

# Data Protection for Cisco HyperFlex with Commvault Software



## Highlights

### Protect Applications and Data on Cisco HyperFlex™ Systems

- Server virtualization
- Large remote-office and branch-office (ROBO) environments
- Development and test environments
- Virtual desktop infrastructure (VDI)

### Achieve Agility

- Automation
- Scalability
- Virtual machine- and application-specific protection
- Replication

### Quickly Restore Applications and Data on Virtual Machines

- Virtual machines restored in seconds

## Imagine a comprehensive data management solution for your Cisco HyperFlex™ platform—a solution that protects your hyperconverged systems and the rest of your data center storage.

Storage requirements are increasing by 40 percent per year. Some of this increase can be attributed to virtualization technologies. Gartner recently reported that 75 percent of all x86-architecture server workloads are virtualized—a trend fueled by virtualization technologies that are becoming more lightweight and that support more workloads, and by the proliferation of virtual machines through agile development processes<sup>1</sup>. Hyperconverged systems accelerate this process, making virtualization clusters easier to purchase and provision and helping your IT organization respond more quickly to business needs. Hyperconverged solutions, such as Cisco HyperFlex systems, are especially effective for quick and agile deployment and management

<sup>1</sup> <https://virtualizationreview.com/articles/2016/05/13/gartner-says-server-virtualizationreaches-saturation-point.aspx>

of server virtualization infrastructure in enterprises and large remote offices, for development and test workloads, and for virtual desktop infrastructure (VDI). You need an equally easy-to-deploy solution that provides consistent application and data management and protection across these environments.

Cisco and Commvault have performed extensive testing to create a solution agile enough to support your Cisco HyperFlex platform and your entire enterprise with consistent data protection throughout, eliminating backup silos and inconsistent backup and retention policies. The Data Protection for Cisco HyperFlex with Commvault Software solution spans your environments for:

- Server virtualization, with automation, scalability, virtual machine-specific support, and deep enterprise application support
- Large remote-office and branch-office (ROBO) environments, with automation, replication, and support that spans all your applications with cost-effective Commvault software
- Development and test environments, with recent copies of your production data, self-service capabilities for an agile process, and cross-platform restoration of data
- VDI, with integrated protection and self-service recovery

This Cisco® and Commvault solution is a neutral, universal platform that spans your environment and simplifies data management.

## Protection for Cisco HyperFlex Systems

Cisco HyperFlex systems deliver next-generation hyperconvergence and end-to-end simplicity for faster IT deployments, with unified computing, networking, and storage resources. Cisco HyperFlex systems are built on the Cisco Unified Computing System™ (Cisco UCS®) platform, providing data center architecture that supports traditional, converged, and hyperconverged systems with common policies and infrastructure management. The Cisco HyperFlex HX Data Platform is a purpose-built, high-performance, distributed file system delivering a wide range of enterprise-class data management and optimization services. The platform redefines distributed storage technology, expanding the boundaries of hyperconverged infrastructure. It offers independent scaling, continuous data optimization, simplified data management, and dynamic data distribution for increased data availability.

