White Paper

Agile and Efficient — How FlexPod Drives Datacenter Modernization

Sponsored by: NetApp

Eric Sheppard Chris Kanthan
June 2019

IDC OPINION

There's no "easy button" in the datacenter. There's no one architecture, one hardware, one software, or one business strategy that will solve the numerous challenges enterprises are facing in the modern digital economy. The sheer amount of data, exploding number of applications, constant demand for innovation, and increasing complexity of IT architecture — which now includes the datacenter, the cloud, and the edge — place an extraordinary burden on the IT department. In fact, IDC survey data shows that an IT staff spends only 20% of its time on innovation, whereas efforts to just "keep the lights on" take up 80% of its time. Ideally, IT must evolve into a key player that helps a corporation embrace digital transformation, drive new business models and revenue, strengthen customer relationships, and enhance customer experience. Furthermore, IT executives must formulate an overarching strategy that reduces operational costs, increases agility, boosts efficiency, satisfies service-level agreements (SLAs), and future proofs the IT architecture. One of the strategies for this daunting objective is to consolidate the datacenter by eliminating silos of disparate infrastructure.

Removing silos of heterogeneous infrastructure with a consolidated and consistent platform has the obvious benefits of reducing capex and opex. With fewer hardware and software resources to monitor and manage, IT can reallocate its human resources to more creative projects that advance business initiatives. However, one must be careful that the new consolidated platform doesn't result in new complexities, additional risks, or extra management costs.

There is a proven solution that meets such requirements: converged infrastructure (CI). CI solutions have matured into robust platforms that offer substantial benefits, including the right mix of operational and capital efficiencies. Converged infrastructures are prevalidated platforms that enable rapid deployments, ease of management, and significant reduction in total cost of ownership (TCO).

CI solutions have also incorporated some of the best features of public cloud, thus enabling IT teams to create a seamless, hybrid cloud environment — the de facto architecture for digital transformation. Converged infrastructure offers scalability, agility, high performance, security, compliance, and ease of management. Enterprises can implement a private cloud in the datacenter using converged infrastructure and integrate it with multiple public clouds to create a consistent hybrid cloud.

SITUATION OVERVIEW

Datacenter Infrastructure Convergence in a Modern, Hybrid Cloud World

Converged systems represent a consolidation of core datacenter technologies (servers, storage systems, networking, and management software) into a single system that can be deployed, managed, and supported more efficiently than buying and building these technologies separately. Converged systems reduce complexity and risk associated with management of enterprise-grade datacenter infrastructure so that IT teams can confidently focus their time on higher-value projects and tasks.

History of Converged Infrastructure

Modern converged infrastructure systems have been around for more than a decade. Even early iterations of CI got the fundamentals right and offered a holistic approach to design, deployment, support, and management. Later, as reputable and leading IT vendors started offering their own versions of CI, enterprise customers eagerly embraced it as an effective solution to break down datacenter silos. The adoption of converged systems has continued over the years across all verticals of the market. In 2018, total spending on converged systems exceeded $16 billion, which can be seen as a clear indication of their capability.

Converged infrastructure offerings are also changing rapidly, adding more new features and functionalities to reflect the contemporary technologies and business needs. Innovations within the converged systems market are successfully addressing the needs of next-generation workloads (e.g., artificial intelligence/machine learning [AI/ML] and Kubernetes environment) as well as consistent and unified hybrid cloud. Therefore, enterprises must ensure that they're procuring the modern converged infrastructure platform that can help them in their data-centric, cloud-first journey.

