HYPERCONVERGED SOFTWARE-DEFINED DATA CENTERS PROVIDE AN EFFICIENT PATH TO ENTERPRISE PRIVATE CLOUDS
INTRODUCTION

In the digital era, enterprises face increased data center complexity and rising costs as they struggle to meet evolving business requirements. Data center infrastructures need to evolve quickly, balance added responsibilities, and meet strict resource and budgetary constraints. Factor in the tremendous data explosion driven by emerging trends such as cloud computing, Internet of Things (IoT) and big data, and legacy data centers inevitably face a nightmare of complications.

As enterprise data centers grow in size and technology capabilities, IT organizations increasingly look for an alternative to assist with infrastructure consolidation. The cost of managing and maintaining legacy networks can grow cumbersome as fragmented and disparate hardware strains IT staff. Server virtualization initially provided an alternative architecture approach that helped reduce both capex and opex by allowing IT to consolidate and reduce the number of physical servers through the creation of virtual machines. While virtualization certainly delivers initial cost savings, it can also introduce challenges. As virtualization permeates across enterprise data centers, challenges around virtual machine sprawl inevitably impact IT staff and other resources. Further compounding this is the increased requirement for storage and the resulting silos of storage that pose management and cost difficulties.

Even with the value delivered by server virtualization, enterprise IT organizations are seeking alternatives that will help with data center consolidation. To further reduce cost and complexities, IT organizations seek an architecture that will provide full convergence of hardware and software, simple deployment and management, and flexibility and scalability to meet their ever-evolving business requirements. Hyperconverged platforms are the next iteration of converged infrastructure that can provide the integrated capabilities, ease of deployment, centralized management and scale to meet business needs.

Five-year CAGR

53.1%

Anticipated global hyperconverged market

10.9%

Anticipated overall converged infrastructure market growth rate
TBR research indicates an increased interest among enterprise companies in hyperconverged platforms. In TBR’s 3Q16 Hyperconverged Platforms Market Landscape, TBR anticipates the global hyperconverged market will grow at a five-year CAGR of 53.1% from 2015 to 2020, compared to a five-year CAGR of 10.9% for the overall converged infrastructure market.

TBR believes Dell EMC is well-positioned to assist enterprise companies and service providers with their migration to hyperconverged and private cloud environments. Dell EMC offers a portfolio of hyperconverged systems that aligns with enterprise data center requirements based on software from VMware. In particular, the software-defined data center (SDDC) capabilities of the Dell EMC VxRack System with SDDC were designed to provide turnkey, rapid deployment of private clouds, which is critical to optimizing on-premises infrastructure tasked with handling a variety of workloads.

**PRIVATE CLOUD AND OTHER USE CASES DRIVE INTEREST IN HYPERCONVERGED PLATFORMS**

IT organizations are beginning to better understand the benefits and architectural advantages hyperconverged platforms bring to the data center over traditional infrastructures. Early customers faced educational challenges that hampered initial deployments, but over time are experiencing cost savings, performance and process improvements promised by hyperconverged vendors. More companies are migrating workloads to hyperconverged platforms driven by agile resource provisioning, virtual desktops and automated life cycle
management. Additionally, more midsize and large enterprise companies are leveraging hyperconverged platforms to support the move to private clouds.

TBR’s 2H16 Hyperconverged Platforms Customer Research indicated that a significant portion of companies are using hyperconverged platforms for private cloud deployments.

However, adopters of hyperconverged platforms have seen their share of challenges. In TBR’s report, 72% of respondents surveyed encountered deployment challenges with the rollout of their hyperconverged platforms. Specifically, time and resource investment, high cost of implementation and infrastructure disruption were commonly noted by respondents.

Vendors that can provide hyperconverged platforms that are more tightly integrated and simplify deployment will address major challenges customers face today. Modern business requirements demand increased and flexible software functionality, particularly as more companies seek to leverage data-heavy and cloud-based workloads. The seamless design of hyperconverged platforms allows customers to more easily handle these challenging requirements.

DELL EMC VXRACK SDDC DELIVERS A SEAMLESS PATH TO A SOFTWARE-DEFINED DATA CENTER

Dell EMC VxRack SDDC is a purpose-built hyperconverged system ideal for IT organizations standardizing on a VMware SDDC. VxRack SDDC integrates compute, storage and networking in a preconfigured, fully tested and hypervisor-controlled system designed to deliver rapid deployment of traditional and modern workloads. Dell EMC and VMware collaborated to provide a turnkey platform that centralizes management of hardware and software and offers cost-efficiency and scalability for enterprise companies and service providers that are deploying private cloud or IaaS environments.

USE OF HYPERCONVERGED PLATFORMS FOR PRIVATE CLOUD

- We are building private cloud: 29%
- We are upgrading traditional (non-cloud) hardware: 33%
- We are both building private cloud and upgrading traditional deployments: 38%

n = 200
SOURCE: TBR HYPERCONVERGED PLATFORMS CUSTOMER RESEARCH, DECEMBER 2016
Digital transformation is causing data centers to modernize their infrastructure, migrating from virtualization to cloud computing. Digitization is spurring the support of mixed, heterogeneous applications including traditional, cloud-native and emerging workloads, which require significant levels of capacity, performance, scalability and control. VxRack SDDC was designed to address these requirements by leveraging an architecture that provides comprehensive features including:

**Simplified IT**

According to TBR’s *2H16 Hyperconverged Platforms Customer Research*, addressing costly and aging, underperforming infrastructure is a key reason for migration to hyperconverged platforms. The popularity of public cloud services and the increased use among lines of business (LOBs) continue to pressure internal IT departments to react quickly and flexibly to business requests. The ability to do so with traditional, stand-alone infrastructure is challenging due to cost, complexity and sprawl inherently involved with expansion of those environments. With VxRack SDDC, Dell EMC and VMware position to provide an off-the-shelf, easily deployed solution that allows IT departments to react quickly and effectively to business requests, providing a foundation to easily move to a modernized data center. Organizations can support and manage private cloud, hybrid cloud and public cloud domains even when those requests lead to a mixed-workload environment.

