

A long-exposure photograph of a highway at night, showing vibrant light trails from cars in shades of blue, white, orange, and red, curving into the distance under a dark sky.

Unlock the Strategic Value of Data:  
Cisco and Hitachi Adaptive  
Solutions Transform Data  
Centers of the Future



# Introduction

Digital transformation has skyrocketed the valuation of data, causing organizations to rethink how this asset is managed. No longer can IT simply deliver compute, storage and data management resources and ensure that service level agreements (SLAs) are met. They must become a strategic business enabler that uses data to provide lines of business with strategic insight, next-generation technology and innovations that improve the bottom line.

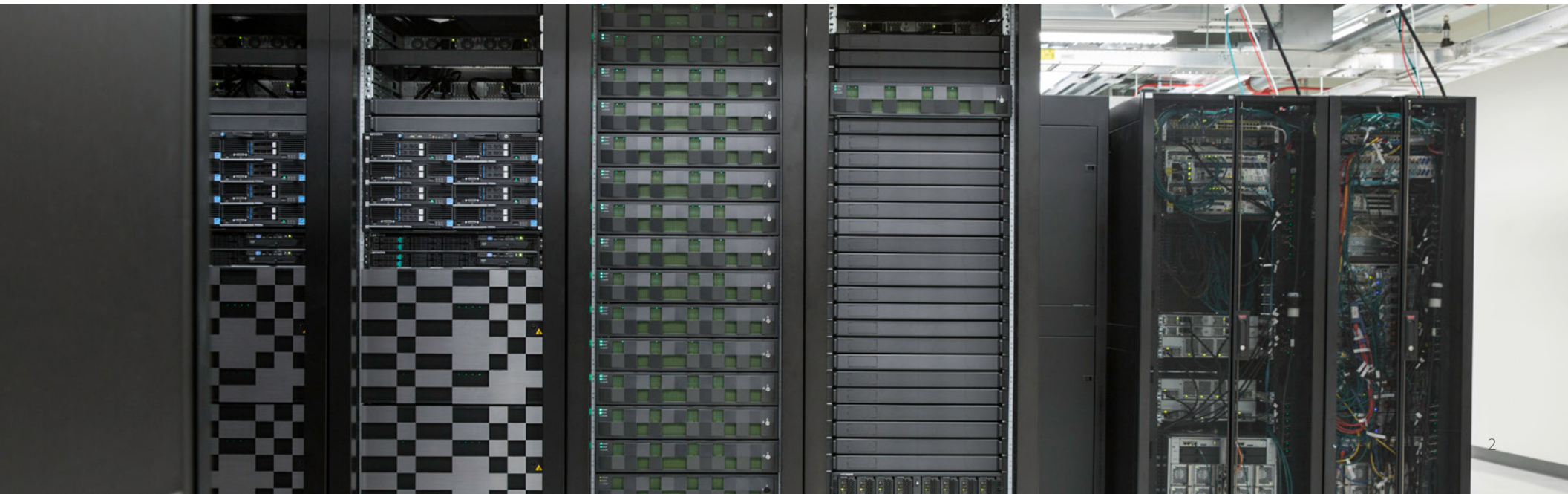
## Introducing: Cisco and Hitachi Adaptive Solutions for Converged Infrastructure

To help organizations and their IT departments execute data-driven transformation, Cisco and Hitachi have partnered to create Cisco and Hitachi Adaptive Solutions for Converged Infrastructure (Adaptive Solutions for CI). This next evolution of converged infrastructure delivers better customer experiences, operational efficiency and new revenue streams using a customer-first approach that optimizes and automates human, machine and material relationships while accessing and analyzing all your data in order to monetize it.

**HITACHI**  
Inspire the Next



This e-book explores the partnership and technology behind Cisco and Hitachi Adaptive Solutions for Converged Infrastructure.





## About Our Collaboration

Hitachi Vantara and Cisco recognize that enhancing our solutions with complementary leading technologies helps us best serve our customers. It's this "Power of Two" philosophy that drives our strategic partnership and gives our customers a competitive edge.

### Hitachi and Cisco: Better Together

To create a comprehensive converged infrastructure foundation that's built for the needs of our customers today and in the future, we combined Cisco's industry-leading computing and networking technologies with our customer-proven Hitachi Virtual Storage Platform (VSP) all-flash and hybrid arrays and AI operations software. The result? Cisco and Hitachi Adaptive Solutions for Converged Infrastructure.

