

# DataStax Enterprise on VMware Cloud™ for Hybrid Deployment

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**INCREASE AGILITY WHILE REDUCING COMPLEXITY AND RISK**

- **ACCELERATE TIME TO MARKET** –Deliver new services that differentiate your business
- **EXTEND TO ANY CLOUD**—Leverage consistent infrastructure across clouds
- **SCALE SEAMLESSLY**—Seamlessly add resources across private and public clouds, expand globally
- **OPTIMIZE COSTS**—Apply your IT budget on ROI and app requirements
- **MINIMIZE SECURITY VULNERABILITIES**—Unify security from the data center to the cloud and device
- **MANAGE ACROSS CLOUDS**—Manage cost, usage, capacity planning, performance, and security across all clouds

## VMware and DataStax

### Hybrid and Multi-cloud Ready, Enterprise-grade Availability, Simplified Management

Organizations are leveraging big data applications, such as DataStax’s Distribution of Apache Cassandra, to underpin scalable applications across every industry. Whether it is transactional data for banking or inventory and recommendation systems in retail, Cassandra is the actual choice for storing critical data in distributed applications. Organizations are betting their growth on these technologies, and they want to ensure that the full application stack can be easily managed with secure and repeatable deployments in any environment. VMware® and DataStax have partnered to offer a hybrid and multi-cloud solution that provides built-in high availability and failure protection across availability zones, regions, data centers and clouds, which simplifies operations and eliminates silos with consistent processes and tooling across clouds, and offers intrinsic security for data-at-rest and in-flight.

DataStax and VMware deliver a simple, consistent infrastructure, data and application management experience across on-premises, hybrid and multi-cloud applications. Whether you are just getting started with the cloud or fully transitioned to a cloud-first strategy, solve legacy app challenges while infusing modern agile practices with a solution that is multi-cloud ready and delivers enterprise-grade availability.

Because of VMware HCI’s rich data services, organizations can run both traditional and cloud-native applications on the same infrastructure. Consolidating workloads onto a single infrastructure provides efficiency benefits, from greater consolidation ratios, a single management toolset and automated lifecycle management, among others. VMware vSAN™ enables users to quickly build a hybrid cloud environment, as it has native services with three of the four largest public cloud providers, Amazon, Microsoft, and IBM, as well as a rich ecosystem of hundreds of public cloud providers globally.

Finally, VMware HCI provides intrinsic security, with, software-based encryption that meets strict U.S. Federal Government standards.



## VMWARE HCI

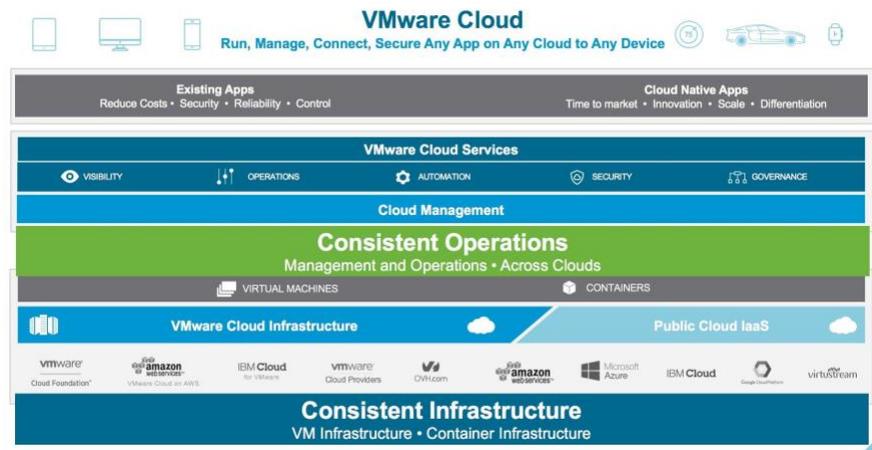
## AN IDEAL PLATFORM FOR CLOUD-NATIVE APPLICATIONS

