White Paper

Hyperconverged Infrastructure: Cost-effectively Simplifying IT to Improve Business Agility at Scale

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What’s Driving Organizations to Hyperconverged Infrastructure

Digital transformation is on the minds and white boards of CTOs across industries. And why not? To remain competitive in today’s market, organizations are turning to IT to eliminate inefficiencies, improve agility, and reduce risk by eliminating siloed IT infrastructures and operating units. One of the ways organizations can enable digital transformation is to modernize their infrastructure via hyperconverged infrastructure (HCI). HCI is also viewed by IT professionals as the technology most likely to help IT become more cloud-like, delivering on-premises infrastructure as a service (ITaaS). In fact, according to ESG research, 44% of IT professionals surveyed said that they believed that hyperconverged infrastructure platforms give them the best chance to become more cloud-like and deliver ITaaS, while 29% believed that either converged or hyperconverged infrastructure platforms positioned them to become more cloud-like and deliver ITaaS (see Figure 1).¹

Figure 1. Relationship Between HCI and Organizations’ Data Center Modernization Efforts

Which of the following statements do you believe is most accurate in terms of the relationship between converged or hyperconverged technology and your organization’s data center modernization efforts with the goal of becoming more “cloud-like” by delivering IT-as-a-service? (Percent of respondents, N=324)

We don’t believe that either converged or hyperconverged infrastructure platforms positions us to become more cloud-like and deliver IT-as-a-service, 6%

We believe that either converged or hyperconverged infrastructure platforms positions us to become more cloud-like and deliver IT-as-a-service, 4%

We believe converged infrastructure platforms give us the best chance to become more cloud-like and deliver IT-as-a-service, 17%

We believe hyperconverged infrastructure platforms give us the best chance to become more cloud-like and deliver IT-as-a-service, 44%

One of the overarching reasons for organizations to deploy HCI is to become more cloud-like—but what are some of the other reasons organizations are turning to HCI? ESG research shows that more than one-third (34%) of IT professionals, when asked about their most common HCI technology buying triggers, indicated it was an infrastructure consolidation exercise, while 33% indicated it was a CapEx cost reduction exercise. And while cost savings may play a large part in organizations looking to deploy hyperconverged infrastructure, many companies also value the benefits that contribute to operational excellence, including scalability, ease of deployment, and streamlined system management. Given these attributes, HCI is a natural fit for many companies, aligning with a variety of their overarching business and IT initiatives. In fact, based on ESG research, nearly one-third (31%) of IT professionals said improved scalability drove their organization to deploy HCI, while 28% cited improved total cost of ownership, and 26% cited ease of deployment (see Figure 2).

¹ Source, ESG Master Survey Results, Converged and Hyperconverged Infrastructure Trends, October 2017. All ESG research charts and statistics in this white paper have been taken from this master survey results set, unless otherwise noted.
Hyperconverged Adoption Trends

With the aforementioned deployment drivers in mind, market traction of HCI continues to rise across industries. ESG research shows that usage of HCI technology has more than doubled since 2015, up from 15% to 39%. Currently, 18% of organizations have plans for, or interest in HCI technology. With that in mind, what features do organizations consider essential when choosing an HCI solution?

When organizations were asked what they deemed “must haves” when purchasing HCI solutions, 30% of respondents indicated scalable systems management, while 28% said built-in data protection, with another 28% citing scale up and out capabilities. Additionally, 25% said data compression, and 20% answered hypervisor conversion.

Recognized Benefits of Hyperconverged Infrastructure Technology

There is little doubt that HCI is becoming increasingly popular and one of the key reasons is that HCI technology enables IT to become more agile. ESG research shows that a majority (62%) of survey respondents indicated that hyperconverged infrastructure has made their organizations somewhat more agile, while 25% said it has made their organizations significantly more agile.

There are numerous benefits organizations can derive from deploying HCI technology—from improved TCO and improved scalability, to better service and support. In fact, when asked about the most significant benefits their organizations realized by deploying HCI technology, 28% of respondents cited improved total cost of ownership, while another 28% said...
improved scalability, and 23% cited improved service and support. In addition 21% cited faster deployment time, with another 21% citing simplified management (see Figure 3).