Cisco and Hitachi Vantara are proven leaders in the enterprise IT space, and we both have thousands of organizations around the globe that rely on our technologies to support their businesses. Because of this, we know that when we deploy our solutions together, our customers will have peace of mind: They will know that we both understand the complexity and customization required to support unique business use cases and future business growth.



**56,000 customers globally invest in Cisco UCS portfolio**

**80%**

of the Fortune 100 trust Hitachi Vantara

**85%**

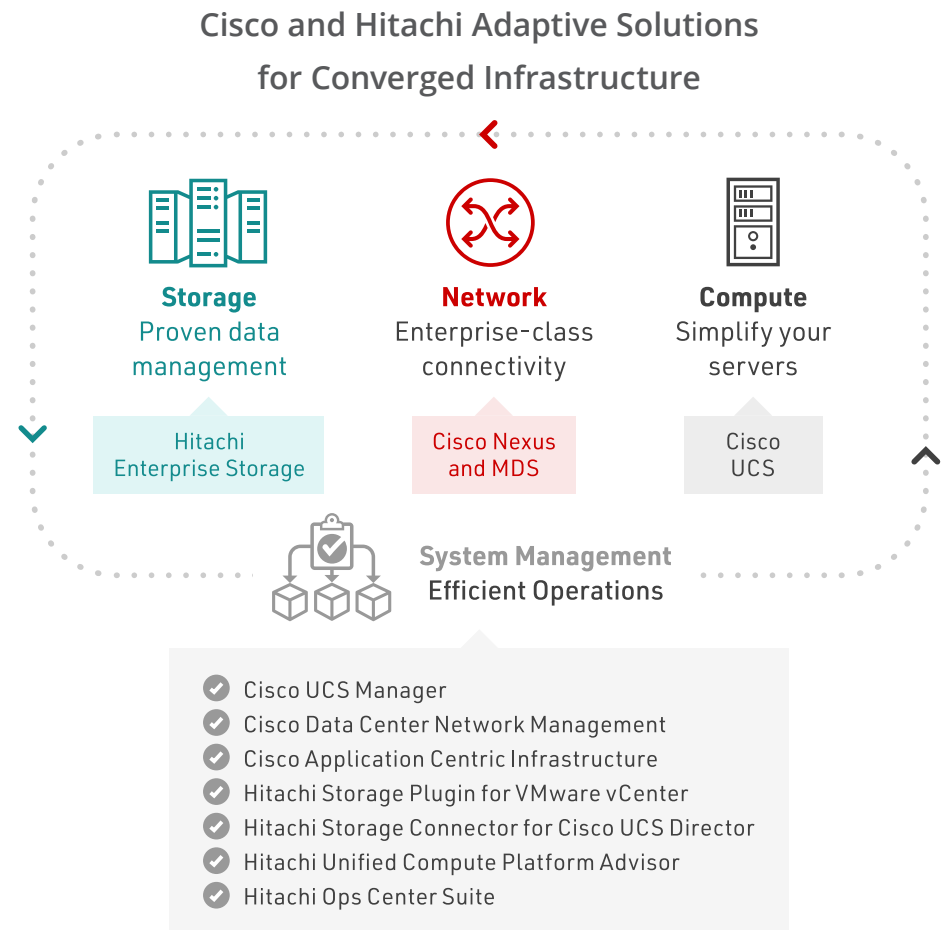
of the Fortune 500 rely on Cisco UCS

# About Our Technology

To help organizations support truly demanding virtualized workloads and enterprise applications, Cisco and Hitachi Adaptive Solutions for Converged Infrastructure integrate key technologies, including:

- Hitachi's full range of Hitachi VSP products, including the newly launched VSP E990 and VSP 5000 series, which provide robust resiliency in both hybrid and all-flash storage options.
- Cisco's compute and networking with its x86-based UCS blades, along with IP-based and SAN-based networking technologies from the Nexus and MDS product lines.
- VMware vCenter with integrations for Cisco UCS Manager and Hitachi Unified Compute Platform Advisor.
- Additional plugins for networking, data protection and data management and orchestration.

This ideal infrastructure supports not only the agility required to handle real-time needs of the business but also future application and analytic initiatives.





