



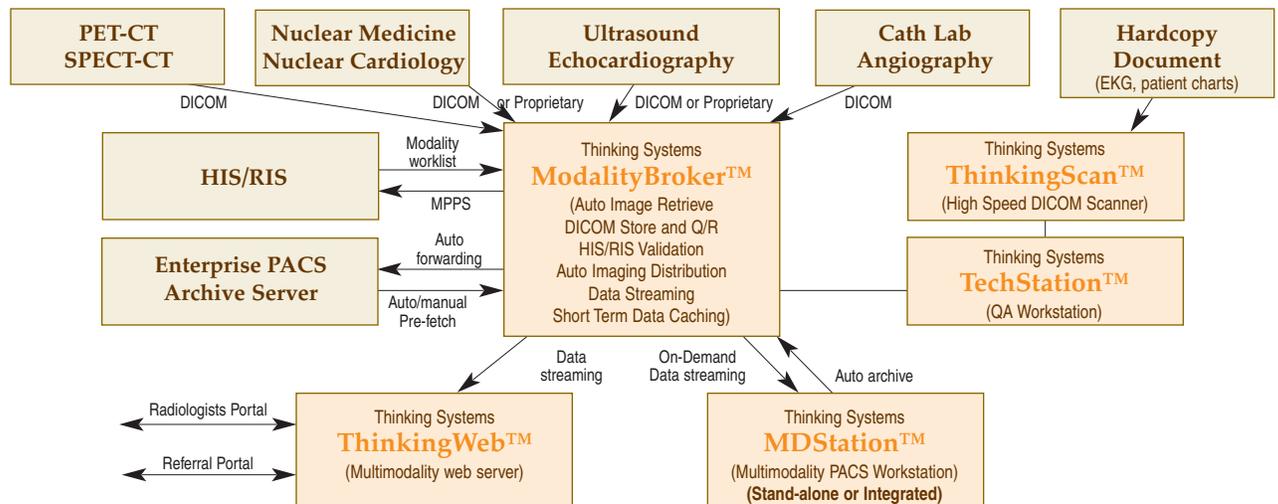
Integrating Specialty Modalities to Third Party PACS

For most PACS implementations, traditional CT, MR, CR and DR are of primary concern. Not much attention has been paid to the other modalities. However, as hospitals and imaging centers move towards fully digital and filmless environments, it is becoming a necessity to include the more complex imaging modalities, such as PET-CT, SPECT-CT, nuclear cardiology, nuclear medicine, cardiac CTA, echocardiogram, general ultrasound, vascular ultrasound, cardiac catheterization and angiography, mammography and ECG. Subsequently, providing necessary clinical tools for these modalities is also becoming part of the requirements for PACS implementation. Some institutions deployed modality PACS (a.k.a. mini PACS) to handle these modalities with various degrees of success. However, such solutions are only available on dedicated workstations and provide no enterprise level access.

Thinking Systems Corporation not only provides comprehensive multimodality PACS-RIS solutions to institutions of all sizes, but also provides integrated solutions to third party PACS to meet the demands for these modalities.

Overall Architecture

The diagram below illustrates, in an environment where a third party PACS is already in place to handle the general radiology modalities, how Thinking Systems Corporation's ThinkingPACS™ can provide integrated solutions to meet the demands of the modalities that require not only color and motion but also special clinical tools.



ModalityBroker™

Thinking Systems' ModalityBroker™ is key to the success of such integration. The main functions of ModalityBroker include the following:

Connectivity to DICOM Devices – ModalityBroker provides customized DICOM interfaces to individual devices and provides bi-directional data verification and validation to ensure data integrity. When necessary, it provides encapsulation to data to protect them from being altered by third party PACS.



Integrating Specialty Modalities to Third Party PACS

Connectivity to Non-DICOM Devices – ModalityBroker provides bi-directional data conversion to bring proprietary data from non-DICOM devices to PACS and send data back to the devices in proprietary formats when needed.

HIS-RIS Validation – ModalityBroker validates any incoming data against modality worklists provided by HIS/RIS and makes corrections when necessary to ensure the accuracy of patient/study information. It also provides exam status updates to HIS/RIS through MPPS (Modality Performed Procedure Step).

Image Distribution – The ModalityBroker provides rule based automatic distribution of the specialty modality images to third party PACS.

Data Streaming – ModalityBroker provides on-demand image streaming to PACS workstation with Thinking Systems' MDStation software for image processing and reviewing.

Auto and Manual Pre-fetching – ModalityBroker provides auto or manual pre-fetch of relevant prior studies from third part PACS to facilitate current-prior study comparisons.

Short Term Data Caching – ModalityBroker provides short term data caching to enable instant on-demand data streaming to workstation with Thinking Systems' MDStation software.

MDStation™

MDStation is Thinking Systems' flagship multimodality PACS workstation. It is the one and only PACS workstation in the market that supports not only the essential PACS functions but also the advanced clinical tools that are specific to each modality and image type, such as PET-CT fusion, nuclear cardiology processing and quantitative analysis, general nuclear medicine review and SPECT processing, cardiac PET quantitative analysis, PET brain quantitative analysis, orthopedic templating, advanced 3D visualization, cardiac CTA analysis, and calcium scoring. The MDStation software can be either integrated into a third party PACS workstation or reside in a stand-alone Thinking Systems PACS workstation.

ThinkingWeb™

ThinkingWeb is Thinking Systems' flagship Web product that offers a radiologist portal and a referring physician portal. The radiologist portal provides full workstation functionality via the web on any Windows based computer. It provides the complete spectrum of tools for all modalities, encompassing radiology, cardiology and molecular imaging with complete features from general radiology review to PET-CT fusion and nuclear cardiology processing and quantification analysis. The referral portal offers quick, easy, and simple browser-based image viewing of all modalities on any computer platform with a web browser, such as Windows, Mac, UNIX, and PDA.

TechStation™ and ThinkingScan™

TechStation is Thinking Systems' technologist workstation that provides intuitive and easy to use user interface for managing ModalityBroker and ThinkingScan, which is Thinking Systems' high speed DICOM scanner for converting hardcopy documents into DICOM images.