

FlexPod Drives Compute-Intensive Apps

Using AMD EPYC 7002 Series Processors

Apps, virtual desktops, and database workloads are growing quickly and you need a platform that can deliver. FlexPod®, the leading converged infrastructure solution, now has a solution

FlexPod: A platform for your compute-intensive needs

- Innovative platform that powers your applications and databases
- Delivers proven value with greater consolidation
- Trusted worldwide for reliability, scale, security, and performance

that will address your growing workload needs with scalable, compute-intensive systems. The newest FlexPod solution, with second generation AMD EPYC™ processors, delivers twice the server density and up to 457 percent more processor cores per rack than traditional servers.

As you use these technologies and build on your digital investments 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 high performance to your applications with outstanding control, security, and scale.

Our platform defines converged infrastructure. This FlexPod solution is designed to simplify your environments for today and into the future. With FlexPod and AMD EPYC processors, you can:

- Power your compute-intensive applications and databases without disruption
- Remove platform and management silos
- Increase consolidation to reduce costs and dramatically improve total cost of ownership
- Leverage built-in hybrid cloud capabilities
- Secure your data from the edge to the core
- Prepare your infrastructure for the future with confidence

Powering and securing applications and databases shouldn't be hard or cost you a fortune.

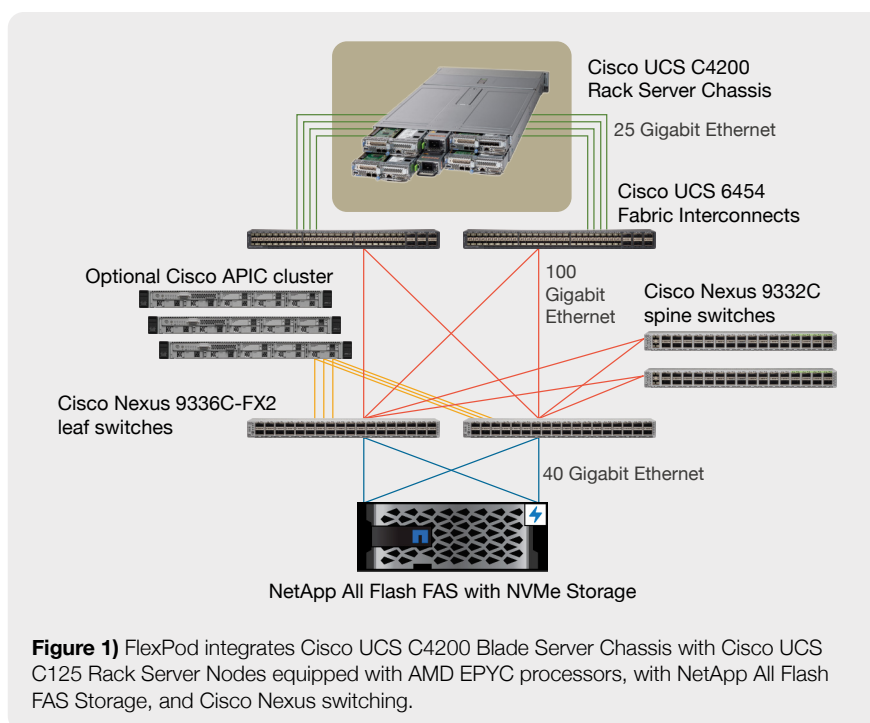


FlexPod with AMD
EPYC Processors

What makes FlexPod solutions different?

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

- Support for compute-intensive apps and databases
- Proven performance
- Reduced risk with prevalidated designs
- 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 100 percent NVMe storage, a 100-Gbps unified fabric, persistent memory, data fabric, hybrid cloud, and all-flash storage
- Industry-leading hybrid-cloud data services in all the major hyperscalers



Innovation For Your Business

The Cisco® and NetApp® FlexPod solution described in this document uses the Cisco Unified Computing System™ (Cisco UCS®) C4200 Rack Server Chassis with Cisco UCS C125 M5 Multinode Rack Servers powered by second-generation AMD EPYC processors, Cisco Nexus® Family switches, and NetApp All-Flash FAS (AFF) storage systems (Figure 1).

The solution lets you pack more power into less space. Its high core density allows you to handle compute-intensive workloads

with ease, including virtualization, database, analytics, and virtual desktop applications. Smart and fast scaling lets you start small and power your workloads appropriately with the processing and storage resources you need today and expand as demand dictates thus reducing both capital expenditures (CapEx) and operations expenses (OpEx).

Cisco Validated Designs describe best practices for deploying your compute-intensive applications and databases on this FlexPod solution. With FlexPod Cooperative Support and Cisco or NetApp Solution Support, you can be assured any issues that

Performance At Every Layer

Multinode rack servers

- Up to four Cisco UCS rack server nodes (up to 512 processor cores) per 2-rack-unit (2RU) chassis
- N+1 redundant power supplies support up to 4 servers and top-bin processors
- Up to 160 servers per domain, including both blade and rack servers
- 20-50 percent fewer CPU cycles using NVMe over fabric (compared to Fibre Channel)
- More CPU capacity to accelerate workload performance

AMD EPYC 7002 Series Processors

- High performance on enterprise applications as evidenced by the highest SPECrate@2017_int_peak performance score
- Low memory latency and more memory bandwidth
- Security that is “hardened at the core” with an embedded security processor

may arise will be resolved quickly and efficiently, with one phone call where support will help you to resolve the issue

Computing and Networking

A [Cisco UCS C4200 Rack Server Chassis](#) filled with Cisco UCS C125 M5 Multinode Rack Servers delivers enterprise-class performance, reliability, and expandability to your environment. These servers harness the power of [2nd Gen AMD EPYC processors](#) with increased memory bandwidth to better serve your apps and databases

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. 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.

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 customers. Based on [NetApp ONTAP™ data management software](#), these systems enable end-to-end solutions to integrate tightly with applications and databases for seamless operations. You can also use:

- [NetApp AFF All Flash Array NVMe solutions](#) deliver 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
- [NetApp ONTAP™ data management software](#) for automated provisioning of production, development, and test environments on-prem and in the cloud
- [NetApp ONTAP FlexClone technology](#) to create space-efficient copies of storage volumes and get new applications up quickly
- [NetApp SnapCenter](#) for centralized control and oversight and the capability to use a single tool to backup, restore, and clone databases

Greater Security

If the last couple of years taught us anything, it's the importance of security. FlexPod with Cisco UCS C-Series Multinode Rack Servers benefit from the advanced security features built into AMD EPYC processors. Full-memory encryption helps keep your data safe, and AMD Secure Guard technology built into the AMD EPYC processor lets you encrypt each virtual machine with a unique key that only the CPU knows, making multitenant environments even more secure. With secure multitenancy and virtual interfaces that are harder to hack, and fast snapshot-based



Learn More

- flexpod.com
- netapp.com/flexpod
- cisco.com/go/flexpod
- Read about [FlexPod AFF performance](#)

backup capabilities, you can have confidence that your data will be available when you need it.

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

Innovation You Can Trust

IT is your business advantage, and choosing the right infrastructure to power your apps has never been more important. 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 can help you accelerate your applications without disruption, improve data center economics, and build infrastructure that will serve you into the future with confidence.

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](#)