**Reduced total cost of ownership**

While hyperconverged platforms unlock cost savings not experienced with traditional stand-alone systems, TBR’s *2H16 Hyperconverged Platforms Customer Research* indicates that more than 25% of customers still desire improved total cost of ownership as they evaluate future purchases. Based on Dell EMC PowerEdge servers, VxRack SDDC is designed to deliver cost savings to customers through enhancing performance and scalability, seamlessly integrating with VMware software, and simplifying life cycle management. VxRack SDDC is available in preconfigured and customized options, so customers can more closely tailor infrastructure for specific workload requirements without worrying about overprovisioning.

More than 25% of customers still desire improved total cost of ownership as they evaluate future purchases.
Comprehensive software suite

The ability to manage both the virtual and physical infrastructure of the data center is paramount as IT organizations are bound to provide “always on” access to business applications. Hyperconverged platforms typically provide virtualization management via hypervisors as well as centralized management of the compute and storage components. However, the key to supporting modernized data centers includes the ability to provide total end-to-end management including cloud operations and automated, single-pane-of-glass management of network, compute and storage for physical and virtual assets. The foundation for VxRack SDDC is the VMware Cloud Foundation software suite, which combines VMware software including: vSphere (hypervisor), NSX (network virtualization), vSAN (software-defined storage) and a new SDDC Manager (end-to-end systems management). The VMware SDDC Manager was developed to provide IT administrators with single-pane-of-glass and full life cycle management for hardware and software infrastructure resources. Depending on the configuration, customers can grow to a full cloud management platform by including VMware software options like VMware vRealize Suite (for cloud operations) and VMware Horizon (for virtual desktop infrastructure [VDI]).

Integrated networking

A critical component and inhibitor to scaling hyperconverged environments is dealing with the complexity of adding network switches. Predesigning, and then planning and integrating into the existing network can be an IT resource drain. Dell EMC and VMware invested to address this issue by integrating physical networking and VMware’s NSX network virtualization technology into VxRack SDDC, with the goal of enabling a complete networking infrastructure that is fully engineered, easily extensible and scalable, and eliminates the challenges associated with adding networking to the data center environment.

Seamless capacity scaling

Seamless scalability was noted by 28% of respondents in TBR’s 2H16 Hyperconverged Platforms Customer Research as an enhanced/added capability required to ensure a future hyperconverged platforms purchase. Dell EMC utilizes a “pay as you grow” model with VxRack SDDC, aiming to make it easier and more cost-effective for IT to scale their data center environments. As more compute and storage capacity is required, additional VxRack SDDC nodes and racks can be added, one node at a time. VxRack SDDC can start with as little as eight server nodes in a rack. It supports up to 24 nodes in a single rack and can grow to eight racks making up a single system.
Full SDDC capabilities

Obtaining SDDC functionality in a traditional, stand-alone infrastructure ecosystem is a difficult endeavor for many customers due to complexity and standards issues. However, VxRack SDDC integrates Dell EMC and VMware software innovation that is focused on providing fully integrated SDDC capabilities. Per Dell EMC, users can simultaneously run heterogeneous applications on the same, shared standardized infrastructure, due to the VxRack SDDC system’s ability to abstract physical resources from different racks into a logical pool of compute, storage and network resources. In turn, a deployment on a single rack can have workload domains with completely different performance and availability requirements. This also allows for policy-based provisioning and multitiering that is fully automated through the SDDC Manager.

For Dell EMC, VxRack SDDC represents another step in hyperconverged platform expansion between Dell EMC and VMware that addresses shortcomings of previous converged and hyperconverged platforms. VxRack SDDC is purpose-built for customers that have standardized on VMware SDDC cloud technologies and seek a seamless, turnkey solution for private cloud.

CONCLUSION

Dell EMC is ideally positioned to address the growing interest that large enterprise companies and service providers have in utilizing hyperconverged platforms for private cloud deployments. Dell EMC continues to focus on developing hyperconverged platforms that meet the demanding and ever-changing requirements of businesses that are transforming from traditional, legacy data centers to next-generation digitally enabled infrastructures. With Dell EMC VxRack SDDC powered by VMware Cloud Foundation, Dell EMC and VMware have built a turnkey hyperconverged solution designed to support both traditional and cloud-native workloads running in VMware environments. By natively integrating VMware’s virtual computing software, Dell EMC VxRack SDDC was designed to enable enterprise companies and service providers to more easily and cost-effectively deploy the foundation for a complete software-defined private cloud that provides the flexibility and scalability required to support transformations in the digital era.
**About Dell EMC**

Dell EMC is the industry leader in converged platforms providing a broad portfolio of converged and hyperconverged appliances and rack-scale systems based on the industry standard Dell EMC PowerEdge line of servers. Dell EMC delivers fully integrated and virtualized cloud infrastructure systems, allowing customers to focus on business innovation instead of integrating, validating, and managing IT infrastructure. Dell EMC headquarters are in Round Rock, Texas.

**About TBR**

Technology Business Research, Inc. is a leading independent technology market research and consulting firm specializing in the business and financial analyses of hardware, software, professional services, telecom and enterprise network vendors, and operators.

Serving a global clientele, TBR provides timely and actionable market research and business intelligence in formats that are tailored to clients’ needs. Our analysts are available to further address client-specific issues or information needs on an inquiry or proprietary consulting basis.

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