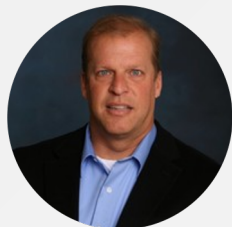




Fight Fraud With TigerShield Anti-Fraud Solution



Today's speakers



Michel Shaler

VP BUSINESS DEVELOPMENT

✉ michael.shaler@tigergraph.com



Scott Heath

FRAUD, GRAPH & ANALYTICS

✉ scott.heath@experoinc.com



Graham Ganssle, Ph.D.

HEAD OF DATA SCIENCE, EXPERO

✉ graham.ganssle@experoinc.com



Topics

2021 (AML) :
What does the future hold?

Complexity and State of AML

Key Features and Issues facing AML - Treasury Changes & Impacts

(Michael Shaler - 18 min)

2021 - What will the Role of ML, GRAPH & Humans be?

How - Graph + Machine Learning combine

(Graham Ganssle, Ph.D. - 18 min)

What is in the New TigerShield Solution?

How Does TigerGraph address these issues? Demos of Art of the Possible

(Scott Heath - 18 min)

Q&A

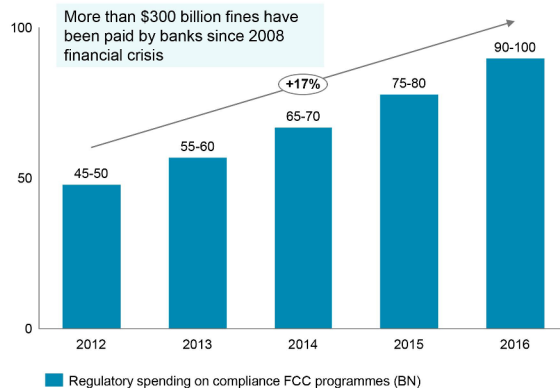
(5 Min)





UNODC

United Nations Office on Drugs and Crime



The United Nations Vienna 1988 Convention Article 3.1 defines **money laundering** as “the conversion or transfer of property, knowing that such property is derived from any offense(s), for the purpose of concealing or disguising the illicit origin of the property or of assisting any person who is involved in such offense(s) to evade the legal consequences of his actions”.

Three stages of Money Laundering:

- **Placement:** Moving funds from direct association with crimes
- **Layering:** Disguising the trail to foil pursuit
- **Integration:** Making money available to criminals from what seem to be legitimate sources

<https://www.unodc.org/unodc/en/money-laundering/overview.html>

Total aggregated bank fines in 2020	\$14.21B
Most common violation	AML breaches

<https://finbold.com/bank-fines-2020/>

Key Considerations for AML

NOT SMALL \$

- UNODC: Money laundering is "2–5% of global GDP, or \$800B to \$2T in current USD."

NOT JUST BANKS

- Retail, casinos, real estate, human and drug trafficking, terrorists, and others

NOT JUST RISK SCORING

- Understanding *connected behavior* in space/time is necessary for teams to find financial crimes

NOT JUST KYC

- Effective investigation now needs ***KNOW YOUR CUSTOMER'S CUSTOMER***

NOT JUST HUMANS

- Graph analytics, machine learning and artificial intelligence all help investigators do even better

Lets Get Specific about ... Fraud Impact

J.P. Morgan paid a \$1.7 billion fine for its failures to report suspicious activity relating to the Bernard Madoff Ponzi scheme.^[10] Between 1986 and 2008, the scheme was conducted almost exclusively through accounts at J.P. Morgan Chase Bank. Over a multi-year period, multiple red flags were identified. J.P. Morgan was concerned enough that it reduced its financial exposure to Madoff funds in response to those red flags. However, even after J.P. Morgan's UK affiliate reported its concerns to the U.K. authorities, no such report was made in the U.S.

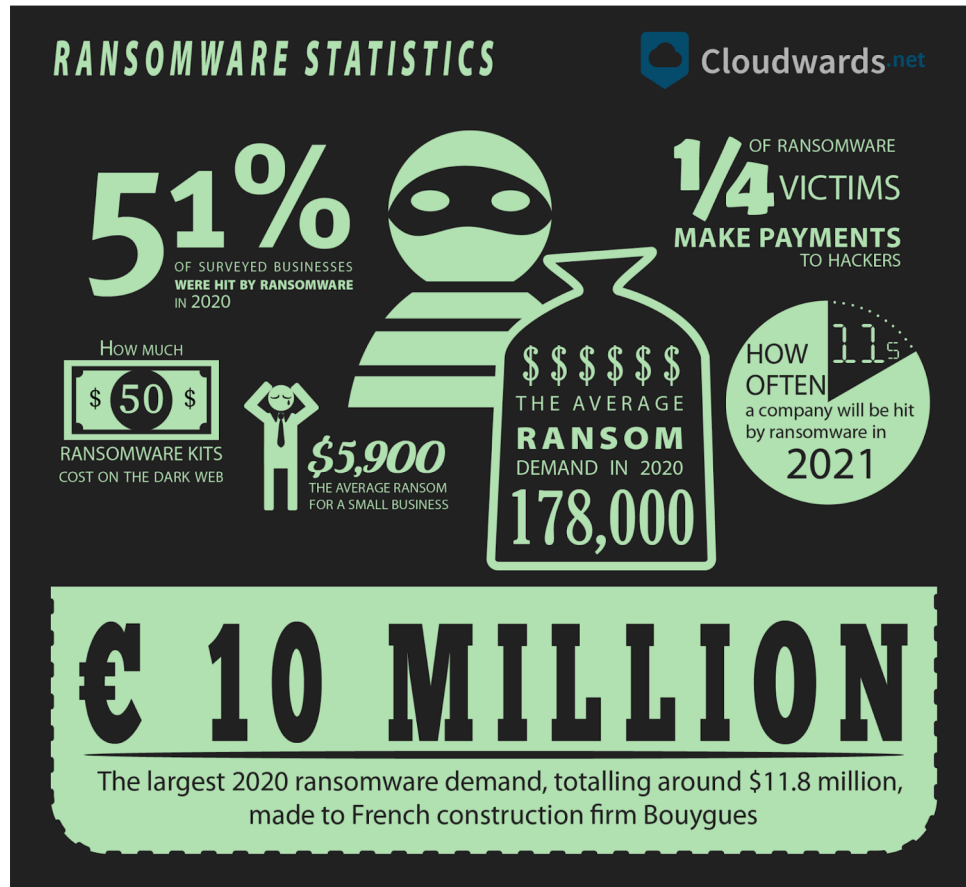
HSBC Bank USA settled claims with regulators, including the Financial Crimes Enforcement Network – or FinCEN, the bureau of Treasury charged with implementing the Bank Secrecy Act or BSA, with penalties exceeding \$1.9 billion for failure to have an adequate AML program.^[9] Regulators raised concerns of an understaffed AML compliance function, a failure to monitor numerous transactions from high risk jurisdictions, and even the classification of one such jurisdiction as the lowest AML risk category. FinCEN's assessment stated over and over again that HSBC's fundamental flaw was a failure to conduct risk-based evaluations in designing its program

- **Kevin W. Goodman**
SEC

National Associate Director, Broker-Dealer Examination Program
Office of Compliance Inspections and Examinations

Welcome to the Wild, Wild West...

- **2006:** First ransomware discovered in Russia ([TROJ_CRYZIP.A](#)) leveraging ransom payout via earlier variants of cryptocurrency
- **2012:** Reveton began locking out users from computers/networks with false warnings of FBI surveillance
- **2013:** CryptoLocker became first widely-recognizable crypto-ransomware, followed by TorrentLocker, CryptoWall, and Linux.Encoder.1
- **2019:** Baltimore City government = \$18M
- **2020:** [Cybersecurity Ventures](#) predicts cybercrime will cost the world in excess of \$6 trillion annually by 2021, up from \$3 trillion in 2015.
- **2021:** Scripps Health attacked on May 1 (ransom undisclosed, hospital operations broadly impacted)
- **2021:** Colonial Pipeline and \$5.5 M payment
- **2021:** JBS Meat and \$11 M payment



Fraud Use Cases

Use Cases Drive Outcomes



BUSINESS CASES

- Anti Money Laundering (AML)
- Internal Fraud - Entitlements
- Credit Card & Transaction Fraud
- ID falsification & theft
- Cyber - Malware
- IoT & Asset Fraud
- Audit & Compliance
- Claim, Dispute Charges
- Law Enforcement - Prosecution



INVESTIGATION - VISUALIZATION

- Advanced Visualization
- Dependency | Network Pathing | Routing | Complex Visualization
- Clustering & Community Detection
- Geospatial 'Network Mapping'
- Real Time Data - IoT Systems
- Team based Workbench & Investigation



ML & ANALYTICS

- Patterns - Recommendations
- What If - Planning & Visibility
- Predictive & Analytics
- Scoring and Risk
- Audit & Compliance - Historical
- Targeting Similarities
- Decision Tree Analytics



