



Modern medical imaging solutions: integrating PACS and VNA while preparing for the future

Today, medical image management systems are widely used in healthcare for the diagnosis and treatment of a range of medical conditions and across key departmental applications including radiology and cardiology PACS, dermatology, endoscopy, surgery and gastroenterology. Recent advances in whole slide imaging (WSI) also generate a significant volume of large digital pathology images, further taxing existing infrastructure.

The increasing prevalence of chronic diseases that require diagnostic imaging combined with technological advancements in image-based intervention and treatment means many healthcare organizations are managing multiple PACS and image repository systems. This creates ongoing islands of data that lack interoperability and burden systems and staff to keep up.

To date, 32% of healthcare providers have moved to enterprise-wide PACS solutions to connect their imaging databases.¹ Although health IT departments may take this additional step to break down barriers between departmental data sets, enterprise PACS solutions still have inherent limitations. To improve patient care delivery, the goal for all healthcare organizations is to move beyond combined departmental PACS databases to unified imaging solutions that are truly vendor neutral, allowing for the incorporation of non-DICOM and other imaging file formats.

In this evolving imaging environment, healthcare providers are looking for methodologies to manage medical imaging data more effectively and cohesively. Dell Technologies teams across the ecosystem of PACS and VNA partners to collaborate with our customers on the development of customized strategies that define the right storage in the right place supporting the right clinical workload at the right cost.

Drive incremental clinical benefits with a cost-effective framework

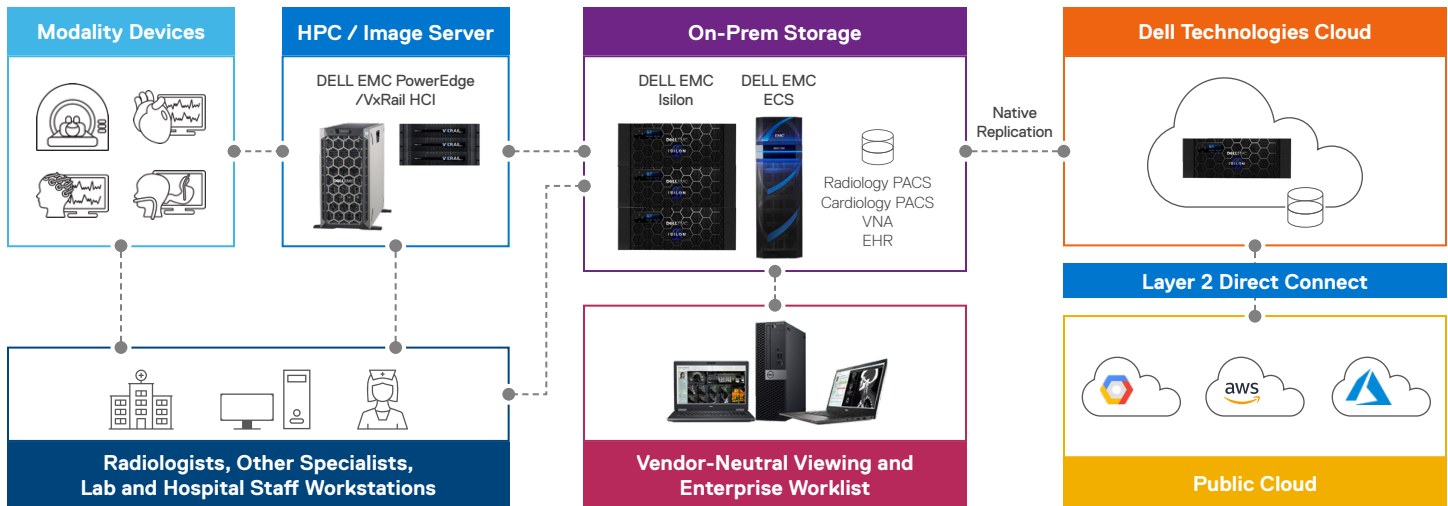
As healthcare organizations move toward the adoption of next-generation medical imaging solutions, they continue to face resource constraints. At the same time, they need to tackle other administrative challenges including incomplete data management strategies, lack of integration and standardization, regulatory and compliance requirements,² and the potential for liability exposure. To help address these challenges, Dell Technologies can work with your organization on a framework for success:

