



StorNext M660

Hardware Guide



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Chapter 1

Introduction

Combining industry-proven Quantum hardware and StorNext software, the StorNext M660 Metadata Appliance is an integrated system designed to optimize performance in an easy-to-use configuration.

About the StorNext M660 Hardware

Note: At times this guide uses the term StorNext M660 as a generic term that applies to both the StorNext M661 and the StorNext M662.

Quantum's StorNext M660 is an all-in-one appliance combining the powerful file sharing capabilities of StorNext with pre-configured hardware. The system is powered by a HA pair of metadata controllers (MDC) nodes configured for resiliency. The appliance offers two models:

- The StorNext M661 features 11 1GbE configurable Ethernet ports per node.
- The StorNext M662 features two 10 GbE and seven 1 GbE configurable Ethernet ports per node.

MDCs coordinate SAN file access across clients. Additionally, the standby node can be used as a distributed data mover (DDM), or both MDC nodes can be used as DLC gateways.

About StorNext

StorNext is data management software that enables customers to complete projects faster, and confidently store more data at a lower cost. Used in the world's most demanding environments, StorNext is the standard for high-performance shared workflow operations and multitier archives. StorNext consists of two components: StorNext File System (SNFS), which is high-performance data sharing software, and StorNext Storage Manager (SNSM), an intelligent, policy-based data mover.

StorNext File System streamlines processes and facilitates faster job completion by enabling multiple business applications to work from a single, consolidated data set. Using SNFS, applications running on different operating systems (Windows, Linux, Solaris, HP-UX, AIX, and Mac OS X) can simultaneously access and modify files on a common, high-speed SAN storage pool.

This centralized storage solution eliminates slow LAN-based file transfers between workstations, and dramatically reduces delays caused by single-server failures. In high availability (HA) configurations, a redundant server is available to access files, pick up the processing requirements of a failed system, and carry on processing.

StorNext Storage Manager enhances the StorNext solution by reducing the cost of long-term data retention, without sacrificing accessibility. SNSM sits on top of SNFS and uses intelligent data movers to transparently locate data on multiple tiers of storage. This enables customers to store more files at a lower cost, without having to reconfigure applications to retrieve data from disparate locations. Instead, applications continue to access files normally, and SNSM automatically handles data access – regardless of where a given file resides. As data movement occurs, SNSM also performs a variety of data protection services to guarantee that data is safeguarded both on site and off site.

StorNext AEL Archive combines data management policies with cost-effective tape storage to deliver data to users through a simple file system interface. The StorNext AEL includes policy-based data integrity checking, which ensures that the data in the archive will be ready when it's needed. StorNext AEL includes a feature called **Extended Data Life Management (EDLM)** that tests and verifies the media in the archive and provides health reports for all cartridges.

About StorNext M660 Licensing

Separate licenses are required for various StorNext features, as well as to perform an upgrade to a new release.

The following features are factory-installed on the system:

- **StorNext Failover (High Availability):** Provides the ability to configure and operate a redundant server that can quickly assume control of the StorNext file systems in the event of certain software, hardware and network failures on the primary server.
- **File System SAN Clients:** Includes 10 customer StorNext SAN clients for any supported OS, including the equivalent of two SAN clients for MDCs Nodes. Additional licenses can be purchased separately.
- **StorNext Gateway:** Allows you to use the StorNext M660 as a clustered pair of distributed LAN Gateways.

Note: The StorNext gateway functionality cannot be used while per-client Distributed LAN client licenses are also in use.

- **Distributed Data Mover (DDM):** Includes one license for offloading data movement from the StorNext M660 system.
- **Maintenance:** Is associated with the expiration date of your current service contract, and is required to enable StorNext software upgrades.

Refer to the *Quantum StorNext M330 and StorNext M660 Optional Software Add-On Licensing Instructions* for a description of the types of licenses and procedures for obtaining them.

About StorNext Features

This guide includes information about StorNext features that may not initially apply to your StorNext M660 system, but that could be pertinent in the future.

The initial offering of the StorNext M660 is not designed for deduplication, and the standard StorNext deduplication license is not supported with the StorNext M660.

Purpose of This Guide

This guide describes how to identify and operate the key features of the hardware components of the StorNext M660 system.

How This Guide is Organized

This guide contains the following chapters:

- [Chapter 1, Introduction](#) provides an overview of this StorNext M660 Hardware Guide, and also includes document conventions, product safety statements, a list of related documents, and supported Internet browsers.
- [Chapter 2, StorNext M660 Hardware Overview](#) provides an overview of the StorNext M660 system.
- [Chapter 3, StorNext M660 Basic Operations](#) provides basic operating instructions for the StorNext M660 system.

Notes, Cautions, and Warnings

The following table describes important information about Notes, Cautions, and Warnings used throughout this guide.

Description	Definition	Consequences
Note:	Emphasizes important information related to the main topic.	No hazardous or damaging consequences.
Caution:	Advises you to take or avoid a specified action.	Failure to take or avoid this action could result in loss of data or harm to equipment.
Warning:	Advises you to take or avoid a specified action.	Failure to take or avoid this action could result in physical harm to the user or hardware.

Document Conventions

This guide uses the following document conventions to help you recognize different types of information.

Hardware Conventions

Conventions
Right side of the system — Refers to the right side as you face the component being described.
Left side of the system — Refers to the left side as you face the component being described.

Software Conventions

Conventions	Examples
For all UNIX-based commands, the # prompt is implied, although it is not shown.	TSM_control stop is the same as # TSM_control stop
For all UNIX-based commands, words in <i>italic</i> are variables and should be replaced with user-defined values.	cvaffinity filename where <i>filename</i> is a variable and should be replaced with a user-defined value.

Supported Internet Browsers

The Internet browser software is not supplied with the StorNext M660 system; you must obtain and install it independently. The StorNext M660 system supports the following Internet browsers:

Windows

- Internet Explorer 7.x, 8.x and 9.x
- Firefox 3.x or later

Linux

- Firefox 1.5 or later

Solaris

- Firefox 1.5 or later

Product Safety Statements

Quantum will not be held liable for damage arising from unauthorized use of the product. The user assumes all risk in this aspect.

This unit is engineered and manufactured to meet all safety and regulatory requirements. Be aware that improper use may result in bodily injury, damage to the equipment, or interference with other equipment.

WARNING: Before operating this product, read all instructions and warnings in this document and in the system, safety, and regulatory guides.

警告	在使用本产品之前，请先阅读本文档及系统、安全和法规信息指南中所有的说明和警告信息。
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警告	操作本产品前，请先阅读本文件及系统、安全与法规资讯指南中的指示与警告说明。
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ADVERSAL Læs alle instruktioner og advarsler i dette dokument og i *Vejledning om system-sikkerheds- og lovgivningsoplysninger*, før produktet betjenes.

AVERTISSEMENT Avant d'utiliser ce produit, lisez la totalité des instructions et avertissements de ce document et du *Guide d'informations sur le système, la sécurité et la réglementation*.

