

M100 SAN Disk Array



At a Glance

- Superior Dependability
- High Efficiency
- Easy Operation
- Virtualization-compatible
- Flexible Tiering and Scalability

Overview

NEC's M100 SAN Disk Arrays is used by organizations for primary, high capacity secondary, or tiered storage infrastructure. These SAN storage arrays are easy to operate, dependable and efficient. They are well-suited for virtualized environments with great scalability, LUN lock stability, and flexibility.

The NEC M100 SAN Disk Array feature both iSCSI and FC host interfaces, 8 Gbps Fibre Channel, 10Gbps or 1Gbps iSCSI and a unified adapter which supports both FC and iSCSI on one controller, and 6Gbps SAS* connectivity. It also supports both 3.5" drives and 2.5" drives to meet both power and space consumption goals. M100 simultaneously supports SAS HDD, NearLine SAS HDD, and SSD in the same enclosures, enabling flexible tiered storage architecture.

3.5" Disk Array Unit/Disk Enclosure Unit



Modular design - each module holds 12 drives

2.5" Disk Array Unit/Disk Enclosure Unit



Modular design - each module holds 24 drives

Solution

- **ThinProvisioning** uses actual volume efficiently and reduces operational expense
- **DynamicDataReplication** replicates and snapshots within the array
- **RemoteDataReplication** replicates between arrays
- **StoragePowerConserver** spins down disk drives and reduces the system running cost
- **PathManager** makes redundant access paths and provides load balancing dynamically
- **Encrypted HDDs** aids in data security
- **Solid State Drives** enhance PerforCache and PerforOptimizer features

- **PerforCache** improves disk array response speeds by using SSDs as a secondary cache in the following manners:
 - Reduces access to spinning drives in the event of a cache miss
 - Frequent random read data is stored in the SSD L2 cache and provided for the next access
 - Moves data from cache memory to the L2 cache and improves response for a write request if there are many
 - When a controller is not available due to a failure, PerforCache uses the L2 cache in place of cache memory and prevents the response time of write requests from slowing down
- **PerforOptimizer** automatically reallocates stored data to an optimal location for using the disk array efficiently. Data can be moved either at the Logical Disk level or at the Block level.

Hardware Specifications

Host Ports	8 Gbps Fibre Channel	4 or 8 ports	
	10 Gbps or 1Gbps iSCSI	4 ports	
	6 Gbps SAS	8 ports	
	Dual Interface	8Gbps FC 4 ports + 1Gbps iSCSI 4 ports dual interface controller	
Configuration		12 drives per 3.5" Disk Array Unit/Disk Enclosure 24 drives per 2.5" Disk Array Unit/Disk Enclosure	
		Both 3.5" and 2.5" disk enclosures can be used within the same configuration SAS disk drives, Nearline SAS disk drives and SSD can be intermixed within a Disk Array Unit or a Disk Enclosure	
Cache Memory	Capacity	8GB	
	Backup	Flash memory	
Supported RAID Levels		1, 5, 6, 10, 50, 60, Triple Mirror	
Supported Operating Systems		Windows, Linux, VMware	
Maximum Usable Capacity		303TB (1TB = 1,024 ⁴ B, 1GB = 1,024 ³ B)	
Disk Drives	Capacity	SAS HDD	300GB, 450GB, 600GB (2.5" 10,000rpm/3.5" 15,000 rpm) 900GB, 1.2TB (2.5" 10,000rpm)
		Nearline SAS HDD	1TB (2.5"/3.5" 7,200rpm) 2TB, 3TB, 4TB (3.5" 7,200rpm)
		SAS Encrypted	600GB (3.5" 15,000rpm Encrypted/2.5" 10,000rpm Encrypted)
		Nearline SAS Encrypted	4TB (3.5" 7,200rpm Encrypted)
		SSD	200GB, 800GB (2.5"/3.5")
		Interface Speed	SAS
Number of Disk Drives		3 to 96	
Power Requirements		AC 100 – 240V single phase 50/60Hz	

M-series Standard Software Overview

Solution Pack	Contents	Function
Base Software	Storage Manager Express	Manage flexible and powerful functions on single array through embedded intuitive GUI
	Storage Manager	Extend storage management capability across multiple arrays using single pane of glass GUI
	Storage Manager Command	Control the M-series with CLI commands
	ThinProvisioning	Minimize cost and utilize storage efficiently with virtualized capacity
	StoragePowerConserver	Spin down the inactive disk drives for energy efficiency
	AccessControl	Define volume access rights for secure shared storage
	VMware Cooperation	Collaborate with VMware through vSphere Web Client Plug-in, vCenter Plug-in, VASA Provider, VAAI and Storage Replication Adapter
	PathManager	Manage multi path connection for high availability
	PerformanceMonitor	Monitor real time performance and load on storage through Storage Manager GUI
	PerformanceNavigator	Analyze monitored log data graphically for insightful diagnostics
	DynamicDataReplication Express (M100 only)	Replicate / Snapshot volumes within same system using GUI / CLI (Non-disruptive copy is available with Local Replication Pack)

M-series Optional Software Overview

Solution Pack	Contents	Function
Advanced Performance Pack (also offered individually)	PerforOptimizer (Auto Data Tiering)	Move data to the most effective storage automatically based on access characteristics
	PerforCache (Write/Read SSD Cache)	Use SSD as secondary cache for performance improvement
	VirtualCachePartitioning (M300/M500/M700 only)	Allocate cache memory to applications to ensure maximum application performance with guaranteed cache availability
Local Replication Pack	DynamicDataReplication	Replicate / Snapshot volumes within same system using non-disruptive command for host or storage manager GUI / CLI
	ReplicationControl SQL	Non-disruptive back up of Microsoft SQL server
	ReplicationControl File System	Non-disruptive back up of file system
Remote Replication Pack	RemoteDataReplication	Replicate volumes between systems
	DisasterRecovery (M500/M700 only)	Replicate atomic groups (application level) for application level recovery
Data Security Pack	SecureErasure	Delete data using DoD5220.22-M method to prevent unwanted recovery of classified data
	VolumeProtect	Prevent data modification by setting access rights and data retention period to satisfy compliance requirements (WORM)
Data Migration	DataMigration	Migrate data directly between NEC disk systems without affecting network

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