

MODERNIZE HEALTHCARE DATA CENTERS

Build a flexible, scalable foundation that helps improve patient care while controlling costs

Digital transformation is helping to simplify the complexities of healthcare delivery. Under increasing pressure to both reduce the cost and improve the quality of patient care, healthcare organizations are looking at ways IT can accelerate the shift to value-based care and enhance convenient-care options outside of traditional hospitals. They are also interested in improving strategies to support business merger, acquisition, and partnership opportunities with clinics, primary care practices, and smaller hospitals.

IT infrastructure directly impacts how fast caregivers can work, how efficient and innovative staff can be, and how well a healthcare organization can harness the opportunities presented in the digital era. For these reasons, infrastructure modernization has become business imperative. VMware empowers healthcare information technology (HIT) teams to reduce IT infrastructure complexity without sacrificing control by eliminating silos that stall innovation.

Proven VMware infrastructure improves the cost, quality, and delivery of patient care by modernizing healthcare data centers to meet caregiver and new business model demands. Using VMware's foundation to support any app—legacy, web-based, cloud-native, and SaaS—as well as scale to the cloud, healthcare organizations can become more agile and lower TCO while improving security and compliance postures.

Agility and Flexibility Require an Integrated Approach

Not long ago, highly dynamic, available, and programmatic compute, storage, network, and security services could give HIT an edge over competitors. Yet increasing disruption across the healthcare continuum has HIT organizations exploring faster, better ways to bring new products and services to market. Today, HIT teams understand that they need to operate with greater flexibility and agility, taking advantage of the capabilities that come with moving toward a software-defined environment—or risk being left behind.

HIT teams are being challenged to evolve existing data center environments—that rely on manual, time-consuming and error-prone processes and systems that are complex, expensive, difficult to scale, and require specialized skillsets that are hard to find and harder to replace—to increase caregiver and internal development team productivity and efficiency. With a software-defined architecture, decoupling applications from physical hardware, HIT teams are better equipped to deliver IT infrastructure and application services that support business innovation and growth while optimizing TCO.

“When people know they can count on the systems to be up, they can focus more on the patient. We're making it faster for caregivers to move from patient to patient, device to device, and floor to floor. All of these time savings add up to make a big difference for the doctors and nurses.”

JIM HOYER
MANAGER OF VIRTUALIZATION
TEMPLE UNIVERSITY HEALTH SYSTEM

The Foundation for a Flexible, Scalable Data Center

A modern healthcare data center meets escalating business demands through an agile, service-oriented IT model. It is virtualized, software-defined, and automated with a consistent operational model for infrastructure and application delivery. A modern data center is designed for both traditional and new applications while working with existing hardware and software investments. It improves security, compliance, availability, and disaster recovery positions, reducing and avoiding downtime for critical patient-care applications and remediating issues before they affect care providers—all while utilizing existing investments in IT tools and skillsets. In an enterprise survey, 65 percent of respondents cited improved agility and flexibility as the top benefits of software-defined infrastructure.¹

As a partner and advisor, VMware helps HIT teams steadily evolve toward a modernized Software-Defined Data Center (SDDC) to provide infrastructure, applications, data, and IT services rapidly and on demand. VMware's innovative portfolio of data center technologies includes best-in-class compute, storage, and network virtualization solutions as well as automation technology through industry-leading cloud management solutions. Because the healthcare industry's agility depends on its data centers being enterprise-ready and software-defined to scale elastically in support of private, public, and hybrid clouds, VMware infrastructure supports on-premises data centers as well as private, public, and multi-cloud environments.

VMware enables HIT teams to choose from a variety of infrastructure options—from open APIs to native container applications—all on the infrastructure they trust. With an open, software-defined approach HIT staff can confidently and efficiently deliver and manage both new and legacy applications across physical, virtual, and cloud environments.

It's more flexible because it's hardware-independent; more agile because it's highly programmable; and more cost effective because it's scalable and based on commodity hardware. With VMware, HIT teams replace complex healthcare infrastructure in favor of running their most critical patient-care applications on the platform awarded KLAS Category Leader in virtualization.

Modernize Infrastructure

VMware delivers streamlined, hyper-converged infrastructure (HCI) that combines compute virtualization with storage virtualization and management, laying the foundation for cost-effectively supporting staff and patients while accommodating growth and innovation. With VMware HCI, healthcare organizations can shift to a more agile IT architecture, bridge IT silos that stall progress, enable seamless and rapid deployment, and easily control scaling up and down.

When **Temple University Health System** needed to modernize legacy systems and move away from paper charts, it chose VMware's HCI, converging five data centers into three. The solution reduced the health system's capital, real estate, and power expenses while enabling physicians and staff to access its network from any device, anytime and anywhere.