## How It Works

This purpose-built, joint solution from Cisco and Hitachi provides a platform using AI-based management to simplify operations and offers system-level data insights for improving data center efficiency. With a foundation comprising an intelligent IT core and a centralized view of data, cloud platforms, external systems, and end-user devices, Cisco and Hitachi Adaptive Solutions for Converged Infrastructure enables organizations to:

- **Automate routine tasks to focus on IT strategy.** Unifying and automating control of resources streamlines provisioning and maintenance. With a foundational infrastructure, IT can quickly respond to the business, delivering end-users the right services and resources through a unified solution stack in a timely manner.
- **Easily integrate new technologies without impacting existing workloads.** By leveraging AI to assist with prediction and risk mitigation, IT can better ensure ongoing availability during technology implementation so that business priorities remain on task, while driving future innovation.
- **Maximize uptime and protect business-critical data and applications with advanced security solutions.** Easily monitor service-level agreements and service-level objectives with integrated alerting, which informs IT when thresholds are hit or anomalies are detected.
- **Gain the comprehensive data protection and disaster recovery you need to meet the uptime requirements of mission-critical applications and their supporting data.** Hitachi Ops Center Protector provides copy data management across lines of business to simplify policy-based workload creation and management.



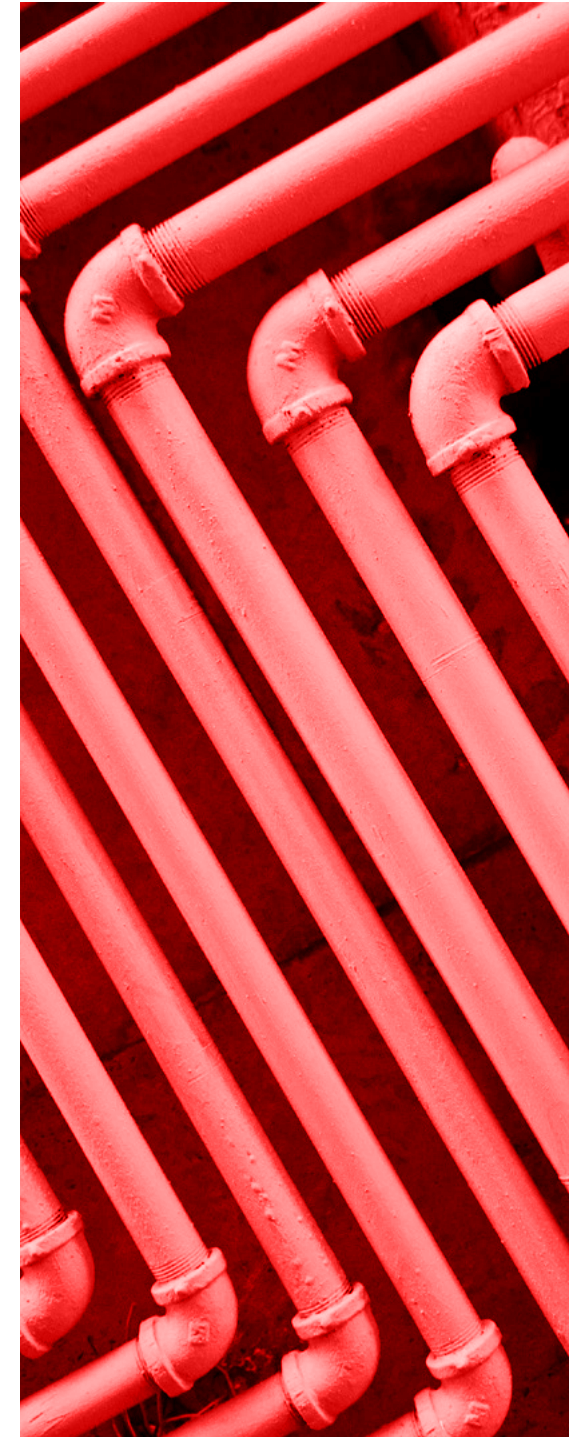
Decrease downtime and wait times **from hours to minutes**



Reduce storage management tasks by **70%**



Unlock **60-73%** of business data that goes unused for analytics





# Are You Ready To Transform Your Data Center?

Implement the next evolution of converged infrastructure from Cisco and Hitachi Vantara with these deployment considerations.

Cisco and Hitachi have invested significant time and engineering resources to ensure that a large number of deployment options are available to all of our customers and partners. The following guides and knowledgebase articles provide detailed information about your deployment and the various options you have.

