

Shift to Neutral

A PACS-neutral archive may be a boon to your facility

By Michael J. Gray



Whether you're a large independent delivery network, a multifacility health system or a community hospital with several imaging departments, your future includes a PACS-neutral enterprise archive. The need is undeniable, as the concept solves problems confronting health systems of all sizes and constitution. The only question is: When do you implement it?

Because purchasing and managing multiple silos of data—one for each department PACS—is expensive, a consolidated storage solution makes economic and operational sense. While many radiology PACS vendors continue to develop software versions that will interoperate smoothly with foreign archives, some facilities have already implemented solutions.

The case for PNA

Migrating study data from PACS to PACS is time-consuming and expensive. The average migration cost is \$12,500 per terabyte (TB), with an average throughput of 100 GB per day. One DICOM migration of your data is bad enough. With data volumes increasing every year, the next migrations will be much more painful. A consolidated storage solution that is capable of dynamically modifying the study data to make it compatible with disparate PACS would not only enable each PACS in an enterprise to access and display study data from another PACS, but it also would eliminate future data migrations when replacing an incumbent PACS. This ability to neutralize the peculiarities or proprietary nature of a department PACS lends the descriptor "PACS-neutral" to the term "enterprise archive."

The PACS-neutral archive (PNA) enables the acquisition and management of non-DICOM data objects that also should be managed in the same patient folder; however, this particular requirement may not be immediately necessary for most organizations. While most PNA offerings provide one or more methodologies for accommodating non-DICOM data, many of those solutions add complexity that will likely be more affordable next year. While you shouldn't overlook this issue, you can hopefully postpone it.

This consolidated archive of a patient's medical imaging information could become medical imaging's holy grail—a single data source accessible through a physician portal. Instead of using multiple PACS viewers in separate sessions to view all of the patient's related imaging results, the physician would access one application to view all of the images in a consolidated session. The PNA should accommodate the option of a UniViewer display application.

Roadblocks

A PACS-neutral enterprise archive with its associated UniViewer makes sense. Usually, its positive return on investment (ROI) can be demonstrated with a simple cost-benefit model, where the largest benefit is the avoidance of future data migrations. Why, then, do so few facilities deploy these systems?

The answer is hardly surprising in this financial climate. Whatever monies may have existed in the 2009 budget for a PNA have evaporated. While facilities would benefit from making this strategic move now since they'll have even more data to migrate in a year's time, many of them delay these projects due to insufficient funds.

Despite the encouraging ROI for a PACS, many facilities were slow to adopt it when it debuted in the early 1980s because of its significant capital requirement. Teaching hospitals deployed the first full-scale PACS, but most health systems required a step-by-step approach. The teleradiology system and the mini-PACS actually stimulated that emerging market. These bite-sized digital imaging projects solved relatively simple problems with solutions that could be cobbled together and expanded to create the more encompassing PACS. Most experts expect the technology adoption curve that defined the PACS market to similarly define the PNA market.¹

Today's emerging PACS-neutral archive market requires the analog to yesterday's teleradiology and mini-PACS-smaller archiving projects that will serve as a primer to the more encompassing PACS-neutral enterprise archive

The solution

That primer is right in front of us in the 2009 budget: the storage expansion to the existing PACS. And what three-year-old PACS doesn't need a storage upgrade or expansion?

Whether that money is budgeted for expansion of the online cache or a data migration from a creaky tape library to a spinning disk replacement, you possess the funds to add or upgrade PACS storage because you foresaw that need and budgeted for 2009. You must spend that money if you're running out of storage space, and a PNA would represent the best strategic investment. Instead of adding more storage to an existing PACS and continuing to manage data in the PACS data format, build a small PNA configuration using the same storage volume you planned to add to the PACS. Migrate the oldest data from the PACS' short-term cache to this PNA, freeing up space for new study data on the existing PACS cache. If you'd planned to replace a tape library, migrate the data to the PNA instead of adding a new spinning disk solution to the PACS. The key is to begin migrating data that's in the PACS format to the neutral format of the PNA. Every TB migrated in this process will never need to be migrated again, and those future costs you'll avoid will balance PNA's incremental cost over the cost of the same storage volume you planned to add to the PACS.

This strategy isn't as simple as spending the storage expansion dollars on the PNA instead of on the PACS storage upgrade. An incremental cost will be associated with the PNA, but you can mitigate those costs. Move the oldest data during the first year, because it's less likely to qualify as a relevant prior, so the server platform for the PNA software could be less robust than if the PNA were involved in everyday data transfers. As for the PNA software license, you should be able to negotiate a lower fee per study for the first year by limiting the PNA's functionality to simply being the long-term PACS archive. Don't require the PNA to dynamically exchange data with other PACS in the enterprise, acquire and manage non-DICOM data objects, act as a pseudo master patient index or support the UniViewer display application. You also should be able to negotiate a pay-as-you-go data migration fee. At an optimal 100 GB/day, that incremental cost should be affordable.

In short, your facility should be able to use monies budgeted for a PACS storage upgrade/expansion as a down payment on a PACS-neutral archive by limiting PNA's functionality in the first year and deferring any incremental costs above this budget to the next budget period. The PNA vendor should find this strategy agreeable. After all, only a few full-scale PNA solutions will be deployed in 2009, and codeveloping a primer in this new market is in the vendor's best interest.

Reference

1. Moore, G. A. (1991). *Crossing the chasm*. New York: Harper Business.

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