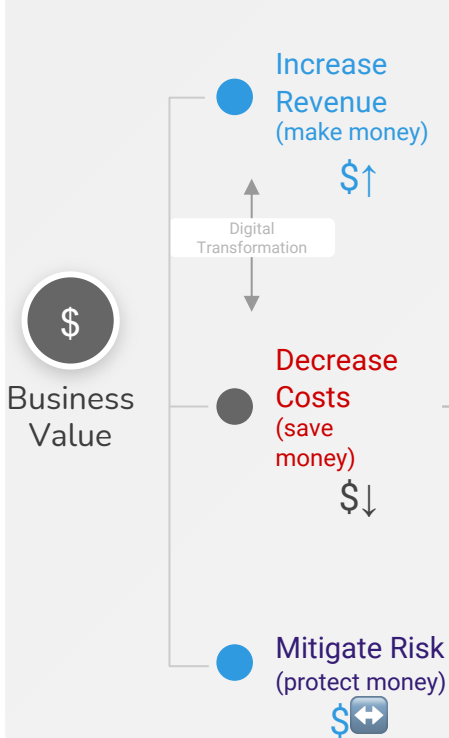


2020 AML Legislation - How Tiger Fraud Can Help?

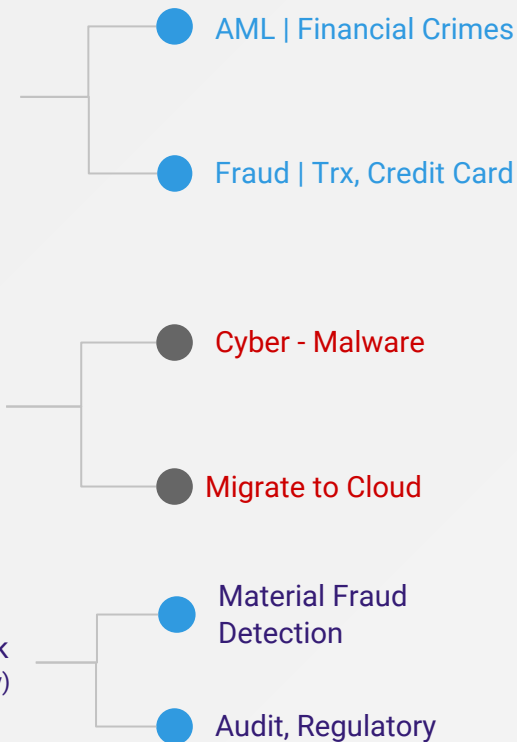
Codification	Codification of risk based approaches that include ML, Boolean logic and Graph algorithms allow for higher accuracy, lower false positives and easier maintenance and more complete documentation and reports. The increase of connected data including people, organizations, ownership, transactions and other Non Obvious relationship management and deep link investigation capability via a Graph Database technology
Modernization	Modernization of traditional SQL and flat file information systems with the ability to have a flexible and easy maintain data model. The ability to allow for massive growth and data access in real time
Expanding Enforcement	Process improvement, higher quality documentation and detailed alerts, workflow and cases mean better preparation for audits. The ability to easily secure and share data at an atomic field and obfuscated data level for US Govt and bank to bank data sharing.
Disclosure	The ability balance and de-risk AML programs with the ability to flexibly create and manage risk models, scores and other internal flags and monitoring systems for creation of effectiveness goals and programs
Sharing - Coordination	The ability to share and coordinate in with complex data easily and securely. This includes Bank - Bank, Bank to Govt enforcement and internal data sharing ability
De-Risk	The ability to increase accuracy, decrease false positives, and escalate and resolve investigations with as little friction as possible

FRAUD USE CASES

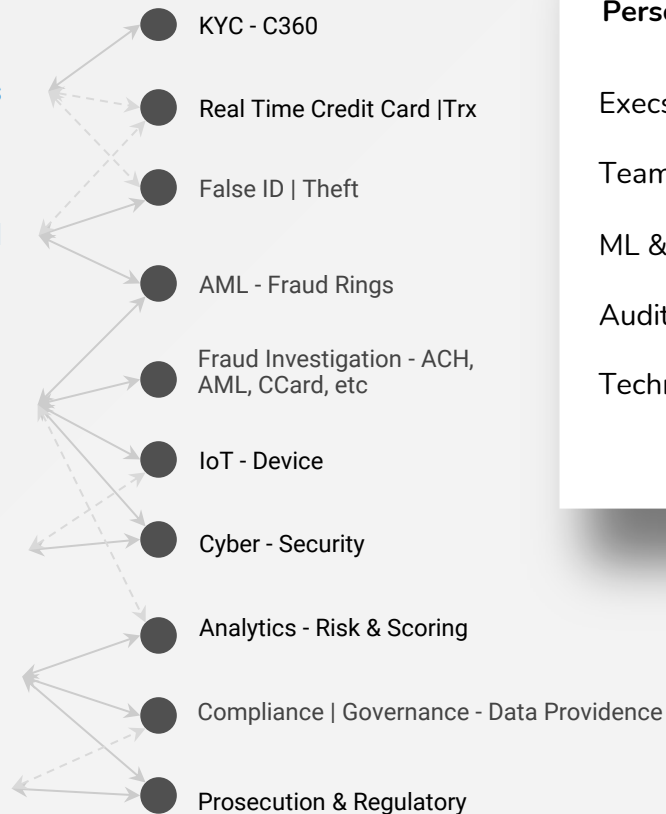
Key Drivers



Strategic Objectives



Example Use Cases



Roles / Persona Types

Execs & Mgt

Teams: C360, Fraud

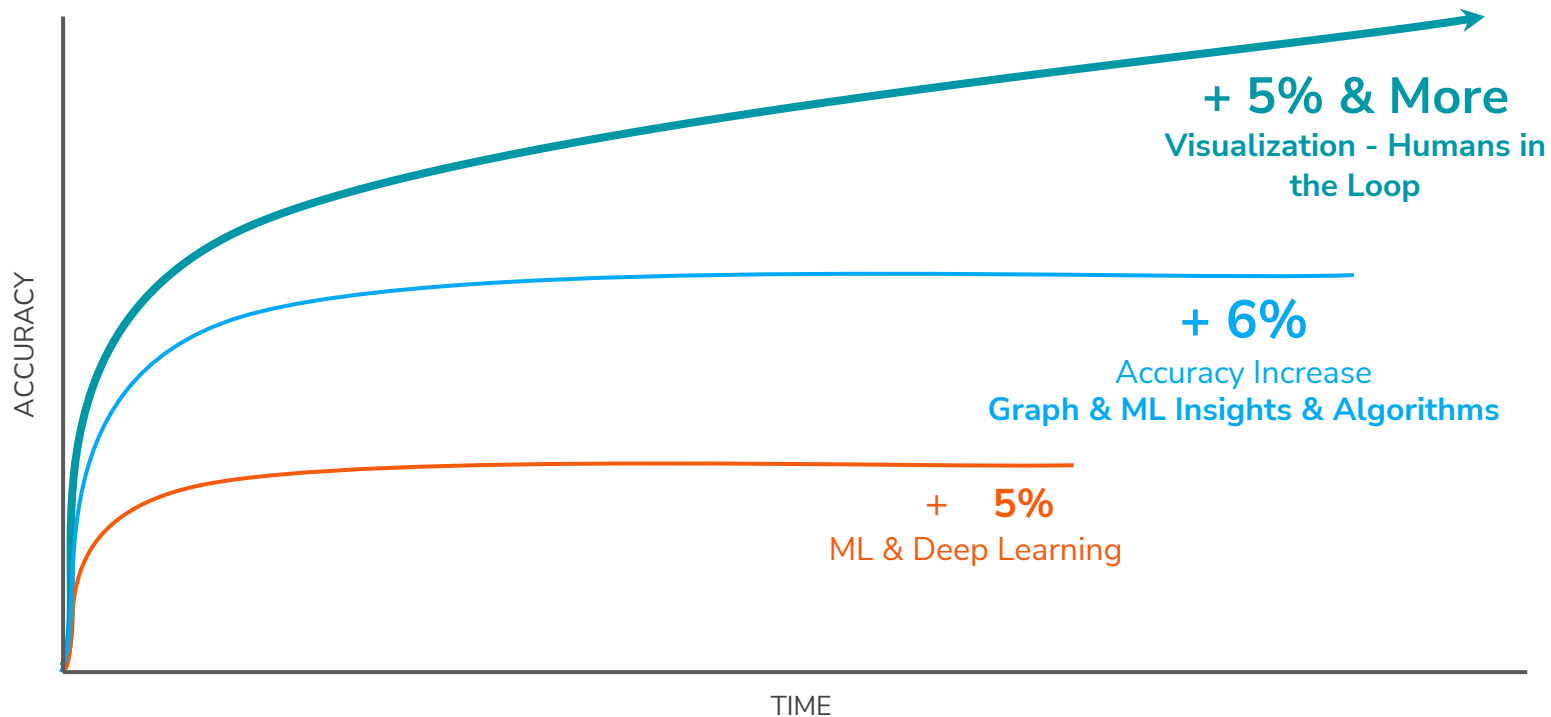
ML & Data Science

Audit | Compliance

Technical Teams



Provide Accuracy Boost & False Positive Reduction ~16%+



Top Trends in Data and Analytics For 2021



Accelerating Change

- 1** Smarter, Responsible, Scalable AI
- 2** Composable Data and Analytics
- 3** Data Fabric is The Foundation
- 4** From Big to Small and Wide Data



Operationalizing Business Value

- 5** XOps
- 6** Engineering Decision Intelligence
- 7** D&A as a Core Business Function



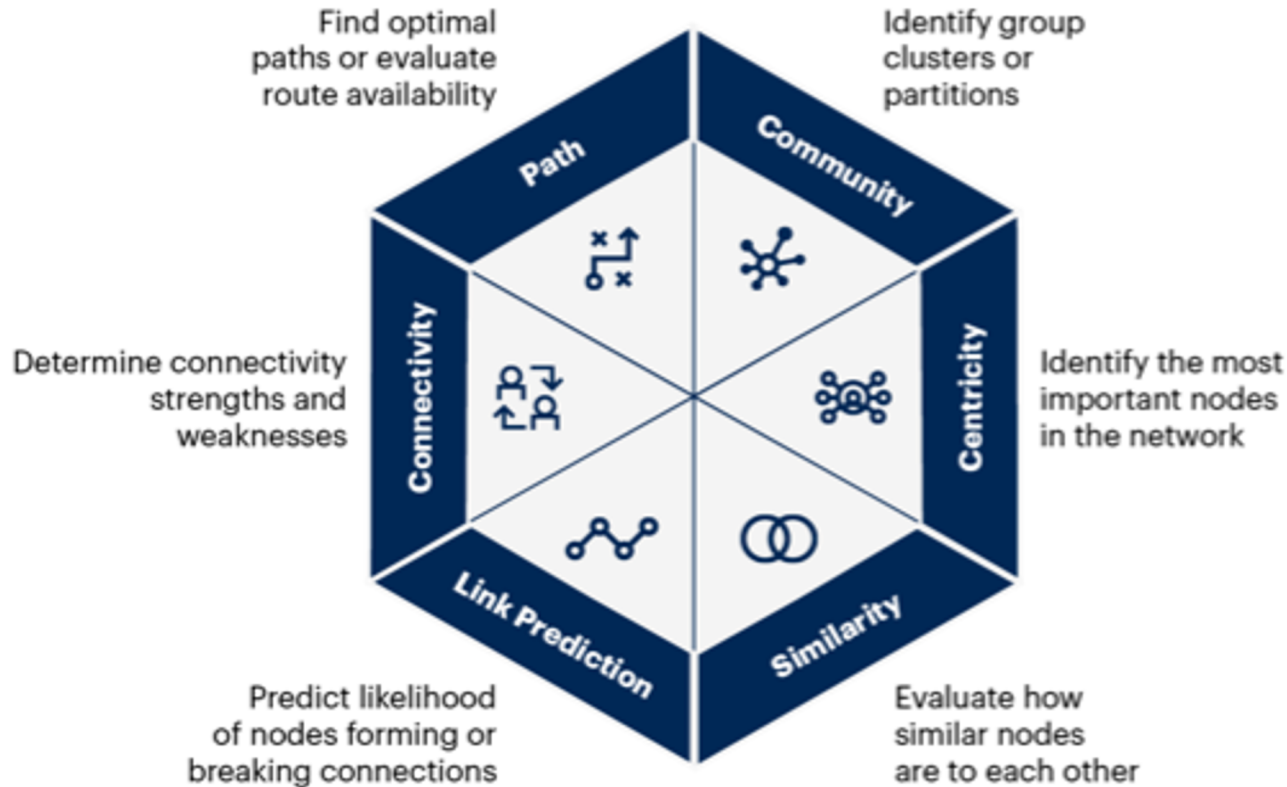
Distributed Everything

- 8** Graph Relates Everything
- 9** The Rise of the Augmented Consumer
- 10** D&A At the Edge

