



SAS® Social Network Analysis

An integral component of the SAS® Fraud Framework for Insurance

Overview

The financial impact and incidence of fraud are on the rise in insurance companies, due in part to the fact that today's fraudsters are harder to detect; they are wolves in sheep's clothing, acting much like legitimate customers. They are also highly organized and rely on increasingly sophisticated criminal tactics and masterful exploitation of organizational vulnerabilities.

To detect fraudulent activity, many institutions use transaction monitoring systems, which work very well for individual claims fraud. However, a different approach is needed for monitoring customer behavior across multiple claims, lines of business and systems in order to identify those that may appear normal, yet operate "below the radar."

Unfortunately, few insurers have a good understanding of customer behavior across multiple claims. Often this is due to a lack of analytical tools that could be used to analyze claims data to spot trends and suspicious behavior.

The current economic climate has also forced insurers to reduce spending and get by on fewer resources. And the inefficient manual processes currently used to look for fraudulent activity waste valuable time and resources — something insurers today simply can't afford. But that can change with SAS® Social Network Analysis.



Challenges

- **Evolving fraud trends.** Increasingly sophisticated criminal tactics and the explosion of e-commerce makes detecting fraud difficult and preventing it even more challenging.
- **Growth of organized crime rings.** Organized crime syndicates are drawn to the low-risk, high-return nature of insurance fraud.
- **System limitations.** Current systems don't support robust analytical modeling, and there's no intuitive interface for navigating customer relationships.
- **Data management issues.** Siloed product lines and geographically dispersed customers make it hard to access the right information in the right format and cleanse it without jeopardizing the important anomalies that can prove to be "golden nuggets."



Unrivaled detection rates. Fewer false positives. Reduced fraud losses.

The SAS® solution

SAS Social Network Analysis helps insurers detect and prevent organized claims fraud by going beyond transaction and account views to analyze all related activities and relationships at a network dimension. The SAS solution:

- **Gives investigators the ability to uncover previously unknown relationships** and conduct more efficient investigations using a unique network visualization interface that lets them actually see network connections.
- **Scores claims in real time**, de-dupes, prioritizes and routes pertinent alerts to an investigation queue for further exploration.
- **Produces independent and combined scores** to assess overall risk on a customer, claim or network basis, then generates alerts that are automatically routed to the appropriate resources.
- **Enables investigators to work more efficiently and effectively** and produce complete dossiers of networks surrounding a case using an intuitive interface that provides fast access to full claims details and all related parties and networks.

Why SAS®?

SAS offers a complete enterprise fraud framework that helps you prevent, detect and manage financial crimes across all lines of business. This framework merges capabilities for detection, alert management and case management with a category-specific workflow, content management and advanced analytics. The solution's fully integrated components offer both top-down and bottom-up functionality for exposing hidden and risky networks.

This approach gives you enhanced fraud detection, greater insight into case management and improved operational efficiency while decreasing your overall cost of ownership.

- **Advanced, large-scale network analytics** work across internal and external data sources to link customers, claims and service providers based on common attributes or more subtle patterns of behavior.
- **A unique network visualization interface** lets investigators actually see network connections so they can uncover previously unknown relationships and conduct more effective and efficient investigations.
- **An advanced profiling engine** scores customers and claims based on rules, fraud scores and links to known fraudulent networks.
- Alerts from multiple systems are consolidated into a **true enterprisewide view of fraud**.

- The solution can be **customized as needed** (e.g., you can develop fraud models unique to your institution).

Benefits

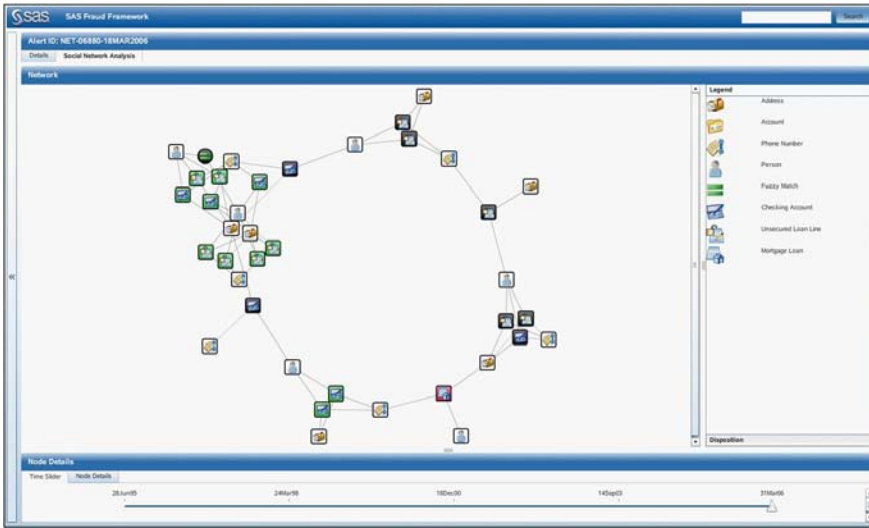
SAS Social Network Analysis enables insurers to achieve unrivaled detection rates, more accurately identify compliance risks and reduce fraud losses.

