Titan 3000 Series
High Performance Network Storage

BlueArc's Titan 3000 Series is the next generation of intelligent platforms for file services designed to meet the requirements of today's sophisticated enterprise data centers and high performance applications with new levels of storage performance, scalability and reliability. Titan is the first storage solution that consolidates and manages up to 16PB of data in a single namespace with a single node or cluster. In addition, Titan supports a Cluster Namespace (CNS) option that creates a unified directory structure that provides global accessibility to data resources. The CNS option supports both CIFS and NFS connectivity with seamless extensibility from two (2) to eight (8) nodes in a cluster.

Titan is built using the unique SiliconFS hardware accelerated architecture and offers enterprise-class management tools – including data migration, replication and anti-virus support. This customer-proven, hardware-implemented architecture maximizes data access and user loads with extremely low latency, resulting in increased productivity and significantly reduced cost of ownership.
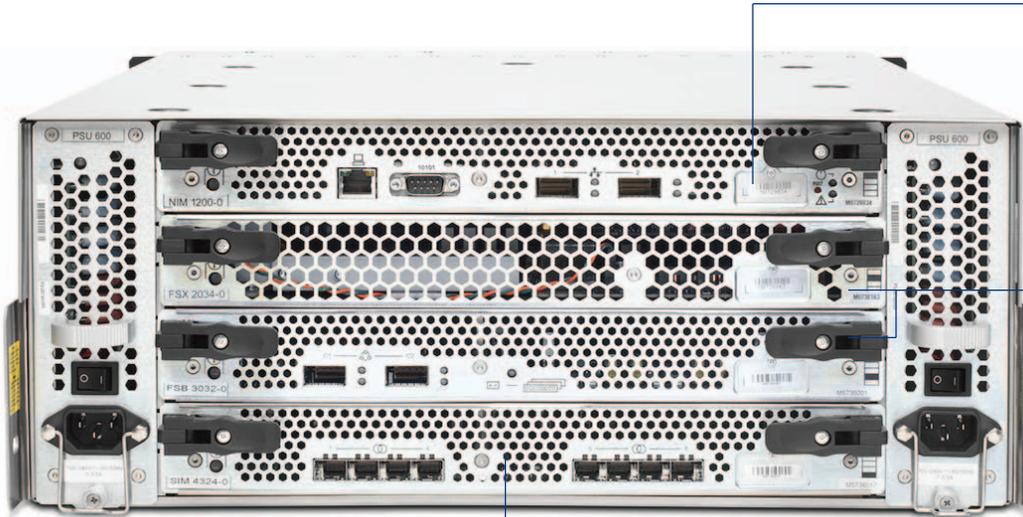
Accelerate Productivity
Titan enables over 60,000 user sessions and thousands of compute nodes to be served concurrently, while maintaining data access at dramatically higher rates than those found in traditional network attached storage systems. Users working on even the largest data sets will see performance improvements in information storage and retrieval, increasing productivity and delivering a solid return on investment.

With Titan's dedicated non-intrusive backup and replication technology, users experience uninterrupted high-speed access to their data. Productivity never suffers to accommodate a backup or replication window.

Scaling Capacity and Performance
The 3100 model supports up to 10 Gbps of aggregate throughput for enterprise environments and the 3200 model supports 20 Gbps of aggregate throughput for high performance configurations. The 3000 series is designed to provide maximum IOPs performance and offers models with your choice of 10 Gigabit Ethernet or Gigabit Ethernet for high throughput NAS and iSCSI networking connectivity. As data and user population grows, or as workstation and application server performance accelerates, Titan can easily scale to eight (8) nodes in a single cluster to meet demanding changes with enhanced access, capacity and performance.

