

Artico NAS Storage Appliance Site Planning Guide

The Quantum Artico NAS Storage Appliance provides a flexible, low-cost entry point for archive, with the ability to scale to store petabytes of data as demand grows. Powered by StorNext® 5 data management policies, StorNext Artico stores and retains data in a tiered storage system that intelligently places the data on the right technology at the right time, both on-premise or in the cloud. Combined with StorNext-enabled policies and the data migration tools of Rocket Arkivio Autostor software, Quantum enables users to move files seamlessly from primary storage to less expensive storage while maintaining full access to all files, providing the lowest TCO model for storing, accessing and protecting data. With full-featured and rock-solid StorNext 5 collaboration software and providing 48 TB or 96 TB of raw storage capacity, this integrated solution is not only powerful and cost-effective but easy to deploy and maintain as well.

The Artico system offers the powerful file-sharing capabilities of StorNext in an optimized appliance package. The appliance includes a pair of server nodes in a High Availability (HA) configuration and a high-performance controller array. An optional expansion array can be added to the appliance for additional file systems, performance and capacity.

During installation, the Artico system is configured for NFS and SMB NAS share access.

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Site Requirements

Quantum installation must be purchased with the Artico system.

Installation sites will need the following:

- A Ethernet Network compatible with up to 10GbE throughput for NAS access
- A compatible 1 GbE and/or 10 GbE switch
- A Storage Area Network (SAN) compatible with the QLogic 8Gb Fibre Channel HBA
- A compatible SAN switch
- A standard 19-inch rack with adequate U height for the Artico system components
- Power outlet compatibility with North American type NEMA 5-15P plugs or European CEE 7/7 plugs, or NEMA C13/14 if plugging into a rack power distribution unit (PDU)
- 100-240 VAC, 50-60HZ
 - A base system can draw up to:
 - 6.9 AMPS at 100 VAC
 - 2.9 AMPS at 240 VAC
 - A base system with a Expansion can draw up to:
 - 9.4 AMPS at 100 VAC
 - 4.0 AMPS at 240 VAC

Shipping Information

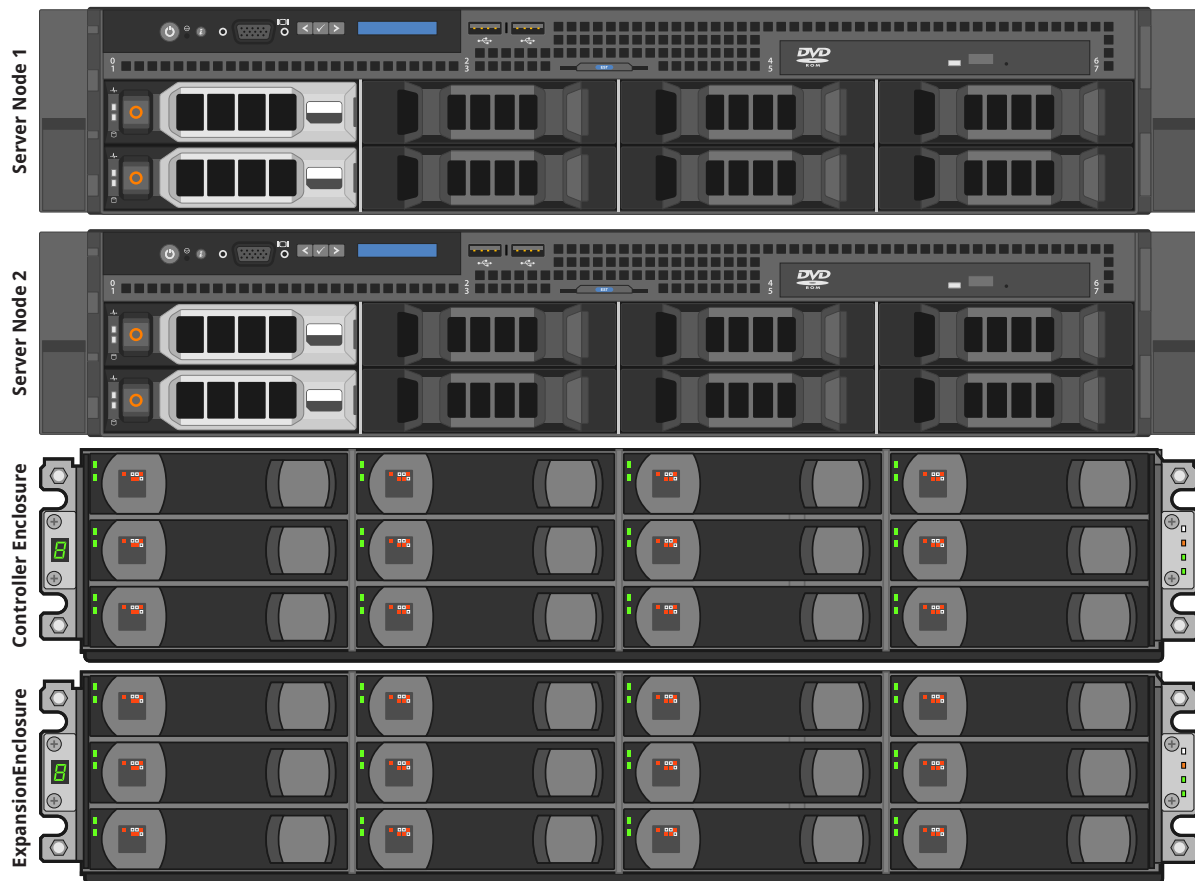
The Artico system ships on a single pallet. For additional information, see [Appliance Physical Characteristics](#) on page 9.

