

# Commvault Validated Reference Design Specification

Commvault HyperScale™ X Software on Dell EMC PowerEdge® R740XD2

## INTRODUCTION TO COMMVAULT HYPERSCALE X SOFTWARE

Commvault HyperScale X Software is an intuitive and easy to deploy integrated data protection solution with a distributed scale-out file system that provides unmatched scalability, security, and resiliency. Its flexible architecture allows you to get up and running quickly and grow as your needs demand. Commvault Validated Reference Designs accelerate hybrid cloud adoption and deliver:

- Simple, flexible data protection for all workloads including containers, virtual, and databases
- High performance backup and recovery with enhanced recovery capabilities
- Optimized scalability to easily grow capacity in single-node increments as needed, on-prem and to the cloud
- Enhanced resiliency with intelligent load balancing of data across disks and nodes and the ability to support concurrent hardware failures
- Built-in ransomware protection via intelligent monitoring to detect data anomalies and alert users

By shifting the secondary storage and data management infrastructure to a scale-out architecture, enterprises can help transform their data centers to be as operationally efficient, resilient, and scalable as public cloud infrastructure. Commvault HyperScale X allows organizations to replace limited and legacy backup tools with a modern hybrid cloud-enabled data management solution that eliminates expensive forklift upgrades. The purpose of this technical specification is to provide the complete Dell R740XD2 Commvault Validated Reference Design for Commvault HyperScale X Software.

## GENERAL AVAILABILITY DESIGNATION

This configuration is classified as a general availability design, meaning it has been tested and validated per the Commvault Validated Reference Design Program. This configuration is subject to change due to updated part numbers or replacement hardware as a result of hardware life cycles. Validated Reference Designs are developed to provide optimized costs, resiliency, and performance. Commvault collaborates with Dell to create fully supported design specifications. Substitutions or modifications to validated design specifications could result in unsupported configurations. Any substitutions or modifications to validated configurations must be approved by both Commvault and Dell. This configuration is currently orderable for customer deployment and supported through Commvault support channels.

### How to use this document

This document details the necessary design components of the Commvault HyperScale™ Technology architecture, providing the key components required when purchasing and configuring the infrastructure for a Commvault HyperScale™ Software solution. Commvault Reference Designs deliver validated configurations with leading hardware vendor technology 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 the configuration and specific component options that can be selected to satisfy storage capacity and density requirements. 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 Dell.

## DELL R740XD SPECIFICATION SUMMARY

### Server overview

Technical specification	
Form factor	2U Rack Mount
Motherboard chipset	Intel® C620 Series
Processors	Intel® Xeon® Silver 4216
Memory	768 GB RAM
Total slots and form factor	4 LP slots ((2) x4, (1) x16, (1) x8), 1 FH slot (x8)

## BOOT AND METADATA STORAGE

Boot storage houses the operating system and core Commvault HyperScale and Hedvig binaries. The metadata storage provides caching areas for such operations as deduplication, indexing, and extents. The design specifies dedicated storage for Commvault metadata.

## DATA STORAGE OPTIONS

Data storage houses the protected data. Data storage selection dictates the amount of data that each node can accommodate. Initial deployments of Commvault HyperScale require a 3-node configuration, each with identical hard disk drive (HDD) capacities. Subsequent expansion of the Storage Pool can be done with individual or multiple nodes.

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

## NETWORKING OPTIONS

A minimum of two (2x) 10 GB ports are required for Commvault HyperScale installs: one for protected data and one for storage communication between the nodes. It is recommended to have a total of four (4x) ports per node: two (2x) for data and two (2x) for storage for failover and redundancy. These builds have been designed with this recommendation.

## OPTIONAL I/O ADD-ON CARDS

The design includes all core components to work with Commvault HyperScale Technology. There are specific times where additional parts may be required depending on the environment and uses case (e.g., optional I/O cards for SAS and Fiber Channel connectivity). The I/O cards below 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 Fiber Channel cards are used for Commvault IntelliSnap® technology operations or tape libraries.

