

The Ever-growing Lineup of Storage Products that Deliver High Performance and Usability

# NEC Storage M Series

NAS Gateway		Nh4c	Nh8c
Model name			
Units		2 node cluster (Active-Active, Active-Standby)	
CPU per Node		Intel Xeon E5-2620v4 (8core 2.1GHz)x1	Intel Xeon E5-2620v4 (8core 2.1GHz) x2
Memory per Node		32GB/64GB	64GB/96GB
Max. Host Interface per Node	1000BASE-T	4	8
	10GBASE-SR	2	4
	10GBASE-T	2	2
Interface to M Series per Node		16Gbps (8Gbps) FCx2	16Gbps (8Gbps) FCx4
HDD for OS per Node		2.5" 12Gbps SAS 10krpm 300GB HDDx2, RAID-1	
Storage to be connected		M110/M120/M310/M320/M510/M710/M310F/M320F/M710F (Max. 4)	M310/M320/M510/M710/M5000/M310F/M320F/M710F (Max. 4)
Max. Logical disk capacity*1		13PiB (Depends on the specification of the connected storage.)	
Network protocol		NFS v2/3/4.0, CIFS(SMB1.0/2.0/2.1/3.0*),FTP/SFTP*,IPv4/IPv6	
Dimensions (WxDxH, Rack unit) per Node		482.6x829.0x176.6mm (4U)	
Weight per Node		64.6kg	
Power voltage/frequency/phase		AC100-240V,50/60Hz, Single phase	
Max. power consumption per Node		1,206W	1,306W
Ambient conditions	Temperature	5 to 40°C (when operating), -10 to 55°C (when not operating)	
	Humidity	20 to 80%RH (when operating), 20 to 80%RH (when not operating)	


\*1: "1PiB" is equal to 1,024TB. \*2: Some functions of SMB 3.0 are supported. \*3: When using FTP/SFTP, users cannot set their own home directory.

## Main Software for NEC Storage M Series

Category	Software Product Name	M120	M320	M320F	M510	M710	M710F	Feature
<b>Storage Management</b>								
Device Management	NEC Storage Manager	✓ <sup>2</sup>	✓ <sup>2</sup>	✓ <sup>2</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	Integrated storage operations management
	NEC Storage Manager Integration Base	✓ <sup>2</sup>	✓ <sup>2</sup>	✓ <sup>2</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	Integrated operations management in collaboration with SigmaSystemCenter
	NEC Storage Manager Suite	✓	✓	✓	-	-	-	Package product consists of Storage Manager and Integration Base
Performance Management	NEC Storage PerformanceMonitor	✓ <sup>2</sup>	✓ <sup>2</sup>	✓ <sup>2</sup>	✓	✓	✓	Monitors storage performance in real-time and accumulates monitoring data
	NEC PerformanceNavigator	✓ <sup>2</sup>	✓ <sup>2</sup>	✓ <sup>2</sup>	✓	✓	✓	Efficiently analyzes storage performance data
	NEC Storage PerforMate Suite	✓ <sup>2</sup>	✓ <sup>2</sup>	✓ <sup>2</sup>	✓	✓	✓	Package product consists of PerformanceMonitor and PerformanceNavigator
	NEC Storage Analyzer for VMware vRealize Operation	✓	✓	✓	✓	✓	✓	Collaborates with VMware to analyze server and storage performance together
Replication Management	NEC Storage RepNavi Suite	✓	✓	✓	✓	✓	✓	Facilitates creation of backup system
<b>Storage Control</b>								
Storage Control	NEC Storage BaseProduct	✓ <sup>3</sup>	✓ <sup>3</sup>	✓ <sup>3</sup>	✓	✓	✓	Basic functions to control storage
	NEC StorageManager Express	✓ <sup>3</sup>	✓ <sup>3</sup>	✓ <sup>3</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	Operations management of one storage without management server
	NEC Storage ControlCommand	✓ <sup>3</sup>	✓ <sup>3</sup>	✓ <sup>3</sup>	✓	✓	✓	CLI to control storage from application servers
Replication	NEC Storage DynamicDataReplication	✓	✓	✓	✓	✓	✓	Replicates volume in the same storage unit
	NEC Storage RemoteDataReplication	✓ <sup>4</sup>	✓	✓	✓	✓	✓	Replicates volume in a remote storage unit
	NEC Storage RemoteDataReplication Asynchronous	✓ <sup>4</sup>	✓ <sup>6</sup>	✓ <sup>6</sup>	✓	✓	✓	Asynchronously creates a remote replication volume through low-speed line
	NEC Storage DynamicSnapVolume <sup>7</sup>	✓ <sup>4</sup>	✓	✓	✓	✓	✓	Creates a snapshot which is the differential of original volume
	NEC Storage DirectDataShadow Option	✓ <sup>4</sup>	✓ <sup>8</sup>	✓ <sup>8</sup>	✓	✓	✓	Creates backup of M Series volumes in HS Series without backup server
	NEC Storage ReplicationControl SQL Option	✓	✓	✓	✓	✓	✓	Enables non-disruptive backup of Microsoft SQL Server
	NEC Storage ReplicationControl FileSystem Option	✓	✓	✓	✓	✓	✓	Enables non-disruptive backup of Linux file systems
Disaster Recovery	NEC Storage RemoteDataReplication/DisasterRecovery	-	-	-	✓	✓	✓	Creates a remote replication volume, keeping consistency in case of disaster
	NEC Storage VirtualCachePartitioning	-	✓	✓	✓	✓	✓	Divides storage cache memory and allocates them to tenants
Resource Control	NEC Storage ThinProvisioning	✓ <sup>3</sup>	✓ <sup>3</sup>	✓ <sup>3</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	Virtualizes volume capacity to show it has more capacity than actually has
	NEC Storage StoragePowerConservator	✓ <sup>3</sup>	✓ <sup>3</sup>	-	✓ <sup>1</sup>	✓ <sup>1</sup>	-	Reduces power consumption by powering off the motor of unused HDD
	NEC Storage PerforOptimizer	✓	✓	✓	✓	✓	✓	Autonomously reallocates the data according to the access frequency
	NEC Storage PerforCache	✓	✓	-	✓	✓	-	Uses SSD as L2 cache memory
	NEC Storage IO Load Manager	✓	✓	✓	✓	✓	✓	Controls I/O low corresponding to the upper/lower limit set to each volume
	NEC Storage Virtual Volume	✓ <sup>2</sup>	✓ <sup>2</sup>	✓ <sup>2</sup>	✓	✓	✓	Collaborates with VMware Virtual Volume to operate corresponding to VM
	NEC Storage DataMigration	✓ <sup>3</sup>	✓ <sup>3</sup>	✓ <sup>3</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	Migrates data from an existing NEC storage unit to M Series unit
	NEC Storage VolumeProtect	✓ <sup>2</sup>	✓ <sup>2</sup>	✓ <sup>2</sup>	✓	✓	✓	Preserves data in a tamper proof format for retention period
	NEC Storage SecureEraser	✓	✓	✓	✓	✓	✓	Securely erases the data in storage
High Availability	NEC Storage StoragePathSavior	✓ <sup>3</sup>	✓ <sup>3</sup>	✓ <sup>3</sup>	✓	✓	✓	Automatically switches path in case of I/O path failure

