

TANGO AI FRAUD





Lusis Provides Business Led Solutions through Modern and Flexible
Software and Technology

We Work with Clients in Partnership, Enabling Competitive Advantage

Our Focus is **Fraud & Payments**, Trading, Asset Management and Loyalty
based in France, UK and USA

Established in 1999, deploying mission critical solutions

- Lusis Payments
- Lusis Fraud Solution: Business in Focus
- Tango Fraud Characteristics
- Modern State-of-the-Art: Tango Architecture
- Tango Principles: Advanced, Reliable Technology
- How to Benefit Quickly, Safely, Effectively

- Lusis payments is a technology provider for
 - Fraud, AI/Machine learning & Deep and neural learning
 - Payment HUB
 - Trading systems
 - Advanced messaging applications
- We deliver systems for banks, PSP, retailers, telco
- We focus on R&D, innovation, performance, time to market
- Our R&D activity is focusing on performances, new payments, AI, distributed ledgers
- Our Platform (Tango) is a modern microservice architecture
- Lusis payments has customers globally and operates via partners and directly from:
 - Paris HQ, R&D
 - London: EMEA Sales
 - San Francisco: Americas Sales



- Next-gen technology
 - Microservices architecture
 - Modern distributed service-oriented architecture
 - Data bus
 - API flexibility
 - Platform and database agnostic
- Scalable robust active/active platform
- Pricing – flexible model – TCO optimisation
- Component Based Software Development-CBSD
- Experience converting off legacy-based solutions
- Tell us what you want in the future, not what you've had in the past

■ State of the art new technology

- Lulis at cutting edge of AI R&D research
- Brand new product, true AI, not hybrid
- Proven testbed studies and findings on success over 5 years of trading strategies to fight fraud with industry experts
- Lulis works with the Universities of Paris for the past 5 years Centrale, Supelec and Polytechnique
- Academic chair with some of the brightest people in the country looking independently at the model for next gen trends
- Developing not for now, but for 1-2 steps ahead in evolution to fight the changing face of fraud
- Partnership and building a bespoke platform key to success for the future of all our customers fraud strategies



- 5 year's of research focused on trading strategies to fight fraud
- 2 - PhD scientists that perform technical detailed research and write articles on ML/AI working with Lusis independantly
- 30 - Students to help PhD scientists on experiments and side research
- 5 - AI Lusis team to drive research, provide data set, framework and business knowledge
- Relative to Fraud fight, effort is put on
 - Anomaly detection : *early detection of new types of fraud*
 - Concept drift : *consumer habits that constantly changes over time*
 - Explainability : *required by regulation*

■ Why Now

- Existing market solutions are either old or partial and not up to new Fraud attacks like BOTS, targeted automated system
- As payments volumes and modalities expand drastically, fraud grows dramatically
- New payments (APM) creates new challenges
- Huge shift from f2f to online (COVID-19)
- New technologies like PSD2 around data checks will need higher security and fraud platforms that learn as the fraud presentation and approach dramatically changes

- Why us
 - Lusis with Tango: reliable partner, reliable solution
 - Integration of massively parallel rule engines providing results in less than 10 ms
 - Fully functional, modern, capable packaged solution that covers:
 - Machine learning
 - Deep learning
 - Rules engine
 - Lusis fraud solutions are fully integrated with Lusis Tango payment hub providing ultimate efficiency
 - Rapid deployment on any current platform

- **Lusis AI/Neural Machine learning gives the best detection & results because**
 - New state of the art technologies to replace old legacy technologies which also tend to be partial
 - Fast deployment and available to build on all platforms
 - Fully packaged solution covers machine learning, deep learning and rules engine
 - CNP and CP payments
 - Results in under 10MS using parallel rule engines and random forest
 - Load balancing and multiple layers gives ever evolving learning algorithms driving fraud down
 - R&D expenditure on cutting edge adaptations and front-line deployment
 - As hosted on your platform there is no human intervention/error
 - Bespoke rules built to your baseline then learns as it evolves
 - Full integration to Lusis Tango payment hub for more efficiencies
 - **OUTPUT** Low fraud rates/high acceptance rates **increasing bottom line profit**

Results

Metrics	Value
AUPRC	0.9982819
Precision	0.9994254
Recall	0.9987368
Specificity	0.9999403
Fpr	0.0000597
Fractional Fpr	5.97/100,000

Confusion Matrix

True label	Predicted label	
	No Fraud	Fraud
No Fraud	83743	5
Fraud	11	8697

A global solution

Why Lusion AI Fraud

Rule engine

- It is a Tango AI service
- Standard rules set is available
- Rules are managed via WebTango
- Best way to benchmark from day 1