## BILL OF MATERIALS

The Bill of Materials list all components required to configure Commvault HyperScale nodes. Each component has been tested and validated. Substitutions cannot be supported. Country-specific components such as power cables are not listed and can be changed as required

Qty.	Part number	Description
1	210-ARCU	PowerEdge R740XD2 Server
1	321-BDXY	Chassis Config 0, 24 x 3.5" HDD, Single PERC, for Riser Config 1 or 4
1	461-AADZ	No Trusted Platform Module
2	338-BSDO	Intel Xeon Silver 4216 2.1 G, 16 C/32 T, 9.6 GT/s, 22 M Cache, Turbo, HT (100 W) DDR4-2400
1	780-BCDS	C7, Unconfigured RAID for HDDs or SSDs
1	405-AAND	Dell PERC H730P RAID mezzanine, mini mono
1	385-BBKT	iDRAC9, Enterprise
1	330-BBMT	Riser Config 4, Butterfly - 1 x FH + 4 x LP, Dual CPU, R740XD2
1	450-ADWM	Dual, Hot-plug, Redundant Power Supply (1 + 1), 1100W
1	384-BBBL	Performance BIOS Settings
1	800-BBDM	UEFI BIOS Boot Mode with GPT Partition
1	770-BCFZ	PEC Static Rails
8	370-AEVP	64 GB RDIMM, 3200 MT/s, Dual Rank

### Boot and metadata storage

Qty	Part number	Description
1	403-BCHJ	BOSS controller card + with 2 M.2 Sticks 480 GB (RAID 1),FH
2	403-BCLH	6.4 TB Enterprise NVMe Mixed Use AG Drive AIC Gen4

### Networking

Qty	Description
1	Broadcom 57414 Dual Port 10/25 GbE SFP28 Adapter, PCIe, LP
1	Broadcom 57414 Dual Port 25 GbE OCP SFP28 LOM Mezz Card

**Note:** Please work with the partner for part numbers

Data Storage options	
Qty	Description
24	8 TB Hard Drives
24	12 TB Hard Drives
24	16 TB Hard Drives
24	20 TB Hard Drives (must acknowledge the increased memory requirement)

**Note:** SATA, NL-SAS and SAS drives are supported, however SAS is recommended. Please work with the partner/vendor to get the proper part numbers. For 20 TB drives 768 GB Ram is a requirement, failure to follow this will lead to an unsupported configuration. For lower than 20 TB drive capacities, 512 GB of Ram is still fine.

### ADDITIONAL ADD-ON CARDS

**Note:** The second 6.4 TB NVMe card goes into the x4 slot that has an open back, this card will work at x4 speeds as opposed to x8 speeds

### FREE SLOTS AVAILABLE

The slots below are the remaining free slots available for use in the server after the core components have been installed. Please ensure any additional cards added will physically fit in the server.

Qty.	Form factor
0	x4 slot (closed — cannot be used for adding other optional cards for HyperScale X)

### OPTIONAL I/O ADD-ON CARDS

Qty.	Part number	Description
1	403-BBMS	QLogic 2692 Dual Port 16 Gb Fiber Channel HBA, PCIe Low Profile
1	403-BBLR	Emulex LPe31002-M6-D Dual Port 16 Gb Fiber Channel HBA, LP

**Note:** To fit in a fiber card, the PCIe NIC must be removed

## ADDITIONAL CONSIDERATIONS

Please note that due to the differences in each customer environment, some components are not included in the design but must be ordered separately to ensure full functionality and connectivity. These parts include the FC and Ethernet transceivers, as well as the Ethernet, FC, and power cables.

## ADDITIONAL RESOURCES

Additional information regarding the Dell R740XD2 can be found on the Dell website. A couple of useful links have been included:

[PowerEdge R740xd2 Spec Sheet](#)

[PowerEdge R740xd2 Technical Guide](#)

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Commvault HyperScale Technology integrates with storage arrays, hypervisors, applications and the full range of cloud provider solutions to support the most diverse and dynamic environments. [Learn >](#)