Requirements of a Modern Converged Infrastructure Solution

As enterprise customers look to acquire a next-generation CI platform for their datacenters, they should consider the following features:

- **High availability:** The CI solution must ensure maximum application uptime through built-in fault tolerance.
- **Quick deployment:** The system must be as close to a turnkey solution as possible, enabling faster rollout of new applications and services.
- **High performance:** The CI solution must support flash drives, graphics processing units (GPUs), or storage-class memory to enable high-performance applications such as databases and analytics.
- **All-flash arrays for sustained and predictable performance:** While optional flash drives are enough for many enterprise applications, all-flash arrays have become necessary for workloads such as AI/ML.
- **Software-defined infrastructure:** Enterprises are increasingly demanding software-defined compute/storage/networking, and thus next-generation CI models must incorporate this concept.
- **Automation:** The CI solution should offer sophisticated software that can help IT administrators automate complex or repetitive tasks — backups, migration, replication, and provisioning of resources — through a self-service portal and so forth.
- **Integration with multiple public clouds:** The CI solution should support the right protocols and application programming interfaces (APIs) that enable it to work with different public cloud service providers — Amazon AWS, Microsoft Azure, Google Cloud Platform, and so forth.

- **Common data fabric for private and public clouds:** While hybrid cloud is becoming the gold standard for cloud implementation, there must be a unified data fabric that seamlessly connects all public and private clouds. Such a common data fabric will provide total visibility, data mobility, robust security, ease of management, and significant improvement in return on investment (ROI).
- **Enabler of organizational transformation:** The CI platform isn't simply a repository of data; it's a solution that enables business transformation. The right CI solution will help enterprises create new business models, innovate new products, deliver excellent customer experience, and gain valuable competitive advantage.

Overview of FlexPod's History

NetApp's CI platform is called FlexPod, and it has a long, proven history. The progenitor of FlexPod, Kilo Client, which integrated servers, networking, and storage, was introduced in 2006. That was also the time when virtualization really took off and VMware became an industry leader. Over the next couple of years, several innovative solutions burst onto the scene. Cisco, another technology giant, introduced Nexus switches and UCS servers in 2009. Soon, three innovators — NetApp, Cisco, and VMware — formed an alliance called "Imagine Virtually Anything." Out of the NetApp-Cisco partnership came FlexPod, a flexible platform centered on best practices of compute and network integrated with NetApp's ONTAP storage arrays. FlexPod was backed by NetApp Verified Architecture and Cisco Validated Designs, thus providing simplicity and peace of mind for customers. Over the past 10 years, both NetApp and Cisco have invested considerable resources in improving FlexPod.

Fast-forward to 2019, and FlexPod offers a mature, feature-rich infrastructure that is ideal for enterprises that want to modernize their datacenters. FlexPod is built using proven, enterprise-class storage, compute, and network technologies from well-known IT vendors; supports a diverse set of enterprise-class applications; and comes in different variations to match unique customer needs.

> FlexPod has evolved to become a forward-looking, next-generation converged infrastructure platform that is ideal for modern workloads such as AI/ML, containers, DevOps, and big data and analytics.

FlexPod also integrates leading-edge hardware technologies such as all-flash, NVMe, NVIDIA GPUs, 100 Gigabit Ethernet, and the latest Intel Xeon processors. Furthermore, FlexPod is ready for a cloud-first architecture thanks to NetApp Data Fabric and Cisco CloudCenter. Thus it's not surprising that FlexPod has enjoyed enviable growth in sales. According to IDC's Worldwide Quarterly Converged Systems Tracker, organizations around the world invested more than $11 billion in FlexPod and associated system software from 2012 to 2018.

While FlexPod's strengths are impressive, the best way to gauge the platform's capabilities is to get feedback from customers who use FlexPod in their datacenters. And that's exactly what IDC did.

Survey of FlexPod Customers Offers Insights into Real-World Benefits

The following sections of this white paper provide insights into a sample of FlexPod customers. This information comes from two sources:

- An IDC web survey of 89 FlexPod users, completed during the latter part of 2018
- In-depth phone interviews with FlexPod customers who are using FlexPod in production environments (Each interview was one hour long and was conducted independently by IDC.)

Survey Demographics

To truly understand how FlexPod is deployed and used in a wide range of workloads and environments, IDC chose enterprises of all sizes. The following is a demographic overview of the survey respondents:

- 43% of respondents were from companies with 5,000 or more employees.
- 30% of respondents were from companies with 1,000–4,999 employees.
- 27% of respondents were from companies with fewer than 1,000 employees.

Nearly 60% of respondents were running FlexPod in production for three or more years, which means that the customers interviewed have a very good understanding of FlexPod and were able to provide valuable feedback.