HINWEIS Lesen Sie vor der Verwendung dieses Produkts alle Anweisungen und Warnhinweise in diesem Dokument und im System, Safety, and Regulatory Information Guide (Info-Handbuch: System, Sicherheit und Richtlinien).

אזהרה לפני ההפעלה של מוצר זה, קרא את כל ההוראות והאזהרות הכלולות במסמך זה וכן במדריך מידע בנושאי מערכת, בטיחות ותקינה

警告 この製品を使用する前に、本文書、および『システム、安全、規制に関する情報ガイド』に記載しているすべての警告と指示をお読みください。

경고 이 제품을 작동하기 전에 이 문서 및 시스템, 안전, 및 규제 정보 안내서에 수록된 모든 지침과 경고 표지를 숙지하십시오.

ПРЕДУПРЕЖДЕНИЕ всеми инструкциями и предупреждениями, приведенными в данном документе и в *Справочном руководстве по устройству, технике безопасности и действующим нормативам*.

ADVERTENCIA Antes de utilizar este producto, lea todas las instrucciones y advertencias en este documento y en la Guía informativa sobre sistema, seguridad y normas.

VARNING Läs alla anvisningar och varningar i detta dokument och i *System, säkerhet och krav från myndigheter - Informationshandbok* innan denna produkt tas i bruk.



Chapter 2

StorNext M660 Hardware Overview

This chapter describes the following:

- [StorNext M660 Components](#) on page 10
- [StorNext M660 Connectivity](#) on page 29
- [Relocating the StorNext M660 System](#) on page 35

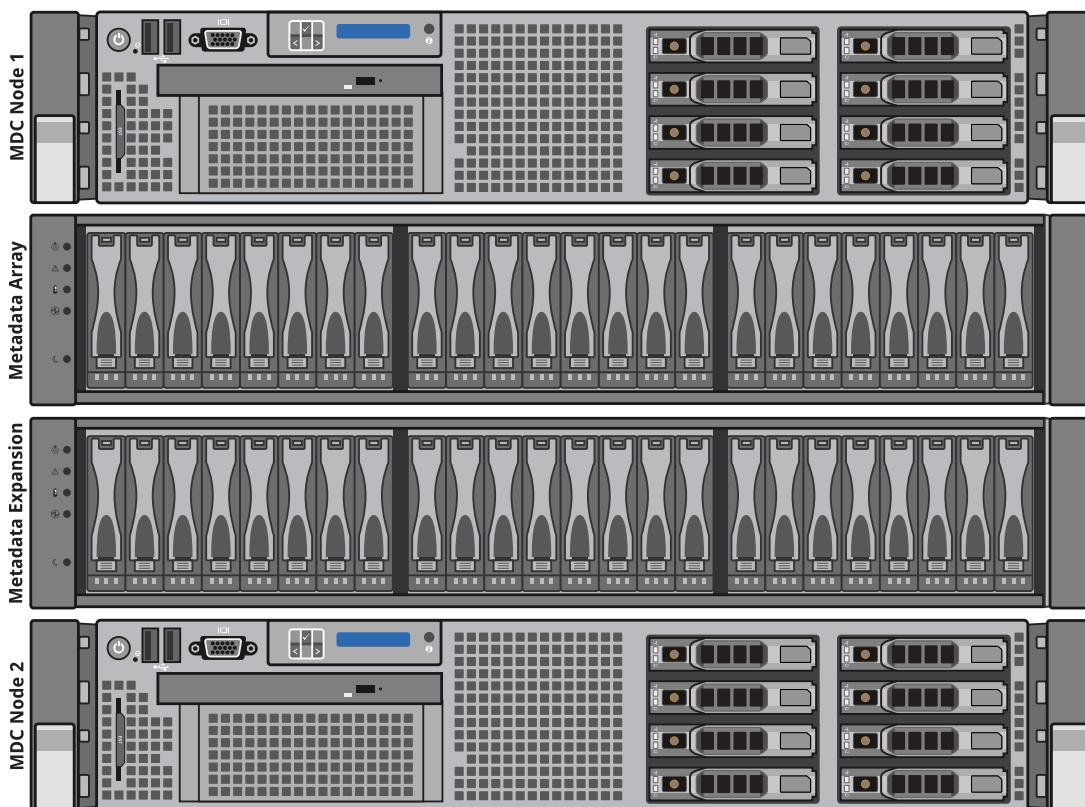
StorNext M660 Components

The StorNext M660 system consists of the following components:

- [StorNext M660 MDC Nodes](#) on page 11
- [StorNext M660 Metadata Storage](#) on page 19

[Figure 1](#) shows the full StorNext M660 system.

Figure 1 StorNext M660
Components (Front)



StorNext M660 MDC Nodes

The two StorNext M660 MDC Nodes are servers that provide storage and control for the StorNext M660 platform software (host OS and M660 StorNext software). The MDC Nodes contain dual hard drives in a RAID 1 configuration, ensuring high availability of the system software.

MDC Node - Front View

[Figure 2](#) shows, and [Table 1](#) describes the indicators and buttons on the front of the StorNext M660 MDC Node.

The two hard drives located on the front of the MDC Node (in drive bays 0 and 1) are used to store the (operating system and M660 StorNext software). Drive bays 2 through 7 are empty, and reserved for Quantum use. Unlabeled indicators, connectors, and buttons are reserved for Quantum Service.

For more information, see [MDC Node – Hard-Drive Indicator Patterns](#) on page 13.

Figure 2 M660 MDC Node – Front View

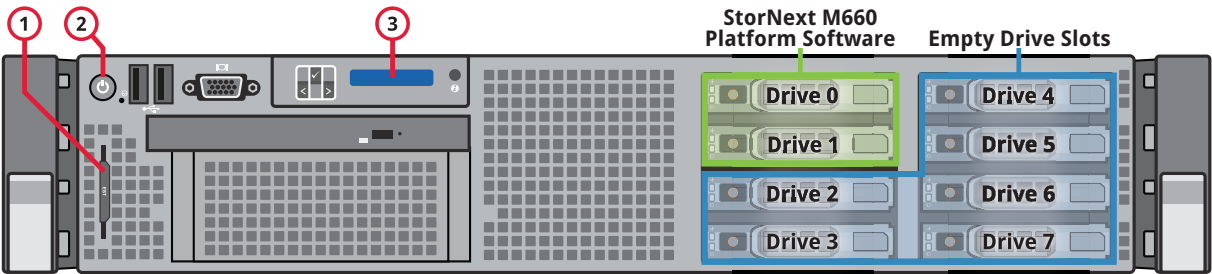



Table 1 StorNext M660 MDC Node – Front View Indicators and Buttons

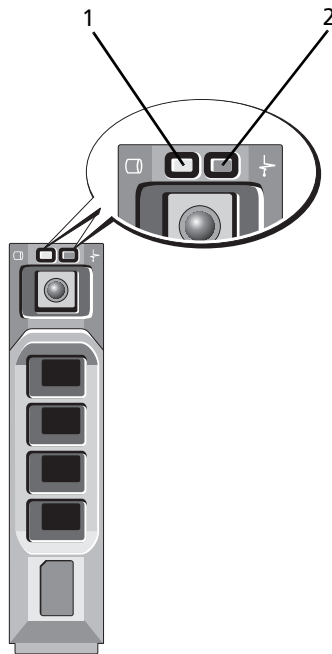
Item	Indicators and Buttons	Description
1	Service tag	The slide-out label panel for the system information including information such as the Service Tag and Express Service Code.