Source: Gartner

729348_C

Six Main Types of Graph Analytics



Gartner

COOL
VENDOR
2020

FORRESTER®

WAVE
LEADER 2020

Graph Data Platforms

Gartner®

Source: "Understanding When Graph Technologies Are Best for Your Business Use Case" Jim Hare et al, 2020



Bank of America®



Bank of America

Credit Card Fraud

CUSTOMER NEED

- Complex Investigation - community detection for potential criminal cohorts : Transaction, Cookie, Contact, Credit Card Data
- Massive Real time Transaction ingest & Automate Alerts
- Fraud rings identified for further scrutiny to better investigators

BUSINESS DRIVERS

- Replace Current Graph Technology
 - Entire corporate dataset could be processed together
 - Large & Complex - 4 Billion+ Nodes & Vertices (10yrs data)
- Expensive & Labor intensive investigations

DELIVERED FUNCTIONALITY

- 6 mth Graph product shootout - Replace Neo4J
 - Massive Transaction benchmarks on various platforms
- Fraud Analytics
 - Programmatic data pre-processing
 - Full graph processing for computing influence (PageRank) and community detection (Louvain)

BENEFITS

- Enterprise Enablement - Massive Scale & Complete in real Time
- Lower TCO - by 50%



Regulators fine U.S. Bank more than \$600M for AML errors

By Kate Berry February 15, 2018, 10:44 a.m. EST 2 Min Read



AML - Case Study

CUSTOMER NEED

- **False Positive Reduction** - Real Time reduction of false positive for AML Investigations
- **Increase Accuracy** - Use Graph Connections to surface real deep link or 'non-obvious' relationships
- **Graph Analytics** - Allow lay investigators to use power or deep line, ML & automated pattern detection

BUSINESS DRIVERS

- Bolt Onto Existing : Oracle, Actimize & Custom Rules engines
- ML, Analytics & Graph Technology Platform Enablement
 - Entire corporate dataset could be processed together
 - Large Complex - 4 Billion+ Nodes & Vertices (10yrs data)
- Automate Labor intensive investigations

BENEFITS

- 10% increase of Accuracy ~\$20M
- Avoid Fines - \$2 - 4M a year
- ~\$10 Min in Manual process automation - Learn from historical AML & create 'Real Time' system to minimizing expensive manual investigative time

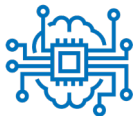
TigerGraph is the only scalable graph database for the enterprise

Founded in 2012 , HQ in Redwood City, California

Advanced Analytics & ML on Connected Data



Enterprise Scale Database
40-300x faster than
competition



Foundational for
AI and ML
solutions



Concurrent **OLTP** &
OLAP Workloads

GSQL

SQL-Like Query
Language



OnPrem, SaaS
& Cloud
Marketplaces



Global teams
located in **4**
continents

Our Customers Include The
Largest Companies in:



Finance



Healthcare



Telecom



Media



Utilities



Cybersecurity



Ecommerce



Retail



FORRESTER WAVE
Nov 2020
Recognized as one of
the top 5 leaders
along with Neo4j,
AWS, Azure & Oracle



GARTNER
May 2020



INSIDE BIGDATA
2018 | 2019 | 2020

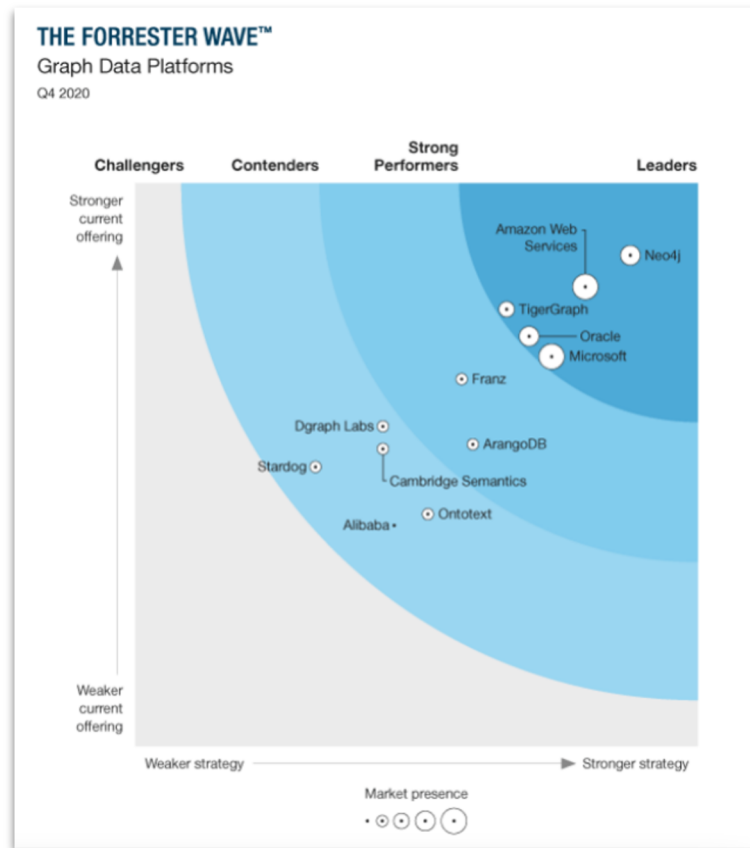


DBTA 100
2019 | 2020

Forrester Research recognizes TigerGraph as a Leader

Forrester says, “Customers like TigerGraph's speed, language, ease of deployment, performance, visual tooling for graph schema/query, and support for both transactional and analytics use cases in the same instance.”

Download the full report [here](#).



TigerGraph Scores Perfectly On 9 Key Criteria for Enterprise Deployments

Perfect scores were awarded for:

- Scalability
- Performance
- Workloads
- Transactions
- Queries/search
- Data loading/ingestion
- API/extensibility

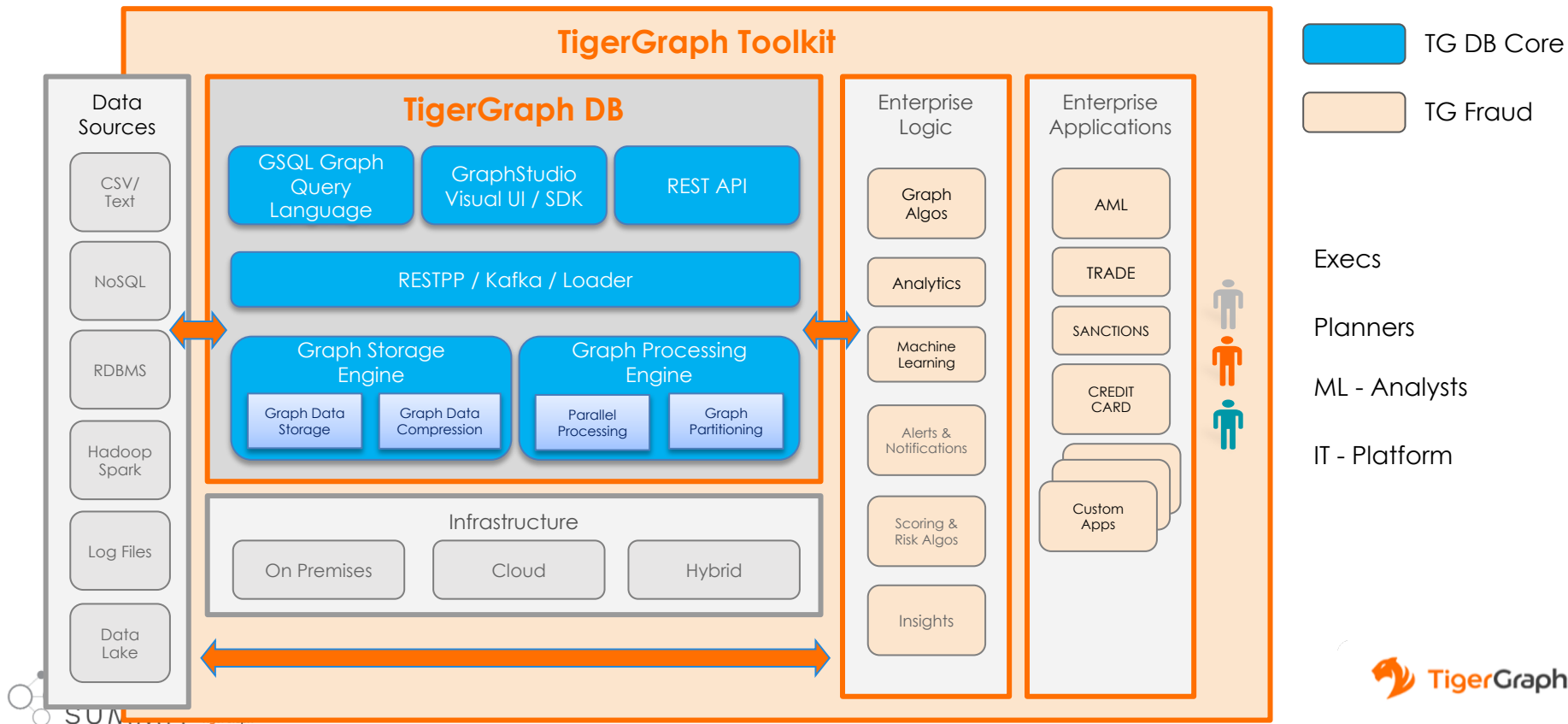


TigerGraph also received the highest possible score in the **community** criterion in the “strategy” category and in the **global presence** criterion in the “market presence” category.