## Guides for Cisco and Hitachi Adaptive Solutions for CI

[Design and Deployment for MDS and DAS >](#)

[Design and Deployment for Cisco ACI >](#)

[Design for SAP HANA TDI >](#)

Read on to learn more about these guides.

All of these documents provide exact minimum firmware levels needed to deploy the solution. These are the minimum requirements when upgrading the firmware of these components, and administrators must use these guides in addition to the VMware Support Matrix.

During the initial deployment, you should evaluate all firmware levels after arrival and upgrade as needed. The firmware for Nexus 9K switches running in ACI mode are upgraded through the Cisco APIC, while Cisco MDS switches and Nexus 9K switches in NX-OS standalone mode are upgraded manually, and Cisco UCS upgrades occur through the Cisco UCS Manager.

Upgrade firmware levels after terminating all connections listed in your deployment and before the start of any switch configurations.

### Certified SAP HANA Hardware Directory

[Hitachi Enterprise Storage >](#)

[Cisco UCS Server >](#)

Remember: When you deploy the Cisco and Hitachi Adaptive Solutions for CI, interoperability and best practices are built in to the solution.







## Design and Deployment for MDS and DAS

### Cisco and Hitachi Adaptive Solutions for CI Design Guide for both MDS and DAS Configurations

This is your main resource for understanding all the various components within the solution. You will also receive high-level information on the connections from a network and SAN, and the various configuration options used. The document also lists the numerous resources and best practices for Cisco and Hitachi products. This guide can be utilized to understand custom builds and how to plan for your tailored deployment.

[Get the Guide >](#)

### Cisco and Hitachi Adaptive Solutions for CI Deployment Guide for Cisco MDS

This guide provides a step-by-step deployment of a converged infrastructure with SAN switching, where MDS switches handle traffic between compute and storage with smart zoning and VSAN features. You can follow this document to deploy the exact tested configuration from Cisco and Hitachi Engineering resources. Or, you can pick and choose various sections to complete your tailored deployment.

[Get the Guide >](#)

### Cisco and Hitachi Adaptive Solutions for CI Deployment Guide as Direct Attached Storage

This guide provides a step-by-step deployment of a converged infrastructure with no MDS switches in between the fabric interconnects and the Hitachi storage. This solution is cost optimized for nonscaled deployments.

[Get the Guide >](#)