System Components

System Front View

[Figure 1](#) shows the front view of the Artico system, which consists of two Artico server nodes, one 48 TB Controller Array, and an optional 48 TB Expansion Array.

Figure 1 Artico Base System with Expansion



Server Node- Front View

[Figure 2](#) shows the front view of the server Nodes.

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Figure 2 Artico Server Node - Front View

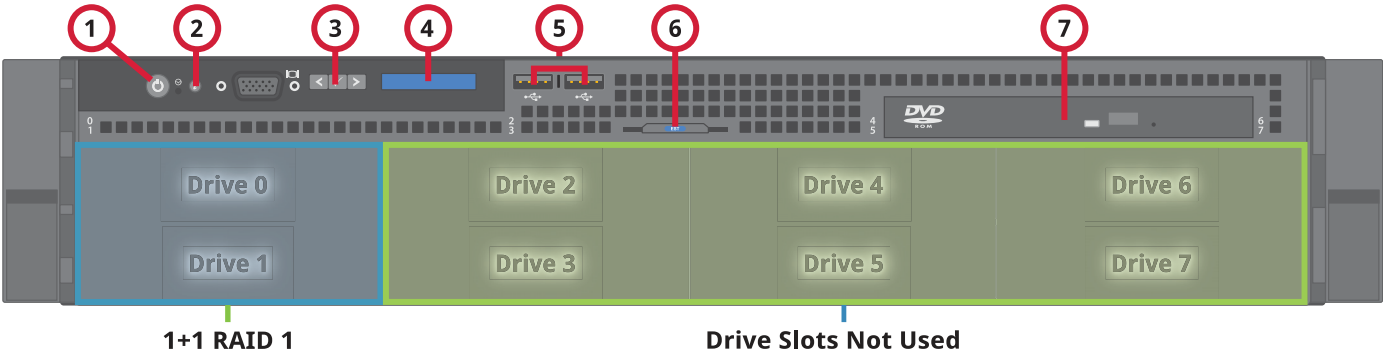


Table 1 shows the Artico Server Node indicators and buttons.

