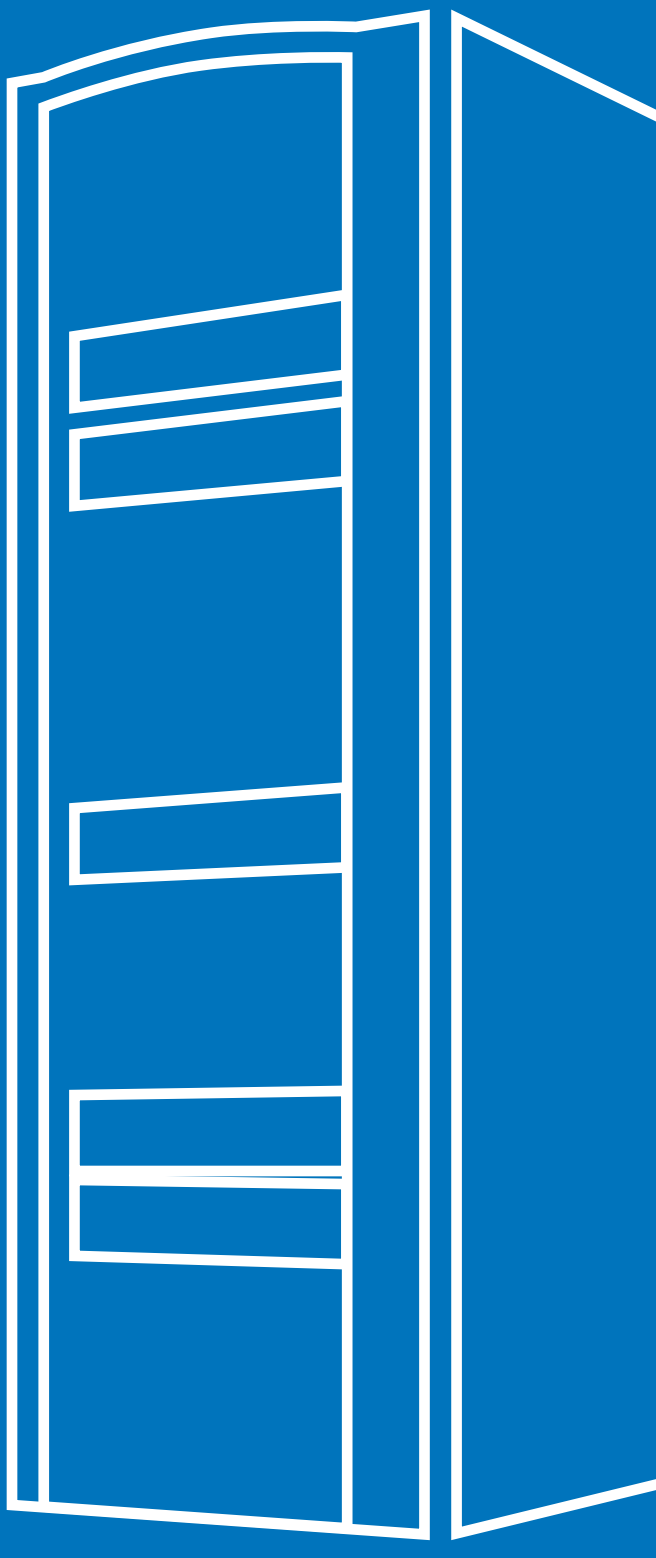
PeerPaper Report

CONVERGED INFRASTRUCTURE: New Capabilities for Today's Challenging Data and Cloud Needs



Based on Real User Reviews of FlexPod

2020

IT Central Station
Unbiased reviews from the tech community

CIO
FROM IDG

ABSTRACT

Everyone knows they need to do more with their data and make progress in the cloud, especially with hybrid cloud architecture. But how? What's the best way to unlock the value of business data and move to the cloud, and to do so in a strategic, economical way? As members of IT Central Station reveal, Converged Infrastructure (CI) offers a solution. This paper explores how users of FlexPod from Cisco and NetApp are leveraging CI to move forward with ambitious data management and cloud initiatives and enable remote access to computing resources from anywhere, at any time.

