

# IntelliSpace PACS 4.4 and the vendor neutral archive (VNA)

## Definitions and considerations for implementation

This white paper will provide a high-level description of what is meant by a “vendor neutral archive” (VNA) and which features of the Philips IntelliSpace PACS 4.4 solution will allow it to support environments where customers are using a VNA with IntelliSpace PACS 4.4.

### What is a VNA?

There is no clear cut or widely accepted industry definition of what constitutes a VNA. This position is commonly echoed among customers, vendors, and industry consultants. As a result, vendors and customers frequently define VNA based either on what they provide or what they are seeking. In theory, a VNA is an archival system that can be used to store virtually any type of digital data irrespective of the original source of the data. The VNA will also serve that data to any requesting system (with proper authentication and authorization) without regard to the vendor of the system requesting the data. It is the independence from the vendors that provide the source data or the data request that renders it “vendor neutral.” In practice, VNA is a maturation step for those products that used to be hailed as DICOM archives.

These were archive products provided by vendors that focused on their adherence to the DICOM standard including current SOP classes and transactions as well as continued support of retired components. The most mature have moved beyond just a solid DICOM archive and now accept any digital data and, using IHE protocols, associate the data correctly with a patient.

If there is not a clear definition of VNA, why are customers seeking out and purchasing a VNA? There are several key factors that are driving customers to seek a VNA. One of the primary reasons, cited by most VNA providers, is the elimination of the departmental storage silos. In fact this could be achieved even without a VNA depending on the PACS provider. A second reason,

also cited by most VNA providers, is the elimination of the need to “migrate” studies when a customer changes their PACS provider. It should be realized that this statement involves another mind shift in the use of storage within PACS and introduces a sensibility to the implementation of standards that may not have been as dire in a customer vendor partnership where the PACS provided ubiquitous access to studies using the same viewing client(s). Also, and perhaps more importantly, elimination of the need to migrate studies if changing a PACS vendor does not mean elimination of the need to migrate studies ever again. There could be migration within your VNA to accommodate new media and further, what happens if you change your VNA vendor?

In some cases, VNAs also can use nearly any kind or type of storage media – solid state, hard disk, optical disk or tape – from nearly any storage vendor. They can be “vendor neutral” with regard to the storage vendor in addition to being vendor neutral to data sources and data users.

In the medical digital imaging field, the term VNA is often applied to archives from companies that provide an archive designed specifically to store DICOM images. They remain vendor neutral to both the sources of the images and the users of the images by using DICOM standard protocols for transfer of the data between systems. These vendors also typically store the data in the original DICOM file format without alteration, or perhaps adding a DICOMDIR to make the studies “DICOM Part 10 compliant”<sup>1</sup> within the archive. Any modality, workstation, or PACS vendor can send data to the archive using DICOM standard protocols, and any modality, workstation, or PACS vendor can retrieve the data using DICOM standard protocols.

### **What happens when a PACS works in conjunction with a VNA?**

One of the components of a PACS is the archive. The use of the VNA parallels or replaces the archiving components of the PACS, introducing a whole new system into the solution. It requires that communication previously handled within the PACS is now able to be broadcast out in an appropriate format and with the required information to assure that the new archive has the correct and same information as the PACS. It also causes the PACS to use storage in a different manner. As such, the PACS must have the flexibility required to be configured to use the storage as needed.

### **What are the changes in IntelliSpace PACS version 4.4 to support VNAs?**

IntelliSpace PACS version 4.4 includes many features designed to allow it to work more seamlessly with a VNA should the customer choose to implement a VNA as the archive of record for their DICOM studies.

Most updates will originate from the RIS. However, there are also instances where small changes will be made to a study from within the PACS. IntelliSpace PACS has the ability to send an update to the VNA when this type of workflow is warranted.

### **Support for DICOM Storage Commitment Service Class User**

In cases where a VNA is present, IntelliSpace PACS will have support for DICOM Storage Commitment Service Class User to receive acknowledgement of successful archiving at the VNA. This will allow the IntelliSpace PACS system to purge older studies from its temporary or cache storage since the VNA will be the archive of record.

### **Large cache**

IntelliSpace PACS will support a large “cache” capability for the system, permitting the user to have a large pool of disk storage that the customer can specify. Disk storage can be provided to handle months to years of storage for immediate access to studies. This will be very useful for customers accustomed to the speed from disk and at the same time allow the VNA to archive studies to any media type supported by the VNA.

### **IHE XDS-I profile support**

IntelliSpace PACS will provide support for the Document Consumer, Imaging Document Consumer, and Imaging Document Source actors of the IHE XDS-I profile. This will allow IntelliSpace PACS to use a VNA providing an IHE compliant Document Repository for long-term archiving.

### **Automatic retrieval from the VNA**

When the timeline is displayed in IntelliSpace clients, studies that no longer exist on cache will be identified on the thumbnail image with an “A” indicating the study is available from the VNA. When the user selects the study for viewing, using any of the same selection methods available for local studies, the client will automatically trigger retrieval of the study from the VNA and convert it to iSyntax for viewing. Because retrieval from the VNA will take some time, a progress bar will indicate the status of the transfer to the client. If the transfer fails for any reason, such as a temporary network outage, the retrieval will be automatically reinitiated.

### **Automatic export**

IntelliSpace PACS will provide configurable rules for automatic export of DICOM data based on DICOM metadata or workflow events. This will provide a convenient mechanism to not only automatically forward studies to a VNA, but to any DICOM destination such as a dedicated mammography CAD workstation. Rule criteria include:

- New Data – the user can configure an auto export rule, which triggers export of DICOM data as result of incoming new data to the system.
- Mark Read – the user can configure an auto export rule that triggers export of DICOM data as result of a mark read event to an existing exam.

<sup>1</sup> DICOM Part 10 actually refers to removable interchange media, such as CDs and DVDs, but is often incorrectly used with archive storage.

### Disaster Recovery as an optional component to IntelliSpace PACS

Disaster Recovery (DR) was a core component of the Philips PACS solution. With support for the VNA as the source for archiving and recovery, a separate Intellispace PACS DR feature may be considered redundant. So, with IntelliSpace PACS 4.4 used in conjunction with a VNA, DR using the Philips data centers is now an option. Users should make an informed decision as to their desired features and performance. The Philips implementation team will turn DR to the Philips data center on or off per system configuration purchased.

### Philips IntelliSpace use of the VNA for a Disaster Recovery source

There will be tools for administrators to identify studies that have been lost from cache but are on the VNA and to recover them to the cache.

### Conclusion

As the use of VNAs begins to grow, vendors and customers must remain aware of how their usage impacts system operation, maintenance, and support. IntelliSpace PACS will continue to offer customers both a standard IntelliSpace configuration and one that provides the same level of clinical efficiency and ease of use when a VNA is used as the archive of choice.

Please visit [www.philips.com/IntelliSpacePACS](http://www.philips.com/IntelliSpacePACS)



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