\*1: Bundled with NEC Storage BaseProduct. \*2: Bundled with NEC StorageManager Suite. \*3: Bundled with the storage device. \*4: The software does not support the single controller. \*5: NEC Storage DynamicDataReplication Express is bundled with the storage device. \*6: Bundled with NEC RemoteDataReplication. \*7: Bundled with NEC DynamicDataReplication. \*8: The software will support this model in the second half of 2018. \*9: It is necessary to purchase the license to use NEC Storage Virtual Volume.

Category	Software Product Name	Nh4c	Nh8c	Feature
NAS	File Remote Replicator	✓	✓	Replicates a snapshot volume on a NAS option in a remote site through LAN/WAN
	File System Importer	✓	✓	Migrates the data of a NAS-file server to the new ones
	File Retention Utility	✓	✓	Prevents alteration and deletion of the file in the file system to retain the data for a long period of time to ensure compliance with regulations

Environmental compliance		M120	M320	M320F	M510	M710	M710F
● RoHS Compliance	This product complies with the European Union directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).	✓	✓	✓	✓	✓	✓
● Eco Symbol & Eco Symbol Star <sup>1</sup>	Eco Symbol is a label placed on products that meet NEC prescribed environmental soundness standards. Eco Symbol Star is a label for the environmentally leading products among the Eco Symbol products. 	✓	✓	✓	✓	✓	✓

\*1: Eco Symbol & Eco Symbol Star are self-declaration type of ISO environmental labels (Type II). For details, see the following web site. [http://www.nec.com/en/global/eco/product/eco\\_pro/index.html](http://www.nec.com/en/global/eco/product/eco_pro/index.html)

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**Safety notice** Before you use this product, please read carefully and comply with the cautions and warnings in manuals such as User's Guide and Installation Guide. Incorrect use may cause a fire, electrical shock or injury.

For further information please contact your local NEC representative or:




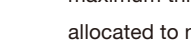


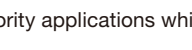

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# NEC Storage M series provides a robust information platform for enterprises and societies to support the development of the advanced ICT business in the future

It is becoming more important to utilize information assets to create new value in corporate and social information systems, where the data generated from various sources including virtualization, cloud computing, AI, IoT and robotics, are rapidly increasing. This necessitates high-performance and high-reliability storage that enables information systems to inherit and leverage the enormous amount of information accumulated every day. We now offer the NEC Storage M series. This is a lineup of high-performance and high-reliability storage products that implement the latest virtualization technologies and focus on reducing the burden and the cost of managing storages. The NEC Storage M series enable quick response to the diverse needs of corporate and social information systems, help drive the creation of new value and solutions, and contribute to the development of next-generation ICT businesses.

## • NEC Storage M Series LineUp

NEC Storage M Series	Entry model	Low-end model	Mid-range model	Mid-High model
All Flash Storage		 <p><b>Low-end model M320F</b></p> <ul style="list-style-type: none"> <li>FC/iSCSI*: Max.24port</li> <li>SSD: Max.672</li> </ul>		 <p><b>Mid-High model M710F</b></p> <ul style="list-style-type: none"> <li>FC/iSCSI: Max.48port</li> <li>SSD: Max.960</li> </ul>
Hybrid Storage	 <p><b>Entry model M120</b></p> <ul style="list-style-type: none"> <li>FC/iSCSI*/SAS: Max.24port</li> <li>HDD/SSD: Max.240</li> <li>*Only Nh4c is supported for NAS Gateway</li> </ul>	 <p><b>Low-end model M320</b></p> <ul style="list-style-type: none"> <li>FC/iSCSI*/SAS: Max.24port</li> <li>HDD/SSD: Max.672</li> </ul>	 <p><b>Mid-range model M510</b></p> <ul style="list-style-type: none"> <li>FC/iSCSI: Max.32port</li> <li>HDD/SSD: Max.768</li> </ul>	 <p><b>Mid-High model M710</b></p> <ul style="list-style-type: none"> <li>FC/iSCSI: Max.48port</li> <li>HDD/SSD: Max.960</li> </ul>
NAS Gateway	 <p><b>Standard model Nh4c</b></p> <ul style="list-style-type: none"> <li>Intel® Xeon® processor x 1 per node</li> <li>Memory: Max.64GB</li> </ul>		 <p><b>High-grade model Nh8c</b></p> <ul style="list-style-type: none"> <li>Intel® Xeon® processor x 2 per node</li> <li>Memory: Max.96GB</li> </ul>	

