



Panasas® ActiveStor® 16

HYBRID SCALE-OUT NAS WITHOUT COMPROMISE:
PERFORMANCE + MANAGEABILITY + RELIABILITY AT SCALE

IDC HPC USER FORUM – SEPT. 15, 2014

PANASAS PRODUCT MARKETING

“No Compromise” Scale-Out Solution:

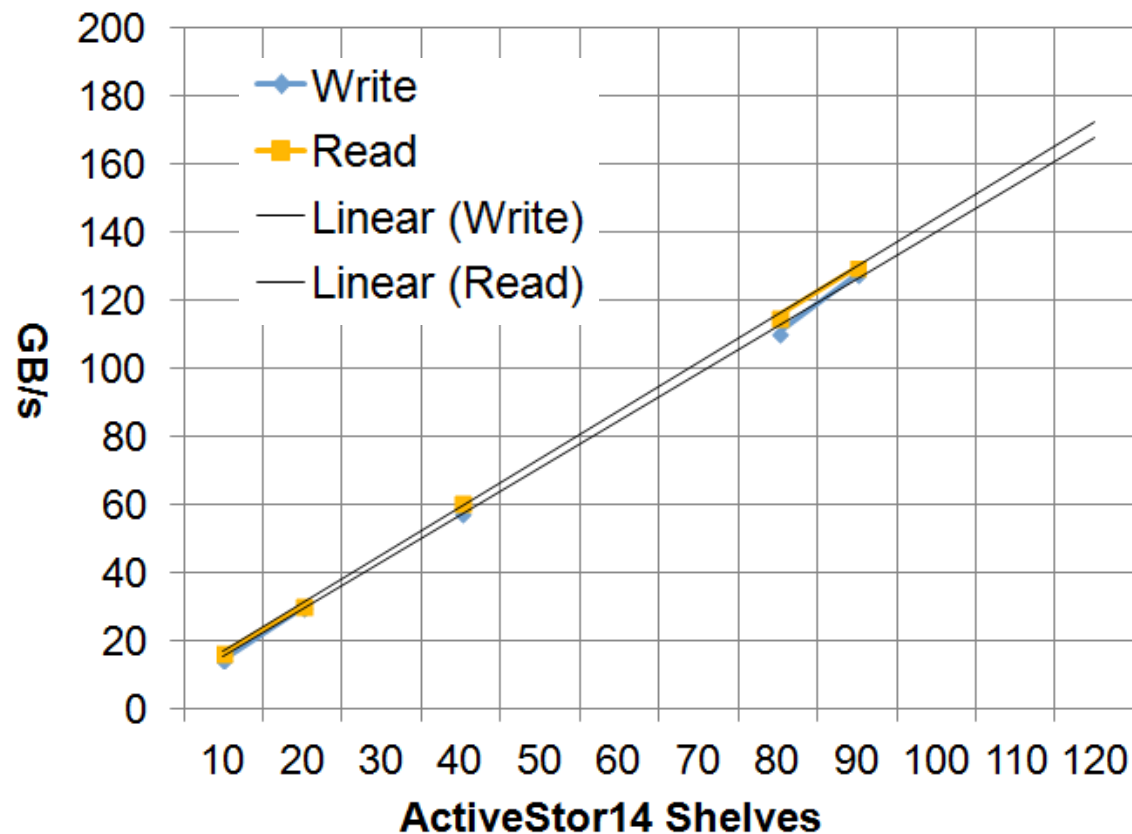
- **High Parallel Performance**
 - Direct data access eliminates traditional NAS bottlenecks
 - Capacity and performance scale linearly to 12PB and 150GB/s
 - Flash accelerated hybrid architecture
- **Easy Management**
 - Minimal management effort at scale
 - Set up or grow capacity in <10 minutes
 - Single, global namespace
- **Enterprise-Grade Reliability**
 - Triple parity protection with RAID 6+
 - Reliability increases with scale
 - Extended File System Availability



ActiveStor 16
10 shelves, 1.2 PB

Configuration:

- 90 ActiveStor 14 shelves
- 27 director blades
- 180 compute nodes (3200 processes)
- Only 2 compute nodes/shelf



■ Linear Scalability as Expected!

