

# FlexPod All-Flash Solutions for SAP Apps

Accelerate your SAP landscape without disruption.

## FlexPod: A Platform for your entire SAP landscape

- Innovative platform that evolves with technologies and applications
- Unmatched versatility that delivers proven value
- Trusted worldwide for reliability, scale, and performance

Digital business transformation isn't just ubiquitous—it is fundamentally reshaping everything we do and creating innumerable opportunities. No company is exempt from the pressures of this transformation. Rapid shifts in technology, including the Internet of things (IoT), big data, artificial intelligence (AI), and machine learning (ML) continue to force

businesses to think differently about IT investments and how to take advantage of the new opportunities they present while minimizing complexity.

As you use these technologies and build on your digital investments—including your SAP landscapes—you need the right supporting IT infrastructure. Experimenting with platform integration often results in complex systems that require expertise that is difficult to find. That's why Cisco and NetApp have worked together to deliver FlexPod® IT infrastructure that doesn't require endless maintenance, but quickly and easily delivers your SAP applications with outstanding control, speed, and scale.

Our platform defines converged infrastructure. These FlexPod® solutions are designed to

simplify your environments for today and tomorrow. With FlexPod, you can accelerate every application in your SAP landscape without disruption, lower license costs, dramatically improve TCO, leverage built-in hybrid cloud capabilities, and prepare your infrastructure for the future with confidence. These solutions continue to evolve with innovative technology, delivering the proven performance, agility, and value required for a changing enterprise.

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## Foundational

The Cisco® and NetApp® FlexPod solution described in this document uses the Cisco Unified Computing System™ (Cisco UCS®) platform, Cisco Nexus® Family switches, and the NetApp All-Flash FAS (AFF) storage systems (Figure 1).

**“FlexPod has transformed our performance and efficiency, so we can focus on end-user services.”**

### Liam Cole

IT Commercial Operations Team  
Leader, TasNetworks

[Read the Case Study](#)

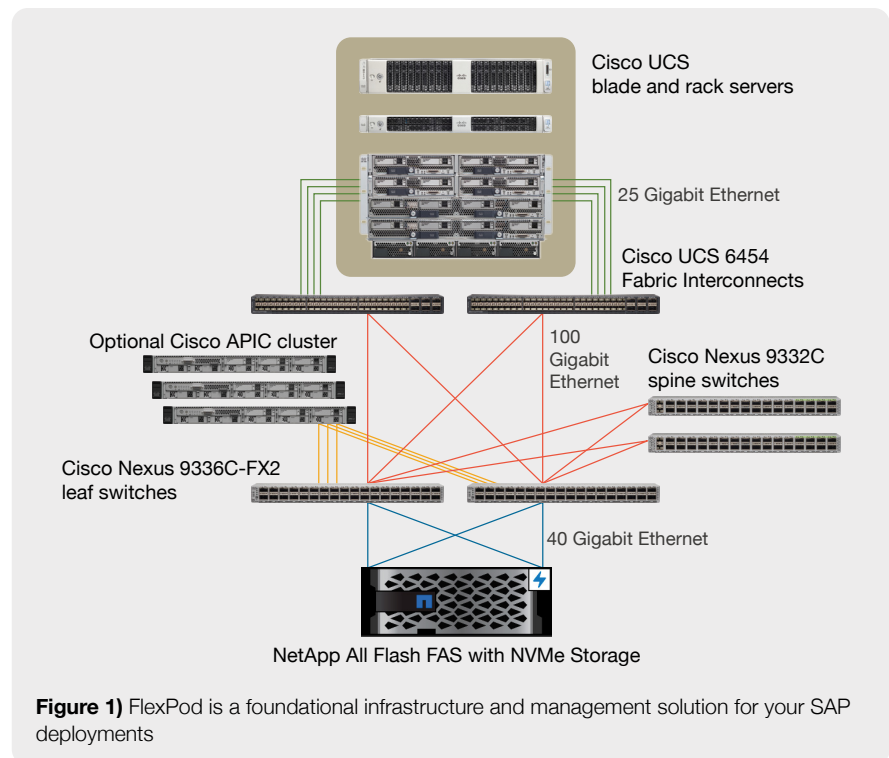
The solution provides an excellent foundation for your SAP S/4HANA system and SAP landscapes. Built-in replication, provisioning, cloning, backup, and refresh processes simplify SAP lifecycle management. Deployment of test and development systems is fast and repeatable. This flexible and agile solution supports legacy SAP databases, SAP HANA, and SAP HANA as a service.