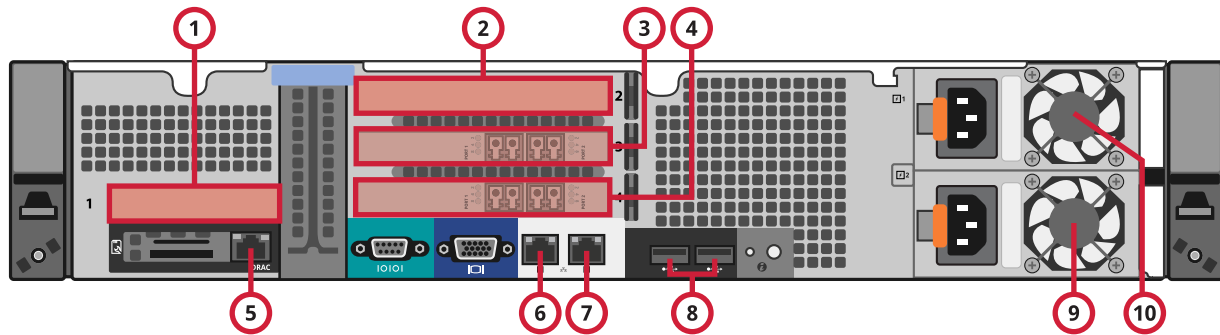
Table 1 Artico Server Node - Indicators and Buttons

Item	Indicators and Buttons
1	Power Switch
2	Video Port (Service Only)
3	LCD Buttons
4	LCD Panel
5	USB Ports (Service only)
6	Service Tag
7	DVD Drive

Server Node - Rear View

[Figure 3](#) provides a rear view of the Artico server Node.

Figure 3 Artico Server Node
(Rear View)



[Table 2](#) provides a description of the items located on the rear of the Artico Server Node.

Table 2 Artico Server Node
Item Descriptions (Rear View)

Item	Description
1	Slot 1 - Customer-facing 2-Port 1GbE NIC, 4-Port 1GbE NIC, OR 2-port 10 GbE NIC (NAS Sharing)
2	Slot 2 - Customer-facing 2-Port 10GbE NIC, OR 4-Port 1GbE NIC (Object/Cloud Archive)
3	Slot 3 - Customer-facing Dual-Port QLogic 8 Gb Fibre Channel HBA (Disk/Tape SAN)
4	Slot 4 - Dual-Port QLogic 8 Gb Fibre Channel HBA (QXS Controller Enclosure/SAN)
5	iDRAC Port (For Service Only); each node has a unique IP address: Node 1 IP address: 10.17.21.51 Node 2 IP address: 10.17.21.52
6	Integrated Service Only Port (For Service Only); each node has a unique IP address: Node 1 IP address: 10.17.21.1 Node 2 IP address: 10.17.21.2

Item	Description
7	Integrated 1GbE (Customer-Facing) Port
8	USB Ports
9	Secondary Power Supply
10	Primary Power Supply

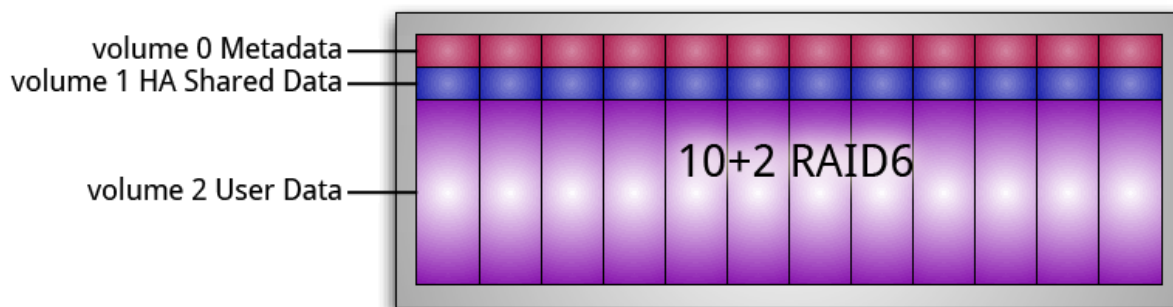
Controller and Expansion Array RAID Layout

Note: While the drives in this section are shown in a vertical orientation, in order to explain how the drive data is organized, the actual drives in the enclosures are oriented horizontally.