## Powered by Commvault Software

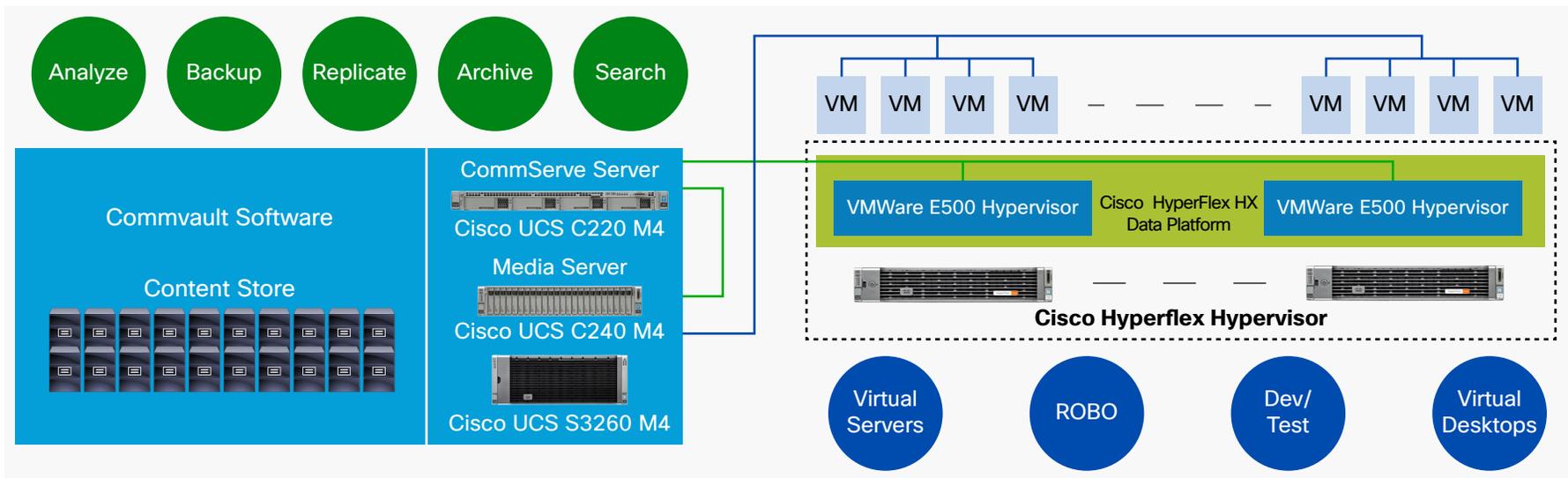
Commvault software helps you manage your data with a single, integrated solution. It delivers management, protection, and recovery for all the environments that use Cisco HyperFlex solutions, including virtualized servers, large remote and branch offices, development and test environments, and virtual desktops. With Commvault software running on Cisco storage-dense servers, the solution requires fewer hardware resources than traditional backup or point products. Most important, its integrated application protection helps ensure consistency and rapid application recovery, including precise recovery for a wide range of applications. You can recover virtual machines instantly with Commvault Live Recovery options, including Live Browse, Live File Restore, and Live VM Restore. Commvault delivers specific benefits for environments that are deployed on the Cisco HyperFlex platform, including the following.

- Server virtualization
  - Automation: Today, most servers are virtualized, with new virtual machines being created faster than ever. Commvault software automatically detects and classifies new virtual machines and adds them to the proper backup policy so that you don't have to worry about whether your virtual machines are left unprotected. Commvault software can also automatically detect idle virtual machines and safely archive them to reclaim valuable production resources. A built-in workflow engine supports additional administrator-specified automation.
  - Scalability: The Cisco HyperFlex platform enables you to easily scale out your production environment. But most data protection solutions require redesign and often require new network infrastructure to scale. Commvault software automatically balances workloads across multiple backup servers to deliver the benefits of a scale-out architecture for growing data centers. End-to-end deduplication dramatically reduces network traffic and storage space, so your data archive stays compact and efficient.
  - Virtual machine-specific support: Virtualized environments benefit from data protection that works in conjunction with them.
- Integration with VMware APIs allows you to avoid installing agents in every virtual machine. Your backup policy can be set based on your VMware metadata. The snap-in for VMware vSphere can ease management. Full virtual machine or individual file restore options can reduce your recovery-time objective (RTO).
- Deep enterprise application support: Some enterprise applications need special care whether or not they are virtualized. Microsoft applications, databases, and software-as-a-service (SaaS) applications, for instance, all have particular needs: for example, to understand and appropriately interact with distributed availability groups, or log truncation, or enter backup mode. Commvault has deep support for most enterprise applications to achieve exactly the right protection for every application.
- Large ROBO deployments
  - Automation: Remote and branch offices benefit even more from automation because these data centers often run with lights-out management. Commvault software's advanced workflow and robust reporting capabilities let you build a reliable, simplified protection and management system.
  - Replication: Just because the data center is remote doesn't mean that the data archive has to be. Commvault DASH Copy efficiently moves deduplicated and compressed changes to your main data center. Commvault LiveSync automatically keeps a disaster-recovery copy ready for fast environment restoration if things go wrong.
  - Broad application support: The Cisco HyperFlex platform provides an excellent solution for consolidating your remote-office platforms, and Commvault believes in leaving no system behind. You may still have a standalone Oracle database or an IBM AIX server at that branch office. You can include them in the Commvault backup for complete control, visibility, and protection of all your data and application environments.
- Development and test environments
  - Production data for testing: Testing works best if you can use production, development, and test environments.

- Self-service for an agile workflow: The Commvault vWeb console allows developers to create their own virtual machines, VMware vSphere snapshots, and backups and to restore from a backup without waiting for support from the IT organization. The IT administrators set policy, limits, and virtual machine expiration times to help ensure that no one abuses the system. Everyone gets access to the best resources, faster, for a more productive development and testing pipeline.
- Virtual desktops
  - Integrated protection: Typically, VDI uses external storage for data.

