



 FlexPod

The FlexPod logo, which includes a blue icon of two connected nodes and the word "FlexPod" in a sans-serif font.

Assessing Your Converged Infrastructure Options:

Five Criteria for Making an Informed Investment

Business is changing quickly. Companies are collecting and analyzing massive amounts of data, adapting to mobile workforces, and deploying sophisticated new applications to increase efficiencies. And when the business changes, the data center must keep up. The challenges for the next generation of enterprise data centers are to reverse infrastructure sprawl and reduce the complexities that have developed over time, while raising both efficiency and productivity. To address these challenges, IT departments are increasingly opting for converged infrastructure solutions.

Converged infrastructure can simplify IT, reduce costs, modernize capabilities, and help to improve your bottom-line results. However, not all converged infrastructure solutions are created equally. Making the right choice will determine how much real value is realized in your converged infrastructure deployment.

To effectively assess your converged infrastructure solution options, here are five criteria to consider closely:

- Flexibility
- Scalability
- Prevalidated workloads
- Best-in-class components
- Support for the entire stack

In the following pages, you will find key considerations for each of these criteria, as well as information about how the FlexPod® family of solutions developed by Cisco and NetApp measures up.



1. Flexibility: The Agility to Excel

Creating a truly agile application infrastructure requires more than just putting hardware under a common management framework. It requires a flexible approach and an entire ecosystem designed to support your business-critical applications. This doesn't necessarily mean starting from scratch. Incorporating existing components into a design that can support both multihypervisor and bare metal configurations can achieve the desired results along with significant savings.

With FlexPod, NetApp and Cisco have worked closely with leading application vendors to create a family of unified, prevalidated hardware and software solutions. Close collaboration with vendors such as Citrix, Microsoft, Oracle, SAP, and VMware provides extensive support for a wide range of application requirements. A flexible architecture also provides an ability to repurpose existing infrastructure while benefiting from the design and validation process for new applications and environments.

When moving to converged infrastructure, it's important to avoid replicating old data silos within a single converged infrastructure domain. Siloed designs will increase operational complexity and limit your data mobility across storage tiers and hybrid clouds. Hybrid cloud is widely expected to be the dominant model for IT moving forward, so it's critical that your converged infrastructure solutions are cloud ready.

With a common set of data services delivered through a software-defined approach, the Data Fabric enabled by NetApp helps companies prepare for a hybrid cloud future. This Data Fabric enables IT teams to manage data across multiple clouds using one set of standard tools, while applying consistent policies and security protocols. It allows customers to control placement of their data and the freedom to easily move data to their preferred cloud provider over time or connect to multiple clouds using NetApp® Private Storage.

In this way, FlexPod is more than just a converged architecture of servers, storage, and networking. It's an efficient, flexible route to data mobility that reduces risk and increases business responsiveness.

2. Scalability to Keep Pace with Business Demands

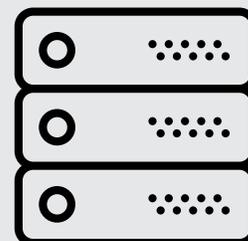
Scalability is essential to making your converged infrastructure investment pay off over time and to future-proof it against changing business and operational demands. When evaluating the scalability of a converged infrastructure solution, you'll need to consider the following: Are its capacity and node count restricted? Does it require a forklift upgrade of the storage platform in order to scale up? Does it allow you to mix storage media types and sizes?

Another obstacle to efficient scalability can be the performance and capacity limitations of storage controllers, which might lead to expensive hardware upgrades and even the need for new processes and management as your datasets grow. Some solutions will require a recabling of your network because of bandwidth choices made at the time of deployment. In such cases, expansion may be available, but it isn't easy or as cost efficient as it should be.

By contrast, FlexPod is designed to scale using a consistent architecture, from entry level up to enterprise requirements. The cost-effective FlexPod virtualization architecture can easily scale to meet future cloud computing objectives, easing the IT transformation from virtualization to cloud computing with maximum efficiency and minimal risk.

FlexPod CPU resources can be deployed quickly by using service profiles, which abstract server capabilities and then map them onto the underlying physical servers. This is in contrast to traditional approaches, which require manual configuration for every change.

FlexPod designs use the Cisco UCS central management platform and can centrally manage up to 10,000 servers while scaling to hundreds of petabytes of effective all-flash storage capacity.