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INTRODUCTION

Converged Infrastructure (CI) provides IT professionals with a flexible, economical way to do more with their data and start to operationalize their cloud strategies. As realized by FlexPod, a joint solution from NetApp and Cisco CI consists of storage, compute, and networking components consolidated into an optimized package. Data center refreshes, in turn, create the perfect opportunity to consider CI for database, cloud workloads, and Virtual Desktop Infrastructure (VDI). This paper explores how FlexPod users are leveraging CI during a data center refresh to move forward with ambitious data management and hybrid and private cloud initiatives. It's based on real-user experiences described in IT Central Station reviews.

CI and the Data Center Refresh Process

Converged Infrastructure emerges as an attractive option for many scenarios in a data center refresh. As a System Analyst at an energy/utilities company with over 1,000 employees explained, “We had issues with our old storage provider: quirky stuff, weird outages, almost-outages, and performance issues. We had some IBM hardware and NetApp. Our good luck with NetApp made the decision for us when it was time for a refresh. We got rid of IBM and went all-in on NetApp.”

In many cases, it’s a specific need that drives the selection of CI, as a Systems Engineer at a financial services firm found. He shared, “We are looking at going down the next refresh with NVMe [Non-Volatile Memory Express] and NetApp is the only one who offers that end-to-end solution.”

Data center refresh requirements vary by industry. In healthcare, for example, the process may revolve around electronic health records (EHRs). A Senior Data Storage Administrator at a healthcare company with over 5,000 employees commented, “We’re using the Epic environment on-demand workflow [for EHR], and that has saved us quite literally thousands of man-hours by helping us refresh, back up, and create new instances. We wouldn’t have been able to do so if it wasn’t for all of that time-saving. Being able to have SUP, REL, and REL VAL DR [snap, replicate, vault and disaster recovery] instances, we would need to double our staff, at least, to be able to do that.”

> “... that has saved us quite literally thousands of man-hours by helping us refresh, back up, and create new instances.

CI and Hybrid Cloud-Overview

Cloud strategies are driving data center refreshes for IT Central Station members. FlexPod is proving valuable in this context, as a Sr. Network Solution Engineer at a tech services company noted. He said, ‘‘It is very helpful for our customers to have everything centralized. Most of our customers are moving to the cloud, and they need help to migrate their data. The majority of cases that I see are hybrid cloud and on-premise solutions.”

> **“The solution is a private, hybrid, and multi-cloud environment. That’s very important to us.**

A Network Engineer at a government agency with more than 10,000 employees added, ‘‘FlexPod impacted us by making things easier to deploy. The solution is a private, hybrid, and multi-cloud environment. That’s very important to us. We’re doing a lot of hybrid cloud. The solution’s infrastructure enables us to run mission-critical workloads. I do work for the Department of Homeland Security. We have a lot of critical applications.”

A Principal Architect praised cloud, stating, ‘‘The product improves over time, it’s definitely helped in all-flash CI, private and hybrid cloud deployment, secure-multi-tenancy, end-to-end NVMe, and cloud storage tiering.”

A Data Center Engineer at a financial services firm uses FlexPod for backing up and storing banking and financial data. He said, ‘‘It is especially important for protecting data mirroring between multiple data centers using a hybrid cloud type approach.”

Private/Hybrid Cloud

Private and hybrid cloud architectures reveal CI’s true utility. Figure 1 shows how FlexPod fits into these use cases.

‘‘We use FlexPod for Managed Private Cloud, and it is excellent,” said a Senior IT Manager at a tech services company with more than 500 employees. “I haven’t had any problems with it at all since I’ve deployed it, and I have continued to scale it out. I don’t see it going anywhere. Hybrid cloud is where it is at, and I don’t believe everybody can go into public cloud or multi-cloud entirely. I am looking forward to connecting hybrid cloud to my FlexPod environment.”

