Children’s Hospital & Medical Center in Omaha

leverages its data across heterogeneous systems

The only health care center in Nebraska dedicated to children and specialty pediatrics selected Talend Integration Suite to normalize data among diverse databases, enhance its billing processes, and improve compliance.

The region’s premier provider of health care for children

Children’s Hospital & Medical Center of Omaha—a 144-bed non-profit organization, and the only full-service pediatric specialty health care center in Nebraska—has cared for children since 1948. In addition to pediatric primary care, patients are referred from throughout the region for the treatment of complex or unusual diseases. No child in need of medical care is ever turned away because of an inability to pay.

The hospital is also the primary teaching site for the family practice and joint pediatric residency programs at Creighton University and the University of Nebraska Medical Center.

The integration of Information Technology solutions has long been an organizational priority at Children’s Hospital & Medical Center, leading to recognition as a “Most Wired” hospital two consecutive years by Hospitals and Health Networks, the journal of the American Hospital Association. Children’s Hospital & Medical Center also earned recognition as a 2007 InfoWorld 100 Award recipient for demonstrating innovative use of cutting-edge technologies to enhance project goals and services.

Better data integrity, lower cost

The IT department at Children’s Hospital & Medical Center is responsible for the integrity of data extracted from multiple sources across the organization including: registration, patient billing, financials, (payroll and GL), and electronic medical record (EMR) elements including: computerized provider order entry, laboratory, and radiology data. Add to that the need to integrate several vendors and different platforms and the challenge was very real.

“We need to aggregate data across a variety of applications and platforms some of which include: SQL Server, Cache, text files, and spreadsheets in addition to specific applications such as our ambulatory EMR, inpatient EMR, and trauma databases,” explains Kevin Mackey, Manager of Data Services at Children’s Hospital & Medical Center. “Our diverse applications and databases necessitated the selection of a tool with the flexibility and robust support features to allow us to manage data across the organization more efficiently and accurately.”
Today, Talend is standard tool at Children’s Hospital & Medical Center for data integration. “We’re using Talend Integration Suite straight out-of-the-box,” says Kevin Sherlock, Data Warehouse Administrator at Children’s Hospital & Medical Center. “Having the option to modify the product code is interesting but, in reality, Talend Integration Suite has satisfied all functional requirements. We haven’t had to do any Java development as there are already so many components developed and readily available.”

“Cost was also a factor.” adds Kevin Mackey. “We’re a non-profit children’s hospital, so we didn’t have a large budget for our integration tools. The price point was a major factor in our consideration of the tool.”

**Improved scheduling and alerts**

“Our previous solution had some limitations on what we were able to do from both scheduling and data normalization perspectives,” says Kevin Mackey. “Talend was leading edge as far as development, maintenance, extracts, and tools for integrating different systems. Two years ago, we made the switch to Talend and since then have rewritten all our ETL jobs.”

Under the previous ETL solution, Children’s Hospital & Medical Center had a very difficult time keeping track of which jobs completed and which jobs failed. Today, the IT staff gets error notifications immediately and can discern exactly where processes have failed. “You can configure data integration jobs so that if there’s a problem or exception somewhere in the data processing chain, email alerts or other error conditions are created,” explains Kevin Sherlock.

**Populating diverse systems**

A major undertaking at Children’s Hospital & Medical Center is a data warehousing project that leverages Sybase IQ as its database and QlikView for structured reporting, as well as the Eclipsys Sunrise Clinical Manager, and EpicCare Ambulatory EMR. Each of these applications has tools to mine the data and do analysis on either clinical or financial performance within the organization.

“Talend is our tool for preparing all the data for those systems so that our end users—whether executives, physicians, or other clinicians on the floor—can extract the data and perform any transformation we may need on that data in preparation for reporting,” says Kevin Sherlock. “Much of this information originates from unrelated databases where the data often needs to be normalized prior to being loading into our data warehouse. Talend’s flexibility allows us to extract data from these various systems and then load it into our data warehouse for use by our business intelligence tools.”

Talend’s support for heterogeneous systems allows Children’s Hospital & Medical Center to identify uniqueness in the data between different systems and transform it into normalized data, without actually consolidating all the data in a secondary data store. Data validation occurs inside the data stream, and any suspect data is flagged and included in a report that is then processed for reconciliation. The ability to virtually consolidate heterogeneous databases and perform data quality controls and corrections across them makes the processing of data faster and smoother. An example of this would be the synchronization of data across clinical systems: “We often need to reconcile the transfer of data between the disparate clinical systems we use,” explains Kevin Mackey. “For example, our ambulatory EMR produces documents that need to be added to our legal medical record, MedPlus’ Chartmaxx. On occasion, some of those documents error out before being filed in the patient’s chart in Chartmaxx. Since this is clinical information that may impact clinician decision making it is very important to make sure the documents are filed to the appropriate patient’s record and in a timely manner to support quality patient care.”

**Reporting and reconciliation**

The hospital handles close to 300,000 outpatients and sees 7,000 to 8,000 inpatients a year. The need to understand exactly what the orders were for each patient, and what the charges were, exponentially raises the number of transactions that Children’s Hospital & Medical Center needs to process. Incremental updates every night extract the new transactions that were posted the previous day. Reconciliations include:

- **Immunization Tracking**: Pediatric immunizations rates are an important quality monitor for Children’s Hospital & Medical Center. The hospital runs compliance reports on all of their patients so that at certain intervals physicians can verify that all of the children have had all of their boosters or initial immunizations.

- **Charge Reconciliation**: It is very important that the bills produced are timely and accurate. “One of our reconciliation processes compares charges for supplies and implants used during surgery (from the surgery management applications) with the patient billing system, to make sure that these charges are properly billed,” explains Kevin Mackey. “Talend has made processing much faster and more efficient while reducing errors.”