Item	Indicators and Buttons	Description
2	Power-On Indicator 	<p>The power-on indicator lights when the system power is on.</p> <p>The power button controls the DC power supply output to the system. When the system bezel is installed, the power button is not accessible.</p>
3	LCD panel	<p>The LCD panel shows the system ID, status information, and system error messages.</p> <p>The LCD lights blue during normal system operation. When the system needs attention, the LCD lights amber, and the LCD panel displays an error code, followed by descriptive text.</p> <p>Note: Note: If the system is connected to AC power and an error has been detected, the LCD lights amber, regardless of whether the system has been powered on.</p>

MDC Node – Hard-Drive Indicator Patterns

[Figure 3](#) shows, and [Table 2](#) on page 14 describes the StorNext M660 MDC Node hard-drive indicator patterns (.).

Figure 3 M660 MDC Node –
Hard-Drive Indicator Patterns



- 1 Hard-drive activity indicator (green)
- 2 Hard-drive status indicator (green and amber)

Table 2 M660 MDC Node –
Hard-Drive Activity and Status
Indicators

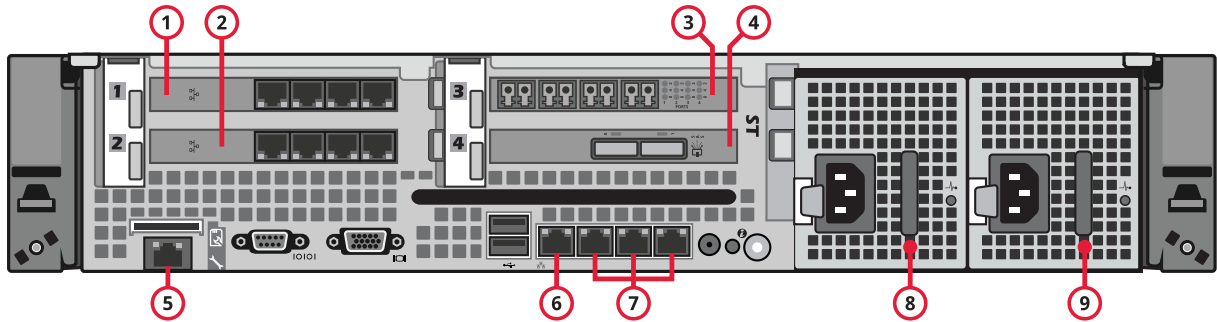
Drive-Status Indicator Pattern (RAID Only)	Condition
Blinks green two times per second	Identify drive/preparing for removal.
Off	Drive ready for insertion or removal. When system power is applied, the drive status indicator remains off until all hard drives are initialized. Drives are not ready for insertion or removal during this time.
Blinks green, amber, and off	Drive-predicted failure.
Blinks amber four times per second	Drive failed
Blinks green slowly	Drive rebuilding
Steady green	Drive online

MDC Node – Rear View

The back of the StorNext M660 MDC Nodes have a series of indicators, connectors, and buttons. Unlabeled indicators, connectors, and buttons are reserved for Quantum Service.

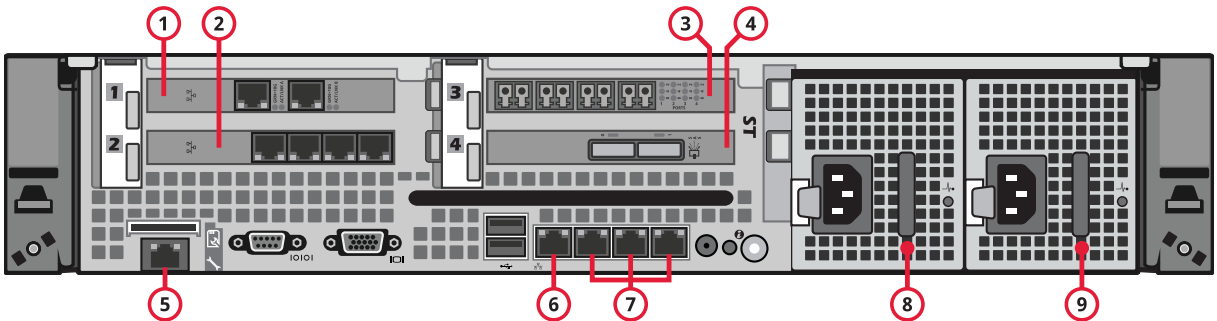
[Figure 4](#) shows the rear indicators, connectors, and buttons of the StorNext M661 node.

Figure 4 M661 MDC Node –
Rear View






[Figure 5](#) shows the rear indicators, connectors and buttons of the StorNext M662 node.

Figure 5 M662 MDC Node –
Rear View



Use [Table 3](#) for information on the labeled components.

Table 3 StorNext M660 Models
– Rear Panel Features and
Indicators

Item	Indicator, Connector and Button	Icon	Description
1	PCIe slot 1		StorNext M661: 4-port 1 GbE Ethernet HBA StorNext M662: 2-port 10 GbE Ethernet HBA
2	PCIe slot 2		StorNext M661/M662: 4-port 1 GbE Ethernet HBA (M661 and M662)
3	PCIe slot 3		4-port 8Gb FC SAS HBA
4	PCIe slot 4		2-port 6Gb SAS HBA
5	iDRAC6 Enterprise port		Reserved for Quantum Service
6	Ethernet Service port		Reserved for Quantum Service
7	Ethernet connectors (3 configurable ports)		Integrated 10/100/1000 NIC ports
8	Power supply 1 (PS1)		870-W power supply
9	Power supply 2 (PS2)		870-W power supply

MDC Node – NIC Indicator Codes

[Figure 6](#) shows, and [Table 4](#) describes the StorNext M660 MDC Node NIC indicator codes.