A Cloud Service Engineer at a small tech service company echoed this sentiment, saying, ‘‘Our private cloud sector of our company has grown exponentially thanks to the ease of deployment of the FlexPod architecture. We are also able to deploy a console to customers who want on-prem environments in a smaller deployment structure with a UCS Mini and direct-attached storage. So, it’s helped us exponentially grow the business.”

> **Our private cloud sector of our company has grown exponentially thanks to the ease of deployment of the FlexPod architecture.**

A Storage Engineer at a tech services company with more than 10,000 employees simply stated that FlexPod “is very good for private cloud solutions.”

Other notable comments about FlexPod for private and hybrid cloud included:

- “We run a lot of the same OS’s so it really saves us a lot on infrastructure cost. It helped us really jump into the private cloud infrastructure instead of just trying to jump straight into public, which is way more expensive in the long run. That is what most businesses will be looking for in the end. It really is a cost saving when you can keep it in-house.” - Information Security Engineer at an aerospace/defense firm with more than 10,000 employees
- “FlexPod for Managed Private Cloud makes it easier to manage a large number of environments for a company. This makes it a bit more streamlined on management, deployment, and orchestration.” - Systems Engineer at a tech services company with more than 500 employees
- “We use it for running our VM environment. We have three different data centers that use FlexPod: two in North America and one in Europe. Our daily job is important. We use FlexPod for Managed Private Cloud, which is fast, reliable, and trustworthy.” - Systems Administrator at a consultancy with over 1,000 employees

Virtual Desktop Infrastructure (VDI)

IT Central Station members are putting FlexPod to work with VDI, finding the solution to be a good fit for the needs of virtual desktops. As a Senior Systems Engineer at a manufacturing company with over 10,000 employees explained,

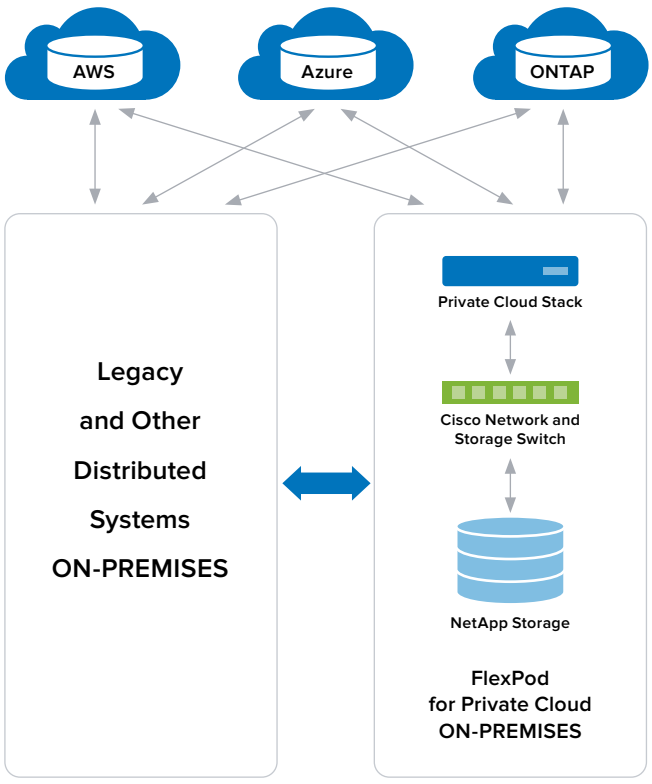

Figure 1 - FlexPod provides private and hybrid cloud capabilities.

‘‘Our primary use case for this solution is for VDI. We have offices across the globe in some 20 to 22 countries and there was a time when people from Singapore needed access because they experience similar issues as we do. When we implemented this solution, all 250 VDI sessions seamlessly were accessed over the internet.” To him, “That’s the benchmark. It simplifies infrastructure from edge to port to cloud. It proves that deployment is easy and straightforward. There isn’t any need to do extra work.“

A Systems Engineer at a healthcare company with more than 5,000 employees is using FlexPod for VDI at his hospital. The benefit, as he described, came from its ability to reduce some of the overhead from his team of administrators, so they could focus on other areas. He commented, ‘‘The solution has simplified infrastructure from edge to core to cloud, which has given us some bandwidth to focus on some other core initiatives that we have. The solution has made our staff more efficient, enabling them to spend time on tasks that drive our business forward.”

