Overview

HPE Alletra 9000

Is your enterprise class storage holding you back because you are tied down administering, tuning, and supporting infrastructure? Are you looking to shift from managing disparate clouds to a cloud everywhere experience with the same agility, simplicity, and cloud consumption for every application?

HPE Alletra 9000 is ideally suited for mission-critical workloads with extreme latency sensitivity and availability requirements. It's ideally suited for an environment that requires a dense data center footprint. It overcomes the agility versus reliability tradeoff between the public cloud and traditional enterprise storage by providing a modern, as-a-service experience through HPE GreenLake, combined with intelligence and automation that ensures applications are always-on and available. It features a unique, massively parallel, multi-node, and all-active platform with all volumes active on all media, controllers, and host ports always. Achieve unconstrained scalability for consolidating traditional and next-generation mission-critical applications with predictable performance and ultra-low latency, backed by a 100% availability guarantee. Also eliminate cost and complexity from business continuity and disaster recovery with fully Active Bidirectional Replication.

HPE Alletra 9000
(2/4-Node all NVMe Storage Base)

What's new

- Eliminate complexity by unifying infrastructure management silos under a cloud managed single pane of glass.
- Easily manage your fleet of data infrastructure across its lifecycle with an intuitive SaaS-based user experience – accessible from anywhere and from any device.
- Developed from the foundation of HPE Primera architecture, proven to deliver ultra-low latency with 75% of I/O within 250 µs latency.
- Delivers performance density with All-NVMe for over 2 million IOPs in 4U. [1]
- Support for NVMe Drive Enclosures and NVMe-oF host connectivity over Fibre Channel
- Designed for extreme availability requirements with 100% availability guaranteed as a standard benefit without requiring a special contract.
- Meet every service level agreement with Active Peer Persistence for transparent business continuity along with flexibility to replicate to a third site to recover from a metropolitan area disaster.
- Eliminate forklift upgrades, flat support pricing, and flexible consumption options.

Notes:

– [1] Measured on HPE Alletra 9080 4N, 8KiB Random Reads TPVV RAID6, configured in production mode
– For more information about the value of HPE Alletra 9000 visit: https://hpe.com/storage/Alletra.

Standard Features

AI-driven

- Predict and prevent disruptions across storage, services, and virtual machines, resulting in savings of over 1.5 million hours of lost productivity due to downtime.
- Redefine support experience with predictive support automation that delivers an unprecedented support experience.
- Pinpoint issues between storage and VMs and underutilized virtual resources without effort.
- Take the guesswork out of managing data infrastructure with AI-driven recommendations that improves performance, drives higher availability, and optimizes resource utilization and planning.

Built for cloud

- Setup with zero touch deployment in minutes because systems are automatically discovered, on-boarded, and configured.
- Say goodbye to time-consuming, LUN-centric provisioning with AI-driven, intent based provisioning of application workloads on infrastructure best suited for optimizing SLAs.
- Experience faster access to innovation with no disruptions because new features and enhancements are instantly available through self-service upgrades.
- Manage from anywhere with simple global management driven through a SaaS-based user experience.

As-a-Service

- Consume data infrastructure as a service via HPE GreenLake, eliminating up front capital costs with a pay-per-use model.
- Shift from owning and maintaining data infrastructure to simply accessing and utilizing it on-demand.
- Free up your cash flow and increase financial agility with the right mix of subscription and consumption-based services.

HPE Alletra 9000		
	HPE Alletra 9060	**HPE Alletra 9080**
Base Chassis	4U	4U
Number of Nodes	2 or 4	2 or 4
CPUs per Node	2	2
Cache Per Node	256 GiB	768 GiB
Max System Cache	1 TiB	3 TiB
Maximum Host Ports	48-ports	48-ports
16Gb/s or 32Gb/s Fibre Channel Host Ports	0 - 48 ports	0 - 48 ports
10Gb/s or 25Gb/s Ethernet Host Ports	0 – 48 ports	0 – 48 ports
Built-in 10GBaseT Ports per Node	2	2
Built-in 100GbE Ports per Node	2	2
Max Number of NVMe SSDs	240	240
Max number of NVMe Drive Enclosures	8 (4 per node pair)	8 (4 per node pair)
Max Raw Capacity	3283 TiB	3283 TiB
Max Effective Capacity [1]	10168 TiB	10168 TiB

Notes:

– [1] Effective capacity assumes 4:1 data compaction ratio (thin provisioning, deduplication, compression, and copy technologies) in a RAID 6 (10+2) configuration. Note TB vs TiB. Actual ratios will vary based on workload. See HPE Store More Guarantee for more information.

– Max capacity specifications assume 4 node configurations (2 node configurations support 50% of the max specifications).

Standard Features

Host OS Support

Citrix® Hypervisor | HPE HP-UX® | IBM® AIX® | IBM Virtualization | Microsoft® Windows® Server and Microsoft® Hyper-V™ |
| Oracle® Linux® | Oracle® Solaris | Red Hat® Enterprise Linux® | SUSE® Linux Enterprise Server (SLES) | VMware ESX and ESXi |

For the latest information on supported operating systems refer to Single Point of Connectivity Knowledge for HPE Storage Products (SPOCK): **http://www.hpe.com/storage/spock.**

Service and Support

Warranty

HPE Alletra 9000 has a 3-year, parts only warranty. The warranty on all HPE Alletra 9000 Solid State Drives is 5 years, parts only, and offers unconditional replacement in case of drive failure, media wear-out, or both. Hewlett Packard Enterprise warrants only that the Software media will be free of physical defects for a period of ninety (90) days from delivery. For more information about Hewlett Packard Enterprise's Global Limited Warranty and Technical Support, visit: **http://www.hpe.com/storage/warranty**

Other related services from HPE Services

Timeless Storage and the HPE Technology Refresh Service

The HPE Technology Refresh Service for HPE Alletra 9000 is a service available in conjunction with HPE Services, HPE Tech Care Service or HPE Complete Care Services for eligible HPE Alletra 9000 hardware and software configurations. This service offers HPE Alletra 9000 array customers all the benefits of Timeless Storage for HPE Alletra 9000, including an ownership experience with a simple path to keeping their storage technology current through periodic, non-disruptive technology updates.