Figure 6 MDC Node – NIC Indicators

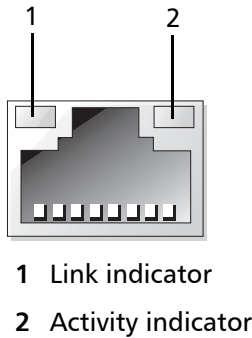


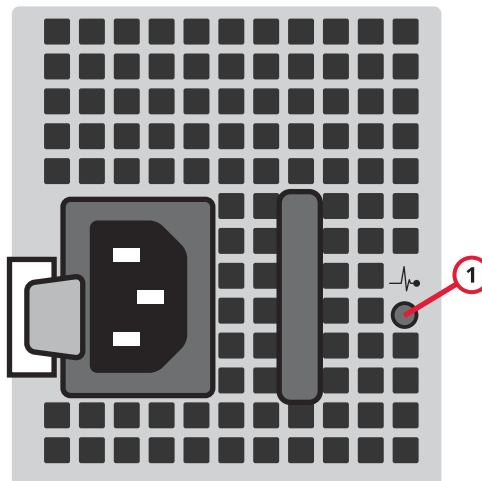
Table 4 MDC Node - NIC Indicator Codes

Indicator Status	Indicator Code
Link and activity indicators are off.	The NIC is not connected to the network.
Link indicator is green.	The NIC is connected to a valid network link at 1000 Mbps.
Link indicator is amber.	The NIC is connected to a valid network link at 10/100 Mbps.
Activity indicator is blinking green.	Network data is being sent or received.

MDC Node – Power Supply Indicator Codes

This section describes the StorNext M660 MDC Node power supply indicator codes (see [Figure 7](#)).

Figure 7 MDC Node - Power Supply Indicator Codes



1 Link indicator

The power supplies have indicators that show if power is present, or if a power fault has occurred.

- Not lit — AC power is not connected.
- Green — In standby mode, a green light indicates that a valid AC source is connected to the power supply, and that the power supply is operational. When the system is on, a green light also indicates that the power supply is providing DC power to the system.
- Amber — Indicates a problem with the power supply.
- Alternating green and amber — When hot-adding a power supply, this indicates that the power supply is mismatched with the other power supply (a high-output power supply and an energy smart power supply are installed in the same system). Replace the power supply that has the flashing indicator with a power supply that matches the capacity of the other installed power supply.

StorNext M660 Metadata Storage

The StorNext M660 features the following metadata storage modules:

- [StorNext M660 Metadata Array](#)
- [Metadata Expansion Unit](#) on page 26

StorNext M660 Metadata Array

The StorNext M660 Metadata Array features a fully populated 24-drive 2U storage enclosure. The first two drives are global hot spares. The next six are configured into three 1+1 RAID-1 mirrors. These mirrored sets are split into two stripe groups (SGs): SG0 combines three 12-GB LUNs into the metadata and journal for the shared file system. SG1 combines three 888-GB LUNs into the shared HA file system, and includes the StorNext Storage Manager database.

The hard drives are supplied in hot-swappable drive carriers that fit in the hard-drive bays.

The StorNext M660 Metadata Array has a series of indicators and buttons located on the front and back of the array:

- [Metadata Array – Front View](#)
- [Metadata Array – Rear View](#) on page 21

Metadata Array – Front View

The front of the StorNext M660 Metadata Array contains the left end cap, which contains the drive tray LEDs; the right end cap; and the drives (see [Figure 8](#) and [Table 5](#) on page 20).

Figure 8 StorNext M660
Metadata Array – Front View



Table 5 Metadata Array – Left
End Cap LEDs

Item	Icon	LED Description	Color	On	Off
1		Drive Tray Locate	White	Identifies a drive tray that you are trying to find.	Normal status
2		Service Action Required	Amber	A component within the drive tray needs attention.	Normal status
3		Drive Enclosure Over-Temperature	Amber	The temperature of the drive tray has reached an unsafe level.	Normal status
4		Power	Green	Power is present.	Power is not present.
5		Standby Power	Green	The drive tray is in Standby Power mode.	The drive tray is not in Standby Power mode.

Metadata Array – Rear View

The StorNext M660 Metadata Array contains dual controller canisters for host connectivity and redundancy (see [Figure 9](#)).

Figure 9 Metadata Array –
Rear View

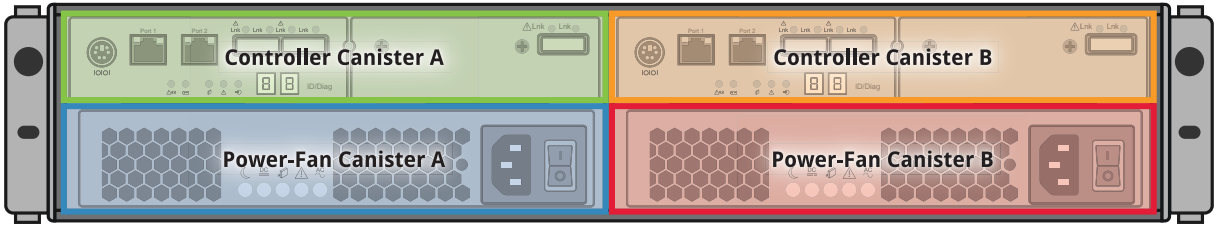


Figure 10 shows, and Table 6 describes the storage controller’s connectors, displays and LEDs. Unlabeled connectors are reserved for Quantum Service.

Figure 10 The Metadata Array
Controller Connectors and
LEDs

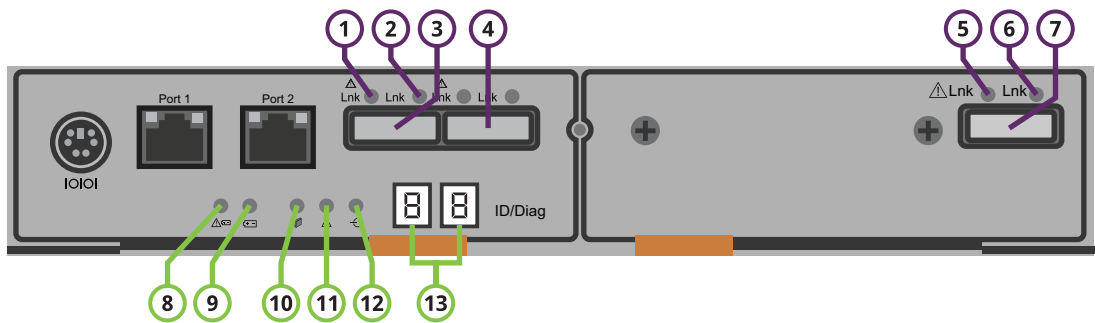


Table 6 Metadata Array – Rear
Panel Features and Indicators






Item	Description
1	Host Fault LED
2	Host Active LED
3	Host Port Connector 1 (SFF-8088)
4	Host Port Connector 2 (SFF-8088)
5	ESM Expansion Fault LED
6	ESM Expansion Active LED
7	Expansion Port Connector (SFF-8088)
8	Battery Service Action Required LED
9	Battery Charging LED
10	Controller Service Action Allowed LED





Item	Description
11	Controller Service Action Required LED
12	Cache Active LED
13	Seven-Segment Displays

Metadata Array — General LED Behavior

For more information about the Metadata Array LED locations and general behavior, see [Table 7](#).

