



▶ Commvault® Validated Reference Design Specification

COMMVault HYPERSCALE™ SOFTWARE ON HPE® APOLLO® 4200 GEN9

▶ INTRODUCTION TO COMMVault HYPERSCALE™ SOFTWARE

With Commvault HyperScale™ Technology, you can build a unified, modern data protection and management platform that delivers cloud-like services on premises. The purpose of this technical specification is to detail the HPE Apollo 4200 Gen9 infrastructure for the Commvault Validated Reference Design. By building these services on a scale-out infrastructure and leveraging Commvault capabilities, you'll enable:

- Cloud-like agility, resiliency and availability to on-premises data and applications
- Greater end-user efficiency through automation and self-service capabilities
- Improved hardware utilization and optimized costs from general-purpose hardware
- Seamless storage scalability with predictable performance without requiring forklift upgrades
- Better, more secure data protection, utilization and movement by eliminating point product and data silos

By shifting the secondary storage and data management infrastructure to this architecture, enterprises can go a long way in transforming their data centers to be as operationally efficient, resilient and scalable as public cloud infrastructure. Lower hardware costs, operational efficiencies and simplified support allows the replacement of limited and legacy backup tools with a modern cloud enabled data management solution at the cost of replacing legacy purpose-built backup appliance (PBBA). More importantly, this architecture, which extends into public cloud, allows enterprises to offer consistent sets of services to all workloads running on premises or in public cloud, independent of the underlying infrastructure for true cloud based data management.

Further testing is required before this configuration is fully validated it is built to the design specification with HPE and serves as the configuration that Commvault is currently testing against.

This configuration is currently orderable for customer deployment and supported through Commvault support channels.

REFERENCE DESIGN WITH HPE

HPE Apollo servers are purpose-built for large-scale deployment of software defined modernized infrastructure. The HPE Apollo 4200 Gen9 represents a suited platform for Commvault's HyperScale™ Software to expand and transform capabilities for customers in today's evolving software-defined world. The highly dense HPE Apollo 4200 Gen9 has a number of options to ensure that the acquisition, deployment, and upkeep are streamlined.

▶ Evolve your on-premises environment so that it mirrors the business benefits you've achieved using cloud. When that happens, you'll have a modern data protection platform that can store and protect your data for years to come.

HOW TO USE THIS DOCUMENT

This document covers the design components of the Commvault HyperScale™ architecture, providing options for purchasing the infrastructure for a Commvault HyperScale™ Software solution. Commvault Validated Reference Designs deliver tested configurations with leading hardware vendor technology that provide validated designs complemented by best practices that will accelerate ROI, reduce complexity, and add customer value.

The document is broken into a high level component section detailing out the configuration and specific component options that can be selected depending on the storage density, metadata, and optional I/O components that are required. Each subsection provides guidance for ordering configurations.

This document does not cover overall architecture and design of the Commvault HyperScale solution, and should be considered as a supplement specific to HPE.

Commvault HyperScale™ Appliance Solution Brief

Our offering allows customers to significantly decrease complexity and cost while increasing scalability and IT agility.

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▶ HPE APOLLO 4200 GEN9 SPECIFICATION SUMMARY

CORE COMPONENTS

Core Components represent features of the build that do not change. They include Chassis, CPU, Memory and other critical elements that need to be ordered.

Country-specific components such as power cables are not listed and can be changed as required.

CORE COMPONENTS	TECHNICAL SPECIFICATION
Form Factor	2U Rackmount
Motherboard Chipset	Intel® C610
Processors	Intel® Xeon® E5-2640v4
Memory	256GB RAM (8x 32GB RDIMM)
Networking	HPE Ethernet 10Gb 2-port 560SFP+ Adapter HPE Ethernet 10Gb 2-port 560FLR-SFP+ Adapter
Storage Controller	HPE Smart Array P840ar QS HPE Smart Array H240 Smart HBA

BOOT AND METADATA STORAGE OPTIONS

Boot storage houses the operating system and core Commvault HyperScale binaries, while the Metadata storage provides caching areas for such operations as deduplication, indexing, and extents. Boot and

metadata can be either configured together as a single unit or housed separately. Two storage options have been included as part of this build as there have been times that specific hardware components, surrounding flash storage, have elongated order cycles and are typically beyond HPE's or partner's control.

