



moving money for better

Western Union Implements Enterprise Data Hub on its Path to Deliver an Omni-channel Customer Experience

Overview

Western Union is a globally recognized brand whose roots date back to the mid-1800s, with its iconic telegraph system symbolizing the start of electronic communications. While Western Union's business model has shifted over the years—from connecting customers through communications to connecting them financially through cross-border, consumer-to-consumer money transfers, bill payments, and other financial services—one fundamental underpinning has remained unchanged: a dedication to customer-centricity and connecting people with each other.

The company helps millions of customers (both businesses and individuals) connect, transferring USD \$82 billion in consumer-to-consumer transactions in 2013 alone. "One of the factors driving transformation for Western Union right now is the massive amount of transactional information that we accumulate as we serve our customers," noted Sanjay Saraf, the company's chief technology officer and senior vice president. "We've built an enterprise data hub on Cloudera to drive actionable insights that help the company create products and services that are relevant to our customers and help differentiate Western Union in a competitive marketplace."

The Challenge

"When you consider the entire Western Union ecosystem, including our business solutions and bill payments, we completed 29 transactions per second, on average, in 2013," explained Saraf.

The sheer volume of information associated with transactions—including data about both senders and receivers—is tremendous. Western Union strives to not only support this volume; the company aims to simplify transactions from different channels and devices, help protect transactions and better understand each customer.

"The explosion of data presents a big opportunity for us to directly impact our customers' lives and make them easier," explained Abhishek Banerjee, Western Union's senior director of engineering. "So we decided to embark on a data engineering journey."

The company identified two key areas that would benefit from a solution that could bring together structured and unstructured data stores:

Key Highlights

Industries

- Financial Services
- Telecommunications

Locations

- Global: 500,000 retail agent locations across 200 countries and territories; transactional websites in 24 countries
- Headquarters: Englewood, CO, USA

Business Applications Supported

- 360-degree view of data for a unified customer experience
- Security of information and event management (SIEM)

Impact

- Transactional response times (seconds) from EDH to critical systems serving cross-channel customers
- Multi-channel customer insights drive consumer engagement enhancements
- Real-time risk decisioning and compliance enhancements
- Low TCO allows for re-allocation of funds to product innovations

Technologies in Use

- Hadoop Platform: Cloudera Enterprise, Data Hub Edition
- Hadoop Components: Apache Flume, Apache Hive, Apache Sentry (incubating), Apache Sqoop, Cloudera Manager, Cloudera Navigator, Hue
- Servers: Cisco Unified Computing System (UCS)
- ETL Tool: Informatica Big Data Edition

Big Data Scale

- 100 TB on 64 CDH nodes, growing to 100 nodes

- **Customer Experience:** Developing relevant and forward-looking customer solutions that drive a better, more personalized experience for both senders and receivers. “We had a huge volume of user behavior data, click stream data, and mobile usage patterns,” said Banerjee. “It was all sitting there—waiting to tell us when, how, and why we should reach out to our customers to make their lives easier.”
- **Security, Risk, and Compliance:** Leveraging real-time ingest, processing, and analytic capabilities on multi-structured data—streaming from mobile, web, and retail sources—to help minimize risk and enhance anti-money laundering (AML) compliance at scale.

The team embarked on a journey to revamp their engineering stack, where data would be a foundational pillar, on top of which they could apply insights to help improve personalization, risk management, and AML compliance. They identified the following criteria for the data technology evaluation:

- Performance and agility to handle structured, unstructured, and semi-structured information
- Rapid time to value and ability to make meaningful impact
- Customization capabilities to support a global enterprise
- Management capabilities including data segregation, auditing, and monitoring
- Long-term cost efficiencies at large scale

Technologies such as [Apache Hadoop](#) became key considerations. “After evaluating various providers in the market, we chose Cloudera,” said Banerjee. “Cloudera was the winner in aggregate score against all five of these criteria.”

Saraf added, “We looked at several vendors in this space and found that Cloudera was clearly at the cutting edge. The team understands the underpinnings of Hadoop and data analytics, and knows how to make large enterprises succeed with both.”

Solution

For an implementation of its size, Western Union anticipated going from “zero to Hadoop” in about a year. Exceeding expectations, “We had our first production-ready Cloudera system up within just five months,” commented Saraf. “We were actually leveraging it for some of our transactional processing, and saw immediate value.”

Western Union’s enterprise data hub (EDH) is powered by a 64-node CDH cluster that will soon grow to 100 nodes. The hub feeds in structured data from multiple data warehouses as well as unstructured data including click streams, behavioral data, logs, and sentiment data collected by tools such as transactional, marketing, and other outreach systems. Western Union uses a combination of [Apache Flume](#), [Apache Sqoop](#), and [Informatica Big Data Edition \(BDE\)](#) to collect data from the various sources. At the backbone of Western Union’s EDH are high-density [Cisco Unified Computing System \(UCS\)](#) servers.

