

NEC M100 Frequently Asked Questions

September, 2011

Question: What RAID levels are supported in the M100?

Answer: 1,5,6,10,50,60,Triple Mirror

Question: What is the power consumption of M100 vs. D4?

Answer: The M100 consumes 26% less energy. The D4-30 Base Unit (w/ 3.5" SAS15K x 12) consumes 640W peak. The M100 Base Unit (w/ 3.5" SAS15K x 12) consumes 485W peak.

Question: Which operating systems are compatible with M100?

Answer: Windows, Linux and VMware.

Question: Maximum number of LUNs per system?

Answer: 1024

Question: Maximum number of LUNs per consistency group?

Answer: 1024

Question: Can a consistency group span multiple systems?

Answer: No

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Question: What is the maximum number of snapshots per LUN?

Answer: 16

Question: What is the time needed for a non-disruptive micro-code update time?

Answer: 30 minutes.

Question: Will a controller failure put cache in write-through mode?

Answer: Yes

Question: Is there automated load balancing between controllers?

Answer: Yes

Question: Is the controller architecture of the AULA type?

Answer: Yes

Question: What is the typical disk rebuild time for 450GB 15K rpm HDD?

Answer: 150 minutes RAID-5 (4+P)

Question: What is the typical disk rebuild time for a NearLine SAS 1TB HDD?

Answer: 300 minutes or less

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Question: What is the expected storage system availability?

Answer: 5 9's

Question: What are the most important attributes for M100?

- Answer:**
1. Differentiated storage for virtualized systems
 2. No trade-off storage
 3. Fault tolerant data availability
 4. Feature rich software for Disaster recovery, Replication, Path management with Cloud-centric function
 5. Energy efficient storage systems operation

Question: What are the most noteworthy features of M100?

- Answer:**
1. Thin provisioning
 2. Autonomic power saving
 3. Features for collaborating with file systems on activities such as replication
 4. Dynamic pooling, which is defined as supporting a storage pool that can be composed of various RAID and HDD types and which supports on demand and on-line configuration change.
 5. Automatic allocation with storage pools, which is defined as bundling multiple RAID groups and writing data in a manner so

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it is divided and allocated automatically on each RAID groups in the pool equally. Efficient allocation between all the drives improves overall storage system performance.

6. Storage management technology that reduces NTFs and incidents of drives being failed that are not actually failing.
7. Capability to write data before formatting is complete
8. Online maintenance
9. Using visualization to represent operational status, for example, power consumption
10. Management console commonality; one approach to storage management and one console.

Question: What are examples of how NEC has enhanced the value proposition of its storage systems?

- Answer:**
1. Support for VMware APIs such as zero copy (4Q 2011)
 2. Support for multiple layers of virtualization – NEC supports server virtualization (partnership with VMware) plus storage virtualization plus network virtualization (PFlow as of June 2011).
 3. Leveraging fault tolerant server technology to better enable robust and resilient storage environments (August 2010)

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4. Release of blueprints to respond to market demands for better long term insight into creating durable, flexible and affordable infrastructure. (April 2011)
5. Introduction of 2.5-inch format factor storage devices (November 2010) to reduce operating costs and enhance data and information systems reliability and performance.

Question: What service and support offering are available for M100?

Answer: NEC's customers enjoy two levels of service and support programs for its modular disk arrays, and will introduce a third service level option in 2012.

NEC SAN storage systems include 3 years of Standard warranty service for every modular disk array and or disk expansion unit that is sold. The Standard program provides customers with 9x5 phone and email technical support and a Next Business Day onsite spare parts and break-fix repair service level.

The current premium solution is an upgraded Platinum Warranty service. Customers who opt for the Platinum service program are entitled to technical phone support 24x7x365, with a 4-hour onsite spare parts and break-fix repair service. Platinum service does

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require that most customers are within a 50-mile range of most major U.S. cities for faster deployment.

In 2012, a third service level for Modular Array customer will be released. NECAM has determined that the modular disk customer would like an in-between service model from its current Standard and Platinum programs. Therefore, NEC will soon provide a Gold level warranty solution for their storage customer. The Gold level SLA will incorporate the 24x7 technical phone services customers need and enjoy from a Platinum service, but will have a Next Day onsite spare parts and break-fix repair service instead of a 4-hour onsite.