Figure 3. Top Ten Benefits of Deploying Hyperconverged Infrastructure Technology

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved total cost of ownership (TCO)</td>
<td>28%</td>
</tr>
<tr>
<td>Improved scalability</td>
<td>28%</td>
</tr>
<tr>
<td>Improved service and support</td>
<td>23%</td>
</tr>
<tr>
<td>Faster deployment time</td>
<td>21%</td>
</tr>
<tr>
<td>Simplified management</td>
<td>21%</td>
</tr>
<tr>
<td>Less time and resources required for hardware and/or software integration</td>
<td>20%</td>
</tr>
<tr>
<td>Simplified deployment process</td>
<td>19%</td>
</tr>
<tr>
<td>More predictable costs when scaling</td>
<td>19%</td>
</tr>
<tr>
<td>Reduced CapEx</td>
<td>18%</td>
</tr>
<tr>
<td>Increased agility of virtual machine provisioning</td>
<td>17%</td>
</tr>
</tbody>
</table>

Source: Enterprise Strategy Group

With all of its benefits, HCI technology is swiftly displacing the traditional “best of breed infrastructure.” Traditional 3-tier architectures are no longer the de facto, on-premises standard. Indeed, one of the key benefits causing the displacement of the traditional approach is the ease and speed of deployment of HCI. In fact, compared to using a traditional approach when provisioning infrastructure, 50% of those surveyed said their organization’s deployments have been 6-10% faster using hyperconverged infrastructure technology solutions, while 43% said deployments have been 11-20% faster.

**Dell EMC VxRack FLEX**

VxRack System FLEX (VxRack FLEX) is a rack-based, hyperconverged solution that leverages flexible, scalable, and performant software-defined storage. The software runs on Dell EMC PowerEdge servers, which deliver a full hyperconverged stack, enabling IT organizations to work with a single vendor for the software, hardware, and support needed to modernize a data center—enabling complete lifecycle assurance.

The solution’s scale-out architecture offers the flexibility to start small and grow as needs change. Unlike other hyperconverged offerings that disregard networking, VxRack FLEX supports both physical and virtual networking, including top of rack switches that control network traffic, management, and redundancy. This solution can be used with other Dell EMC products and services. In addition, advanced data protection capabilities, including backup and recovery, continuous data protection, and protection storage are available with Dell EMC Data Domain with Data Domain Boost (DD Boost) and Dell EMC RecoverPoint.
Because dynamic workloads come in a variety of shapes and sizes, Dell EMC VxRack FLEX serves as an ideal infrastructure for running traditional and emerging workloads deployed with a cloud-like operating model. The solution can reduce the amount of time needed for resource management, helping organizations more easily meet application requirements for simultaneously running mixed workloads.

**Cloud Enablement**

To take full advantage of the cloud, organizations are looking for ways to use a cloud operating model on-premises in a private cloud environment, so the eventual transition to a hybrid or off-premises approach can be swift and seamless. Many organizations continue to turn to HCI offerings in order to provide a more cloud-like experience to employees and customers. A variety of solutions are available, but organizations must focus on those that address their unique needs.

**Simplified Workload and Resource Management**

VxRack FLEX supports and participates in four specific aspects of the cloud computing reference model: the physical, virtual, and control layers, as well as the business continuity function. To optimize workload and resource management, VxRack FLEX architecture allows IT organizations to more easily build cloud services by leveraging the VMware vRealize Suite. VxRack FLEX offers a fully software-defined infrastructure that works with integrated VMware infrastructure as a service (IaaS), pooling resources and distributing workloads, while decreasing the time and resources needed for system management.

**Secure On-premises Workloads, Backup, and Disaster Recovery**

Dell EMC Data Domain with Data Domain Boost (DD Boost) can effectively protect on-premises workloads, helping to reduce the cost of long-term on-premises protection by moving data to a public cloud. For disaster recovery, Dell EMC Data Domain Cloud DR provides alternatives for safeguarding production environments, reducing the expense and management of replicating workloads, while increasing the number of applications protected with orchestrated failover and failback from AWS.

