

HEALTHCARE ARCHIVING CASE STUDY

**Healthcare Provider Network
Saves \$5 Million and Acquires
In-House Archiving Skills**



→ Executive Summary

Numerous acquisitions and technology upgrades put many applications and associated data stores into a legacy state for a large, multi-state integrated healthcare provider network.

The organization turned to Flatirons Digital Innovations (FDI) to help decommission those applications deemed most critical to save costs and eliminate risks associated with running aging legacy systems, while ensuring ongoing access to complete patient data.

FDI delivered a solution consisting of application decommissioning services in parallel with formal, curriculum-based training on all aspects of data archiving and application retirement via a unique three-phased approach.

As a result, FDI moved 10 terabytes of clinical and financial data into secure, XML-based repositories accessed by intuitive user interfaces, saving the healthcare organization an estimated \$5 million over a 10-year period.

Thanks to the in-depth training and comprehensive documentation created by FDI, the healthcare network's technical staff was successful in taking the reins of archiving and decommissioning, enabling it to realize additional benefits in the areas of patient care, operational efficiency, and risk mitigation.

Mergers and acquisitions had led to a complex web of overlapping systems, creating data silos, driving up maintenance costs, and increasing risk.

BUSINESS CHALLENGES OF LEGACY APPLICATION DATA

A large, multi-state integrated healthcare provider network that includes physician practices, hospitals, outpatient centers, and more, embarked on a data archive and application decommissioning project to improve provider access to complete patient data, lower risk, and reduce costs. Its network consists of more than 1,000 physicians and nearly 30,000 employees at 600+ locations across four states. Numerous acquisitions and technology upgrades put many applications into a legacy state. While the data in these applications needed to be retained to meet legal, compliance, regulatory, and other needs, the applications' core functionality was no longer required.

For example, as a result of mergers and acquisitions, the healthcare network has more than 20 clinics over a range of locations—all with their own business-critical systems—creating a complex web of overlapping IT systems, including EHRs, patient accounting/finance, and human resources applications. This created increasing silos of data spread across a variety of redundant, aging, and outdated platforms. Keeping these legacy systems running and maintaining them in their original state was costing the healthcare network millions of dollars for unnecessary licensing, data storage, maintenance, and support.

Legacy systems put the healthcare network at risk for greater ransomware and other IT vulnerabilities.

Other challenges from legacy systems included an impact to patient care and meeting compliance requirements. With data residing on the primary EHR and one or more legacy systems, clinicians could not access all patient records in real time for a complete view of the patient. The ability of the healthcare information management (HIM) teams to respond to release of information requests, audits, and litigation events was diminished, as it took longer and was more difficult to ensure all required information was accounted for.

Multiple legacy systems also increased risk. Accurately tracking and safeguarding Protected Health Information (PHI) across legacy systems was complex, and the provider network was exposed to greater risk from ransomware and other IT vulnerabilities, including the potential for data loss if a legacy system were to fail. As unsupported legacy systems do not get regular security updates, those systems continue to become more vulnerable over time. The healthcare network needed to protect itself from both potential financial penalties as well as damage to its reputation.

THE SOLUTION: A THREE-PHASED APPROACH TO IMPROVE DATA MANAGEMENT AND ACQUIRE IN-HOUSE SKILLS

The integrated healthcare provider turned to FDI to help decommission eight applications deemed most critical to realize significant cost savings and eliminate risks associated with running aging legacy systems. Data archiving and application decommissioning ensures that data from the legacy applications is maintained in a secure location, and accessible via XML format for future viewing and reporting requirements. The organization also sought to establish in-house technical expertise to lead archiving and application decommissioning efforts in the future.

To meet these needs, FDI delivered a three-phased solution consisting of application decommissioning services in parallel with formal, curriculum-based training on all aspects of data archiving and application decommissioning. The business objectives outlined by the healthcare network for the data archiving and application decommissioning process were:

- ▶ Migrate data from eight legacy applications to an archive that allows data retrieval; secure legacy data; decommission the original applications; and reduce costs.
- ▶ Integrate the archive with the healthcare organization's primary EHR, Epic, and create a patient-centric view so all current and historical patient data is available via a single interface.
- ▶ Provide easy access to outstanding patient accounts from legacy revenue cycle systems to enable the continued collection of revenue on past due accounts.
- ▶ Provide training and documentation to enable the healthcare organization's IT staff to archive applications independently moving forward.

The healthcare network established its data archiving and application decommissioning strategy based on a three-phased approach.

Phase 1: Data Archiving and Application Decommissioning

The healthcare network initially focused on decommissioning the following eight legacy applications, including clinical and non-clinical systems:

- ▶ Meditech
- ▶ Cerner Millennium
- ▶ Cerner Pharmacy
- ▶ Cerner Radiology
- ▶ Allscripts
- ▶ Invision Clinical
- ▶ Invision (revenue cycle/financial)
- ▶ Signature

The data from these eight applications was archived and consolidated into a single repository to enable the healthcare provider to fully decommission and retire them. Consolidation of the data on the legacy systems was one of the key drivers of return on investment, as it eliminated unnecessary licensing, data storage, maintenance, and support costs. However, consolidating data from disparate systems can be incredibly challenging since data is stored in different formats in each legacy system. The end goal was to create one centralized system with consistent mechanisms for ease of access to historical data.