This ownership experience offers customers a more predictable cost structure as compared to traditional storage ownership since it incorporates costs associated with future technology updates into a renewable service. Together, Timeless Storage for HPE Alletra 9000 and the HPE Technology Refresh Service not only extend the useful life of the customer's storage assets but create a more sustainable approach to storage ownership.

HPE Services

No matter where you are in your digital transformation journey, you can count on HPE Services to deliver the expertise you need when, where and how you need it. From planning to deployment, ongoing operations and beyond, our experts can help you realize your digital ambitions.

https://www.hpe.com/services

Consulting Services

No matter where you are in your journey to hybrid cloud, experts can help you map out your next steps. From determining what workloads should live where, to handling governance and compliance, to managing costs, our experts can help you optimize your operations.

https://www.hpe.com/services/consulting

HPE Managed Services

HPE runs your IT operations, providing services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

HPE Managed Services | HPE

Operational services

Optimize your entire IT environment and drive innovation. Manage day-to-day IT operational tasks while freeing up valuable time and resources. Meet service-level targets and business objectives with features designed to drive better business outcomes.

https://www.hpe.com/services/operational

HPE Complete Care Service

HPE Complete Care Service is a modular, edge-to-cloud IT environment service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals through a personalized experience. All delivered by an assigned team of HPE Services experts. HPE Complete Care Service provides:

- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

https://www.hpe.com/services/completecare

Service and Support

HPE Tech Care Service

HPE Tech Care Service is the operational support service experience for HPE products. The service goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service is available in three response levels. Basic, which provides 9x5 business hour availability and a 2-hour response time. Essential which provides a 15-minute response time 24x7 for most enterprise level customers, and Critical which includes a 6-hour repair commitment where available and outage management response for severity 1 incidents.
https://www.hpe.com/services/techcare

HPE Lifecycle Services

HPE Lifecycle Services provide a variety of options to help maintain your HPE systems and solutions at all stages of the product lifecycle. A few popular examples include:

- Lifecycle Install and Startup Services: Various levels for physical installation and power on, remote access setup, installation and startup, and enhanced installation services with the operating system.
- HPE Firmware Update Analysis Service: Recommendations for firmware revision levels for selected HPE products, taking into account the relevant revision dependencies within your IT environment.
- HPE Firmware Update Implementation Service: Implementation of firmware updates for selected HPE server, storage, and solution products, taking into account the relevant revision dependencies within your IT environment.
- Implementation assistance services: Highly trained technical service specialists to assist you with a variety of activities, ranging from design, implementation, and platform deployment to consolidation, migration, project management, and onsite technical forums.
- HPE Service Credits: Access to prepaid services for flexibility to choose from a variety of specialized service activities, including assessments, performance maintenance reviews, firmware management, professional services, and operational best practices.

Notes: To review the list of Lifecycle Services available for your product go to:
https://www.hpe.com/services/lifecycle

For a list of the most frequently purchased services using service credits, see the **HPE Service Credits Menu**

Other Related Services from HPE Services:

HPE Education Services

Training and certification designed for IT and business professionals across all industries. Broad catalogue of course offerings to expand skills and proficiencies in topics ranging from cloud and cybersecurity to AI and DevOps. Create learning paths to expand proficiency in a specific subject. Schedule training in a way that works best for your business with flexible continuous learning options.
https://www.hpe.com/services/training

Defective Media Retention

An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options.

Parts and Materials

HPE will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

Service and Support

How to Purchase Services

Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
- Customers purchasing from a commercial reseller can find services at **https://ssc.hpe.com/portal/site/ssc/**

AI Powered and Digitally Enabled Support Experience

Achieve faster time to resolution with access to product-specific resources and expertise through a digital and data driven customer experience

Sign into the HPE Support Center experience, featuring streamlined self-serve case creation and management capabilities with inline knowledge recommendations. You will also find personalized task alerts and powerful troubleshooting support through an intelligent virtual agent with seamless transition when needed to a live support agent.
https://support.hpe.com/hpesc/public/home/signin

Consume IT On Your Terms

HPE GreenLake edge-to-cloud platform brings the cloud experience directly to your apps and data wherever they are—the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake edge-to-cloud platform accelerates digital transformation in a distributed, edge-to-cloud world.

- Get faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

To learn more about HPE Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE"
https://www.hpe.com/us/en/contact-hpe.html

For more information
http://www.hpe.com/services

HPE Storage SSD Extended Replacement Program

Provides for the post warranty replacement of eligible HPE Alletra 9000 SSDs under active HPE support coverage at no additional cost in the event the SSD has reached its maximum usage limit based upon the HPE Alletra 9000 SSD Life-Left reading.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/a00000122ENW.pdf

HPE Alletra 9000 Installation and Startup Service

Provides onsite deployment of your HPE Alletra 9000 array into your storage environment.

HPE Alletra 9000 Replication Software Installation and Startup Service

Provides deployment of HPE Remote Copy, Peer Motion, and Peer Persistence functionality of HPE Alletra 9000. The service helps you get HPE Alletra 9000 replication related software up and running quickly and provides a demonstration of the product's key features using sample or test data only.

HPE Alletra 9000 Base Software Installation and Startup Service

Provides deployment of Dynamic Optimization, Priority Optimization, System Reporter, Virtual Copy, and an overview of Virtual Domain and Virtual Lock. For Virtual Copy, the service provides a demonstration of the product's key features using sample or test data only.

Service and Support

HPE Storage Software Installation and Startup Service

Provides deployment of individual HPE Alletra 9000 software features, helping to ensure proper installation in your storage environment as well as helping you increase the benefit from your storage investment.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA5-8036ENW.pdf

HPE Storage Transformation Workshop

Explore data management to business-aligned visions, covering cloud, object, end to end data protection and BC/DR.