NEC's server install base currently takes advantage of both the Gold and Platinum warranty, in which NEC has found that the popularity of its Gold program has grown significantly due to its reasonable cost, while still providing a higher level of service.

Question: Does M100 support automated data redistribution, data striping and management agents to optimize storage management?

Answer: Yes

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Question: Which interfaces can be used to access the storage management console?

Answer: CLI, Host App, Web

Question: Does M100 support multi-tenancy?

Answer: Yes. This is accomplished by creating one-tenant per LUN.

Question: Does M100 support VMware VAAI Assisted Hardware Locking?

Answer: Yes

Question: Does M100 support VMware VAAI Boot from SAN?

Answer: Yes

Question: Does M100 support VMware VAAI Block Zeroing?

Answer: Yes

Question: Does M100 support VMware VAAI Full Copy function?

Answer: Yes

Question: Does M100 support Asynchronous and Synchronous replication?

Answer: Yes

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Question: Which storage networking interfaces does M100 support?

Answer: 1 Gb Ethernet, 10 Gb Ethernet, 8 Gb FC Yes

Question: Which storage networking protocols does M100 support?

Answer: Fibre Channel, iSCSI

Question: What is the maximum number of Ethernet ports supported?

Answer: 4

Question: What is the maximum number of Fibre Channel ports supported?

Answer: 8

Question: Is concurrent Fibre Channel and Ethernet supported?

Answer: No

Question: Which third-party multi-pathing software support?

Answer: MS Windows, Red Hat, Linux

Question: Is anti-vibration technology used in the array?

Answer: Yes

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Question: What is the maximum cache supported?

Answer: 8 GB

Question: Is Active-Active mode of operation supported?

Answer: Yes

Question: Are both 2.5" and 3.5" HDDs supported?

Answer: Yes

Question: Maximum raw storage capacity?

Answer: 192TB based on 2TB HDDs

Question: Is MAID function supported?

Answer: Yes

Question: What drive types are supported?

Answer: SSD: 100GB, 400 GB

7.2K RPM NearLine SAS/SAS HDDs: 1, 2 TB

10K FC/SAS HDD: 300, 450, 600 GB

15K FC/SAS HDDs: 300, 450, 600 GBY

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Question: Is concurrent HDD mix supported?

Answer: Yes

Question: Is concurrent RAID type supported?

Answer: Yes

Question: Which RAID stripe sizes are supported?

Answer: RAID 1: 512KB , RAID 5/6 : 4+P/PQ = 256KB, 8+P/PQ = 128KB

Question: What happens when the following conditions occur?

- RAID fails and rebuild starts on the hot-spare?
- A defective drive is replaced with new drive before hot spare rebuild is completed

Answer: When a Dynamic Pool is being rebuilt, the copy-back process begins only after the rebuild process is completed.

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Question: Is the configuration lost when power is lost?

Answer: No. The configuration metadata is stored in first three physical disks (called system disks) and thus replicated x 3. In the event of a power loss, local memory and cache content are flushed to flash memory on each controller, which also prevents configuration information from being lost if not yet written to disk.

Question: Which application-consistent snapshots are supported?

Answer: Dynamic Data Replication or DDR (Clone) and Dynamic SnapVolume DSV (Copy on write)

Question: Is data compressed before remote replication?

Answer: No

Question: For source array data being synchronously replicated between a target array and internal HDDs, is there any restriction that those HDDs may not be moved to the target midrange array still in place?

Answer: Disks are not allowed to move to the other disk array unit even if the data is synchronized with replication.

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Question: Can snapshots be scheduled to expire?

Answer: Yes, by combination of Snapshot Command and the Job scheduler

Question: Are differential sub-file snapshots supported?

Answer: No

Question: Are full or clone snapshots supported, i.e., full copy of the logical disk?

Answer: Yes, this is supported with Dynamic Data Replication (DDR).

Question: Are full or clone snapshots supported? In other words, full copy of the logical disk?

Answer: Yes, this is supported with Dynamic Data Replication(DDR).

Question: How can configuration information be stored locally or on removable storage media?

Answer: Administrators can store the configuration locally by CLI or iSM GUI or by connecting USB memory