Survey Data

Although there were numerous findings in the survey, this white paper highlights the top insights.

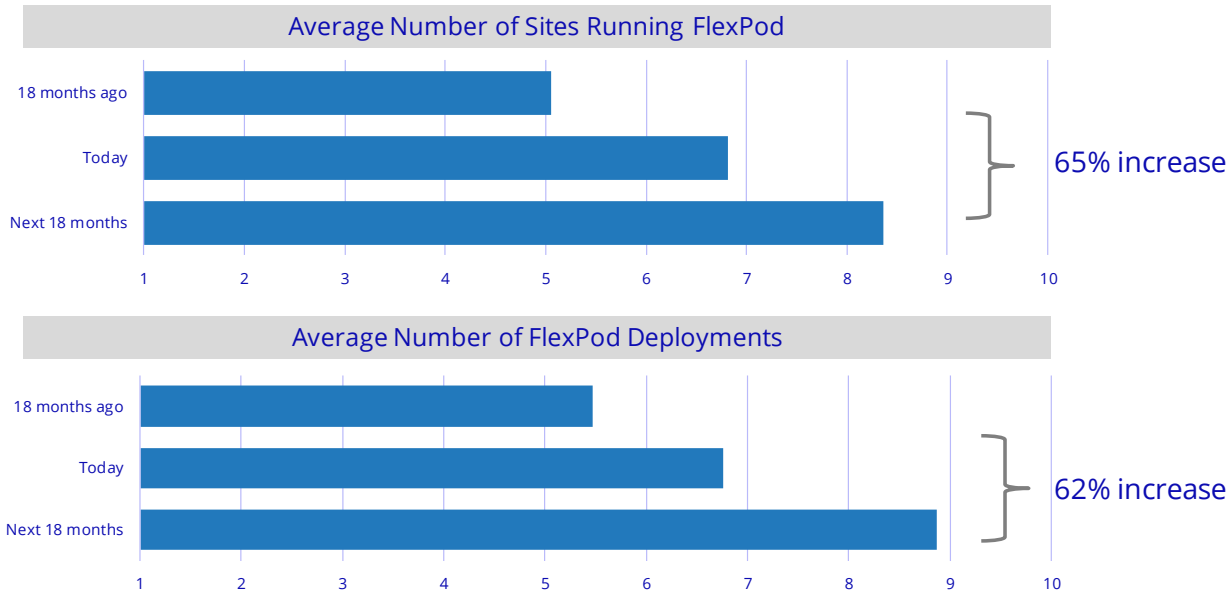
More enterprises are buying the NetApp and Cisco FlexPod solution, and existing customers are buying more FlexPod systems. These two simple facts show that FlexPod is a very solid product with tangible benefits. According to the IDC survey, there was a nearly 40% increase (over the previous 1.5 years) in the number of sites that deploy FlexPod, and in the next 1.5 years, the number of sites is expected to rise 24%.

As for the number of deployments of individual FlexPod systems, existing customers expect to install 62% more FlexPod systems compared with three years ago. Note that the number of sites and the number of deployments are different metrics because a given site may have more than one deployment of FlexPod.

Both findings, as shown in Figure 1, are a testament to FlexPod's success.