Download the full report [here](#).

Tiger Fraud

Total Approach - TigerGraph Platform



TigerShield Solution Focus



- Increase Accuracy
- Decrease False Positives
- Utilize My Current Technology
- Increase Speed & Efficiency
- Adapt to Govt Changes Faster
- Modular Total Solution
- Powered By TigerGraph



Topics

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(Michael Shaler - 18 min)

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What is in the New TigerShield Solution?

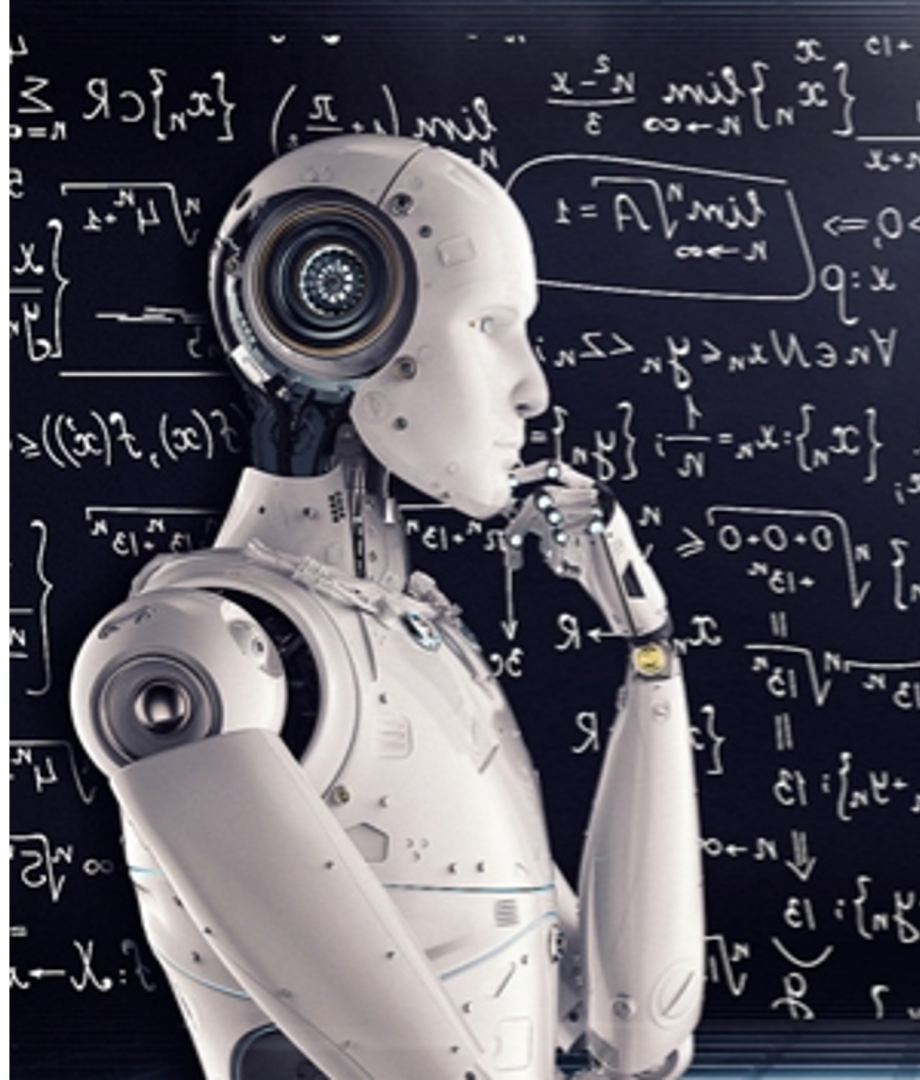
How Does TigerGraph address these issues? Demos of Art of the Possible

(Scott Heath - 18 min)

Q&A

(5 Min)





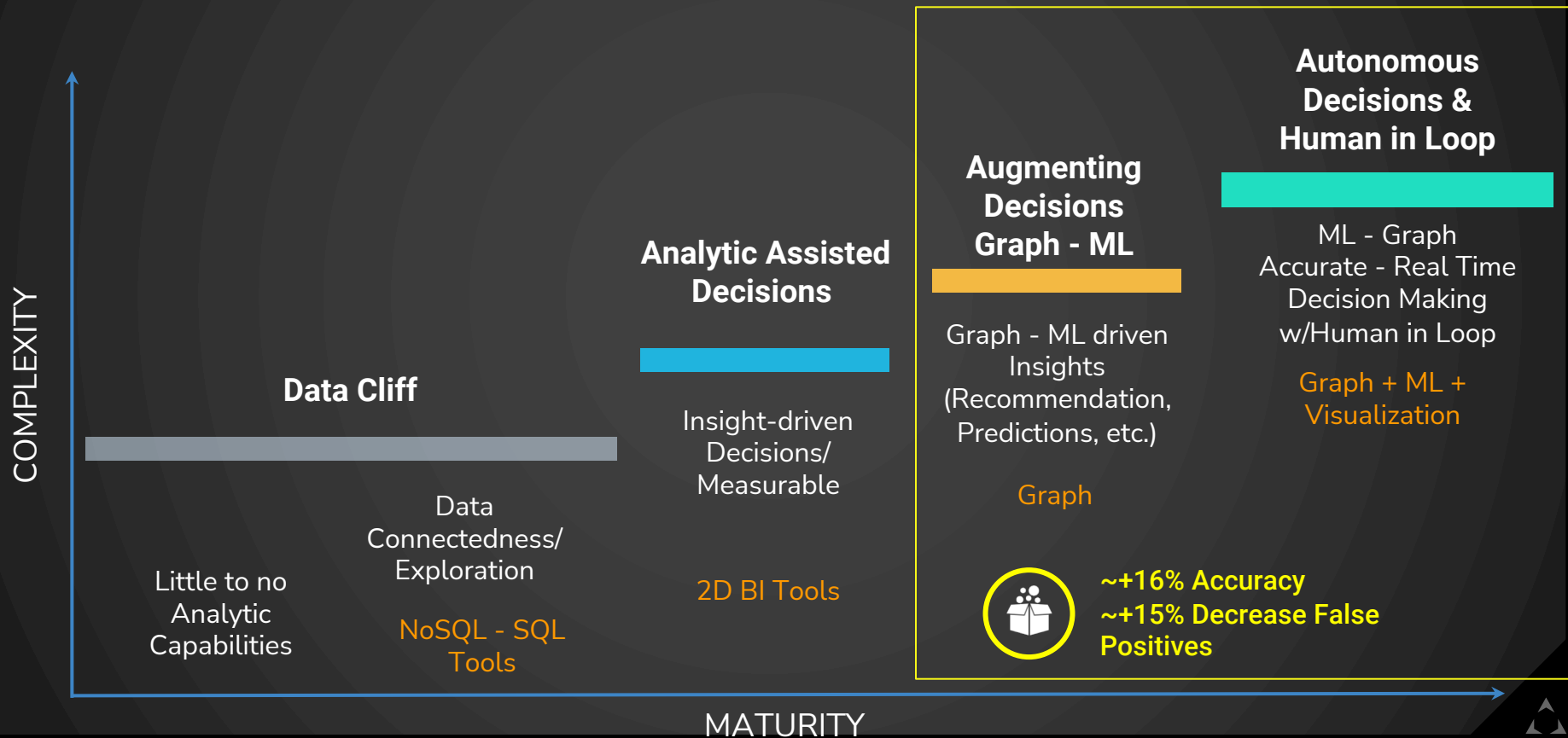
How Tiger Fraud Work? Data Science, Graph And Domain Expertise

why is data science + ML interesting in
this domain?

Resources:

[ML Blog Posts](#)

Maturity Toward Graph, Visibility + Human in the Loop



Customer : **ORACLE**
Trades & Book of Record
teradata.
snowflake

ETL (2) **CyberSource**
NICE **FICO**
ACTIMIZE **3rd Party : Scoring**

ETL (3) **opencorporates**
Moody's **LexisNexis**
ANALYTICS

ETL (4) **US Treasury**
Central Intelligence Agency **FinCEN Exchange**
UNITED STATES DEPARTMENT OF THE TREASURY

ETL (1)

Entity - Smart Data Linking

TigerGraph **FIBO - Data Model**
XILINX

ML Model

Business logic Model

Graph Model

Composite Risk Score

Dashboard - Ranking & Analytics

Trade & Information Analytics Blotter

TRADER

Trade & Review

Yes
No

Trade Accepted

Investigate

Yes
No

(HIL) Human-In-The-Loop

INVESTIGATOR

Manual Adjustments Made



- Levenstein
- Louvain
- Strength of Connection
- PageRank

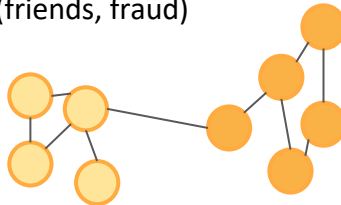
- Levenstein
- Louvain
- Strength of Connection
- PageRank

Dependencies

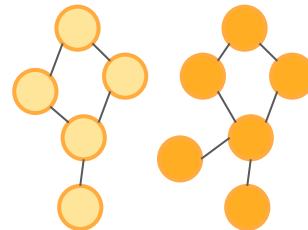
- Failure chains
- Order of operation



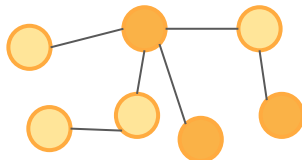
Finding things closely related to each other (friends, fraud)



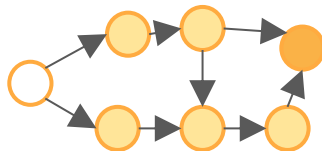
Similar paths or patterns



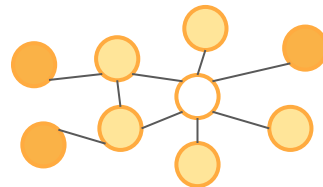
Highlight variant of dependencies



Find distribution problems, efficiencies



Which nodes are the most connected or relevant



Included Algorithms

Explainable ML/AI

GRAPH

Clustering

Betweenness

Similarity

Degree

Page Rank

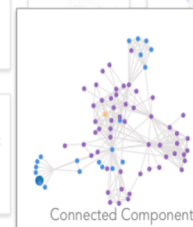
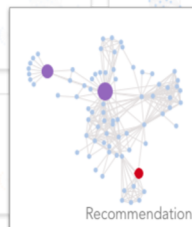
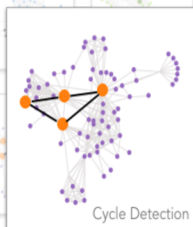
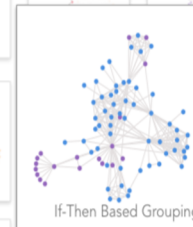
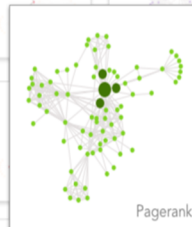
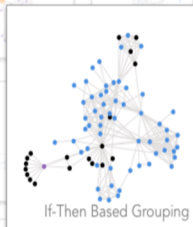
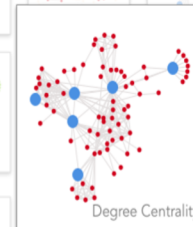
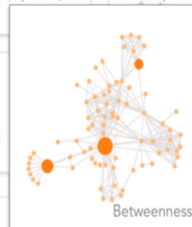
Recommend

