



# Real-time collaborative Fraud Analytic solution to combat Identity Theft

Digital  
Services

## Success Story

## Client

The client is a U.S based Fraud Analytics startup, who envisions to provide an end-to-end real-time fraud detection solution platform, with analytical support.

## Overview

The losses due to payment card fraud are hitting record highs with each passing year, and the existing fraud detection strategies are usually very reactive and slow. Indium helped build a real-time fraud analytics solution that analysed customer transactions at real-time to detect anomalies, rule deviation and other red flags to flag potential threats. To cater to the large number of transactions on a daily basis, a highly scalable system was designed to not just scale with the number of transactions but also retrain itself with new transactions to keep the analysis relevant.

## Status Quo

The platform would help customers to identify specific transaction or user behavior patterns through a combination of Machine learning and human ingenuity.

The worldwide losses on payment card frauds hit \$16.31 billion on 2014, and it's expected to double by 2020. The existing fraud detection strategies are reactive and takes days to detect fraud. The best way to combat today's sophisticated fraudsters, at scale, is to leverage the insights of Fraud experts and the speed of Machine Learning.

## Business Challenge

The client chose Indium for its prior successful deliveries of similar high performance and scalable Big Data Analytics solutions, flexible engagement models, and on-demand access to a pool of Top Data Science, Big Data Infrastructure & Predictive Analytics talent. Indium was commissioned to design a high performance, scalable, interactive fraud analytics solution that offers the below:

- Precise identification of fraudulent customer/ transaction.
- Automated variable and rule generation.
- Collaborative anomaly detection algorithms.

## Solution

Indium leveraged open source technologies from the Apache ecosystem for their high flexibility, scalability, throughput, and for the thriving community of supporters/ developers. A sample model was built and tested using the test dataset provided by the client, before finalizing the architecture.

- Developed the core application in Scala.
- Used Apache HDFS (Hadoop distributed file system) for data storage; due to its high throughput access to very large data sets.
- Model developed using Logistic Regression, to identify fraudulent transactions/ customers.
- Decision tree was used to let users develop variables on the fly.

## Business

Predictive Analytics, Product Development

## Domain

FinTech

## Tools

Scala, Python, Apache HDFS, Apache Spark, MLlib, Logistic Regression, Decision Tree, Apache Kafka Queue

## Key Highlights

- High-performance real-time user profile scoring
- Lowered TCO by almost 50%, owing to the use of open source technologies and commodity hardware
- Highly scalable, to cater to nearly 2.5 times the current throughput

- Apache Kafka queue was used to provide low-latency high throughput platform, and to send and receive data streams.
- Integrated MLlib library from Apache Spark streaming in Scala that calls python scripts - libraries, to enable automated variable and rule generation.
- Python was leveraged to generate user scores, update database and refresh variables, all at real-time.

## Business Impact

- Higher performance – real-time user profile scoring – at scale.
- Easily scalable to handle larger data volumes, up to almost 2.5 times current throughput.
- Interactive fraud analytics.
- Higher accuracy – precise identification of specific transaction/customer.
- Lower cost by almost 50%; as solution is designed to run on commodity hardware and open source platforms.





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