HPE Storage Data Migration

Proven methodology, expertise and tools to help you migrate data across your data center or around the globe.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA5-3759ENW.pdf

HPE Backup and Recovery Efficiency Analysis Service

Rapid health check of your current backup environment, focusing on operational stability, problem identification, and capacity constraints. The output of this service provides clear metrics and high-level recommendations for your backup environment.
https://h20195.www2.hpe.com/V2/getpdf.aspx/4AA3-9104ENW.pdf

HPE Storage Integration Service

Integrate your new HPE Alletra 9000 so that it is agile, performs effectively, and scales to rapid growth.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-9254ENW.pdf

HPE SAN Deployment Service

Delivers complete design and implementation services for Fibre Channel, FCoE, FCIP, SAS, and iSCSI SAN connectivity components.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/5981-8527ENW.pdf

https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=5981-8527enw

HPE Data Replication Solution Service for Virtual Copy

Enables snapshots and mirroring to facilitate data restores, minimize downtime for backups, perform application testing and support data mining use with decision-support tools.
http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA3-8107ENW.pdf

HPE Data Replication Solution Service for Remote Copy

Configures real-time data mirroring between local and remote storage systems to safeguard critical business information.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA3-8627ENW.pdf

HPE Performance Analysis Service for HPE Storage

Provides data collection, detailed I/O analysis and enhancement recommendations for HPE Storage arrays.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/5982-6668ENW.pdf

HPE Data Sanitization Storage and Server Services

Provides skilled resources and tools to help your organization address the need to protect data when your organization is retiring systems, upgrading storage and servers, returning leased equipment, or redeploying data storing devices. The service helps ensure that data cannot be reconstructed or retrieved from hard disk media in your server and storage devices. These services offer you a smart alternative or augmentation to physical hardware destruction.
https://www.hpe.com/h20195/v2/GetPDF.aspx/5981-9510ENW.pdf

Service and Support

HPE Storage Rebalance Service

Helps balance data across an HPE Alletra 9000 array to take advantage of the capabilities of the array architecture. The service provides analysis, planning, and implementation of data movement and/or physical movement of drive magazines within the array.
http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-0280ENW.pdf

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and support options.

Configuration Information

Step 1: Choose the Storage Base and Controller Nodes

HPE Alletra 9000 configuration starts with the selection of the Storage Base and Controller Nodes. The Storage Base is a 4U 4-way chassis that includes 48 bays for small form factor NVMe drives. The Storage Base does not include any controller nodes or power supplies. The controller SKUs include 2 nodes. Power Supplies are not included in the Storage Base or Controller Nodes.

HPE Alletra 9000 Storage Base

Remarks	Description	SKU
	HPE Alletra 9000 4-way NVMe Storage Base	R0N93A

- One (1) Storage Base SKU must be ordered for each array.
- The Storage Base can host 2 or 4 controller nodes and up to 48 small form factor NVMe drives in 4U.
- The Storage Base does not include any controller nodes or Power Supplies.

HPE Alletra 9000 Controllers

*	HPE Alletra 9060 2-node Controller	R0N99A
	HPE Alletra 9060 2-node Field Integrated Controller	R0P00A
*	HPE Alletra 9080 2-node Controller	R0N94A
	HPE Alletra 9080 2-node Field Integrated Controller	R0N95A

- Each Controller SKU includes two (2) nodes and two (2) C13-C14 Locking Power Cords (1.4m).
- One (1) or two (2) Controller SKUs can be ordered per array.
- All controllers need to be of the same type. Different controller types cannot be mixed in the same Storage Base.
- Each Node has two (2) built-in 10GBase-T ports for Remote Copy over IP, one (1)) management port, one (1) service port, (1) Console port (serial), and two (2) 100GbE ports for future back-end connectivity to NVMe drive enclosures.
- Each Node contains (3) three PCIe slots for host adapters.
- When HPE Alletra 9000 is configured with 2 nodes, only the corresponding 24 drive bays can be used
- The standard Controller SKUs (R0N99A, R0N94A) are used for CTO and sCTO configurations (drives are factory integrated into the Storage Base and HBAs are factory integrated into the controllers)
- The Field Integrated Controller SKUs (R0P00A, R0N95AA) are used for BTO configurations (drives and HBAs are field integrated)
- For controller upgrades, the standard SKU shall be used for HBA factory integration, and the Field Integrated SKU shall be used for HBA field integration.
- The controllers are always factory integrated in the Storage Base for shipment.
- *HPE offers Trade Agreement Act (TAA) HPE 9000 Controller options (R0N99A #GTA and R0N94A #GTA) to meet the needs of US Federal Government customers. These products are either manufactured or substantially transformed in a designated country. TAA compliance is only provided when HPE options are included as part of factory integrated orders (CTO).

HPE Alletra 9000 Node Conversion Kits (this section was added)

HPE Alletra 9000 controller node conversion kits are available to upgrade existing, installed HPE Alletra 9000 controller nodes. This is often referred to as a Data in Place Upgrade (DIPU). It allows HPE customers to increase the maximum capacity and performance capabilities without requiring a data migration and while preserving their existing investment in drives and external enclosures. This will be an online data-in-place node upgrade where all existing hardware including drives, and drive enclosures will remain in place.

Configuration Information

Description	SKU
HPE Alletra 9080 2-node Upgrade Conversion Kit	S1D71A
HPE Alletra 9080 4-node Upgrade Conversion Kit	S1D72A

- The number of controller nodes in the Conversion Kit must match the number of controllers of the original Alletra 9000 system
- S1D71A is used to upgrade a HPE Alletra 9060 2-node to an HPE Alletra 9080 2N
- S1D72A is used to upgrade a HPE Alletra 9060 4-node to an HPE Alletra 9080 4N
- The HPE Alletra 9000 Conversion Kit includes (2 or 4) controller nodes and bezel labels. They do not include HBAs, or NICs.
- HPE Alletra 9000 OS 9.5.15 or greater is required before proceeding with the upgrade. Install the latest Upgrade Tool Software. For updating software releases, information and instructions are located at HPE Alletra 9000: Updating software (V9.4, v9.5) **[this is a link]**
- After a 9060 2N to a 9060 2N node conversion has occurred (SKU SID71A), and a second controller pair is desired. You can order another Alletra 9080 2-node controller (R0N95A) to reach the maximum node count of 4-nodes.