“We’re also building a transactional capability on top of the 100-terabyte (TB) hosted data set that can provide rapid response times to critical systems that are servicing our customers cross-channel – from the web, mobile, even from retail agent locations,” Banerjee said.

The company’s 100 internal end users—including members of the business and engineering communities as well as data scientists—access the data in their EDH via [Hue](#), offering a web interface for Hadoop, and [Apache Hive](#), which offers a SQL-like interface. “Cloudera provided rigorous [training](#) for our engineers, and hosted multiple training classes here at our facility for about forty of our internal end users, which has helped our adoption skyrocket,” noted Banerjee.

Business users also have access to several visualization tools that integrate with the Hadoop cluster, offering an interactive, 360-degree view of the business against important trends and timelines, across its digital offerings.

Western Union's data is secured and segregated with **Apache Sentry (incubating)** and **Kerberos**, and is monitored by **Cloudera Navigator**. "We are the custodians of financial information for our customers when they're trusting us to transfer money to their near and dear ones. We have to take care of them. We need segregation and proper controls. Solutions like Sentry and Kerberos are important for that. We also need to make sure that we are compliant and we have proper monitoring and auditing, and that's where Navigator comes in. So, all these tools really help solve some critical needs," explained Banerjee.

Impact: 360-Degree Customer View

"We have a clear vision of being a customer-centric, omni-channel vendor for our customers, and data provides the foundation for that experience," said Saraf. "Our Cloudera enterprise data hub powers the customer data journey from the moment they come into one of our networks—retail, web, or mobile. It allows them to have a more seamless experience across multiple channels, to use our products and services, and discover new ones."

The data hub serves as a single repository to help Western Union know its customers, providing important insights from initial touch point and qualification and compliance checks, through their lifecycle. It allows the company to deliver push offers that are relevant and meaningful. It's a customer-centric approach that helps Western Union offer targeted experiences for customers.

In San Francisco, for example, Western Union delivers targeted offers that are tailored to the Chinese culture at its Chinatown retail agent locations, unique messages tailored to Filipinos in Daly City, and to the Mexican community in the Mission District.

One insight revealed by the Cloudera hub was that many web and mobile customers frequently process repeat transactions—they send the same amount of money to the same recipient at the same time each month. This data prompted Western Union to add a "Send Again" button to make the process of repeating payments much more convenient for the customer. "We've clearly seen that by deploying that capability, we immediately saw conversion uptake in those key sectors," said Saraf.

Impact: Risk Management and Compliance

The EDH delivered immediate value to Western Union by supporting predictive analysis on structured and unstructured data sets in the same store, at the time of transaction. "We were able to, in real time, impact transactions and drive customer compliance in a way that drove better conversions for our customers," said Saraf.

For instance, Western Union's data hub revealed one Asian community's understanding of foreign exchange (FX) rates. This results in high transaction volumes between the US and that community when it's early morning on Wall Street, because the tech-savvy senders understand when new FX rates have just launched.

"We're able to risk-decision a lot better with the harness of the data that we have. And that's just one example of many, many variables that we can now use in how we anticipate and risk-decision our customers and their transactions," said Saraf.

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Sanjay Saraf, CTO and SVP, Western Union

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Abhishek Banerjee, Senior Director, Engineering,
Western Union

Impact: Cost-efficiencies at Scale

Western Union discovered a side benefit of implementing its Hadoop-based EDH: low total cost of ownership (TCO) at scale. “It's an extremely cost-efficient model,” said Saraf. “If you had to manage this volume of data in a standard data structure, the costs would continue to escalate exponentially. It's a huge advantage, and for me as a technology leader, it's pretty important. I can take my precious investments and apply them toward new opportunities, new product innovation, versus trying to just pay for heavy-duty storage and database costs.”

About Cloudera

Cloudera is revolutionizing enterprise data management by offering the first unified Platform for Big Data, an enterprise data hub built on Apache Hadoop. Cloudera offers enterprises one place to store, process and analyze all their data, empowering them to extend the value of existing investments while enabling fundamental new ways to derive value from their data. Only Cloudera offers everything needed on a journey to an enterprise data hub, including software for business critical data challenges such as storage, access, management, analysis, security and search. As the leading educator of Hadoop professionals, Cloudera has trained over 40,000 individuals worldwide. Over 1,400 partners and a seasoned professional services team help deliver greater time to value. Finally, only Cloudera provides proactive and predictive support to run an enterprise data hub with confidence. Leading organizations in every industry plus top public sector organizations globally run Cloudera in production. www.cloudera.com.



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