# VALLEY HEALTH SYSTEM POSITIONS FOR THE FUTURE WITH HELP FROM VIOLIN SYSTEMS

"We're talking about a dramatic decrease in rack space utilization... Expanding our data centers is a massive expense, so our ability to deliver the fastest available performance in a smaller footprint was really important."
— *Eric Carey, CIO, Valley Health System*



## Valley Health System provides high quality, coordinated care

in northern New Jersey and parts of New York. They recently concluded an extensive, formal Healthcare Information System (HCIS) evaluation and selection process to advance their continuing goal of delivering the highest quality clinical care possible by leveraging technology.

Valley formed a task force, led by Eric Carey, CIO, to investigate the requirements for upgrading their MEDITECH environment to provide clean, streamlined clinical workflows with familiar iOS and Android-based smartphone and tablet compatibility for rounds and EMR navigation.

In addition, Valley Health System's patient-care and staff-support goals required the most robust technology solution possible to both ensure optimal performance of Valley's concurrent VDI initiative and meet or exceed their Disaster Recovery/Business Continuity (DR/BC) requirements. To validate and operationalize their HCIS strategy, Valley's IT team diligently worked to determine which best practices to adopt and what pitfalls to avoid.

- Achieved HIMSS Stage 6
- Recipient of multiple awards for clinical excellence, including recognition as a Magnet Hospital
- Recognized 10 consecutive times by J.D. Power and Associates
- A "Most Wired" healthcare organization for 14 consecutive years

**Violin Systems** | 2560 N. First Street, Suite 300, San Jose, CA 95131 USA
Tel: 1-650-396-1500 • Fax: 1-650-396-1543 | www.violinsystems.com

# VALLEY HEALTH SYSTEM WAS ABLE TO MANAGE MULTIPLE PRIORITIES, IMPROVE PERFORMANCE, STRENGTHEN DR/BC CAPABILITIES, AND POSITION FOR THE FUTURE

In addition to Valley's goal to have the fastest MEDITECH system possible for their users, they also needed to avoid data center expansion, and were able to do so with higher density flash storage.

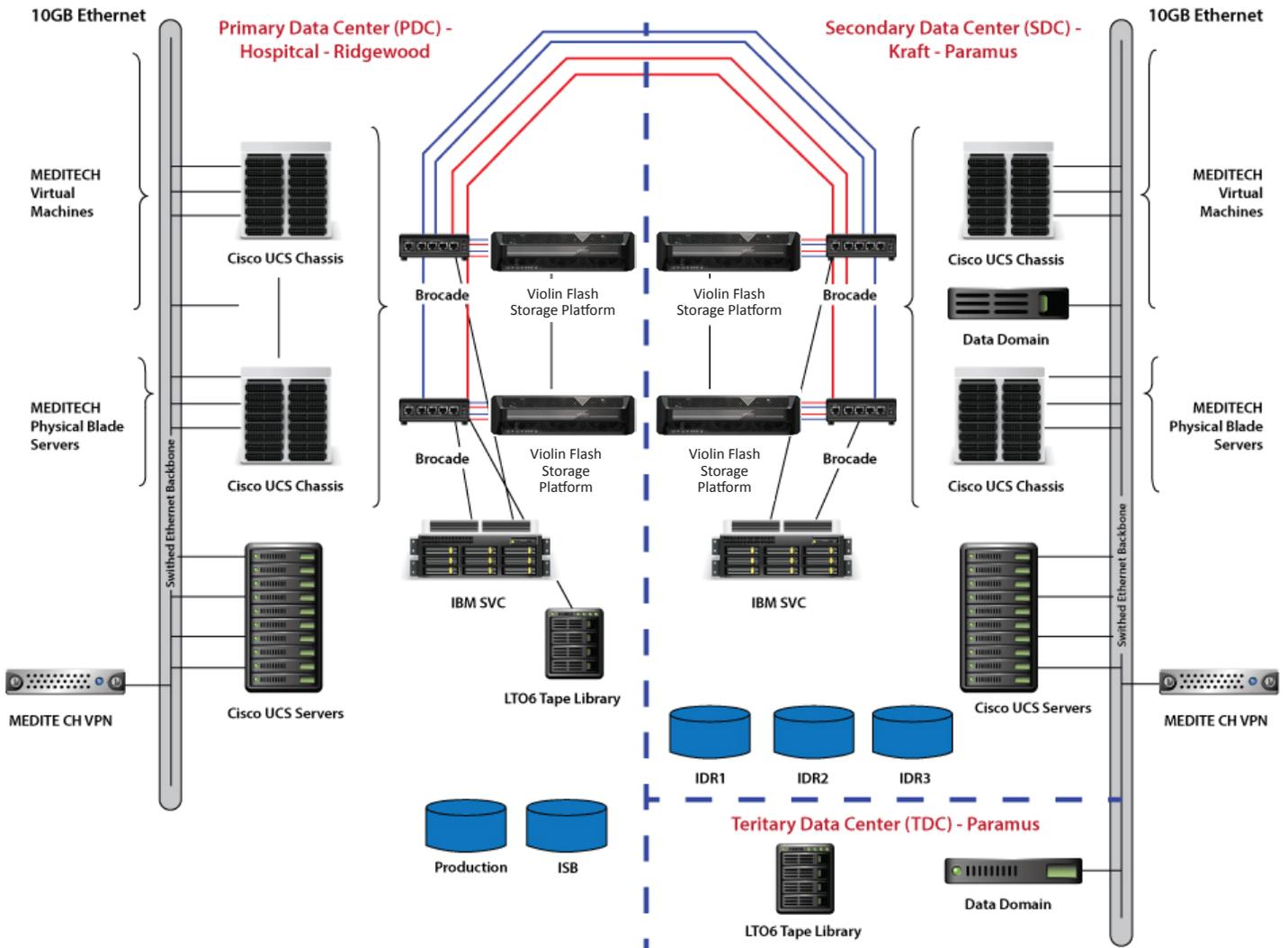### VIOLIN FLASH STORAGE PLATFORM™ 7300

- Consistent sub-millisecond latency
- Inline data deduplication and compression
- Thin provisioning, cloning
- Native replication
- Single pane of glass management
- Up to 70 TB raw, 217 TB effective capacity

