A Future-Proofed Network Elevates Patient Care to a New Level of Clinical Technology and Expertise

Comanche County Memorial Hospital is one of the largest county hospitals in Oklahoma with 283 beds, 27 remote clinics, and a federally qualified health center. The hospital also supports ambulance services for Comanche and surrounding counties, a regional hospice, and a partnership with the Cancer Centers of Southwest Oklahoma. More than 1,500 staff members and 250 physicians are committed to delivering compassionate, outstanding patient care.

However, when James Wellman joined Comanche County Memorial Hospital as its Chief Information Officer, he walked into one of the most challenging situations imaginable. Over time, IT systems had not kept up with the hospital’s needs. Systems frequently went down. Off-site backup, business continuity, and other critical capabilities had not been maintained at the proper level. The infrastructure had been built and implemented on multiple vendor platforms without following a standardized process. And data center cabling was woefully inadequate. Even worse, the hospital infrastructure lacked sufficient circuit redundancy. Although numerous local service providers could provide Internet connectivity, they all routed traffic over the same backbone. With its location in Tornado Alley, the hospital and its systems were vulnerable to catastrophe.

“I conducted an aggressive assessment of everything we had and found that our average switch was more than seven years old,” said Wellman. “We needed to completely rebuild our network and data center, standardize PCs, upgrade applications, and retain our staff. This was going to be a very expensive endeavor.”

Defining the Right Path Forward

With so many systems in jeopardy, Wellman and his team had to prioritize. They quickly standardized PCs to simplify network service for clinicians and administrative staff and replaced failing servers. However, the inherited Cisco network was outdated and lacked the capacity to deliver 10 GbE—or better—performance for bandwidth-intensive applications. The new healthcare
technology connectivity requirements quickly taxed the old network, and finding a new network became priority one.

“Our most critical requirement is uptime,” explained Clinton Johnson, Senior Infrastructure Support Specialist at Comanche County Memorial Hospital. “We run 24×7×365 and we wanted a bulletproof network.”

The hospital also needed a network that could support an unparalleled level of clinical care. They had recently deployed a McKesson Electronic Health Record (EHR) system to extend patient data everywhere in the hospital and eClinicalWorks for outpatient locations. Now the hospital needed a network that could support this business-critical application to enable nonstop access to patient data for clinicians.

Not only did the data have to be available, it had to be fast. The hospital needed to accelerate performance between servers, applications, storage, co-locations and a disaster recovery site. The network also has to easily accommodate new services, devices, and applications. For example, a new 36-bed emergency department relies on mobile telemedicine carts to accelerate care. From the check-in desk, to radiology and other departments, the network needed to enable a seamless patient experience.

With a strict budget, Wellman and his team needed to deploy the network in phases, allow it to grow as needed, and avoid big budget surprises each year. Based on outside consulting input and his past networking experience, Wellman approached Brocade.

“Brocade was the only vendor who responded to us immediately and embraced the concept,” said Wellman. “The Brocade® Network Subscription gives us a way to pay for the network as infrastructure as-a-service. We can align costs with our usage and future-proof the network against obsolescence. Perfect.”

Brocade Network Subscription is a risk-free way to invest in new technologies, projects, and services. Comanche County Memorial Hospital subscribes to what it needs—with support included and no up-front cash required. They can upgrade and expand at any time or cancel with 60 days’ notice. Acquiring its solutions as a service gives the hospital control over its network with the flexibility to navigate the future on demand.

Brocade Delivers the Right Prescription

The hospital deployed an end-to-end Brocade network environment that includes Brocade MLXe Core Routers, Brocade ICX® Switches, Brocade FCX Switches, and Brocade Fibre Channel SAN Switches.

In the data center, the hospital deployed Brocade 6520 Switches with Gen 5 Fibre Channel technology. These high-density switches enable outstanding scalability to support growth, bandwidth-intensive workloads, and virtualization. The hospital immediately scaled to 16 Gbps throughput across its SAN to the emergency room SAN over Fibre Channel. And the Brocade Gen 5 Fibre Channel technology also provides in-flight data compression, encryption, and advanced diagnostics to optimize performance, security, and network visibility.

Brocade MLXe Core Routers replaced Cisco Catalyst 6500 Series Switches in the network core. These routers meet the hospital’s needs for high performance, availability, and adaptability. Industry-leading wire-speed port capacity delivers multi-terabit-per-second data forwarding speed with a switch fabric capacity of 15.36 Tbps—enough to future-proof the network for years to come. A redundant switch fabric architecture, coupled with comprehensive hardware redundancy,
helps ensure that the system continues to operate at peak performance even in the case of a card failure. Stacked Brocade ICX 6610 Switches provide aggregation and Brocade FCX Switches provide access capabilities.