Artico Controller Enclosure RAID Layouts

Artico Controller Enclosure includes user data, metadata and the High Availability shared File System (HAFS) on separate LUNs "carved" from a single 10+2 RAID group. [Figure 4](#) shows the logical layout of the 12 drives.

Figure 4 Artico Controller Enclosure - Logical RAID Layout



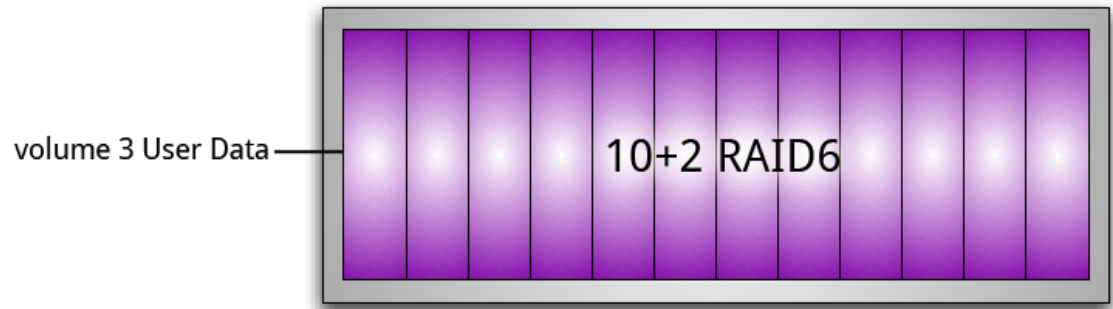
LUN/Volume Layout - Artico Controller Enclosure

- Volume 0 – Metadata - 5% of capacity
- Volume 1 – HA shared – 10% of capacity
- Volume 2 – User data – 85% of capacity

Artico Expansion Enclosure

The Artico Expansion Enclosure is dedicated for StorNext data only into a single LUN on the single 10+2 RAID group. [Figure 5](#) shows the logical layout of the 12 drives.

Figure 5 Artico Expansion
Enclosure - Logical RAID Layout



LUN/Volume Layout - Artico Expansion Enclosure

- Volume 3 – User data – 100% of capacity

Artico Drive Capacities and Allocation

Table 3 Artico Enclosure Drive
Capacity and Allocation

Description	Storage Specifications (Controller only)	Storage Specifications (Controller and Expansion)
Number of File Systems	1	1
Drive size - GBytes	40000	80000
Data Drives per Raid Volume	10	10
Maximum Managed Files	1 Billion	1 Billion
Metadata Capacity GBytes	2048	2048
HA Shared Capacity - GBytes	4096	4096
Total Capacity - GBytes	40000	80000
Base Metadata Bytes/File	2048	2048
Metadata %	5.1%	2.6%
HA Shared %	10.2%	5.1%
StorNext user data %	84.6%	92.3%
Data Capacity - TBytes	33.0	73.0

For additional details about the Artico Enclosures, refer to the QXS-1200 (Controller Enclosure) and QX-1200 or QXS-1200 (Expansion Enclosure) documentation available on the Documentation tab of the Q-Series Service and Support web page here:

<http://www.quantum.com/qseriesdocs>

Specifications

Appliance Specifications

EMI Certification

This product is certified under the regulatory model name E19S.

