

## SILOS ARE GREAT FOR STORING GRAIN BUT NOT HEALTHCARE DATA

VENDOR NEUTRAL ARCHIVES (VNA)  
WILL BE REQUIRED IN THE NEW  
HEALTHCARE IT ENVIRONMENT

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**For many years, most healthcare information Technology (IT) vendors created proprietary software solutions. This approach worked well in the past because it “locked” healthcare providers into a particular vendor’s solution; therefore, providers had to buy all of their software upgrades from this vendor to remain current in their processing needs. Everything worked well within that provider’s “silo of information.” There was no need to communicate with other hospitals or health systems outside of their IT silo domain.**

**Time has marched on and brought with it a healthcare IT environment that can no longer support the proprietary software model of operating within silos of information.**

**The day of information siloes is dead - sharing medical data and images is now a critical part of an organization’s strategy to respond to healthcare reform.**

### **Explosive Growth of Medical Imaging**

Changes in medical care models such as Accountable Care Organizations (ACOs), the continued merger of healthcare systems, the creation of health information exchanges (HIEs) and the proliferation of vendor product acquisitions are all re-shaping the U.S. healthcare delivery model.

It is imperative that the industry move towards interoperability where providers can share data across organizational borders with affiliated and nonaffiliated practitioners, groups, hospitals, and health systems. The day of information silos is dead!

The need to share medical data and images is a critical part of an organization’s strategy to respond to healthcare reform by providing greater efficiency, reducing operational costs, and improving reimbursements.

As healthcare organizations merge, their providers need to be able to quickly share data and work together across all locations and departmental boundaries. In addition, the federal government will continue to provide incentives for the establishment of Health Information Exchanges (HIEs) and work towards meaningful use requirements.

The bottom line is that healthcare organizations will benefit from efficient access to information that improves patient care.

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## Challenges

Current standard imaging systems fail to meet the needs of true interoperability and ultimately prevent clinical collaboration. The architectural design of departmental PACS systems intended to provide local diagnostic care within clinical departments has created enterprise access limitations. Proprietary PACS upgrades and migrations every few years also cause anxiety for hospital leaders concerned with operational efficiency and cost management.

ACOs and HIE implementations are progressing more rapidly than the innovations of PACS or imaging system vendors. PACS systems were not intended to ingest and more importantly disseminate data for analytics and clinical decision support. Data for procedures, workflows, results, and outcomes are more effectively managed in central repositories. Unless archives are removed from silo their environments, organizations may only capture a limited sub-set of information, thereby generating flawed results.

## The Components of PACs and the relationship with VNAs

Developing an organization vendor neutral archive (VNA) strategy has been muddled by the continuous advances in emerging technology. Also confusing is the number of various VNA definitions and the vendor hype by their providers. One size VNA does not fit all needs. So what is right for your organization?

The PACS system should be viewed as three functional components: the PACS data base, archive, and image viewers. Consider each component separately and how to best address your organizational needs by evaluating these three components, separately.

## The PACS Database

The primary function of PACS is the management of the database and modality work lists. If the imaging department personnel express frustration with the PACS, do not rush to a PACS replacement decision. User frustrations are typically not related to the database issues. More likely concerns are related to speed/performance, enterprise accessibility, workstation viewer consolidation for the radiologist, and simplified single viewing application for referring clinicians. User concerns can be addressed as the organization transitions to greater flexibility that responds to changing business objectives.

## The Vendor Neutral Archive, Vendor Enterprise Archive, Enterprise Clinical Content Manager

There is no agreed upon definition of a VNA, so proceed with eyes and ears wide open. A PACS vendor who is also your VNA vendor may defeat the goal of organizational controls. There is also no way to determine how tightly linked the PACS is with the vendors own archive solution. It will also be difficult to determine how well the PACS VNA will perform with disparate PACS and universal viewers.

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A “true” VNA will allow an easy transition to connect multiple PACS from various departments that produce DICOM images as well as waveforms, JPEG and MPEG formats from departments such as endoscopy, wound care, sleep studies and pathology.

The solution you choose should provide access and dataflow interoperability that supports your organization’s goals. The solution that helps your enterprise meet the demands of interoperability will likely utilize multiple vendors. Their solutions will differ from the first generation of proprietary PACS that brought turnkey systems which provided everything from acquisition to archive.

As you craft a solution, it is important to align your facility with a VNA vendor that can manage your internal requirements (functional, technical, and operational) while also positioning your organization for simplified integration into any future private or public exchange models.

## **Viewers**

Most notably, the introduction of somewhat proprietary metadata into the DICOM header can limit interoperability with other PACS. The thin-client, DICOM-dependent clinical viewer featured by most PACS is no longer suited to the role of the enterprise universal viewer. Furthermore, the strategy of interfacing multiple clinical PACS viewers to the Electronic Medical Record (EMR) system’s physician portal is misguided and unlikely to encourage the meaningful use requirement. Referring physician adoption is limited when access requires proficiency with multiple viewing applications. Departments such as cardiology and radiology can maintain ownership of their department specific viewers based on department preference. The IT department should manage the VNA and storage, and should consider the best oversight and ownership of the universal viewers used by referring physicians.

## **VNA Value**

A VNA provides cost savings because storage consolidation will reduce hardware and support costs. Once the data has been migrated from the PACS archives, the older hardware can be decommissioned. Reduced data center costs include environmental, power, floor space, and network infrastructure associated with each PACS server and storage. The VNA purge application will continuously reduce the volume of data. The reclaimed storage can be used for new study information; therefore, the purging application effectively reduces the overall amount of storage that has to be associated with the VNA. PACS that do not purge data ultimately exceed retention requirements and create liability concerns, as well as consuming as much as 20 percent more storage than is necessary.

Implementing a VNA will avoid the cost of future migrations related to PACS replacements. These future PACS costs are inevitable and real in view of the prior, antiquated proprietary model. The costs of developing and maintaining multiple interfaces between the individual PACS viewers and the EMR physician portal are significant, and they can be replaced in the VNA model by a single interface between the portal and a universal viewer application. If the facility has a VNA in place, the cost of any future PACS, especially a replacement PACS, will be considerably less when the cost of data management and enterprise distribution and display are removed. Stated in another way, the organization’s negotiating power with the next PACS vendor is substantially enhanced when all of the enterprise data is already in a neutral archive and data management and enterprise display are taken off the table. The value per study of that next PACS should be at least half the price per study of a complete PACS.

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## Conclusion

The bottom line is that right VNA solution will provide your organization with many advantages, including reduced data silos, increased economies of scale and reduced interface costs with less complexity. Other significant VNA benefits include: life cycle management policies that reduce required storage and potential retention liabilities, enable the use of the best viewer solutions for various specialties and viewing needs, provide easier access to data that improves patient care and enhances the EHR for meaningful use reporting, and most importantly -- creates an infrastructure that supports data mining for analytics, decision support, and clinical research.

During the early days of PACS adoption, the value considerations were improved efficiency, patient care, and workflow. All vendors attempted to demonstrate significant financial return on investment; however, the central decision to deploy PACS was a bricks and mortar reality of doing business. Years later, the VNA discussion is similar. As with PACS, VNAs will improve efficiency, patient care, and workflow. This bricks and mortar decision will enable continued transformation of healthcare and the creation of a true patient-centric health record.

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