MasterCard

Creating New Revenue Streams with an Advanced Anti-fraud Solution

Re-platforming the search capability on Cloudera Enterprise enables MasterCard to support five times as many searches each year and 25 times more searches per customer each day.

Overview

When the challenge of big data was in its nascent stages, the watchwords for companies who wanted to embrace it were "volume, velocity, and variety." Now that big data has evolved into smart enterprise data management, new tools and solutions to manage volume and veracity are proving their worth.

That was the case with Cloudera and MasterCard. MasterCard operates the world's fastest payments processing network, delivering the products and services that make everyday commerce activities—such as shopping, traveling, running a business, and managing finances—easier, more secure, and more efficient.

With billions of annual global credit card transactions, MasterCard has to manage more volume, velocity, and variety than most companies. As a technology company, it is constantly assessing and embracing traditional and next-generation software provided by vendors and the open source community.

With the advent of Cloudera Enterprise and Cloudera Search, MasterCard added new tools to access, search, and secure more data than ever. With the latest technology in hand, and decades of experience in delivering data-driven business value, MasterCard is building a new generation of products and services to make smart decisions with big data.

Impact

Using a Cloudera enterprise data hub and Cloudera Search, MasterCard helps financial organizations quickly and easily identify fraudulent merchants to reduce risk. Greater precision in search results and prioritization of the results is helping MasterCard customers more quickly and easily evaluate a merchant, without the cost of executing additional searches or further investigations.

Additionally, re-platforming the search capability on Cloudera Enterprise enables MasterCard to support five times as many searches each year (from 10 million to nearly 50 million) and 25 times more searches per customer each day (from 1,000 to 25,000).

With improved platform scalability, performance, and accuracy, MasterCard can now offer its solution to new markets and build new revenue streams. For example, the platform improvements enable MasterCard staff to offers its MATCH (MasterCard Alert to Control High-risk Merchants) solution to non-traditional customers, such as online marketplaces.

Business Drivers

Cloudera Search is based on Apache Solr, which is the standard for Apache Hadoop search. It democratizes data to all users, not just the savvy data analyst with the fastest time-to-insight and most efficient access to data. For MasterCard, Cloudera Search helped its acquirer partners prevent fraud and access insights about their merchants.

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Key Highlights

Industry
- Financial Services

Location
- Headquartered in Purchase, NY, USA
- Connects consumers, financial institutions, merchants, governments, and businesses in more than 210 countries and territories

Business Application Supported
- Anti-fraud solution
- Online search

Impact
- Dramatically improved search accuracy
- 5X increase in number of searches supported annually
- 25X increase in searches per customer daily
- Increased revenue through new market expansion

Technologies in Use
- Apache Hadoop Platform: Cloudera Enterprise, Data Hub Edition
- Apache Hadoop Components: Apache Solr, Cloudera Search, Hue

When a financial institution receives an application to form a credit processing agreement with a merchant, the organization, known as the acquirer, has to assess the merchant's credit risk. This is challenging due to the high volume of small merchants, especially new e-commerce businesses with a lack of credit history.

Being too cautious and rejecting merchants without a proven track record could result in the loss of valuable business, while signing on rogue merchants can result in fraud costs and lost funds.

Because some fraudulent merchants alter their names, addresses, and other identifying information when going from bank to bank, they can go undetected during simple cross-reference checks. To help acquirers better evaluate merchants, MasterCard created an anti-fraud solution called MATCH (MasterCard Alert to Control High-risk Merchants).

The MATCH database maintains data on hundreds of millions of fraudulent businesses. MasterCard acquirers submit nearly one million inquiries to the database each month. They can search the database for each potential merchant or send MasterCard a bulk file of merchant names to perform a batch search on their behalf.

The solution's success is based on proprietary MasterCard data, customer inquiry response time, and accuracy of the search results. As the volume of data in its platform grew over the years, MasterCard staff found that its homegrown relational database management system (RDBMS) lookup solution, based on phonetic matching, was no longer the best option to satisfy the growing and increasingly complex needs of MATCH users.

Solution

Realizing that there was an opportunity to deliver substantially better value to its customers, MasterCard turned to the Cloudera enterprise data hub.

After successfully building, integrating, and incorporating security into its enterprise data hub, MasterCard saw the opportunity to add new workloads and analytics functionality with Cloudera. The volume challenges faced with the MATCH database made it a good candidate to move to the enterprise data hub.

That data hub delivered the dynamic scalability and improved performance to help MasterCard accelerate searches and expand its user base, using Cloudera Search. By collaborating with Cloudera again, MasterCard was able to provide acquirers with enriched searching capabilities and increased search accuracy.

The solution can now index, match, and sort results using several search algorithms and new scoring capabilities that were previously impractical to implement on the legacy platform and in Hadoop several years ago. MasterCard staff can also better tune data indexing to improve search performance.

With greater scalability and flexibility, the platform will also enable MasterCard to expand its data set without constraints and incorporate new data as industry trends and opportunities emerge.

About Cloudera

Cloudera delivers the modern platform for data management and analytics. The world's leading organizations trust Cloudera to help solve their most challenging business problems with Cloudera Enterprise, the fastest, easiest, and most secure data platform built on Apache Hadoop. Our customers can efficiently capture, store, process, and analyze vast amounts of data, empowering them to use advanced analytics to drive business decisions quickly, flexibly, and at lower cost than has been possible before. To ensure our customers are successful, we offer comprehensive support, training, and professional services. Learn more at cloudera.com.

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