## Design and Deployment for Cisco ACI

### Cisco and Hitachi Adaptive Solutions for CI Design Guide for Cisco ACI

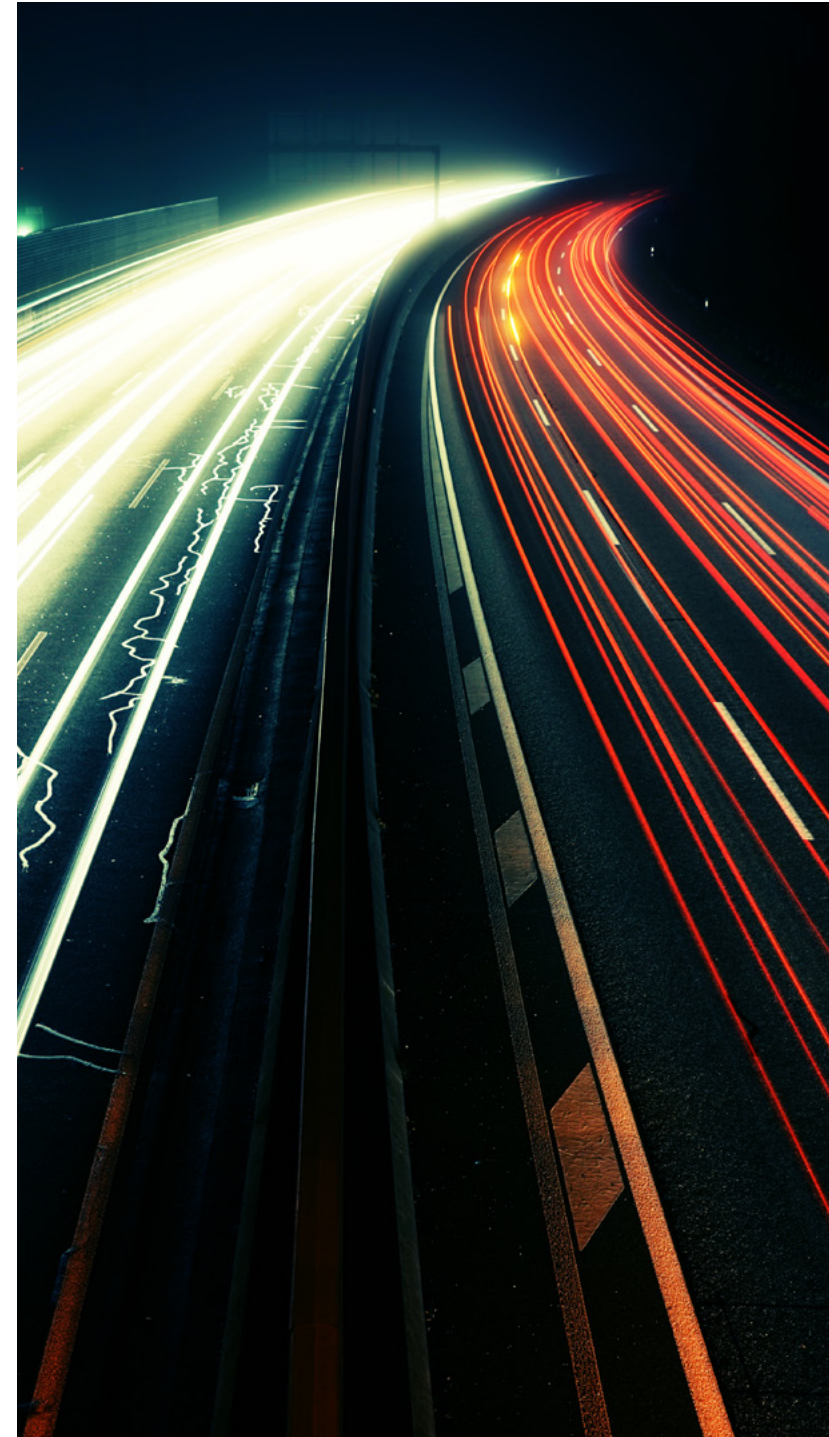
This guide utilizes many of the same components of the previous Adaptive Solutions for CI design guide but has been enhanced to take advantage of the Cisco ACI. Cisco ACI provides a software-defined network (SDN) solution that centrally manages the network through policy-driven architecture that is managed through the Cisco Application Policy Infrastructure Controller (APIC), which combines hardware and software for software-defined networking.

[Get the Guide >](#)

### Cisco and Hitachi Adaptive Solutions for CI Deployment Guide for Cisco ACI

This guide provides a prescriptive approach to deploying a converged infrastructure that includes APIC hardware to allow a software-defined network within your architecture. You can again follow this guide end to end or pick and choose sections which fit your deployment.

[Get the Guide >](#)





## Design for SAP HANA TDI

### Cisco and Hitachi Adaptive Solutions for SAP HANA TDI Design Guide

This design guide validated SAP HANA workloads in Tailored Data Center Integration (TDI) environment for both SUSE Linux Enterprise Server and Red Hat Enterprise Linux operating systems. The solution is built utilizing Cisco UCS Blade Servers, Cisco Fabric Interconnects, Cisco Nexus 9000 switches, Cisco MDS switches and Fibre-Channel-attached Hitachi VSP storage. This reference architecture is designed and validated using compute, network and storage best practices for high performance, scalability and resiliency throughout the architecture.

[Get the Guide >](#)

### Cisco and Hitachi Adaptive Solutions for SAP HANA TDI Deployment Guide

This deployment guide is based on the design guide principles laid out in the above design guide.

[Get the Guide >](#)

### Cisco and Hitachi Adaptive Solutions for Converged Infrastructure as Stretched Data Center Design Guide

This document includes design and deployment guides validated for Cisco ACI single-pod and multisite, as well as Hitachi VSP 5000 series and its global-active device feature. The reference architecture delivers continuous data access with a consistent infrastructure policy that supports business continuity use cases.

[Get the Guide >](#)



## Cisco and Hitachi Adaptive Solutions for SAP HANA TDI with Scale-Out Storage Design Guide

This reference architecture design guide highlights the resiliency, cost benefit, and ease of deployment of an SAP HANA Storage TDI solution, whether in single node or multi node configuration. The single node SAP HANA scale-up architecture comprises of the Hitachi Virtual Storage Platform (VSP) connecting through the Cisco MDS multilayer switches to Cisco Unified Computing System and is further enabled with the Cisco Nexus family of switches. The distributed node SAP HANA scale-out architecture adds the Hitachi NAS Platform (HNAS) to the solution connecting through the Cisco Nexus family switches to enable shared file system access.