FIGURE 1

FlexPod Sites and Deployments



n = 89

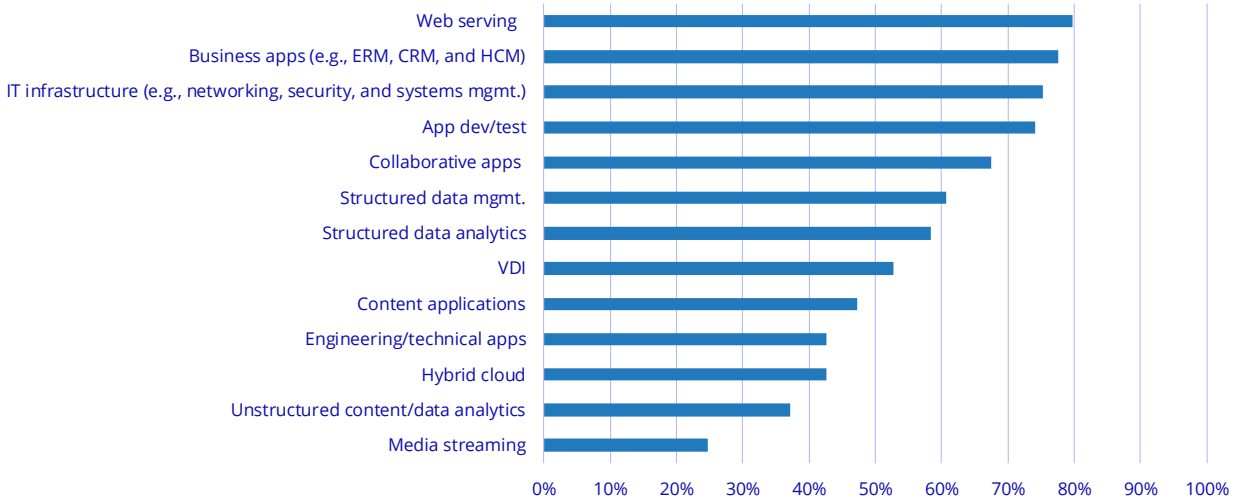
Source: IDC's survey of FlexPod customers, sponsored by NetApp, 2018

For what typical workloads are enterprises using FlexPod? Impressively, the workloads are very diverse, ranging from dev/test to business-critical applications. In fact, eight workloads were deployed on FlexPod by more than 50% of the respondents. This proves the agility and enterprise-grade functionality of FlexPod (see Figure 2).

FIGURE 2

Workloads Running on FlexPod

Q. Which of the following applications/workloads are deployed on the FlexPod solutions throughout your organization?



n = 89

Source: IDC's survey of FlexPod customers, sponsored by NetApp, 2018

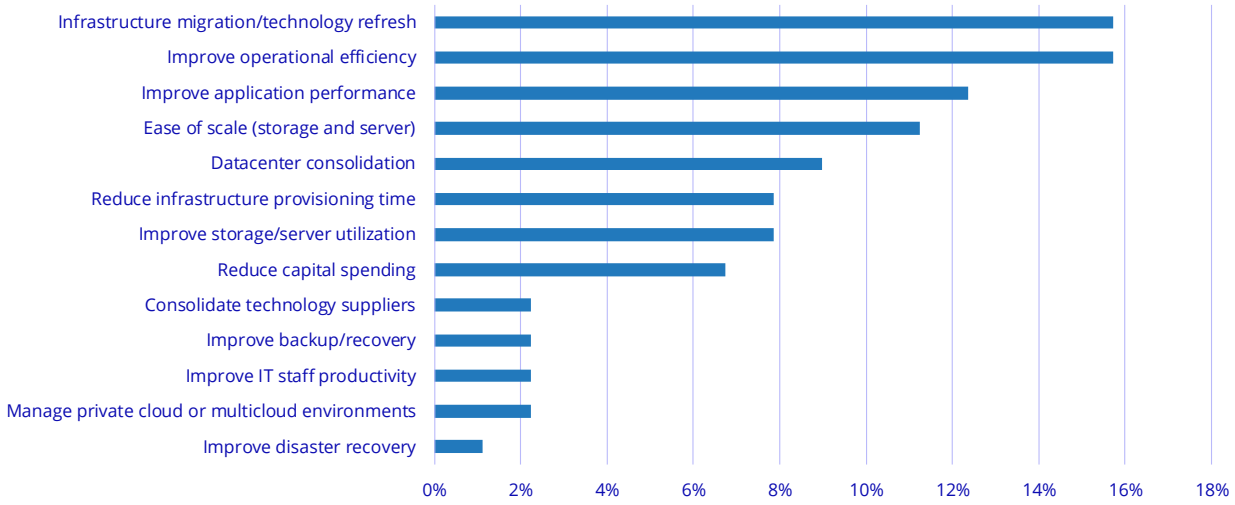
To understand why customers buy FlexPod, one must ask, "What is the number 1 problem that FlexPod solves?" The top 3 responses are technology refresh, improving operational efficiency, and the need for higher application performance. Technology refresh makes sense because customers want the latest solutions. Operational efficiency is a testament to the concept of converged infrastructure. Further, FlexPod's cutting-edge components, elegant architecture, and use of flash (solid state) drives contribute to superior performance that enterprise customers demand.

