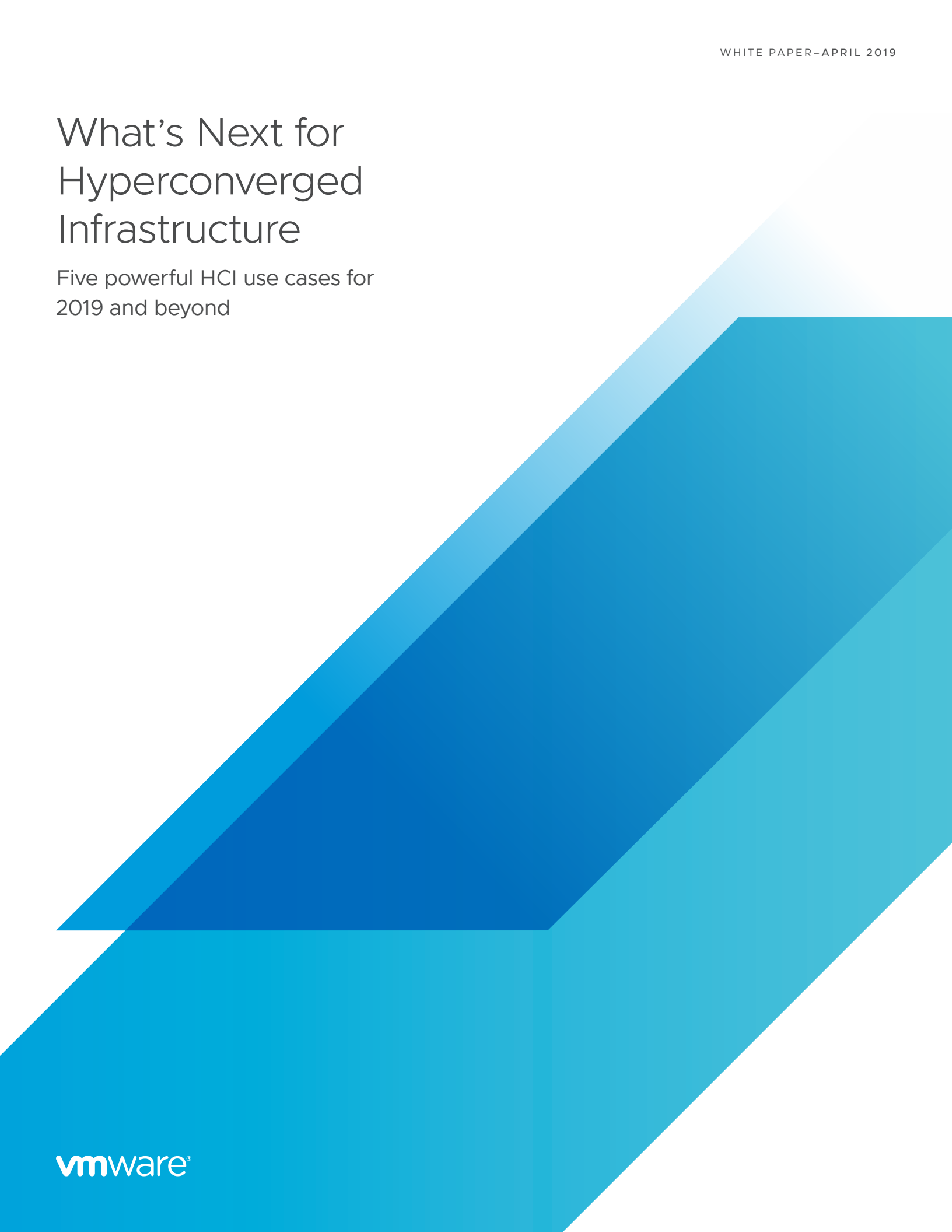
WHITE PAPER–APRIL 2019

What's Next for Hyperconverged Infrastructure

Five powerful HCI use cases for 2019 and beyond



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As many as 20 percent of business-critical apps currently deployed on three-tier IT infrastructure will transition to hyperconverged infrastructure by 2020.

