

# Splunk® at Cerner Corporation

Improved Efficiencies With Real-Time Operational Visibility Into Complex Healthcare Transactions



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**Tom Twait**  
**EDI Services Manager**  
*Cerner Corporation*

## OVERVIEW

### INDUSTRY

- Healthcare IT

### SPLUNK USE CASES

- Business analytics
- IT operations

### BUSINESS IMPACT

- Improved efficiencies across the eligibility business process
- Rapidly detect and correct transaction errors to reduce re-submissions and denied claims
- Proactively address data submission errors to lower cost and increase clean claims rates
- Improved service delivery and accelerated reimbursement
- Widespread internal access to data-driven intelligence

### DATA SOURCES

- Application servers
- Relational databases
- WebSphere environment
- Health Network Architecture (HNA), the Millennium version

### APPLICATIONS

- Splunk Enterprise
- Splunk DB Connect
- Splunk App for WebSphere Application Server

## The Business

Based in North Kansas City, Missouri, Cerner Corporation is one of the world’s largest healthcare software IT companies. Cerner’s health information technologies connect people and systems at more than 18,000 facilities worldwide. Recognized for innovation, Cerner offers solutions and services for healthcare organizations of every size. Together with its clients, Cerner is creating a future where the healthcare system works to improve the well-being of individuals and communities. Founded in 1979, the rapidly growing company has 22,000 associates in 18 countries.

## Challenges

Cerner delivers the industry’s most comprehensive, contemporary information architecture—Health Network Architecture™ (HNA), the Millennium version. Millennium enables end-users to validate a patient’s insurance information using real-time eligibility processing. As part of the eligibility process, information for each patient is entered into Millennium, where it is then verified and forwarded to the insurance carrier. The carrier confirms the patient’s coverage and the amount of the deductible. Within moments, the healthcare provider can validate each patient’s eligibility and provide services.

The Cerner infrastructure supports over 180 million transactions annually between thousands of disparate parties and systems. An error during the eligibility process—such as an incorrectly entered name or a missing hyphen in a patient’s insurance identification number—could result in a rejected transaction, delaying healthcare delivery and impacting revenue cycle processes for Cerner’s clients. To investigate errors, Cerner’s operations team leverages the metadata for each transaction, such as when it was initiated, to whom and its outcome. This data is stored in a relational database.

With so many complex transactions across multiple systems and platforms, analyzing error rates and causes of errors was challenging. Numerous operations team members had to write SQL queries to extract relevant data and export it to Excel for manual analysis; a time-consuming, cumbersome and error-prone task. In addition, Cerner has a large WebSphere environment that was laborious to scrutinize. The company needed a versatile solution that could deliver real-time, end-to-end operational visibility into all of these critical business processes.

## Enter Splunk

Cerner already had a large Splunk deployment comprised of 600 developers who use the software to enhance application development and management. In addition to deploying Splunk Enterprise, the Cerner operations team also implemented the Splunk DB Connect application to collect metadata from a relational database and forward the data to the Splunk engine for indexing.

“Setting up Splunk software and Splunk DB Connect was simple and time to value was swift,” says Chris Hogan, the EDI services senior solution architect for Cerner. “We were able to realize the value of Splunk software within just an hour of working with it and were able to replace a different, more complex analysis tool that had been in place for over 18 months.”

## Breakthroughs

### Reducing errors to accelerate healthcare

By delivering scalable integration between Splunk Enterprise and a relational database, Splunk DB Connect empowers Cerner's operations team to monitor patient eligibility business processes in a near-real-time manner. They now have views and analytics into data transactions between providers and insurers—enabling them to optimize eligibility verifications, ultimately leading to claims being processed and paid faster. Engineers monitor the data streams via Splunk dashboards, viewing such metrics as transaction volumes at any time, partner response rates and transaction errors. They can apply filters to view data for specific clients, partners or payers.

When error rates for transactions exceed a threshold, the Splunk platform immediately issues alerts via email. Engineers can quickly query the data to identify the failed transactions, determine the cause of their failure and take remedial measures. For example, they might detect that one of Cerner's clients is improperly entering data for submission. Cerner consultants then will work with the client to correct the problem.

"Healthcare starts with patients seeking services, and thanks to the business analytics offered by Splunk software, we're processing eligibility transactions more efficiently," says Tom Twait, the EDI services manager for Cerner. "Even though Cerner handles millions of transactions with thousands of clients, we now have the Operational Intelligence to find and eliminate issues. This is critical because real-time eligibility ensures patients get timely access to healthcare services."

### Proactive efficiencies

Splunk DB Connect offers Cerner additional opportunities to unlock intelligence and value from numerous data sources. With visibility into structured EDI data, the operations team can proactively reduce error rates. They can link Splunk DB Connect to any database or data source and perform scheduled or ad hoc queries to access the most current data. "Rather than just reacting to issues, we're using Splunk software's data-driven analytics to prevent them from occurring," explains Hogan. "We're reducing real-time eligibility process error rates, which makes everyone happy, from patients to providers to insurance carriers."

Splunk users at Cerner can log in and access a configurable operational dashboard. They view and correlate any data from any client or payer. They can display data historically to detect trends and patterns, and perform their own analysis. "Splunk software is so flexible and easy to use that anyone from executives to business analysts, even non-technical users can look and learn from the data," says Twait. "With the Splunk platform, data becomes an accessible source of both operational and business intelligence."

### Enhancing WebSphere availability

Prior to the Splunk deployment, Cerner had to examine its WebSphere logs and servers manually. Hogan compares it to "looking for a needle in a haystack." To augment Splunk Enterprise, the operations team installed the Splunk App for WebSphere Application Server. The solution further leverages the Splunk platform by aggregating logs, including performance and configuration data, from the WebSphere environment for indexing. Engineers monitor the SystemOut/Error logs from the quality assurance and production environments and receive email alerts of WebSphere Message IDs when potential issues emerge.

"The flexibility of the Splunk platform allows us to apply it to multiple use cases. Our engineers can address problems before they escalate, thereby proactively preventing system outages," concludes Hogan. "They now have the operational visibility and intelligence to improve our transaction processing. Going forward, we're going to use our Splunk platform to look at more and more of our data."

### Free Download

Download [Splunk](#) for free. You'll get a Splunk Enterprise license for 60 days and you can index up to 500 megabytes of data per day. After 60 days, or anytime before then, you can convert to a perpetual free license or purchase an Enterprise license by contacting [sales@splunk.com](mailto:sales@splunk.com).