



## Business- centric Storage

FUJITSU Storage  
ETERNUS DX

When it comes to storage management, today's administrators face a number of challenges, like learning how to cope with the rapidly rising flood of data, increasing numbers of business transactions, larger databases, exploding e-mail communication, along with more and more unstructured data. Fujitsu ETERNUS DX – Business-centric Storage – enables enterprises to align storage management with business priorities and improve service quality while reducing costs at the same time.

### **Improved service levels: Quality-of-Service Automation and Automated Storage Tiering**

As data traffic increases in a storage system, more and more applications are competing for the resources that are available. But how can storage administrators prevent low-priority applications from claiming resources that are needed for really critical applications that have an impact on business? And how can they stop ad-hoc queries and business analyses from taking resources away from the productive system? Unlike other solutions that require sophisticated tuning to resolve such conflicts, ETERNUS DX allows storage administrators to define the response times desired for their specific applications – ETERNUS DX takes care of the rest

with its Quality-of-Service Automation. ETERNUS DX autonomously gathers performance data, compares the desired target performance with the actual performance, and then tunes the system so that the required response time for an application is achieved.

In short, Quality-of-Service Automation enables storage administrators to better orchestrate existing storage resources according to business priorities at any particular time. This results in stable response times for any business application automatically.

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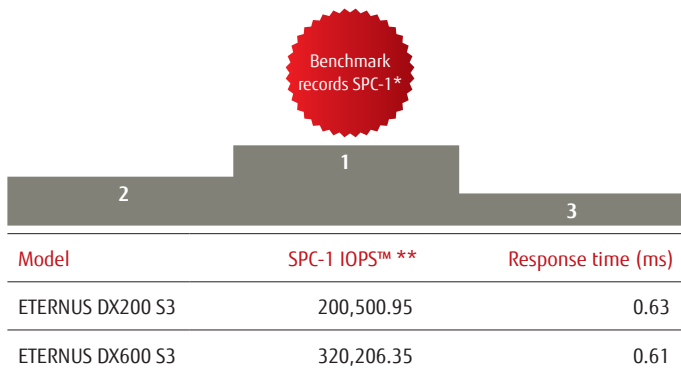
In addition, Quality-of-Service Automation can be combined with Automated Storage Tiering (AST) to provide additional leverage whenever competing performance demands arise among the applications in a system. Automated Storage Tiering makes it easy for administrators to move data blocks between various types of hard disks and RAID levels to keep performance, storage utilization and costs in balance. The integrated scheduler also supports planning when workload changes are necessary. Innovations of this kind make it easier to optimally utilize SSDs, for example, not to mention the improvements in storage service quality and operational efficiency that can also be realized.

Quality-of-Service Automation in ETERNUS DX activates AST if the defined response times cannot be achieved due to the internal bandwidths, even after automatic tuning has been carried out. In such cases Quality-of-Service Automation triggers AST to relocate the data from applications with a higher priority to faster hard disks or SSDs in the system.

### Performance by design

But even with the best Quality-of-Service Management, what happens when a system quickly reaches its limits? The ETERNUS DX performance architecture overcomes these limits with an added power boost originating, for example, from maximum I/O performance, bandwidth and bus performance. The scalable entry-level and midrange models are equipped with the latest multicore multithread processors, and the ETERNUS operating system offers extensive load balancing functions to fully utilize the parallel processing capabilities of the hardware. Larger caches, additional extreme caches which are directly integrated in the storage controllers, or a fast-connection extreme cache pool, faster drive interfaces (SAS-3), as well as internal PCIe 3 bus performance contribute to the overall I/O performance and enable enterprises to process more business transactions for more users and achieve faster response times for business analyses – in addition, administrators can run both types of workloads on one system.

In fact, the combination of automatic storage resource prioritization and the performance architecture has a direct impact on business: Storage services can be offered in an entirely new quality – precisely focused to satisfy business needs. Data from a larger number of applications can be processed on one system, and storage consolidation ultimately leads to much better results. That reduces the complexity of storage operations and improves overall ROI.



