PREPARE FOR 2019 WITH THE RIGHT HYPERCONVERGED INFRASTRUCTURE

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Total sales of hyperconverged infrastructure solutions surpassed $3.7 billion in 2017, a staggering total for a technology that had only been on the market for less than four years.[1] And looking ahead, there seems to be no letup in that growth. By 2023, the market is expected to surpass $17 billion, growing at a compound annual rate of 42%.[2]

Clearly, HCI has come a long way in a relatively short period of time.

Through that rapid development, different HCI solutions have emerged with varying levels of features, innovation and actual "hyperconvergence." IT teams must complete the necessary due diligence to identify the differentiated solution that best meets their specific needs for data center modernization—now and into the future.

HCI is far from a commodity, and different vendors offer their own concepts of what HCI is and how it should be deployed. As an IT decision-maker, you have to evaluate what makes sense for your organization. We'll make it a little easier. In this white paper, we discuss three vital requirements you must have now in order to maximize the value of HCI to increase agility, reduce complexity and support your next-generation IT environment.

Requirement No. 1: A Full, Tightly Integrated Software Stack

The era of separate silos for servers, storage and networks is over. Welcome to the world of IT modernization, where software-defined architectures reduce complexity, increase agility and ease the burden on IT resources. The right HCI solution provides a quick path to this modern approach with a model that is built on the software layer and uses virtualization, unified management, automation and orchestration to reduce IT complexity and lower operational costs.

With a full-stack solution, you can leverage a sleek new operational model for the entire data center, from the edge to the core to the cloud. It accelerates deployments, reduces operational overhead and provides an easy way for IT to incorporate multiple public cloud services for any workload, from business-critical legacy apps to modern cloud-native apps.

1   "Worldwide Converged Systems Revenue Increased 9.1% During the Fourth Quarter of 2017 with Vendor Revenue Reaching $3.6 Billion, According to IDC," IDC, April 3, 2018

2   Hyper-Converged Infrastructure (HCI) Global Market Report, Industry Insights, Trends, Key Developments, 2017-2023," Reuters, February 8, 2018

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This is one of the areas where customers of VMware have a distinct advantage over companies that use competitive solutions. Most vendors do not have their own hypervisor or networking virtualization, so multiple solutions, with multiple interfaces, from multiple vendors must be used to operate and manage the full stack. This adds cost and complexity into what can—and should—be a very simple model.

VMware's industry-leading software for HCI creates a software-designed model that virtualizes compute, storage and networking resources and provides a common, simple management and automation platform for the entire virtualized stack. VMware vSAN™ is the only software-based storage solution that is VMware vSphere®-native.

And because vSAN is part of the larger VMware Software-Defined Data Center stack—including solutions like NSX for networking and vRealize for cloud management—it uniquely delivers VM-centric policy-based management. This applies to HCI as well as legacy SAN and NAS arrays, so you can easily evolve your legacy data to a modern model.

With vSAN, you use tools that IT teams have been using in their data centers for years. This will save money, eliminate deployment and management headaches, improve security, eliminate migrations and protect today's investments in the future. It is also easy to adopt, particularly for customers that are already using VMware solutions for server virtualization—but also for non-VMware customers, because it provides consistency in tools, processes and deployments across all infrastructure.

VMware vSAN is a building block within a larger architectural model, called the digital foundation, that VMware is pioneering. Defined by infrastructure software for compute, storage, networking and management, a digital foundation built on VMware is the best way to ensure consistent infrastructure, operations and security from the edge to the core to the public cloud.

Requirement No. 2: Hybrid-Cloud Capable

Easy interaction with public cloud services is an essential goal of IT modernization. IT teams must have the flexibility to move certain workloads to the public cloud to take advantage of cloud agility, elastic scalability and consumption-based pricing—where it makes sense from a business perspective.

But IT must also retain the ability to consistently control, manage and secure those workloads across all their environments, whether in the data center, in the cloud or at the edge. IT control is necessary to eliminate silos and leverage data and resources across the entire organization for big data analytics, digital transformation, modernizing legacy applications and other business-critical initiatives.

VMware is the only HCI provider than can provide a consistent, policy-based storage control plane across HCI as well as shared storage, knitting together resources to simplify operations, optimize storage investments and enable businesses to modernize at their own pace. Consistency across the entire IT environment is critical at a time when most organizations use multiple public cloud services in concert with on-premises infrastructure.

The reality, however, is that public cloud uses different infrastructure, tooling and processes than on-premises data centers. So, in most existing environments, IT teams must create an application and data roadmap and plan for application re-architecting and data portability or migration. Actions are cumbersome and time consuming. Then, once the application is in the cloud, heterogeneous processes and tooling present even more challenges. For example, separate management requirements for on-premises infrastructure and each cloud platform cause high levels of effort and duplication, making multicloud an inefficient, Opex-intense process.