Appliance

Hardware	<ul style="list-style-type: none">• 6U system - without Expansion• 8U system - with Expansion• Dual Servers with High Availability fail-over enabled• One dedicated Controller Array• One Expansion Array (optional)
Software included in base price	<ul style="list-style-type: none">• 4 File System SAN client licenses - 2 in use on the Artico - 1 for each MDC node• One High Availability license• One StorNext Storage Manager license• 80 Slots of LTO 6 licenses• One Object Storage License
Server Hardware Reliability	<ul style="list-style-type: none">• Dual servers with automatic failover• Redundant power supplies• Redundant cooling fans• Automated FC I/O path failover• 12GB mirrored RAID-6 SuperCap-backed cache
Server Hardware	<ul style="list-style-type: none">• One 2.4 GHz 6-core CPU• 48 GBs of memory (48GB/CPU)

Appliance Software Environment

StorNext Supported Release	StorNext 5 Release 5.2.0.2 or later
Client OS support	Linux, Windows, and Mac OS

Appliance Physical Characteristics

Width (side to side)	17.7 in (45cm)
Depth (front to back)	26.8 in (68.1cm)
Height	10.5 in (26.7cm) without Expansion 14 in. (35.56 cm) with Expansion
Single MDC Node Weight	56 lb (25.4 kg)
Controller Array Weight	73 lb (33.1 kg)
Base System = 2 Servers + 1 Controller Array	185 lbs (83.9 kg)
Expansion Array Weight	73 lbs (33.1 kg)

Appliance Cables and Cabling Hardware

Ethernet	25-ft (7.6m) Ethernet cables with RJ45 connectors
Fibre Channel (FC)	Optical Fibre Channel cables with connectors
FC Hardware	Small form-factor pluggable (SFP) transceivers
SAS (Expansion-only)	Four SAS to mini-SAS cables for Metadata/Data Array to Expansion Array cabling.

Electrical per MDC Node

North American power	<ul style="list-style-type: none"> Two 10-ft (3m) NEMA 5-15P locking power cords Two 4-ft (1.2m) NEMA c13 to C14 power cords (rack power)
European power	<ul style="list-style-type: none"> Two 7-ft (2m) CEE 7/7 locking power cords Two 4-ft (1.2m) NEMA c13 to C14 power cords (rack power)
Input voltage	100 to 240VAC
Frequency	50 to 60Hz

Electrical per MDC Node

Rated current	10.0 – 5.0 amps
Maximum power consumption	275 watts

Customer-facing Ports, Per MDC Node

Onboard Ethernet NIC I/O	1 x 1 GbE port
Expansion Ethernet NIC I/O (options)	2 x 1GbE expansion ports, 4 x 1GbE expansion ports, 2 x 10 GbE ports for NAS (NFS/SMB) connections
Fibre Channel I/O	2x FC ports for access to Disk or Tape Storage SAN

Electrical per Metadata Array

North American power	<ul style="list-style-type: none"> Two 10-ft (3m) NEMA 5-15P locking power cords Two 4-ft (1.2m) NEMA c13 to C14 power cords (rack power)
European power	<ul style="list-style-type: none"> Two 7-ft (2.1m) CEE 7/7 locking power cords Two 4-ft (1.2m) NEMA c13 to C14 power cords (rack power)
Input voltage	100 to 240VAC
Frequency	50 to 60Hz
Rated current	4.5 – 1.9 AMPS
Maximum power consumption	383 watts

Metadata and Expansion Arrays

Array chassis (each)	1 x 2U chassis with 12 x 3.5" slots
Controller Array drives	1x 12, 4 TB 3.5" SAS Drives
Expansion Array drives	1 x 12, 4 TB 3.5" SAS Drives
RAID configuration	RAID 6
Fibre Channel and SAS I/O - Metadata/data array	Two controllers each containing 4 x 8 Gb FC connections, and one 6 Gb SAS connection.
SAS I/O - Expansion array	One 6 Gb SAS-IN connection One 6 Gb SAS-OUT connection

