



Hitachi Storage Solutions at Work National Healthcare Group (Singapore)

Industry


Health Care

Solution—Tiered Storage/Consolidation

Hardware: Two Hitachi TagmaStore® Network Storage Controller NSC55 models, two Hitachi TagmaStore Workgroup Modular Storage WMS100 models, and four McDATA Spheron 4700 32-port switches

Software: Hitachi HiCommand® Dynamic Link Manager and Hitachi Universal Volume Manager software, Hitachi TrueCopy™ Heterogeneous Remote Replication and Hitachi ShadowImage™ Heterogeneous In-System Replication software bundles

Services: Provided by Hitachi Data Systems Global Solution Services



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—Linus Tham, CIO
National Healthcare Group

Hitachi TagmaStore® Network Storage Controller Helps Ease Storage Growing Pains at National Healthcare Group

National Healthcare Group, one of Singapore's largest health care organizations, needed to consolidate disparate systems and improve business continuity to remove barriers to better patient services and lower operation costs. The solution? Hitachi Data Systems' tiered storage virtualization and advanced replication using a dual Hitachi TagmaStore® Network Storage Controller design and support from Hitachi Data Systems Global Solution Services.

Tiered data storage is rapidly becoming life support for information-intensive health care facilities. As unyielding volumes of electronic data are created, IT infrastructures must reliably house and protect that information. For National Healthcare Group (NHG) of Singapore, maintaining a healthy storage environment is vital to the wellness of its patients *and its bottom line*.

With a combined staff of 11,000 and annual revenues in excess of US\$600 million, NHG is one of the largest health care organizations in Singapore, operating four hospitals, nine polyclinics, and various other medical institutions. NHG measures its ability to deliver quality services by how patients directly benefit—shorter hospital stays, lower medical bills, and better health treatments. That means getting the right data to its intended destination—without delay.

Examining Chronic Data Constraints

NHG produced thousands of medical charts, reports, and images daily, while managing disparate IT systems across its facilities. In less than a year, NHG had expanded use of electronic prescription entry systems from one hospital to all of its institutions, which accelerated prescription services for patients but triggered considerable strain on storage resources.

Since the installation of NHG's first Hitachi Lightning 9900™ V Series-based SAN three years ago, the application mix and storage needs have grown by leaps and bounds. The current configuration was neither scaling fast enough nor providing the reliability NHG needed to meet growing data requirements. To effectively support its vast network of

quality services and care, NHG had to increase its ability to share information and improve efficiencies across the organization to lower total costs and protect critical data.

"With most of our medical data online, we really can't afford any downtime in the system," says Linus Tham, CIO at NHG. "Any downtime in one system must be offset almost immediately by a backup system. The recovery must be transparent to the doctors and patients and not affect the standard of care."

Treating Growing Storage Symptoms

NHG's primary and disaster recovery data centers housed two separate storage area networks (SANs) based on IBM® TotalStorage® Enterprise Servers and Hitachi Lightning 9970V™ single-cabinet enterprise storage systems—supporting a mix of Microsoft Windows and UNIX operating systems. The configuration was difficult and increasingly expensive to manage, requiring two sets of tools and technical knowledge.

To maximize existing storage investments, NHG required a highly reliable and flexible platform to ensure easy integration, simpler administration, and always-on availability of the organization's data. While evaluating virtualization solutions from several vendors, Tham's team discovered that the Hitachi design placed intelligence inside the controller instead of the switch, creating greater flexibility and reliability for tiered storage. That could help to significantly lower total cost of ownership for NHG.

"We wanted to make our IT infrastructure as available and reliable as a telephone dial tone. The Hitachi Data Systems approach allowed us to achieve that for our enterprise storage in a cost-effective manner," says Tham.

Prescribing Hitachi Tiered Storage

To cure its data center storage ailments, the NHG team worked with the Hitachi Data Systems Global Solution Services (GSS) team to develop an Application Optimized Storage™ approach to flexible and reliable tiered storage. The solution was based on the Hitachi TagmaStore Network Storage Controller model NSC55, which is powered by the Hitachi Universal Star Network™ crossbar switch architecture, TagmaStore Workgroup Modular Storage model WMS100, and McDATA Sphereon 4700 4Gbit/sec Fibre Channel switches, which start at 8 ports and grow to 32 ports, the highest performance and port density in a 4Gbit/sec device. GSS services were included to provide ongoing health checks and management.



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National Healthcare Group*

NHG installed two NSC55 models for virtualization and to consolidate the SAN environment, and two WMS100 models to support tiered storage virtualization. The NSC55 controllers deliver virtualization of external storage, logical partitioning, and replication across heterogeneous storage environments for greater levels of performance, availability, and reliability—

manageable from a single interface to simplify administration. Embedded on the NSC55 controllers, Hitachi Universal Volume Manager software efficiently integrates and manages both internal and external storage as a unified, virtualized pool.

Hitachi ShadowImage™ Heterogeneous In-System Replication and Hitachi TrueCopy™ Heterogeneous Remote Replication software bundles were introduced for resilient, nondisruptive, and enterprise-class replication of NHG data, with asynchronous and synchronous remote replication for everyday uptime improvement and rapid data restores. GSS provided the Implementation Service for Hitachi ShadowImage In-System Replication Software to enable efficient backup, and the Implementation Service for Hitachi TrueCopy Remote Replication Software, to ensure business continuity.

Hitachi HiCommand® Dynamic Link Manager software was added to manage the health of storage paths and load distributions for improved availability, especially in the event of path failure. GSS supported this addition with the Implementation Service for Hitachi HiCommand Dynamic Link Manager Software.

Rejuvenating Health Care Delivery

The GSS team helped the NHG team to define service-level objectives and storage tier assignments for data. Matching application requirements to storage attributes would enable NHG to closely align health care and IT objectives.

The Hitachi Data Systems solution provided a catalyst for better health care delivery and lower cost of ownership at NHG. Hitachi technology allows NHG to consolidate disparate systems and SANs, as well as simplify storage administration, which it has begun to do with its Lightning 9970V, Network Storage Controller and Workgroup Modular Storage models, with help from the GSS team.

Tham is confident that NHG is now well positioned to take on the massive amounts of data he expects in the years to come. “Thanks to Hitachi Data Systems, our storage is no longer the limiting factor in terms of reliability and availability,” Tham says. “This is one important step toward ensuring that our applications are always on and ready to meet the needs of our patients.”

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