HIGHLIGHTS

- Hardware-accelerated Network Storage with up to 20 Gbps throughput with over 200,000 IOPs

- Dynamically scalable storage up to 16PB for a single namespace and file systems up to 256 TB

- Scalable N-Way high availability clustering technology

- Dynamic read caching for scalable read intensive workloads

- Supports over 16 million files per directory

- Unified NAS & SAN

- Cluster Namespace for unified directory structure

- Intelligent tiered storage across SSD, FC, SAS and SATA

- Optimized metadata management

- Virtual Volumes and Servers

- Integrated WORM file system

- Policy-based management & transparent data migration

- Advanced data protection and disaster recovery

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Network Interface Module (NIM)
Titan's NIM module provides the networking and management interfaces and carries out TCP, UDP and IP processing in the hardware. This module has six (6) copper or fiber Gigabit Ethernet interfaces with support for IEEE802.3ad link aggregation, or two 10 Gigabit Ethernet interfaces. These ports transmit and receive both standard and jumbo Ethernet frames. The NIM Module also supports dedicated Ethernet and RS-232 interfaces for management.

File System Modules (FSA, FSB and FSX)
Titan's File System modules combine to carry out protocol processing (including CIFS, NFS, iSCSI and NDMP) and all aspects of file system operation in hardware. The hardware execution of file system operations is key to delivering the throughput and low latency offered by Titan. Directory searches and file lookups are far more efficient and less time consuming, allowing data to be returned to the client quicker, and increasing productivity. The file system modules also implements battery-backed NVRAM, ensuring no data will be lost in the event of unplanned downtime. In addition, the file system is protected by mirrored NVRAM in a clustered configuration.

Storage Interface Module (SIM)
Titan's SIM module controls BlueArc's Parallel RAID Striping technology and is responsible for disk storage management. The hardware execution of Parallel RAID Striping across LUNs allows performance to increase even as more storage is added to the system. A massive data cache provides rapid access to commonly used data.

Enterprises can add storage at any time to meet new application or business needs, or to consolidate disparate storage into a single point of management, without incurring downtime. Titan's object-based file systems scale to 256 TB and a single Titan can support multiple file systems for a total capacity of up to 16PB under a single namespace. Titan also supports the mixing of multiple storage tiers and optimized metadata management. Virtual Volumes are logical containers build upon the file systems that manage data capacity and can dynamically expand and contract to meet changing allocation requirements.

The specialized Dynamic Read Caching functionality allows read intensive workloads to be accessible concurrently across up to eight (8) nodes to dramatically increase read intensive aggregate workload performance.

Business Continuance
Titan solutions can be designed to support core automated enterprise functions, with no single point of failure. All aspects of the system's modular architecture deliver maximum availability even during upgrades or maintenance. Additionally, BlueArc provides a choice of asynchronous or synchronous replication and mirroring options at both the file and block level for remote distances of up to 100km.

Should performance requirements grow beyond a single system, Titan's native N-Way clustering capability supports eight (8) Titan nodes connected into a single shared file system using global namespace technology. The data managed by each Titan is accessible to each of the cluster nodes on a shared SAN, allowing for seamless fail-over and continuous data access regardless of an enterprise's maintenance or disaster recovery requirements. Performance can be continuously monitored with GUI based tools.

Intelligent Tiered Storage
BlueArc's Intelligent Tiered Storage allows an enterprise to match appropriate storage media to differing application requirements, achieving optimal levels of performance, capacity, and cost without being required to manage and maintain multiple storage systems. Titan inherently supports the ability to build and seamlessly add tiered storage infrastructures with a mix of Solid State, Fibre Channel, SATA, SAS, and WORM protected storage on a single system. This flexibility allows administrators to easily store data on the most appropriate online or nearline archive to dramatically reduce costs while maintaining access times consistent with application requirements.

Investment Protection
In today's environments, as new server and networking technology is deployed within the enterprise, storage systems must be upgraded to meet the needs of the IT infrastructure. The vast majority of storage system upgrades require an entirely new product installation – a 'forklift' upgrade. Titan eliminates these painful hardware replacement costs, delivering a modular solution with maximum flexibility to upgrade via firmware feature enhancements or server modules without replacing the entire system.

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