- Predictable and performant infrastructure: Cloud-native apps tend to scale linearly, and HCI's ability to add both compute and storage resources incrementally more precisely matches resources to needs as the application expands.
- Unified Management: HCI provide an ideal platform to manage compute and storage resources for virtual machines as well as containers. VMware HCI uses the same tools to manage cloud-native apps that system admins use to manage their VM environments today.
- Lower-cost, high-performance infrastructure: On the CAPEX side, customers have reported savings up to 75% versus traditional three-tier, all-flash arrays with fiber channel networking. On the OPEX side, hyperconverged infrastructure simplifies operations by prolific use of automation studies have shown the management OPEX is up to 58% lower with HCI versus traditional all-flash arrays.

## VMware Cloud

## Run, Manage, Connect, Secure Any App on Any Cloud to Any Device

VMware Cloud aims to support the heterogeneity and diversity of multiple cloud platforms and technologies, while providing consistency of key operations, and consistency of infrastructure services.



## Consistent Infrastructure for VMs and Containers

(Using VMware Cloud Infrastructure) is comprised of private and public clouds built on the foundational elements of VMware vSphere®, vSAN, and VMware NSX®. The common technology provides assurance of full interoperability and workload portability—in other words applications and tools that work in one will work in any other, and the movement of those workloads between cloud deployments is inherently supported.

And this IaaS uses common APIs to allow the consumption of their services—enabling solutions like VMware® Pivotal Container Service (PKS) that allows you to have consistent container infrastructure everywhere as well.

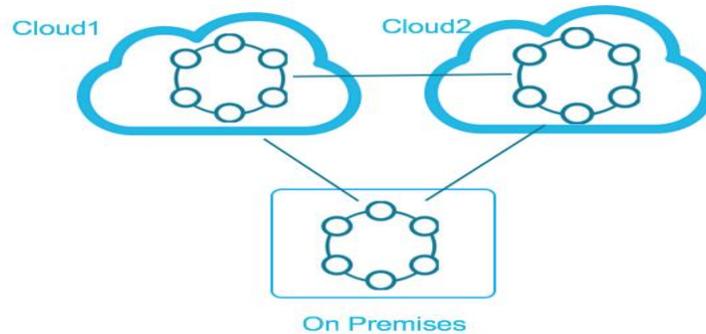
## Consistent Operation Across Clouds

Provided through the market leading suite of extensive Cloud Management capabilities spear-headed by VMware vRealize® Suite which can treat VMware Cloud Infrastructure deployments a seamless whole as well as treat native public clouds as first-class citizens, and with the range of VMware Cloud Services - many of which are aimed at native public cloud capability and provide a focus on visibility, operations, automation, security and governance—which are the areas where customers most want to provide management consistency across a multi-cloud environment.

## DataStax Enterprise and DataStax Distribution of Apache Cassandra (DDAC) Distributed, Active-everywhere Database Designed for Hybrid Cloud

[The DataStax Enterprise and Supported OSS offerings](#) make it easy for enterprises to fully exploit hybrid and multi-cloud environment via a seamless data layer without having to architect or change anything about cloud applications across on-premises data centers and public clouds.

DSE and DDAC provide effortless, predictable, and linear scalability. Spanning a DSE database across two or more data centers or clouds is simple. The database was designed to be replicated across many different geographies with ease and without any need to change anything in application level. Partnering with VMware takes this a step further in providing a seamless deployment and management experience across these environments.