\* Results are current as of July 25, 2014 and available at: [http://www.storageperformance.org/results/benchmark\\_results\\_spc1\\_active/#fujitsu\\_spc1](http://www.storageperformance.org/results/benchmark_results_spc1_active/#fujitsu_spc1)  
 \*\* Input/Output performance per second

The combination of the ETERNUS DX performance architecture, Quality-of-Service Automation and AST provide business enterprises with entirely new options: Peak loads in applications can be balanced with just a few mouse clicks. Queries are possible without having an impact on productive systems. When it comes to BI, there is no need to unload data from one system and move it to another. What's more, additional investments in dedicated systems are no longer required.

### Highest availability: Storage Cluster

As ETERNUS DX is able to provide storage capacity in highly consolidated and optimized environments, a disaster-proof configuration is an absolute must. But configurations that guarantee the high availability of mission-critical data are seen as expensive and complex, and many business enterprises do not feel comfortable managing these environments and simply avoid them. This "strategy" is extremely risky because a worst-case scenario can result in staggering outage costs, severe damage to the company image and even legal proceedings along with liability claims.




To prevent this from happening, the ETERNUS DX series offers a number of functions that safeguard businesses against outages without complexity or high costs. The application and server transparent failover – ETERNUS Storage Cluster - addresses two scenarios: the outage of the primary storage system, and the outage of the primary site.

- The switchover to the surviving system or the secondary site takes place automatically during an outage, with full transparency and without intervention from the system administrator.
- All application accesses are maintained.
- All systems in the high-availability environment can be run productively during normal standard operations.

### Consistent design: Family Concept

Fujitsu ETERNUS DX is a system family based on a consistent design, from the entry-level models to scalable entry-level and midrange systems, and culminating in the high-end storage systems. For example, the family concept includes compatible product components and functions across all models, maximum system interoperability, seamless integration of innovations, and the same system management software for deployment in all models.

This family concept provides storage administrators with very efficient options for coping with growing demands, consolidating storage environments and rationalizing operations and maintenance processes: Thanks to their excellent scalability, ETERNUS DX systems can be enhanced and upgraded from one model level to the next quite easily.



*"Fujitsu is boringly reliable, and as a technical person I will take that every time. I don't want exciting or unpredictable; I want it to do the same thing every time."*

John Herd, University Campus Suffolk

Moreover, various types of hard disks (SAS, Nearline SAS, SSD) can be mixed in one system in order to balance performance and costs while optimally utilizing data center space. Interoperability serves as the basis for flexible centralized and decentralized operation concepts – because data can be replicated and copied between various models.

### Boost operational efficiency with unified storage

The scalable entry-level and midrange models of the ETERNUS DX product family offer block and file access within the same storage controller. This simplifies storage consolidation and helps reduce operational complexity. The implementation of the unified architecture is the same in all scalable entry-level and midrange models. This allows for flexible interoperability among all models, for example, in terms of snapshots or transparent failover. Furthermore, the user experience for administrators is identical, so that less training is required.

This is why customers have the option of ordering ETERNUS DX models as pure block storage, which can be upgraded later to a unified system or used as a unified system right from the start. The unified configuration features double the amount of system cache to enable fast file management processing.

### Innovative and intuitive: ETERNUS SF Storage Management

Efficient management of burgeoning data in one storage system, satisfying the demands of various business applications without complexity and achieving effective storage consolidation: ETERNUS SF is the storage management software for mastering these challenges. This solution features an intuitive web GUI and is standardized for the entire ETERNUS DX product family. If you are familiar with one system in the family, you know how to operate any of them.

Useful wizards, system data visualization and automated routine administration tasks help reduce the monitoring and management workload. Efficient operation is supported by advanced functions: Quality-of-Service Automation and Automated Storage Tiering (AST) enable administrators to fully unlock the potential of the ETERNUS DX models.

The ETERNUS DX series, in concert with ETERNUS SF Storage Management Software, ensures a high degree of freedom when it comes to realizing storage strategy. And here's the best: Consolidation, cost reduction and better business support can be brought into balance and realized in a future-proof solution without undue complexity. Thanks to standardized central management and extensive automation, the complexity and cost of administration can be kept at a minimum, even in consolidated environments.