\*iSCSI will be supported in M120e/M120/M320/M320F models in the second half of 2018.

## Features of NEC Storage M series

### High performance and high availability

- Equipped with high-speed components and interfaces including SSD
- Automatically optimizes data allocation based on the frequency of access
- Supports cache partitioning
- Supports duplicate and redundant configuration of key components
- Uses unique technology like Super Phoenix for making HDD highly available
- Incorporates advanced security features including HDD encryption and complete data erasure
- Hot-plugging of major components such as disks, power supplies and controllers
- Enables firmware update without stopping the system, and more

### ICT cost optimization

- The types of drives (SAS, Nearline SAS and SSD) and interfaces (FC, iSCSI, SAS, CIFS, NFS) can be selected according to different needs, which optimizes the investment cost
- Management costs can be reduced by the system operation through virtualization
- Focused on offering products with a higher price/performance ratio, and more

### Easy introduction and operation

- Advanced dynamic pools for enhancing data capacity or performance without stopping devices
- Reduces costs of storing mass amounts of data with data compression (by using SSD)\*
- Thin provisioning optimizes the storage allocation in a virtual environment
- Fault-tolerant sites can be built at a low cost with iSCSI interfaces\*
- Data on storage devices can be migrated or moved online\*
- A user-friendly GUI provides a simple storage management operation, and more

\*: This feature will be implemented in M120/M320/M320F models in the second half of 2018.

### ECO-friendly features

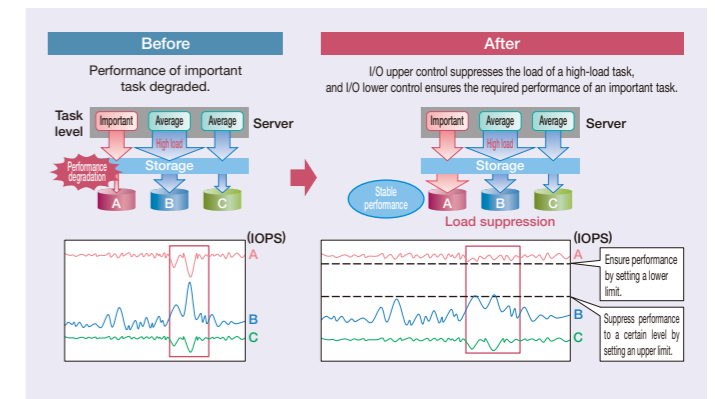
- ECO-friendly design through adoption of power supply certified with 80 PLUS® PLATINUM(for M510/M710/M710F)/80 PLUS® GOLD (for M120/M320/M320F) and low power consumption processors
- Products can be used even in environments of 40°C (104°F)
- Energy-saving operation is realized by visualizing power consumption and the autonomous MAID technology

## Advanced features for optimized virtual environments

### Assuring business performance through automatic SLA optimization

M series can control I/O flow by setting I/O threshold limits to each logical disk. Unlike many others, M Series allows both minimum and maximum thresholds to be used. It allows storage resources to be fairly allocated to normal priority applications while priority tasks preferentially acquire needed resources. M series stabilizes operations of the entire system, allowing you to meet SLAs that require guaranteed Quality of Service (QoS).

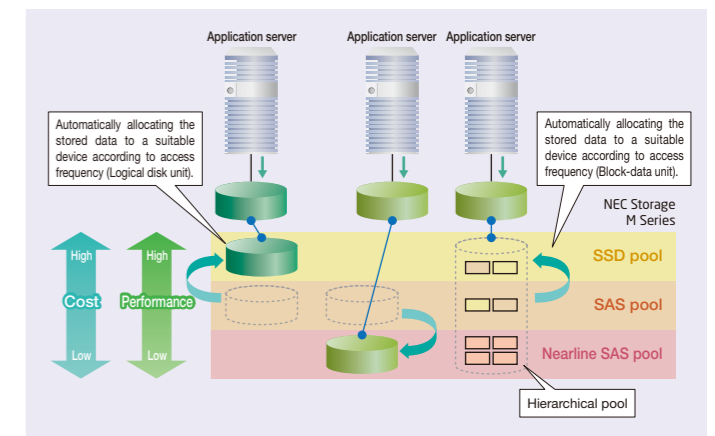
M120 M320 M320F M510 M710 M710F



### Hybrid Data Tiering automatically tiers data to the most suitable device according to access frequency

M Series can create a multiple tiered pool with different types of devices, and bind multiple logical disks across the tiers. Once stored, data is automatically reallocated to a suitable tier through routine monitoring according to access frequency. Capacity can also be automatically moved between logical disks in the same tiered pool to ensure maximum use of each tier. This accomplishes both vertical and horizontal data optimization to maximize storage performance, and to optimize your investment in storage.

