Fraud Detection and Analytics for the Mobile Communications Sector:

Argyle Data

Tom Ryan, President & CEO

*"Big data is at the foundation of all of the megatrends that are happening today, from social to mobile to the cloud to gaming."***- Chris Lynch**

Mobile communications is permeating every part of our lives and every industry. If you were lucky enough to attend the Mobile World Congress this year, you could see before your eyes the world moving to mobile from handsets to fitness, cars, homes, payments and the Internet of things. Penetrating into the Big Data market, California based Argyle Data is redefining the way fraud solutions work for customers in the domain of mobile communications.

The Market and Argyle Data

2014 will be remembered as the year that the fraud and security dam broke, with fraud moving from being a back-office subject to front-page news. When we researched the market, one thing that struck us was, because the rewards are so large, criminal adversaries are out-innovating enterprises. It was common to see enterprises using the same approaches they were 3 to 5 years ago – but the world of fraud and level of sophistication has moved on dramatically.

The Association of Certified Fraud Examiners (ACFE) reported that the typical organization loses 5% of revenue each year to fraud – a global loss of $3.7 trillion. The Communications Fraud Control Association reported that mobile and fixed-line carriers lose $46 billion per year to fraud.

"When you are fighting a sophisticated modern criminal, technology really matters. Argyle Data is a real-time fraud detection and fraud analytics application built from the ground up on Hadoop using the latest big data, machine learning and anomaly detection technology proven at Facebook and Google", says Tom Ryan, President and CEO of Argyle Data.

Moving away from the Old Pre-Big Data Way of Fraud Detection

Criminals are innovating at a faster rate than the systems defending mobile carriers. Existing fraud management systems are losing the battle. They either fail (are incapable of discovering fraud), overwhelm (bombard users with false positives), operate in batch (discovering fraud after the criminal has gone), or use dated rules (discovering fraud from the past but not new or future fraud types).

Argyle Data uses a modern, big data approach to fraud detection and fraud analytics with extensive use of Hadoop, Big Table and machine learning techniques.
"Fraud detection is a mature market with many old pre-Hadoop, pre-big data systems. What struck us, when we researched the market, is how good Google and Facebook are at protecting their subscribers from fraud, at massive scale, and out-innovating criminals. However, most companies don't have the depth of "Big Data" talent of Google and Facebook," says Ryan. "When we designed our solution we believed, to change the fraud detection landscape, it was necessary to create a pre-packaged real-time fraud detection and analytics application, using the same approaches as Google and Facebook, that is simple enough for any company to roll out and any fraud analyst to use. Facebook has an 'Immune System' that you can think of as a real-time fraud detection system using machine learning at massive scale. We believed that by grabbing network packets and taking a similar approach we could build

an 'Immune System' for mobile carriers and enterprises."

The company's approach has three key phases that must be integrated:
1. Real-time packet ingestion and deep packet inspection (DPI)
2. Real-time feature enrichment and fraud detection using Adversarial Machine Learning
3. Interactive fraud analytics against petabytes of data
The team at Argyle Data believe that the industry is currently going through a stack shift epitomized by a move from:
• Batch to real-time
• Silos or "Data Puddles" to a "Data Lake" that combines signals across channels
• Rules to machine learning
• Expensive scale-up hardware to low-cost commodity scale-out hardware

A preferred choice among customers

When you compare a native Hadoop and Big Data approach to the previous generation of fraud detection systems, Argyle Data's customers benefit from being able to:
• Detect fraud not detected by existing systems
• Detect fraud in minutes vs. days
• Detect both new and old (known) fraud attack techniques
• Dramatically reduce false positives
• Save millions of dollars from the bottom line
• Protect their brand from reputation damage

The Future for Argyle Data

Argyle Data focuses on delivering its fraud detection and fraud analytics to the largest mobile

Ian Howells, CMO

communications companies in the world with a focus on North America and Europe. They believe that they can dominate fraud detection and fraud analytics in the mobile communications sector. Just as relational databases created a new breed of billion dollar application companies in CRM, ERP, and HR they believe that Hadoop will similarly create a new breed of billion dollar application companies and that fraud will be a major category. Their future vision is to drive fraud detection and fraud analytics as a horizontal category and be the leader in all aspects where mobile communications and fraud impacts the day to day lives of many.

Arshak Navruzyan, VP