

EXECUTIVE BRIEF

RED HAT CEPH STORAGE ON CISCO UCS

Software-defined storage on the Cisco UCS S3260 Storage Server

INTRODUCTION

With seismic shifts in global technology engagement, the volume of structured and unstructured data is expanding beyond many organizations' ability to cope. Scaling storage capacity in an agile and cost-effective fashion is essential, as is finding new ways to capitalize on valuable data. Traditional proprietary data storage solutions simply cannot keep pace—with static, siloed, and fragmented data often thwarting the goals of the business. In fact, Wikibon now predicts that sales of traditional enterprise storage products will decline, with a massive negative 16.2% compound annual growth rate (CAGR) between 2015 and 2026, as they are replaced by more agile server-based storage.¹

Workloads are changing too, moving toward more modern cloud application models that dictate dynamic and elastic cloud-like data storage consumption patterns. While public clouds offer a flexible and attractive model, costs can quickly escalate with growing data usage. Most organizations lack the in-house expertise and resources to design and deploy their own on-premise cloud storage.

Open software-defined storage has emerged as a compelling solution for block, object, and distributed file storage applications.² Red Hat® Ceph Storage on the Cisco Unified Computing System (Cisco UCS) S3260 Storage Server (Figure 1) provides a flexible and scalable storage platform, without either the inherent limitations of traditional storage or the costs of the public cloud. Cisco's unique approach to policy-driven infrastructure combines well with Red Hat's open software-defined storage expertise.



Figure 1. The Cisco UCS S3260 Storage Server unites agile and open software-defined Red Hat Ceph Storage with the policy-driven infrastructure automation of Cisco UCS.

- 1 IDG: "Growth of Server SAN and the Great Decline of SAN/NAS". www.idgconnect.com/view_abstract/33953/growth-server-san-great-decline-san-nas
- 2 IDC: "Market Analysis Perspective: Worldwide Storage Software, 2016–The Future of Storage is Software Defined, Server Based, and Cloud Connected". www.idc.com/getdoc.jsp?containerId=US41666416

Rapidly deploy cost-effective storage for on-premises cloud storage, automating provisioning to quickly add storage capacity and save money over public cloud storage solutions.

Add

600TB

in less than 30 minutes.

Unify infrastructure with enterprise building blocks to quickly grow and tear down application environments, including their networks and storage.

Responsibly and reliably embrace new software-defined storage technology with less risk and complexity, improving access to storage innovation to pilot, scale, and expand on-premises storage.



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ABOUT RED HAT

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to provide reliable and high-performing cloud, Linux, middleware, storage, and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As a connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT.

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Designed for a new class of cloud-scale applications, the Cisco UCS S3260 Storage Server provides considerable flexibility. The server hosts up to 600TB of raw local storage in a compact four rack-unit (4U) form factor, with support for both dual-node and single-node configurations. Up to 60 hard disk drives (HDDs) with up to 28 solid-state drives (SSDs) can be asymmetrically split between the dual nodes and are individually hot-swappable. Together with Red Hat Ceph Storage, the platform provides a unified scale-out storage platform for:

- OpenStack® applications
- Object storage
- High-performance, low-latency database storage
- Custom storage workloads such as data repositories, media streaming, and content distribution

PROVEN SOFTWARE-DEFINED STORAGE ON UNIFIED INFRASTRUCTURE

Red Hat Ceph Storage on the Cisco UCS S3260 Storage Server provides an opportunity to deploy servers, network, and scale-out storage infrastructure as part of a unified platform. Powered by Cisco UCS Manager, policy-driven automation accelerates routine tasks with fewer errors, increasing agility, simplifying daily operations, and reducing management and administration expense. Server, fabric, and storage provisioning can all be automated by policy, along with a host of other functions. Unique Cisco UCS service profiles facilitate infrastructure automation while Cisco UCS storage profiles extend this powerful capability to storage provisioning.

With Red Hat Ceph Storage, organizations can configure and focus the Cisco UCS S3260 hardware platform to best suit their application and business storage needs. Storage deployments can be optimized for input/output operations per second (IOPS), throughput, or capacity—all with a single technology combination. Multiple kinds of storage can even be managed as a part of a single storage pool, greatly simplifying storage infrastructure deployments.

CONCLUSION

Extensive testing and analysis of Red Hat Ceph Storage on Cisco UCS S3260 Storage Servers has resulted in a Cisco Validated Design (CVD), thoroughly documenting design and deployment best practices.³ In addition, an available performance analysis explores workload-specific configurations and provides demonstrated benchmark results.⁴ Together with the strength of the solution, these resources help reduce risk and accelerate time to service for critical applications using open software-defined storage.

³ "Cisco UCS S3260 Storage Server with Red Hat Ceph Storage". [cisco.com/c/en/us/td/docs/unified_computing/ucs/UCS_CVDs/ucs_s3260_rhceph21.html](https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/UCS_CVDs/ucs_s3260_rhceph21.html)

⁴ "Cisco UCS S3260 Storage Server and Red Hat Ceph Storage Performance". [cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-s-series-storage-servers/Whitepaper_c11-738915.html](https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-s-series-storage-servers/Whitepaper_c11-738915.html)