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3. Prevalidated Workloads Let You Play It Safe

Savvy organizations understand the financial and operational benefits of moving from infrastructure silos to a converged, virtualized environment. However, introducing changes to existing services and operations can introduce unwanted disruption and expense. Prevalidation can help smooth the transition, reducing the risk of downtime and interruptions to operations in the near term, as well as providing more predictable performance as applications are added and datasets scale.

To make sure of the rapid and effective deployment of infrastructure and applications while reducing cost and risk, FlexPod architectures have been validated for an extensive array of enterprise workloads. These include Microsoft applications, Oracle, SAP, VMware, and VDI, among others. This reduces risk not only during deployment, but for upgrades as well.

FlexPod is also prevalidated for application use cases in specific industries, including healthcare, oil and gas, and others. More than 115 validated designs have been tested in Cisco and NetApp labs. The NetApp Interoperability Matrix Tool defines compatibility between all major components of FlexPod: hypervisor, server, network, and storage.

Config Advisor is used to verify compliance with the prevalidated designs following a FlexPod deployment. Config Advisor allows you to check system health and make sure your infrastructure is adhering to best practices. This tool can also be run on a regular schedule to determine if changes have been made to the original design.

4. Best-in-Class Components: More than the Sum of the Parts

A converged solution can only be as strong as its weakest link. Because of this, it is common sense that superior converged infrastructure solutions employ best-in-class components as part of an end-to-end design. High performance components support overall systemic excellence.

Watch out for converged infrastructure solutions that lock you into a single vendor or those that fail to support open-source solutions. Selecting a vendor that offers a broad, open component portfolio, rather than buying into a vendor-locked environment, is a smart move. This is particularly relevant for converged systems, which can become victims of product lifecycle churn, as new innovations knock out old approaches and increase the risk of obsolescence.

Quality and flexibility are designed into the FlexPod architecture. FlexPod incorporates best-in-class elements of both the Cisco and NetApp portfolios, utilizing the latest Cisco Unified Computing System (Cisco UCS) servers, Cisco Nexus fabric switches, and NetApp All Flash FAS storage. This combination delivers the most up-to-date capabilities to the FlexPod solution and enables an easy upgrade path over time.

FlexPod designs that use the NetApp ONTAP® operating system can be easily configured to work any of the FAS-series storage models, although specific FAS models may be recommended for particular FlexPod designs. FlexPod also supports a choice of hypervisors, including Microsoft Hyper-V and VMware vSphere environments. Several industry-leading partners, such as Commvault, Eaton, Veeam, and Veritas, have been certified as compatible with FlexPod. To enable customers to efficiently navigate the wide range of options, Cisco and NetApp offer a complete compatibility matrix across component product lines.

Your converged infrastructure deployment should not be a big adventure. Prevalidation testing and postimplementation verification tools help you avoid unwanted surprises.



5. Full Stack Support for Every Prevalidated Design

Converged infrastructure requires a support strategy that can address the range of issues and challenges that may arise. In effect, converged infrastructure requires a converged support system. We all know the runaround. When you call the cable or satellite TV provider, they say the problem is the TV manufacturer. When you call the manufacturer, they say the problem lies with the provider. Given the layers of components that make up converged infrastructure, it's essential to have support that is coordinated across the various partners involved. This helps clarify challenges and their solutions more quickly and accurately.

FlexPod users are covered by FlexPod Cooperative Support. NetApp and Cisco created this partnership to include all relevant partners, including Citrix, Microsoft, Red Hat, VMware, and others. This support team works in a coordinated fashion, combining experience, resources, and expertise to address whatever challenge may occur. To make its resources even more comprehensive, FlexPod Cooperative Support works in conjunction with other application and management vendors through the Technical Support Alliance Network (TSANet), an industry leader in multivendor support management.

This approach provides access to the technical guidance you require in response to support issues. IT teams can choose which resource to contact based on their initial assessment of the need. Support engineers work to resolve problems using shared communications. This allows for a more rapid, coordinated response, helping to keep your business-critical infrastructure at peak performance.

Lifecycle management is also essential to maximizing your converged infrastructure investment. FlexPod Lifecycle Management gives the tooling, upgrade procedures, and ongoing validations needed to reduce business disruption and protect the value of a FlexPod investment.

The case for converged infrastructure is a compelling one. Efficiency, performance, and productivity are all vastly improved. How much of this potential value you will achieve depends in large part on the vendor you select. It pays to perform your due diligence when it comes to assessing these five criteria: flexibility, scalability, prevalidation, component quality, and support. FlexPod delivers against each of these criteria, which is the “how” behind the bottom-line benefits it provides.



Learn more about FlexPod at www.flexpod.com
and NetApp.com/flexpod

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