[Get the Guide >](#)

## Cisco and Hitachi Adaptive Solutions for SAP HANA TDI With Scale-Out Storage Deployment Guide

This deployment guide provides a step-by-step configuration and implementation guide for an SAP HANA TDI solution.

[Get the Guide >](#)



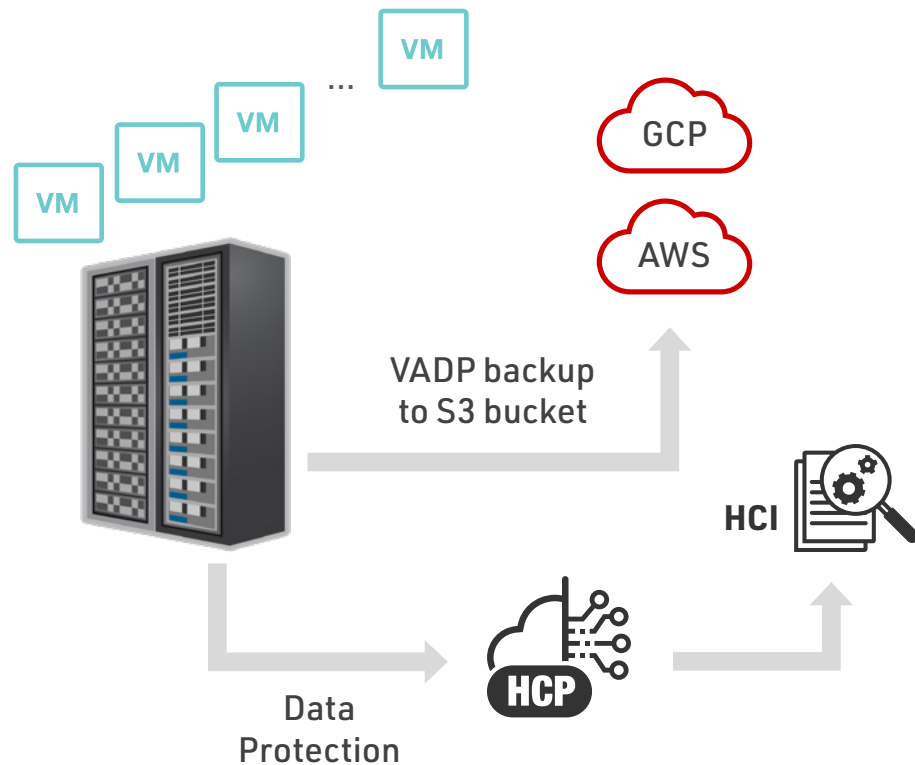




## Cisco and Hitachi Adaptive Solutions for CI Data Protection Implementation Guide

This guide outlines how to keep your organization running smoothly, without any production interruptions, using Hitachi Data Protection with Hitachi OpsCenter Protector for Cisco and Hitachi Adaptive Solutions for Converged Architecture. This guide includes detailed design/deployment information for various VM protection mechanisms for VMware, including: VADP backups (single and multi-streamed) over LAN, SAN to various storage targets like VSP, HCP and public cloud (e.g. Amazon S3 bucket).

[Get the Guide >](#)