Shortest Path

Connected

Centrality

Detection



MACHINE LEARNING

Graph Convolutional Networks (GCN)

Temporal Pattern Detect

Louvain

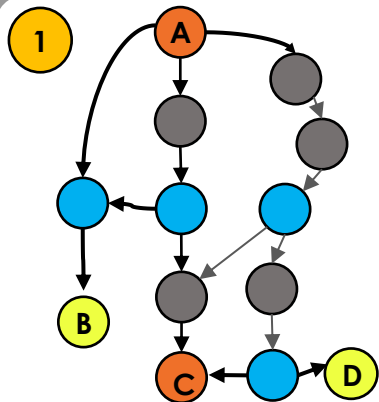
Dependency Networks (RPN)

Markov Networks (RDN)

Probabilistic Models (PRM)

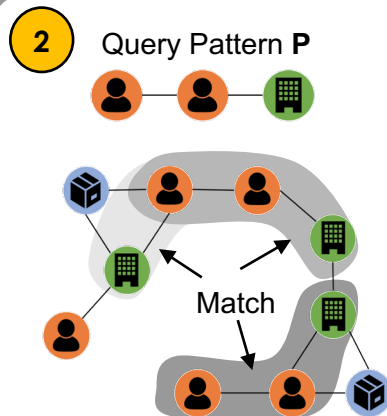
7 Key Data Science Capabilities Powered By A Native Parallel Graph

Deep Link Analysis



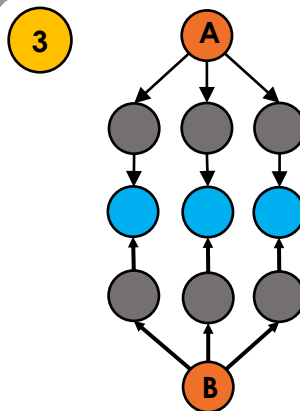
From a set of entities (e.g. customers, accounts, doctors), show all links or connections

Multi-dimensional Entity & Pattern Matching



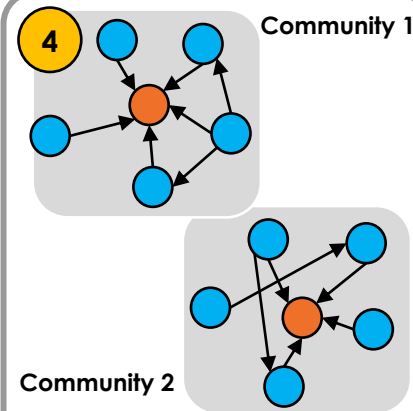
Given a pattern (e.g. a type of suspicious activity), find similar patterns in the graph

Relational Commonality Discovery and Computation



Given 2 entities (e.g. customers, merchants, devices), follow their relationships to find commonality

Hub & Community Detection



Find most influential members (customers, doctors, citizens) & detect community around them

5 Geospatial Graph Analysis

Analyze changes in entities & relationships with location data

6 Temporal (Time-Series) Graph Analysis

Analyze changes in entities & relationships over time

7 Machine Learning Feature Generation & Explainable AI

Extract graph-based features to feed as training data for machine learning; Power Explainable AI

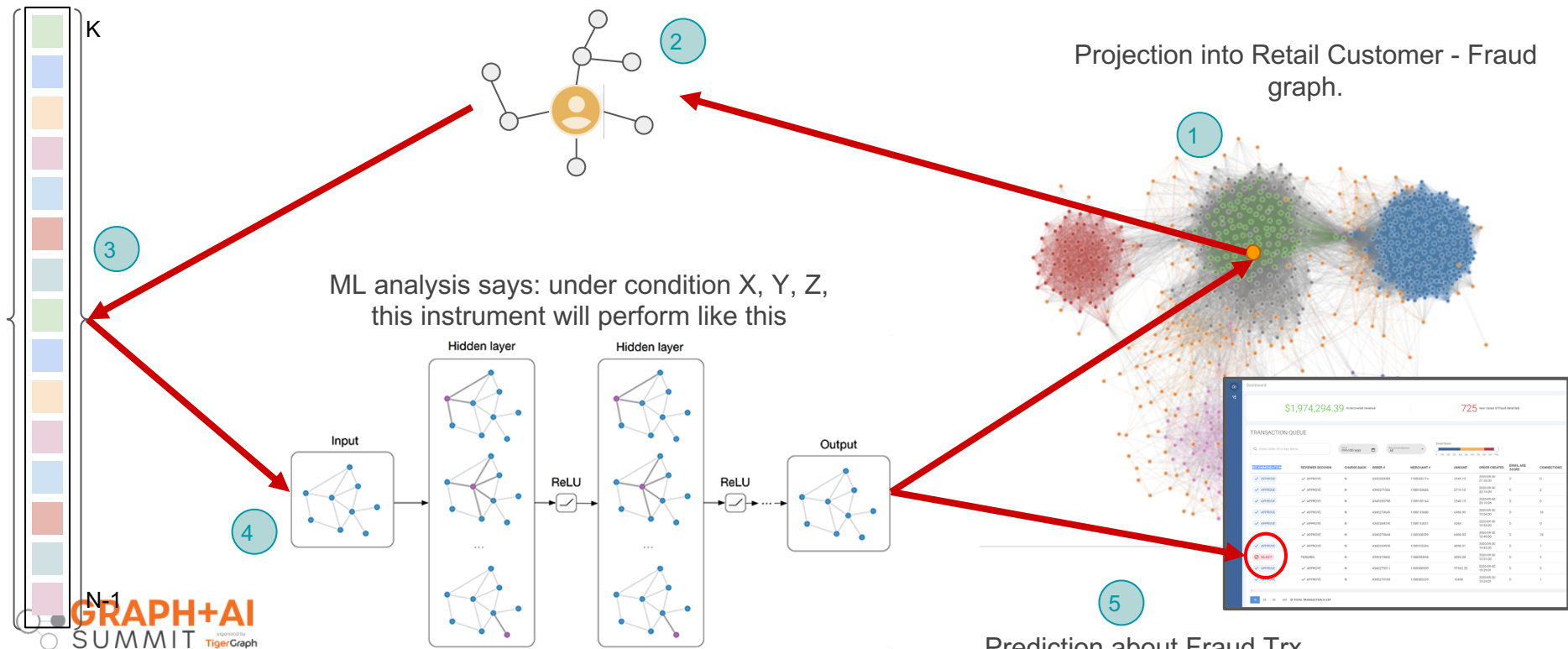
Detailed Steps in Prediction Process

Feature extraction from graph showing its performance under conditions A, B, C

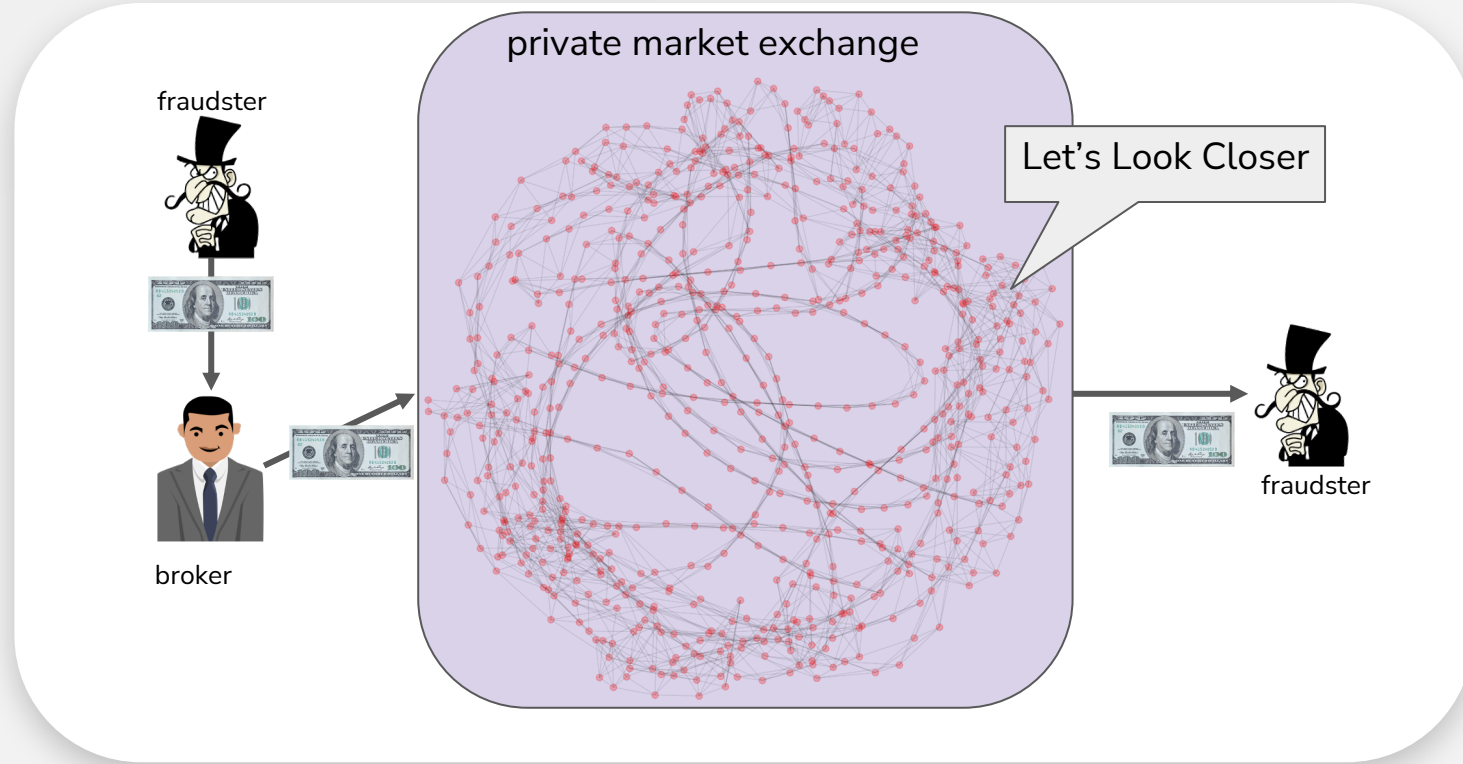
Projection into Retail Customer - Fraud graph.

