

PANASAS® ACTIVESTOR® 20

Performance Scale-out NAS Appliance Increases Flash by 65% and SATA by 25% for Unstructured Sequential and Mixed Workloads

Panasas® is the leader in performance scale-out NAS, driving industry and research innovation by accelerating unstructured data workloads and simplifying data management. ActiveStor® appliances leverage the patented PanFS® storage operating system and DirectFlow® parallel protocol to deliver high performance and reliability at scale from an appliance that is as easy to manage as it is fast to deploy. With flash technology optimized for small file and metadata performance, ActiveStor provides significantly improved filesystem responsiveness while accelerating time-to-results. Based on a fifth-generation storage blade architecture and the proven Panasas PanFS storage operating system, ActiveStor performance scale-out NAS offers an attractively low total cost of ownership experience for the life sciences, manufacturing, media, government, energy, and university research markets.

HIGHLIGHTS

Extreme Performance

Flash-accelerated for optimum small random I/O response time combined with high-performance parallel access for sequential data

Linear Scalability

Single file system scales to 45PB and 360GB/s and 2.6M IOPS

Easy Deployment and Scale

Simple to set up and configure; fully operational in less than an hour; expand namespace in minutes when adding more ActiveStor appliance to existing namespace

Unsurpassed Data Protection

Erasure code technology with triple parity protection delivers reliability that scales with capacity; snapshots and replication

Attractive Value

Outstanding TCO, low OpEx at time of deployment and as namespace grows

USE CASES

Manufacturing

EDA design and simulation, fluid dynamics, optical correction, thermal modeling

Life Sciences

Next-gen sequencing, bio-informatics

Media

VFX rendering, video editing, content delivery, production at HD and 4K resolutions

Government

Defense, intelligence, weather forecasting

University Research

Climate modeling, computational chemistry, high energy physics, life sciences

Energy

Seismic processing, migration and interpretation, reservoir simulation



LINEAR SCALABILITY OF CAPACITY AND PERFORMANCE

ActiveStor 20 eliminates the scalability and performance bottlenecks associated with legacy NAS architectures. Start small and scale-out the number of ActiveStor appliances to non-disruptively increase the capacity and performance of the global file system as your storage requirements grow. Parallel data access and automated load balancing ensure that performance is optimized and hot-spots are eliminated. This makes it easy to linearly scale capacity to over 45PB and performance to 360GB/s and 2.6M IOPS.

RELIABILITY AND AVAILABILITY AT SCALE

At the core of ActiveStor is PanFS with an intelligent, erasure code based per-file distributed RAID architecture, implemented with data protection in software instead of traditional hardware RAID controllers. Data is safeguarded by RAID 6+ with triple parity protection for superior enterprise-class reliability and availability that does not compromise performance. By optimizing data placement, reliability on ActiveStor actually increases with scale, rather than decreasing as would be expected with traditional storage systems. PanFS includes Enterprise Data Services such as snapshots, quotas, and SiteSync® replication, all at no extra charge.

SUPERIOR MANAGEABILITY

A single point of management for a scale-out file system allows the storage administrator to focus on core business tasks instead of the storage system. Panasas easily addresses capacity and performance planning, mount point management, and data load balancing across multiple pools of storage. The ActiveStor 20 appliance easily integrates into growing heterogeneous IT environments through multiprotocol support for Linux®, macOS®, and Microsoft® Windows® clients while also introducing high performance DirectFlow protocol support for Linux and Mac that's easy to deploy and monitor.

LEADING PRICE/PERFORMANCE AND COMPELLING TCO

The ActiveStor 20 provides exceptional performance at an attractive price, storing large files on high capacity SATA drives while leveraging flash technology to accelerate small file and metadata performance for optimized random workload response times. This fifth-generation ActiveStor platform combines high density with exceptional mixed workload performance (GB/s and IOPS) while delivering outstanding price/performance for unstructured sequential throughput workloads. With increased storage utilization rates, and simplified management, ActiveStor 20 delivers a compelling, low total cost of ownership while exceeding the performance needs of the most demanding industry and research organizations.