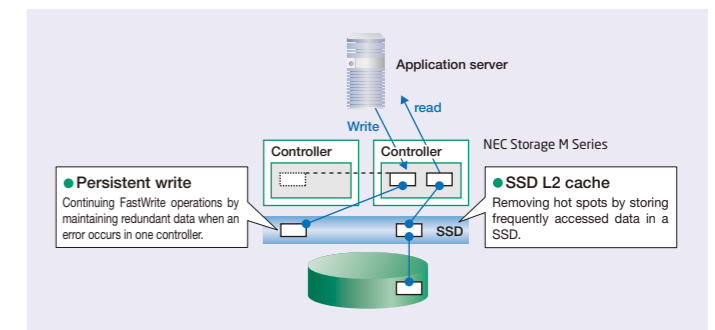
M120 M320 M510 M710



### SSD L2 cache & Persistent Write ensuring stable & high-speed performance

M Series uses SSD which has a superior read performance as L2 cache, so throughput of frequently accessed data can be improved. In case of an error in one controller, Persistent Write will continue Fast Write operations, storing write data in SSD to keep data redundancy.

M120 M320 M510 M710



### Eliminating the interference of other applications to achieve high-speed performance in the entire operation

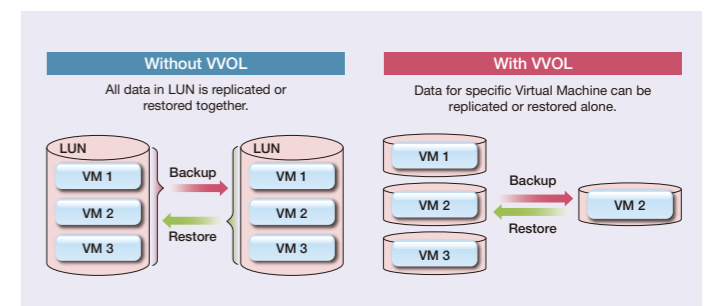
Cache memory on the device can be divided into several partitions, and then each partition can be allocated to an application (a set of logical disks). This eliminates interference among applications that occurs due to an increase in I/O and ensures the stable performance of each application.

M120 M320 M320F M510 M710 M710F

### Simplified management of individual Virtual Machines (VM) and Virtual Desktops (VDI) in VMware environment

M Series supports VMware vSphere Virtual Volumes (VVOL) feature that enables storage features like backup & restore, snapshot, and Quality of Service (QoS) to be done at the VVOL level.

M120 M320 M320F M510 M710 M710F

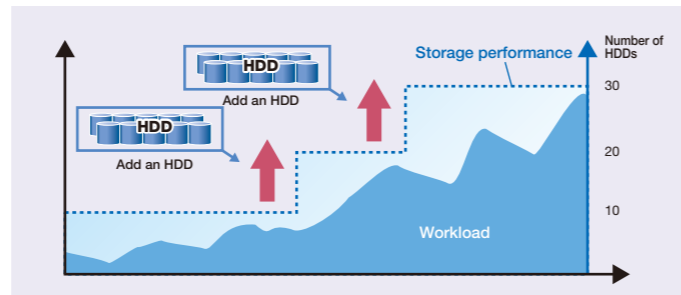


## Scalable and efficient resource management features

### Expanding capacity and performance by simply adding drives using Advanced Dynamic Pool

M Series offers Advanced Dynamic Pool allowing storage managers to simply increase pool capacity by non-disruptively adding drives. It also automatically optimizes data across the pool to improve performance.

M120 M320 M320F M510 M710 M710F



### Increasing the usage rate of HDD/SDD with thin provisioning

The capacity of physical volume can be virtually allocated to servers. If the volume is insufficient, the new HDD or SDD can be added without stopping an operation. This feature will minimize the difference between the volume actually required and the physical volume. Therefore, the usage rate of HDD/SDD can be increased and the initial cost and the power consumption can be decreased.

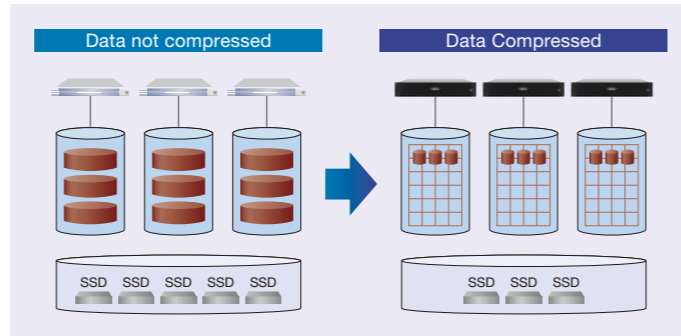
M120 M320 M320F M510 M710 M710F

### Improving the efficiency of SSD usage by compressing I/O data

This feature reduces the data storage volume by compressing the data and allocating them efficiently to SSD. Applications for which storage efficiency is required are gathered to the smaller volume by utilizing the high performance of SSD.

\*Note that the compression rate varies depending on the storage data. If the text data is used, the compression ratio will be high. However, if the image data that has been compressed to some formats is used, the compression ratio will be low.  
\*The data compression feature may affect the performance due to the overhead accompanying the compression.  
\*This feature will be implemented in the second half of 2018.