ML analysis says: under condition X, Y, Z,
this instrument will perform like this

Prediction about Fraud Trx

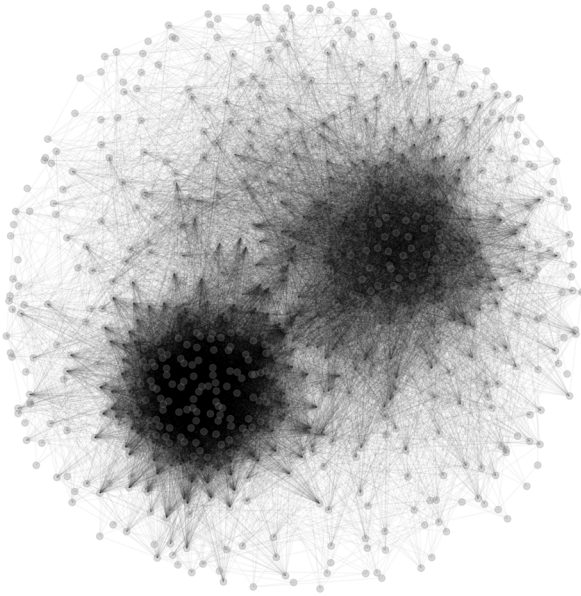


Trade AML Detection - Round Tripping

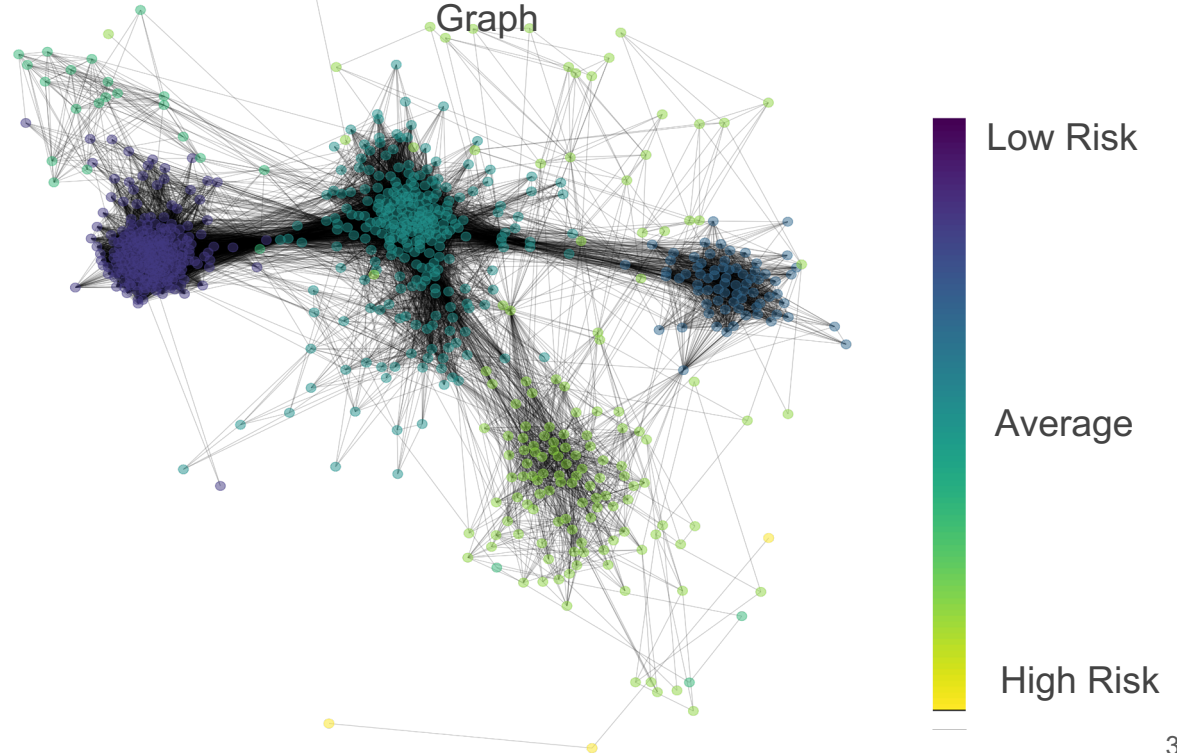


Fraud - Identity Lookalikes

Unstructured graph of
Unrelated Fraud
Transactions



Same graph, automatically clustered by their history
similarities by an unsupervised learning algorithm +
Graph



GraphML Recommendations = Accurate & Efficient Decisions

GraphML Recommendations



Workbench Recommendation	Other Systems
REJECT	✓ APPROVE
APPROVE	✓ APPROVE
APPROVE	REJECT
REJECT	✓ APPROVE
APPROVE	✓ APPROVE
APPROVE	✓ APPROVE
REJECT	REJECT
REJECT	REJECT
REJECT	✓ APPROVE
APPROVE	REJECT
APPROVE	✓ APPROVE
REJECT	✓ APPROVE

Dashboard / Claims Queue

\$22.5M

YTD Recovered Payments

370

YTD Fraudulent Claims Detected

\$4.6M

YTD Fraud Losses

32 Flagged Claims

Enter Transaction ID or key terms

Timeframe7 days

Recommendation TypeAll

Risk Score0100

Workbench Recommendation	Other Systems	Dispute	Claim ID	Member #	Amount	Patient Email	Date	Community Connections	Reviewer Decision
REJECT	✓ APPROVE		4340067280	54323007	30000.00	aliashere@email.com	2020-08-17	DETAILS GRAPH	Select
APPROVE	✓ APPROVE		4340237520	54260032	41000.25	aliashere@email.com	2020-08-17	Yes DETAILS GRAPH	Select
APPROVE	REJECT		4340067252	42694010	15870.00	aliashere@email.com	2020-08-17	DETAILS GRAPH	Select
REJECT	✓ APPROVE		4340541254	42629022	45980.20	aliashere@email.com	2020-08-17	Yes DETAILS GRAPH	Select
APPROVE	✓ APPROVE		4342524369	42672912	12500.99	aliashere@email.com	2020-08-17	DETAILS GRAPH	✓ APPROVE
APPROVE	✓ APPROVE		4346279000	42647290	42670.60	aliashere@email.com	2020-08-17	DETAILS GRAPH	✓ APPROVE
REJECT	REJECT		4340052356	42629120	52670.90	aliashere@email.com	2020-08-17	Yes DETAILS GRAPH	REJECT
REJECT	REJECT		4340052178	42691011	17800.25	aliashere@email.com	2020-08-14	DETAILS GRAPH	REJECT
REJECT	✓ APPROVE	YES	4340054370	42690209	10250.00	aliashere@email.com	2020-08-14	DETAILS GRAPH	✓ APPROVE
APPROVE	REJECT		4340469000	42692034	21890.00	aliashere@email.com	2020-08-12	DETAILS GRAPH	REJECT
APPROVE	✓ APPROVE		4340522682	46591081	21890.00	aliashere@email.com	2020-08-12	Yes DETAILS GRAPH	✓ APPROVE
REJECT	✓ APPROVE	YES	4344236589	42690107	35000.00	aliashere@email.com	2020-08-11	Yes DETAILS GRAPH	✓ APPROVE

GraphML Rationale = valuable, deep insights

Rationale for Quick Decisions
(Explainable Graph + ML)



Workbench Recommendation
❌ REJECT

Reviewer Decision
PENDING

Recommendation Rationale
Provider ██████████
Community Connections ██████████
Location █████
Upcoding █████
IP Address █████

Dashboard / Claims Queue / Claim 4340067280
ORDER DETAILS MAP SEGMENTATION NETWORK

Decision for this Claim?

Review Required

Workbench Recommendation
❌ REJECT

Reviewer Decision
PENDING

Recommendation Rationale
Provider ██████████
Community Connections ██████████
Location █████
Upcoding █████
IP Address █████

Claim
4340067280
Member ID
54323007
Amount
30,000.00

Show Providers
87 ID: 4237801019 JUN 15, 2020 13:41 EST
85 ID: 5435278032 JUN 15, 2020 3:08 EST
80 ID: 5728057890 JUN 14, 2020 17:48 EST
80 ID: 5623792328 JUN 14, 2020 12:42 EST
10 ID: 5170081234 JUN 13, 2020 1:42 EST

Origination Received

Connections to Risky Communities

12 Emails

Email	Connection Type	Transaction
jason.pattison414@email.com	Direct	234567891
jason.pattison416@gmail.com	Direct	345678901
jason.pattison420@gmail.com	2nd Degree	456789012
jason.pattison421@gmail.com	2nd degree	567890123
jason.pattison430@gmail.com	2nd degree	678901234

[MORE](#)

2 Numbers

Phone Numbers	Connection Type	Transaction
+44 12 9222-5678	Direct	456789012
+44 23 9333-4444	Direct	567890123



GraphML Visualizations = Efficiency Gains & Accurate Decisions

Simple & Powerful

Data Connections driven by Graph Algorithms save users time

- Louvain - Risky Communities & Bad Actors
- Similar Claims

Connections to Risky Communities



12 Emails

Email	Connection Type	Transaction
jason.pattison414@gmail.com	Direct	234567891
jason.pattison416@gmail.com	Direct	345678901
jason.pattison420@gmail.com	2nd Degree	456789012
jason.pattison421@gmail.com	2nd degree	567890123
jason.pattison430@gmail.com	2nd degree	678901234

[MORE](#)



2 Numbers

Phone Numbers	Connection Type	Transaction
+44 12 9222-5678	Direct	456789012
+44 23 9333-4444	Direct	567890123

