



RAID Inc.'s Storage Achieves 2GB/s Sustained Throughput with Lustre File System

Organization Name: The High Performance Computer Center (HPC) at The University of Florida
Industry: Academic Research
Location: Gainesville, Florida

Challenge

Processing and analyzing gigabytes to terabytes of data is critical for cutting-edge research in many areas of science and engineering. Overall performance of any storage solution is crucial in analyzing such large amounts of data. This was the challenge at the University's High Performance Computing Center. Another major concern was the cost of any proposed solution.

Solution

The University deployed a distributed storage solution consisting of six RAID Inc. Falcon III systems that consisted of over 140TB of storage. The expansive storage system was made available to users as a cluster file system (Lustre) hosted by two I/O servers and one Metadata server. The Fibre Channel HBAs provide access to the storage while the InfiniBand and Ethernet adapters distribute the file system to the HPC cluster (locally) and to the satellite facilities over the CRN. The storage is accessible by five satellite facilities via the 20Gb/s Ethernet Campus Research Network and to researchers across the state via Florida's research and education network.

The advanced Falcon III chipset was designed to eliminate bottlenecks on the controller level and utilizes an open-source file system optimizing throughput and allowing for virtualization of multiple physical storage devices into a single logical volume.

Results

The resulting architecture sustained throughput of up to 2GB/s (read and write) at a very attractive cost. This shared storage environment has created opportunities for the University of Florida in Gainesville and Florida International University to collaborate, linking together geographically dispersed universities. Today, researchers at the two universities are working to find evidence of a hypothetical particle that has been theorized by physicists. Researchers will soon be working remotely with a new particle accelerator at CERN, the world's largest particle physics laboratory in Geneva, Switzerland. As this work continues, more research labs from across the state and the country will likely seek access to the same storage pool, creating opportunities for important scientific discoveries.

"We found RAID Inc. to be the ideal partner for our challenging storage needs."

-Charlie Taylor,
Associate Director



RAID Inc. was founded in 1994 to deliver high-performance storage solutions. The company has earned industry praise for providing platform agnostic technical guidance in high performance computing (HPC), big data, cloud and software-defined data centers—in the most efficient, reliable and cost-effective manner. The world's leading research facilities, government, life science, financial, healthcare, energy, and cloud service providers leverage our team of engineers' extensive academic, research lab and commercial expertise that makes RAID Inc. a trusted industry leader. For more information, visit our website www.raidinc.com or call 1.800.330.7335.