**Virtualization**

To take full advantage of virtualization technology, organizations need a flexible, software-defined, virtual infrastructure that is able to exceed the limitations of traditional virtual infrastructures. With its software-defined storage, VxRack FLEX is a modern hyperconverged solution capable of heterogeneous hypervisor support. Decoupled compute and storage offer IT flexible deployment options, providing scalability, while helping to optimize resource provisioning and utilization.

The level of agility provided to organizations by the VxRack FLEX makes it a fitting candidate for organizations exploring modernization initiatives that must incorporate hyperconverged infrastructures. And by supporting multiple hypervisors, operating systems, and bare metal configurations, VxRack FLEX offers an effective means for organizations to consolidate and optimize traditional virtualized infrastructures by eliminating stranded resources, while bringing the flexibility of SDS to virtualized infrastructures that traditional SANs are unable to provide.

**Mission-critical Applications**

Today, many IT organizations run a combination of mission-critical database applications including Oracle, Microsoft, and SAP, each with its own infrastructure and operational requirements. For successful deployment, these applications and databases must be able to satisfy a number of requirements and SLAs on the same infrastructure—without impacting other applications or workloads.
With VxRack FLEX, organizations can standardize on a single, scalable architecture to handle mission-critical database needs, helping to speed deployment, simplify management, and scale up or down depending on current needs.

VxRack Flex enables organizations to deploy storage-only, compute-only, and hybrid nodes, serving as a logical approach for organizations familiar with traditional database deployment models. VxRack FLEX comes pre-integrated and pre-tested, enabling cross-functional communication to be more productive between database and IT administrators—with less focus on interoperability and scalability concerns, and more focus on product integration and best practices. And with integration with tools including Dell EMC RecoverPoint and Data Domain, the infrastructure offers advanced data protection and replication services.

**Analytics with Splunk**

Splunk is a leading data analytics platform capable of providing operational intelligence on machine data from applications, network devices, logs, and mobile devices within IT environments. Splunk can gather and index this data in real time natively or through third-party applications, and can visualize insights to better inform organizations about their resources, applications, and security.

With Dell EMC VxRack FLEX, Splunk deployments can gain a cost-effective, scalable, and flexible operational intelligence platform that leverages software-defined storage and VMware for virtualizing the core Splunk components. And Dell EMC Isilon Scale-Out Network Attached Storage (NAS) can be leveraged to provide additional scale-out storage for colder data. Organizations then gain the consistency and high performance of the hot-warm data, while easily and simultaneously managing the lower-cost cold data. Put it all together, and these solutions provide the standardization and automation necessary to make faster, better data-driven decisions in a modern data center.

**The Bigger Truth**

As organizations continue down the digital transformation path, infrastructure modernization is becoming a necessity. Whether enabling a seamless hybrid cloud infrastructure that supports multiple hypervisors and clouds or becoming more data-driven by better understanding the data they already have, organizations want a solution that can handle dynamic workloads, improve operational efficiency, and meet the agility needs of a data-driven business.

With the VxRack FLEX, organizations gain an infrastructure that is pre-integrated and pre-validated before being shipped, making deployment quick, easy, and free of disruption. With storage and compute that can scale independently, VxRack FLEX gives organizations the ability to migrate data and workloads to an infrastructure that supports the operating principles put forth in the cloud compute reference model. The VxRack System FLEX delivers a fully software-defined infrastructure that easily pools resources with a goal of distributing workloads and decreasing the burden of management. And with deep integration with the Dell EMC Data Protection Suite, including Data Domain with DD Boost, Networker, and RecoverPoint, organizations gain peace of mind knowing their data is efficiently and cost-effectively protected regardless of where it is stored.

ESG recommends VxRack FLEX as a cloud-enabling HCI offering for IT organizations looking to invest in a modernized infrastructure capable of seamlessly integrating infrastructure, workloads, and as-a-service technologies on-premises and in the cloud.