Although these two configurations rely on slightly different components they meet the required specifications for customer deployment. When selecting a configuration for deployment choose one of the following options, not both.

While both configurations options meet the required performance requirements, at the time of this writing, there is an economic advantage with the first option and should be considered as the primary choice.

BOOT/METADATA CONFIGURATIONS	TECHNICAL SPECIFICATION
OPTION 1: COMBINED BOOT/METADATA	
Configuration for all drive sizes except 12TB	6x 960GB SATA SSD, 6Gbps – RAID5
12TB Drives Only	4x1.92TB SATA SSD, 6G -RAID 5
OPTION 2: SEPARATE BOOT/METADATA	
Boot Storage for all drive sizes except 12TB Metadata Storage for all drive sizes except 12TB	2x 480GB SATA SSD, 6Gbps – RAID1 1x HPE 6.4TB PCIe x8 Lanes Mixed Use HDDL 3yr Wty Digitally Signed Firmware Card
12TB Drives Only	2x 480GB SATA LFF SSD- RAID 1 1x HPE 6.4TB PCIe x8 Lanes Mixed Use HDDL 3yr Wty Digitally Signed Firmware Card

DATA STORAGE OPTIONS

Data storage houses the data footprint for the customer environment. Data storage configuration directly impacts the amount of data that each node in the solution is able to store.

When deploying nodes inside of the same block (e.g. 3 node initial configuration), choose identical HDDs. If the nodes in a block have different HDD sizes, the lowest size will be chosen for the data storage, which would lead to wasted resources on nodes with larger HDDs.

Separate node blocks in the same grid may use different HDDs (e.g. mixing a 3 node 6TB block with a second 3 node 10TB block in the same grid).

Overall sizing and retention varies per customer and therefore is beyond the scope of this document. Please refer to Commvault HyperScale sizing documentation to determine the drive size (and node quantity) required for the specific deployment.

DATA STORAGE CONFIGURATION	TECHNICAL SPECIFICATION
STORAGE CONFIGURATION Data Storage	4TB, NL-SAS or SATA, 24 Drives 6TB, NL-SAS or SATA, 24 Drives
Storage Type	8TB, NL-SAS or SATA, 24 Drives 10TB, NL-SAS or SATA, 24 Drives 12TB, NL-SAS or SATA, 24 Drives

NOTE: Drive sizes and interfaces can change. Please view [Data Store Options](#) section.

OPTIONAL I/O ADD-ON CARDS

The design includes all core components to work with the Commvault HyperScale Technology. There are specific times where additional I/O connectivity is desired as part of the overall solution. Optional I/O cards for SAS and Fibre Channel connectivity are validated and included as part of the design, the quantity and type of these I/O cards are customizable, and there are multiple valid configurations possible.

SAS Connectivity is typically used for direct tape integration, while Fibre Channel cards are used for Commvault IntelliSnap® operations or tape libraries.

▶ BILL OF MATERIALS

This bill of materials represents the configuration being validated as part of the Commvault Validated Reference Design Program. There are four main sections of this document. Core Components, Data Storage Options, Metadata Storage Options, and Optional Components.

CORE COMPONENTS

QTY.	PART NUMBER	DESCRIPTION
1	808027-B21	HP Apollo 4200 Gen9 24 LFF Configure-to-order Server
1	808027-B21 ABA	HP Apollo 4200 Gen9 24 LFF Configure-to-order Server
1	830728-L21	HPE Apollo 4200 Gen9 Intel Xeon E5-2640v4 (2.4GHz/10-core/25MB/90W) FIO Processor Kit
1	830728-B21	HPE Apollo 4200 Gen9 Intel Xeon E5-2640v4 (2.4GHz/10-core/25MB/90W) Processor Kit
8	805351-B21	HP 32GB (1x32GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit
1	726907-B21	HPE H240 12Gb 2-ports Int Smart Host Bus Adapter
1	665243-B21	HPE Ethernet 10Gb 2-port 560FLR-SFP+ Adapter
1	665249-B21	HPE Ethernet 10Gb 2-port 560SFP+ Adapter
4	455883-B21	HPE BladeSystem c-Class 10Gb SFP+ SR Transceiver
2	720620-B21	HPE 1400W Flex Slot Platinum Plus Hot Plug Power Supply Kit
1	806562-B21	HP Apollo 4200 Gen9 Redundant Fan Kit
1	838827-B21	HPE SAS Smart HBA H240 FIO Controller Mode for Rear Storage
1	822640-B21	HP Apollo 4200 Gen9 FIO Strap Shipping Bracket
1	822731-B21	HP 2U Gen9 Hardware Rail Kit
1	E6U64ABE	HPE iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU
1	HA113A1 58Y	HPE Apollo 2000/4200 Install Service