### The customer-centric solution for business-centric storage

Fujitsu adheres to a customer-centric philosophy that offers customers clear alternatives and new perspectives with innovations that deliver genuine value added for business enterprises.

For more than 40 years the company has been developing disk storage systems for mission-critical environments. Hardware and software are developed by a strong team of more than 1,000 storage specialists. That prevents any unpleasant surprises and unplanned investments that could occur during a sudden change in strategy or architecture.

The long-term product strategy of ETERNUS DX ensures that customers can migrate to newer technologies smoothly. They benefit from backward compatibility of new management functions which are compatible with up to two previous hardware generations.

### Global availability, global service

ETERNUS DX is available worldwide and supports business enterprises with a complete range of services that includes consulting, migration and optimization services, support packs, remote services and managed services, not to mention the provisioning of storage as a service from the cloud.

## ETERNUS DX – Key Values

### Family concept

- Easy upgrade options due to consistent design of hardware components
- Easy administration via one management platform: ETERNUS SF

### Leading performance architecture

- Outstanding benchmark results
- Flexible combination of nearline SAS, SAS and SSDs

### Service levels adjusted to business needs

- Automated Quality of Service
- Automated Storage Tiering

### High availability for seamless business continuity

- ETERNUS Storage Cluster – application and server transparent failover
- Fast Recovery – minimizes time to rebuild a degraded RAID group

## ETERNUS DX Online Storage Family

	ETERNUS DX60 S3	ETERNUS DX100 S3	ETERNUS DX200 S3	ETERNUS DX500 S3	ETERNUS DX600 S3	ETERNUS DX8700 S3	ETERNUS DX8900 S3*	
<b>Architecture</b>	Flexible and seamless family design with uniform storage management							
<b>Segment</b>	Entry-level	Scalable unified entry-level and midrange systems				High-end		
<b>Maximum Storage Capacity</b>	144 TB	864 TB	1,584 TB	3,168 TB	6,336 TB	4,608 TB	13,824 TB	
<b>Maximum Disk Drives</b>	24	144	264	528	1,056	1,536	4,608	
<b>Storage Controllers</b>	1/2	1/2	1/2	2	2	2-8	2-24	
<b>Maximum Cache Capacity</b>	4 GB	8 GB (Block) 16 GB (Unified)	16 GB (Block) 32 GB (Unified)	64 GB (Block) 96 GB (Unified)	128 GB (Block) 192 GB (Unified)	1 TB	6 TB	
<b>Maximum Second-level Cache (Extreme Cache)</b>		800 GB	800 GB	5.6 TB	5.6 TB	22.4 TB	67.2 TB	
<b>Host Interfaces</b>	4/8 Gbit/s FC 1 Gbit/s iSCSI 3/6 Gbit/s SAS	8/16 Gbit/s FC 10 Gbit/s FCoE 1/10 Gbit/s iSCSI 6 Gbit/s SAS 1/10 Gbit/s Ethernet		8/16 Gbit/s FC 10 Gbit/s FCoE 1/10 Gbit/s iSCSI 1/10 Gbit/s Ethernet		8/16 Gbit/s FC 10 Gbit/s FCoE 1/10 Gbit/s iSCSI		
<b>Storage Management</b>	ETERNUS SF V16 Software Suite							
<b>Disaster Recovery</b>		Remote Equivalent Copy (REC)						
<b>Business Continuity</b>		Storage Cluster – transparent failover						
<b>Replication</b>	Local Advanced Copy							
<b>Efficiency</b>		Automated Storage Tiering						
		Thin Provisioning						
		Automated Quality of Service						
		Unified Storage						
<b>Encryption</b>		Disked based encryption Controller encryption						
<b>Data Integrity</b>	Reliability/RAID protection							
<b>Redundancy</b>	Redundant controller and components							
<b>Virtualization</b>		VMware vSphere Virtual Volumes (VVOL) support						

\*Released in two steps, max. configuration available Q4/2015



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**Fujitsu Limited**

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