Scalability, datacenter consolidation, rapid deployment, and increasing server/storage utilization combined account for more than one-third of the responses. These are significant priorities for many customers (see Figure 3).

FIGURE 3

Primary Challenge FlexPod Is Solving

Q. What is the primary challenge your organization sought to address when deploying your FlexPod solution?



n = 89

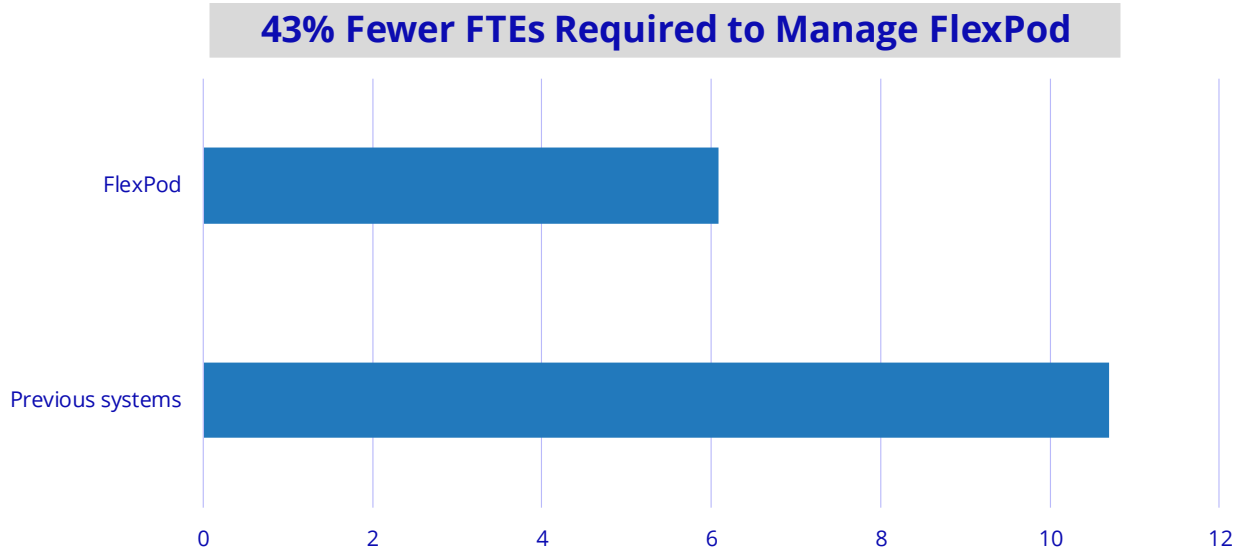
Source: IDC's survey of FlexPod customers, sponsored by NetApp, 2018

Many products claim to deliver great operational efficiencies, including reduction in the number of staff needed to manage the infrastructure. However, those claims may not turn into reality because new systems often introduce more complexity and risk. Thus it's significant that FlexPod customers were able to reduce the number of full-time equivalents needed to manage the infrastructure by more than 40% (see Figure 4).

FIGURE 4

Average FTEs Required to Manage Infrastructure

Q. What is the total number of staff (full-time equivalents) required to manage the FlexPod solutions deployed in your organization? And how does this compare with prior solutions?