Similar Claims

Timeframe

60 days

Recommendations

All

Recommendation	Reviewer Decision	Dispute	Claim ID	Provider	Email Connections	Phone	Location	IP Address	
REJECT	✓ APPROVE		THIS Claim						GRAPH
APPROVE	✓ APPROVE	Yes	234567891						VIEW ORDER GRAPH
APPROVE	✓ APPROVE		345678901						VIEW ORDER GRAPH
REJECT	REJECT		456789012						VIEW ORDER GRAPH
APPROVE	REJECT		567890123						VIEW ORDER GRAPH
APPROVE	✓ APPROVE		678901234						VIEW ORDER GRAPH

[SHOW MORE](#)



Augmenting Fraud Models with Colearning

Dashboard / Claims Queue / Claim 4340067280

ORDER DETAILS MAP SEGMENTATION NETWORK

Review Required

Workbench Recommendation
REJECT

Reviewer Decision
PENDING

Recommendation Rationale

Provider ██████████
Community Connections ██████████
Location ██████████
Upcoding ██████████
IP Address ██████████

Claim
4340067280
Member ID
54323007
Amount
30,000.00

Show Providers

87	ID: 4237801019	JUN 15 2020 13:41 EST
85	ID: 5435278032	JUN 15 2020 10:08 EST
80	ID: 5728057890	JUN 14 2020 17:48 EST
80	ID: 5623792328	JUN 14 2020 12:42 EST
10	ID: 5170081234	JUN 13 2020 1:42 EST

Connections to Risky Communities

12 Emails

Email	Connection Type	Transaction
jason.patterson414@gmail.com	Direct	234567891
jason.patterson416@gmail.com	Direct	345678901
jason.patterson420@gmail.com	2nd Degree	456789012
jason.patterson421@gmail.com	2nd degree	567890123
jason.patterson430@gmail.com	2nd degree	678901234

2 Numbers

Phone Numbers	Connection Type	Transaction
+44 12 9222-5678	Direct	456789012
+44 23 9333-4444	Direct	567890123

Decision for this Claim?
ACCEPT **REJECT**

Set up Pattern Alert

Your Decision for this Claim:
ACCEPT **REJECT**

Why is this Claim being rejected?

- ☒ Shared connections between People & Devices
- ☒ IP Addresses across many locations
- ☒ High Transactional Volume
- ☐ Shared connections to high-risk communities

+ ADD CRITERIA

Alert in the Future when Risk is:
LOW HIGH

Apply Interventions if Alert Triggered:

- ☒ Freeze Claim
- ☐ Flag Claim
- ☐ Open New Investigation
- ☒ Attach to Existing Investigation
- ☒ Send Alert to My Team

SUBMIT **CANCEL**



Human-in-the-loop
Feedback Informs Model



ML Model

Model Informs the User



Increasing Visibility Explainable AI

Why is overall risk
increasing?

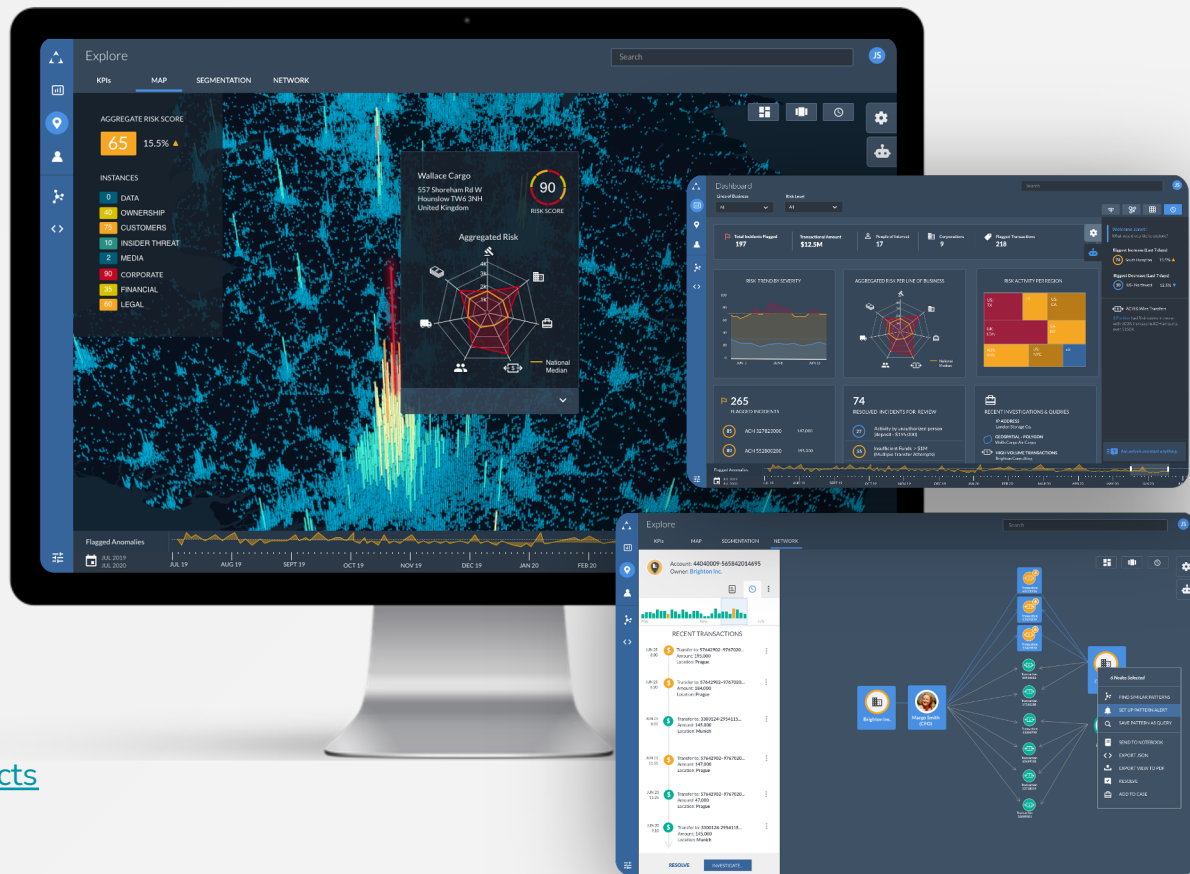


Humans
Data Science
Data & Infrastructure



How Does Tiger Shield Work ?

- Monitoring
- GraphML CI/CD
- Active Learning
- Interpretability



experioinc.com/solutions/data-products

Topics

2021 (AML) :
What does the future hold?

Complexity and State of AML

Key Features and Issues facing AML - Treasury Changes & Impacts

(Michael Shaler - 18 min)

2021 - What will the Role of ML, GRAPH & Humans be?

How - Graph + Machine Learning combine

(Graham Ganssle, Ph.D. - 18 min)

What is in the New TigerShield Solution?

How Does TigerGraph address these issues? Demos of Art of the Possible

(Scott Heath - 18 min)

Q&A

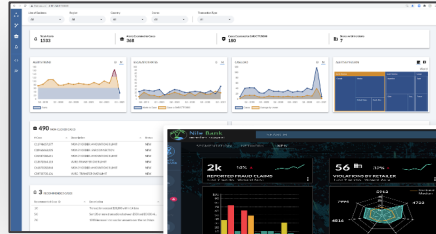
(5 Min)



Visualization - Functionality by User

Tiger Shield Workbench

TG STUDIO



EXECUTIVES

Dashboards & Reports

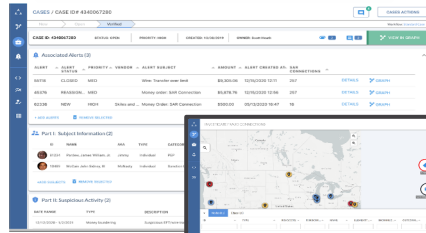
- Macro Trends
- Drill In Elements



LINE OF BUSINESS

AML Specific Dashboards & Reports

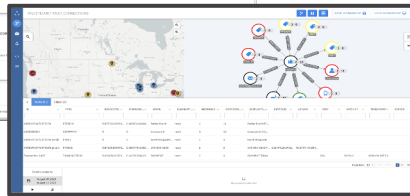
- Que
- Numbers
- Open
- Status
- Audit & Compliance
- Closed



ALERT & CASE MGT

Alert & Case : Que & Detail

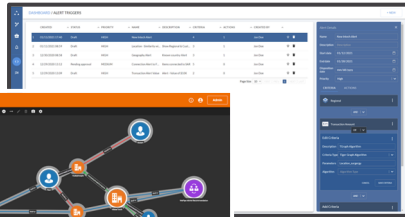
- Alert -> Case
- Auto Grouping
- Case Management
- Audit & Compliance



INVESTIGATIONS

Investigation Teams - Workbench

- Investigations & Teams
- Findings & Connectivity
- Graph Exploration



ALERT / RULES

Alert, Dashboard & Rule Management

- ML & Algorithms
- Complex analytics and 'scenarios'



ALGOS | PLATFORM

Graph & Management

- Data Models
- Graph Ops & Attributes

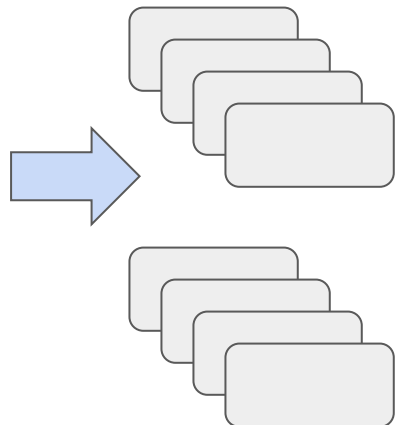
TigerShield : TEAM ENVIRONMENT

Business Units

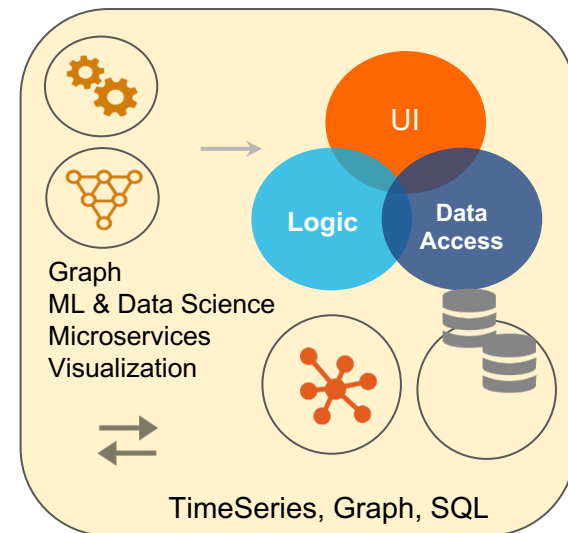
- Financial Crimes
- AML
- Credit Card/Trx
- Cyber
- Audit & Compliance
- Risk
- Trade Sanctions
- Exec | Management