They found common threads in which other health care information systems providers had underestimated the impact of a "triple upgrade" from older versions of the MEDITECH environment, from physical environments to fully virtualized environments, and from single data centers to dual or multiple data center/cloud hybrid environments. The overall system was designed to provide the resiliency demanded by the paperless hospital and the recovery stance inherent in HIPAA, HITECH, and ARRA legislation.

The team learned that some other health systems had underestimated the impact of new data retention regulations and ARRA-specified logging on SANs and SAN performance. Others had virtualized their HCIS and other enterprise applications without providing adequate logical isolation of resource domains and were experiencing intermittent performance issues. Many had upgraded one or two key elements of their technical infrastructure but had been unable to provide the stable underpinnings of a fully virtualized platform on older network technology. Some fell victim to the I/O blender common to VM implementations, when they implemented VMs without fully appreciating the I/O load the additional (virtual) machines would place on the available storage.

### A Solution Emerges

Determined to create an Information infrastructure using current best practices, the Valley IT team reviewed their existing operating and DR/BC stance. Valley had adopted a dual data center design, in an effort to address concerns about unique geographical challenges, issues with managing WAN suppliers, and the needs of their clinicians and patients. Each data center hosted a full set of hardware, such that IT Services could be provided out of either data

**VIOLIN**SYSTEMS

**10GB Ethernet**

**Primary Data Center (PDC) - Hospitcal - Ridgewood**

MEDITECH Virtual Machines

Cisco UCS Chassis

MEDITECH Physical Blade Servers

Cisco UCS Chassis

Swithed Ethernet Backbone

MEDITE CH VPN

Cisco UCS Servers

Brocade

Violin Flash Storage Platform

Brocade

Violin Flash Storage Platform

IBM SVC

LTO6 Tape Library

Production    ISB

**Secondary Data Center (SDC) - Kraft - Paramus**

Violin Flash Storage Platform

Brocade

Violin Flash Storage Platform

Brocade

IBM SVC

**10GB Ethernet**

MEDITECH Virtual Machines

Cisco UCS Chassis

Data Domain

MEDITECH Physical Blade Servers

Cisco UCS Chassis

Swithed Ethernet Backbone

Cisco UCS Servers

MEDITE CH VPN

IDR1    IDR2    IDR3

**Teritary Data Center (TDC) - Paramus**

LTO6 Tape Library

Data Domain

center. Valley's plan was to provide a DR/BC model that addressed the most likely disasters from which timely recovery was reasonable. By having fully redundant sites, Valley could withstand the destruction of either data center.  If the primary data center was destroyed, Valley's remote site could still communicate with the hospital departments via redundant WAN connections and core switches. Because the two data center locations are about 6 miles apart, Valley also has the option to physically move the remote hardware to the hospital should the primary data center and WAN be destroyed.

Although Valley utilizes several vendor systems via remotely hosted models, they are extremely cautious about putting mission-critical applications outside the main data

centers. This abundance of caution was a driving factor in the decision to build a self-sufficient private/public hybrid cloud for their HCIS strategy.

With an understanding of how newer HCIS, PACS, and virtualized environments create significant pressure for high IOPS (input/outputs per second) for healthcare IT, Valley chose to work with Violin Systems to design an enterprise-wide all-flash storage environment. This created the challenge of integrating the Violin array into a MEDITECH-certified backup and recovery schema built around IBM's SAN Volume Controller to support their investment in MEDITECH. Initial storage performance testing did not meet expectations.

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"With fast, reliable product and great customer care Violin has helped us move in the direction of our HCIS goals — the fastest possible MEDITECH environment, Mobile and VDI implementations, and a robust hybrid cloud with significant DR/BC capabilities. We are well positioned for the future."
— *Eric Carey, CIO, Valley Health System*

"We discovered that the cache in the SVC controller was the culprit. It was slowing the flash array down. Turning off the cache seemed counterintuitive, but when we did, the Violin Systems array performed flawlessly, exceeding every parameter, beyond our expectations," said Eric Carey, CIO, Valley Health System.

With SVC caching disabled, standard simulated stress tests of the Valley Health hardware confirmed that the configuration was up to every challenge, and the core case testing produced particularly amazing results. In addition to Valley's goal to have the fastest MEDITECH system possible for their users, they also needed to avoid data center expansion, and were able to do so with higher density flash storage.

"We're also talking about a dramatic decrease in rack space utilization. We were and are landlocked in our three main data centers. There is no more room in the existing footprint. Expanding our data centers is a massive, massive expense, so our ability to deliver the fastest available performance in a smaller footprint was really important," Carey said.

"We have made a significant investment in Violin Systems' All Flash Arrays and their new 7300 Flash Storage Platform based on our initial experience with them during our MEDITECH deployment. With fast, reliable product and great customer care Violin has helped us move in the direction of our HCIS goals – the fastest possible MEDITECH environment, Mobile and VDI implementations, and a robust hybrid cloud with significant DR/BC capabilities," Carey said. "We are well positioned for the future."

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