Hyperconverged infrastructure (HCI) has emerged as a breakthrough IT technology over the past several years. With the right HCI solution, IT teams can lower costs, increase agility, and reduce complexity—leveraging a modern software-defined IT platform that provides a seamless path to hybrid cloud. IT continues to embrace HCI in great numbers, with the market expected to grow at a compound annual rate of 42 percent through 2023.[1]

The reality is that IT teams have been so pleased with the benefits they are already reaping with HCI that they are looking for new ways to use it to power key initiatives such as digital transformation. This trend is being accelerated by advances in performance, ease of use, and functionality, and driven by technology innovations such as Intel Optane memory and VMware vSAN™, which remains the HCI software market leader, according to IDC.[2]

Whereas use cases such as virtual desktop infrastructure and test and development have led the way in early HCI adoption, IT teams are now turning to HCI for their most business-critical applications. Not only that, they are embracing other use cases where the unique characteristics of HCI deliver strong operational efficiencies and competitive advantage.

In this white paper, we look at five of the critical use cases currently driving HCI deployments and why they will continue to benefit from HCI in 2019 and beyond.

1. Business-critical applications

Business-critical applications are a natural fit for HCI, as organizations recognize the need to modernize their data centers with software-defined architectures to improve agility and lower costs. As many as 20 percent of business-critical applications currently deployed on three-tier IT infrastructure are expected to transition to HCI by 2020.[3]

With the right HCI solution, organizations can get more out of their infrastructure, reduce complexity, and improve operational efficiencies, including space and energy savings. HCI accelerates the path to modernizing business-critical applications without forcing IT to rip and replace existing infrastructure.

Today's businesses require faster responses from databases, transactional and customer relationship management systems, and other applications to support exponential data growth, big data analytics, and the Internet of Things (IoT). vSAN enables IT to deliver faster, more reliable storage performance than legacy NAS and SAN solutions, leveraging flash-optimized secure storage as well as industry-standard servers. In addition, IT teams can quickly access storage innovations, including new enterprise technologies such as Intel Optane and NVMe.

There are many advantages to using vSAN to modernize infrastructure for business-critical apps. vSAN is the only HCI software built into the VMware vSphere® kernel, which means it can provide the highest levels of performance with minimal impact on CPU and memory. And because it's part of the larger VMware stack, vSAN uniquely delivers consistent, VM-centric operations through policy-based management. This optimizes infrastructure efficiency and eases the burden on IT personnel resources.

1. Stratistics MRC. "Hyper-Converged Infrastructure (HCI) - Global Market Outlook (2017-2023)." January 2018.
2. IDC. "Worldwide Converged Systems Revenue Increased 19.6% Year Over Year During the First Quarter of 2018 with Vendor Revenue Reaching $3.2 Billion." June 26, 2018.
3. NetworkWorld. "Hyperconverged infrastructure gets its own Gartner magic quadrant." Ann Bednarz. March 16, 2018.

DID YOU KNOW?

Because vSAN integrates with the complete software-defined stack, IT teams can leverage the same tools and processes across the entire infrastructure, including multiple public clouds.

2. Hybrid cloud/multi-cloud

To support modern businesses, IT teams must ensure that their on-premises infrastructure is not only cloud-like in agility, simplicity, and economics, but truly hybrid in that it can provide a stepping stone to the public cloud with support for the multiple cloud services prevalent in most organizations today. Hybrid cloud offers organizations flexibility and control in how they leverage all of the IT resources and services within their environments.

Public cloud services provide agility, elasticity, and consumption-based pricing for a wide range of applications and use cases. But most organizations don't want to—and shouldn't need to—put all of their workloads and applications in the public cloud. Doing so can bring on extra risks in security and performance, with hidden costs that can spiral quickly if not managed closely. In contrast, hybrid cloud, powered by HCI, gives IT the flexibility to move applications and workloads to and from public clouds with a common platform and set of tools.

This is another important area where HCI powered by vSAN offers advantages over competitive solutions. vSAN integrates with the complete software-defined stack from VMware, which means IT can leverage the same tools and processes across the entire infrastructure, including multiple public clouds. This end-to-end hybrid cloud integration is part of a new architectural model called the digital foundation.

The digital foundation is a ubiquitous control plane that provides consistent infrastructure and tools from edge to core to cloud. Businesses avoid time-consuming, cumbersome application rearchitecting and multiple silos from inconsistent tooling across clouds. The digital foundation is the software-defined data center (SDDC) seamlessly extended to public cloud.

As organizations begin to understand and embrace this new infrastructure architecture, vSAN becomes an important building block. It addresses today's hybrid cloud needs while providing a direct path to the next-generation SDDC of the future. It also alleviates one of the big concerns in moving to the public cloud: ensuring that your on-premises software infrastructure investments don't become obsolete.

3. Disaster recovery

HCI makes it much less expensive and less of a strain on IT resources to have a secondary site for disaster recovery (DR), without having to replicate the entire data center. With HCI, IT has the flexibility to use industry-standard x86 servers at the DR site, while also deploying replication to achieve extremely low recovery point objectives (RPOs) and recovery time objectives (RTOs).

