ThinkSystem DE Series Hybrid Flash Array

Achieve affordable performance, reliability, and simplicity for modern enterprise applications

The Challenge

To differentiate your organization from the competition and speed time-to- market, you need quick and valuable insights from your core applications, despite a range of mixed workloads. These applications are your key to success, and for that, you need data storage systems with extreme application performance and nonstop data availability.

The Solution

And that's not all. You also need capacity, simplicity, and efficiency, and your storage must be able to address a broad range of application workloads.

The ThinkSystem DE Series Hybrid Flash Array with adaptive-caching algorithms was engineered to do just that. It's ideal for workloads ranging from high-IOPS or bandwidth-intensive streaming applications to high-performance storage consolidation.

Requiring just 2U of rack space, a DE Series hybrid storage subsystem combines high capacity with extreme performance: high-IOPS throughput with up to 21GBps of read bandwidth, and 9GBps of write bandwidth. DE Series is designed to achieve up to 99.9999% availability via fully redundant I/O paths, advanced data protection features, and extensive diagnostic capabilities.

It's also highly secure, with robust data integrity that protects your critical business data as well as your customers' sensitive personal information.

Proven Simplicity

Scaling is easy, due to the modular design of DE Series and the simple management tools provided. You can start working with your data in less than 10 minutes.

ThinkSystem DE Series consists of three families of systems that are defined by their controllers. The controllers determine the number of drives that the storage system can support, with support for up to 5.76PB of capacity.

The DE2000H system represents the entry-point of storage systems for customers who want to maximize the price/performance ratio and capacity mix of a storage system.

The DE4000H system uses hybrid storage models to optimize performance for mixed workloads, with outstanding low latency.

The DE6000H system offers top performance hybrid storage models, which support raw data-read-throughput rates of up to 21GBps.

ThinkSystem

The DE2000H, DE4000H, and DE6000H hybrid systems use an enterprise-optimized platform. Extensive configuration flexibility, custom performance tuning, and complete control over data placement enable administrators to maximize performance and ease of use.

Multiple viewpoints provided by graphical performance tools supply the key information about storage I/O that administrators need to further refine performance. These systems are targeted at backup and recovery, high-performance computing markets, Big Data/analytics, and virtualization, yet they work equally well in general computing environments.

DE Series combines comprehensive features with ease of use. ThinkSystem System Manager will lead you through the provisioning appropriate for your workload, or you can create your own. Dynamic drive pools (DDP) technology dramatically simplifies RAID management, requiring minimal decision-making on your part.

Advanced Data Protection

With DDP technology, there are no idle spares to manage, and you don't need to reconfigure RAID when you expand your system. It distributes data parity information and spare capacity across a pool of drives to simplify the management of traditional RAID groups.

It also enhances data protection by enabling faster rebuilds after a drive failure. DDP dynamic-rebuild technology reduces the likelihood of another failure by using every drive in the pool for faster rebuilds.

The capability to dynamically rebalance data across all drives in the pool when drives are added or removed is one of the key features of DDP technology. A traditional RAID volume group is limited to a fixed number of drives. DDP, on the other hand, lets you add or remove multiple drives in a single operation.

DE2000H/DE4000H/DE6000H models offer advanced enterprise-class data protection, both locally and over long distance, including:

- Snapshot / Volume copy
- Asynchronous mirroring
- Synchronous mirroring (DE4000H and DE6000H only)

Secure Data, Secure Management

All drives get redeployed, retired, or serviced. When this happens, you don't want your sensitive data going out the door with them. Combining local key management with drive-level encryption gives you comprehensive security for data-at-rest with no impact to performance.

DE Series gives you the choice of how to manage the drive authentication keys: You can either do it yourself to reduce cost, or you can use a KMIP-compliant external key manager for easy centralized administration.

XClarity Support

Lenovo XClarity Administrator is a centralized resource management solution that is aimed at reducing complexity, speeding response, and enhancing the availability of Lenovo server systems and solutions. Lenovo XClarity Administrator provides agent-free hardware management for our servers, storage, network switches, hyperconverged and ThinkAgile solutions.

With a simplified administration dashboard, the following functions can be easily achieved:
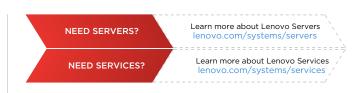
- Inventory
- Monitoring

Why Lenovo

Lenovo is the leading provider of x86 systems for the data center. The portfolio includes rack, tower, blade, dense and converged systems, and supports enterprise class performance, reliability and security. Lenovo also offers a full range of networking, storage, software and solutions, and comprehensive services supporting business needs throughout the IT lifecycle.

Specifications

	DE6000H	DE4000H	DE2000H
Form Factor	4U, 60 drives 2U, 24 drives	2U, 24 drives 2U, 12 drives 4U, 60 drives	2U, 24 drives 2U, 12 drives
Maximum Raw Capacity	Supports up to 7.68PB	Supports up to 3.07PB	Supports up to 1.54PB
Maximum Drives	Supports up to 480 HDDs / 120 SSDs	Supports up to 192 HDDs / 120 SSDs	Supports up to 96 HDDs/SSDs
Maximum Expansion	2U/12, 2U/24: up to 7 expansions 4U/60: up to 3 expansions	2U/12, 2U/24: up to 7 expansions 4U/60: up to 3 expansions	2U/12, 2U/24: up to 3 expansions
System Memory	32GB/128GB	16GB/64GB	16GB
Base I/O Ports (per system)	4x 10Gb iSCSI (optical) 4x 16Gb FC	4x 10Gb iSCSI (optical) 4x 16Gb FC	4x 10Gb iSCSI (optical) 4x 16Gb FC
Optional I/O Ports (per system)	8x 16GB/32GB FC 8x 10GB/25GB iSCSI optical 8x 12GB SAS	8x 16GB/32GB FC 8x 10GB/25GB iSCSI optical 8x 12GB SAS	4x 10GB iSCSI Base-T 4x 12GB SAS
Optional Software Feature	Drive Encryption, Snapshot upgrade, asynchronous mirroring, synchronous mirroring (DE6000H and DE4000H only)		
System Maximums	Hosts/partitions: 512 Volumes:2,048 Snapshot copies: 2,048 Mirrors:128	Hosts: 256 Volumes: 512 Snapshot copies: 512 Mirrors: 32	Hosts: 256 Volumes: 512 Snapshot copies: 512 Mirrors: 32

For More Information

To learn more more about the ThinkSystem DE Series Hybrid Flash Array, contact your Lenovo representative or Business Partner, or visit lenovo.com/storage. For detailed specs, consult the ThinkSystem DE Series DE2000H, DE4000H, or DE6000H Hybrid Flash Array product guides.

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