VMware Cloud on AWS

Helping healthcare organizations in their IT modernization journey

KEY DRIVERS FOR HEALTHCARE PROVIDERS

- Improve the quality, efficiency and effectiveness of healthcare services and operations while meeting compliance requirements
- Reduce capital and operating expenditures by reducing data center footprint, hardware, licensing and operating costs while improving organizational performance, productivity, and agility
- Need hybrid-cloud operations and operations diversity to ensure resilience in the future for critical events; whether public health/safety or disaster preparedness

KEY DRIVERS FOR PATIENTS

- Enhance patient engagement and satisfaction by modernizing aging legacy infrastructure and applications
- Deliver new capabilities, speed delivery cycles, enable new service delivery models and digital experiences for staff and patients by incorporating agility and innovation
- Support of telehealth and remote digital patient engagement

The need to deliver a better patient experience while providing modern, resilient and scalable infrastructure to healthcare providers is impacting how organizations design and leverage IT systems. The recent global pandemic (COVID-19) has accelerated demands for telehealth and digital-only patient engagement, driving a patient-centered mode of care that focuses on patient outcomes and patient satisfaction the most. At the same time, stronger regulatory requirements due to rising cyber-attacks on the health industry underscore the need for a secure, protected environment. IT infrastructure and application modernization play a critical role in providing better experience to patients and clinicians, and, according to a Forrester survey, 92% of healthcare CIOs and SVPs say that modernizing their application portfolios leads to improved patient experiences[1].

Public cloud has emerged as a way to modernize healthcare IT infrastructure and applications while ensuring IT systems are resilient and able to scale to meet peaks in demand from patients and providers. But in order to maximize the usage of existing investments, most healthcare customers do not want to eliminate their on-premises footprint, positioning hybrid cloud as the ideal solution to support modernize IT modernization efforts and support the workloads of today and tomorrow. However, hybrid cloud adoption can create challenges that increase cost, risk and the time to value for IT modernization initiatives, which can eventually degrade the quality and delivery of patient care.

Challenges

Some of the key challenges healthcare customers experience when adopting hybrid cloud are:

- Inconsistent infrastructures between private cloud and public cloud, forcing customers to re-architect / refactor existing applications while moving to cloud, thus increasing risks, costs and complexity
- Differences in operational model and inability to leverage established on-premises governance, security and operational policies while taking advantage of cloud-scale and agility, no federal compliance
- Complexity of using multiple management tools to manage on-premises and cloud environment
- Inability to leverage existing IT skillsets and tools when adopting public cloud
- Lack of security and compliance certifications that might lead to security vulnerabilities of sensitive PHI (Protective Healthcare Information) data
- Providers continue to run a patchwork of old and new applications and platforms as well as many different types of devices—all from different vendors which makes connecting care for optimal outcomes harder

VMWARE CLOUD ON AWS SOLUTION OVERVIEW

- Consistent infrastructure and operations across on-premises and cloud environment
- Familiar vCenter-based management based on vSphere and vCenter APIs
- Enterprise-grade infrastructure, delivered as a service with platform level capabilities to meet the needs of mission-critical applications
- On-demand expansion of your data center capacity to the cloud with no impact to application uptime or disruption to end users
- High bandwidth, low latency access to 170+ native AWS services for extending the value of enterprise applications
- A seamless developer experience across the entire platform with a developer center, developer tools, and automation tools
- A simplified path to running Kubernetes and containers on VMware Cloud on AWS with the support of VMware Tanzu Kubernetes Grid Plus