Separate Teams

- 'Pods' By Unit



- Lead Investigator
- Data
- ML



DATA

- Secure Ingest
- Data Provenance
- Atomic Data Security
- Each Data set - Security

TEAMS

- Team Security - Sandbox
- Scenarios - Test's ML & Logic
- Team Shared Learning
- Allow Pods to Share
- Management Roll Up
- Atomic, Group and Corp data share

CORP NEEDS

- Promote to SAR
- Share Case management
- Prosecution
- Pro-active alerts
- Predictive intervention
- ML & Explainability

TigerShield Anti-Fraud Solution

Modules

Explorer

- Simple & Advanced Search
- Case, Alert & Ring View
- Link & Layout visualization
- Map & Grid View
- Graph Connection Information
- Hop & Connection Limits
- Save & Alert/Case attach
- Load / Save

Analytics

- Analytics 'Recipe'
- Segmentation
- Pattern Mapping
- Similarity & Cohort View
- Risk Grid
- Sankey View
- Save & Alert/Case attach
- Load / Save
- View Multiple TGraph outcomes

Alerts

- Alert Que & Detail
 - Role based Que
 - Connection View
 - Detailed view of Alerts
 - Linked parties, Graph
 - Workflow Enabled
- Alert Builder - Engine
 - Boolean
 - TGraph - Algo
 - Grouping - Priority

Case Management

- Case Que & Detail
 - Case file
 - Subjects
 - Alert linking
 - Non-obvious connection
 - Workflow & filters
 - Customer Logic
- Build and Save
- Criteria & Actions
- Grouping

Dashboard

- Dashboard Builder
 - Role & Task Based
- Alert & Case Que
- KPI elements
 - Pie, Risk, Grids

Reporting

- Grid, Summary Reports
 - Filters and Report
 - Ad Hoc
 - PDF, XLS, XML export
 - Link GSQL

Workflow

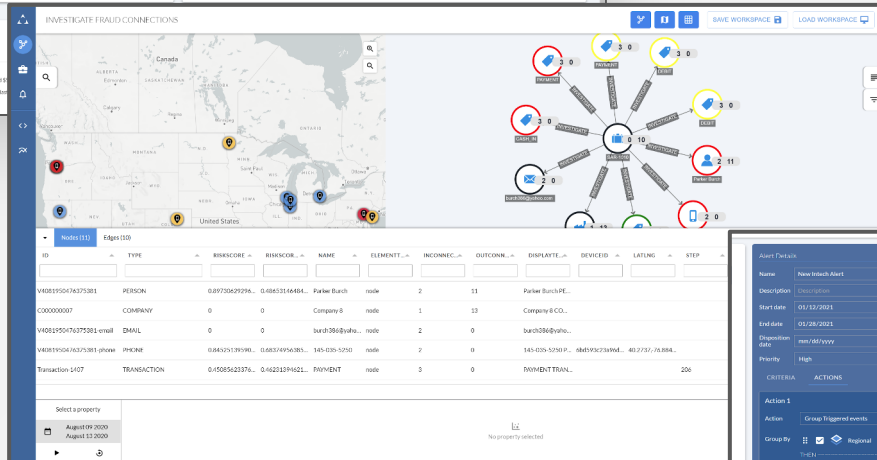
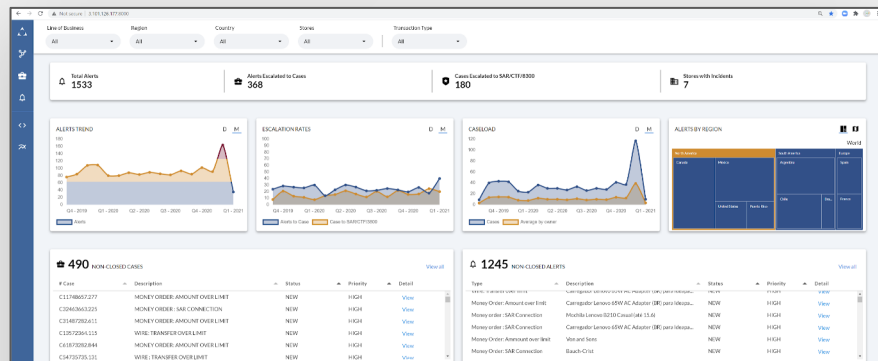
- Setup CRUD
 - Cases
 - Alerts
 - Reports (SARS)
 - Approvals, Status

ER/Data Enrichment

- Setup Link TGraph Algos
 - Alert Links
 - Dashboard Links
 - Workflow and Errors

Demo

- Rules / Alerts
- Dashboards
- Analytics
- Case & Alert Mgt

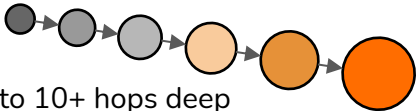




The 'Alert Tasks' form is used for configuring alerts. It includes fields for Name, Description, Start date, End date, Execution date, and Priority. Below these fields, there are sections for 'CRITERIA' and 'ACTIONS'.

The 'ACTIONS' section shows a list of actions, including 'Group Triggered events', 'Regional', 'Transaction Amount', and 'Graphs'. Each action has a 'Group By' dropdown and a 'Sort' dropdown.

At the bottom, there are buttons for 'SAVE' and 'SUBMIT FOR APPROVAL'.

The TigerGraph DB Difference

Feature	Design Difference	Benefit
Deep-Link Pattern Discovery  5 to 10+ hops deep	<ul style="list-style-type: none">• Native Graph, for speed and efficiency	<ul style="list-style-type: none">• Uncovers hard-to-find patterns• Operational, real-time analytics
Handling Massive Scale 	<ul style="list-style-type: none">• Distributed DB architecture• Massively parallel processing• Compressed storage reduces footprint and messaging	<ul style="list-style-type: none">• Integrates all your data• Automatic partitioning• Complete data → Better detection
In-Database Analytics 	<ul style="list-style-type: none">• GSQL: High-level yet Turing-complete language• User-extensible graph algorithm library, runs in-DB• ACID (OLTP) & Accumulators (OLAP)	<ul style="list-style-type: none">• Avoids transferring data• Richer graph context• In-place Machine Learning

TigerGraph - Democratizing Graph Analytics

INVESTIGATORS

- Multiple types of Investigators
- No-Code Business UI's
- Investigate better & faster - less time hunting & gathering

INVESTIGATION

- Enhanced Pattern Matching
 - Easy Deep Querying
- ## ALERTS
- Build, Maintain and Test
 - Graph, ML & Boolean

Ease of Use

Scale and Performance

Better Together

DEVELOPERS

- Easy to use UI - GSQL

SYS ADMIN

- T2P Platform
 - Faster install & sys mgmt

DEVELOPERS

- pyTigerGraph python API
- Expanded Ecosystem
 - <https://github.com/tigergraph/ecosys/blob/master/docs/awesome.md>
- Developers Portal with Machine Learning Notebooks

Connecting It All -1 Anti-Fraud Solution

Get more value from your data by making the connections

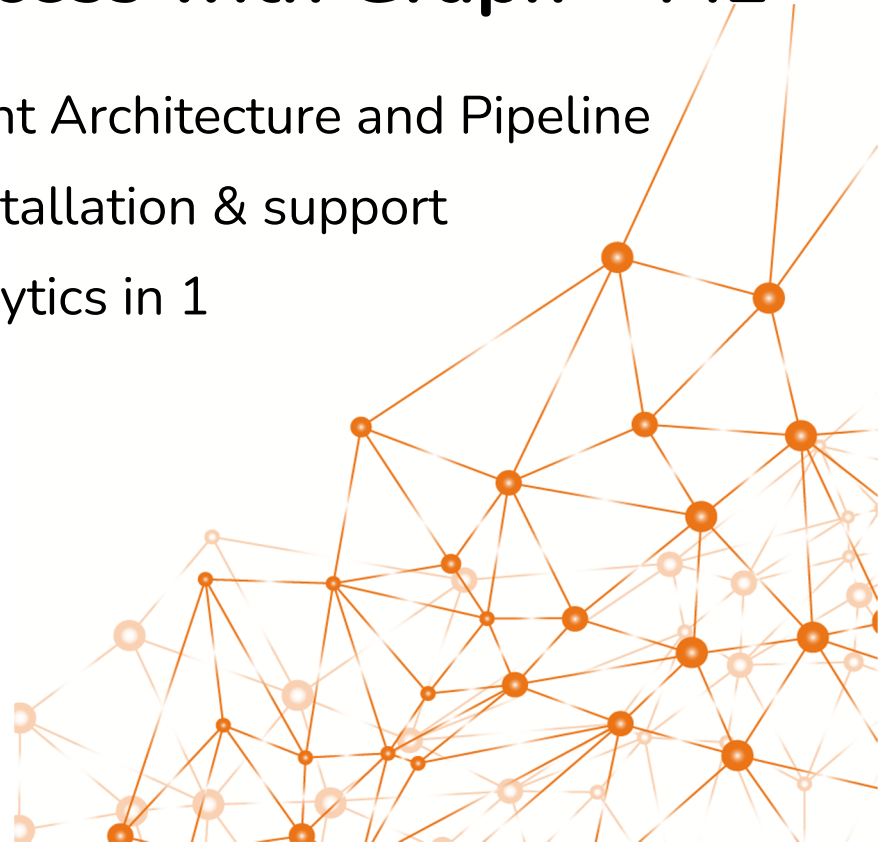
- **Party Level & Transactions** makes data visible, accessible, extensible
- **Scalability & Performance** gets the truth about who is who, discovers new connections
- **ML & Clustering** for a host of ML & Analytics applications



- **Easy to Use Business UI** Easy to use and understand visualizations
- **Role Based Access** Interfaces for simple to complex investigation teams
- **The right user interface** offers insight and explainability

Tiger Fraud Solution - Success with Graph + ML

- Modular Solution - 'Bolt On' for Right Architecture and Pipeline
- Business & IT Interfaces for easy installation & support
- Business functionality + Graph Analytics in 1
- Be Flexible and Plan for Growth
 - Cloud
 - On Premise



TigerShield Solution Focus



- Increase Accuracy
- Decrease False Positives
- Utilize My Current Technology
- Increase Speed & Efficiency
- Adapt to Govt Changes Faster
- Modular Total Solution
- Powered By TigerGraph





Learn More

<https://www.tigergraph.com/toolkits/>