FDI built several utilities to speed up the data extraction and ingestion process into the secure archive, and to ensure all data was moved as expected. This included the ETL Acceleration Suite, a set of tools that streamline the extraction, transformation, and load (ETL) processes for moving data from legacy applications into the consolidated and secure archive. The ETL Acceleration Suite simplifies data extraction from a variety of relational databases (SQL Server, Oracle, and others); transforms COBOL and CSV formatted data to XML; and optimizes loading of data into the secure archive.

This helps to reduce the number of time-consuming, tedious, and error-prone manual ETL steps to ensure accuracy and integrity of legacy data, and speeds up the retirement of legacy applications, lowering application decommissioning project costs and achieving greater ROI.

FDI also provided GUI templates so that the healthcare organization's IT team could communicate to internal archive users what the archive functionality would include. This helped internal users understand how the archive would work and managed expectations on functionality of the archive.

INTEGRATION WITH EPIC

A primary requirement of the healthcare organization was that the secure archive be integrated with its production EHR system, Epic. The healthcare network required a 'patient-centric view' of the archived data.

FDI created an application with a graphical user interface (GUI) to meet this need. The application provides a single access point for the archived applications and allows the healthcare organization to identify and access data in the decommissioned applications from the legacy environment.

The archive uses a master patient index, so data in the archive matches what is in Epic. Within the archive, data is indexed and correlated from the master patient index to the patient numbers or patient identifiers in the various systems. This allows users to find data much more quickly and respond to both patient healthcare requests as well as accounting and audit requirements.

Clinicians can access any historical patient data, no matter what legacy system it came from, with a single click to the archive through Epic.

The archive also allows an Epic user to simply click on a link that takes them into the archive to access any relevant patient records, creating a one-stop solution for more complete patient data. For example, if a clinician needs to find historical radiology data, no matter what system it came from, it is all available through a single interface via Epic.

Finally, a primary benefit of moving legacy data to a consolidated archive is to facilitate revenue cycle management. The archive enables the healthcare network's revenue cycle team to easily access and act on outstanding patient accounts so they can continue revenue collection. This has positively impacted receivable assets by reducing missed payments and uncollected receivables.

Phase 2: "Teach to Fish"

After the initial eight applications were archived and decommissioned, the next phase of the project focused on knowledge transfer to train the organization's IT team to independently archive data on an ongoing basis. As part of this "teach to fish" engagement, the FDI team developed training materials, conducted formal training on all aspects of the archive solution and processes, and provided detailed documentation. FDI also conducted hands-on training throughout this phase, with the FDI and client teams performing archiving and decommissioning on the next set of legacy systems, Meditech Clinical and Meditech Patient Accounting, side by side.

Training, called “Teach to Fish,” included in-person sessions, detailed documentation, and hands-on experience decommissioning legacy applications side-by-side with FDI experts.

In addition to in-person training sessions, FDI created custom documentation that walks the trainee through each part of the archiving process and helps support continuity in the archiving process, irrespective of staffing changes over time. Sample training modules included:

- ▶ Compliance and Retention
- ▶ Data Extraction, Transformation, and Loading (ETL)
- ▶ Supplementary ETL Documentation
- ▶ Table-based Archiving
- ▶ Exports
- ▶ Install

BUSINESS RESULTS



Improved Patient Care: Providing all archived data available at the point of care, in a secure archive alongside current EHR data and accessible via a patient centric view, helps clinicians access historical patient data faster—providing a complete picture that supports prompt decision making and improved care.



Cost Savings: The data archiving and application decommissioning project is projected to save the healthcare provider \$5 million over a 10-year period by eliminating unnecessary licensing, storage, maintenance, and support costs.



Reduced Risk: FDI moved 10 terabytes of protected clinical and financial data into secure, XML-based repositories accessed by intuitive user interfaces. This greatly reduces risks related to security and data loss.



Revenue Cycle Management: Easy access to patient accounts from legacy systems facilitates revenue collection on outstanding patient accounts.



Self-Sufficient Data Archiving and Decommissioning: As a result of the in-depth training and comprehensive documentation created by FDI, the healthcare network’s technical staff was successful in taking the reins of data archiving and application decommissioning, enabling it to realize additional benefits relating to improving patient care, cost savings and risk mitigation.

Phase 3: Self-Sufficient Data Archiving and Application Decommissioning

Following training and the transfer of skills, the healthcare organization's IT team embarked on the third phase of the project, during which they began the data archiving and decommissioning process on their own, with the FDI team supervising and available to step in and assist as needed. This enabled the IT team to put the knowledge gained in phase 2 into action under a guided approach.

Now, the healthcare organization's IT team is well-equipped to decommission legacy systems and archive their data, continuing to reap the related benefits: improving patient care through quick and easy access to patient data; strengthening the HIM team's ability to perform tasks and meet compliance requirements; enabling collection on outstanding patient accounts; and eliminating IT costs and reducing data management risks.



ABOUT FLATIRONS DIGITAL INNOVATIONS

Flatirons Digital Innovations Inc., FDI (www.fdiinc.com), is an enterprise content services and data management consultant and system integrator. It specializes in technology assessments, solution blueprints, and implementation, integration and support for complex projects ranging from data archiving and application decommissioning to document capture, automated workflows, and custom solutions. FDI's clients include healthcare, financial services, energy, manufacturing, and media companies as well as state and local agencies.

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