Climatic Environment

Temperature	<ul style="list-style-type: none"> Operating: 50° to 95°F (10° to 35°C) with a maximum temperature gradation of 10°C per hour <hr/> <p>Note: 35°C (95°F) is the maximum temperature for the StorNext M440 at sea level. For altitudes above 2,950 ft (899.2m), decrease the operating temp 0.9°C for every 1,000 ft (304.8m) of altitude.</p> <hr/> <ul style="list-style-type: none"> Shipping and Storage: -4° to 140°F (-20° to 60°C)
Relative Humidity	<ul style="list-style-type: none"> Operating: 20% to 80%, non-condensing Shipping and Storage: 5% to 95%, non-condensing
Altitude	<ul style="list-style-type: none"> Operating: 0 to 10,000 ft (0 to 3048m) Shipping and Storage: 0 to 35,000 ft (0 to 10688m)
Heat	Operating: 2389 BTUs

Shock and Vibration

Maximum Vibration	<ul style="list-style-type: none"> Operational: 0.26 G's random vibration, 5 to 350Hz Non-operational: 0.5 G's random vibration, 5 to 350Hz
Maximum Shock	<ul style="list-style-type: none"> Operational: 2 G's for 11ms, 1/2 sine Non-operational: 3.5 G's for 11ms, 1/2 sine

Installation Specifications

Internal Rack Dimension Requirements

Width	19 in (48.3 cm)
Depth	28.4 (72.05 cm)
Height	6U - without Expansion 8U - with Expansion

Supported Mounting Hardware and Rack Rail Hole Types

Mounting Hardware	#10-32 Screws
	M5 Screws
Hole Types	Square Holes
	Circular Through Holes (unthreaded and threaded "broadcast"-types)

Required Clearances for Proper Airflow

For Racks Without Doors	6.5 in (16.5 cm)
For Racks With Doors - Front and Back	23 in (58.4 cm)

Selecting an Installation Location

When choosing an installation site for the Artico system, consider the following requirements:

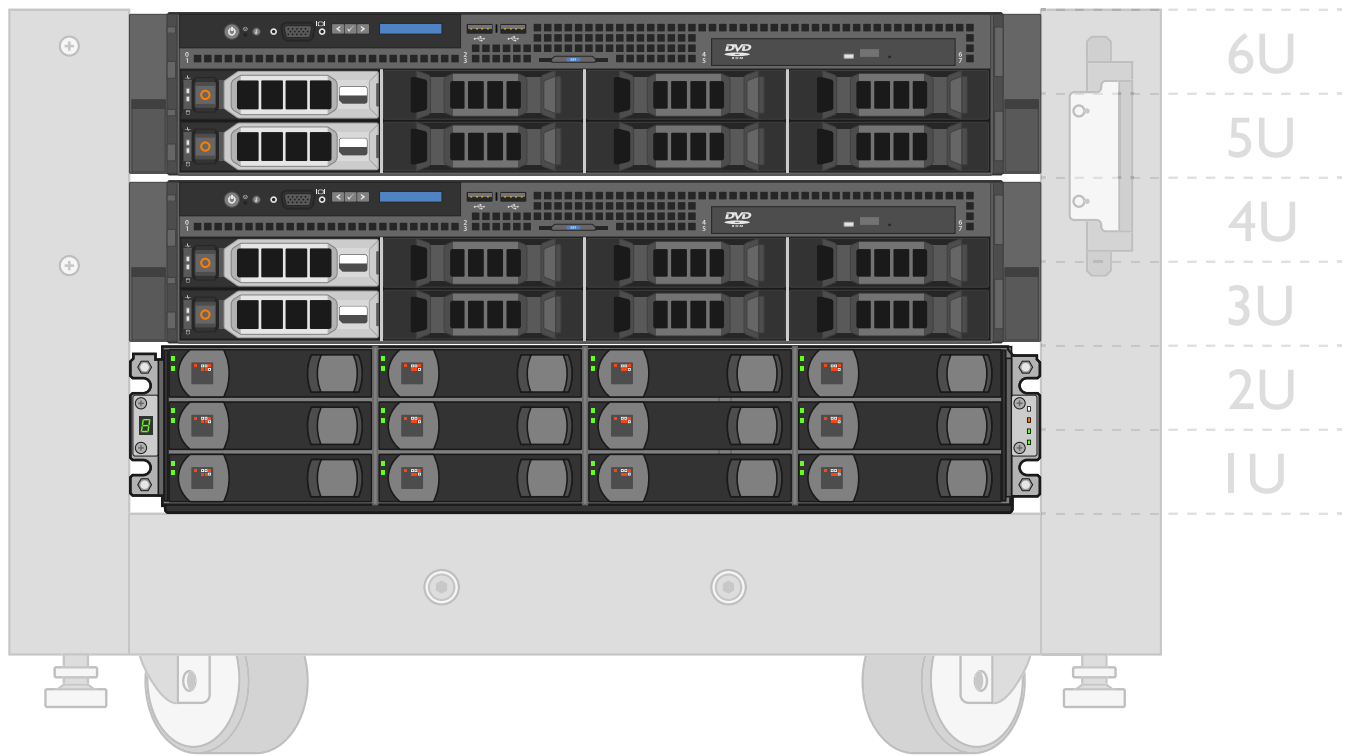
- [Rack Space Requirements](#)
- [Climatic Environment](#) on page 11