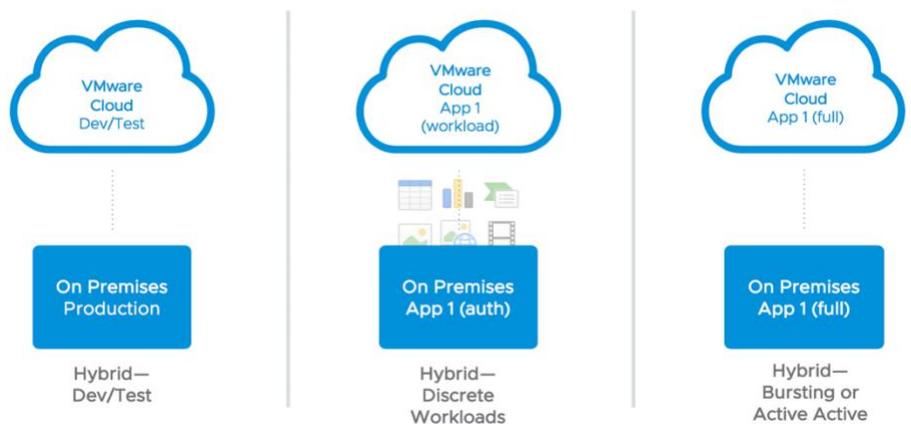


### Deployment Scenarios

VMware Cloud provides a seamlessly integrated hybrid cloud offering addressing use-cases that align to your cloud strategy, from maintaining and expanding on your existing data center, or using the cloud to support and scale during seasonal peaks, the service provides flexible options for how the cloud can be strategically adopted.

Some customers plan to keep their center of mass in their private cloud, but selectively looking to extend to Public for things like Geo Capacity Expansion.

Some customers who want to treat their private cloud and public cloud as equal peers, and easily move workloads between them, for things like moving apps from dev/test to production or burst capacity, Other customers want to reduce their DC footprint and do more and more in the public cloud, sometimes migrating apps selectively.



## LEARN MORE ABOUT

- Reference Architecture—[Datastax Enterprise on VMware vSAN 6.7](#)
- [VirtualBlocks](#)—VMware’s blog site for all topics related to storage and availability
- [StorageHub](#)—The one-stop location for all documentation on storage and availability

## Network Connectivity

Generally, an Internet-based Virtual Private Network (VPN) will meet the need for a reliable, secure connection between the on-premises and public cloud, but if it is crucial for low-latency and high-speed network connections, Direct Connect from AWS and ExpressRoute from Microsoft Azure come into play.

AWS Direct Connect (DX) is a cloud service solution that makes it easy to establish a dedicated network connection between the on-premises environment to AWS. Using industry-standard 802.1q VLANs, this dedicated connection can be partitioned into multiple virtual interfaces. See [Using AWS Direct Connect with VMware Cloud on AWS](#).

In our demo hybrid deployment, VMware has a corporate VPN into AWS. Our SDDC in VMware Cloud on AWS is connected to that connection via DX, there are two DX private virtual interfaces (VIFs). It already has redundancy/backup, Route Based IPSEC VPN as standby is not very useful in this scenario. If customer is trying to save cost and only has 1 DX private VIF, VPN as standby can be very useful for providing backup to DX private VIF.

The screenshot shows the AWS Management Console for a VPC named 'SATM' in the 'us-west-2a' region. The 'Direct Connect' configuration page is displayed, showing the following details:

- AWS Account ID:** 4699...
- Use VPN as backup to Direct Connect:** Disabled
- BGP Local ASN:** 7224 (ASN is in sync)

Virtual Interface Name	Virtual Interface ID	Direct Connect ID	MTU	Local Ip	Remote Ip	Remote ASN	State	BGP Status
VIN-DXC-RCE05-EAT1-104	dxvif-fmShctn5	dxcon-17e8147e	1500	10.132.253.162	10.132.253.161	65263	Attached	Up
VIN-DXC-RCE05-EAT1-104	dxvif-figvzyshg	dxcon-ffwmylpm	1500	10.132.253.166	10.132.253.165	65263	Attached	Up

Advertised BGP Routes: 10.73.53.0/24, 10.73.53.128/25, 10.72.30.0/24, 10.73.52.0/24

Learned BGP Routes: 0.0.0.0/0

## Takeaway

All organizations, whether big or small, are on cloud journey. Within this overarching journey, customers are adopting a hybrid cloud or multi-cloud strategy, driven by the needs of their organization and their end customers.

VMware and DataStax offer a multi-cloud solution that provides enterprise-grade, cross-cloud availability, multi-cloud operations, and intrinsic security which enables customers to build and deploy even the largest applications with confidence.



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