Gain a holistic view of fraud

The SAS solution goes beyond the typical customer view to provide a holistic view of fraudulent activity — including related perpetrators — and a much clearer understanding of customer behavior. This flexible solution:

- Draws in data from all relevant sources — including third-party — from multiple product lines.
- Parses the data and creates a complete data model of all entities and their key linking attributes.
- Can ingest existing risk scores or red flags and provide an aggregated score at network levels.

Driven by a metadata configuration, all records are linked exhaustively based on combinations of attributes within the data. Then, using statistical techniques, common entities are identified and collapsed to produce single views of entities within networks. Discrete bounded networks within the data are also generated, representing statistically relevant groups of activities and relationships.



The diagram shows the drill-down capabilities of the SAS Social Network Analysis solution's visualization interface in a suspicious network.

The solution also:

- Overcomes poor data quality issues associated with imperfect matching and highly linked entities.
- Can operate on billions of records and is fully scalable both in real time and in batch.
- Supports incremental updating of networks as new data is added.
- Accepts employee data and audit records for easier detection of insider or collusive fraud.

Identify more fraud while reducing false positives

Insurers often have false positive rates as high as one in 30. The SAS solution, however, greatly reduces false positives, which increases your overall capture rate and decreases the solution's total cost.

To accomplish this, an advanced scoring engine uses independent and combined scores based on three core paradigms:

- Claims scoring based on scorecard-driven models and text analysis.
- Scoring of individual customers and their full histories.
- Scoring of associated networks, including relations and events connected to the customer's network and other data (e.g., suppliers, third parties and known fraudsters).

The solution's claims scoring process can be integrated into your existing claims management processes in batch or in real time.

Once networks have been scored and ranked according to severity, investigators can perform more in-depth reviews and prevent further fraudulent claims settlements.

The SAS® difference

No other fraud solution provides the same level of detection, automation, ease of use and ROI for insurance claims fraud, including the ability to:

- **Visualize social networks** and see previously hidden connections and relationships in a highly intuitive manner.
- **Achieve unrivaled detection rates** using advanced data network building and analytic techniques.
- **Maintain extremely low false positive rates** with true, large-scale network analytics that deliver more usable alerts.
- **Evolve from parameter-driven, rules-based systems** to dollar-amount-agnostic neural network and modeling approaches.
- **Perform supervised and unsupervised scoring** using predictive analytics to spot anomalies in the data.
- **Gain a true enterprise view of fraud** by aggregating alerts from multiple systems into a single environment.
- **Take full advantage of external data sources** (e.g., fraud consortium databases).
- **Customize the solution as needed** (e.g., develop fraud models unique to your institution).
- **Increase ROI per investigator tenfold** with fewer false positives, prioritization of higher-value networks and more accurate, efficient investigations.

Double or triple investigator efficiency

The SAS solution significantly reduces the effort normally associated with investigating insurance claims fraud, with each referred case taking only one-half to one-third of the time usually required for investigation.

Once a network is scored and prioritized, it is flagged automatically and routed to a special investigation unit. There, investigators can quickly and efficiently review automatically generated network diagrams in depth to determine if any claim or transaction is fraudulent.

Unique network visualization, data drill-down capabilities and other tools let investigators:

- See a complete picture of individual customers, their products, transactions and networks at the click of a button.
- Explore entire networks of identities and claims in minutes rather than hours.
- Drill down further into underlying data for full customer details, historic policy and claims activity and information on all related parties and other linked customers and networks.

A full Web-based environment lets you:

- Manage the routing and processing of potentially fraudulent applications and proactive investigations within special investigation units.
- Measure productivity and obtain other information to help manage the unit efficiently and effectively.

Prevent future fraud

SAS helps you better understand emerging threats so you can take action to prevent substantial losses before they happen. For example, the solution:

- Captures investigation outcomes automatically and reuses those outcomes in future scoring.
- Applies automated risk scoring against known fraudulent networks to prevent criminals from masking their previous identities and flags new policies issued to previous fraudsters.
- Generates network diagrams automatically, enabling strategists to see patterns and symptoms that can lead to the implementation of improved controls and new monitoring techniques.

About SAS

SAS is the leader in business analytics software and services, and the largest independent vendor in the business intelligence market. Through innovative solutions delivered within an integrated framework, SAS helps customers at more than 45,000 sites improve performance and deliver value by making better decisions faster. Since 1976, SAS has been giving customers around the world THE POWER TO KNOW®.

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