¹ 451 Research. "Voice of Enterprise," Q4 2015.

Healthcare organizations can take HCI to the next level to include networking with VMware Cloud Foundation™, the unified SDDC platform that brings together VMware vSphere®, VMware vSAN™ and VMware NSX® into a natively integrated stack to deliver enterprise-ready cloud infrastructure for private and public clouds. NSX drastically simplifies network management and enables higher levels of security by leveraging micro-segmentation. This option includes built-in capabilities that automate critical day 0 to day 2 operations including installation, configuration, and patching for the cloud infrastructure stack, leading to faster time to market, increased productivity, and reduced risk.

For example, **Baystate Health** required a new secure IT infrastructure that would ensure optimal application performance for doctors and staff, contain costs, and accommodate ever-increasing healthcare demand. With the NSX network virtualization platform and an SDDC, plus guidance from VMware Professional Services, Baystate seamlessly converged three physical data centers into a single, logical three-site “active/active/active” data center. This strategy saved Baystate an estimated USD \$3.5 million and laid a stable, yet flexible, foundation for future growth.

HCI solutions are available from a wide variety of vendors in VMware’s large partner ecosystem. This flexibility helps eliminate hardware lock-in, while enabling healthcare organizations to continue to use their existing software solutions. Regardless of the path chosen, HIT organizations can confidently operationalize and scale modernized infrastructure with an intelligent operations management solution from VMware, such as Care Systems Analytics based on VMware vRealize® Suite. It accelerates decision making, improves uptime, and maximizes utilization with deep operational and business insights, proactive performance monitoring and troubleshooting, and capacity management and planning across infrastructure and applications running on-premises and in the cloud.

Automate IT

In the race to develop new apps, HIT teams waste time with manual configuration, provisioning, and scripting. To improve productivity, they’re now automating the way they roll out and manage infrastructure and applications. They’re streamlining operations by eliminating the many manual tasks involved with security policies, networking, and infrastructure required for applications—and they’re doing it without compromising security and compliance requirements.

VMware solutions provide sophisticated automation that enables HIT teams to break down the bottlenecks stalling the delivery of IT services. With VMware solutions, healthcare organizations can respond faster to requests for IT resources, improve the ongoing management of provisioned resources, and increase IT staff efficiency, reducing both operational and capital expenses. By virtualizing the network and supporting full automation of security services—through NSX and vRealize—HIT staff accelerate creation of complete application stacks and minimize provisioning bottlenecks. Part of vRealize Suite, VMware vRealize Automation™ automates the delivery of personalized infrastructure, apps, and custom IT services. These solutions all work together to let HIT embed automation and policies within blueprints, allowing HIT staff to stand up production-ready infrastructure in minutes rather than weeks.

The IT team at **USC's Keck Medical Center**, for example, was challenged to promptly fulfill new virtual infrastructure requests from its fast-growing medical research organization while also supporting the daily operations of two busy hospitals. To improve service quality and reduce administrative workloads on its engineering team, the Keck Center implemented self-serve provisioning with vRealize Automation. The new system reduced fulfillment intervals from more than two days to less than one hour while liberating IT staff for higher-value activities and facilitating new research partnerships worldwide.

Run Modern Apps

HIT teams speed time to delivery when they modernize their data centers with VMware. They roll out applications faster and more frequently, while maintaining security and control—even for modern apps that pose distinct challenges. VMware solutions support the latest cloud-native apps that employ container technologies and microservices-based architectures. They allow HIT teams to adapt to frequent change, with release cycles measured not in days or months, but hours and even minutes. They support apps that may require open APIs and those that run on “bare metal” platforms as well as emerging IoT applications that have their own unique provisioning and operational requirements.

Team with VMware to Modernize Your Data Center

As patient expectations continue to rise, thriving healthcare organizations will be hard at work accelerating innovation. That's why HIT leaders worldwide are teaming with VMware today to build a flexible, scalable foundation that helps improve patient care while controlling costs.

In a software-defined, HCI architecture of natively integrated compute, storage, and network virtualization technologies with automation and management, VMware reliably serves traditional and modern workloads, improving agility and economics in on-premises data centers. Healthcare organizations can use this foundation together with VMware and the industry's broadest ecosystem of hardware and software solutions to quickly and reliably extend into multi-cloud environments. The industry leader in virtualization, cloud, and digital workspace solutions, VMware is an ideal partner for global healthcare organizations seeking to modernize data centers without giving up control to deliver healthcare infrastructure and application services faster in support of business growth.

Learn more at <https://www.vmware.com/go/healthcare>.