PANASAS ACTIVESTOR PRODUCT SPECIFICATIONS

PRODUCT ATTRIBUTES

True Scale-out Architecture

ActiveStor 20 is a scale-out NAS appliance with integrated PanFS storage operating system. Simply add ActiveStor appliances to non-disruptively increase capacity and performance. The scale-out architecture integrates into performance-oriented Linux/macOS/Microsoft Windows environments for easy deployment and seamless storage growth.

Hybrid Design for Best Price/Performance

High density flash drives are used for fast access to metadata and small files. 10TB SATA drives handle large file performance. The result is an optimized solution offering compelling price/performance.

Integrated Parallel Scale-out File System

At the heart of the PanFS storage operating system is a next-generation POSIX-compliant parallel file system that delivers a single, global namespace. Panasas DirectFlow eliminates traditional Scale-out NAS bottlenecks by allowing compute clients to access all ActiveStor storage blades directly, eliminating hotspots. Metadata is processed outside the data path to maximize read/write performance.

Linear Scalability

ActiveStor 20 efficiently scales to over 45PB and 360GB/s, or 2.6M IOPS of aggregate performance, accessed by thousands of concurrent clients. Performance scales linearly with capacity. Automated load-balancing ensures optimal performance by evenly distributing data across ActiveStor shelves.

Reliability Increases with Scale

Per-file distributed RAID 6+ triple parity protection offers unmatched enterprise grade reliability. PanFS reduces rebuild times by rebuilding specific files rather than entire drives. The distributed approach ensures that RAID reconstructions are performed in parallel to rapidly restore data protection. Due to the intelligent placement of user data with RAID 6+, ActiveStor reliability increases with scale rather than decreasing as traditional storage products commonly experience.

Availability

Automatic data rebuild protects against system wide failures. Redundant networking data paths automatically fail over. All components are hot-swap for easy field servicing.

The Extended File System Availability (EFSA) feature takes advantage of deeper protection of directory data in RAID 6+ to preserve file system integrity and accessibility.

Easy Management

Single point of management via GUI or CLI. Enterprise Data Service features such as snapshots, user & group quotas, and SiteSync replication are included. ActiveStor can be set up in under ten minutes and scaled without downtime.

Client Access

PanFS DirectFlow supports Linux and macOS clients. PanFS also supports Linux, macOS, and Microsoft Windows clients via NFS v3, or SMB (CIFS) 1.0, 2.0, and 2.1 protocols. NDMP, SNMP, LDAP, and ADS are also supported.

BLADE CHASSIS SPECIFICATIONS

PER SHELF SPECIFICATIONS	
Capacity per Shelf ²	82.4 or 208TB
HDD Capacity ²	80 or 200TB
SSD Capacity ²	2.4 or 8TB
Drive Configuration	20 x 3.5" Enterprise SATA + 10 x SSD
ECC Memory (GB of Cache) ²	208GB
Max. Throughput, Write/Read ²	1600/1700MB/s
Max. IOPS - 4KB File, Random Read ³	>13,000 IOPS
Supported Blade Configurations (Director Blade + Storage Blade)	1+10, 2+9, or 3+8. Also 0+11 for expansion
Ethernet Connectivity	Two switch modules per shelf. Uplinks per shelf: 2 x 10GbE SFP+/CX4 or 8 x GbE copper, supporting high availability link aggregation with network failover support
InfiniBand Router Capability	Yes
GLOBAL NAMESPACE SPECIFICATIONS	ACTIVESTOR 20
Suitability	Mixed workloads: large file throughput, IOPS performance, lowest cost per TB
Max. System Capacity ¹	45PB
Max. System Throughput ¹	360GB/s
Max. System IOPS-4KB File, Random Read ¹	>2,600,000 IOPS

¹ No enforced limits. Max tested configuration: 130 shelves

² Per shelf based on a 1+10 blade configuration

³ Per shelf based on a 2+9 blade configuration