Step 2: Choose Power Supplies

HPE Alletra 9000 can be configured with 1-phase or 3-phase AC power, or DC power. Power and Cooling Battery Modules (PCBM) are not included in the Storage Base SKU or Controller SKU and must be ordered separately.

HPE Alletra 9000 Power Supply Battery Kit

Description	SKU
HPE 1700W Power Supply Battery Kit	R4W00A
HPE 1700W Power Supply Kit	R3B79A
HPE 1700W -48VDC Power Supply Battery Kit	R4V53A

- The Storage Base requires two (2) Power Supply Battery Kits (R4W00A or R4V53A) per node pair.
- Each Power Supply Battery Kit (R4W00A, R4V53A) includes one (1) Power Supply with Fan and Battery.
- Each drive enclosure (R3B13A, R3B51A) requires two (2) Power Supply Kits (R3B79A).
- Each Power Supply Kit (R3B79A) includes one (1) Power Supply with Fan (no battery).
- -48VDC power is currently available only for the Storage Base, not for the drive enclosures.
- Different Power Supplies (AC and DC) cannot be mixed in the same Storage Base or Drive Enclosure.
- Power Supplies are always factory integrated in the Storage Base or Drive Enclosures for shipment.
- HPE recommends using 1200mm deep racks with 3-phase power because it provides the best rack density.

DC Power Options

The following SKUs can be ordered as an option with DC power.

DC Breaker Panel

E-T-A S541 2x16 Output DC Breaker Panels	G2H95A

Grounding Bar

E-T-A 6401 Two Grounding Bars w/ screws	Q9N54A

DC Power Cable Kit

HPE -48VDC 1.5m 2-pack Power Cable	R4X83A
HPE -48VDC 2.3m 2-pack Power Cable	R4X84A
HPE -48VDC 3.0m 2-pack Power Cable	R4X85A

Configuration Information

- Each DC power cable kit includes two (2) cables.
- One (1) cable is required for each Power Supply.
- The DC Power Cable Kits listed above are compatible only with G2H95A.
- The DC Breaker Panels SKU (G2H95A) does not include any breakers, only the panel
- When considering alternative DC Power cable/ breaker panels solutions, consider the following. Use 6AWG Conductor Cable for -48VDC, return, and earth ground connections. The recommended compression lug for the 6AWG Conductor Cable is a T&B Two-Hole, 90° Long Barrel Compression Lug. Please use T&B Part Number 54852BEUBPH.

Step 3: Choose Adapters

Host adapters are used for connection to hosts. They can be ordered standalone to be installed in the field or they can be factory integrated into controller nodes. HPE Alletra 9000 does not have any built-in host ports therefore any configuration needs to have at least one (1) host adapter per node. The NVMe-oF 100GbE 2-port HBA adapter provides more NVMe drive enclosure connectivity.

HPE Alletra Host Adapters

Description	SKU
HPE Alletra 9000 16/32Gb 4-port Fibre Channel Host Bus Adapter	R3B28A
HPE 10/25GbE 4-port Host Bus Adapter	N9Z37A
HPE 10GBASE-T 4-port Host Bus Adapter	N9Z40A
HPE NVMe-oF 100GbE 2-port Host Bus Adapter	R3B29A

- The HPE NVMe-oF 1000GbE 2-port adapter is an optional adapter that provides additional ports for NVMe drive enclosure connectivity.
- The HPE NVMe-oF 1000GbE 2-port adapter allows the connection of up to four NVMe drive enclosures per node pair (two connected to the 100GbE built-in ports, two connected to the NVMe-oF adapter).
- The HPE NVMe-oF 1000GbE 2-port adapter can be used only if the two 100GbE built-in ports are already populated.
- When used, one HPE NVMe-oF 1000GbE 2-port adapter must be installed on every node in the third HBA slot (slot 5)
- This HPE NVMe-oF 1000GbE 2-port adapter cannot be used for NVMe-oF host connectivity.

Host Bus Adapter SFP Kits

HPE 32Gb SFP28 Short Wave 1-pack Pull Tab Optical Transceiver	Q2P62A
HPE 16Gb SFP+ Short Wave 1-pack Pull Tab Optical Transceiver	Q2P63A
HPE 2-pack 25Gb Ethernet SFP Upgrade Kit	N9Z42A
HPE 2-pack 10Gb Ethernet SFP Upgrade Kit	N9Z43A

- Each node must have at least one (1) host adapter. A node without any host adapters is not a supported configuration.
- All nodes must be configured with the same adapters (in a 4-node system all four nodes must have the same adapters).
- The 16/32Gb Fibre Channel Adapter does not include any SFP+ (they must be ordered separately).
- The 32Gb and 16Gb SFP SKUs include one (1) SFP each and must be ordered in pairs.
- Each 16/32Gb Fibre Channel Adapter can be configured with any number of SFPs, min one (1) and max four (4).
- The 32Gb SFPs and 16Gb SFPs can be mixed in any combination in the same 16/32Gb Fibre Channel Adapter.
- The 32Gb/s Fibre Channel Adapter is NVMe-oF capable.
- The 10/25GbE Adapter does not include any SFP (they must be ordered separately).
- The 25GbE and 10GbE SFP SKUs include two (2) SFPs each.
- The 10/25GbE Adapter can be configured with any number of SFPs, min one (1) and max four (4).
- The 25GbE SFPs and 10GbE SFPs can be mixed in any combination in the same 10/25GbE Adapter.

Configuration Information

Step 4: Choose Drive Enclosures

HPE Alletra 2240 is a drive enclosure that allows HPE Alletra 9000 to expand beyond 48 NVMe drives. Each drive enclosure includes 24 NVMe drive bays in 2U. Drive enclosures are optional because the Storage Base products include 24 NVMe drive bays.