“Being able to stack the Brocade ICX Switches is tremendous,” said Johnson. “In a radiology closet we might have eight switches but they appear and react as one. I log in to one IP address and can manage them all. If one switch fails, the others take over, and it just keeps working for maximum uptime.”

As part of the overall solution, Comanche County Memorial Hospital worked closely with a short-term Brocade Resident Consultant, who augmented the hospital’s lean engineering staff and led the implementation. They first upgraded the primary campus, followed by the remote clinics.

“Brocade removed a lot of the unknown,” said Wellman. “They stepped in and helped us with training, ongoing support, and design. They didn’t just look at the numbers and hand us a spreadsheet. They helped because they had a vested interest in our success.”

The new network also forms a best-in-class wired network underlay infrastructure for the hospital’s Wireless Local Area Network (WLAN). Brocade works closely with industry-standard wireless network vendors to deliver open, secure multivendor wired and wireless solutions. Today the Brocade network powers a Cisco WLAN, but the hospital can change its wireless vendor at any time without having to change the wired network.

Powering Up to Speed
The new network almost immediately delivered a tenfold increase in capacity and created a fully redundant network architecture that could scale to meet the hospital’s future needs. With a 20 GbE network backbone, the hospital supports the latest advances in telemedicine and radiology, while implementing cost-saving business applications, such as voice over IP.

“Now, there is more technology available to more people,” said Johnson. “We can receive, store, and send radiology images with as little latency as possible. If a mobile C-arm system is sending images for an incoming trauma case, we can perform a complex CAT scan that a radiologist can read from home. Seconds count in those instances.”

It Just Works
Wellman says that there has been zero unplanned downtime because of the network. The Brocade routers and switches have easily handled power issues that occur during storm season.

“We’ve erased network delay from our equations when we’re troubleshooting technical issues,” said Johnson. “If there is an issue, we know it’s not the network, which speeds troubleshooting. Physicians don’t even think about it now. It’s always up and we’re proud of that.”

No Worries About the Future
“We expect that the Brocade network will help us support all the new things that are coming—even if we don’t know what they will be,” said Dee Smith, Infrastructure Manager for Comanche County Memorial Hospital. “We’ve positioned ourselves for good growth now, a year from now, and probably five to 10 years from now.”

Brocade Network Subscription also has a significant impact on patient care. As a subscription, it allows the hospital to deploy the network in a controlled, meaningful way that allows the team to manage costs and plan for the future.

“The subscription model means that the network and IT are no longer uncontrollable costs or black holes, so that we now have a predictable operating budget,” said Wellman. “We can add capacity when we need it, but our money isn’t tied up in unused capacity. It allows us to continue having a world-class network while keeping funds available for the latest medical imaging or diagnostic equipment that will best serve our patients.”
With greater flexibility to invest in clinical equipment and tools, the hospital has been able to expand patient services. The new ER department offers a wider range of healthcare services to incoming patients. New neonatal services make Comanche County Memorial Hospital one of a handful of neonatal intensive care units in the state. And new electrophysiology services diagnose and treat abnormal heart rhythms.

Healthcare Agility and Continuity

Web-based storage and network management has simplified operations for the IT team. If Johnson is out, anyone else on the team can manage a switch, which improves healthcare continuity. With the McKesson EHR system and an image archive, radiologists and diagnostic physicians can easily pull images and have all patient data in one place, instead of having to access multiple systems and correlate data.

A Partner Going Forward

“We have a network that can rival anyone’s,” said Wellman, “and that’s a nice feeling to have. Brocade sincerely embraced our project, and they have been a significant part of our success.”

Even the most well-laid plans do not prevent catastrophe from striking, but Brocade is unflagging in its exceptional service. One night, Wellman had received a call at 3 a.m. that the data center was very hot. The entire cooling system had failed and was circulating hot air, with temperatures quickly approaching 150 degrees. The team had to start shutting everything down, and they got Brocade on the line immediately.

“Brocade people were accessing our systems remotely, they offered to send people onsite, and they had parts available for us just in case,” said Johnson. “They stayed with us and put in a herculean effort of restoring more than 90 percent of our systems in less than 14 hours. Once the cooling system was fixed, the Brocade MLXe Core Routers and switches picked right up where they left off. They didn’t miss a beat.”

Wellman says that since deploying the Brocade network, other vendors and hospitals have asked him why he chose Brocade. “It wasn’t the most common route, it wasn’t with the biggest and most well-known vendor, but in our opinion, Brocade was the best vendor,” he said. “They met all of our needs, they listened to us, and they continue to listen to us to this day. It’s been a marvelous network transition.”

For more information, visit www.brocade.com.