Commvault software can integrate your data into its deduplicated repository for a consistent, efficient, complete source for all your archived data. Sometimes, VDI includes some user data within each virtual machine. Commvault software can protect this data as well, with tight virtual machine integration. Whichever option you choose, Commvault software can deliver the common platform to merge data generated and stored in disparate architectures and applications into a single, efficient, open platform for archive data management.

Figure 1. Cisco HyperFlex Systems Protection with Commvault Running on Cisco UCS



## Built on Cisco UCS Servers

Cisco UCS servers provide the infrastructure to support Commvault software (Figure 1). The Commvault CommServe software uses Cisco UCS C220 Rack Servers as the management platform, and the Commvault Media Agent runs on either Cisco UCS C240 Rack Servers or S3260 Storage Servers to store your backup and replicated data. Tables 1 and 2 show configurations with CommServe and Media Agent.

### Cisco UCS C220 Rack Server

The Cisco UCS C220 Rack Server is the most versatile, high-density, general-purpose enterprise infrastructure and application server in the

industry today. It delivers world-record performance for a wide range of enterprise workloads, making it an excellent platform to run the Commvault CommServe command and control management software.

### Cisco UCS C240 Rack Server

The Cisco UCS C240 Rack Server is one of the highest-density 2-socket rack server platforms in the industry. This server offers compact performance for enterprise-critical applications, such as data availability. Its large memory capacity and up to 12 large-form-factor (LFF) or 24 small-form-factor (SFF) disk drives make it an excellent platform for small installations.

**Table 1.** Configurations for Commvault CommServe

	Express (Small)	Workgroup (Medium)	Data Center (Large)	Enterprise (Extra Large)
<b>Servers</b>	Cisco UCS C220	Cisco UCS C220	Cisco UCS C220	Cisco UCS C220
<b>CPU</b>	Intel® Xeon® processor E5-2623 (3 GHz, 4 cores)	Intel Xeon processor E5-2630 (2.4 GHz, 8 cores)	Intel Xeon processor E5-2640 (2.6 GHz, 8 cores)	Intel Xeon processor E5-2620 (2.4 GHz, 6 cores, dual socket)
<b>Memory</b>	16 GB DDR4 total	32 GB DDR4 total	32 GB DDR4 total	64 GB DDR4 total
<b>Storage</b>	<ul style="list-style-type: none"> <li>4 x 300-GB 10,000- rpm SAS drives (RAID 10)</li> <li>600 GB usable (boot, binaries, and database)</li> </ul>	<ul style="list-style-type: none"> <li>4 x 300 GB 15,000- rpm SAS drives (RAID 10)</li> <li>300-GB 10,000-rpm SAS drive (boot)</li> <li>600 GB usable (binaries and database)</li> </ul>	<ul style="list-style-type: none"> <li>3 x 240-GB SSD drives (RAID 5)</li> <li>300-GB 10,000-rpm SAS drive (boot)</li> <li>480 GB usable (binaries and database)</li> </ul>	<ul style="list-style-type: none"> <li>3 x 240-GB SSD drives (RAID 5)</li> <li>300-GB 10,000-rpm SAS drive (boot)</li> <li>480 GB usable (binaries and database)</li> </ul>
<b>RAID</b>	<ul style="list-style-type: none"> <li>SAS 12-GB RAID controller</li> <li>512-MB flash-backed cache</li> </ul>	<ul style="list-style-type: none"> <li>SAS 12-GB RAID controller</li> <li>1-GB flash-backed cache</li> </ul>	<ul style="list-style-type: none"> <li>SAS 12-GB RAID controller</li> <li>1-GB flash-backed cache</li> </ul>	<ul style="list-style-type: none"> <li>SAS 12-GB RAID controller</li> <li>1-GB flash-backed cache</li> </ul>
<b>Network</b>	2 x 1 Gbps (LAN on motherboard [LOM])	2 x 1 Gbps (LOM)	2 x 1 Gbps (LOM)	2 x 1 Gbps (LOM)

