THETARAY

SUCCESS STORY
INTERNET BANKING FRAUD DETECTION

ORGANIZATION

Large global bank

South American division

DEPARTMENT

Fraud prevention

AVAILABLE DATA

8 months of corporate transactions

46 million transactions

CHALLENGES:

- Unable to identify fraud at the time of transaction
- Multiple fraud incidents missed by existing monitoring software but reported later by clients

PROJECT GOAL:

- Find fraud faster - before a customer notifies the bank
- Reduce fraud losses
- Discover previously unknown fraud cases
- Discover newly emerging fraud patterns

ROI

- Overall fraud detection rate level reached 78% compared to 44%
- Projected 30% reduction in annual fraud losses from timely detection of fraudulent transactions

THETARAY BENEFITS

- Significant cost savings
- Ability to detect and stop fraudulent transactions before money leaves the bank
- Increased detection accuracy
- Increased efficiency
- Ability to analyze large sets of data from different sources

CLEAR. CONFIDENT. ACTION.

Background

A South American division of a large global bank experienced a significant amount of fraud (close to $1.1Million every month) due to malware and social engineering fraud in their corporate Internet banking group.

The bank's existing transaction monitoring and fraud detection solution produced an extremely high false positive rate while continuously missing actual fraud cases or identifying fraud incidents too late, after the fraudulent transaction had already occurred and the funds left the bank. Additionally, the system allowed previously unknown fraud patterns to slip through security checks and go undiscovered until reported by a client.

Challenge

One of the primary challenges facing the bank was low accuracy of fraud detection resulting in missed fraud, excessive monetary losses due to undetected fraud and unhappy customers. The bank was able to catch only 44% of the fraud, while more than half (56%) became known after the customers reported fraudulent transactions.

Additionally, the bank recognized that one of the challenges was their reliance on scoring and rules-based transaction monitoring systems that are limited in their ability to identify previously unknown fraud.

> "The bank was able to catch only **44%** of the fraud, while **more than half (56%)** became known after the customers reported fraudulent transactions."

Goals and Objectives

To minimize fraud losses and improve customer experience, the bank needed to look beyond their legacy system and find a new kind of technology.

The goal was to enable the bank to augment its existing fraud detection process and address issues such as missed fraud or late detection.

Objective 1: Improve fraud detection rates
Objective 2: Improve customer experience by finding fraud faster - before a customer reports fraud and before the money leaves the bank
Objective 3: Discover previously unknown fraud cases
Objective 4: Reduce monetary losses due to fraud

The bank set several strict requirements for this project:

Requirement 1: Limited dataset: Utilize a limited data set that includes transaction data such as transaction value, time, account, session ID, and user and server IP
Requirement 2: Hashed data: Majority of the data was masked due to security restrictions
Requirement 3: Use outbound transactions only (type "C" transactions)

RESULT

ThetaRay was able to successfully identify 34% more of the fraud cases that was previously detectable with the bank's existing system. Combined, the bank's existing capabilities and ThetaRay's fraud detection solution brought overall fraud detection rate to 78%, thus reducing in annual fraud losses by 30%.

ThetaRay additional potential and further steps

Providing more and richer data as well as limiting the amount of incomplete data has an enormous potential to improve the outcome of the hyper-dimensional analysis even further and will allow ThetaRay to detect more fraud cases.

Fraud incidents identified

What really excites the bank is how well ThetaRay's big data analytics and machine learning solution was able to perform under such conditions. a more complete data set with all transactional and non-transactional events would allow for a more "Hyper-dimensional" analysis beyond simple transactional flow as funds leave the bank.

The key to ThetaRay's hyper-dimensional analysys is the fact that its ability to find fraud improves when more data is fed into the system. So the expectation is to identify and stop even more fraud when more, richer data is provided. This gives bank the ability to stop fraud before the money leaves the bank thus minimizing fraud losses and improving customer experience.

LEGACY SYSTEM 20.0% **22.9%** **THETARAY 30.3%**

• **Fraud Detection Accuracy Increased**
- Increase by 34% - Thetaray alone
- Overall detection rate level 78% - combined systems
• **Savings**
- 30% reduction in fraud losses timely detection of fraudulent transactions
• **Improved customer experience**
- Only 22% of fraud is still reported by customers compared to 56% previously
• **False Positive Rate Decreased**
- combining ThetaRay's solution together with the bank's existing models,
  false-positive rate decreased to around 20 to 1 (from 30 to 1)
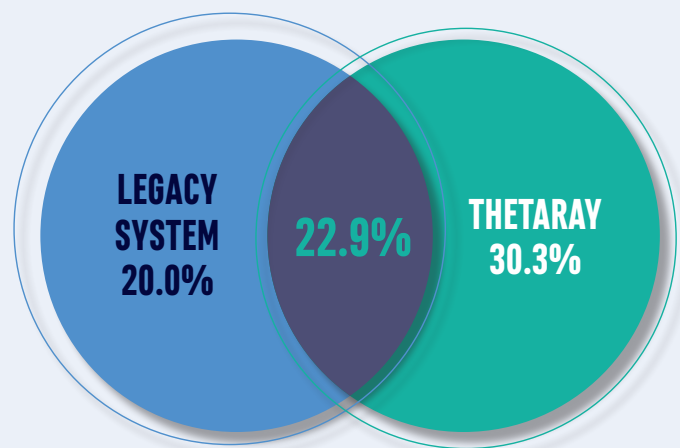
Conclusion

ThetaRay's fraud solution enables FIs to detect potentially fraudulent activity in the earliest stages during the transaction staging activities (payment initiation, dual approval, etc.), and other pre-release transaction events thus giving banks the ability to stop fraud before funds leave the bank.

To detect sophisticated risks, a new approach is required: we believe that the most meaningful anomalies hide in the rich, hyper-dimensional data, and in the intricate links inside multi-source data. By utilizing Thetaray's hyper-dimensional big data analytics that demonstrates improved performance with the increased volume and velocity of data, our fraud detection solution is able to identify fraud early and across multiple channels as well as identify previously unknown fraud patterns emanating from cross-channel, product, and customer activity. Intelligent anomaly detection empowers fraud analysts to identify new types of fraud amongst the 'noise', before they become significant and costly. Anomalies are detected within seconds, and with extremely low false positive levels. This high computational efficiency allows customers to know about risks immediately, respond, and expedite event investigation to rapidly mitigate the risk and minimize impact.

Following the challenging objectives and KPIs, the customer was surprised by the successful outcomes of ThetaRay's analysis; The customer is currently in the product evaluation stage.

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> " We believe that the most meaningful anomalies hide in the rich, hyper-dimensional data, and in the intricate links inside multi-source data. "

The ThetaRay Value

Internet banking fraud remains a high-loss area in corporate banking. Implementing methods such as user authentication, security scoring and transaction monitoring based on pre-defined business rules does not catch all instances fraud while creating a high number of false positives alerts and imposing an unnecessary burden on the analyst teams.

With ThetaRay, banks can reduce fraud losses and improve operational efficiency by:

- Analyzing large sets of data from different sources
- Stopping fraud before money leaves the bank
- Complying with regulatory and reporting requirements

THETARAY
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