We call this system converged infrastructure because it is more than components loosely connected and sold as a solution. FlexPod is integrated to give you a single point of management and control for the entire infrastructure. Based on a joint strategy and thousands of hours of testing, hundreds of SAP customers, and a deep partner network configurations are codified into guidelines for optimal deployment. These Cisco Validated Designs describe best practices for deploying SAP HANA and SAP landscape applications through SAP Tailored Datacenter Integration (TDI) on FlexPod solutions. And with

FlexPod Cooperative Support and Cisco or NetApp Solution Support, you can be assured any issues that may arise will be resolved quickly and efficiently.

## Platform for Business Innovation

FlexPod solutions help you power your modern analytic and enterprise applications. Even your most demanding AI applications will benefit with an infrastructure that has been optimized for analytic workloads. The base infrastructure can be deployed quickly and efficiently, and uses the latest computing, storage,



## What makes FlexPod solutions different?

We've taken a number of steps to help ensure that our approach delivers value. This solution offers:

- Foundational technology for your entire SAP landscape
- Support for both legacy SAP and SAP HANA databases to ease your transition to S/4HANA
- Proven performance
- Reduced risk with prevalidated designs and SAP HANA backup strategies
- Long-term value with fewer components, greater return on investment (ROI), and lower total cost of ownership (TCO)
- Continued FlexPod integration of the latest innovative technologies, including end-to-end NVMe, a 100-Gbps unified fabric, persistent memory, data fabric, hybrid cloud, and all-flash storage

and networking technologies. FlexPod with NVMe delivers 30 percent lower latency and a 65 percent increase in IOPS, according to internal testing. Imagine adding that kind of power to your SAP environment. These technologies are integrated to deliver industry-leading efficiency that dramatically reduces your data center costs.

### Computing

Cisco UCS blade and rack servers deliver enterprise-class performance, reliability, and expandability to your SAP environment. These servers harness the power of the 2nd generation Intel® Xeon® Scalable processor family. Intel® Optane™ DC persistent memory enables you to increase memory density per server to better serve your in-memory SPA HANA database, lower costs, and achieve a much faster restart if your HANA database goes down.

- **Cisco UCS blade servers** have up to three mezzanine connectors to provide advanced I/O connectivity.
- **Cisco UCS rack servers** deliver world-record-setting performance for a wide range of enterprise workloads, including virtualization,

collaboration, and bare-metal applications.

Within the solution, all servers are connected through a unified fabric with Cisco SingleConnect technology and benefit from a single point of management with Cisco Intersight software. This end-to-end I/O architecture incorporates Cisco UCS virtual interface cards (VICs), Cisco UCS fabric interconnects, and Cisco fabric extender technology to connect every Cisco UCS server with a single network fabric.

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**“FlexPod is a mature, robust CI (converged infrastructure) system that offers cutting-edge functionalities and extraordinary operational efficiencies.”**

**Eric Sheppard**

Analyst, IDC

(IDC document US45212519, June 2019).

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### Storage

Named a leader for its AFF A-Series in the 2019 Gartner Magic Quadrant for Primary

Storage, NetApp has a 25-year history of innovative technology collaboration with SAP and SAP customers. Based on NetApp ONTAP™ data management software, these systems enable end-to-end solutions to integrate tightly with standard SAP applications for seamless operations. You can also use:

- **NetApp SnapCenter** for centralized control and oversight and the capability to use a single tool to backup, restore, and clone databases such as SAP HANA
- **NetApp ONTAP™ data management software**, tightly integrated with the SAP Landscape Management (SAP LaMa) too, for automated provisioning of SAP development and test environments
- **NetApp ONTAP FlexClone technology** to create space-efficient copies of storage volumes and get new applications up quickly
- **NetApp AFF All Flash Array NVMe solutions** to take advantage of industry-leading performance: up to 11.4 million I/O operations per second (IOPS), latency as low as 100 microseconds, and up to 300 gigabytes per second throughput

## Networking

Cisco UCS and NetApp AFF storage are connected through Cisco Nexus 9000 Series Switches, providing 100 and 40 Gigabit Ethernet connectivity together with Cisco Application-Centric Infrastructure (ACI). These high-performance, low-latency switches offer exceptional power efficiency at cloud scale to your SAP environments. Cisco SingleConnect technology delivers an easy, intelligent, and efficient way to connect and manage your SAP computing resource. Cisco SingleConnect technology is:

