Highlights Of ETERNUS Storage Systems

Overview

ETERNUS® Storage Systems have many advantages over competitors' storage products. This document provides highlights of ETERNUS Storage Systems' features to help differentiate them from competing storage products

ETERNUS Storage Systems' Reliability and Availability

To ensure business continuity for our customers, Fujitsu relentlessly pursues reliability in every process from product design to delivery. In doing this, Fujitsu utilizes the high-reliability technologies and expertise we have acquired in more than 40 years of developing enterprise-class servers and storage systems.

- *For continuous data access and easier maintenance, major system components are highly redundant and can be hot-swapped. In addition, controller software can be upgraded without shutting down or rebooting, eliminating downtime.*

- *A built-in statistical failover mechanism ensures stable operation by disabling components that display intermittent failures.*

- *Uncompromised availability in all ETERNUS Storage Systems is provided by their use of Block Guard Technology also known as Block Check Code, or BCC, which embeds 8 bytes of integrity checking with every 512 bytes).*

- *ETERNUS Storage Systems utilize Self-Monitoring Analysis and Reporting Technology (SMART) in the disk drive to patrol and collect error statistics. These statistics make it possible to identify failing disk drives before data redundancy in the RAID group is lost. This feature provides disk drive exchange and maintains full redundancy during copy operations.*

- *The implementation of RAID6 on ETERNUS Storage Systems ensures that system continuity is maintained even if two disk drive failures occur simultaneously within the same RAID group.*

For all of these reasons, Fujitsu ETERNUS Storage Systems are widely used in the most demanding data center applications that require high reliability and high availability.

ETERNUS Storage System Performance

The Storage Performance Council (SPC), which provides industry benchmarks and performance data, reports that ETERNUS Storage Systems are consistently the highest performing in the industry (www.storageperformance.org).

The nodal mesh architecture of the high-end ETERNUS8000 maximizes performance and scalability.

ETERNUS Storage System Scalability

- The ETERNUS2000 supports up to 120 disk drives for over 120 TB of raw data storage.
- The ETERNUS4000 supports up to 420 disk drives for over 417 TB of raw data storage.
- The ETERNUS8000 supports up to 2,760 drives for over 2.7PB of raw data storage, one of the largest capacities available today in a single storage system. This makes the ETERNUS8000 a cost-effective alternative to monolithic storage.

ETERNUS Storage System Flexibility

The ETERNUS4000 and ETERNUS8000 can each be configured with both iSCSI and Fibre Channel (FC) host connectivity in the same storage system, providing flexibility and use of a single system in multiple environments (iSCSI and FC).

ETERNUS Storage System Disk Data Security

In the ETERNUS4000 and ETERNUS8000 Storage Systems, Fujitsu supports disk data encryption (128-bit AES) at no additional charge. This enables the protection of sensitive data, allowing adherence to regulatory compliance requirements and eliminating chain-of-custody concerns.

ETERNUS Storage System Management

The ETERNUS unified storage architecture makes possible the use of a single management suite (ETERNUS SF) for multiple systems. This simplifies software licensing, reduces training costs, and provides more efficient storage management.

ETERNUS Storage System Power and Cooling Savings

ETERNUS Storage Systems lead the industry in power and cooling savings with MAID and Nearline drive support.

ETERNUS Storage Systems support Nearline SATA (7.2K rpm) disk drives which are large capacity/cost effective in addition to high performance (15,000 rpm) disk drives.

ECO-mode, which implements Massive Array of Idle Disks (MAID) technology, is standard on ETERNUS2000, ETERNUS4000, and ETERNUS8000 Storage Systems. MAID technology may be applied to RAID groups in the storage system to create a tier of storage for uses such as back-up and archiving. This feature manages the on/off state of the disk drives' spindle motors based on policy settings and usage patterns, enabling significant power consumption reductions compared to non-ECO mode environments. For example, customers can specify disk drive motors to spin up when they are used in a target volume for backup operation and to spin down once the copy operation is completed. Using this feature can save customers energy consumption of 20% or more.

A white paper, "MAID for Green Energy Conservation with Fujitsu ETERNUS Storage Systems," is available at: http://www.fujitsu.com/downloads/STRSYS/system/eternus_MAID_whitepaper.pdf

Storage Tiers on ETERNUS Storage Systems

Customers can combine different types of disk drives within ETERNUS Storage Systems. These include:

• 146 GB to 450 GB/15,000 rpm (15K rpm) SAS disk drives (ETERNUS2000 only)
• 146 GB to 450 GB/15,000 rpm (15K rpm) Fibre Channel disk drives (ETERNUS4000 and ETERNUS8000 only)
• 300 GB/10,000 rpm (10K rpm) Fibre Channel disk drives (ETERNUS4000 and ETERNUS8000 only)
• 400 GB/10,000 rpm (10,000 rpm) SAS disk drives (ETERNUS2000 only)
• 500 GB, 750 GB and 1 TB/7,200 rpm (7,200 rpm) Nearline SAS disk drives (ETERNUS2000 only)
• 500 GB, 750 GB and 1 TB/7,200 rpm (7.2K rpm) Nearline SATA disk drives (ETERNUS4000 and ETERNUS8000 only)

Since ETERNUS Storage Systems do not require the use of additional hardware logic for combining different types or sizes of disk drives, customers have the freedom of configuring disk drives to maximize usage and efficiency to fit their specific needs.

There are three major benefits of using ETERNUS Storage Systems:

1: High performance (15K rpm), high availability

2: Nearline drives deliver good performance (7.2K rpm) at a lower price point

3: ECO mode - MAID delivers new levels of economy

ETERNUS Storage System Remote Replication

Remote replication between ETERNUS Storage Systems can be performed using a mirroring method. With the ETERNUS4000 and ETERNUS8000, customers may use standard connections such as Fibre Channel or iSCSI for remote replication. A cost-effective method for disaster recovery is to use iSCSI between distant or remote ETERNUS Storage Systems.

Fujitsu designed the iSCSI Remote Adapter (iSCSI-RA) for ETERNUS4000 and ETERNUS8000 Storage Systems with integrated WAN optimization (up to 300 Mbps) and encryption (IPsec). This eliminates the need to use additional, external WAN accelerator and/or encryption components.

ETERNUS2000 Entry Level Storage System with Enterprise-Class Features

ETERNUS2000 (Model 100 and Model 200) Storage Systems are fully redundant, a feature that is standard with dual controllers. They also include enterprise-class features such as RAID6 support and ECO-mode (MAID) at competitive pricing.

Fujitsu Provides World Class Support

All Fujitsu support and maintenance personnel for ETERNUS Storage Systems are Fujitsu employees.

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