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Mario Alibrando  
Director of IT  
Cornwall Community Hospital



## Cornwall Community Hospital Unifies State-of-the-Art Campus, Builds New Data Center on Single-Source Hitachi Solutions

Cornwall Community Hospital recently amalgamated 2 separately run facilities and extended its footprint with nearly 100,000 square feet of new glass, steel and innovative technologies. Cornwall worked with Hitachi Data Systems to design and deploy end-to-end data center infrastructure. The hospital based its solution on Hitachi Compute Blades, Hitachi Unified Storage, and Hitachi Data Protection Suite with native connectivity to VMware vSphere. Today, the hospital enjoys tremendous IT availability, virtualization and robustness to support its 24/7 business of community healthcare.

Sleek and sophisticated are not the first words that usually come to mind when describing healthcare facilities, except perhaps in the case of Cornwall Community Hospital. Located in one of the largest cities in Eastern Ontario, Canada, the hospital is at home in a community of forward-thinking companies and a modern economy.

Cornwall Community Hospital recently combined 2 distinct facilities into 1 main hospital and expanded with a capital building project for state-of-the-art operating suites and patient services. Abundant natural light, wider ambulatory hallways, evolutionary diagnostic equipment, and high-tech devices are all built into the design. Beyond glass and steel are the hospital's progressive leadership

and top-notch medical staff who collectively focus on delivering exceptional healthcare.

The expansion project included an opportunity for a purpose-built data center, replete with all the innovations necessary to flexibly support the hospital's inevitable growth long into the future. The hospital is already using advanced technologies to aid in providing quality healthcare. The technologies include a 300MB switched Wi-Fi network, visual bed management software, and even waterproof smartphones that meet stringent infection control guidelines. With a new data center came the opportunity to evolve not only the IT infrastructure but also the approach.

### Cornwall Community Hospital

**INDUSTRY**  
Healthcare

**SOLUTIONS**  
Modular Storage, Unified Storage, Converged

**HARDWARE**  
Hitachi Unified Storage 150, Hitachi Unified Storage 110, Hitachi Compute Blade 2000

**SOFTWARE**  
Hitachi Data Protection Suite

**SERVICES**  
Provided by Hitachi Data Systems Global Solutions and Hitachi TrueNorth Platinum Partner Stoneworks Technologies, Inc.

#### Benefits at a Glance

- 99.999% availability, regardless of workload.
- Versatility and adaptability.
- Simplified backup and recovery.

## SUCCESS STORY

"I've been in the IT industry for a long time, and this was my first experience with building a data center from the ground up. It's a rare opportunity to envision and create what you want to ensure the best support. Our core business is healthcare. So, we wanted to build a foundation of the necessary hardware, software and services that would enable us to focus on our core strengths, not on touching every box or performing every upgrade. Finding a technology partner capable of understanding the criticality of healthcare and how best to support it was imperative," explains Mario Alibrando, the director of IT at Cornwall Community Hospital.

### The Challenge: Lay a Technology Foundation for the Future

Embarking on the new data center would involve several key aspects. To ensure proper energy efficiency throughout the data center facility, Cornwall first laid a cohesive APC (American Power Conversion) power and cooling framework. Next, the hospital sought to safeguard its massive healthcare information system, which is a repository for mission-critical records and applications, clinical content and financials. Alibrando was keen on finding a single-source vendor solution for the entire data infrastructure, from servers and storage to backup and hypervisor.

Prior to consolidation of the hospitals, Cornwall IT managed about 100 physical servers and did not have centralized storage or a comprehensive backup and recovery solution. For its new data center infrastructure, the hospital required the highest levels of availability, performance, scalability and virtualization.

"We weren't experienced in building data centers, but we knew that there were no compromises on what a potential solution would need to provide. We worked with a company called Stoneworks Technologies to help us determine what technologies were available for where we wanted to go," says Alibrando.

Stoneworks Technologies, Inc., is a Hitachi Data Systems TrueNorth Platinum Partner and Eastern Canada's only certified solution provider. The Stoneworks team helped Cornwall put together a request for information.

“Hitachi provides excellent service expertise with local field engineers who know exactly how and why things are set up. They care, they're very tuned in, and that takes a lot off our shoulders. We don't need to build a technology empire, we just needed a partner who understands how to help us succeed.”

*Mario Alibrando  
Director of IT  
Cornwall Community Hospital*

"From my standpoint as director of IT, I was not so fixed on a particular name or provider, but rather on finding the right solution. We wanted a high-availability solution capable of meeting all of our mission-critical requirements and providing seamless navigation along a forward-moving technology path. Hitachi attracted us with a very thoughtful and innovative single-source solution no one else had," he continues.

### The Solution: Diagnose a Right-Sized Strategy With Hitachi Data Systems

Cornwall Community Hospital selected a whole-solution data center strategy based on Hitachi Compute Blades, Hitachi Unified Storage, and Hitachi Data Protection Suite with native connectivity to VMware vSphere. The Hitachi components are integrated and provide referenced architecture for VMware. The solution is designed for maximum performance and utilization through Hitachi best-in-class storage and software technologies. Because the Hitachi storage platform is also natively integrated with the vSphere API engine, multiple VMware servers can offload workloads to Hitachi storage. This strategy, in turn, frees resources on the servers, reduces traffic on the network, and significantly improves infrastructure efficiencies.

