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Jim Livingston
 IT Director
 University of Utah Health Care



University of Utah Health Sciences Center

INDUSTRY Healthcare

SOLUTIONS **Storage Virtualization, Enterprise Platform, Modular Platform**
Hardware — Hitachi Universal Storage Platform® V; Hitachi Adaptable Modular Storage 2500, 2300 and 1000; Hitachi Workgroup Modular Storage
Software — Hitachi Dynamic Provisioning, Hitachi Tuning Manager, Hitachi ShadowImage® Heterogeneous Replication, Hitachi Copy-on-Write Snapshot, Hitachi Tiered Storage Manager

The University of Utah Health Care Epitomizes Strategic Storage Growth with Decade-Plus Hitachi Solutions

With a long history of storage solutions from Hitachi Data Systems, the University of Utah has maintained a nimble IT infrastructure that addresses growth requirements and quickly adapts to business changes. The hospital deploys Hitachi storage virtualization across the IT environment for flexible tiered data mobility and support of new mission critical applications.

The University of Utah Health Care provides medical services for residents well beyond its own state borders. As the only academic health care system between the Rocky Mountains and the Cascades and Sierra Nevada mountains in the Western United States, the University of Utah offers exceptional patient care, medical research and teaching facilities. Encompassing a university hospital network and many specialty centers and community clinics, University of Utah Health Care continues to grow both its academia partnerships and international reputation for excellence.

As with most health care systems attempting to accommodate the massive growth in electronic medical records (EMR) and retention requirements, University of Utah has had to develop a strategic approach to managing data. The hospital's IT department had humble storage beginnings, with 1TB of data spanning two servers in 1999 and a lot of direct attached storage silos.

It grew into a storage environment virtualized behind the Hitachi Universal Storage Platform® in 2004, and the hospital's IT department today manages over 750TB with no slowdown in sight.

"We have had 100 percent uptime since going live with Hitachi in 1999. Since then, there has been tremendous growth in requirements, from existing business applications to the rollout of physician order entry and EMR. We have been able to consolidate IT infrastructure across campus to improve cost-efficiencies and services. The great thing is that in 2004, when trying to solve a short-term storage infrastructure issue, we chose a strategic approach from Hitachi Data Systems for longer term growth. So here we are more than six years later with a virtualized environment that is still completely scalable," says Jim Livingston, IT director for the University of Utah Health Care.

Harnessing Growth with Universal Storage Platform V

The hospital's latest technology refresh is prepared to promptly harness over 20 percent compounded annual growth in data storage, as well as facilitate agile data movement across tiered storage. In the main data center, Livingston and his IT team implemented tiered storage based on the Hitachi Universal Storage Platform V (USP V).

Intelligent controller-based virtualization masks the complex inner workings of the Universal Storage Platform V to efficiently move, pool and control both Hitachi storage and externally attached heterogeneous storage system from a single interface. The value of Hitachi storage virtualization is evidenced in the University of Utah's ability to extend the usefulness of virtualized assets and simplify management across the virtualized infrastructure for improved scalability, migration, replication and migration tasks.

"On the USP V we run mission critical applications and data warehousing. Virtualized behind the platform are a half dozen Hitachi Adaptable Modular Storage systems for mix-and-match flexibility as tier 2 and tier 3. On these tiers, we manage everything from a VMware server farm and PACS (picture archiving and communication system) images to user directories, backup copies and snapshots," explains John Fagg, manager of storage services at University of Utah Health Care.



"With our Hitachi environment, it doesn't matter if we're managing terabytes or petabytes. The ease of management allows us to scale storage without scaling staff."

*Jim Livingston
IT Director
University of Utah Health Care*

A second Universal Storage Platform V virtualizing an Adaptable Modular Storage 2300 is stationed on the same fabric but not clustered. It handles support for the hospital's EpicCare EMR system. "This is another vital component of hospital operations that handles all electronic records. The Hitachi gear is able to safeguard the data while ensuring online accessibility," he adds.

Soon the hospital will be implementing new EpicCare billing and scheduling applications to support an integrated "one patient, one record" system. The second Universal Storage Platform V will manage this, too.

Simplifying Management with Hitachi Software

Helping the IT team adeptly manage the burgeoning storage environment is a suite of built-in management tools. Once storage resources are pooled through the Universal Storage Platform, Fagg uses Hitachi Tiered Storage Manager to automate data movement between tiers without disruption to applications. "Awhile back, we needed to turn off and move out some equipment. Migration from those five disk storage systems would have taken months. But since implementing Tiered Storage Manager, I was able to move all the data to different storage systems without disruption to operations in under two weeks. And I can literally move application data to a different RAID group or tier on the fly," says Fagg.

Hitachi Tuning Manager assists the IT team with quickly identifying and monitoring performance across the infrastructure. To address efficient capacity utilization, Hitachi Dynamic Provisioning software will provision only what is used, and it uses capacity only when required by the applications. This process saves valuable space and time, and it improves the responsiveness to new storage demands without downtime. "Dynamic Provisioning gives us so much flexibility for sizing volumes and driving performance," Fagg continues. He also relies on Hitachi ShadowImage® Heterogeneous

Replication and Hitachi Copy-on-Write Snapshot software for nondisruptive cloning and snapshot syncing of the hospital's clinical images.

Moving Forward with Strategic Savings, Too

Striving for perpetual wellness of its IT environment, University of Utah Health Care continues a regiment of regular technology checkups. Utilizing advanced technologies such as controller-based storage virtualization, dynamic (thin) provisioning and unified single pane management, Livingston's team maintains highly efficient data growth.

This latest tech health check is already showing impressive results. "We work closely with the database and UNIX teams here on campus. They have commented on how fast the disks are running even when we add more. We attribute the speed without performance degradation to the power and scalability of the Hitachi architecture," Fagg explains.

Savings on operational expenditures are also readily apparent in the staffing-to-managed-data ratios. Livingston reports, "The volume of data we actively manage today has exponentially grown since first implementing virtualized storage, yet our staffing count stays the same. Recently, I researched some industry standards for staffing ratios. My team's ability to progressively manage growth comes in way below industry projections or staff-per-terabyte percentages. I credit my staff and our great set of Hitachi platforms and tools. With our Hitachi environment, it doesn't matter if we're managing terabytes or petabytes. The ease of management allows us to scale storage without scaling staff. How many technology solutions can take us that far into the future? I can only think of one: Hitachi Data Systems," Livingston says.

When University of Utah first embarked on its virtualized storage environment, Livingston sat with Dave Merrill, the chief economist at Hitachi Data Systems to develop a total cost of ownership (TCO) assessment. "We analyzed the TCO of the Hitachi virtualized storage and those numbers continue to ring true. Honestly, we solved the problems of a rapidly growing storage environment six years ago when we selected Hitachi as our storage partner. That decision was very strategic because it gave us the ability to scale the environment to meet our needs well into the future. We have no intention of changing storage partners," finishes Livingston.

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