M120 M320 M320F

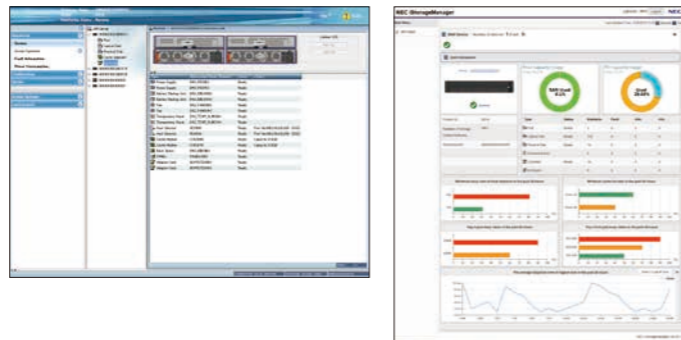


## The time and cost of operation management will be considerably reduced

### Intuitive GUI allows even first-time users to easily manage the storage unit

Storage capacity, disk load, and operational status of each component can be checked in a visual web browser window. Navigation windows show you how to set up replication, change capacity of a pool, and respond to failures. The easy-to-understand GUI environment eliminates operational errors.

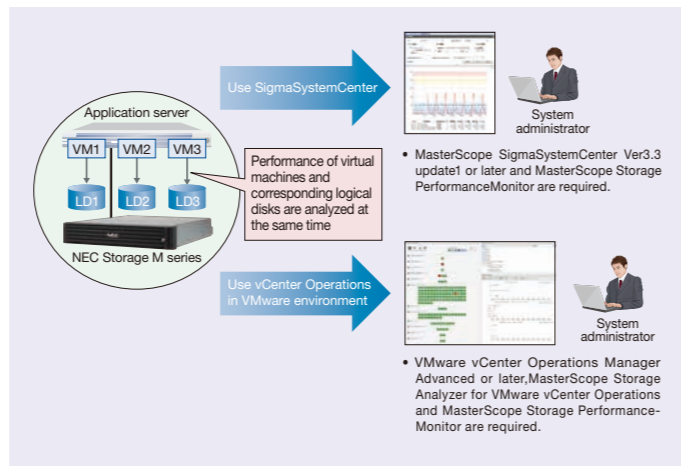
M120 M320 M320F M510 M710 M710F



### Enables an easy-to-use performance analysis both in the physical and virtual environments

With "NEC storage M series," you can manage the physical resources such as servers, storages and networks and the virtual environment in the single management window of SigmaSystemCenter. A bottleneck of the system can be identified with high accuracy by detecting signs of a physical error of hardware and analyzing the performance in combination with the information of the virtual machines. In addition, SigmaSystemCenter optimizes the resource allocation automatically, which is useful for improving the efficiency of administrative work and reducing labor. The performance in the environments can be checked in vCenter Operations Manager under the VMware environment.

M120 M320 M320F M510 M710 M710F



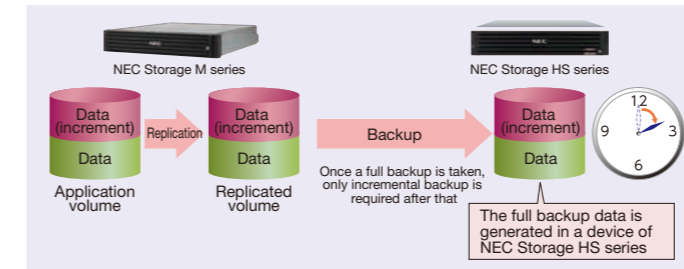
## A backup/restoring system can be built easily in preparation for emergencies

### Direct backup & restore to NEC HYDRAsTOR (HS Series) Storage

Previously, servers or software dedicated for backup were needed to work in combination with NEC HYDRAsTOR (HS Series) Storage for backup/archive. Now, the linkage function of "NEC Storage M series" has been enhanced and you can back up or restore the data directly to NEC HYDRAsTOR (HS Series) Storage. If you take a full backup on M series the first time, you only need to take incremental backups the second time and later. This reduces the backup time substantially. The process from data management to backup/restoration can be automated at low cost.

\* This feature will be implemented in M120/M320/M320F models in the second half of 2018.

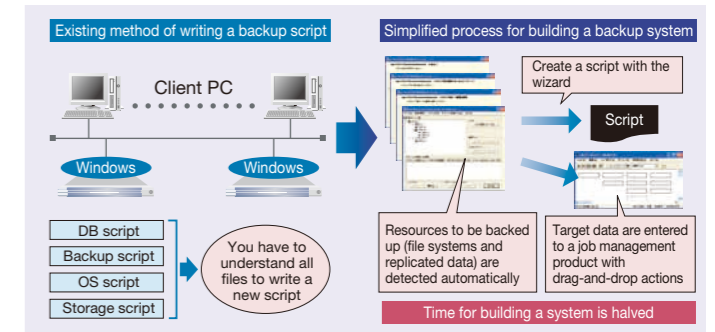
M320\* M320F\* M510 M710 M710F



### Nonstop backup system can be built quickly

If you want to build a backup system that does not stop the operation and have trouble finding the staff with the skill for building a system, "NEC Storage M series" is the solution for you. Functions such as the automatic collection of servers or database information and the interactive script creation wizard will enable you to build a nonstop backup system or quick restoration system. The simplified procedure reduces the building time by half and can prevent failures during building.