HPE Alletra 2240 Drive Enclosure

Remarks	Description	SKU
*	HPE Alletra 2240 2U SFF Drive Enclosure	R3B13A
	HPE Alletra 2240 2U SFF Field Integrated Drive Enclosure	R3B51A

- Each drive enclosure includes 24 NVMe SFF drive bays, (2) IO modules, (1) mounting rail kit, and power cables.
- The first two drive enclosures per node pair must be directly connected to the built-in ports with 100G QSFP28 cables.
- Two additional drive enclosures per node pair can be connected using the optional HPE NVMe-oF 100GbE 2-port Host Bus Adapter.
- In a four-node configuration, each node pair must have the same number of drive enclosures.
- The standard Controller SKU (R3B13A) is used for CTO and sCTO configurations (drives are factory integrated).
- The Field Integrated SKU (R3B51A) is used for BTO configurations (drives are field integrated).
- Drive bays that are not filled with a drive must be covered with a drive blank to preserve proper air flow.
- If future capacity upgrades are expected, include enough Drive Enclosures so that there are some empty bays in each enclosure after all drives are added.
- *HPE offers Trade Agreement Act (TAA) compliant HPE Alletra 2240 Drive Enclosures using R3B13A #GTA to meet the needs of US Federal Government customers. These products are either manufactured or substantially transformed in a designated country. TAA compliance is only provided when HPE options are included as part of factory integrated orders (CTO).

Step 5: Choose Drives

Drives are orderable at the time the array is purchased or can be added in the future when additional capacity is required. HPE Alletra 9000 only supports NVMe drives.

HPE Alletra 9000 FIPS Encrypted NVMe Drives

Description	SKU
HPE Alletra 9000 1.92TB NVMe SFF FIPS Encrypted SSD	R3B21B
HPE Alletra 9000 3.84TB NVMe SFF FIPS Encrypted SSD	R3B22B
HPE Alletra 9000 7.68TB NVMe SFF FIPS Encrypted SSD	R0Q16B
HPE Alletra 9000 15.36TB NVMe SFF FIPS Encrypted SSD	R0Q10B

HPE Alletra 9000 NVMe Drives

HPE Alletra 9000 1.92TB NVMe SFF SSD	R3B24B
HPE Alletra 9000 3.84TB NVMe SFF SSD	R0Q07B
HPE Alletra 9000 7.68TB NVMe SFF SSD	R0Q08B
HPE Alletra 9000 15.36TB NVMe SFF SSD	R0Q09B

HPE Alletra 9000 TAA Compliant FIPS Encrypted Drives

HPE Alletra 9000 1.92TB NVMe SFF FIPS Encrypted TAA-compliant SSD	R4F94B
HPE Alletra 9000 3.84TB NVMe SFF FIPS Encrypted TAA-compliant SSD	R4F95B
HPE Alletra 9000 7.68TB NVMe SFF FIPS Encrypted TAA-compliant SSD	R4F96B
HPE Alletra 9000 15.36TB NVMe SFF FIPS Encrypted TAA-compliant SSD	R4F97B

Configuration Information

- The minimum supported quantity is eight (8) drives per node pair.
- The minimum upgrade quantity is two (2) drives per node pair.
- HPE Alletra 9000 only supports RAID 6.
- The initial configuration must have all drives of the same capacity. Mixing drives of different capacities in the same array is allowed (but not recommended) for upgrades.
- In a four-node configuration, each node pair must have the same number of drives.
- Drives must be loaded starting from the leftmost slot (slot 0) to the right and leaving no empty slots between drives.
- Trade Acts Agreement (TAA) compliant FIPS drives are sourced from TAA compliant Country of Origin (COO) build sites and are available subject to certification by U.S. National Institute of Standards and Technology.

HPE Encryption License

Description	SKU
HPE Data Encryption LTU	R1P29A
HPE Data Encryption E-LTU	R1P29AAE

- A data encryption license (LTU) is required to enable encryption on HPE Alletra 9000. One encryption license is required for each encrypted array. Once encryption is enabled on the array, it cannot be disabled.
- An encrypted array must have only self-encrypted drives installed.
- A non-encrypted array can have a mix of encrypted and non-encrypted drives.
- Encryption can be turned on, non-disruptively, at any time, even after data has been written to the system.
- FIPS 140-2 Validated Self-Encrypting Drives (SEDs) have been certified by the U.S. National Institute of Standards and Technology (NIST) and Canadian Communications Security Establishment (CSE) as meeting the Level-2 security requirements for cryptographic modules as defined in the Federal Information Processing Standards (FIPS) 140-2 Publication Strengthen the DAR solution with an optional FIPS 140-2 Level-2 validated external key manager. Supports KMIP 1.3 and 1.4 for key management communications
- Supports Utimaco® Enterprise Secure Key Manager (ESKM) 4.0, 5.0 and Gemalto® SafeNet KeySecure k460 centralized key management
- The local key manager is included in the HPE Alletra 9000 OS. There is not a separately orderable part number for the local key manager

Step 6: Choose Cables

HPE Alletra 9000 requires cables for drive enclosure connectivity, host connectivity, and replication. 100Gb QSFP28 cables are used for drive enclosure connectivity. OM4 fiber cables are used for host connectivity and Peer Motion. Either OM4 or DAC cables may be used for iSCSI host connectivity with the 10/25GbE HBA. Remote Copy and iSCSI connectivity with 10GBase-T require Category 6 or better twisted pair Ethernet cables. Category 6 cables may support lengths of up to 55m. HPE recommends Category 6A or better cables; these cables support lengths of up to 100m.

Cables for drive enclosure connection

Description	SKU
HPE 100Gb QSFP28 to QSFP28 1m Direct Attach Copper Cable	R3B52A
HPE Aruba Networking 100G QSFP28 to QSFP28 7m Active Optical Cable	R0Z27A
HPE Aruba Networking 100G QSFP28 to QSFP28 15m Active Optical Cable	R0Z28A

- Each HPE Alletra 2240 Drive Enclosure requires two (2) QSFP28 cables.
- DAC cables (R3B52A) are used for connections within the same rack.
- AOC cables (R0Z27A and R0Z28A) are used for connections between racks.