With a VMware that seamlessly expands to the public cloud, you have much more flexibility. You can move applications to the cloud and move them back at will, and you can do it quickly because you don't have to learn any new tools. VMware vSAN is the only HCI solution that delivers this level of consistency, with seamless integration of infrastructure, tools and processes in a true hybrid cloud environment. Organizations have unparalleled flexibility to leverage public cloud services without causing huge complexity issues for IT teams.

Requirement No. 3: A Strong Ecosystem

Flexibility and agility are essential characteristics of IT modernization. The last thing you want is hardware or lock-in that can stifle innovation. With an open, software-based platform for HCI, you can leverage industry-standard server platforms and vendors. A strong ecosystem for HCI helps you accelerate access to innovation, meaning development cycles for new hardware and software features can be much faster than in traditional data center environments. This is especially critical in storage.

If you are modernizing legacy applications—Oracle, SQL, SAP, OLTP and the like—you must be able to leverage faster storage to support their growing needs for rapid response, especially in today's era of big data analytics and the Internet of Things. Faster storage doesn't just mean all-flash storage, although that is essential. It also means leveraging new enterprise-grade solutions such as NVMe and Intel® Optane™ technology. Intel® Optane™ technology can deliver new solutions in persistent memory or fast storage that offers a unique combination of high throughput, low latency, high quality of service and high endurance, architected specifically for data center requirements.

The combination of VMware vSAN, Intel® Xeon® Scalable processor technology and Intel® Optane™ SSD technology provides the highest performance in all-flash storage and software-defined infrastructure, leveraging the broadest partner ecosystem of any solution on the market. In addition to technology from Intel and VMware, customers can take advantage of:

• More than 500 jointly certified x86 systems, called vSAN Ready Nodes, available from 15 OEM vendors, including all of the industry's leading providers.

• Dell EMC VxRail powered by vSAN, a turnkey HCI appliance jointly engineered with VMware for a streamlined deployment experience.

• HCI as a service from the largest HCI cloud ecosystems, including top cloud providers such as Amazon and IBM.

In addition, VMware offers the industry's most extensive cloud ecosystem, giving customers unprecedented choice in multiple cloud service and infrastructure options. VMware vSAN is available as an HCI solution in more than 400 public clouds, including AWS and IBM Cloud. VMware's third-party ecosystem extends to software vendors, with the ability to integrate with industry-leading tools for critical use cases such as backup and data protection. Also, because vSAN is software-based, customers can combine it with legacy storage systems to protect existing investments.

The Benefits of VMware and Intel

A broad partner ecosystem is just one of the many benefits of using Intel and VMware for your hyperconverged infrastructure solution. Additional benefits include:

• **Tight integration:** vSAN has been optimized for the Intel architecture, delivering the industry's most widely used software solution with hardware designed for performance, scalability and flexibility. VMware vSAN is the first HCI solution to be certified for and available with Intel Select Solutions.

• **Mission-critical reliability:** Intel architecture and vSphere deliver RAS capabilities and high-availability features, with up to six nines availability.[3]

• **Simplicity and flexibility:** An Intel-VMware solution provides two-click provisioning and choice of industry-standard Intel-based servers.

• **Outstanding cost-effectiveness:** Customers achieve TCO benefits from initial deployments throughout the lifecycle, with a 10x price-performance gain and 13x workload performance improvement using the combination of vSAN, Intel® Xeon® Scalable processors and Intel® Optane™ SSD in the caching layer.[4]

3   Availability based on VMware internal calculations: HDD and SSD MTBF/MTTR=0.99998. Rack*Host*Controller*HDD*SSD = 0.99998*0.9998*0.9996*0.99998*0.99998 = 0.9993 (best case). Worst case = 0.997. With FTT = 1 data availability per object with 10 objects. (1 – (1-0.997)^2)^10 = 0.99991. With FTT=2, (1-(1-0.997)^3)^10 = 0.9999997.

4   "Latest Intel Technologies Power New Performance Levels on VMware vSAN Using Xeon and Optane," Evaluator Group, September 2018

Conclusion

For many organizations, now is the time to leverage HCI as a building block for data center modernization. Things are moving quickly, and you want to be able to deploy software-defined solutions for critical applications and workloads without having to replace all of your existing infrastructure. HCI provides an accelerated path to modernization, with a solution that is easy to deploy and gives you the power and performance you need now, as well as a clear path to the future.

But not all HCI solutions are created equal. The combination of vSAN with Intel technologies provides benefits no other solutions can match. Intel solutions drive significant improvements in performance, reliability and availability across the entire infrastructure, from the edge to the core to the cloud.

VMware vSAN provides VM-centric policy-based management that is unique among HCI solutions. Because it is vSphere-native and tightly integrated with other VMware solutions, it provides edge-to-core-to-cloud consistency, with a full-stack model and strong partner ecosystem. More than any other HCI solution, vSAN is the true building block to the next-generation digital foundation.

Facing a server refresh? Join more than 17,000 customers who have evolved to HCI powered by VMware and Intel, making their next server refresh their last storage refresh. Learn more at VMware.com/go/hitrefresh.