M120 M320 M320F M510 M710 M710F

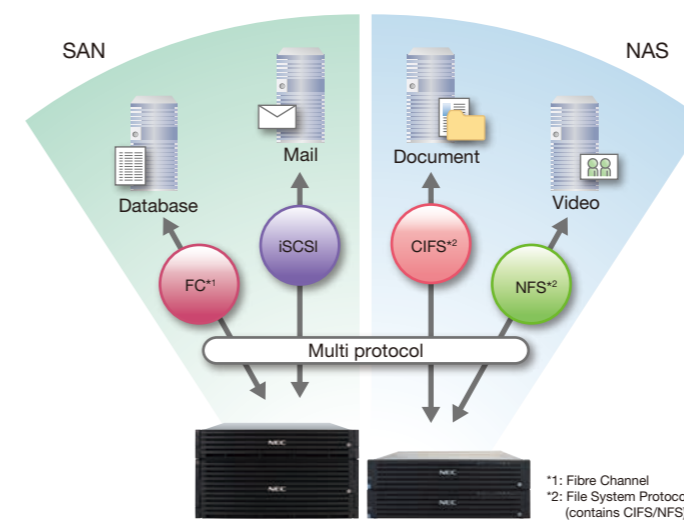


## Unified storage function converges SAN/NAS environments

### Continuous operation with online expansion of a file system

Many file systems can be aggregated into an M Series storage, each file system in M Series can be expanded up to 1PB. Physical drives can be added when required to increase the capacity of file system online, so operation and management of increasing contents is easier with M Series and NAS Gateway.

Nh4c Nh8c



### Load balancing at the node supports a stable operation

Multiple virtual servers can be set up in the physical NAS nodes. If you separately configure the virtual server with the higher priority and distribute the workload to others, the workload per node is equalized. This setting helps stabilize the performance.

Nh4c Nh8c

### Saving storage space with single instance function

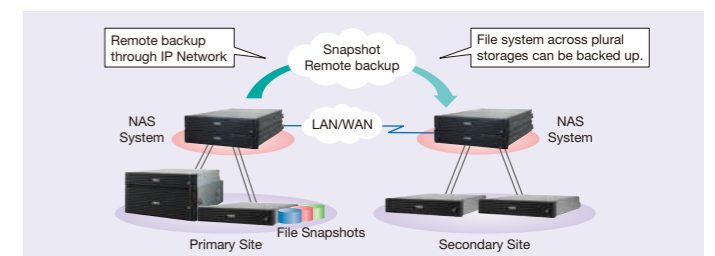
M Series with NAS Gateway has a single instance function (file based deduplication) to make a clone when detecting redundant file data by checking files based on a preset policy such as access time and suffix of file names. This function can drastically reduce the physical capacity required for the M Series system.

Nh4c Nh8c

### Snapshot with as many as 922 generations

The NAS Gateway Snapshot function provides up to 922 generations of differential data. This differential data can be quickly recovered via the snapshot function to repair files corrupted by operation or application error.

Nh4c Nh8c



### Efficient remote backup in NAS environment

Remote backup of file systems through an IP network with NAS Gateway. This function provides a server-free backup system. Up to four M Series storages can be connected to a NAS Gateway and remotely backed up. Replication software of M Series also can be used for file data.

Nh4c Nh8c

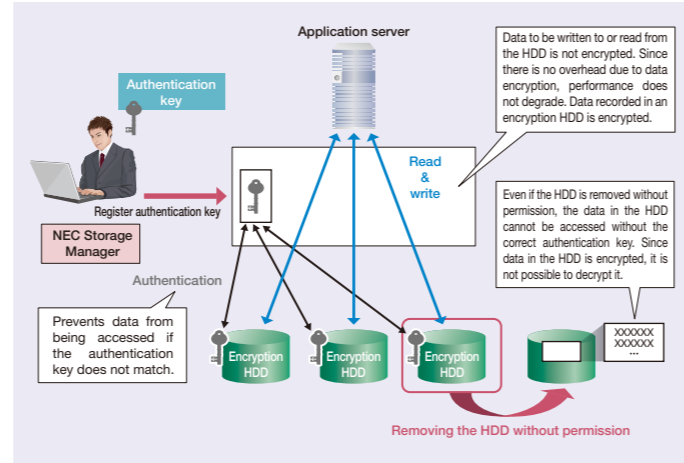
## Data encryption strongly prevents information from leaking out

### Preventing data leakage by data encryption

The storage that contains the sensitive data of enterprises is constantly exposed to security threats. "NEC Storage M series" uses self-encrypting drives (SED<sup>\*1</sup>) to encrypt the data in HDD/SDD in order to prevent data leakage due to taking out, loss, theft and disposal of data. The M series storage also has a function conforming to the U.S. standard<sup>\*2</sup> that erases the data in HDD/SDD. This feature enhances data security by preventing the leakage of personal data. Furthermore, additional security measures are provided, including access restriction on the logical disks, log auditing, and operating error protection.

\*1: SED, Self-Encrypting Drive (Encrypted with AES256)  
\*2: DoD5220.22-M (The standard specified by U.S. DOD)

M120 M320 M320F M510 M710 M710F



## Operations continue without suspending the system

### High-speed data migration that does not affect the business

We provide a data migration function to meet the needs for moving the data from old devices to the new devices of "NEC Storage M series." This function makes the settings so that the source logical disk and destination logical disk will be recognized as the same logical disk by the application server, thus the logical disks are replaced online without changing application settings. The migration by this function does not apply the load to the application server, thus the impact on application performance will be minimized.

\* This feature will be implemented in the second half of 2018.