To meet the server requirements for the new data center environment, Cornwall deployed 2 Hitachi Compute Blade 2000 solutions. Hitachi Compute Blade 2000 offers data center capabilities that go beyond traditional commodity blade technology. It provides high-end features for mission-critical data centers such as hybrid I/O and logical partitioning (LPAR), typically only found on more expensive RISC/UNIX servers. These features allowed IT to achieve the right balance of throughput and connectivity while

dynamically adapting to changes in workload demands and meeting virtual server isolation needs. In the Cornwall solution, each chassis is composed of 3 E55R3 blades configured in a VMware vSphere cluster using ESX 5 to create and run virtual machines. To date, Cornwall Community Hospital has virtualized more than half of its servers, with immediate plans to reach 100% server virtualization.

The compute blades are connected via Fibre Channel to a Hitachi Unified Storage 150 containing a mix of 10K SAS and NL-SAS drives. This storage system supports all primary VMware storage and the healthcare information systems vital to operating the hospital. Built-in redundancy and automated failover in Unified Storage enable Cornwall to maintain at least 99.999% availability regardless of workload demands.

Hitachi Unified Storage 100 series delivers unwavering support for both block- and file-based storage access in a cost-efficient midrange footprint. Loaded with high-end performance, dynamic thin provisioning, data deduplication and autotiering functionality, Unified Storage eases the management of pooled resources. Unified Storage is designed with native intelligence, for simpler administration, self-optimization and self-healing. Hitachi Dynamic Provisioning allocates just-in-time storage resources, automates load and capacity balance, and provides wide striping, all without administrator intervention. Cornwall will at some point move to Hitachi Dynamic Tiering for optimal placement of data among tiers based on performance needs. And, with up to 4PB of storage capacity, Unified Storage fosters virtual machine (VM) density and consolidation of multiple midtier VMware applications onto a single platform for simpler, cost-friendly virtualization management.

**HUS 100  
Series  
3-D Tour**

WATCH

For backup purposes, Cornwall deployed Hitachi Unified Storage 110 with Hitachi Data Protection Suite, powered by CommVault, which tightly blends together snapshot, replication and persistent copy technologies. These Data Protection Suite features provide application awareness, security, deduplication and unified management. Cornwall uses Data Protection Suite's native connectivity to vSphere via a Virtual Server iData Agent to eliminate any backup window issues and greatly simplify backup and recovery operations.

"We will be performing nightly backups and snapshots of the applications. For every server we virtualize, the Hitachi storage system adds the backup rotation. The blades are striped, which means we can roll back to whenever we need without having to worry about losing mission-critical data or applications. And we're excited about Dynamic Tiering, which really impressed us and really sets Hitachi apart from other vendors. All in all, we have the means for a highly available, very robust orchestration," details Alibrando.

## Benefits: Solution Orchestrates a Healthy Dosage

Engineers within Hitachi Data Systems Customer Service and Support (CS&S) organization handled the physical racking and installation of the solution hardware, while Stoneworks Technologies provided design, configuration, deployment and documentation services. Nearly everything has been migrated over to the new center. Stoneworks deployed the VMware virtualization and provided initial training, as well as ensured that high availability and backups were mirrored across the blades. Cornwall Community Hospital also purchased a 3-year services plan from Hitachi to better protect investments and accelerate success of the new technologies.

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"In the past, we've had other vendors who didn't necessarily provide the best service. This go 'round we wanted to ensure that we had services included in the business plan. We've been pleased with Stoneworks proficiencies, and Hitachi provides excellent service expertise with local field engineers who know exactly how and why things are set up. They care, they're very tuned in, and that takes a lot off our shoulders. We don't need to build a technology empire, we just needed a partner who understands how to help us succeed," Alibrando says.

So far, success has emerged in tangible benefits, such as pervasive flexibility and scalability. "We had wanted to be able to expand easily without having to purchase all new chassis in the future. What we have right now can be expanded something like 10-fold, simply by adding disks, any mix of disk. This is so different from products with rigid options. Instead, we can do whatever makes sense for the business at hand, without having to worry about minute details or upgrading servers. The Hitachi gear is so fast, so flexible; we really can reallocate more processing power or make changes as needed. We have such versatility and the adaptability for change, which will prove to be very cost-efficient for future growth," he details.

Cornwall IT is also benefitting from new capabilities for innovation and performance. "The idea that it's okay to take down systems for maintenance or routine downtime

doesn't work well in a 24 by 7 by 365 business, especially one as vital as healthcare. We are fully capable of supporting the business with better performance and reliability. It is now faster to bring up applications, and on the networking side, all the blades are having a feeding frenzy: they're so quick to get us the data. I no longer have to be concerned about re-engineering everything each time I want to make a change. Whenever I call our Hitachi engineers to ask if something is possible, the answer is always 'sure, here's how.' I am able to build on what I already have in place. We feel that's very innovative," he adds.

In addition to the data center infrastructure now in place, the hospital soon will deploy wireless across the entire organization and anticipates all new information systems. Alibrando anticipates taking out a section of blades or buying more, and putting them in another room at the opposite end of the building as a hot site. This strategy further ensures that data is protected in the event of a fire, for example.

"This Hitachi solution is the foundation for our future, for electronic health records and the wireless framework. We are confident that our Hitachi infrastructure will support the larger, more robust applications coming our way in the future and, well, anything we put on it. The more we depend on our solution, the more we know it will be there for us," he finishes.

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