Other VDI users acknowledge FlexPod’s suitability for the workload, with a Cloud Infrastructure Engineer at a financial services company noting, ‘‘The most valuable asset of the product is the use of all-flash storage, low latency I/O (quicker Input / Output). The product is very stable. I don’t think it’s failed once since I have worked with it within the organization. The workload for individual is faster and our employees can accomplish their responsibilities in less time.”

An Enterprise Solution Architect at a transportation company with over 10,000 employees, remarked that “the product is robust, stable, and has flexibility. It is very scalable.”

Future Plans to Use FlexPod for Hybrid Cloud

Hybrid cloud may be on the drawing board for some, but those planning for this architecture in the future are considering CI, as IT Central Station reviews suggest. As a Technical Support Engineer at a tech services company with over 5,000 employees put it, ‘‘It [FlexPod] is definitely scalable. This is a great platform that you can build from. If you need to think about scalability in the future, this is the solution because you can stay small and build it out as you go, as you grow, and stay ahead of the market.”

> **“The solution has made our staff more efficient, enabling them to spend time on tasks that drive our business forward.”**

An Enterprise Solutions Architect at a small tech services company shared “hybrid is the future,” further commenting, ‘‘That’s where I like the FlexPod, it’s more like hyperconverged. It has more layers of flexibility for moving workloads up to and back from the cloud. We currently don’t use FlexPod for Managed Private Cloud.”

A Storage Administrator at a consultancy with over 1,000 employees observed, ‘‘FlexPod for Managed Private Cloud gives us what we need. We don’t have any issues with it. We are planning to eventually go in the cloud. So, the multi-cloud capability being there in the future is exciting.”

Database Strategies and Use Cases

IT Central Station members looked to CI to handle database workloads. A Principal Infrastructure Engineer at a healthcare company with more than 500 employees, for instance, uses FlexPod to run his SQL databases on Virtual Machines (VMs). An Engineer at an insurance company with over 1,000 employees shared that his primary use case for CI is healthcare for billing applications. He said, ‘‘With FlexPod, we use it mostly on some databases and billing applications. We are also using it now for containers, mostly with VMware.”

A Senior Systems Engineer at a government agency said, ‘‘The history of innovations, in particular, the inclusion of all-flash, has had a positive effect on our database performance.”

An Operations Engineer at a pharma/biotech company with more than 10,000 employees also praised FlexPod for its ability to improve database performance. He commented, ‘‘We can scale it out quickly, if needed. We have also seen an improvement in our application performance. Our VM and database environments are able to go as fast as we need them to now.”

Data analytics also factored into the selection of CI in a data center refresh. As an IT Architect and Business Consultant related, ‘‘The customer added the FlexPod-based solution to a real-time system to improve their overall system with a new analytics environment.”

A Business Technical Consultant at a tech services company with over 5,000 employees put the matter into context, noting, ‘‘At the end of the day, AI is not AI without the application that we write into it. Whether it’s data aggregation, learning, pouring out the analytics, the intelligence helps specific applications respond to requirements within a business structure. That’s

what FlexPod enables us to do.”

He quantified the benefits, saying, ‘‘That agility reduces the number of hours that it takes to construct a data center, whether it is physical or virtual, by enabling applications to support AI objectives.” His team has experienced a 28 to 30% improvement in application performance. As he explained, “in our industry that’s actually a very significant improvement.”

> **Our VM and database environments are able to go as fast as we need them to now.**

A Team Lead at a financial services firm with more than 500 employees similarly found that

FlexPod has "Improved application performance by around 50%." This mattered because, "We're getting back more scale. I'm very happy with the performance of the database now. It has also decreased our data center's costs. We don't use so many racks anymore. We compressed all the stuff and we have a higher compute and more IOPs in the smaller racks."