Rack Space Requirements

This section provides information about the rack space requirements, and specific details about the Artico components and configuration options.

The Artico without Expansion occupies 6U of rack space and should be racked with the Controller Array located beneath MDC Node 2, and MDC Node 1 located at the top, as shown in [Figure 6](#).

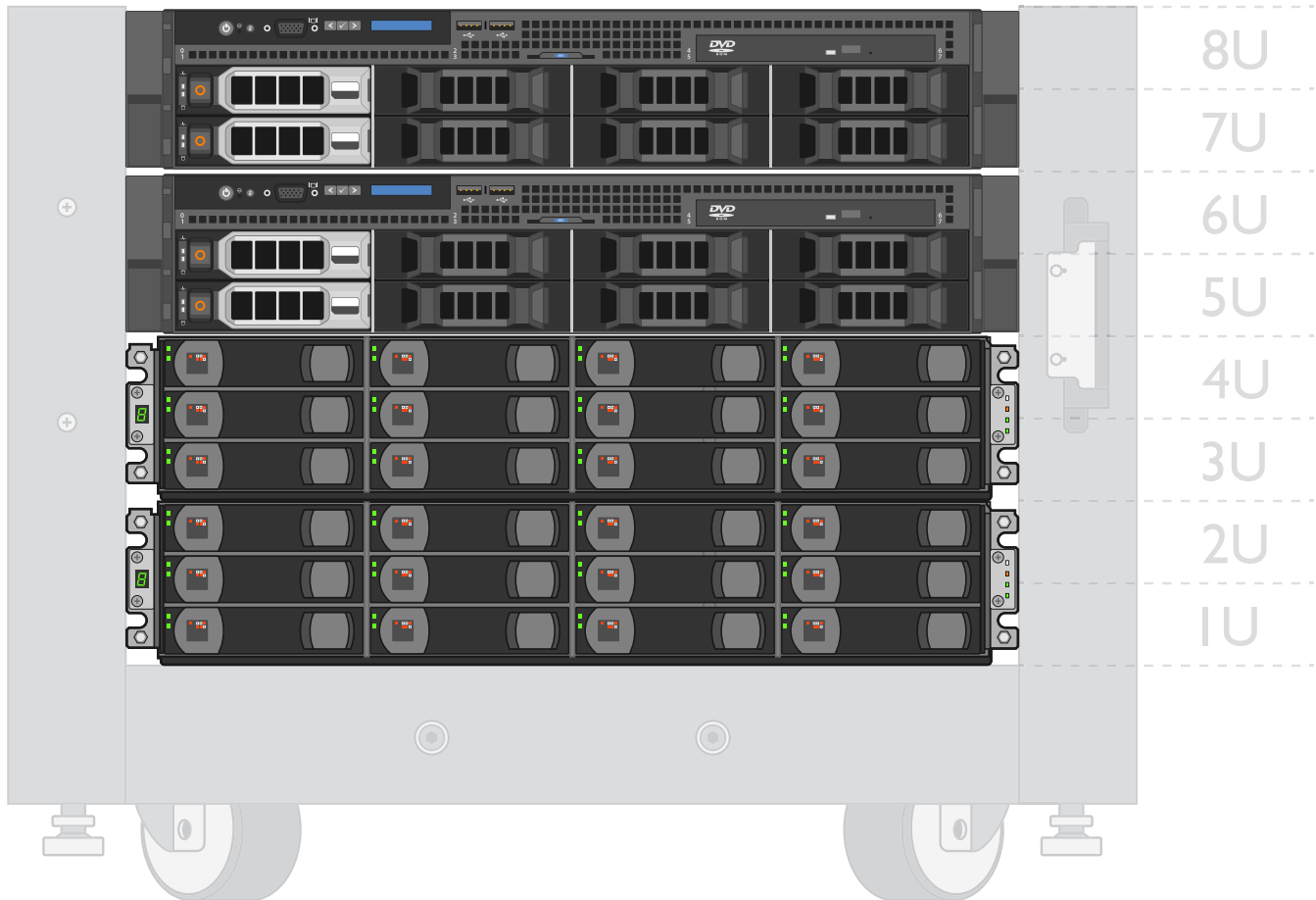
Figure 6 Artico Rack Configuration - Without Expansion