Table 7 Metadata Array – LED Locations and Behavior

LED	Icon	Location	General Behavior
Power		<ul style="list-style-type: none"> • Drive enclosure • Controller canister • Power-fan canister 	<p>On – Power is applied to the drive tray or the canister.</p> <p>Off – Power is not applied to the drive tray or the canister.</p>
Locate		<ul style="list-style-type: none"> • Front bezel on the drive tray 	<p>On or blinking – Indicates the drive tray that you are trying to find.</p>
Over-Temperature		<ul style="list-style-type: none"> • Front bezel on the drive tray 	<p>On – The temperature of the drive tray has reached an unsafe condition.</p> <p>Off – The temperature of the drive tray is within operational range.</p>
Standby Power		<ul style="list-style-type: none"> • Front bezel on the drive tray 	<p>On – The drive tray is in Standby mode, and the main DC power is off.</p> <p>Off – The drive tray is not in Standby mode, and the main DC power is on.</p>
Service Action Allowed		<ul style="list-style-type: none"> • Controller canister • Power-fan canister • Drive 	<p>On – It is safe to remove the Controller canister, the power-fan canister, or the drive.</p> <p>Off – Do not remove the Controller canister, the power-fan canister, or the drive.</p> <p>Note: The drive has an LED, but no symbol.</p>

LED	Icon	Location	General Behavior
Service Action Required (Fault)		<ul style="list-style-type: none"> Controller canister Power-fan canister Drive 	<p>On – When the drive tray LED is on, a component within the drive tray needs attention.</p> <p>On – The Controller canister, the power-fan canister, or the drive needs attention.</p> <p>Off – The Controller canister, the power-fan canister, and the drive are operating normally.</p> <p>Note: The drive has an LED, but no symbol.</p>
AC Power		<ul style="list-style-type: none"> Controller canister Power-fan canister 	<p>On – AC power is present.</p> <p>Off – AC power is not present.</p>
DC Power		<ul style="list-style-type: none"> Power-fan canister 	<p>On – Regulated DC power from the power-fan canister is present.</p> <p>Off – Regulated DC power from the power-fan canister is not present.</p>
Link Service Action Required (Fault)		<ul style="list-style-type: none"> Controller canister 	<p>On – The cable is attached, and at least one lane has a link-up status, but one lane has a link-down status.</p> <p>Off – The cable is not attached, and all lanes have a link-up status, or the cable is attached, and all lanes have a link-down status.</p>
Link Up	Two LEDs above each expansion connector	<ul style="list-style-type: none"> Controller canister 	<p>On – The cable is attached, and at least one lane has a link-up status.</p> <p>Off – The cable is not attached, or the cable is attached and all lanes have a linkdown status.</p>

Metadata Expansion Unit

The StorNext M660 Metadata Expansion Unit features a fully populated 24-drive 2U storage enclosure. The first two drives are global hot spares. The next six are configured into three 1+1 RAID-1 mirrors.

These mirrored sets are split into two stripe groups (SGs): SG0 combines three 12-GB LUNs into the metadata and journal for the shared file system. SG1 combines three 888-GB LUNs into the shared HA file system.

The hard drives are supplied in hot-swappable drive carriers that fit in the hard-drive bays.

The StorNext M660 Metadata Expansion Unit has a series of indicators and buttons located on the front and back of the array:

- [Metadata Expansion Unit – Front View](#)
- [Metadata Expansion Unit – Rear View](#) on page 27

Metadata Expansion Unit – Front View

The front of the StorNext M660 Metadata Expansion Unit contains the left end cap, which contains the drive tray LEDs; the right end cap; and the drives (see [Figure 11](#), and [Table 5](#) on page 20).

Figure 11 StorNext M660
Metadata Array Unit – Front
View



Metadata Expansion Unit – Enclosure Tray LEDs

The enclosure LEDs on the front of the unit are identical to those on the front of the Metadata Array. To monitor the current status pertaining to the enclosure and the components within the enclosure, refer back to [Figure 9](#) on page 21 and [Table 5](#) on page 20.

Metadata Expansion Unit – Rear View

The StorNext M660 Metadata Expansion Unit contains dual environmental service monitor (ESM) canisters for connectivity to the Metadata Array. Each ESM features LED indicators and connectors.

[Figure 12](#) shows the location of the ESMs.

Figure 12 Metadata Expansion Unit – Rear View

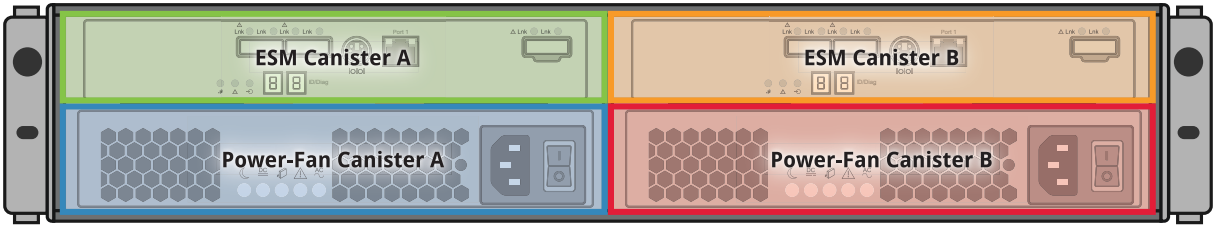


Figure 13 shows the location of LEDs and SAS connectors.

Figure 13 Metadata Expansion Unit ESM Canister

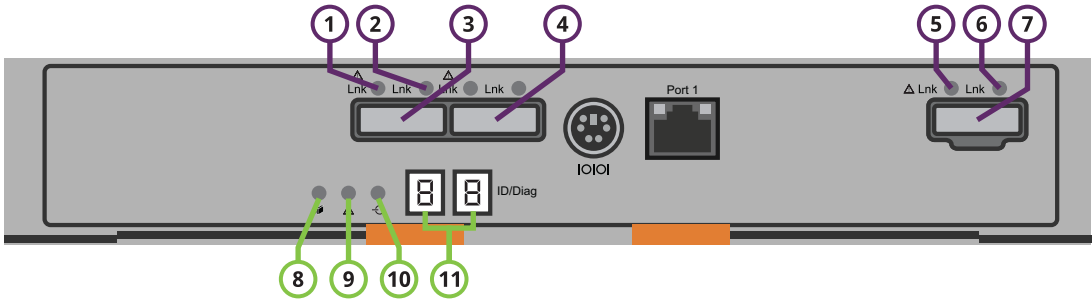


Table 6 describes the ESM connectors, displays, and LEDs. Unlabeled connectors are reserved for Quantum Service.

Table 8 Metadata Expansion Unit – Rear Panel Features and Indicators

Item	Description
1	Host Link 1 Fault LED
2	Host Link 2 Fault LED
3	SAS IN Connector
4	SAS IN Connector
5	ESM Expansion Fault LED
6	ESM Expansion Active LED
7	SAS Expansion Connector
8	Controller A Service Action Allowed LED
9	Controller A Service Action Required LED
10	Cache Active LED
11	Seven-Segment Displays

Metadata Expansion Unit — General LED Behavior

The drive enclosure is the same as the Metadata Array. For more information about the Metadata Expansion Unit LED locations and general behavior, refer back to [Table 7](#) on page 24.

