

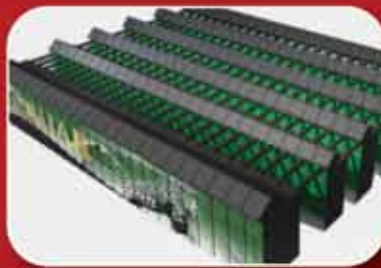
ORNL Spider File System: World's Fastest HPC Storage Cluster

To build the world's fastest HPC storage environment – Oak Ridge National Laboratory needed a partner who understood the extreme challenges of petascale I/O.

To deploy a 13 petabyte, 240GB/s file storage environment, ORNL chose Extreme Storage from DataDirect Networks. This system, the Spider File System, is designed to support the massive HPC bandwidth requirements of 100,000s of CPU cores.

The Spider system showcases DDN's award winning S2A9900 technology and is a revolutionary achievement for petascale system I/O, featuring:

- High-Speed Read & Write Performance
- File Striping Performance Consistency By Avoiding Rebuild Penalty
- Industry Leading Storage Density
- Optimized To Support The Lustre® Parallel File System



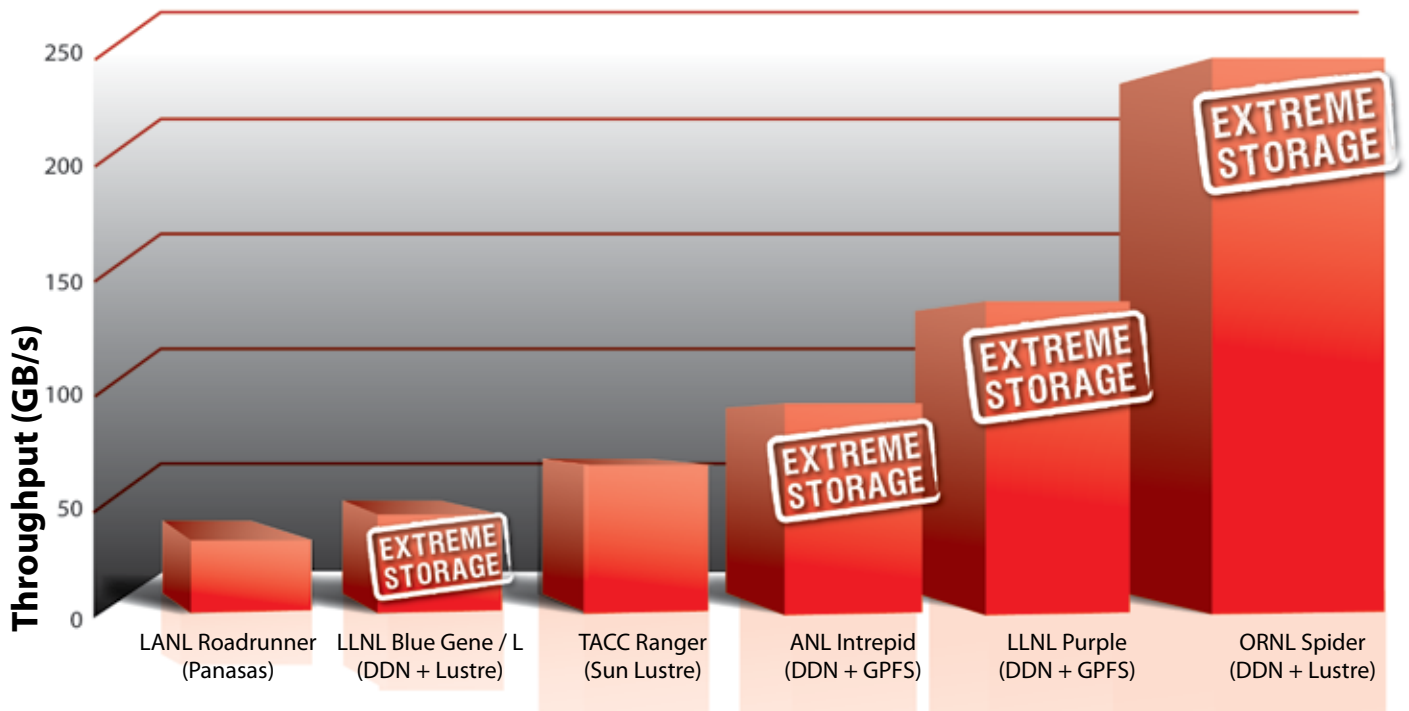
Images courtesy of the National Center for Computational Sciences, Oak Ridge National Laboratory

In Partnership With



The Spider storage system at ORNL delivers revolutionary storage cluster performance that is several factors greater than other leading HPC storage systems. Extending DDN's leadership in scalable storage – DDN has doubled its own performance record previously set at LLNL on the ASC Purple supercomputer.

Storage Cluster Throughput



| | |
|------------------------|---|
| Aggregate Bandwidth | 240GB/s |
| Storage Systems | 48 x DDN S2A9900 Storage Arrays |
| Hard Drives | 13,440 1TB SATA Hard Drives |
| Aggregate Capacity | 13.44 Petabytes (Raw), 10.7 Petabytes (Usable – 8+2 RAID 6) |
| Lustre Storage Servers | 192 Lustre OSS Servers |
| Cabling | Over 1,000 20Gb InfiniBand Cables |
| Data Center Cabinets | 32 Data Center Racks, 572 ft2 |

We selected DDN after extensive internal testing. Working closely with Cray, DDN, and SUN Microsystems, we have successfully deployed a center-wide accessible storage system known as Spider within the Leadership Computing Facility, the largest scale Lustre file system deployed to date.

- Galen Shipman
ORNL Group Leader, Technology Integration