**Table 2.** Configurations for Commvault Media Agent

	(Small)	(Medium)	(Large)	(Extra Large)
<b>Servers</b>	Cisco UCS C240	Cisco UCS S3260	Cisco UCS S3260	Cisco UCS S3260
<b>CPU</b>	Intel Xeon processor E5-2620 (2.4 GHz, 6 cores)	Intel Xeon processor E5-2620 (2.1 GHz, 6 cores, dual socket)	Intel Xeon processor E5-2620 (2.1 GHz, 6 cores, dual socket)	Intel Xeon processor E5-2620 (2.1 GHz, 6 cores, dual socket)
<b>Memory</b>	32 GB DDR4 total	128 GB DDR4 total	256 GB DDR4 total	256 GB DDR4 total
<b>Storage</b>	<ul style="list-style-type: none"> <li>▪ 120-GB SSD boot drive</li> <li>▪ SanDisk SX350 1300-GB SSD cache drive</li> <li>▪ Back-end size: 30 BET** (with 1 hot spare)</li> </ul>	<ul style="list-style-type: none"> <li>▪ 480-GB SSD boot drive</li> <li>▪ 6 x 400-GB SSD cache drives</li> <li>▪ 8 x 6-TB SAS 7200-rpm SAS drives (data)</li> <li>▪ Back-end size: 64 BET** (with 2 hot spares)</li> </ul>	<ul style="list-style-type: none"> <li>▪ 480-GB SSD boot drive</li> <li>▪ 10 x 400-GB SSD cache drives</li> <li>▪ Back-end size: 144 BET** (with 4 hot spares)</li> </ul>	<ul style="list-style-type: none"> <li>▪ 480-GB SSD boot drive</li> <li>▪ 14 x 400-GB SSD cache drives</li> <li>▪ Back-end size: 216 BET** (with 4 hot spares)</li> </ul>
<b>RAID</b>	<ul style="list-style-type: none"> <li>▪ SAS 12-GB RAID controller</li> <li>▪ 1-GB flash-backed cache</li> </ul>	<ul style="list-style-type: none"> <li>▪ SAS 12-GB RAID controller</li> <li>▪ 1-GB flash-backed cache</li> </ul>	<ul style="list-style-type: none"> <li>▪ SAS 12-GB RAID controller</li> <li>▪ 4-GB flash-backed cache</li> </ul>	<ul style="list-style-type: none"> <li>▪ SAS 12-GB RAID controller</li> <li>▪ 4-GB flash-backed cache</li> </ul>
<b>Network</b>	6 x 1 Gbps (LOM)	2 x 10 Gbps (LOM)	4 x 10 Gbps (LOM)	4 x 10 Gbps (LOM)

\*\* BET = Back-end terabytes: volume of unique data written to disk

## Cisco UCS S3260 Storage Server

The Cisco UCS S3260 Storage Server is a modular, high-density storage server for high-capacity bulk storage. This storage server offers high drive density and availability, with up to 60 disk drives for up to 600 terabytes (TB) of raw capacity.

The use of solid-state disks (SSDs) accelerates storage processing. All the servers support an upgrade path to 80 Gbps of throughput for even faster streaming of backup data and fast restoration.

## Reference Architectures

Cisco and Commvault have created reference architectures to deliver a protection and management solution that is as simple and efficient as the Cisco HyperFlex platform. Our solution delivers:

- The capability to restore virtual machines up to 67 percent faster than with traditional solutions
- The capability to reduce backup administration time by 50 percent
- Support for more than 20 leading cloud storage platforms, including Microsoft Azure and Amazon S3
- Integrated support for 25 of the leading applications so that you have application-aware backups that allow context-sensitive restoration (for example, individual email messages from Microsoft Exchange Server or database tables from Oracle Database)
- The capability to easily deploy and scale your solution with small increments of storage, horizontally scaled so that you don't need major system upgrades
- Full virtual machine lifecycle management
- Reduced risk with fast deployments that work from the start: Cisco reference architectures take the guesswork out of configuring and sizing a solution
- Low total cost of ownership (TCO) of less than US\$1000 per TB—that's one dollar per gigabyte; the more you store, the greater the savings

## Cisco and Commvault: Better Together

Our solution can provide comprehensive protection of your applications and data residing on your Cisco HyperFlex platform. Commvault can be used as an extension to an existing protection strategy or to introduce a new, enterprisewide management and protection method. Deploying one global solution instead of many native single-purpose backup methods and appliances reduces TCO and creates consistency. The smaller footprint lowers data center space, power, and cooling costs. With precise scaling, you don't have the risk or cost that occurs when you reach the limits of traditional storage systems and that require you to undertake major system upgrades. Cisco reference architectures are proven solutions, mitigating implementation risk and accelerating time to value.

## For More Information

- For more information about Commvault data protection software, visit <http://www.commvault.com/cisco>
- For more information about Commvault Data Protection Solutions for Cisco UCS, visit <https://marketplace.cisco.com/solutions/showcase/companies/commvault/products/commvault-software>
- For more information on Cisco UCS S-Series Storage Servers, visit <http://www.cisco.com/go/storage>
- For more information on Cisco Data Protection Solutions, visit <http://www.cisco.com/go/dataprotection>