n = 89

Source: IDC's survey of FlexPod customers, sponsored by NetApp, 2018

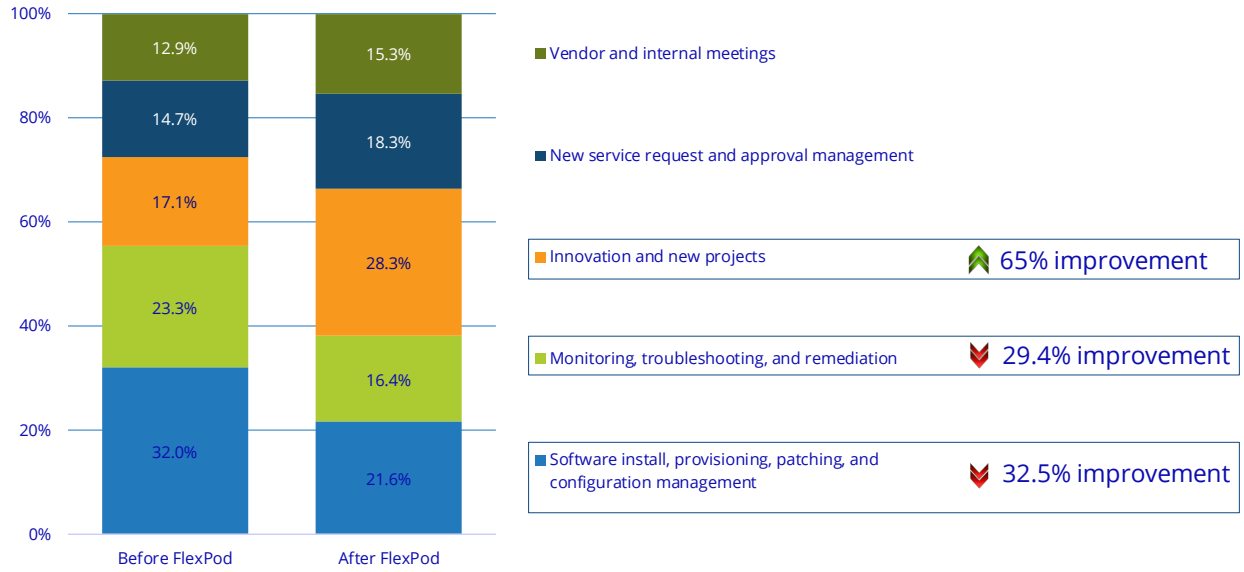
If IT teams aren't spending time managing the FlexPod, where are they redirecting their efforts? In an ideal scenario, they would be spending more time creating new products and processes. And that's exactly what the survey found.

> The time spent on innovation and new projects increased by 65% (see Figure 5). It's noteworthy that FlexPod decreased the amount of time spent on administrative tasks – monitoring, troubleshooting, provisioning, and so forth – by about 30%. Note that the decrease in time spent on administrative tasks is an "improvement" in efficiency.

This is what enterprises look for when they modernize their datacenters.

FIGURE 5

Percentage of IT Staff Time Spent on Select Tasks Before and After Deploying FlexPod



n = 89

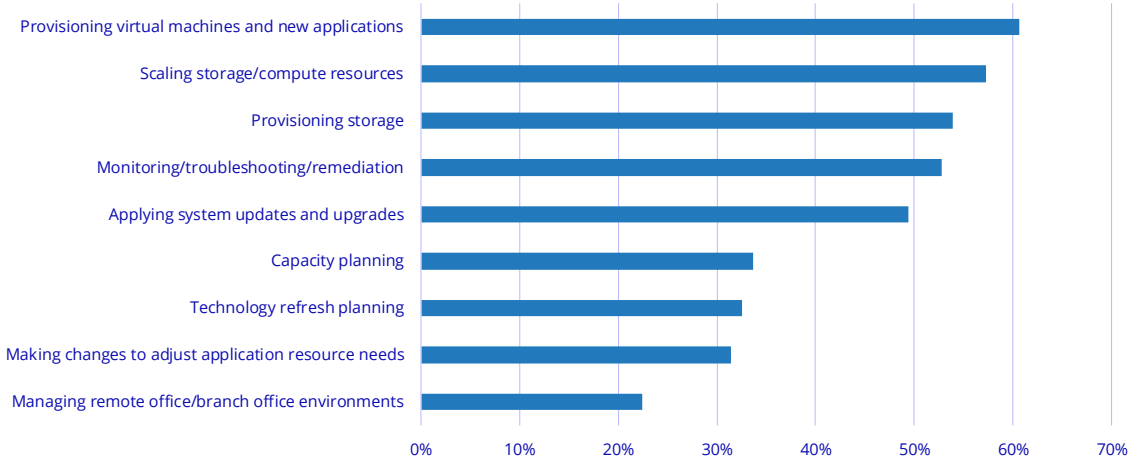
Source: IDC's survey of FlexPod customers, sponsored by NetApp, 2018

