SUMMARY
Fraud is a prolific problem that impacts nearly every industry sector for a collective total cost nearing an estimated $1 trillion annually in the United States alone. New research has uncovered that a large majority of fraud cases involve schemes that touch multiple industries. Despite fraud’s far-reaching, cross-industry impact, most fraud prevention programs have been relegated to agency or industry specific practices, whose narrow focus fails to take into account the cross-industry nature of fraud. By taking a limited view, fraud mitigation professionals may be missing critical data points that may unveil important connections to other individuals, organizations or industries, or that help verify identities.

CASE STUDY

A Far-Reaching Problem with Narrow Solutions.

LexisNexis® Risk Solutions Fraud Defense Network utilizes HPCC Systems® Big Data Analytics to Solve the Fraud Problem
More Comprehensive Data for an Extra Edge Against Fraud

As a leading provider of essential information that helps customers across all industries and government assess, predict, and manage risk, LexisNexis® Risk Solutions saw an opportunity to use its cross-industry expertise, rich data sources, and advanced analytics to help customers better address the fraud problem. For more than 25 years, LexisNexis has been creating contributory databases and building a technology infrastructure ideally suited for managing these databases, to play an important role in helping organizations fast-track transactions and prioritize where to allocate resources for fraud prevention, waste and abuse.

At the heart of this new initiative is the Contributory Risk Repository (CoRR), a cross-industry database that houses information about fraudulent and suspicious events from organizations in finance, retail, insurance, health care, law enforcement and government.

After data is collected through the Contributory Risk Repository, LexisNexis applies advanced analytics to identify meaningful connections that can not only spot past fraudulent behavior, but also help flag potentially suspicious future transactions.

The Contributory Risk Repository offers several advantages:

- Preventing and detecting more fraud by leveraging fraud events from other contributors across various industries.
- Helping contributors prioritize and focus investigative resources most efficiently.
- Shedding light on historical fraud patterns and perpetrators.
- Protecting legitimate customers against identity fraud risk.

Although other data analytics providers tried to create a broader, cross-industry database for fraud mitigation, what was missing was the essential piece for revealing patterns that would not be evident in one industry or one industry's data alone. By gaining access to a broader scope of information shared by other contributory member organizations, both within an industry and across several industries, organizations can create much stronger cases.

Although sharing data seems simple, execution is easier said than done as there are several barriers to implementation. Much work must be done to transform cross-industry data from just another massive collection of big data to turn it into actionable intelligence.

A Unique Partnership that Provides Revolutionary Cross-Industry Fraud Protection

As LexisNexis began to develop the Contributory Risk Repository, the team faced several challenges. It had the data and cross-industry market experience, but needed a platform that could accommodate on-demand transactions, enable normalization, and the ability to quickly link together vast amounts of data from a variety of sources and industries.

LexisNexis had a secret weapon – HPCC Systems®, a proven open source solution for big data insights that can be implemented by organizations of all sizes. HPCC Systems allows developers to design applications with big data at their core, enabling organizations to better analyze and understand data at scale, improving business time results and decisions. The platform includes system configurations to support both parallel batch data processing (Thor) and high-performance data delivery applications using indexed data files (ROXIE).

At the core of the HPCC Systems is its Enterprise Control Language (ECL). ECL is a high level and implicitly parallel data-centric declarative programming language for parallel data processing. ECL proved to be highly efficient to use by providing quick programming options to the team while requiring less programming. It was also very flexible and could be used for both complex data processing on a Thor cluster and for a query and report processing on a ROXIE cluster. In the end, ECL allowed more work to be conducted, faster and with fewer man hours.

Perhaps the most powerful weapon that HPCC Systems offered in the development of the Contributory Risk Repository was the linking capabilities. Historically, the first challenge in linking data is the accurate identification of common events and entities. People often use different identities and certain businesses may operate under multiple business names. Unless you can uncover the connections between the different identities, you cannot uncover the full extent of the fraudulent or suspicious activity.

