North York General Hospital, recipient of a HIMSS Stage 6 designation, refreshes its IT infrastructure every seven years, so it must make its investment decisions carefully. As a forward-thinking medical provider that prioritizes exceptional patient care, NYGH chose a strategic storage solution from Pure Storage for its performance, scalability and superior long-term return on investment.

NORTH YORK GENERAL

BUSINESS TRANSFORMATION

Pure Storage provides the data platform that improves clinician productivity and increases the time devoted to patient care, while maximizing the long-term impact of the hospital's investment in IT infrastructure.

GEO

North America

INDUSTRY

Healthcare

"The Pure Evergreen™ Storage program is a great business model. When you have a seven-year refresh cycle, it's very valuable to know your maintenance costs for the life of the product."

Alshad Damji,
IT Manager for Information Services

PURE STORAGE DELIVERS A CLEAN BILL OF HEALTH FOR NORTH YORK GENERAL HOSPITAL'S IT INFRASTRUCTURE

North York General Hospital (NYGH) takes the role of IT very seriously. Back in 2011, it became the first Canadian hospital to reach HIMSS Stage 6, just one stage shy of the highest possible rating for a hospital's adoption of advanced electronic record-keeping. And in 2016, NYGH received the prestigious HIMSS Davies Award, which recognizes outstanding achievement in improving patient-care outcomes and return on investment through the use of health information technology.

"We're a fairly advanced hospital for technology adoption," observed Sumon Acharjee, Chief Information Officer. "Our patients come first in everything we do, so in all of our health information technology, we want to make sure our systems are reliable, available and secure and not in the way of our users."

NYGH is one of Canada's leading community academic hospitals, serving south central Ontario through three sites in the Toronto area, including a 419-bed hospital and a 190-bed long-term care facility. The hospital serves about 400,000 patients a year, including 130,000 emergency-room visits, with a staff of some 5,000.

LONG REFRESH CYCLES DEMAND IT SOLUTIONS FOR THE LONG TERM

As it strives to maximize the impact of technology on patient outcomes, the hospital's IT staff must deal with the reality of being part of the nation's government-funded healthcare system. "There are never many funds available at any given time," Acharjee noted, "so we really need to maximize our dollars. We're looking for the most bang for the buck."

Replacement of IT equipment is done on a seven-year cycle. That conflicts with the traditional business model in the mass-storage industry, where maintenance contracts incentivize customers to carry out a forklift upgrade around the fourth year. Because NYGH must wait until year seven, it has historically paid very high maintenance fees to its storage vendors. The result is a lose-lose situation: long wait times for the latest technology, and excessively high maintenance fees.

When it came time to replace its storage infrastructure in mid-2016, Acharjee noted, the priority was on acquiring the latest features and technology, as well as finding a way to grow storage capacity to meet future needs within the strictures of its funding environment.

COMPANY:

North York General Hospital
www.nygh.on.ca

USE CASE:

- Database – Cerner EHR, Oracle®
- VSI – VMware® vSphere®, Citrix® XenApp®

CHALLENGES:

- Legacy storage system was incurring unacceptably high maintenance costs.
- Capital investments must last for seven years.

IT TRANSFORMATION:

- Time required to prepare key reports reduced by up to 98%.
- Snapshots create reliable backup without consuming precious storage capacity.
- Certainty over future maintenance costs simplifies long-term planning.

> "One of the biggest benefits we've seen from the Pure Storage system is the ability to generate reports more efficiently."
>
> Sumon Acharjee,
> *Chief Information Officer*

"We wanted a data platform that would give our clinicians, back-office staff and other end-users high performance — high IOPS, low latency — and provide essential features like data compression, de-duplication and snapshots. Snapshots were essential for us, because they ensure a reliable, easily accessible backup for critical data. We need the ability to do continuous snapshots without chewing up storage capacity."

EVERGREEN STORAGE MODEL MAKES PURE ESPECIALLY ATTRACTIVE

After evaluating several suppliers on a range of criteria, the hospital settled on Pure Storage. "We liked what we saw in Pure Storage," Alshad Damji, IT Manager for Information Services said. "When we looked at all-flash offerings from other vendors, the price point and cost-benefit of Pure Storage was the most attractive."

Especially attractive was the Pure Evergreen Storage program, which enables storage that is deployed once and upgraded as needed, for a decade or more. Components can be mixed and matched – all online and without performance disruption — to keep storage dense, efficient and modern.

