



## NEBRASKA MEDICINE DRIVES BETTER PATIENT OUTCOMES AND \$30 MILLION ROI WITH STRATEGIC VISION FOR CLOUD, SECURITY, AND MOBILITY



### INDUSTRY HEALTHCARE

### LOCATION OMAHA, NEBRASKA

### KEY CHALLENGES

- Provide top-quality healthcare at the lowest possible cost
- Transform data security and enhance regulatory compliance
- Improve efficiency of electronic medical records (EMR) environment
- Empower mobile clinicians and support more secure BYOD

### SOLUTION

Nebraska Medicine embarked on a multi-year journey to a software-defined data center (SDDC) with the goal of enabling IT to work together more closely with the business and clinicians. With VMware solutions such as vRealize® Suite, VMware NSX®, vRealize Network Insight™, and Workspace ONE™, powered by VMware AirWatch® technology, Nebraska Medicine improved efficiency, reduced costs, and is providing higher quality, more proactive healthcare.

One of the biggest challenges for most healthcare organizations continues to be escalating costs—and coping with those costs without compromising quality of care and security of patient data. For Nebraska Medicine, the leading healthcare system in the state as ranked by U.S. News and World Report, providing extraordinary patient care at the lowest cost possible is a mission. The hospital also wanted to move from a care-based model to a wellness model, proactively engaging patients to help them lead healthier lives.

Nebraska Medicine and its research and education partner, the University of Nebraska Medical Center (UNMC), are focused on creating a healthy future for all individuals and communities in the state. Even before the two organizations merged their IT departments in 2016, they shared a mutual vision of using technology to transform the lives of Nebraskans with more proactive, preventative care. To achieve their strategic vision for cloud, security, and mobility, Nebraska Medicine and UNMC turned to a software-defined data center (SDDC) based on VMware.

Nebraska Medicine is the most esteemed academic health system in the Omaha region, with 809 licensed beds at its two hospitals, more than 8,000 employees and 1,000 physicians, and 40 specialty and primary care clinics.

### The Challenge

Already highly regarded for quality and safety, Nebraska Medicine wanted to improve patient care further by enabling IT to be more efficient and offer new services. A long-time VMware vSphere® customer, Nebraska Medicine wanted to move beyond server virtualization into SDDC to automate the delivery and management of private cloud infrastructure and deliver intelligent operations.

“We wanted to adopt a more scalable and reliable IT infrastructure,” says Brian Lancaster, Vice President of IT at Nebraska Medicine. “It was also critical for us to address our operating model and culture to stay focused on service delivery.”

Nebraska Medicine also needed to safeguard patient information in its Epic electronic medical record (EMR) application, which it planned to extend to affiliate provider practices and hospitals as part of Epic’s Community Connect program. Lancaster and others were concerned that open ports in the hospital’s server environment could increase the chance for a data breach if an attacker were able to get through the security perimeter.

“We’re absolutely committed to keeping patient data as secure as possible,” says Michael Ash, M.D., Chief Transformation Officer at Nebraska Medicine and Vice Chancellor of Information and Technology at UNMC. “We wanted to achieve even

#### BUSINESS BENEFITS

- Delivering excellent healthcare with a greater emphasis on preventative care
- Enhancing network security to protect patient data and strengthen HIPAA compliance
- Reduced open ports in EMR environment by 95%, helping to deliver \$30 million ROI
- Improving patient experiences with clinical mobility and bedside tablets

#### VMWARE FOOTPRINT

- VMware vCloud Suite Enterprise  
VMware vSphere  
VMware vRealize Automation  
VMware vRealize Operations
- VMware NSX
- VMware vRealize Network Insight
- VMware Workspace ONE, powered by AirWatch

#### APPLICATIONS VIRTUALIZED

- Epic EMR, Epic MyChart Bedside, other back-office and healthcare applications (500 VMs)

#### PLATFORM

- IBM servers/Cisco network

greater control, flexibility, and ultimately protection for the patient data we manage.” Nebraska Medicine also set out to enable physicians and care providers to be more mobile using their own devices, and allow patients to access their records via bedside tablets. To achieve these goals, the organization needed a unified way to deploy and manage disparate mobile devices, push out applications, and provide enterprise security.

#### The Solution

Nebraska Medicine partnered with VMware to achieve its cloud, security, and mobility goals, engaging VMware Professional Services and a Technical Account Manager (TAM). Working with VMware gave the hospital’s IT team a clearer picture of an overall IT strategy and how it would align with the business, service portfolio, culture, and operational processes. “The team that VMware brought in from professional services were amazing to work with, and they put our people at ease,” says Nick Aguilar, Lead Systems Engineer at Nebraska Medicine. “We still stay in touch with them and ask questions even though the service engagement is long since complete. Our TAM also does a great job of keeping us informed about what’s coming up.”