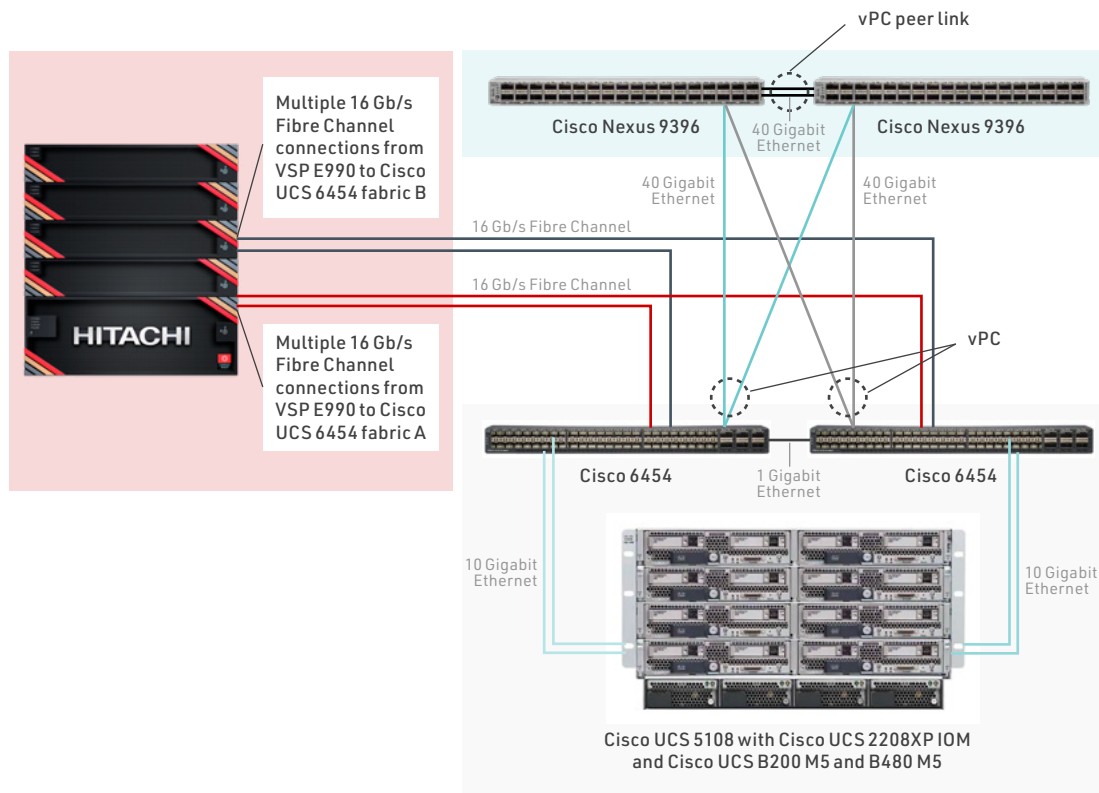




## Cisco and Hitachi Adaptive Solutions for SAP HANA TDI with VSP E990 in DAS Configurations

This guide will show you how to plan infrastructure growth and eliminate budgeting guesswork with predictive risk profiles that identify historical trends using SAP HANA workloads in a Tailored Data Center Integration (TDI) environment. The solution is built with Cisco UCS Blade Servers, Cisco Fabric Interconnects, Cisco Nexus 9000 switches and Hitachi Virtual Storage Platform (VSP) 990 using non-volatile memory express (NVMe) solid state drives (SSDs) in a direct-attached storage (DAS) configuration.

[Get the Guide >](#)





## Conclusion

Organizations, now more than ever, have begun to realize the value of digital transformation. As a result, they are looking to embrace technologies that allow better alignment to business requirements and data center modernization. This alignment enables organizations to break down data to better support their next-generation data-centric culture. And they want all of this while improving IT productivity and minimizing costs. This data-centric foundation of today will transform and accelerate innovation for tomorrow.

By leveraging foundational technology, Cisco and Hitachi Adaptive Solutions for Converged Infrastructure supports your digital transformation, ensuring continual access to your most valuable asset: data.





**Hitachi Vantara**, a wholly-owned subsidiary of Hitachi, Ltd., guides our customers from what's now to what's next by solving their digital challenges. Working alongside each customer, we apply our unmatched industrial and digital capabilities to their data and applications to benefit both business and society. More than 80% of the Fortune 100 trust Hitachi Vantara to help them develop new revenue streams, unlock competitive advantages, lower costs, enhance customer experiences, and deliver social and environmental value. Visit us at [www.hitachivantara.com](http://www.hitachivantara.com).

**Cisco** is the worldwide technology leader that has been making the Internet work since 1984. Our people, products, and partners help society securely connect and seize tomorrow's digital opportunity today.

#### Hitachi Vantara

Corporate Headquarters  
2535 Augustine Drive  
Santa Clara, CA 95054 USA  
[hitachivantara.com](http://hitachivantara.com) | [community.hitachivantara.com](http://community.hitachivantara.com)

#### Contact Information

**USA:** 1-800-446-0744  
**Global:** 1-858-547-4526  
[hitachivantara.com/contact](http://hitachivantara.com/contact)



HITACHI is a trademark or registered trademark of Hitachi, Ltd. VSP is a trademark or registered trademark of Hitachi Vantara Corporation. All other trademarks, service marks, and company names are properties of their respective owners.

Pace August 2020