

# US Citizenship and Immigration Services Improves Fraud Analytics with Senzing Entity Resolution

## **CHALLENGE: Detect fraud perpetrated by applicants and their representatives**

The United States Citizenship and Immigration Services (USCIS) needed to improve its ability to identify immigration fraud committed by applicant representatives. The project involved detecting relationships between individuals requesting asylum or entry into the country and their lawyers and other representatives. One type of fraud that USCIS was looking for involved applicants with the same representation who were using similar case stories that were therefore suspect and possibly being bought and sold.

“The goal was to discover fraud and abuse by immigrants and those who represent them, namely lawyers, law firms and other representatives.”

A major challenge faced by the USCIS development team was the agency's use of forms-based data collection methods, which resulted in many source systems and data models containing duplicate names and addresses, as well as human-induced errors.

## **USCIS PROJECT GOALS**

**Accurately resolve entity data from complex data sources**

**Identify relationships between applicants and representatives**

**Show why and how decisions were made (explainability)**

In addition, underlying source data models were complex, unique identifiers were different between data sources, and some data sources lacked identifiers for certain record types, such as attorneys. The team was also required to work with large, repetitive data sets that created blocking challenges with some machine learning models.

## **SOLUTION: Senzing entity resolution with relationship detection**

After evaluating several entity resolution tools, the USCIS team selected Senzing entity resolution as the data matching and relationship detection component of its solution.

Their complete solution combines Senzing relationship detection (network analytics) with natural language processing to enable USCIS analysts to better identify lawyers and other representatives who might be engaged in fraud.

Senzing entity resolution allowed the USCIS team to quickly and easily start matching records about people and organizations, identifying the relationships between them and querying data from a wide range of data sources. The Senzing technology is highly accurate on day one and gets smarter and more accurate over time as the system automatically learns and adapts in real time without reloading.

“**Senzing entity resolution was easy for USCIS to implement as little or no data preparation, tuning, or training is required, a major advantage over traditional entity resolution options.**”

The Senzing technology also worked well with existing secure USCIS technologies, including the USCIS data lake and Amazon Elastic Kubernetes Service (EKS). Kubernetes was used to deploy the solution as containers with server lists.

## SOLUTION TECHNICAL ADVANTAGES

**Performs extremely fast data loads**

**Runs completely in the cloud on AWS**

**Works with Amazon Elastic Kubernetes Service**

## RESULTS: Better fraud detection at significantly reduced costs

Senzing entity resolution allows USCIS to better identify fraud conducted by lawyers and other representatives. Analysts on the front line of fraud detection can now query data in a single location, instead of across multiple databases, resulting in more insights and an improved user experience (goodbye swivel analysis).

“**The Senzing explainability capabilities allow USCIS to demonstrate why, why not and how entity resolution decisions were made, resulting in faster reviews and compliance.**”

Significant cost reductions are being realized due to the principle-based approach Senzing technology uses that eliminates the need to write rules or train and tune the system. Mapping new data sources prior to ingestion also requires minimal work. For example, adding a new data source now takes the USCIS team a few hours, instead of a week.

Senzing entity resolution is also powerful and flexible enough to be deployed by USCIS for a wide range of other uses. The Senzing technology could even be part of a future enterprise-wide entity resolution service that supports multiple USCIS stakeholders.