"Evergreen is a great business model," Damji noted. "When you have a seven-year refresh cycle, it's very valuable to know your maintenance costs for the life of the product."

There was only one hitch. NYGH runs its operations on Cerner electronic health record (EHR) software, and Pure had not been certified by Cerner as a storage platform. "So, we were sticking our neck out a bit to be the first Cerner site in the world on Pure Storage," recalled Damji . "Because we were cautious, we wanted to do a thorough proof-of-concept test to determine how our Cerner environment would work on Pure Storage."

KEY APPLICATIONS RUN FASTER ON PURE

The two-month POC was exhaustive. "We took each piece of the sales pitch from Pure Storage and ran tests to see if it did what they said it would do. Data for the POC came from a copy of the Cerner production environment. A team from the clinical informatics department ran the tests, comparing how long it took to run a query or report on the Pure system versus the legacy storage.

Examples of the tests performed were native SQL-based decision support reports, and Cerner Command Language (CCL) based clinical reports. The results were dramatic. Run times for the SQL reports dropped from 15 minutes or more to around 20 seconds, a reduction of 98%. And the time needed to execute a typical CCL-based pharmacy report dropped from more than 10 minutes to just two minutes.

Having observed consistently excellent Cerner performance on Pure Storage, production applications and data were moved onto a Pure FlashArray™//M50. The array hosts all the Cerner applications and supporting Oracle databases, which are served up by Citrix XenApp.

Installation of the Pure Storage array was simple. "It took a very short amount of time," Damji reported. "The support from Pure was great. They were shoulder-to-shoulder with us through the whole conversion." Damji said the hospital wanted to limit downtime for the conversion to three hours. "So completing it in just one hour blew away our aggressive goals."

SIMPLIFIED MANAGEMENT, ENHANCED SECURITY

NYGH quickly came to appreciate many of the features that are included with the all-flash array at no extra cost. Data compression and de-duplication result in a 3:1 data-reduction rate, meaning a 4TB database for the Cerner applications now consumes only 1.5TB. "That leaves us lots of room on the array for expansion," Damji said. "Plus, it opens the possibility that in the future we might host EHR applications for other facilities in the region."

> "Cerner is a mission-critical system that needs to have maximum performance, resiliency and uptime. Pure Storage delivers on all three of those requirements, while saving us money now and long into the future."
>
> Sumon Acharjee,
> *Chief Information Officer*

Snapshots quickly became a heavily used feature. "We take one snapshot an hour of our Oracle databases, and we keep them for three months," Damji noted. "Pure Storage makes it possible to do that with minimal impact on storage capacity. So, the most we could ever lose in an outage or a potential security breach is an hour's worth of data. That means high availability and protection against data corruption."

Encryption at rest, another standard feature of Pure Storage arrays, is very valuable to NYGH. "It gives us peace of mind that patient data is secure and never compromised," Damji said.

Installing the Pure Storage array will result in lower operating costs, Damji added, "because we can go to our co-lo facility when we renegotiate our contract and show them how little the footprint and energy costs of the Pure array will be."

On top of all that, eliminating just two years of the maintenance fees for the legacy spinning-disk storage system paid for the acquisition of the Pure Storage system.

BETTER PATIENT EXPERIENCE, DEEPER BUSINESS INSIGHTS

The impact of improved storage performance is felt in multiple areas of the hospital. Most important is the effect on physicians and other clinicians, who now spend less time waiting for files, reports and other critical data, thanks to 10-20% improvements in I/O performance and consistent sub-millisecond latencies.

System Operations teams also are experiencing a positive impact, because 10:1 data reduction with Cerner-related databases and Citrix servers creates a very efficient way to clone Cerner domains for testing and development work.

Business operations see positive outcomes, as well. "One of the biggest benefits we've seen from the Pure Storage system is the ability to generate reports more efficiently," Acharjee noted. "We've been electronic for many years, so we have a considerable amount of patient data. Our business intelligence decision-support team does a lot of slicing and dicing of this data (using Cerner's tools as well as Cognos), and the improved processing we now enjoy allows them to generate a lot more business insight in a short amount of time."

Acharjee concluded, "Cerner is deployed in every in-patient area of the hospital. It is a mission-critical system that needs to have maximum performance, resiliency and uptime. Pure Storage delivers on all three of those requirements, while saving us money now and long into the future."

PURESTORAGE®

info@purestorage.com
www.purestorage.com/customers