To gain a better understanding of the efficiencies seen by FlexPod's customers, the IDC survey probed a bit further. The top 3 areas are related to provisioning and scaling, which are obvious strengths of converged infrastructure. FlexPod makes it easy for customers to provision virtual machines, applications, and storage, and it simplifies the task of adding new capacity for compute and storage. Many customers were extremely impressed with the built-in automation features and the simplicity of FlexPod, which greatly reduced the time to deploy the systems and provision resources with just a few clicks (see Figure 6).

FIGURE 6

Most Common Areas of Efficiency Gains Driven by FlexPod

Q. Which, if any, of the following tasks performed within your organization are conducted more efficiently in a FlexPod environment?



n = 89

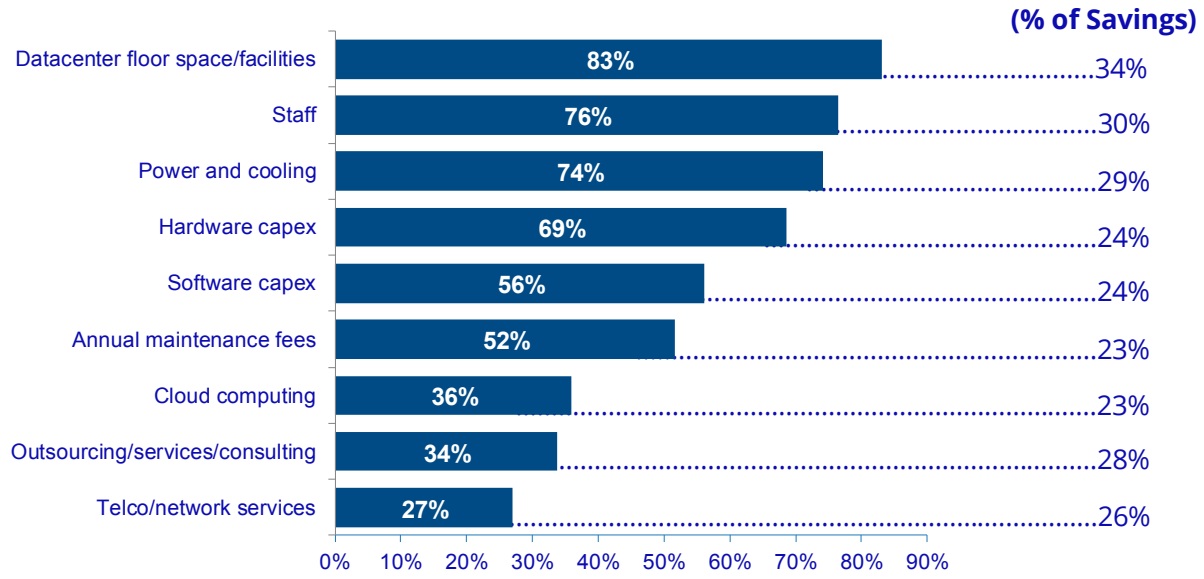
Source: IDC's survey of FlexPod customers, sponsored by NetApp, 2018

While IT administrators may be thrilled with how FlexPod saves them a lot of time, corporate executives in other lines of business (LOBs) want to know the impact on the bottom line – how FlexPod reduces TCO and operational budget. The survey split this topic into two questions. The first question focused on the areas where FlexPod had the biggest impact on savings, and the second question focused on how much the savings were.

The blue bars in Figure 7 refer to the percentage of FlexPod customers who saw savings in a particular category that is listed on the left. The number on the far right of the chart represents the actual amount of savings for that category. For example, looking at the first bar in Figure 7, we can conclude that 83% of FlexPod customers saw savings in costs related to datacenter floor space – the number 1 factor in cost savings – and the average amount of savings (in costs related to datacenter floor space) was 34%. Closely related to this is power cooling, which came in at number 3. Staff reduction, as pointed out in a previous finding, came in at number 2, and the cost savings were 30%. Another notable finding is the savings related to cloud computing because FlexPod helps some customers repatriate their applications from public clouds back to the datacenter.

