Fraud Detection and Compliance with Graph Learning

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Introduction

- Sai D. Burra, Founder and Chief Innovation Officer
- Abhay Solutions and ASI Consulting
- We provide solutions to P&C industry and LEAs
- Regional presence: USA, UK, Singapore, India and Philippines.
Data Challenges in Fraud detection and Analytics

- Fraud numbers and volume are increasing each year
- Fraud complexities are increasing
- Organized crime is biggest threat
- Volume and Variety of data
- Legacy systems
- Multiple application / information sources
- Legislation / Regulatory requirements
- Data Privacy
Fraud detection and analytics for Corporates

• Fundamentally graph brings new representation of data to existing data computation technologies and enables new insights.

• Fraud solutions in corporate are more predictive in nature and focused on identifying Illegit transactions.

• Fraud detection is predictive in nature and helps focus on critical cases.

• Fraud examiners also use analytics for understanding patterns to improve investigations, process and procedures within the company.

• Graph helps AI and ML computation engines in improving detection accuracy through newly established attribute level relationships.
Fraud detection and analytics for LEAs

- Legal enforcement agencies (LEA) are more investigative in nature though some sections use predictive analytics for real-time fraud identification like Immigration, Tax and Bank regulatory authorities.
- LEAs have very big challenge of collecting and unifying data from multiple agencies and authorities like (Banks, phone companies, tax authorities, financial institutions).
- LEA are not just bound to Identify fraudulent transactions but also build complete conspiracy and evidence.
- Use Analytics to examine existing cases to investigate and to build evidence / circumstantial evidence.
- Unified view of data is extremely important for LEAs
- Community detection plays big role in identifying Syndicates and group frauds
How Unified data helps

• Graph representation allows for novel ways of connecting disparate information.

• Visualization of unified data is made simple by Graph databases.
  • Though effort is required to harmonize the information to a schema.

• Data computations is made simple across disparate information by graph.
  • Hash functions provide a way combine multiple graphs built from different sources.

• LEAs unification of data is more complex than corporates.

• Graph learning technologies amplifies data computation capabilities on large data.
Why Unified View is difficult

Insurance Industry example

Challenges
- Disparate Systems
- Information Silos
- Legacy Systems
- Multiple Records
Why Unified View is difficult
Legal Enforcement Agency example

Challenges
Disparate Systems
Information Silos
Legacy Systems
Multiple Records
Graph learning helps Fraud investigations

• Let’s look into benefit of Graph representation in Fraud investigation:
  • Demonstrate complete picture of a particular transaction (Claim in this example)
  • Demonstrate relevant information in one picture instead of 25 records/rows.
  • Document the transaction
  • Present any relevant connections (to signify group participation in fraud)
  • Exchanging Case information between departments (in companies) / Authorities (in LEAs).
    • Summarize pages of data and explanation in one view.
    • Few pages instead of 10s and 100s of pages.
Graph learning in Fraud investigations
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Graph learning in Fraud investigations
Recommended approach

- Domain Expertise + Latest Technology + Algorithms
- Focus on compliance
  - Detect
  - Document
  - Demonstrate
- Pull data from current applications as required
- Automate Workflow/Orchestration for Data Movement, Process flow, and Flagging
- Co-exists and integrate with current applications (Not a Rip & Replace)
- Enable Web and Mobile interface
- Choice of Cloud and / or On-premise solutions
- Take advantage of modern applications stack
Q & A

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