



## Children's Hospitals and Clinics of Minnesota

An intelligent information infrastructure from EMC supports rapid access to growing patient and business-critical records while keeping IT costs down

During the last year, Children's Hospitals and Clinics of Minnesota managed two million patient engagements ranging from admissions and surgeries to ambulatory visits and ancillary services. The largest pediatric health care organization in the Midwest, and eighth largest in the country, Children's of Minnesota provides clinically advanced, family-centered care through two hospitals in Minneapolis and St. Paul; a pediatric outpatient day surgery, diagnostic, and rehabilitation center in Minnetonka; a pediatric outpatient rehabilitation clinic in Roseville; and pediatric specialty clinics in Woodbury. Children's of Minnesota was recently awarded Magnet designation in nursing excellence, putting it in the top four percent of hospitals nationally. Children's also was ranked this past year by the Leapfrog Group as one of the top eight pediatric hospitals in the nation in safety and quality.

An EMC® customer for nearly a decade, the organization has relied on EMC Symmetrix® systems supported by EMC Symmetrix Remote Data Facility (SRDF®) software to provide a solid, highly available storage environment with proven disaster recovery capabilities for its patient and business-critical applications. In that time, the organization's EMC intelligent information infrastructure has evolved into a dynamic multi-tiered storage environment capable of addressing a wide range of application service levels—from consistent, real-time access to vital patient records to cost-efficient, yet still highly accessible storage and archive platforms for less-critical administrative information and historical PACS images.

Used over the last two years to consolidate servers and improve utilization, VMware® virtualization technology has helped to further increase the efficiency and availability of the organization's IT infrastructure.

### **Cost-efficient, easily managed tiered storage platforms optimized for non-stop availability**

Housed within the organization's primary and disaster recovery centers located approximately 25 kilometers apart, are two powerful EMC Symmetrix DMX™-based SANs supported by flexible, high-performance McDATA switches. Deployed just last year, the organization's new high-capacity EMC Symmetrix DMX systems are expected to easily accommodate a growth rate of 30 to 40 percent per year.

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Industry-leading EMC SRDF disaster recovery software strengthens the organization's business continuity solution and helps ensure continuously available, high-performance tier-one storage for its OpenVMS-based electronic medical records (EMR) application from Cerner, as well as other patient- and business-critical applications such as GE Centricity PACS, a Misys Laboratory Information System, PeopleSoft, and eGate.

"Getting the EMR up and running is where we've seen the most growth," says Jim Piechowski, manager of Technical Services at Children's of Minnesota. "We're constantly adding new modules and new functionality. Surgery and Emergency Department modules from Cerner were just added, and right now we are in the middle of a clinical documentation deployment that will be in at end of the month. The computerized physician order entry (CPOE) is planned for a 2007 implementation."

"With all of our data now in electronic format, system availability and data recoverability have become even more critical. We have been an EMC customer for many years, and have been able to count on EMC solutions to keep our information safe and accessible."

**Jim Piechowski, Manager of Technical Services**

Within this environment, EMC ControlCenter® software, specifically SAN Advisor™, SAN Manager™, Symmetrix Manager, and Symmetrix Optimizer, simplify SAN and device management, including planning and provisioning, for optimized operations.

"ControlCenter software makes it easy by giving us the features and functionality to manage everything through a common tool," says Piechowski.

EMC TimeFinder® software is used within the EMC Symmetrix environment to support non-disruptive nightly Oracle database backups for both Cerner and PeopleSoft applications.

"Because we provide patient care on a 24x7 basis, we can't tolerate a backup window that takes the system down," explains Piechowski. "By being able to resynchronize the volumes in a short period of time, we've pretty much been able to make our backup window nonexistent."

The organization's highly reliable, yet cost-efficient tier-two storage, provides multiple terabytes of capacity through dual EMC CLARiiON® systems located within the main and disaster recovery data centers. The CLARiiON systems are used primarily for data that is not patient-critical such as file services. EMC Navisphere® and EMC MirrorView™ software support streamlined management and rapid disaster recovery capabilities within this environment.

To support long-term, online archives of its GE Centricity PACS images, Children's Hospitals and Clinics of Minnesota leverages the dependability and cost-efficiency of EMC Centera™ enterprise archiving system. According to Children's clinical protocol, when a PACS image is created, it is initially stored on the EMC Symmetrix system. Once it is reviewed and approved by a radiologist, the image is then archived to EMC Centera. After six months, the image is purged from the EMC Symmetrix system, but still remains securely stored, yet easily accessible within the EMC Centera platform.

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Historical documents from the organization's Cerner Medical Records Scanning application are also entrusted to EMC Centera archives. These documents are transferred from EMC Symmetrix to EMC Centera through EMC DiskXtender® software which uses preset policy for automated migration.

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**Jim Piechowski, Manager of Technical Services**

Through EMC Centera, Children's of Minnesota can preserve the performance and accessibility of its tier-one storage for the most current patient-critical records, while providing a secure, economical platform for online accessibility to historical GE Centricity PACS images and Cerner-based scanned documents. EMC Centera is also used for replication via IP to another EMC Centera system located within the disaster recovery data center.

“This fits very nicely into our disaster recovery solution,” says Piechowski. “We test disaster recovery on a yearly basis for all clinical and business applications, and with this set up we can actually just point those applications to the Centera down in our disaster recovery center and have all the data down there. We don't have to worry about it, and it's very simple.”

### **Consolidation, improved utilization, and faster deployments through VMware**

Underutilized hardware was a key motivation for the implementation of VMware virtualization solutions which include VMware ESX Server™ and VMotion™. Through this advanced technology, Children's Hospitals and Clinics of Minnesota has been able to layer more applications on fewer servers for multiple benefits that include improved CPU and memory utilization as well as reduced physical space and power requirements. Today, 12 physical machines now support 95 virtual servers.

Another key benefit that the organization has realized through the use of VMware technology is the ability to rapidly deploy new applications, which occurs frequently in healthcare environments.

“Before, when a request came in to deploy a new application, it would take a month or more to go through the procurement process to acquire a new server, wait for it to come in, and then set it all up,” says Piechowski. “Now it's like having servers ready to go. All we have to do is load an operating system, and since we have images of all of the operating systems that we use, we can now build a server in about a day.

Business continuity has also been enhanced through VMware VMotion which enables the quick and easy movement of virtual machines to a different ESX server while maintenance is done on a physical server. In this way, the organization's applications remain up and running even during system maintenance.

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## Tested and proven

EMC solutions have grown with Children's of Minnesota over the years providing a consistently reliable, technologically advanced storage support for the information management needs of this leading pediatric healthcare organization.

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Customer Profile  
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