking technologies.

REFERENCES

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