StorNext M660 Connectivity

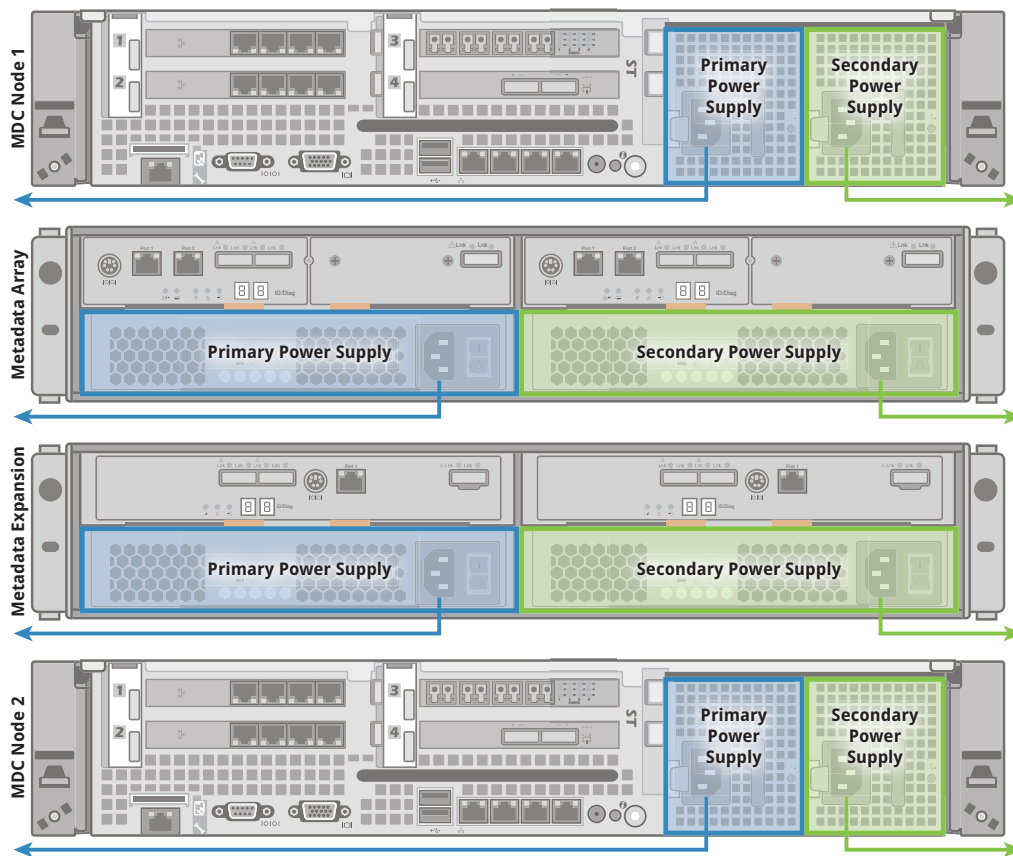
This section covers:

- [StorNext M660 Power](#)
- [StorNext M660 SAN](#) on page 30
- [StorNext M660 LAN](#) on page 32

StorNext M660 Power

Connect the power cables for each component into an available power outlet (see [Figure 14](#) on page 30). Quantum recommends attaching the primary and secondary power connections to alternate power sources for resiliency. Quantum also recommends that one of these power sources be an uninterruptible power source, such as battery backup or generator, or be connected to redundant AC power supplies.

Figure 14 StorNext M660
Power Connections



StorNext M660 SAN

Each StorNext M660 MDC node contains one 4-port 8Gb FC host bus adapter (HBA) card in PCIe expansion slot 3.

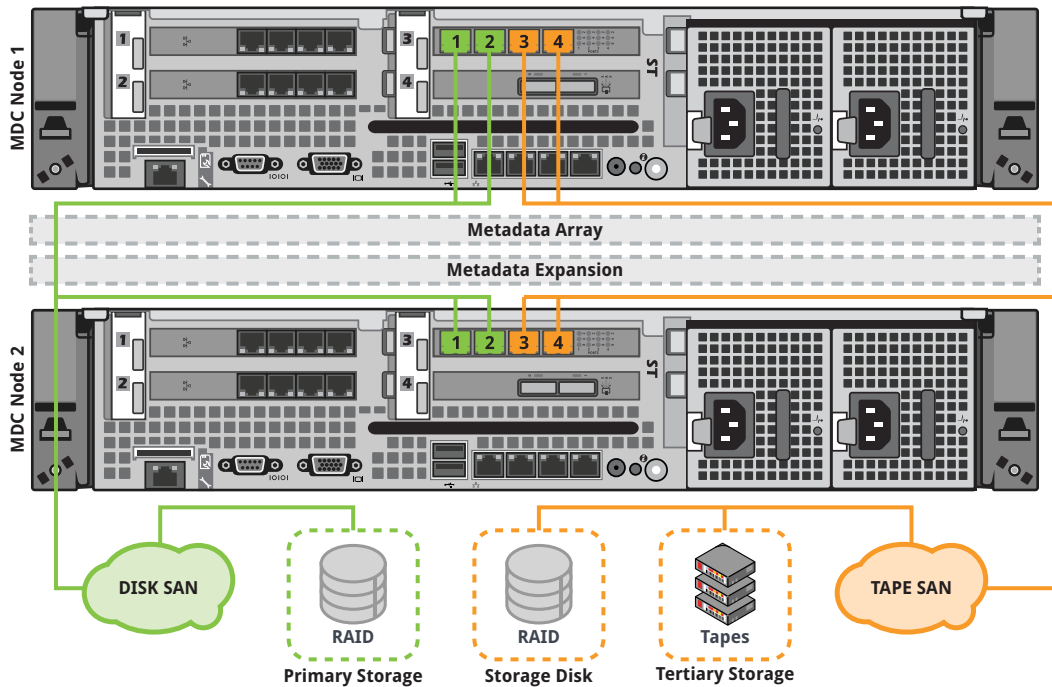
Fibre Channel Zoning

The StorNext M660 includes a single, quad-port Fibre Channel HBA and supports dual-port tape drives and libraries. StorNext clients should not be zoned to access the tape drives-libraries unless they are acting as a Distributed Data Mover.

Separate Fibre Channel zoning is required for tape and disk. If the system has a tape library, use FC ports 1 and 2 for disk, and FC ports 3 and 4 for tape. The actual zoning configuration for these devices is dependent on variables such as the Fibre Channel switch vendor, the WWPN of the HBA ports, and the external hardware.

Connect the FC host ports to your SAN as shown in [Figure 15](#) on page 31.