- **Easy:** Provides a “wire once and walk away” solution that eliminates traditional manual, time-consuming, error-prone and instead makes connecting servers and storage to the Cisco UCS fast and easy.
- **Intelligent:** Uses a zero-touch model to allocate I/O connectivity (LAN, SAN, NVMe, and management) across any type of server: physical rack and blade servers and virtual machines. The network intelligence helps Cisco UCS adapt to the needs of your SAP applications. Rather than limiting applications to specific servers, Cisco UCS makes it

## Agile And Efficient: How FlexPod Drives Datacenter Modernization



**65%**  
more time spent  
on innovation and  
new projects



**43%**  
fewer staff  
needed to manage



**32%**  
faster software  
installation and  
management



**23%**  
savings on  
cloud computing



**34%**  
reduction in data  
center floor space



**28%**  
savings on  
services,  
outsourcing,  
and consulting



**29%**  
less time spent  
on monitoring,  
troubleshooting,  
and remediation



**24%**  
CapEx reduction  
for both hardware  
and software



**23%**  
savings on annual  
maintenance fees



**29%**  
savings on  
power and cooling

Source: [IDC document #US45212519](#)

easy to run any workload on any server.

- **Efficient:** is highly efficient because LAN, SAN, and management connections are shared over a single network, increasing utilization while reducing the number of moving parts compared to traditional approaches with multiple networks.

Pervasive visibility and high-performance connectivity are built in with Cisco Tetration Analytics™ sensors and intelligent buffers. [The Cisco Tetration Analytics](#) solution dramatically simplifies your zero-trust implementations.



### SAP Data Hub

Consolidate your data and data management to gain faster insights. With its inherent pipelines, [SAP Data Hub](#) can orchestrate and monitor end-to-end data flow real-time, rather than trying to manage disparate components only.

Behavior-based application insight and machine learning build dynamic policy models and automate enforcement.

## Proven Value

From the beginning, FlexPod solutions have been built to provide excellent value.

- **Scalability:** You can start small and incrementally grow your FlexPod infrastructure, investing only when you need to. This approach saves initial capital expenditures (CapEx) and greatly reduces the amount of infrastructure you need to manage, thereby reducing operating expenses (OpEx).
- **Reduced costs:** On average, our customers have experienced 50 percent lower costs for managing SAP data and 70 to 75 percent green IT savings. The solution optimizes both hardware and human resources through its unified fabric, programmable infrastructure, and data management software. The unified fabric reduces the number of networking components that your staff needs to cable, install, and manage. Its wire-once architecture enables

zero-touch management of the infrastructure.

- **Optimization:** After the solution is cabled, this programmable infrastructure is managed through a point-and-click GUI, where you create the best configuration for your SAP environment. The data management software optimizes capacity through the use of inline deduplication, inline compression, inline data compaction, thin provisioning, and cloning.

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Cisco Advanced Services can help you design, manage, and maintain a sophisticated, secure, and intelligent platform for your SAP applications.

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## Cisco Advanced Services

Start your migration to SAP S/4 HANA with Cisco Advanced Services. Experts work with SAP teams worldwide to design, manage, and maintain some of the most sophisticated, secure, intelligent platforms for SAP infrastructure. Whether you are in the pilot stage or ready to implement your migration, Cisco Services can help you:

- Identify workloads, applications, and storage to migrate
- Verify I/O profile and availability requirements of applications you plan to migrate
- Identify and use the optimal migration strategy
- Prepare operations to manage and scale efficiently

## Innovation You Can Trust

IT is your business advantage, and choosing the right infrastructure has never been

more important. Together, Cisco and NetApp reimagined converged infrastructure with FlexPod. For the past ten years, thousands of customers around the world have relied on FlexPod to increase business opportunities in the face of a changing IT landscape. FlexPod continues to evolve with innovative technology, delivering the proven performance, agility, and value required for your SAP landscape. Supported by more than 250 combined years of engineering investment, FlexPod can help you accelerate your

applications without disruption, improve data center economics, and build infrastructure that will serve you into the future with confidence.



### Learn More

- [flexpod.com](http://flexpod.com)
- [netapp.com/flexpod](http://netapp.com/flexpod)
- [cisco.com/go/flexpod](http://cisco.com/go/flexpod)
- [Read the design guide](#)
- [Read about FlexPod AFF performance](#)

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