M120 M320 M320F

### Reducing power consumption with advanced power saving technologies

M Series employs low-power processors, 80 PLUS power supplies (80 PLUS PLATINUM for M510, M710 and M710F; 80 PLUS GOLD for M120, M320, M320F and Disk Enclosure). Power-saving components are an emphasis in the design of M Series. These characteristics allow M Series to be used in 40°C (104°F) environments which results in reducing power consumption of air conditioners.

M120 M320 M320F M510 M710 M710F



### Saving power resources by the autonomous MAID technology

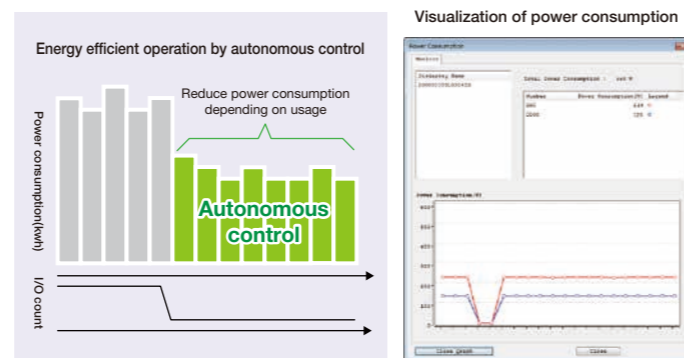
M Series adopts MAID (Massive Array of Inactive Disks) technology for energy efficiency. HDD in a backup volume, for instance, is not used except for backup time. MAID technology can autonomously turn the motor of an HDD off (when idle) and on (when needed).

M120 M320 M510 M710

### Low-power operations by visualization of power consumption and autonomous device control

The power consumption of all M Series units in the same infrastructure environment can be managed with real-time visualizations. In addition, components such as CPU, fan and HDD autonomously control power consumption based on storage unit usage. Energy efficient operations are also promoted by reduction of unnecessary power consumption when the storage unit is in the idle state.

M120 M320 M320F M510 M710 M710F



		Hybrid Storage				
Model name		NEC Storage M120 <sup>*1</sup>	NEC Storage M320	NEC Storage M510	NEC Storage M710	
Units	Disk Array Controller (2.5" and 3.5")	Disk Array Controller (2.5" and 3.5")		Disk Array Controller (2.5" and 3.5")		
	Disk Enclosures (Max.)	19	39	64	80	
	Drive slots per enclosure	24slots (2.5" Disk Array Controller, Disk Enclosure) 12slots (3.5" Disk Array Controller, Disk Enclosure)		24slots (2.5" Disk Enclosure) 12slots (3.5" Disk Enclosure)		
Host interface	Drive interface	SAS 3.0 (12Gbps)				
	Fibre channel	16Gbps / 32Gbps				
	iSCSI	10Gbps (Optical / Copper) <sup>*2</sup> , 25Gbps (Optical) <sup>*2</sup>				
	SAS	12Gbps				
Cache memory	Number of ports (Max.)	FC: 24, iSCSI: 16, SAS: 8	FC: 24, iSCSI: 16, SAS: 8	FC: 32, iSCSI: 16	FC: 48, iSCSI: 24 <sup>*10</sup>	
	Capacity	64GB / 128GB <sup>*2</sup>	96GB / 192GB / 384GB <sup>*2</sup>	48GB / 96GB	96GB / 192GB	
	Battery backup time	Unlimited (Save to a dedicated area.)				
RAID level <sup>*2</sup>		RAID-0, 1, 5, 6, 10, 50, 60, TM				
Number of drives		3 to 240	3 to 672	3 to 768	3 to 960 <sup>*10</sup>	
Storage capacity (Max.) <sup>*4,5</sup>		2,274.9TiB	4,549.8TiB	7,279.7TiB	9,099.6TiB	
Drive type	SAS HDD	2.5" 600GB, 1.2TB, 1.8TB, 2.4TB (10,000rpm) / 300GB, 600GB (15,000rpm)		2.5" 600GB, 1.2TB, 1.8TB (10,000rpm) / 300GB, 600GB (15,000rpm)		
	NL-SAS HDD	3.5" 4TB, 8TB, 12TB (7,200rpm)		2.5" 1TB, 2TB (7,200rpm) 3.5" 2TB, 4TB, 6TB, 8TB, 10TB, 12TB (7,200rpm)		
	SAS SSD	2.5" 400GB, 1.6TB, 3.2TB 3.5" 400GB, 1.6TB, 3.2TB		2.5" 200GB, 400GB, 1.6TB, 3.84TB 3.5" 200GB, 400GB, 1.6TB, 3.84TB		
	VRI/RI SAS SSD <sup>*6</sup>	2.5" 3.84TB, 7.68TB 3.5" 3.84TB, 7.68TB		2.5" 2TB, 4TB / 2.5" 15.3TB 3.5" 2TB, 4TB		
	SED SAS HDD	2.5" 600GB (10,000rpm) / 600GB (15,000rpm)		2.5" 600GB (10,000rpm) / 600GB (15,000rpm)		
	SED NL-SAS HDD	3.5" 4TB (7,200rpm)		3.5" 4TB (7,200rpm)		
	SED SAS SSD	2.5" 400GB, 3.2TB 3.5" 400GB, 3.2TB		2.5" 200GB 3.5" 200GB		
	Dimensions (WxDxH)	Disk array controller (Rack unit)	482x568x88mm (2U, without Front Bezel) 483x606x88mm (2U, with Front Bezel) <sup>*7</sup>		482.6x633.8x175.4mm (4U, without Front Bezel) 482.6x643.8x175.4mm (4U, with Front Bezel) <sup>*7</sup>	
Disk enclosure (Rack unit)		482x517x88mm (2U, without Front Bezel) 483x555x88mm (2U, with Front Bezel) <sup>*7</sup>		482.6x548.5x87.4mm (2U, without Front Bezel) 482.6x558.5x87.4mm (2U, with Front Bezel) <sup>*7</sup>		
Weight	Disk array controller	30kg or less (2.5"), 32kg or less (3.5")		48kg or less		
	Disk enclosure	26kg or less (2.5"), 28kg or less (3.5")		29kg or less		
Power voltage/frequency/phase		AC 100-240V, 50/60Hz, Single phase				
Power consumption (Max. / 25°C) <sup>*8</sup>	Disk array controller	SAS HDD	585W (595VA) / 515W	700W (710VA) / 630W	965W (975VA) / 825W	1,190W (1,200VA) / 1,065W
		NL-SAS HDD	545W (550VA) / 475W	660W (670VA) / 590W		
	Disk enclosure	SAS HDD	285W (290VA) / 250W	285W (290VA) / 250W	350W (355VA) / 285W	350W (355VA) / 285W
		NL-SAS HDD	325W (330VA) / 290W	325W (330VA) / 290W	315W (320VA) / 250W	315W (320VA) / 250W
Ambient conditions	Temperature	5 to 40°C (when operating), -10 to 60°C (when not operating)				
	Humidity	10 to 80% RH (when operating), 5 to 80% RH (when not operating)				
Supported OS <sup>*9</sup>		Windows, Linux, VMware	FC: Windows, Linux, VMware, HP-UX, AIX, Solaris iSCSI: Windows, Linux, VMware			