Using vSAN with vSphere Replication™, IT can leverage asynchronous virtual machine replication at the recovery site to achieve RPOs as low as five minutes. This eliminates the need to provide excess capacity at a DR site and enables IT to use less-expensive hardware. With vSAN, you also have the option of using an HCI-as-a-service model, running disaster recovery as a service to the AWS cloud through VMware Site Recovery™. This enables the organization to save time and money and move to an OpEx payment model rather than having an upfront capital investment.

DID YOU KNOW?

With vSAN, users can consolidate both traditional applications and new-generation applications on the same cluster.

4. Edge computing

Edge computing is one of the hottest segments of the IT market, projected to grow at a compound annual growth rate of 35.4 percent through 2022.[4] Edge computing enables IT to improve time to action, conserve network resources, minimize latency, and maximize initiatives such as mobility, IoT, and digital transformation. Edge computing also gives IT teams much greater flexibility in managing remote office and branch office (ROBO) locations, giving more power to users as close as possible to the originating source.

HCI is an enabling technology for edge computing—bringing the power of the data center to the edge in an affordable, compact package that's easy to deploy, manage, and scale, without the need for IT specialists. With vSAN, you can have a seamless path from the data center to the edge to the cloud. IT can also take advantage of scalable remote management to provide centralized support for edge and ROBO sites.

5. Containers and app development

The world of application development has changed significantly over the past few years with the rise of DevOps and the emergence of containers and microservices technologies as vital tools in developing and deploying new applications and revisions.

While modern cloud-native applications are designed with cloud services in mind, organizations still need an enterprise-grade, production-quality persistent state for cloud-native applications, including support for data integrity and security, storage management, and data protection. Enter HCI. With vSAN, users can consolidate both traditional applications and new-generation applications on the same cluster.

Project Hatchway, a feature available with vSAN, delivers persistent storage for container environments, offering tight integration between vSAN and container orchestrators such as Docker Swarm and Kubernetes. Developers can access a robust, elastic, and programmable storage infrastructure with the same levels of security, data integrity, high availability, and storage services they would expect from a modern IT infrastructure.

What to look for in a solution

As organizations look to HCI as a path to modernizing these powerful use cases, it's important to choose solutions that not only address current requirements, but also provide a building block to the digital foundation of the future. That's why IT leaders continue to turn to Intel and VMware vSAN as their platform of choice for HCI.

Intel technologies combine with leading compute, storage, and network virtualization technologies to power vSAN, enabling organizations to optimize resources and leverage modern flash storage solutions such as Optane to drive dramatic performance improvements. Key benefits include:

- vSAN, Intel Xeon Scalable Processor, and Intel Optane SSD in the caching layer provide a 9x price-performance improvement.[5]
- vSAN is certified with the Intel Xeon Scalable Processor family—the first HCI solution to be certified and the first HCI solution to be a new Intel Select Solution.

With vSAN and Intel, organizations of all sizes can dramatically lower total cost of ownership, evolve without risk, and scale to tomorrow. IT teams can use a building block approach to transition to their next-generation SDDC with a solution that's part of their long-term digital foundation and already both cloud- and container-ready.

4. MarketsandMarkets. "Edge Computing Market worth 6.72 Billion USD by 2022." October 2017.

5. Evaluator Group. "Measuring the Value of Storage." Russ Fellows. July 12, 2017.

Conclusion

Hyperconverged infrastructure is a technology that has truly delivered on its promise. It has helped organizations optimize resources, reduce complexity, lower costs, increase agility, and accelerate development cycles.

As IT leaders address current challenges and look ahead to the future, they are realizing huge benefits can be achieved by moving many of their business-critical applications to HCI. In addition, they are seeing the unique advantages of HCI for use cases such as hybrid cloud, disaster recovery, edge computing, and containers/application development.

The combination of Intel technology and VMware vSAN brings specific advantages to each of these use cases that can't be matched by competitive solutions. vSAN is the only software HCI solution native to vSphere and the only solution incorporated as part of a next-generation digital foundation.

To talk with a specialist about how HCI might fit your hyperconverged goals, take the HCI assessment at *vmware.com/products/hyper-converged-infrastructure/assessment*.

VMware, Inc. 3401 Hillview Avenue Palo Alto CA 94304 USA Tel 877-486-9273 Fax 650-427-5001 www.vmware.com Item No: 235705aq-wp-hyperconverged-infrastructure-uslet 5/19