SQL Server and VMware/SQL Server

Members of IT Central Station who use FlexPod commented on its ability to help with specific database stacks. For instance, a Capacity Manager at an energy/utilities company with over 1,000 employees explained how his "primary use case is a mixture of workloads. We have VMware, Citrix, Oracle, and SAP, which are all running within the FlexPod stack."

For Microsoft SQL Server stack, a Lead for the Server and Storage Team at a tech services company related, "We were able to collapse some of our compute workload for virtualization and reduce our licensing count for SQL Server. That saves a lot of money every year, just with denser blades that were available in the UCS platform."

Figure 2 offers a simple reference architecture for this setup, comparing FlexPod with generic CI and traditional infrastructures. A System Engineer at a financial services firm with over 1,000 employees found, "Delivery speed and integration speeds have increased. The solution has enabled us to run mission-critical workloads. Our SQL cluster is on there, which is high IOPS."

"It enables us to run mission-critical workloads," said a Director of Datacenter. He then added, "We are running one hundred to one hundred fifty SQL and high-demand database servers." A Network Engineer at a legal firm with more than 500 employees uses FlexPod to run all of his VMware ESX environments with Microsoft SQL and Microsoft Exchange servers. A Technical

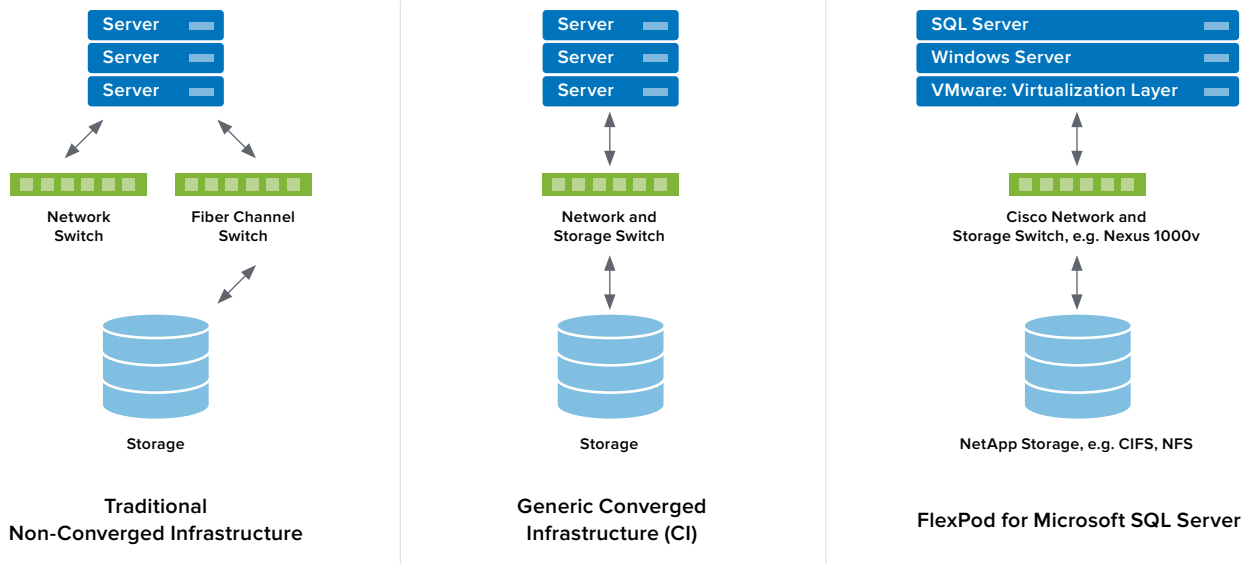

Figure 2 - Traditional vs. Converged Infrastructure, along with an example of how FlexPod makes CI work for the Microsoft SQL Server stack.

Consultant at a tech services company runs all of his VMs and SQL databases on FlexPod, so, as he said, “everything is virtualized.”