- **Consolidate current imaging data repositories.** After healthcare providers expand their current departmental PACS by adding capabilities for other clinical areas (e.g. cardiology), the next step is migrating to a centralized imaging data repository—including diagnostic workflow offerings and fast viewing for non-DICOM images.
- **Implement near-term optimization of existing VNA solutions.** Healthcare organizations with enterprise PACS and/or VNA solutions may under utilize the capabilities of their installed systems. Our subject-matter experts can help analyze current applications and suggest ways to unlock additional modules to streamline medical imaging storage. Reviewing current solutions can also uncover more cost-effective imaging-as-a-service options.
- **Identify opportunities for balancing imaging strategies.** One of the biggest challenges of updating a healthcare organization's imaging strategy is balancing the clinical workflow and the low latency-dependent requirements with the resources needed to deliver a unified medical imaging solution. Healthcare providers are tasked with retaining the images per their regulated retention requirements while IT departments need to manage the growing imaging storage cost to serve. Dell Technologies is uniquely positioned to work directly with the partner and customer to offer solutions that help achieve this equilibrium.

1. Global medical image management market research report—Forecast to 2025

2. Each country (and, in some cases, states and provinces) has its own regulatory and privacy requirements.

Figure 1. Dell Technologies unified medical imaging solution



- **Prepare for the application of AI/ML to imaging data sets now and in the future.** AI/ML is already playing an increasingly important role in augmenting clinician decision-making and improving diagnostic accuracy. Healthcare organizations should identify historical data sets that can be utilized to generate and train the necessary algorithms and then build the ML capabilities to perform the analysis.

A centralized imaging data repository for a wide range of imaging data sources enables caregivers to deliver improved patient care through real-time documentation, integrated reporting, improved and faster collaboration, and the potential for clinicians and patients to have direct access to their medical images “on the go.” Dell Technologies works directly with healthcare providers and imaging application partners to help achieve the equilibrium between cost and retention while delivering a modern IT infrastructure ready for future AI applications.

Streamline medical imaging with end-to-end solutions

Dell Technologies offers a portfolio of solutions that span the entire medical imaging IT environment from high-resolution displays to servers, networking, storage, and multi-cloud and big data analytics platforms. Through benchmarking and certifications, combined with extensive experience implementing PACS and VNA solutions with our partners, our solutions include:

- **Flexible, scalable storage for big data:** Dell EMC Isilon—the industry’s #1 family of scale-out network-attached storage systems—and Dell EMC ECS Object Storage provide the high performance and scalability options needed to grow dynamically as your imaging requirements change. A full range of options are available to work with your multi-cloud environment or on premises—from all-flash devices for extreme performance to lower-cost archival solutions as well as object-storage platforms able to manage unstructured data at exabyte scales.
- **Multi-cloud tailored to your needs:** The Dell Technologies Cloud powered by VMware reduces multi-cloud chaos with a

consistent hybrid cloud approach. Choose from traditional self-managed infrastructure to fully managed datacenter-as-a-service options for the private portion of your cloud solution. Scale up and down based on your changing needs and pay on your terms. Get the best of both worlds: all the control of private cloud with the benefits of public cloud consumption, such as elastic capacity and metered usage with Dell Financial Services.³

- **Advanced analytics for meaningful insights:** The Dell EMC Elastic Data Platform is designed for exploratory analytics and flexible workloads, such as AI and machine learning. It combines industry-leading Dell EMC infrastructure, Consulting services and partner offerings for an integrated solution to help you unlock the value that exists within your imaging and other medical data.
- **Data protection and management to protect your mission-critical healthcare data:** Dell Technologies is a market leader in purpose-built backup solutions. Our user-friendly data protection and management portfolio simplifies data management, backup, and archiving and ensures 24/7 availability of patient records and images. Our solutions are designed to reduce backup times and accelerate data restores, leading to operating cost savings.
- **High-definition displays for enhanced viewing:** View medical images in extraordinary detail using a display from Barco Medical Imaging Solutions. Dell Large Format Monitors also provide capabilities for onsite collaboration or teaching purposes.

Advance your medical imaging strategies with Dell Technologies

Modern IT infrastructure from Dell Technologies helps facilitate next-generation medical imaging strategies by providing critical solutions and partnerships that help healthcare organizations balance clinical requirements with the resources needed to deliver a unified medical imaging solution (Figure 1). By shifting from disconnected departmental PACS and VNA instances to interoperable medical imaging solutions, organizations can enable clinicians, researchers, and healthcare systems to ingest and analyze data in real time; retain images based on regulatory and compliance requirements; limit their potential liability exposure; and seamlessly share data with collaborators, patients, payers, and other healthcare-life science organizations to improve outcomes.



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