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The Artico with Expansion occupies 8U of rack space and should be racked with the Expansion Array (if used) located at the bottom, the Controller Array located beneath MDC Node 2, and MDC Node 1 located at the top, as shown in [Figure 7](#).

Figure 7 Artico Rack Configuration - With Expansion



Service

Artico Warranty

Quantum includes a three-year next business day parts only warranty. Warranty upgrades are available including 7x24x4.

An uplifted warranty replaces the standard warranty with a service contract. The terms of the service contract supersede the warranty terms and conditions when warranty uplift is purchased during the warranty period. Warranty uplifts and extensions are offered at a discount from the standard renewal pricing, and are available only at the time of the corresponding product purchase. Extended or uplifted warranties purchased after this point will be priced at the standard renewal rate.

Service and warranty extension, uplift and renewal pricing is available in Online quoting tools and the latest *Quantum Price Book*.

For questions about coverage in any of the Quantum service zones, contact Quantum customer support.

Service Levels

Service renewal prices are the same as the initial prices and are sold on an annual basis.

Warranty coverage or service uplifts may not be available in all areas. Contact your Quantum representative for information concerning available warranty and service coverage.

Quantum ASSP Program

The Quantum Authorized Software Service Provider (ASSP) program has been extended to cover both StorNext software as well as the StorNext Artico NAS Storage Appliance. Quantum ASSP partners will be eligible to offer first tier support on the StorNext Artico once they've been trained and certified on the StorNext Artico product.

Quantum ASSP partners who have been trained on the installation and configuration of the StorNext Artico may also choose to offer their own professional onsite installation services for the StorNext Artico product.

For inquiries about the Quantum ASSP program for StorNext, contact your local Quantum representative.



For assistance, contact the Quantum Customer Support Center:

USA: **1-800-284-5101 (toll free) or +1-720-249-5700**

EMEA: **+800-7826-8888 (toll free) or +49-6131-3241-1164**

APAC: **+800-7826-8887 (toll free) or +603-7953-3010**

Worldwide: **<http://www.quantum.com/ServiceandSupport>**

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About Quantum

Quantum is a proven global expert in Data Protection and Big Data management, providing specialized storage solutions for physical, virtual and cloud environments. From small businesses to major enterprises, more than 50,000 customers trust Quantum to help maximize the value of their data by protecting and preserving it over its entire lifecycle. With Quantum, customers can Be Certain they're able to adapt in a changing world—keeping more data longer, bridging from today to tomorrow, and reducing costs. See how at www.quantum.com/BeCertain.