FIGURE 7

Budget Savings Experienced by FlexPod Customers



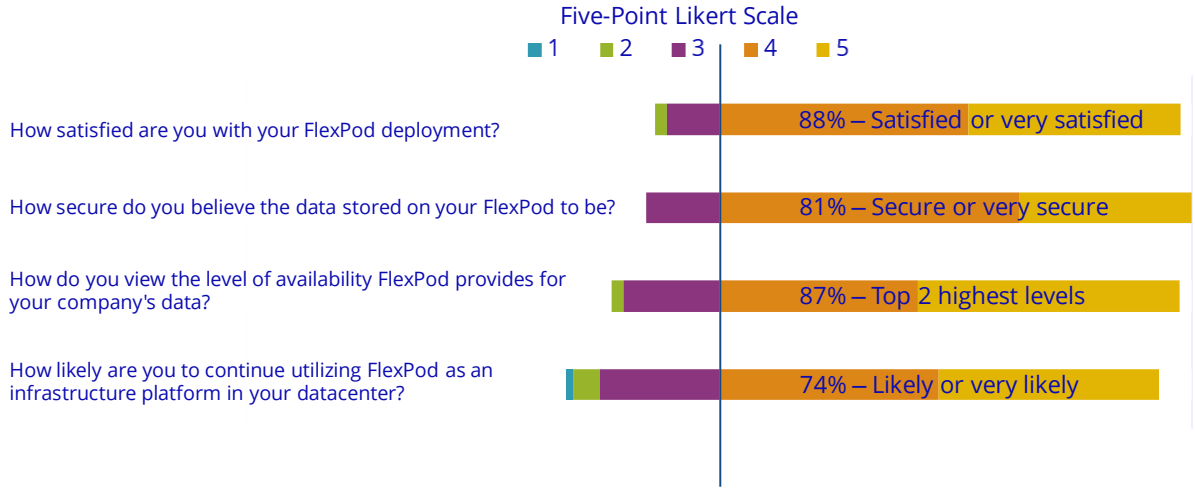
n = 89

Source: IDC's survey of FlexPod customers, sponsored by NetApp, 2018

The survey also looked at the overall perception of FlexPod – 88% of customers said that they are satisfied or very satisfied with NetApp and Cisco's FlexPod. About the same number of customers gave FlexPod high ratings for data availability, a crucial feature of any storage product. Regarding security, FlexPod received a strong nod of approval from 81% of customers. Overall, about 75% of enterprise customers said they will continue using FlexPod in their infrastructure, which bodes well for FlexPod's continued success (see Figure 8).

FIGURE 8

FlexPod Providing Very High Degree of Satisfaction, Security, and Availability



n = 89

Note: Scoring is on a Likert scale of 1-5, where 1 = lowest or not at all and 5 = highest or very

Source: IDC's survey of FlexPod customers, sponsored by NetApp, 2018

CHALLENGES/OPPORTUNITIES

Management and automation are two areas that can always benefit from continued improvement. FlexPod should further embrace the concepts of software-defined everything and unified management, providing seamless and consistent management of core, edge, and cloud.

CONCLUSION

The digital economy is here, and it impacts every aspect of an enterprise, including the datacenter. IT needs an architecture that's agile, scalable, fast, secure, cost effective, and cloud centric. The new, data-centric paradigms demand next-generation products that can propel enterprises further along the digital transformation. Converged infrastructure is one such solution that can help enterprises with these modernization efforts. FlexPod is a mature, robust CI system that offers cutting-edge functionalities and extraordinary operational efficiencies.

> Using FlexPod, datacenter managers can achieve datacenter consolidation, implementation of hybrid clouds, and deployment of modern workloads quickly and efficiently.

As the IDC survey revealed, real-life performance of FlexPod and customer satisfaction point to NetApp's continued success with this product.

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

Global Headquarters

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-community.com
www.idc.com