To provision infrastructure faster via self-service and save time for developers and operations staff, Nebraska Medicine deployed VMware vRealize Automation. Through automation and policy-driven governance, the hospital dramatically reduced the time it takes to respond to requests for IT services. “vRealize Automation is one of the best things we’ve ever done,” says Aguilar. “It used to take us two weeks to get a virtual machine approved, assigned an IP address, and stood up. Now we click a button and it’s provisioned in minutes.”

Nebraska Medicine also deployed VMware vRealize Operations™, another component of vRealize Suite, for intelligent operations. With vRealize Operations, the hospital can proactively manage performance and gain visibility from applications to storage. “vRealize Operations is awesome. It gives us great trends and great reporting,” says Aguilar.

To gain more flexibility in securing the EMR—the hospital’s most critical and complex environment—Nebraska Medicine used VMware NSX to embed security functions directly into the hypervisor. By using NSX for network micro-segmentation and vRealize Network Insight to increase visibility into network traffic in real time, the hospital has transformed its approach to securing electronic medical records. To simplify operational planning, vRealize Operations extends across the entire SDDC, including the NSX network virtualization layer. “vRealize Suite provides solid visibility and troubleshooting capabilities to our networking and operations teams,” says Lancaster. “We can quickly and confidently scale our NSX deployment and accelerate our adoption of SDDC.”

Nebraska Medicine is achieving its mobility goals by using VMware AirWatch® technology, part of the Workspace ONE digital workspace platform, to manage tablets at patient bedsides and enable a more secure bring-your-own-device (BYOD) program for medical staff. Even shared Windows 10-based laptops can be managed, with enforcement for default security settings and remote wipe capabilities.

“Over the past year, clinicians’ desire to use mobile devices has skyrocketed,” says Lancaster. “The only way we could accommodate this is through AirWatch, because it allows us to manage all the different devices, efficiently push out applications, and support them across the enterprise.”

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BRIAN LANCASTER  
VP OF IT  
NEBRASKA MEDICINE

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## Business Results & Benefits

Nebraska Medicine now has a scalable and commercially reliable IT strategy, helping it efficiently provide a higher level of care. By automating processes in its private cloud and operating smarter, Nebraska Medicine is tightly aligning IT with business and clinical objectives, breaking down silos and creating a more streamlined, efficient organization. For IT, more visibility across systems has resulted in better use of resources, allowing Nebraska Medicine to deliver more services to patients. “VMware raises the strategic impact of IT at Nebraska Medicine,” says Lancaster. “We can use new technology to engage patients, to delight physicians, and give researchers what they need to make breakthroughs.”

### Protecting patient records with micro-segmentation

With its next-generation SDDC, Nebraska Medicine is avoiding the cost and impacts of security breaches while strengthening HIPAA compliance. Using micro-segmentation in NSX, the hospital was able to close 95% of all server ports in its EMR environment, leaving open only those needed for application and services traffic. Transforming security will also allow the hospital to confidently extend its EMR system to other providers and hospitals in Nebraska, helping local communities reduce healthcare costs. Nebraska Medicine now has additional options for delivering more secure services to patients and clinicians and forming tighter partnerships with affiliate care providers. “The ROI associated with our NSX deployment is upwards of \$30 million, not just in safeguarding us from a breach, but also from the efficiencies we’ve gained from virtualizing the network in our EMR environment,” says Lancaster. “VMware gives us more time and budget to support innovation.”

### Responsive, mobile healthcare

Nebraska Medicine is achieving its goal of providing more personalized, proactive care by using AirWatch mobility management technology to manage clinical applications on 4,000 mobile devices that access the hospital network. Caregivers can more securely reference patient and prescription data wherever they are working, helping to improve patient experiences. “VMware Workspace ONE powered by AirWatch frees me and lets me get the same data on my desktop as my phone or tablet, and move between them seamlessly,” says Dr. Cori (Corrigan) McBride, General and Bariatric Surgeon at Nebraska Medicine. The hospital is also getting patients more involved in their own care. Patients and families use tablets running Epic MyChart Bedside to access real-time medical information, increasing engagement. “Patients now have more control,” says Rachel Sudtelgte, lead nurse in Nebraska Medicine’s special care unit. “They can log on and see their own lab results. It’s also more secure, because no one is leaving paper lying around.”

## Looking Ahead

Now that it has made the leap to SDDC, Nebraska Medicine will continue to use VMware solutions to reduce costs and improve service delivery. In the near future, it plans to use VMware Horizon virtual desktops to take mobility to the next level. “VMware is an innovative partner, allowing us to think differently about how we operate and provide services to deliver 24/7 healthcare at a lower cost. We’re in a better position to focus on preventative care and predict which patients are at risk for certain conditions, which is the future for Nebraska Medicine,” says Michael Ash.