Configuration Information

OM4 Cables	
Description	**SKU**
HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 1m Cable	QK732A
HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 2m Cable	QK733A
HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 5m Cable	QK734A
HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 15m Cable	QK735A
HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 30m Cable	QK736A
HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 50m Cable	QK737A
Direct Attach Copper Cables (10GbE) - HPE Networking Comware	
HPE Networking X240 10G SFP+ SFP+ 3m DAC Cable	JD097C
HPE Networking X240 10G SFP+ SFP+ 5m DAC Cable	JG081C
HPE Networking Comware X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	JG330A
HPE Networking Comware X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable	JG331A
Direct Attach Copper Cables (10GbE) - HPE Aruba Networking Networks	
HPE Aruba Networking 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283D
HPE Aruba Networking 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285D
Direct Attach Copper Cables (10GbE) - Cisco	
HPE C-series 3M Passive Copper SFP+ Cable	K2Q21A
HPE C-series 5M Passive Copper SFP+ Cable	K2Q22A
HPE C-series SFP+ to SFP+ Active Copper 7.0m Direct Attach Cable	QK701A
Direct Attach Copper Cables (10GbE) - HPE BladeSystem	
HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 3m Direct Attach Copper Cable	487655-B21
HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 5m Direct Attach Copper Cable	537963-B21
Direct Attach Copper Cables (10GbE) - Broadcom	
Direct Attach Copper Cables (25GbE) - HPE	
HPE 25GbE SFP28 to SFP28 3m Smart Active Optical Cable	Q9S67A
HPE 25GbE SFP28 to SFP28 5m Smart Active Optical Cable	Q9S68A
Direct Attach Copper Cables (25GbE) - HPE	
HPE 25Gb SFP28 to SFP28 3m Direct Attach Copper Cable	844477-B21
HPE 25Gb SFP28 to SFP28 7m Active Optical Cable	844483-B21
HPE 100Gb QSFP28 to 4x25Gb SFP28 3m Direct Attach Copper Cable	845416-B21
Ethernet Cables (Management)	
HPE RJ45 to RJ45 Cat5e Black M/M 7.6ft 1-pack Data Cable	C7535A
HPE 4.3m/14ft CAT5 RJ45 M/M Ethernet Cable	C7536A
HPE 7.6m/25ft CAT5 RJ45 M/M Ethernet Cable	C7537A
HPE 15.2m/50ft CAT5 RJ45 M/M Ethernet Cable	C7542A

Notes:

- HPE Alletra 9000 DAC direct connect to a host is not supported. You must connect to a switch.
- For the latest information refer to Single Point of Connectivity Knowledge for HPE Storage Products (SPOCK): **http://www.hpe.com/storage/spock.**

Configuration Information

Step 7: Choose Racking Options

HPE Alletra 9000 is compatible with most industry standard 4-post EIA 19-inch racks with square mounting holes. HPE Alletra 9000 can be factory configured and shipped in a rack or shipped without a rack for field integration into an existing rack. The racks used for factory integration are the HPE G2 Advanced Series Racks or the HPE G2 Enterprise Series Racks.

Factory Integration

A factory integrated HPE Alletra 9000 is configured into the HPE Intelligent Series Rack with the appropriate power distribution units (PDUs). Other products such as servers or back-up products can be factory integrated in the rack and different PDUs can be added or selected (if needed) only via HPE Factory Express Services. Multiple HPE Alletra 9000 arrays can be factory integrated in the same rack.

Description	SKU
HPE Intelligent Series Racks	
HPE 42U 600mmx1200mm G2 Enterprise Shock Rack	P9K40A
HPE G2 Rack 42U 1200mm Side Panel Kit	P9L16A
HPE 42U 600mmx1200mm G2 Kitted Advanced Shock Rack with Side Panels and Baying	P9K10A
HPE 42U 600mmx1075mm G2 Enterprise Shock Rack	P9K38A
HPE G2 Rack 42U 1075mm Side Panel Kit	P9L15A
HPE 42U 600mmx1075mm G2 Kitted Advanced Shock Rack with Side Panels and Baying	P9K08A

- HPE recommends using HPE Alletra 9000 in 1200mm deep racks with 3-phase power because this combination provides the best rack density.

Notes:

– For more information on rack options: **http://www.hpe.com/products/rackoptions**.

– For more information on PDUs: **https://www.hpe.com/us/en/product-catalog/servers/power-distribution-units.html**

Non-HPE rack and power requirements

HPE Alletra 9000 Storage Base includes mounting rails that are compatible with industry standard 4-post EIA 19-inch racks with square mounting holes. For detailed information on determining compatibility of a non-HPE rack, please review the information included in the HPE Alletra 9000 Site Planning Guide.

Step 8: Choose Software

Hewlett Packard Enterprise provides an extensive selection of features for HPE Alletra 9000 arrays. including Virtual Copy, Remote Copy, Priority Optimization, Peer Motion, Peer Persistence, and Smart SAN. Data Encryption is offered separately with a LTU (see the Drive section for more information).

HPE Alletra Software and Support SaaS

HPE Alletra 9000 arrays include a subscription to HPE Alletra Software and Support SaaS that enables cloud-based management of the array from the HPE Data Services Cloud Console and access to data services# as they become available on HPE GreenLake. The subscription includes access to the HPE Alletra software and related support. It is included in the quote when support is selected and has the same duration as support. For more information, please refer to the HPE Data Services QuickSpecs.

Description	SKU
HPE Alletra 9000 Software and Support SaaS	S1E74AAE
HPE Alletra Software and Support SaaS– 1-year Subscription	S1E74AAE#CTE
HPE Alletra Software and Support SaaS– 3-year Subscription	S1E74AAE#CTF
HPE Alletra Software and Support SaaS– 4-year Subscription	S1E74AAE#CTG
HPE Alletra Software and Support SaaS– 5-year Subscription	S1E74AAE#CTH