HPCC Systems was also able to assist with the second aspect of linking that relates to cross-industry fraud and the ability to detect relationships between entities and activities. Essentially, linking technology detects hidden relationships that are critical in the fight against fraud. HPCC Systems demonstrated it could process, analyze, and find links and associations in large volumes of complex data significantly faster and more accurately than other competitive platforms.
LexisNexis also used its proprietary linking technology in combination with its unique identifier, LexID®, to resolve, match, and manage information for more than 276 million U.S. consumer identities. This powerful technology tool not only helped illuminate suspicious entities or transactions, but honed in on irregular data points or outliers and eliminated false positives.

**OVER 276 M U.S. consumer identities managed**

HPCC Systems was the perfect partner and powered the Contributory Risk Repository’s unique technology that manages, sorts, links and analyzes billions of records within sub-seconds and pushes the boundaries of fraud detection and prevention.

**Enabling Comprehensive Fraud Defense through Shared Big Data and Analytics**

Today, the Contributory Risk Repository delivers 13 million daily transactions for more than 18,000 customers across insurance, finance/business, government, and health care. These transactions can be accessed through several different fraud mitigation solutions.

At every step of the way, HPCC Systems has been a vital partner by providing the platform that powers the linking capabilities, LexID and ECL. With the ability to scale linearly from tens to thousands of nodes handling many petabytes and supporting billions of transactions every day, HPCC Systems continues to demonstrate why it is the leader in big data solutions. HPCC Systems delivers a single platform, a single architecture and a single programming language for efficient processing.

**Benefits of HPCC Systems**

**Linking Capabilities:** Ability to process, analyze, and find links and associations in large volumes of complex data significantly faster and more accurately than other competitive platforms.

**Efficient Programming:** ECL is designed specifically for processing big data and can accomplish tasks with far less code than competitive platforms. In addition, Graphical IDE for ECL simplifies development, testing and debugging.

**Scalability:** Massively scalable data platform supports rapid development from a growing set of real time data sources.

**Streamlined Platform:** Less resources are required to operate the platform and it eliminates expensive legacy technology which lowers the total cost of ownership of big data solutions.

**Powerful and Easy to Use:** Fast, easy-to-use, and free support is offered via detailed documentation, video tutorials, forums, and direct contact. HPCC Systems is available free of licensing and service costs.

For more information, call 877.316.9669 or visit hpccsystems.com

The opinions expressed within this case study represent customer opinions. LexisNexis believes this case study experience generally represents the experience found with other similar customer situations. However, each customer will have its own subjective goals and requirements and will subscribe to different combinations of LexisNexis services to suit those specific goals and requirements. This case study may not be deemed to create any warranty or representation that any other customer's experience will be the same as the experience identified herein.

About HPCC Systems

HPCC Systems® (www.hpccsystems.com) from LexisNexis® Risk Solutions is a proven, open source solution for Big Data insights that can be implemented by businesses of all sizes. With HPCC Systems, developers can design applications with Big Data at their core, enabling businesses to better analyze and understand data at scale, improving business time-to-results and decisions. HPCC Systems offers a consistent data-centric programming language, two processing platforms and a single, complete end-to-end architecture for efficient processing. Read our blog (http://hpccsystems.com/blog), or connect with us on Twitter (@hpccsystems), Facebook (https://www.facebook.com/hpccsystems) and LinkedIn (http://www.linkedin.com/company/hpcc-systems).

About LexisNexis Risk Solutions

At LexisNexis Risk Solutions, we believe in the power of data and advanced analytics for better risk management. With over 40 years of expertise, we are the trusted data analytics provider for organizations seeking actionable insights to manage risks and improve results while upholding the highest standards for security and privacy. Headquartered in metro Atlanta USA, LexisNexis Risk Solutions serves customers in more than 100 countries and is part of RELX Group, a global provider of information and analytics for professional and business customers across industries. For more information, please visit www.risk.lexisnexis.com.

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