Figure 15 StorNext M660 SAN Cabling

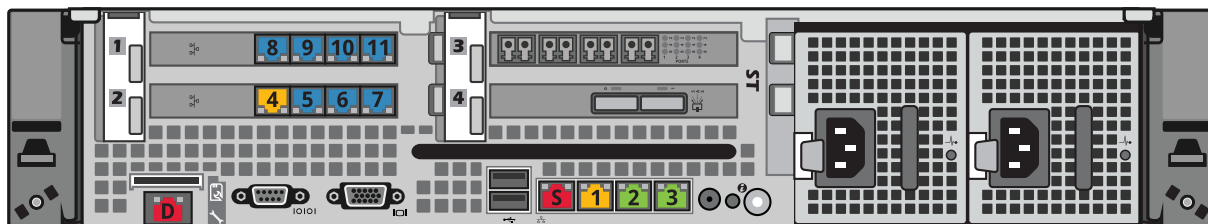


StorNext M660 LAN

The number of customer-facing network ports depends on the model type. By default, each M660 model ships with two bonded network interfaces: Bond 0 and Bond 1. All ports are customer-configurable. Instructions for changing the default configuration are located in the “Step 3: System (StorNext M660 and StorNext M330 Only)” section of the *StorNext 4.2.2.0.1 User’s Guide*.

[Figure 16](#) shows the 11 1GbE customer-facing Ethernet ports on the StorNext M661.

Figure 16 StorNext M661
Network Ports



The default StorNext M661 network interface configuration is as follows:

- Two interfaces, Eth2 and Eth3, are bonded together by default into bond0 for the Metadata network. This bond can be broken in the GUI and the service menu. When not bonded, Eth2 will be configured as a standalone port, and Eth3 will be de-configured and not used by the system.
- Two interfaces, Eth1 and Eth4, are bonded together into bond1 for GUI/management. This bond can be broken in the GUI and the Service Menu. When not bonded, Eth1 will be configured as a standalone port and Eth4 will be de-configured and not used by the system.
- The remaining seven ports can be configured through the GUI in various combinations and bonds for gateway port access.

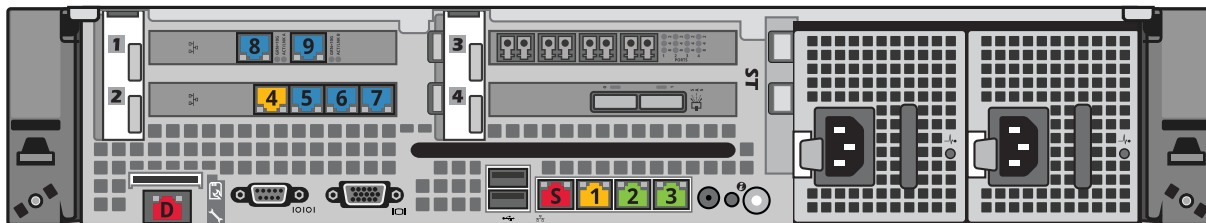
[Table 9](#) identifies the logical port configuration, port function and default bonding for the StorNext M661.

Table 9 StorNext M661
Network Configuration

Ethernet Port Number	Logical Ethernet Port Number	Physical Port Location	Port Function	Bond
D	N/A	iDRAC Port	Service	N/A
5	eth0	Integrated Port 1		
1	eth1	Integrated Port 2	GUI and Management (Configurable from Service Menu)	Bond 1 When not bonded, eth1 is usable and eth4 is not usable
2	eth2	Integrated Port 3	Metadata (Configurable from Service Menu)	When not bonded, eth2 is usable and eth3 is not usable
3	eth3	Integrated Port 4		Bond 0 When not bonded, eth3 is not used
4	eth4	Slot 2, Port 1	GUI and Management (Configurable from Service Menu)	Bond 1 When not bonded, eth4 is not used
5	eth5	Slot 2, Port 2	Gateway	User Configurable from GUI
6	eth6	Slot 2, Port 3		
7	eth7	Slot 2, Port 4		
8	eth8	Slot 1, Port 1		
9	eth9	Slot 1, Port 2		
10	eth10	Slot 1, Port 3		
11	eth11	Slot 1, Port 4		

[Figure 17](#) shows the two 10GbE and seven 1GbE customer-facing Ethernet ports on the StorNext M662.

Figure 17 StorNext M662
Network Ports



The default StorNext M662 network interface configuration is as follows:

- Two interfaces, Eth2 and Eth3, bonded together into bond0 for the Metadata network. This bond can be broken in the GUI and the service menu. When not bonded, Eth2 will be configured as a standalone port and Eth3 will be de-configured and not used by the system.
- Two interfaces, Eth1 and Eth4, are bonded together into bond1 for GUI/management. This bond can be broken in the GUI and the service menu. When not bonded, Eth1 will be configured as a standalone port and Eth4 will be de-configured and not used by the system.
- The remaining five ports can be configured through the GUI in various combinations and bonds for gateway port access.

[Table 10](#) identifies the logical port configuration, port function and default bonding for the StorNext M662.

Table 10 StorNext M662
Network Configuration

Ethernet Port Number	Logical Ethernet Port Number	Physical Port Location	Port Function	Bond
D	N/A	iDRAC Port	Service	N/A
S	eth0	Integrated Port 1		
1	eth1	Integrated Port 2	GUI and Management (Configurable from Service Menu)	Bond 1 When not bonded, eth1 is usable and eth4 is not usable
2	eth2	Integrated Port 3	Metadata (Configurable from Service Menu)	When not bonded, eth2 is usable and eth3 is not usable
3	eth3	Integrated Port 4		Bond 0 When not bonded, eth3 is not used
4	eth4	Slot 2, Port 1	GUI and Management (Configurable from Service Menu)	Bond 1 When not bonded, eth4 is not used
5	eth5	Slot 2, Port 2	Gateway	User Configurable from GUI
6	eth6	Slot 2, Port 3		
7	eth7	Slot 2, Port 4		
8	eth8	Slot 1, Port 1 (10 GbE)		
9	eth9	Slot 1, Port 2 (10 GbE)		

Relocating the StorNext M660 System

If you ever need to relocate the StorNext M660 system to a different location, please contact Quantum Customer Support for additional information. The StorNext M660 system must be relocated by a qualified Quantum field service engineer.



Chapter 3

StorNext M660 Basic Operations

This chapter describes the following StorNext M660 basic system operations:

- [StorNext M660 Operations](#) on page 38
- [Basic StorNext Operations](#) on page 41

StorNext M660 Operations

The StorNext M660 system consists of the following components:

- [Powering On the StorNext M660 System](#) on page 38
- [Shutting Down the StorNext M660 System](#) on page 39
- [Locating the System Serial Number](#) on page 40

Powering On the StorNext M660 System

[Figure 18](#) on page 39 illustrates the location of the power switches, and the specific order to follow when powering on in the StorNext M660 components. Verify that all power switches on every component are **OFF**.

- 1 Turn on both power switches on the back of the Metadata Expansion Unit, if available. Callout number 1 in [Figure 18](#) on page 39 shows the location of the power switches.