Configuration Information

Description	SKU
HPE Alletra Software and Support SaaS– 6-year Subscription	S1E74AAE#CTK
HPE Alletra Software and Support SaaS– 7-year Subscription	S1E74AAE#CTL
HPE Alletra 9000 Array Upgrades Software and Support SaaS	S1E75AAE
HPE Alletra 9000 Array UPgrades Software and Support SaaS 1-year Subscription	S1E75AAE#CTE
HPE Alletra Array Upgrades Software and Support SaaS– 3-year Subscription	S1E75AAE#CTF
HPE Alletra Array Upgrades Software and Support SaaS– 4-year Subscription	S1E75AAE#CTG
HPE Alletra Array Upgrades Software and Support SaaS 5-year Subscription	S1E75AAE#CTH
HPE Alletra 9000 Array Upgrades Software and Support SaaS 6-year Subscription	S1E75AAE#CTK
HPE Alletra 9000 Array Upgrade Software and Support SaaS 7-year Subscription	S1E76AAE#CTL

Notes: # Additional data services are available with optional subscription

Subscribe to the HPE Backup and Recovery Service

The HPE Backup and Recovery Service is an optional subscription service available from the HPE GreenLake Cloud Portal. It is the modern way to protect VMware virtual machines that use storage from HPE Alletra systems. The subscription enables automated, Array Optimized, cloud managed protection of the virtual machine. The HPE Backup and Recovery Service is available with a subscription to meet your needs. Working with your HPE account representative you can define whether you want total flexibility to pay for the service as you use it or if you want to lock in lower prices by reserving the service for 1, 2, 3, 4 or 5 years. When you reserve the service you choose the number of virtual machines you want to protect and, if you want to protect your virtual machines with backup to the cloud, the capacity of the Cloud Protection Store you will need. For more information, please refer to the HPE Backup and Recovery Service QuickSpecs: **https://www.hpe.com/psnow/doc/a50004269enw**

Step 9: Choose Support

Choose HPE ServicesHPE Tech Care Service to experience the new operational service for HPE products. For HPE Alletra 9000, HPE ServicesHPE Tech Care Service is available in two response levels: Essential, which provides a 15-minute response time 24x7 for most enterprise level customers, and Critical, which includes a 6-hour repair commitment where available and outage management response for severity 1 incidents. For more information refer to the Tech Care Datasheet.
https://psnow.ext.hpe.com/doc/a00108652enw

Step 10: Choose Timeless Technology Refresh (optional)

The HPE Technology Refresh Service is an optional service available for purchase with HPE Alletra 9000 operational services (HPE Tech Care or the HPE Complete Care). The Technology Refresh Service is designed to offer customers an ownership experience with a simple path to helping keep storage technology current through periodic technology updates as more specifically described in the Timeless Storage datasheet. This optional Service also helps provide a more predictable cost structure as compared to traditional storage ownership since it incorporates the cost of future technology updates into a renewable service. This helps to extend the useful life of the customer's storage assets and create a more sustainable approach to storage ownership.
https://psnow.ext.hpe.com/doc/a50000051enw?jumpid=in_lit-psnow-red

Description	SKU
HPE 3Y Technology Refresh SVC	HU2J4A3
HPE 5Y Technology Refresh SVC	HU2J4A5

Configuration Information

Step 11 – Choose Installation options

Storage Installation and Startup Service

HPE Alletra 9000 Storage Installation and Startup Service provides deployment of your HPE Alletra 9000 storage, helping to ensure proper installation in your storage environment as well as helping you increase the benefit from your storage investment. The service provides activities required to help you deploy your HPE Alletra 9000 into operation.

Self-Installation

Customers and partners also have the option to self-install HPE Alletra 9000. The self-installation option can be selected in the configurator tool (OCA) and will remove the Storage Installation and Startup Service from the quote. All HPE Alletra 9000 models and configurations are eligible for self-installation.

In order to successfully install the HPE Alletra 9000 the installer should:

- Have a good understanding and knowledge of Storage Area Networks, Fibre Channel fundamentals and a basic understanding of TCP/IP and other networking protocols (DNS/NTP).
- Have experience creating Storage LUNs, presenting/exporting LUNs to a server and formatting the LUNs to make them usable for applications.
- Be able to troubleshoot hardware and software issues using logs and documentation.

If the installer doesn't meet the profile or is not comfortable with the self-installation process, Hewlett Packard Enterprise recommends engaging the Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Channel Partner to purchase HPE Services Deployment Services.

Customer responsibilities

- Ensure that the host and SAN environment is supported and compliant with HPE recommendations and best practices. Host and SAN Implementation Guides are available at **https://support.hpe.com/hpesc/public/home**. Support Matrix are available on SPOCK (HPE Storage Single Point of Connectivity Knowledge) **http://www.hpe.com/storage/spock**.
- Resolve any problems with their SAN and host environment prior to installing the HPE Alletra 9000.

Notes: Customers performing a self-install (according to rules identified above) will not void their warranties and will be fully supported.

Technical Specifications

HPE Alletra 9000 Specifications				
Physical Dimensions	**Width in/mm**	**Depth in/mm**	**Height in/mm/U**	**Weight lb/kg**
HPE 42U 1075mm G2 Advanced Series Rack	23.50 / 597	43.78 / 1111	78.99 / 2006	281 / 127
HPE 42U 1075mm G2 Enterprise Series Rack	23.54 / 598	44.30 / 1125	78.98 / 2007	230 / 105
HPE 42U 1200mm G2 Advanced Series Rack	23.50 / 597	50.65 / 1286	78.99 / 2006	311 / 141
HPE 42U 1200mm G2 Enterprise Series Rack	23.54 / 598	51.19 / 1300	78.98 / 2007	251 / 114
HPE Alletra 9060 2-nodes (Storage Base, two controller nodes, two 1700W PCBMs, no drives, no HBAs)	19.00 / 483	33.03 / 839	6.85 / 174 / 4	108 / 49.1
HPE Alletra 9060 4-nodes (Storage Base, two controller nodes, two 1700W PCBMs, no drives, no HBAs)	19.00 / 483	33.03 / 839	6.85 / 174 / 4	156 / 70.9
HPE Alletra 9080 2-nodes (Storage Base, two controller nodes, two 1700W PCBMs, no drives, no HBAs)	19.00 / 483	33.03 / 839	6.85 / 174 / 4	108 / 49.1
HPE Alletra 9080 4-nodes (Storage Base, two controller nodes, two 1700W PCBMs, no drives, no HBAs)	19.00 / 483	33.03 / 839	6.85 / 174 / 4	156 / 70.9
HPE Alletra 2240 Drive Enclosure	19.00 / 483	33.03 / 839	3.44 / 87.5 / 2	63 / 28.6
SFF NVMe SSD with carrier	3.15 / 80	6.69 / 170	0.58 / 14.7	0.50 / 0.23
HPE Alletra 9000 16/32Gb 4p FC HBA (with four SFPs)	3.23 / 82	8.58 / 218	0.73 / 18.5	0.50 / 0.23
HPE 10/ 25Gb 4-port Ethernet Host Bus Adapter	3.23 / 82	8.58 / 218	0.73 / 18.5	0.50 / 0.23
HPE 10GBASE-T 4-port Host Bus Adapter	3.23 / 82	8.58 / 218	0.73 / 18.5	0.50 / 0.23