Commvault Disaster Recovery Module for Architecture Design

Replace multiple point products with a single solution for backup and DR across physical and virtual servers, disk, tape, and private/public/hybrid clouds, reducing your licensing and operational costs.

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BOOT & METADATA STORAGE OPTIONS

There are two configuration options for boot and metadata storage. Select only one option. All part numbers in the selected option are required.

OPTION 1 – COMBINED BOOT/METADATA STORAGE

QTY.	PART NUMBER	DESCRIPTION
ALL DRIVES EXCEPT 12TB		
6	P09716-B21	960GB MU SFF SSD
1	838833-B21	HPE Apollo 4200 Gen9 6 SFF Rear Hard Drive Cage Kit
FOR 12TB DRIVES ONLY		
4	P07934-B21	HPE 1.92TB SATA MU LFF LPC DS SSD
1	806563-B21	HPE Apollo 4200 Gen9 4 LFF Rear Hard Drive Cage Kit
1	838823-B21	HPE Apollo 4200 Gen9 Smart HBA H240 Rear Cable Kit

OPTION 2 – SEPARATE BOOT & METADATA STORAGE

OPTION 2 SUPPORTS A CLOUD CACHE DDB

QTY.	PART NUMBER	DESCRIPTION
ALL DRIVES EXCEPT 12TB		
1	838833-B21	HPE Apollo 4200 Gen9 6 SFF Rear Hard Drive Cage Kit
2	P04560-B21	HPE 480GB RI SFF SSD
1	877829-B21	HPE 6.4TB PCIe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card
FOR 12TB DRIVES ONLY		
2	P04499-B21	480GB SATA RI LFF LPC DS SSD
1	877829-B21	HPE 6.4TB PCIe x8 Lanes Mixed Use HHHL 3yr Wty Digitally Signed Firmware Card
1	806563-B21	HPE Apollo 4200 Gen9 4 LFF Rear Hard Drive Cage Kit
1	838823-B21	HPE Apollo 4200 Gen9 Smart HBA H240 Rear Cable Kit

DATA STORAGE OPTIONS

For data storage, choose the appropriate part number and do not mix part numbers within a block. The drives listed for this configuration are 6Gbps SATA, but 12Gbps or NL-SAS variants of these drives are acceptable, and they may be deployed as part of this design. Currently all known variants of 6/12Gbps and NL-SAS/SATA drives are validated.

QTY.	PART NUMBER	DESCRIPTION
24	861683-B21	HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Warranty 512e HDD
24	861742-B21	HPE 6TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Warranty 512e HDD

QTY.	PART NUMBER	DESCRIPTION
24	834028-B21	HPE 8TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Warranty 512e Digitally Signed Firmware HDD
24	P09161-B21	HPE 10TB SATA 7.2k LFF
24	881787-B21	HPE 12TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Warranty Helium 512e Digitally Signed Firmware HDD

OPTIONAL I/O ADD-ON CARDS

QTY.	PART NUMBER	DESCRIPTION
1	C8R39A	HPE StoreFabric SN1100E 16Gb Dual Port Fibre Channel Host Bus Adapter
1	QW972A	HPE StoreFabric SN1000Q 16GB 2-port PCIe Fibre Channel Host Bus Adapter

ADDITIONAL RESOURCES

Additional information regarding the HPE Apollo 4200 Gen9 can be found on the HPE website. Useful links have been included:

- HPE Apollo 4200 Gen9 Rack Server details and general configuration can be found at this [link](#) (US version).
- HPE Apollo 4200 Gen9 Technical Specifications Guide can be found at this [link](#) (US version).

▶ Bringing a scale-out infrastructure to the Commvault Data Platform, HyperScale™ Technology integrates with storage arrays, hypervisors, applications and the full range of cloud provider solutions to support the most diverse and dynamic environments. To learn more, visit commvault.com/hyperscale.

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