



Nebraska Medicine guards its data with integrated HPE solution

Group uses HPE software and storage to unify and enhance its backup operations

Objective

Protect more than 4PB of critical data and simplify data lifecycle management processes.

Approach

Implement a suite of HPE data center solutions to centralize operations, consolidate resources, and automate backup processes.

IT Matters

- Improved reliability, responsiveness, and disaster recovery capabilities of critical data
- Reduced response times to restore critical information to within five to 10 minutes
- Extended retention cycle to 52 weeks, providing protection from malware
- Reduced complexity by moving to one centrally managed platform
- Achieved 50% faster backup window

Business Matters

- Ensured critical medical records and patient information were secure and available
- Reduced storage and communication costs through deduplication
- Allowed administrators to allocate limited resources to priority business areas
- Saved US\$1 million over five years on software licensing



Nebraska Medicine is a large medical group comprising the Nebraska Medical Center, the state's largest hospital, Bellevue Medical Center, and UNMC Physicians. It has more than 1,000 physicians and 676 licensed hospital beds, as well as approximately 40 specialty and primary care clinics in Omaha and the surrounding area. It is also the primary teaching partner of the University of Nebraska Medical Center, which serves 3,700 students.

Challenge

Storing and accessing large amounts of critical data

Nebraska Medicine has several large file servers across three data centers that must be backed up regularly and reliably.

These servers contain a wide range of data, from electronic medical records (EMRs) to administration files, many of which must be kept highly available. It holds more than 4PB of data in total and stores more each day.

“Our biggest challenge is that we never delete anything,” says Jeff Bergholz, Manager of Technical Systems at the Nebraska Medical Center. “Medical records are particularly resource-intensive, as we are required to keep them for seven, nine, even 21 years in some cases. Add to this that we work closely with a teaching hospital that uses our data to conduct research and you start seeing how important it is that all of our data is accessible.”

“Response time is a key measure of success for the healthcare industry. As little as a couple of minutes can make the difference between life and death, especially in extreme cases that take place in a patient room or in a clinical-care area. Interruptions, delays, and errors are unacceptable in our industry.”

— Jeff Bergholz, Manager of Technical Systems, Nebraska Medical Center

To avoid losing critical data, Nebraska Medicine puts great emphasis on backing up its systems. However, its backup processes and protocols were complicated and inefficient.

“The backup environment for our three sites relied on three different products: Dell vRanger, Veeam, and HPE Data Protector,” says Bergholz. “Each of these systems had to be backed up separately in the main data center – a procedure that was complicated, time-consuming, and inefficient. Our radiology system alone was approaching 250TB, an amount of data that stand-alone tools were not able to back up and restore on demand.”

Solution

In 2015, Nebraska Medicine worked with OneNeck IT Solutions, a long-time HPE partner, to determine which of HPE’s solutions would be able to simplify, rationalize, and consolidate the organization’s backup and recovery processes.

HPE helped Nebraska Medicine move to a single, centrally managed platform by providing an integrated solution comprised of HPE Data Protector backup software, and HPE 3PAR StoreServ storage array and HPE StoreOnce backup appliances.

“Combining the HPE Data Protector and storage solutions allowed us to easily move data throughout our system,” explains Bergholz. “Our backup windows were greatly improved; what used to take us 24 hours now takes us 12 hours, and we are able to

guarantee that we have multiple copies of our EMRs in multiple locations.”

By working closely under this unified software and hardware model, the backup and storage teams were able to share resources and relationships. It also became easier for the medical group to protect data across locations, applications, formats, storage platforms, operating systems, and virtual machine hypervisors.

Benefits

Optimizing limited resources

Month by month, the critical data collected by Nebraska Medicine’s medical centers grows and accumulates, straining limited resources and storage capabilities.

“In terms of resources, it is a constant challenge to do more with less,” says Bergholz. “Our activities grow by 20 to 30 percent every year but our resources do not grow at the same rate. It is up to us to work smarter and leverage the technologies at our disposal.”

Working together, HPE’s Data Protector and StoreOnce solutions enabled federated deduplication across the environment, reducing the amount of data that had to be backed up by either archiving or eliminating duplicate copies or redundant data. Having a smaller amount of data is making backups and restores faster and more efficient.



The new storage architecture has also helped automate much of the work required to keep data accessible, freeing valuable time and resources.

“Since implementing the new system, our deduplication ratios have increased to over 30:1 for our largest information system data,” says Bergholz. “And the overall average for all backup is averaging better than 15:1.

“This has helped to achieve a high level of efficiency with our StoreOnce devices and given us more bang for buck on our storage dollars. In addition, the 10Gbps network used for the entire backup system has shortened backup job run times and allowed IT staff and specialized engineers to complete essential backup jobs within acceptable scheduled windows.”

A related decision to pay for the solution based on data capacity under management rather than the applications it backs up is expected to save the medical group more than US\$1 million in software license fees over the next five years.

Extending data retention to 52 weeks

Implementing the HPE solution has allowed Nebraska Medicine to increase its data retention cycle from seven weeks to 52 weeks. This is valuable in cases when a staff member accidentally deletes a file or email. It also greatly increases the organization’s ability to ‘roll back’ its systems, if ever required to fight a ransomware attack or resolve other issues.

Bergholz notes, “We saw and heard from the analysts that the average storage or backup vulnerability stays in your system for 205 to 210 days. So, we had to come up with a plan for what it would take to provide recovery in case something were to happen.”

Making every minute count

Just as important as accurately restoring backed up data is the ability to do it as quickly and in as many different scenarios as possible.

“Response time is a key measure of success for the healthcare industry,” explains Bergholz. “As little as a couple of minutes can make the difference between life and death, especially in extreme cases that take place in a patient room or in a clinical-care area. Interruptions, delays, and errors are unacceptable in our industry.

“Taking two to three hours to solve an IT problem may be normal in many sectors, but for patient-facing clinicians or caregivers there is simply no time to waste to access vital patient information.”

Thanks to HPE’s comprehensive support and advanced recovery options, Nebraska Medicine has significantly improved its response times, allowing administrators to retrieve and restore critical information within five to 10 minutes. In more complicated cases, full data restoration has been achieved within 15 minutes – a feat Nebraska Medicine is striving to surpass.

Case study

Nebraska Medicine

IndustryHospital/Health/
Medicine**Customer at a glance****Hardware**

- HPE 3PAR StoreServ
- HPE StoreOnce

Software

- HPE Data Protector

Building confidence

Nebraska Medicine was recently certified to Stage 7 status with the Healthcare Information and Management Systems Society, recognizing it is a very advanced adopter of electronic medical records. One of the reasons cited for its success was the highly reliable nature of its IT systems.

The improvement of the organization's backup and recovery environment – including an enhanced ability to secure data through encryption – is also providing a high level of confidence to the group.

“There's nothing real sexy about backup,” says Bergholz. “It doesn't get ooohs and ahs out of people, but being able to demonstrate that solutions are reliable and highly effective time and time again buys confidence with leadership throughout the organization and it makes those people sleep safer at night.”

Preparing for further innovation

Having successfully completed the overhaul of its data storage and recovery processes, Nebraska Medicine is now planning to make its IT environment even more efficient.

The group is considering deploying HPE Backup Navigator, a reporting and analytics tool that uses insight and operational analytics to provide an in-depth understanding of environments in order to ensure a healthier, more efficient, and more cost-effective backup.

Nebraska Medicine is also considering adding a linear tape file storage system from QStar Technologies to hold some of its long-term archive data, and investigating how the improvement of its storage capabilities could support potential desktop virtualization.

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