		All Flash Storage	
Model name		NEC Storage M320F	NEC Storage M710F
Units	Disk Array Controller (2.5")	Disk Array Controller (2.5")	
	Disk Enclosures (2.5")	Disk Enclosure (2.5")	
	Drive slots per enclosure	24slots (Disk Array Controller, Disk Enclosure)	
Host interface	Drive interface	SAS 3.0 (12Gbps)	
	Fibre channel	16Gbps / 32Gbps	
	iSCSI	10Gbps (Optical / Copper) <sup>*2</sup> , 25Gbps(Optical) <sup>*2</sup>	
	Number of ports (Max.)	FC : 24, iSCSI: 16	
Cache memory	Capacity	96GB / 192GB / 384GB <sup>*2</sup>	192GB
	Battery backup time	Unlimited (Save to a dedicated area.)	
RAID level <sup>*2</sup>		RAID-0, 1, 5, 6, 10, 50, 60, TM	
Number of drives		3 to 672	3 to 960
Storage capacity (Max.) <sup>*4, 5</sup>		4,125.0TiB	9,099.6TiB
Drive type	SAS SSD	2.5" 400GB, 1.6TB, 3.2TB	
	VRI/RI SAS SSD <sup>*6</sup>	2.5" 3.84TB, 7.68TB	
	SED SAS SSD	2.5" 400GB, 3.2TB	
Dimensions (WxDxH)	Disk array controller (Rack unit)	482x568x88mm (2U, without Front Bezel) 483x606x88mm (2U, with Front Bezel) <sup>*7</sup>	
	Disk enclosure (Rack unit)	482x517x88mm (2U, without Front Bezel) 483x555x88mm (2U, with Front Bezel) <sup>*7</sup>	
Weight	Disk array controller	30kg or less	
	Disk enclosure	26kg or less	
Power voltage/frequency/phase		AC 100-240V, 50/60Hz, Single phase	
Power consumption (Max. / 25°C) <sup>*8</sup>	Disk array controller	795W (805VA) / 725W	1,190W (1,200VA) / 1,065W
	Disk enclosure	350W (355VA) / 285W	350W (355VA) / 285W
Ambient conditions	Temperature	5 to 40°C (when operating), -10 to 60°C (when not operating)	
	Humidity	10 to 80% RH (when operating), 5 to 80% RH (when not operating)	
Supported OS <sup>*9</sup>		FC: Windows, Linux, VMware, HP-UX, AIX, Solaris iSCSI: Windows, Linux, VMware	

\*1: There are two models: the dual controller model and the single controller model. The number of ports and the size of cache memory in the single controller model are half that of the dual controller model.  
\*2: iSCSI in M120/M320/M320F, 128GB cache memory in M120 and 384GB cache memory in M320/M320F will be supported in the second half of 2018.  
\*3: If an error occurs in a drive of RAID-0 type, the data will be lost since RAID-0 does not support the redundant configuration. Basically, select the RAID type with redundant configuration. Consult NEC before using a RAID configuration.  
RAID-0 is not supported for SSD. RAID-0 and RAID-TM are not supported for SSD in M510/M710/M710F models.  
\*4: "1GiB" is equal to 1,024<sup>3</sup> and "1TiB" to 1,024<sup>6</sup>.  
\*5: The storage capacity is calculated on the assumption that the drive with largest capacity is selected for each drive and the drives are set up in the RAID-5 configuration using the maximum number of disks allowed for RAID-5.  
\*6: VRI (Very Read Intensive) and RI (Read Intensive) are device types mainly used for data-read.  
\*7: The Front Bezel is sold separately.  
\*8: This is the value calculated when Fiber Channel is used as the host interface. It may be different depending on the product configuration.  
\*9: There are limitations to the disks connected to OS listed here. Contact NEC for details.