

WHITE PAPER

Building Blocks of the Modern Data Center

How Integrated Infrastructure Solutions Help to Accelerate Application Deployments and Simplify Management in Virtualized Environments

FUSIONSTORM™

www.fusionstorm.com

EXECUTIVE SUMMARY

As the pace of business growth and change continues to accelerate, many organizations are looking for alternatives to the traditional siloed IT infrastructure with distinct compute, storage and networking environments. These legacy data center architectures are difficult to provision and deploy, limiting IT's ability to meet business demands for fluid scalability and the rapid rollout of new services.

Server virtualization has helped increase agility by enabling IT to commission, decommission or reallocate compute capacity in response to user demand. However, server virtualization does nothing to address the inflexibility of the underlying data center environment. If anything, server virtualization tends to intensify the strain on aging infrastructures as more and more virtual machines (VMs) are deployed. IT cannot scale storage and networking resources fast enough to support this growing virtual environment, let alone manage it all effectively.

Relieving this bottleneck requires a new approach to data center design — one in which all components of the infrastructure are tightly integrated and holistically managed. Recognizing this need, key industry vendors have developed integrated platforms that combine compute, storage and networking in a preconfigured and validated technology stack. With single-pane-of-glass management and reference architectures for a wide range of workloads, these solutions are beginning to change the way IT services are provisioned, deployed and managed.

Integrated infrastructure solutions break down the silos and accelerate application deployment by creating a pool of shared resources that can be up and running in hours or days rather than weeks or months. Moreover, these products free IT from the "do-it-yourself" data center model in which significant time and resources are dedicated to sizing, configuring, integrating and testing systems.

This paper discusses the efficiency gains, cost savings and other benefits organizations may realize by implementing an integrated infrastructure. It focuses on NetApp's FlexPod Datacenter solution, which integrates NetApp storage systems, Cisco Unified Computing Systems servers and Cisco Nexus switches into one flexible data center architecture that is validated for a variety of workloads.

RAPIDLY GROWING DEMAND

In its 2012 IT Spending Intentions Survey, Enterprise Strategy Group (ESG) asked respondents which infrastructure deployment model they were using for their virtualized environments, and which model they would prefer to use. Nearly half (46 percent) said they currently use the do-it-yourself model, buying best-of-breed components and constructing the environment from the ground up. More than a quarter (26 percent) said they use a reference architecture, a tested and validated design that does not dictate particular components but rather provides the architectural

vision, guidance and best practices to facilitate data center deployments. Only 24 percent of respondents said they were currently using integrated infrastructure.

However, 36 percent said that they would prefer to use a preconfigured, integrated and validated platform, compared to just 28 percent who would prefer to use a reference architecture and 28 percent who would prefer the do-it-yourself model. If that survey were taken today, it is likely that a greater percentage of respondents would prefer integrated infrastructure solutions.

Gartner has reported that spending on integrated infrastructure was increasing 53.7 percent year over year as of the second quarter of 2012. In a survey conducted by Zenoss in the first quarter of 2013, 30 percent of respondents said they are already using integrated infrastructure solutions and 51 percent are actively considering or planning to adopt them. According to International Data Corp. (IDC), integrated infrastructure sales were up 80.3 percent year over year during the second quarter of 2013.

Although integrated infrastructure accounts for only about 6 percent of the \$80 billion in enterprise data center spending, it is rapidly becoming a mainstream technology deployed to support mission-critical applications. A growing number of organizations are turning to integrated infrastructure to reduce deployment time for new applications, improve utilization rates and relieve management burdens. These organizations are finding that integrated infrastructure solutions help to optimize the IT environment so that IT can focus on delivering services that drive revenue, productivity and customer service.

INTEGRATED INFRASTRUCTURE DEFINED

IDC defines integrated infrastructure as pre-integrated, vendor-certified systems containing server hardware, disk storage systems, networking equipment and systems management software. Integrated infrastructure systems are designed for general-purpose, distributed workloads that are likely to have differing performance profiles; they are not optimized for a specific workload. Management and control software is embedded or integrated and optimized for the automatic discovery, provisioning and pooling of physical and virtual compute, storage and networking resources that are shipped as part of the integrated system.

According to IDC's Worldwide Integrated Infrastructure & Platforms Tracker, released in October 2013, the top-ranking solution within the integrated infrastructure market segment is NetApp's FlexPod Datacenter solution, with a 26.2 percent share. FlexPod is a pretested and validated data center architecture designed to accelerate the transformation to a fully virtualized, shared IT infrastructure. Developed through NetApp's ongoing collaboration with Cisco, FlexPod combines compute, storage and networking resources in consistent and proven designs that help speed deployment and reduce risk.

FlexPod is built upon the Cisco Unified Computing System (UCS) integrated server platform, Cisco Nexus switches and NetApp unified storage systems running the Data ONTAP operating system. These components are certified to work together and tightly integrated to create an infrastructure

that can accommodate a wide range of workloads in both virtualized and non-virtualized environments. Moreover, a FlexPod environment can scale up or out by adding components to the solution or adding more FlexPod units.

FlexPod includes centralized management tools and an open design management framework that integrates with existing third-party infrastructure management solutions, helping to increase data center efficiencies and accelerate and simplify the transition to the cloud. Through tight integration of the compute, storage and networking components and best-in-class management tools, FlexPod creates a cohesive platform that makes it easy to manage hundreds of resources for thousands of virtual machines.

Key management components include Cisco UCS Manager, which provides unified, embedded management of server and network components, and Cisco UCS Director, which provides centralized automation and orchestration from a single, unified view. NetApp OnCommand Insight further provides a holistic view of the storage infrastructure and a unified set of services. FlexPod can also be integrated into existing management platforms as well as validated turnkey solutions from management partners.

