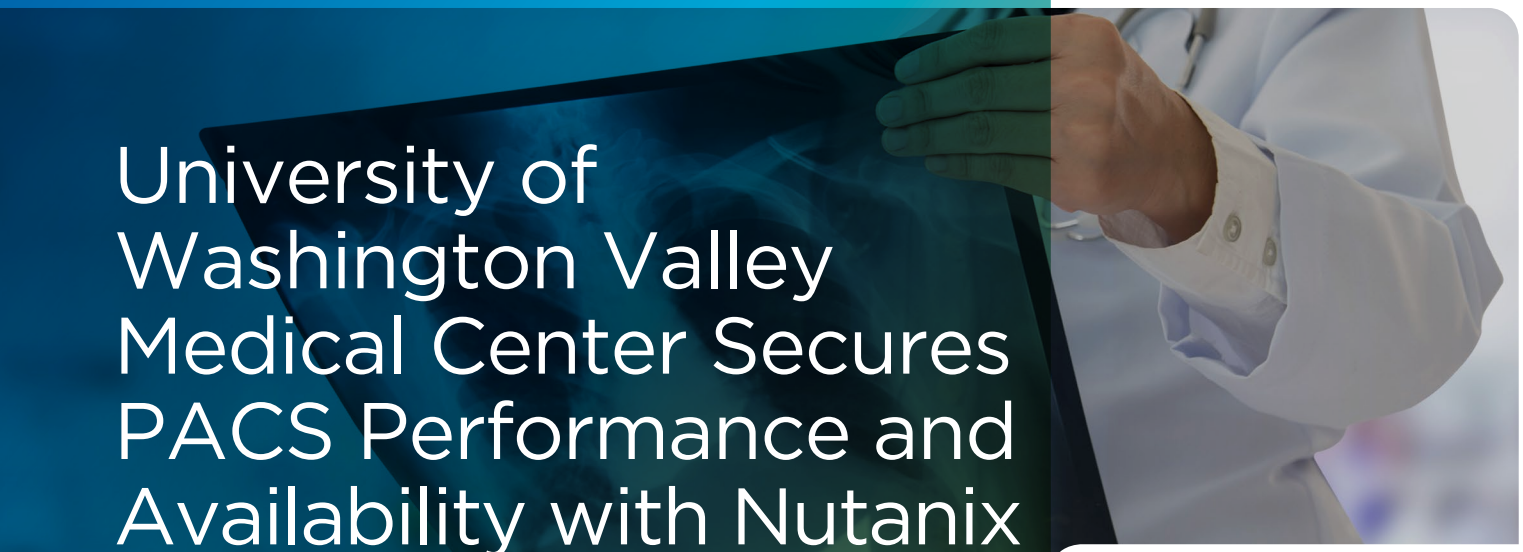
CASE STUDY

UW Medicine
UW SCHOOL OF MEDICINE

University of Washington Valley Medical Center Secures PACS Performance and Availability with Nutanix



COMPANY

University of Washington Valley Medical Center (UW|VMC) is an acute care community hospital and clinic network that serves more than 600,000 Southeast King county residents.

Founded in 1947, UW|VMC is recognized as a regional leader in several specialties, including cancer treatment, heart and vascular services, joint replacement and orthopedics, and many more.

CHALLENGE

UW|VMC was upgrading its legacy PACS solution and needed highly performant and reliable infrastructure to support it.

The department of Radiology covers imaging (such as X-rays and CT scans) for all departments at the medical center, effectively offering on-demand radiology with a high number of walk-in clients.

"We were especially struggling with complex storage management operations. We had more image-intensive studies, larger image sizes, and new modalities that lead to a growing data footprint and increasing data management challenges – from adding capacity and scaling performance."

- Jim Levy, Manager, IT Infrastructure Services, UW Medicine | Valley Medical Center

Backup and recovery was complex, requiring many manual steps. Moreover, given the size of PACS data, backup was very slow.

INDUSTRY

Healthcare

BUSINESS NEED

- Highly performant and available platform for clinical imaging and PACS
- Scalable and easy to manage files
- Workload consolidation
- Reliable business continuity and disaster recovery

SOLUTIONS

- Nutanix AOS, Ultimate
- Nutanix Prism Central
- Nutanix Files

BENEFITS

- Smooth and simple operations with reliable support services
- Flexible and scalable file services
- Easy, non-disruptive node addition and upgrades, ensuring performance and availability of patient services
- Faster and streamlined troubleshooting, accelerating mean time to resolution when issues occur

NUTANIX

SOLUTION

UW|VMC started with Nutanix by piloting a smaller clinical application. Pleased with the performance and ease of management, UW|VMC has begun consolidating several clinical apps on Nutanix HCI, including PACS.