Technical Specifications

Power Requirements

Input Voltage - AC PCM option

- HPE Alletra 9060 Storage Base: 200 to 240 VAC (50 to 60 Hz)
- HPE Alletra 9080 Storage Base: 200 to 240 VAC (50 to 60 Hz)
- HPE Alletra 2240 Drive Enclosure: 200 to 240 VAC (50 to 60 Hz)

Notes: Refer to the HPE Power Advisor online tool for power consumption, heat loading, and circuit sizing information:
HPE Power Advisor utility

Environmental Specifications

Operating Temperature	41° to 95° F (5° to 35° C) - Reduce rating by 1° F for each 1000 ft altitude (1.8° C/1,000 m)	
Shipping Temperature	-30° to 60°C (-22 to 140°F). Maximum rate of change is 20°C/hr (36°F/hr)	
Operating Altitude (ft/m) max.	10,000 ft / 3,048 m	
Shipping Altitude (ft/m) max.	40,000ft / 12,192 m	
Humidity	10% to 90% non-condensing	
Shipping Humidity	10% to 90% non-condensing	
Operating Vibration	0.25 G, Sine, 5-500 Hz; 0.25 GRMS, Random 5-500 Hz	
Non-operating Vibration	0.5 G, 5 - 500 Hz, Sine; 0.5 GRMS, Random, 5-500Hz	
Operating Shock	5G, 11ms, half-sine	
Non-operating Shock	10 G, 11ms, half-sine	
Maximum Exhaust Air Flow	HPE Alletra 9060 Storage Base (with 4-nodes): 575 CFM HPE Alletra 9080 Storage Base (with 4-nodes): 575 CFM HPE Alletra 2240 Drive Enclosure: 275 CFM	
Acoustic Sound Pressure Level	**8500 RPM (typical) 60% Duty Cycle**	**14000 RPM (maximum) 100% Duty Cycle**
HPE Alletra 9060 4-nodes	72 dB	83 dB
HPE Alletra 9080 4-nodes	72 dB	83 dB
HPE Alletra 2240	70 dB	82 dB
Acoustics Sound pressure level measured per ISO 7779 specifications		

Technical Specifications

Electromagnetic Compatibility

- CISPR 32/ EN 55032: 2015 Class A
- CISPR 24/ EN 55024:2010 +A1:2015
- IEC 61000-3-2/ EN 61000-3-2: 2014
- IEC 61000-3-3/ EN 61000-3-3: 2013
- AS/NZS CISPR 32:2013 Class A
- CNS 13438:2006 Class A
- 47 CFR Part 15 Subpart b Class A
- ICES-003 Issue 6 Class A
- VCCI-CISPR 32: 2016 Class A
- RRA Notice No. 2018-19 (2018.10.19) Class A
- RRA Notice No. 2018-103 (2018.10.19) Class A

Safety

- IEC 60950-1:2005 (2nd Edition); +A1:2009 +A2:2013
- EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011 +A2:2013
- EN 62479:2010
- IEC 62368-1: 2014
- EN 62368-1:2014+A11:2017
- CNS 14336-1
- UL 62368-1 2nd Ed.
- CAN/CSA-C22.2 No. 62368-1-14

Certifications/Markings

- BIS
- BSMI
- cCSAus
- CE
- EAC
- ENERGY STAR Certified
- FCC Class A
- GS
- IC Class A
- KCC
- Morocco
- RCM
- Ukraine
- VCCI
- WEEE
- China RoHS
- EU RoHS
- UKCA

Summary of Changes

Date	Version History	Action	Description of Change
19-Feb-2024	Version 17	Changed	Networking product names were updated.
04-Dec-2023	Version 16	Changed	HPE Services Rebranding
02-Oct-2023	Version 15	Changed	Configuration Information section was updated
01-May-2023	Version 14	Changed	Overview and Configuration Information sections were updated.
19-Sep-2022	Version 13	Changed	Standard Features section was updated. Obsolete SKU AP820A was removed
06-Jun-2022	Version 12	Changed	Service and Support and Configuration Information sections were updated
18-Apr-2022	Version 11	Changed	Standard Features and Configuration Information sections were updated.
04-Apr-2022	Version 10	Changed	Configuration Information section was updated.
07-Mar-2022	Version 9	Changed	Overview and Configuration Information sections were updated.
07-Feb-2022	Version 8	Changed	Configuration Information section was updated.
06-Dec-2021	Version 7	Changed	Configuration Information section was updated.
01-Nov-2021	Version 6	Changed	Configuration Information section was updated.
04-Oct-2021	Version 5	Changed	Service and Support section was updated.
16-Aug-2021	Version 4	Changed	Configuration Information section was updated.
02-Aug-2021	Version 3	Changed	Added Alletra 2240 Drive Enclosure and corresponding power supplies and cables. Added Data Ops Manager Upgrade SKU. Fixed typos.
17-May-2021	Version 2	Changed	Update SFP mixing rules and cables section. Fixed typos.
04-May-2021	Version 1	New	New QuickSpecs.

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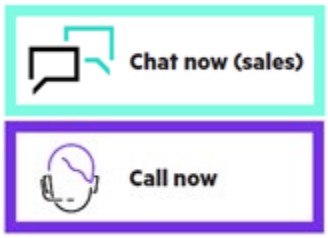

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