ACCELERATE OIL & GAS DISCOVERY
WITH HIGH PERFORMANCE PARALLEL STORAGE

BIG DATA CREATES COMPETITIVE ADVANTAGE

Big data describes the phenomenon of using data to derive business value. The energy industry creates value with big data by performing core research with innovative computer simulation, replacing costly physical experimentation in many cases. Energy companies are leveraging data like never before by using techniques such as geophysical simulation or seismic processing to improve exploration of the world’s oil and gas resources. They utilize simulation and modeling technologies to reduce cost and risks, as well as time-to-results. Energy companies recognize that by using high performance storage they can make better use of the wealth of data they collect, helping them gain competitive advantage.

Big data drives the need for fast, extremely scalable, easy to manage, and affordable high performance computing (HPC) storage systems to handle the heavy loads of today’s data intensive workflows.

CASE STUDIES

One of the world’s largest oil and gas producers purchased Panasas ActiveStor storage systems for its seismic processing workflows. The application, running on a cluster with thousands of cores, demanded extreme streaming I/O capabilities. Trial runs with ActiveStor proved it to out-perform all other options. “Nothing is as fast as Panasas,” stated the senior storage administrator.

Features such as linear scalability and a single, global namespace for simplified management differentiated the ActiveStor solution. Ultimately, Panasas was selected for performance, ease of use, reliability, and support. The customer’s initial deployment of over 100 terabytes has grown to over 3 petabytes—managed by only one storage administrator.

The Society of Exploration Geophysicists Advanced Modeling (“SEAM”) Phase I Project was conducted, as a consortium of 23 top oil and gas companies. The project was one of the largest seismic simulations ever attempted. It included over 7 million CPU-hours of computation and approximately 200 terabytes of data. The project was carried out on a tight budget and with strict deadlines. After initial struggles with slower than expected I/O, Panasas ActiveStor was deployed to handle the heavy workload, both to meet the high I/O demands of the multiple quality control processes applied to the data, and as a cost-effective bulk storage system, meeting all key requirements of the SEAM project. The project was completed with Panasas storage earlier than expected and within budget.

PANASAS® ACTIVESTOR® PARALLEL STORAGE

ActiveStor removes performance bottlenecks found in traditional NAS systems by allowing the compute clients to read and write data in parallel to and from the physical storage devices, allowing incredibly fast access to very large datasets from many clients, simultaneously. Companies who deploy Panasas storage will dramatically reduce processing time—improving user productivity and reducing overall project time while simplifying storage operations and management.

Simplified management makes ActiveStor a compelling solution for energy companies with geographically dispersed exploration and product teams working in remote locations with limited IT staff. Linear scalability enables customers to grow their storage simply and easily as demands increase. Extreme performance supports large numbers of users, intensive I/O and enables energy companies to dramatically reduce their time-to-results.

SEISMIC PROCESSING | TOPOGRAPHIC ANALYSIS | IMAGING SERVICES | RESERVOIR SIMULATION

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PANASAS ACTIVESTOR
THE WORLD’S FASTEST HPC STORAGE SYSTEM

Panasas ActiveStor is the first “no compromise” hybrid scale-out NAS appliance. ActiveStor is powered by the proven PanFS® storage operating system for seamless linear scale-out growth, exceptional performance, easy management, and revolutionary reliability. For energy companies, ActiveStor delivers the performance and scalability to support the most demanding simulation and modeling applications, speeding project completion.

As dataset sizes and the number of processors increases, so does the demand for I/O performance. Traditional NAS solutions, often constrained by in-band filer heads and hardware RAID controllers, frequently cannot provide the required data throughput to keep up with big data workflows. These systems were designed for highly structured and centralized environments whereas the big data world is highly unstructured and distributed. Traditional approaches inevitably introduce workflow bottlenecks, create costly islands of storage which slow research, and increase time to discovery.

Easily Scalable Performance and Capacity
Simply add individual blade chassis or entire racks to nondisruptively scale capacity and performance as storage requirements grow. This makes it easy to linearly scale capacity to 12 petabytes and performance to a staggering 150GB/s.

Scalable capacity ensures that multiple data sets can be maintained and quickly made available across workflows. Even the largest datasets, such as seismic readings, are effectively managed within a single scalable namespace and effortlessly shared among researchers, streamlining collaboration.

Superior Manageability
ActiveStor provides a single point of management for a single, scalable file system, allowing researchers to focus on their work, rather than IT headaches. Capacity and performance planning, mount point management, and data load balancing across multiple pools of storage are all common administration problems that are easily solved with Panasas storage.

RAID 6+ Revolutionizes Reliability and Availability
Data reliability and availability on an ActiveStor solution actually increase with scale, not the other way around. Its innovative per-file RAID architecture with RAID 6+ triple-parity data protection establishes a new standard for enterprise-grade data reliability.

RAID 6+ is far more robust than a typical RAID 6 implementation, providing availability and reliability at scale that meets the requirements of business critical workflows. In addition to delivering fast, parallel RAID rebuild performance, ActiveStor is a boon to business continuity efforts as it is able to maintain availability to all unaffected files even after three drive failures where other storage systems would have gone completely off-line.

Unsurpassed Data Protection
Per-file RAID 6+ with triple parity protection and the fastest RAID rebuilds available

Compelling TCO
Unmatched price/performance, investment protection, utilization rates, and simplified management

Compelling Total Cost of Ownership
ActiveStor 16 combines high density SATA with lightning-fast SSD technology for exceptional throughput (GB/s) and small file IOPS performance. ActiveStor appliances offer an attractive total cost of ownership while fully addressing scalability and performance of even the most I/O-intensive computing applications.

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