Case Study

St. Joseph's Healthcare System: Successful PACS Replacement Across a Multi-hospital Healthcare System

Overview

This case study examines one healthcare system's experience transitioning from a legacy PACS to a new PACS from a different technology vendor. Historically, PACS replacement has been so problematic, costly and disruptive to radiology operations that healthcare systems have tried to avoid PACS replacement despite high levels of dissatisfaction with an existing PACS vendor. This case, however, shows how superior preparation and a results-oriented PACS vendor can minimize the downside and optimize the upside of PACS replacement.

Jim Cavanagh
VP/CIO
St. Joseph's Healthcare System

"This was the most uneventful 'go live' I have ever experienced."

St. Joseph's Regional Medical Center (SJRMC), a leading academic tertiary medical center and state designated trauma center, consists of three hospitals and two outpatient imaging centers in northern New Jersey. St. Joseph's was an early PACS adopter, implementing its first PACS in 1996 and replacing it with one of the big modality vendor's PACS in 2003. When they set out to replace their PACS again, they already had two PACS vendors under their belt and 12 years' PACS experience.

St. Joseph's had some compelling reasons for PACS replacement. The radiology department in one hospital alone was performing nearly 300,000 imaging procedures a year and the legacy system was unable to handle increasing data storage and distribution requirements. The system crashed often resulting in downtime that cost the healthcare system operationally, as well as delaying treatment and extending patient length of stay (LOS). Adding insult to injury, SJRMC was still printing and storing film for Ultrasound, Nuclear Medicine, Angiography, and Mammography. This constituted about 35% of total image volume.

Moreover, thriving in the very competitive New York metro area required SJRMC to stay on the leading edge of technology, providing a state-of- the-art imaging service to the referring community. They needed to move away from outdated, thick–client architecture and implement a true web-based system that would enable radiologists to do primary reads remotely, and allow referring physicians to access images via the Internet. SJRMC approached PACS replacement with trepidation, but knew how to leverage their experience to their advantage.

The Challenge

SJRMC issued a PACS Request for Proposal (RFP) stating that the replacement PACS vendor would be required to create one archive across the health system for consistent patient identification and improved access to images and information. This involved migrating 7 years' worth of images and associated data. They wanted to eliminate "silos" of information stored in different locations, and fully intended this to be their last "forklift upgrade." High- availability and scalability were key requirements.

Other requirements defined in the RFP include:

- Improving imaging services' productivity and workflow through filmless and paperless processes;
- Reducing operational costs and imaging service inefficiencies;
- Enabling SJRMC to incorporate future imaging service opportunities (new radiology imaging technologies, cardiology, and other 'ologies);
- Supporting radiology service 24/7 with provision for remote reading and enabling Referring Physicians to access images and reports through a common portal;
- Reducing hospital length of stay (LOS) at Wayne Hospital – by 6 hours / 0.25 days;
- Providing 99.99% PACS system availability (uptime) for components, systems (hardware) and software.

SJRMC radiologists read by subspecialty area (e.g., Diagnostic, Body CT, Brain, etc.) and the exams are read across all facilities. The radiologists wanted the new PACS to provide a centralized image-reading model that would quickly provide all exams to key reading sites such as the imaging centers. They also wanted customized reading worklists that would enable them to continue their specialty reading processes when reading from any location.

After all their due diligence, the challenge was to find a technology partner that would have an equal stake in the project, and accept penalties if performance fell below their standards.

The Solution

SJRMC chose INFINITT North America as their replacement PACS vendor, having been impressed with the radiologists' user interface, Infinitt's reputation for customer support and their sophisticated technology solution. They liked the fact that INFINITT was a nimble company, yet had solid financial backing and experience with hundreds of installations globally. They recognized INFINITT's strong commitment to R & D, evidenced by their track record for upgrading and refining their products, and developing their own interfaces, migration tools and gateways.

Within 6 months, INFINITT migrated 30 terabytes of data to an existing SAN archive and implemented the system across five locations: a freestanding data center, St. Joseph's Hospital, St. Joseph's Wayne Hospital and two imaging centers. Four separate HL7 interfaces were fully-tested before go-live. The rollout went smoothly, exceeding everyone's expectations. According to Jim Cavanagh, CIO/VP at St. Joseph' Regional Medical Center, INFINITT was the only one of six PACS vendors considered that proposed to handle data migration internally. INFINITT had experience migrating huge volumes of image data from hundreds installations globally.

"Bundled in with the new PACS system, the INFINITT migration solution was much less expensive than the third-party solution proposed by other vendors. INFINITT was also the only vendor to propose a virtual environment for failover and high availability," said Cavanagh. Shortly after the contract was signed, Infinitt migration specialists analyzed SJRMC's legacy PACS data, and developed a strategy that would enable the full database to be migrated before the new PACS went live. INFINITT used additional migration gateways to speed the migration process: 30 terabytes of data were transferred within a 6-month period. On the day the system went live, Jim Cavanagh made the remark that it had been the most uneventful go live he had ever experienced.

SUMMARY OF RESULTS

- Report turnaround, measured from exam completion to report signature, was reduced by 30% within the month after 'go live', and 42% in total, while exam volumes have increased about 8% annually.
- Remote access and roaming protocols now support sub-specialty reads, making it possible to leverage the radiology group's expertise.
- St. Joseph's has now eliminated film for interpretation in all areas except mammography. The film processor has been relocated to the Radiation Oncology department.
- A dramatic reduction in paper handling has saved more than one FTE (full time equivalent) at St. Joseph's hospital alone, allowing that labor to be shifted to technologist staffing. (Techs doing non-tech jobs also causes other inefficiencies such as poor utilization of modalities.)
- Documentation needed by the radiologists is scanned into PACS and readily accessible with exam images. This also factors into patient safety, as it's much easier to lose a paper-based note than an electronic one.
- With an ED Notes feature, communication between the ED docs and radiologists has improved greatly, and the radiologist is often able to read the study before the patient leaves the table. The ED doctor gets instantaneous feedback; if another view is needed, they can get it right then -- eliminating the need for an additional appointment.
- With all facilities operating on the same software version with the same application, there are no extra functions or steps required for updating or synchronizing other databases.