- 128.6 GB/s write, 128.4 GB/s read (1429MB/s per shelf)
- 1550-1600MB/s possible with more clients – predicts 155-160GB/s at 100 shelves

- **ActiveStor with PanFS 5.5 delivers true enterprise-grade Microsoft® Windows® support**
 - Commercial-grade implementation (NOT based on open source Samba)
 - Comprehensive Windows client support
 - Windows Server 2003, 2008, Windows XP, Vista, Windows 7, Windows 8
 - Improved integration into heterogeneous IT environments
 - High-fidelity Access Control List (ACL) support (including inheritance)
 - Active Directory enhancements: trusted domain support

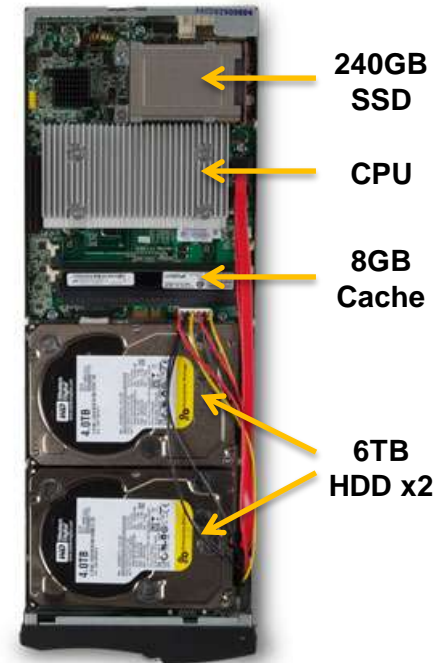
- **Compatibility with mixed IT environments is important for many technical computing workflows:**
 - Data uploaded from Windows workstation
 - Data analyzed/simulated on Linux compute cluster
 - Results inspected/visualized on Windows workstation

- **Especially important for HPC deployments in**
 - Energy, Finance, Life Sciences, Manufacturing, Media & Entertainment

- **50% Increase in Density**
 - 2 x Hitachi HGST He6 Helium-filled 6TB hard drives + 1 x 240GB SSD per storage blade
 - 122.4TB per 4U shelf
- **Improved Director Blade Performance**
 - 19% faster CPU (2.53GHz quad-core)
 - 4x more cache: 48GB memory
 - Improves metadata, small file and RAID rebuild performance
- **Designed for PanFS 6.0**
 - Optimal HDD/SSD ratio for RAID 6+
- **Shipping soon!**
 - First shipments expected by end of September



ActiveStor 16



ActiveStor 16
Storage Blade


- **RAID 6+ Triple Parity Protection**
 - Per-file, distributed RAID 6+ based on erasure codes
 - Dual-parity RAID 6 protects against two simultaneous device failures
 - Vertical parity protects against unrecoverable media errors
 - Overcomes limitations of traditional RAID
 - Reliability increases with scale, not decreases
- **Extended File System Availability**
 - Ensures business continuity when other systems would be down
 - Quickly restore specific files for disaster recovery, not whole file system
- **High Performance Implementation**
 - Aggregate read performance comparable to RAID 5
 - Aggregate write performance within ~7% of RAID 5 speed
 - Metadata reads/stats faster due to third copy of RAID 6+ metadata
- **Shipping Soon:**
 - PanFS 6.0.0 in customer hands, no serious RAID 6+ bugs found
 - PanFS 6.0.1 ships for production workloads within a month!

THANK YOU!

 <http://www.panasas.com>

 <http://www.linkedin.com/company/panasas>

 <http://twitter.com/#!/panasas>

 <http://www.youtube.com/PanasasHPC>