



▶ Commvault® Validated Reference Design Specification

COMMVault HYPERSCALE™ SOFTWARE ON LENOVO® SR650

▶ 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 Lenovo® SR650 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.



- ▶ Bringing a scale-out infrastructure to the Commvault Data Platform, 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.

RELEASE CANDIDATE DESIGNATION

This configuration is classified as a release candidate, meaning it is not yet fully validated and could change; however, it is built to the design specification with the vendor and is expected to become the final reference design. Validated Reference Designs are designed to provide optimized costs and match performance requirements for every customer.

Further testing is required before this configuration is fully validated. It is built to the design specification with the vendor 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 LENOVO

Lenovo SR650 servers are versatile and scalable providing an optimized platform for software defined modernized infrastructure. The SR650 represents a suited platform for Commvault's HyperScale™ Software to expand and transform capabilities for customers in today's evolving software-defined world. The medium dense Lenovo SR650 has a number of options to ensure that the acquisition, deployment, and upkeep are streamlined.

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 the applicable hardware vendor.

▶ LENOVO SR650 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® C624
PROCESSORS	Intel Xeon Silver 4110 8C 85W 2.1GHz Processor
MEMORY	256GB RAM (8x 32GB RDIMM)
NETWORKING	ThinkSystem 10Gb 4-port SFP+ LOM
STORAGE CONTROLLER	ThinkSystem 430-16i SAS\SATA 12Gb HBA

BOOT & 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.

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.

OPTION	BOOT/METADATA CONFIGURATIONS	TECHNICAL SPECIFICATION
Option 1	Separate Boot/Metadata Boot Storage Metadata Storage	2X ThinkSystem M.2 5100 480GB SATA 6Gbps Non-Hot-Swap SSD 1x ThinkSystem HHHL Intel P4600 4.0TB Mainstream NVMe PCIe3.0 x4 Flash Adapter

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, 12 Drives
Storage Type	6TB, NL-SAS or SATA, 12 Drives
	8TB, NL-SAS or SATA, 12 Drives
	10TB, NL-SAS or SATA, 12 Drives
	12TB, NL-SAS or SATA, 12 Drives

NOTE: drive sizes and interfaces can change. Please view data store options section below.

OPTIONAL I/O ADD-ON CARDS

The design includes all core components to work with Commvault's 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.

The bill of materials listed below create a single node for the Commvault HyperScale™ configuration. Commvault HyperScale™ deployments are deployed in 3 or 6 node increments, adjust the quantities below to reflect the amount of required nodes for the solution.

CORE COMPONENTS

QTY.	PART NUMBER	DESCRIPTION
1	AUVW	ThinkSystem SR650 3.5" Chassis with 8 or 12 bays
2	AWEE	Intel Xeon Silver 4110 8C 85W 2.1GHz Processor
8	AUND	ThinkSystem 32GB TruDDR4 2666 MHz (2Rx4 1.2V) RDIMM
1	AUR9	ThinkSystem SR650/SR550/SR590 3.5" SATA/SAS 12-Bay Backplane
1	AUNM	ThinkSystem 430-16i SAS\SATA 12Gb HBA
1	AUMV	ThinkSystem M.2 with Mirroring Enablement Kit
1	AURC	ThinkSystem SR550/SR590/SR650 (x16/x8)/(x16/x16) PCIe FH Riser 2 Kit
1	AUKK	ThinkSystem 10Gb 4-port SFP+ LOM
1	AUPW	ThinkSystem XClarity Controller Standard to Enterprise Upgrade
2	AVWD	ThinkSystem 750W(230/115V) Platinum Hot-Swap Power Supply
1	AURP	Lenovo ThinkSystem 2U 2FH Riser Bracket
1	AUQB	Lenovo ThinkSystem Mainstream MB - 2U

BOOT & METADATA STORAGE OPTIONS

There are two options for boot and metadata storage configurations, select only one option. Two options are being offered due to component availability and pricing.

OPTION 1 – SEPARATE BOOT & METADATA STORAGE

QTY.	PART NUMBER	DESCRIPTION
2	B11V	ThinkSystem M.2 5100 480GB SATA 6Gbps Non-Hot-Swap SSD
1	B11Y	ThinkSystem HHHL Intel P4600 4.0TB Mainstream NVMe PCIe3.0 x4 Flash Adapter

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 should 12Gbps or NL-SAS variants of these drives are acceptable, 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
12	AUU8	ThinkSystem 3.5" 4TB 7.2K SATA 6Gb Hot Swap 512n HDD
12	AUUA	ThinkSystem 3.5" 6TB 7.2K SATA 6Gb Hot Swap 512e HDD
12	B0YR	ThinkSystem 3.5" 8TB 7.2K SAS 12Gb Hot Swap 512e HDD
12	AUUB	ThinkSystem 3.5" 10TB 7.2K SATA 6Gb Hot Swap 512e HDD
12	B118	ThinkSystem 3.5" 12TB 7.2K SATA 6Gb Hot Swap 512e HDD

OPTIONAL I/O ADD-ON CARDS

QTY.	PART NUMBER	DESCRIPTION
1	ATZV	Emulex 16Gb Gen6 FC Dual-port HBA
1	AUNR	ThinkSystem 430-8e SAS/SATA 12Gb HBA

▶ ADDITIONAL RESOURCES

Additional information regarding the Lenovo SR650 can be found on the Lenovo website. Useful links have been included:

- [Lenovo SR650 Rack Server details.](#)

▶ Learn more about Commvault HyperScale™ Software. Visit [commvault.com/hyperscale](https://www.commvault.com/hyperscale).

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