Vendor Neutral PACS – serving up images and reports of patients -anywhere, anytime, to any authorized user, across enterprises

What is meant by a "Vendor Neutral PACS"? What are its distinguishing characteristics?

Radiology has been in the forefront of medicine in setting and using standards for integration. This was done out of necessity. Our industry had to make image producing machines (modalities) from a variety of vendors talk to computers. At first, this was done via a DICOM standard that defined custom built cables and signaling. Later these cables were replaced with networks and TCP/IP with the DICOM layer on top of that. DICOM defined how any vendor could store images to computers and how other vendors could request a list of the stored data and then select specific items to be delivered to them – or sent somewhere else. And, then they could view it. Radiology did such a good job that other ologies, such as cardiology, started implementing DICOM. Soon, the DICOM servers could support multiple departments in the hospital. This was one definition of an Enterprise PACS. The other definition of the Enterprise PACS was to support multiple facilities within an enterprise. This could include managing duplicate accession #, multiple referring physician IDs, patient IDs, etc. So, our industry has been supporting mixed vendor environments and distributed architectures for a long time , becoming more sophisticated over time. Since the PACS included such great tools for storing/archiving, indexing and sharing information, it was also the logical place to start attaching other pieces of information associated with a study. This could include scanned documents that were placed right in a DICOM study and other image types, such as pdfs that were just made available within the PACS's user interface along with computer industry standard tools (such as an adobe reader) for viewing them. So, what is it with this new "Vendor Neutral PACS" buzz phrase?

A Vendor Neutral PACS inherits the capabilities of both definitions of the Enterprise PACS; it manages data types other than DICOM images; and better defines additional capabilities. It must :

- Support multiple facilities both within an enterprise and cross enterprises in support of Regional Health Information Organizations (RHIOs),Health Information Exchanges (HIEs) and other community initiatives.
- Maintain the security of each organization and assist in implementing the policies, such as how a user is granted viewing privileges to a patient;
- Store other image types and reports, in addition to DICOM;
- Support multiple, bi-directional HL-7 interfaces to store reports and keep all the patient information up to date;
- Store duplicate identifiers that would normally be considered unique within a single system: patient IDs, accession #, physician IDs, potentially user IDs, AE Titles, etc.;
- Serve up the images to an EMR via simple interfaces (such as a URL);

- Layered on top of this is an IHE compliant MPI OR NHIN (National Health Information Network) Patient Discovery tool to access a patient's information across different systems, even when the patient ID is different; and ,
- Provide patient centric tools for working with HIEs (Health Information Exchanges), such as those defined by the NHIN (National Health Information Network) and IHE profiles.
- Support the storage on a wide variety of DICOM objects;
- Respond to DICOM queries for access to the data it stores;

An additional tool is a browser-based image viewer that can be made readily available to referring physicians. Some institutions use multiple PACS. A Vendor Neutral PACS can be used to store all the images from the different PACS and provide the end user a single user ID, password and just one viewer for them to learn to access all of the patient's studies and other pertinent information. Providing this single point of access can reduce interface requirements.

In meetings, we often hear customers talk about not wanting to be held hostage by their PACS vendor. Installing a Central PACS from another vendor may assist in this. And, it may be purchased using a different model, so, for example, it is purchased on a price per study where the cost of storage can be expensed the same month it is billed (the accountants like this) and the healthcare entity doesn't need to manage the on-going costs of support. However, all storage systems require the database built by the storage vendor to retrieve the data in any reasonable timeframe. In PACS, the key to the data is the database queried by the DICOM server.

In short, the Vendor Neutral PACS is not radical. It is part of the evolution of the PACS as the technology progresses from Enterprise to Cross Enterprise , supporting the management of images across RHIOs and HIEs with the adopt the IHE profiles and NHIN methodologies to enable this.

Both of BRIT's archiving products support this concept: Roentgen Files via tools added to the legacy product, such as prepending of IDs; and Roentgen Works, whose architecture was built from inception with support for multiple, disconnected facilities.