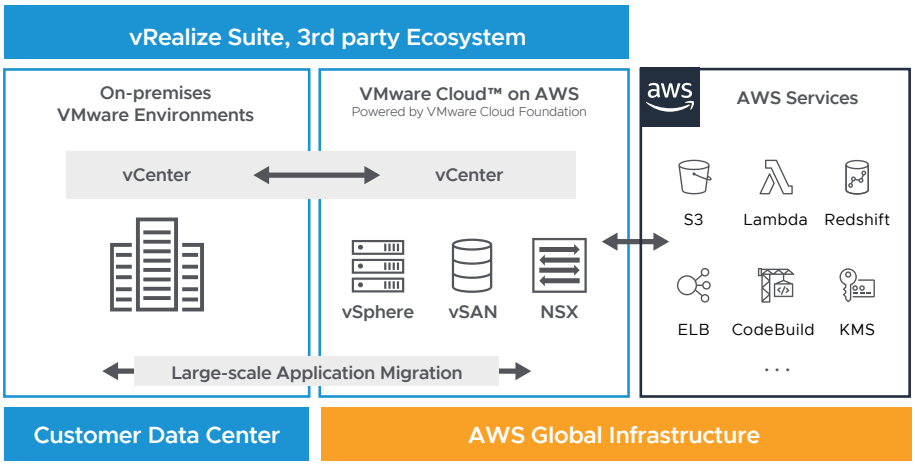

FIGURE 1: VMware Cloud on AWS brings VMware's enterprise-class Software-Defined Data Center software to the AWS Cloud and enables customers to run production applications across VMware vSphere-based private, public and hybrid cloud environments, with optimized access to AWS services.

Solution

VMware has a long history of providing healthcare solutions that drive next-generation, patient-centric care. VMware Healthcare Solutions transform the cost, quality, and delivery of patient care with a digital foundation for real-time connected healthcare. Our commitment to providing a modern healthcare IT platform connects the health systems, data, and people at the heart of patient-centric care for operational excellence and efficiency. And as a part of this commitment, VMware and Amazon Web Services – the industry leading private and public cloud providers respectively – announced VMware Cloud on AWS and VMware Cloud on AWS GovCloud (US), the hybrid cloud services that enables healthcare customers to leverage a consistent cloud infrastructure on-premises and in the public cloud to further increase agility, speed, innovation and security, while maximizing the use of existing IT investments to further lower IT infrastructure costs. VMware Cloud on AWS is AWS' preferred service for all vSphere-based workloads and AWS is VMware's preferred public cloud partner for all vSphere-based workloads

VMware Cloud on AWS provides healthcare IT teams an on-demand, scalable hybrid cloud service that enables them to seamlessly extend, migrate and protect infrastructure in the cloud. And once in the cloud, they can start the application modernization journey with minimal disruption. With the same architecture and operational experience on-premises and in the cloud, IT teams can quickly derive business value through the AWS and VMware hybrid cloud experience.

VMware Cloud on AWS GovCloud (US) provides hardened security and production-grade capabilities required to run highly sensitive workloads such as workloads with protected health information (PHI). These hybrid cloud services accelerate real-time connected healthcare and deliver exceptional experiences to clinicians for remote-first work and patients for digital-first engagement while safeguarding protected health information (PHI) everywhere.

"We choose the right cloud for each workload, and VMware Cloud on AWS is the absolute best option for running our vSphere-based environments in the cloud. It's easy to move solutions across the different environments and it's easy to run and manage….That speed and agility is just what we need to harness innovation and make the best digital services available for the NHS and social care sector,"

ROB SHAW
DEPUTY CHIEF EXECUTIVE
NHS DIGITAL

NHS Digital

Learn more

Key value propositions

- **Run, manage, secure and protect production applications** in a seamlessly integrated hybrid IT environment **without having to purchase custom hardware**
- Deliver rapid time to value with the ability to spin up an entire VMware Software Defined Data Center (SDDC) in the AWS Cloud in **under two hours on average and scale host capacity in minutes.**
- Accelerate cloud migrations **from months and years to weeks and days** by **eliminating the rework tax** needed to re-architect enterprise applications with **consistent infrastructure** across vSphere-based private clouds and the AWS Cloud.
- Innovate and respond to changing business demands with the **enterprise capabilities of VMware SDDC** for any app, **coupled with the elastic infrastructure of the AWS cloud, and the breadth and depth of AWS services.**
- Use **familiar skills, tools, and processes** for managing cloud environments with consistent operations for improved productivity, and reduced costs.
- Secure sensitive information with **intrinsically secure platform supported by major regulatory compliance certifications**.[1]
- **Flexibly choose** where to run apps based on business needs. **Seamlessly move workloads bi-directionally** between vSphere-based private clouds and the AWS Cloud.
- **Leverage established on-premises enterprise security, governance and operational policies** and extend that with the cloud scale and security that AWS Cloud brings.
- Take advantage of **flexible consumption economics** in order to provision cloud services on a predicable per-host basis, avoiding cost overruns.
- Leverage the most expansive **global scale and reach** that AWS provides in order to scale government services across different regions.