PROVEN SOLUTIONS

The FlexPod solution includes a modular reference architecture that has high availability at the core of its design, with layers of redundancy and failover capabilities. The default configuration includes two Cisco Nexus switches, two Cisco UCS fabric interconnects, three chassis of Cisco UCS blades with two fabric extenders per chassis and NetApp Fabric-Attached Storage (FAS). However, customers have the flexibility to vary the configuration depending on the particular use case, ranging from entry-level options for smaller organizations to large, multitenant environments for service providers.

It is important to note that a FlexPod is more than a collection of NetApp and Cisco hardware — it must be configured according to NetApp's guidelines in order to be certified. This enables customers to match the hardware to the workload while gaining the benefits of a validated architecture.

FlexPod validated designs include the component, implementation and configuration details needed to deploy genuine FlexPod solutions with confidence. FlexPod has been tested and validated on more than 40 operating systems, applications, hypervisors, systems management tools and cloud management platforms from software partners such as Microsoft, Red Hat, SAP, VMware and Citrix.

This partner ecosystem provides also customers with a Cooperative Support Model designed to resolve 98 percent of issues on first contact. Regardless of the nature of the problem, customers can call any FlexPod vendor; engineers with multivendor expertise and training will respond using shared communications and escalation processes.

FUSIONSTORM DELIVERS END-TO-END EXPERTISE

Introduced in November 2010, the FlexPod solution is available only through qualified channel partners. A longtime Cisco and NetApp partner, FusionStorm has been designated a FlexPod Premium Partner by Cisco and NetApp to provide solutions and services supporting the FlexPod data center solution. FusionStorm is recognized for its advanced competencies in supporting customers as a trusted adviser in deploying FlexPod solutions.

With unmatched data center expertise, the FusionStorm team can help customers design and implement integrated infrastructure platforms that help achieve greater flexibility and efficiency. FusionStorm and its key industry partners are helping customers transition to a shared IT infrastructure that will better position them to respond to business challenges and take advantage of new opportunities.

KEY BENEFITS

A core benefit of integrated infrastructure solutions is the ability to streamline deployment of the data center infrastructure needed to support line-of-business applications. For its Integrated Computing Trends research brief released in March 2011, ESG asked respondents what benefits they believed an integrated infrastructure solution might bring to their organization. Three of the top nine responses included “faster deployment time” (cited by 37 percent), “less time and resources required for hardware and/or software integration” (cited by 33 percent) and “reduction in interoperability issues” (cited by 28 percent).

The components of a FlexPod solution can be quickly cabled together and will immediately recognize one another and share information to enable seamless automation. As a result, FlexPod provides a certified technology stack that gives the IT team the confidence to roll out new applications quickly without fear of performance problems. FlexPod also creates a consistent build model for geographically dispersed operations and web-scale data centers.

However, the top benefit of integrated infrastructure is “ease of management,” cited by 44 percent of respondents in the ESG study. Centralized, policy-based management reduces the burden on IT, enabling organizations to do more with existing resources and to optimize capacity and performance to meet changing workload demands.

These and other benefits contribute to a significant reduction in capital and operational costs. A Forrester Research Total Economic Impact study of the FlexPod Datacenter platform, released in January 2013, found that FlexPod delivered a three-year cost savings of \$375,000 by increasing efficiency through automation of server and storage provisioning. Together, NetApp OnCommand Insight and Cisco UCS Manager provided management efficiencies that delivered another \$375,000 in savings over three years. Overall, FlexPod provided quantified benefits and cost savings of almost \$1.2 million over three years, and organizations have reported a full return on investment in just eight months.

CONCLUSION

CIOs are under increasing pressure to reduce costs and better align IT with the pace of business. As a result, they are looking to make key architectural changes that will have significant business impact over the long term. IT needs solutions that streamline complex configuration and integration processes without compromising performance and reliability and deliver greater efficiency and flexibility to address ever-evolving business requirements.

Integrated infrastructure promises to deliver these benefits by combining compute, storage and network components in a technology stack that is validated to ensure interoperability. These solutions can be configured and sized to support different workloads, enabling rapid rollout of the data center infrastructure needed to support IT services. Furthermore, integrated infrastructure solutions incorporate an overarching management framework and automated provisioning to further drive IT efficiencies and cost savings.

These key advantages are driving the fast pace of adoption of integrated infrastructure solutions, particularly among organizations that are shifting to a virtualized environment. NetApp's FlexPod Datacenter solution leads the pack. FlexPod integrated infrastructure solutions are pretested to optimize performance and ensure the seamless sharing of intelligence between hardware components, improving interoperability, reducing downtime and streamlining IT processes. By integrating best-of-breed hardware and software and optimizing management, FlexPod reduces total cost of ownership and quickly delivers maximum IT value.

About FusionStorm

FusionStorm delivers best-of-breed technology solutions that give our customers a competitive edge. Our deep technical expertise and business acumen enable us to design and implement solutions aligned with each customer's unique business requirements. We maintain the highest certifications from industry leaders and offer an array of services designed to maximize the efficiency of our customers' operations.

Headquartered in San Francisco, FusionStorm has offices and data centers across the globe, and a culture that emphasizes long-term relationships. By partnering with FusionStorm, customers gain a team of seasoned professionals with a track record of success and an unwavering commitment to customer satisfaction.



800.228.TECH | info@fusionstorm.com | www.fusionstorm.com

Headquarters

FusionStorm Inc.
2 Bryant Street, Suite 150
San Francisco, CA 94105

PHONE: 800 228-TECH

FAX: 415 623-2630