



New Architecture, Mid-Tier Software and Development of the Microsoft SQL Server Database Led Healthcare Client to Meet Firm HIPAA Deadline

The Client

The Client is an independent, nonprofit health plan providing health coverage and services to more than 225,000 members – a large majority of which are public assistance healthcare recipients – located in Minnesota and western Wisconsin. Working in partnership with healthcare providers and community organizations, the Client serves:

- Medicare-eligible individuals
- Families and individuals enrolled in Minnesota healthcare programs such as MinnesotaCare and Medical Assistance
- Adults with disabilities

In addition to providing health plan coverage and services, the Client also offers Medicare coverage to members as a Medicare Advantage provider. This arrangement results in much better and timelier processing of claims for its Medicare members versus directly working with Medicare.

The Challenge

The Client processes the vast majority of its healthcare transactions as Electronic Data Interchange (EDI) transactions. In fact, paper claims are scanned and converted to EDI transactions. The Centers for Medicare & Medicaid Services (CMS) and the State of Minnesota set a date of January 1, 2012 as the date that the major healthcare-related EDI transactions had to support the latest HIPAA standard - 5010.

In February 2011, the Client's program manager and project manager assessed the status of the 5010 project and realized that they were not on track to meet the mandated January 2012 deadline. Although 5010 assessments had been completed, development work had not started. In order to meet the deadline, project development should have started at least at the beginning of the third quarter of 2010.

During this same time period, the Client had analyzed its current EDI claim transaction procedures and had identified several major improvements it wanted to make when adding support for 5010. Specifically, the Client wanted to split up processing of transactions, which were currently handled directly between BizTalk and Unix-based claims processing software, and instead stage them in Microsoft SQL Server, thereby moving away from both BizTalk and Unix. Adding to the challenge was the fact that making business rules changes in a timely manner in BizTalk required BizTalk developers – which were both expensive and hard to find. Likewise, applying custom business rules to pre-processing of claims required a move out of Unix and onto Windows Servers to allow the Unix system more resources to run the claims adjudication system. Finally, the Client also wanted to stage the data in Microsoft SQL Server to allow for ease in monitoring and reporting.

The Solution

Working under a tight, government-mandated deadline, Superior Consulting Services (SCS) helped the Client create a new architecture for EDI transaction handling. This included documenting new architecture objectives and creating architecture description diagrams and documents. Having accurate documents and diagrams improved the efficiency of the design and development process, and provided a process reference for use during quality assurance.



Next, SCS designed and documented the newly added mid-tier software for use between BizTalk and Unix. This mid-tier software included a Logical Data Structure diagram, a data dictionary document and several Software Design Specifications which provided SCS with a good review of the system prior to the start of development, and for increased understanding between BizTalk, Windows and Unix developers. SCS also helped develop the phased implementation plan and testing approach.

In addition, SCS developed the physical Microsoft SQL Server database, the many stored procedures and several SSIS packages, the website, as well as reporting services reports. Lastly, SCS carried out several iterations of development and integration testing, and aided the quality assurance team in their testing.

The Result

Success. SCS had the full system up and running in time to meet the mandated January 1, 2012 deadline. In fact, SCS completed the project in enough time for the Client to start processing transactions with two business partners by mid-December 2011 and cut over to all 5010 transactions on January 1, 2012. Although it looked grim in February 2011, the Client was very happy to be processing 5010 transactions at the start of 2012; and with very few reported problems after putting the system into production.

SCS also played a significant role in integrating and testing the Client's total system before turning it over to quality assurance. The system performed well and processed the Client's transaction load while providing plenty of room for future growth.

The Client's new database supports its website with reports capabilities so that support personnel have far greater visibility into EDI transaction processing. A key success factor is that the whole mid-tier software was developed as a set of SSIS packages, including a claim rules system, without having to develop any kind of special Windows services. This makes the system easy to maintain by existing Client developers and has already been extended by Client developers to handle new claim rules.

The website is written in C# .NET 4.0 and uses Entity Framework 4. Reports that appear on the website are actually processed on the report server, taking a large work load off the web server and allowing some reports to be created ahead of time and cached for later use at faster speeds.

The resulting architecture of off-loading projects from the Unix system and moving processing out of BizTalk has been replicated by the Client making additional projects more efficient and streamlined.