Use cases

Data center extension / cloud migration

- App specific migrations: Move specific applications or mission critical workloads to the cloud due to specific business needs; e.g. move business critical applications such as Oracle or Virtual Desktop Infrastructure workloads to the cloud.
- Footprint expansion: Provision IT capacity rapidly to remote locations where there is no data center presence with access to network applications with VMware SD-WAN support for VMware Cloud on AWS or to setup IT infrastructure quickly for testing centers and pop-up healthcare facilities.
- Business continuity needs:
  - Burst and scale on-demand: Burst infrastructure to support high, unexpected patient volumes and staff working from new locations.
  - Virtual desktops and published apps: Enable remote working for healthcare staff or enable clinicians with telehealth services or shared workstations that will allow them to work from any location. Leverage consistent cloud capacity for scaling on-premises virtual desktops infrastructure for temporary workers or contractors, or provide remote access to hospital PHI and testing information.
  - Disaster recovery: Replace existing DR in order to reduce secondary DR site costs by moving DR operations to the cloud; or modernize existing DR solutions or complement existing DR strategy with a cloud-based DR solution for specific applications.
- Test/Dev: Peform test and development activities in the cloud in an environment that is operationally similar to on-premises environments.

RESOURCES

Learn more about our VMware Cloud on AWS service at the *VMware Cloud on AWS website*

Review the *VMware Cloud on AWS Solution Brief* and *VMware Cloud on AWS Total Cost of Ownership*

Learn more about VMware Cloud on AWS GovCloud at our *website* and in our *Solution Overview*

For technical resources, check out *VMware Cloud Tech Zone*

Watch informative demos, overview videos, webinars and hear from our customers: *VMware Cloud on AWS on YouTube*

Read our latest *VMware Cloud on AWS blogs*

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Get started now with VMware Cloud on AWS: *https://cloud.vmware.com/vmc-aws/get-started*

Modernization of healthcare data centers

- Real time connected healthcare: Consolidate data centers and seamlessly interconnect hundreds of sites, devices, data sources and healthcare systems; and provide anywhere, anytime access to data.
- IT infrastructure transformation: Build and manage containers and microservices, enabling developers with the resources and environments they need to drive continuous innovation.
- Transformation of IT services Delivery: Automate provisioning and management of IT infrastructure using vRealize Automation, vRealize Operations etc. to gain complete visibility into EHR performance and reliability, to increase caregiver productivity while minimizing costly outages before they occur.
- DevOps-ready IT: Rapidly provision a complete application stack within a hybrid cloud and support developer choice in how resources are accessed in order to accelerate healthcare app development and delivery.

Next-generation apps development and delivery

- Application modernization: Utilize native AWS services to extend the value of existing healthcare applications and improve patient satisfaction.
- Next-generation application build-out: Build new applications using native AWS services like AI/L/IoT/Monitoring/Analytics services etc., while leveraging infrastructure that is consistent with their on-premises vSphere environments. Examples include Smart Hospital app and Connected Patient app that will improve patient engagement and satisfaction, or apps that will inform healthcare consumers about public safety activities (e.g., contact tracing for Covid-19).
- Hybrid applications: Build hybrid applications spanning the data center, cloud, edge, native AWS services or a combination of these.

1. Forrester Study, Modernizing Apps Improves Patient Experience, April 2020

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