



## Fraud.net Case Study

2016

[Fraud.net](#) is the world's leading crowdsourced fraud prevention platform, aggregating and analyzing large amounts of fraud data from thousands of online merchants in real time. A collaborative program, Fraud.net is currently the largest merchant-led effort to combat online payment fraud, which costs U.S. merchants an estimated \$20 billion annually. The platform protects more than 2 percent of all U.S. e-commerce, and its client base and data requirements are growing at a pace of more than 1,000 percent per year.





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**Oliver Clark**

*CTO, Fraud.net*

## The Challenge

In order to counter the increasingly different and evolving forms of fraud, Fraud.net needed to build and train a larger number of more targeted and more precise machine-learning models. "Once you start catching a form of fraud, the fraudsters themselves will change their strategy—so it's a constantly evolving problem," says Whitney Anderson, CEO of Fraud.net.

Because fraud is so fluid, Fraud.net also wanted to build and retrain models more quickly. "On any given day, we might see 100 different fraud schemes, each one with 100 different variations," says Anderson. "As new fraud schemes pop up, we have to identify and create models around those specialized situations."

However, the organization didn't want to invest time and resources in creating a back-end platform to support its new machine-learning models. "As a young company, we have to have the ability to ramp things up very quickly, without spending a lot of money on maintaining our own servers," Anderson says. Fraud.net also needed to find a scalable solution to help it keep pace with fast business growth. "Scalability is at the core of everything we do," Anderson says. "We grew tenfold in the last year, and we plan on another tenfold growth this year."

## Why Amazon Web Services

To address its scalability needs, Fraud.net chose to use Amazon Web Services (AWS) to host its customer platform. "Even before I was with Fraud.net, I had used AWS and it always worked very well," says Oliver Clark, CTO at Fraud.net. "The AWS cloud offered the most flexibility and reliability, as well as cost savings." Fraud.net uses Amazon DynamoDB, a NoSQL database service, to host Fraud.net. The organization also uses AWS Lambda to run code without the need to provision or manage servers. "The scalability in both [Amazon DynamoDB](#) and AWS Lambda is phenomenal," says Clark. "We can provision servers much faster than we could using a traditional hardware platform." Fraud.net also collects online fraud data in [Amazon Simple Storage Service \(S3\)](#) and moves it to [Amazon Redshift](#) for analysis, which Clarks says is a "great structured feeder of data to our machine-learning models."

Most recently, Fraud.net started using [Amazon Machine Learning](#), a service that provides tools to easily guide developers through the process of building machine-learning models. Amazon Machine Learning also enables the use of simple APIs to get predictions for applications without having to deploy prediction generation code. "We

considered five other platforms, but Amazon Machine Learning was the best solution,” says Anderson. “The amount of pain involved in building a machine-learning model on some of these other platforms was substantial. Amazon keeps the effort and resources required to build a model to a minimum. And the choice was easier for us because we were already on the Amazon stack.”

## The Benefits

Using Amazon Machine Learning, Fraud.net can easily launch and train new machine-learning models to target today’s evolving forms of fraud. “Using Amazon Machine Learning, we’ve quickly created and trained a number of specific, targeted models, rather than building a single algorithm to try and capture all the different forms of fraud,” says Anderson. “We are able to build and retrain models in almost half the time it took on other platforms we tested.”

Adds Clark, “Amazon Machine Learning helps us reduce complexity and make sense of emerging fraud patterns. We can see correlations we wouldn’t have been able to see otherwise, and we can get answers to questions it would have taken us way too long to answer ourselves.”

Now, Fraud.net can continuously identify new fraud strategies and help its customers detect fraud more accurately. “We can add more models and ask more questions using Amazon Machine Learning,” says Clark. “Being able to ask more questions gives us better answers. As a result, we can give our customers more detailed fraud data.” With the ability to correctly detect fraud, Anderson says Fraud.net saves its customers about \$1 million a week by helping them detect and prevent fraud.

Additionally, Fraud.net is using AWS to maintain its fast application response times of under 200 milliseconds. “Application response time is very important to our clients,” says Anderson. “Our fraud data analysis has to be very fast, and we can provide that with all the AWS services we have in place.”

Fraud.net has leveraged AWS to cost-effectively build and maintain its machine-learning solution. “Our machine-learning platform wouldn’t have been viable without AWS,” says Clark. “We would have needed an army of servers and people to manage it all otherwise.” Fraud.net also has the scalability it requires. “We have 20 machine-learning models up and being tested, and I could see us having several hundred models in the near future,” says Clark. “On any other platform, we would need teams of data scientists to run and optimize that many models. We will be able to meet our future growth needs using Amazon Machine Learning.”

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## About Fraud.net

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## AWS Services Used

## Amazon DynamoDB

Amazon DynamoDB is a key-value and document database that delivers single-digit millisecond performance at any scale.

[Learn more »](#)

## Amazon S3

Amazon Simple Storage Service (Amazon S3) is an object storage service that offers industry-leading scalability, data availability, security, and performance.

[Learn more »](#)

## Amazon Redshift

Redshift powers mission critical analytical workloads for Fortune 500 companies, startups, and everything in between.

[Learn more »](#)

## Amazon Machine Learning

On behalf of our customers, we are focused on solving some of the toughest challenges that hold back machine learning from being in the hands of every developer.

[Learn more »](#)

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