

Case Study:

For Big Data Processing and Analytics, HPCC Systems® from LexisNexis® Helps Uncover Opportunities and Pinpoint Fraud, Waste and Abuse



Industry experts estimate that improper payments in Medicaid costs taxpayers billions of dollars each year. As health care costs are expected to rise, fraud is expected to rise.

Overview

A LexisNexis customer, the Office of the Medicaid Inspector General (OMIG) of a northeast state, suspected fraud among a group of state Medicaid recipients, all of whom were living in the same high-end condominium complex—and all of whom were on Medicaid.

The Challenge

LexisNexis was charged with identifying the hidden relationships between the million-dollar condo-dwellers and their assets, providers, medical facilities or others providing care to the state's Medicaid recipients.

The Solution

To manage, sort, link, join and analyze billions of records within seconds, LexisNexis built a data intensive supercomputer called HPCC Systems®. Designed by data scientists, HPCC Systems is an open source, data intensive supercomputer that evolved for more than a decade, with enterprise customers who need to process large volumes of data in critical 24/7 environments.

LexisNexis integrated data and investigative resources from the OMIG with its high-performance computing platform-based called HPCC Systems. LexisNexis was given the list of names and addresses of the targeted group—and nothing more. The results, however, were far more expansive.

Leveraging 50 terabytes of public data, LexisNexis built a large-scale network map of the targeted Medicaid recipients and everyone associated within two degrees. Next, patented LexisNexis algorithms were used to cluster the network map and generate statistics to measure every cluster. All of this data and analytics were run on HPCC Systems. The data was analyzed to answer questions like:

- How many of them were living in expensive residences, owned expensive property or drove expensive cars?
- How many recipients were related closely with a medical business or provider?
- How many medical businesses were associated with any of the people in the cluster?
- How many of the persons represented were receiving benefits?

The Results

The resulting connections found in the data enabled LexisNexis to quickly discover the key players in the suspected ring, including major players not in the data supplied. The analyses revealed hundreds of high-end automobiles, other properties owned and links to provider networks. It also revealed very suspicious volumes of “deed flipping” within the group, potentially indicative of mortgage fraud and money laundering.

LexisNexis continues to push the boundaries of analytics by examining up to 20 billion data points to create variables that allow for predictive analysis incorporating relationship context and associated risk.

About LexisNexis and HPCC Systems

LexisNexis® currently has four petabytes of information from 10,000 different sources. This information is structured, semi-structured and unstructured data, and is leveraged in various information and analytics products and services to help customers verify identity, detect fraud, uncover hidden relationships and locate people, businesses and assets. Customers include financial institutions, insurance carriers, health care organizations, law enforcement, legal firms, and academia.

The HPCC Systems platform was built specifically to analyze large volumes of data in minutes to solve complex problems. The platform can deliver the data to more people and provide fast reporting. Since only small development teams are needed—this reduces investment in large teams and keeps processes agile.

The HPCC Systems platform has three distinguishing factors that make it an effective choice for big data analytics and processing:

- The HPCC Systems Data Refinery engine (Thor) helps clean, link, transform and analyze Big Data. Thor supports ETL (Extraction, Transformation and Loading) functions like ingesting unstructured/structured data out, data profiling, data hygiene, and data linking out of the box. In addition, Thor supports flexible record oriented data structures.
- The HPCC Systems Data Delivery engine (Roxie) provides highly concurrent and low latency real time query capability. The Thor processed data can be accessed by large number of users concurrently in real time fashion using the Roxie. The Roxie queries are typically complex and could include embedded rules logic.
- The programming language called Enterprise Control Language (ECL) is used to program both the data processing jobs on Thor and the queries on Roxie. ECL is a declarative, implicitly parallel and data flow oriented programming language that abstracts complex data processing tasks by providing a simple programming interface.

HPCC Systems helps organizations in mission-critical 24/7 environments gain competitive advantages by leveraging all the data to help scale for innovation and growth. The streamlined platform needs less resources to operate and eliminates expensive legacy technology to lower the Total Cost of Ownership (TCO) of Big Data solutions.

For more information:

Call 877.316.9669 (toll free) or
678.694.2200, or
email info@hpccsystems.com or
visit HPCC Systems at hpccsystems.com

About HPCC Systems®

HPCC Systems® (www.hpccsystems.com) from LexisNexis® Risk Solutions offers a proven, data-intensive supercomputing platform designed for the enterprise to process and solve big data analytical problems. As an alternative to legacy technology, HPCC Systems offers a consistent data-centric programming language, two processing platforms and a single, complete end-to-end architecture for efficient processing.

About LexisNexis Risk Solutions

LexisNexis Risk Solutions (www.lexisnexis.com/risk) is a leader in providing essential information that helps customers across all industries and government predict, assess and manage risk. Combining cutting-edge technology, unique data and advanced scoring analytics, we provide products and services that address evolving client needs in the risk sector while upholding the highest standards of security and privacy. LexisNexis Risk Solutions is part of Reed Elsevier, a leading publisher and information provider that serves customers in more than 100 countries with more than 30,000 employees worldwide.

HPCC Systems is an
enterprise-proven,
open source Big Data
processing platform
from LexisNexis for
customers who need
to quickly solve large or
complex data challenges.