UW|VMC has separate clusters for PACS--one cluster for the user-facing tier, leveraging all SSD storage, and one cluster for long-term storage and archive on hybrid storage for balanced performance and capacity.

The front-end tier is the performance tier, ensuring that patients get their studies as quickly as possible. The archive tier houses prior studies that have a lower probability of immediate clinical use but must be retained for other reasons such as compliance, and for comparative purposes. These studies can still be accessed when needed while being stored on more cost effective tiers of storage.

CUSTOMER OUTCOMES

Management Simplicity

Prism Central provides a single pane of glass for managing these and other workloads, with clear visibility into all hardware, virtual workloads, and storage. Nutanix accelerates daily IT processes by automating repetitive and error-prone manual processes. Moreover, with integrated self-healing and self-tuning, Nutanix Files ensures maximum availability of PACS data.

Consolidating disparate components onto a single Nutanix platform has enabled UW|VMC to significantly reduce its infrastructure footprint and operational complexity costs. A single administrator now manages the entire environment, including virtualization and storage. The department enjoys much greater agility because the administrator can make changes in production as needed.

Scalable Capacity and Performance

UW|VMC has been pleased by how much easier it is to scale capacity and performance on Nutanix. After launching a cluster expansion via a one-click operation in Prism, AOS automatically rebalances data across nodes. This protects data from single points of failure and ensures optimal performance of data access by balancing the load across the cluster. Nutanix helps take the guess work out of capacity planning with simple linear expansion by adding one node at a time.

The elegant, software-defined architecture of Nutanix allows healthcare organizations like UW|VMC to deploy a single platform to support a wide variety of complex workloads, such as the mission-critical PACS application. With PACS, Nutanix supports database services, analytics, image cache, and image archive repositories.

The platform's ability to easily scale up and out has allowed UW Valley Medical to meet the growing performance and storage needs for the application workloads, which in turn enables the department to support the growing volume of imaging and focus more on patient outcomes.

"We've really appreciated how easy it is to expand the infrastructure. As our workload has steadily increased, it's been so simple to get a node shipped and then add resources to the clusters – all without any downtime."
- Jim Levy, Manager, IT Infrastructure Services, UW Medicine | Valley Medical Center

Simple and scalable file services

As demand for the PACS workload changes, Nutanix Files adjusts to meet the evolving needs. Files monitors the storage environment for bottlenecks and performance limitations. After identifying risks, Files offers remediation recommendations to address the risk before it becomes a problem. The actions might be as simple as rebooting a virtual controller, or something more advanced, such as adding virtual memory to existing controllers to address increased demand, or adding virtual controllers to address increasing numbers

of connections. Administrators need only click the accept button to initiate the recommended action. The built-in ability to continuously self-organize and self-manage simplifies maintenance activities, freeing administrators for other tasks, while providing elastic performance to the storage system.

Resiliency, Data Availability, and Security

Nutanix offers built-in data protection and security, providing UW|VMC a more resilient infrastructure.

Nutanix Files provides NFS and SMB file storage support for active PACS workloads. With integrated self-healing and self-tuning, Nutanix Files ensures maximum availability of PACS data. Files automatically replicates data following host or drive failures. Thanks to cluster controllers on each node, Nutanix Files avoids the hot spots that occur on systems that use disk pairs or traditional RAID. Moreover, integrated file data analytics helps administrators monitor and audit data usage for anomalies and threats.

Nutanix also includes integrated snapshot and cloning capability for space efficient point-in-time copies of PACS data. Snapshots enable asynchronous data replication to other Nutanix clusters on the same or remote sites, guarding against complete cluster loss or site-wide disaster.

First Class Support for the Entire Infrastructure

UW|VMC IT systems bring together numerous applications and workloads to provide patient care. Nutanix support teams have partnered with the UW|VMC IT team to ensure best-in-class service for the workloads and users.

"Through thick and thin, Nutanix has been what I like to call 'the better vendor' in partnering with us around solving problems. When there's a problem with workloads on the Nutanix stack, whether it's [Nutanix's] problem or not, [Nutanix] helps us figure out where the problem lies and are all-in on supporting us to issue resolution."

- Jim Levy, Manager, IT Infrastructure Services, UW Medicine | Valley Medical Center

NEXT STEPS

With Nutanix in place as a foundation for its key healthcare delivery systems, the UW team is now planning ahead and exploring other vital workloads, such as EPIC and more.

UW|VMC is also considering implementing erasure coding (EC-X), which is expected to improve storage efficiency 1.5X through reduced storage overhead.

In an effort to improve critical system up-time, UW|VMC plans deployment of Nearsync for very low RPO and RTO.

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