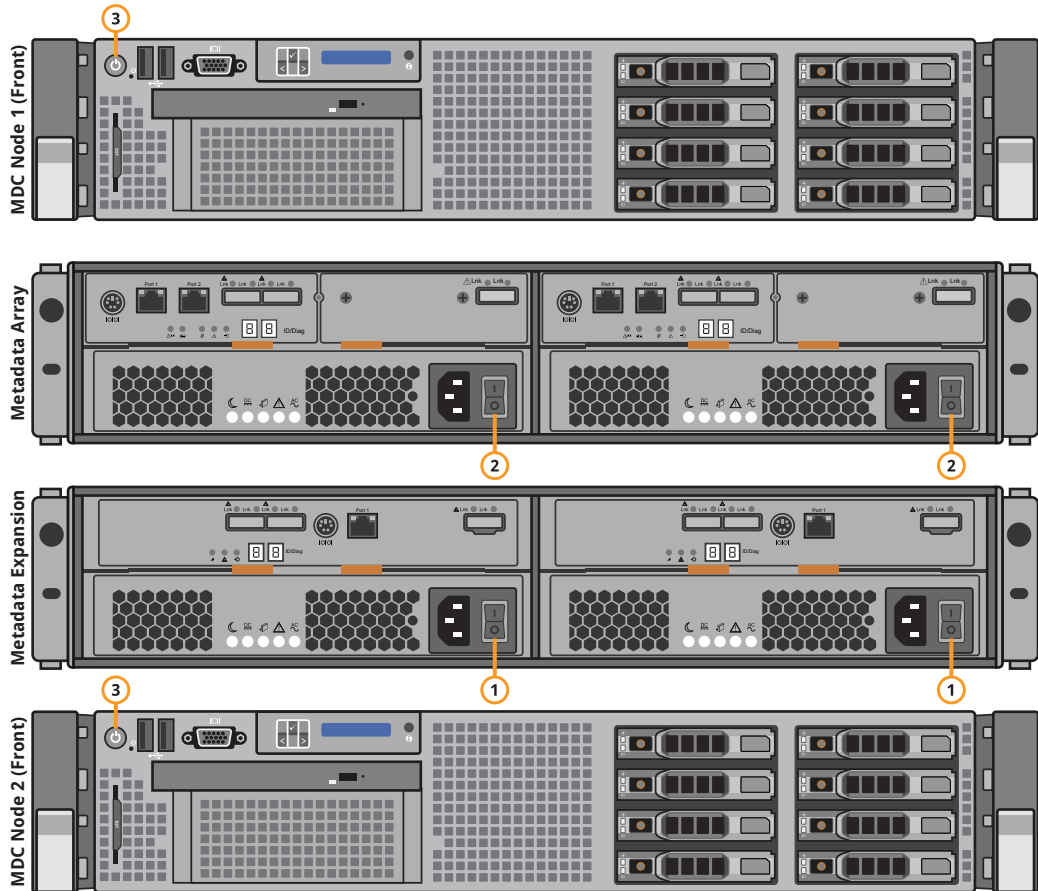
Note: The Metadata Expansion Unit drive LEDs should all be green before you power up the Metadata Array. The seven-segment display, which displays on both controllers, should show 0 before powering up the Metadata Array.

- 2 Turn on both power switches on the back of the Metadata Array. Callout number 2 in [Figure 18](#) on page 39 shows the location of the power switches.

Note: The Metadata Array module drive LEDs should all be green before you power up the MDC Nodes. The seven-segment indicator, which displays on both controllers, should show 85 before powering up the MDC Nodes.

- 3 Turn on the power switch on each of the MDC Node. Callout number 3 in [Figure 18](#) on page 39 shows the location of the power switch.

Figure 18 StorNext M660
Power-On Sequence



Shutting Down the StorNext M660 System

Follow these steps to cleanly shut down and power off the StorNext M660 system:

Note: In the case where both MDC nodes are being used as,

- 1 Halt all I/O access to SAN and/or LAN clients.

- 2 For each SAN and/or LAN client, unmount and/or unshare the file systems. Refer to that client's operating system administrator's guide for instructions.
- 3 Open an **ssh** connection to the secondary MDC Node, and log in as the **stornext** user.
- 4 Enter the password for the **stornext** user account. (Until changed, the default password is **password**).
- 5 Run the **sudo rootsh** command.
- 6 Enter the password for the **stornext** user account a second time.
- 7 Run the **/sbin/poweroff** command. **Both the operating system and the StorNext software are gracefully shut down, and then the system powers off.**
- 8 Open an **ssh** connection to the primary MDC Node, and log in as the **stornext** user.
- 9 Enter the password for the **stornext** user account. (Until changed, the default password is **password**).
- 10 Run the **sudo rootsh** command.
- 11 Enter the password for the **stornext** user account a second time.
- 12 Run the **/sbin/poweroff** command. **Both the operating system and the StorNext software are gracefully shut down, and then the system powers off.**
- 13 Turn off the Metadata Array module power switches.
- 14 Turn off the Metadata Expansion Unit power switches.

Locating the System Serial Number

When contacting customer support, you will be asked for the StorNext M660 system serial number

To locate the system serial number from the StorNext M660 GUI refer to the information about the **Help Menu** in the "StorNext GUI Overview" section of the *StorNext 4.2.2.0.1 User's Guide*.

The system serial number is also located in a clear sleeve in the back of each MDC Node, and on the back of the Metadata Array and Metadata Expansion Unit.

The system serial number begins with the characters **CX** and contains the characters **CKB** in the number, for example, **CX1234CKB45678**.

Basic StorNext Operations

You can perform some basic operations from the StorNext M660 StorNext GUI:

- For information on how to monitor the hardware components for both MDC nodes, refer to the “The Hardware Status Report” section of the *StorNext 4.2.2.0.1 User’s Guide* (6-67370-05 Rev A).
- For instructions on how to capture system state logs and support bundles, refer to the “The Capture State Function” section of the *StorNext 4.2.2.0.1 User’s Guide*.
- For instructions on how to capture DSET logs, refer to the “Capture DSET” section of the *StorNext 4.2.2.0.1 User’s Guide*.
- For instructions on how to perform a firmware upgrade on your HA system and upgrade StorNext, refer to the “Update Firmware” section of the *StorNext 4.2.2.0.1 User’s Guide*.
- For information on changing the network configuration, refer to the “Step 3: System (StorNext M660 and StorNext M330 Only)” section of the *StorNext 4.2.2.0.1 User’s Guide*.
- For information on Gateway Reporting, refer to the “Reports” section of the *StorNext 4.2.2.0.1 User’s Guide*.
- For information on setting up a distributed data mover (DDM), refer to “Distributed Data Mover (DDM)” section of the *StorNext 4.2.2.0.1 User’s Guide*.
- For information on StorNext Advanced Reporting, refer to the *StorNext Advanced Reporting User’s Guide*.

The *StorNext 4.2.2.0.1 User’s Guide* also contains chapters such as these, which you will find useful:

- StorNext File System Tasks
- StorNext Storage Manager Tasks
- StorNext Reports
- Service Menu Functions