The benefit of FlexPod, according to a Principal Architect at a tech services company with more than 500 employees, is that, ‘‘The solution has decreased unplanned downtime incidents at our customers’ organizations, specifically in the database and SQL realms.”

> **We are running one hundred to one hundred fifty SQL and high-demand database servers.**

A Sr. Storage Engineer at a wholesaler with more than 10,000 employees was pleased with FlexPod’s validated designs for major enterprise apps. As he said, ‘‘Running our SQL clusters, being able to have compatibility information and validated design information, for everything from SQL versions, OS versions, switching, firmware versions, and UCS and models of whatever hardware we’re using, having all of that pre-validated and available is nice.”

SAP

Companies that run SAP are really putting FlexPod to work, as IT Central Station reviews reveal. A Senior Systems Engineer at a manufacturing company with more than 10,000 employees expressed the view that ‘‘FlexPod’s validated designs for major enterprise apps are really important because we can go with our SAP HANA solution, our Hadoop solutions, our HP [high performance] solutions, and our Media solutions. A vendor-specific solution is always preferred.”

A Sr. Systems Engineer at a government agency with over 1,000 employees concurred, saying, ‘‘In terms of the importance of FlexPod’s validated designs for major enterprise apps, we are a big consumer of SAP, so it’s important that we have all products that fit into the SAP hardware compatibility list and whatnot.”

For a Solutions Architect at a tech services company with over 1,000 employees, ‘‘This solution is used mostly for isolated pods for SAP, for instance, or for EPIC. Private, hybrid, and multi-cloud environments are heavily in use by various customers. I would say that hybrid is probably the most common today. We have integrated with cloud services such as NetApp’s ONTAP, AWS, and Azure.”

Oracle

Oracle shops are finding FlexPod to be a truly useful platform for the Oracle database stack. An IT Architect and Business Consultant shared, ‘‘On top of the infrastructure we used Oracle Hypervisor (OVM); the VMs were based on Oracle Linux. On top the virtual machines we hosted Oracle Database (pinned, to reduce license costs) or applications.”

> **The solution has enabled us to run mission-critical workloads.**

A Data Center Manager at a consultancy with over 5,000 employees remarked, ‘‘We are using it for a database solution, so we’re moving all of our 12G database systems onto Oracle UCS with flash as the hot store.” His group is using Oracle VM Citrix-based hypervisor, full solution, with FlexPod as the repo on the back-end. In particular, he described how “all the guest nodes are running

on UCS B200 M4s. We have A700, A300, and A200 on the back-end for various slavers and pulls, and they are all working great."

‘‘We do a little bit of Oracle at some of the sites, so the validated designs have been very good," said a Senior IT Analyst at a construction company with more than 10,000 employees. "We've had very good results. We have no complaints about latency or anything like that. Most of it is a lot of just file shares and stuff like that. But we do have Oracle and SQL at some sites."

He also offered insights into the broader data center context present when CI is considered for Oracle workloads. He said, ‘‘They were trying to replace all the older hardware with new hardware, getting some new sites as well. At some of the sites, they used the IBM Blade Servers, which were having high failure rates. That was a big wreck." After having issues with

> **We've had very good results. We have no complaints about latency or anything like that.**

Oracle on EMC VNX, he said, "We brought in a ROBO solution, and I didn't do any tweaking on it. I just put it in and put the Oracle on SAS drives, then separated them out by themselves. We've had no complaints in two years."

CONCLUSION

CI gives infrastructure managers a clear path to realizing data management and cloud objectives as they undergo their data center refresh. IT Central Station members are using FlexPod CI for diverse database workloads, including VDI, Microsoft SQL Server, Oracle, and SAP. They're putting it to work for data analytics too. As companies move toward private and hybrid cloud architectures, FlexPod users are also finding the platform essential for success. Its simple structure, combined with manageability and integration with multiple cloud offerings, makes it a natural fit for private and hybrid cloud strategies. Even for companies not currently making the move to the cloud, FlexPod is emerging as a preferred platform for when the time comes for cloud migration.

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