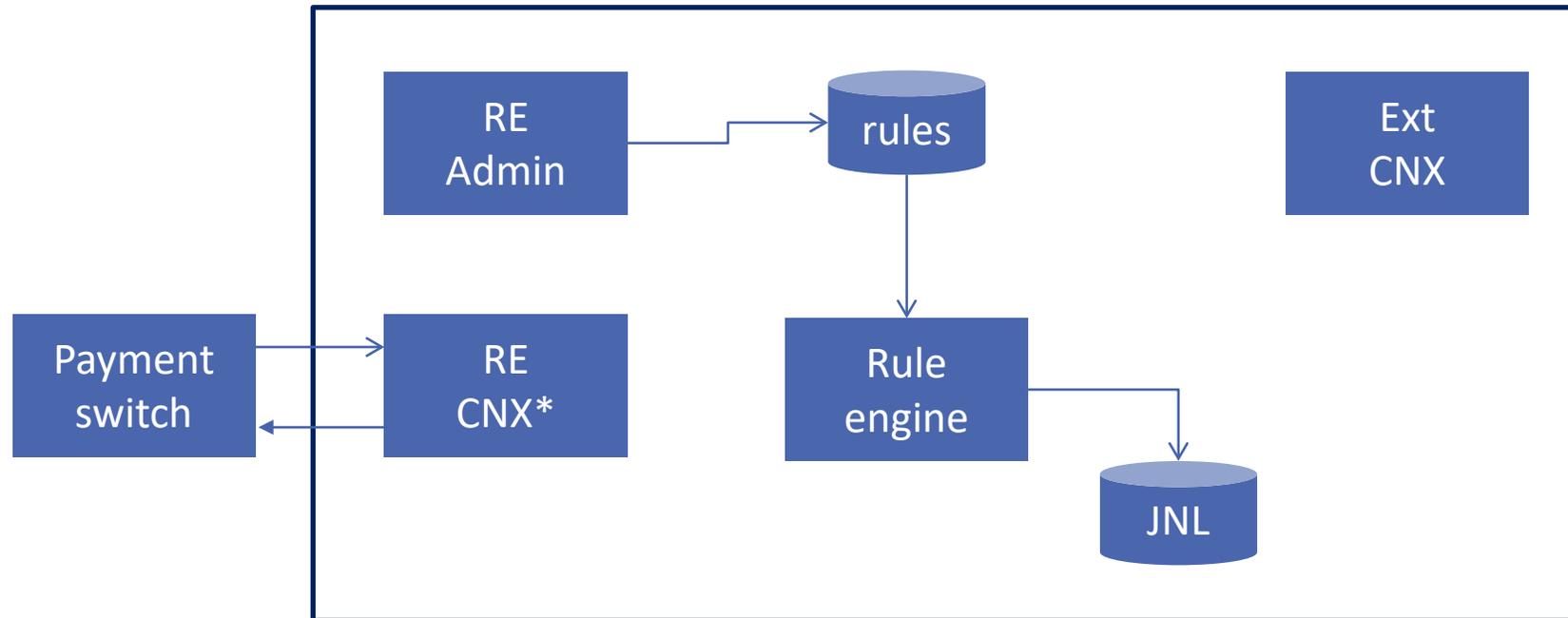
Machine learning

- Fully integrated with Tango
- Trained Random forest (RF) are available
- Self-training capabilities
- No human intervention
- No human error

Deep learning

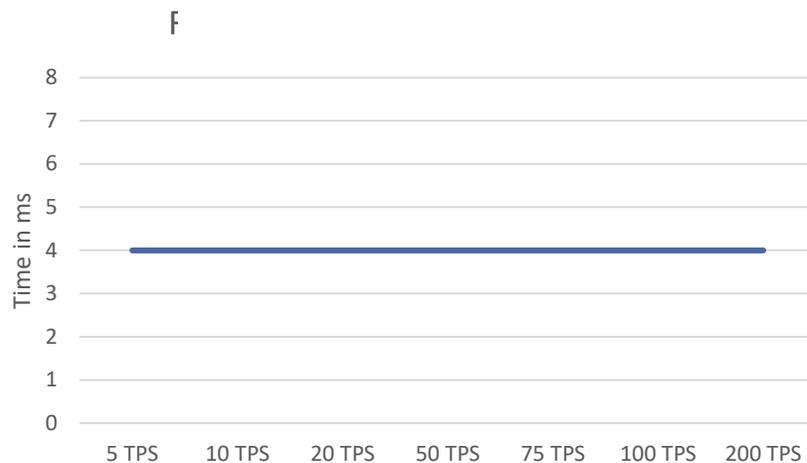
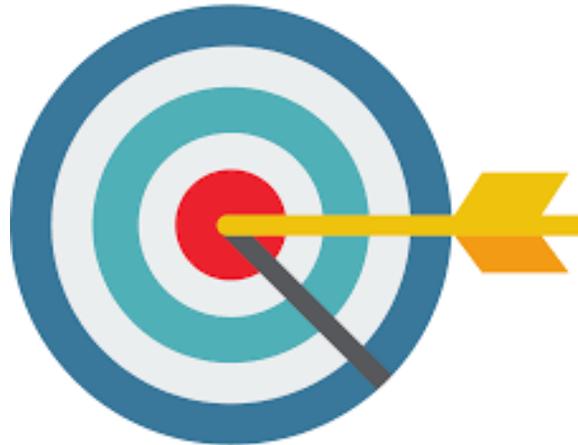
- Learns and evolves whilst in use
- Fine tuning must be done with client's data
- Ability to run and test multiple models for best

Can adopt and scale globally



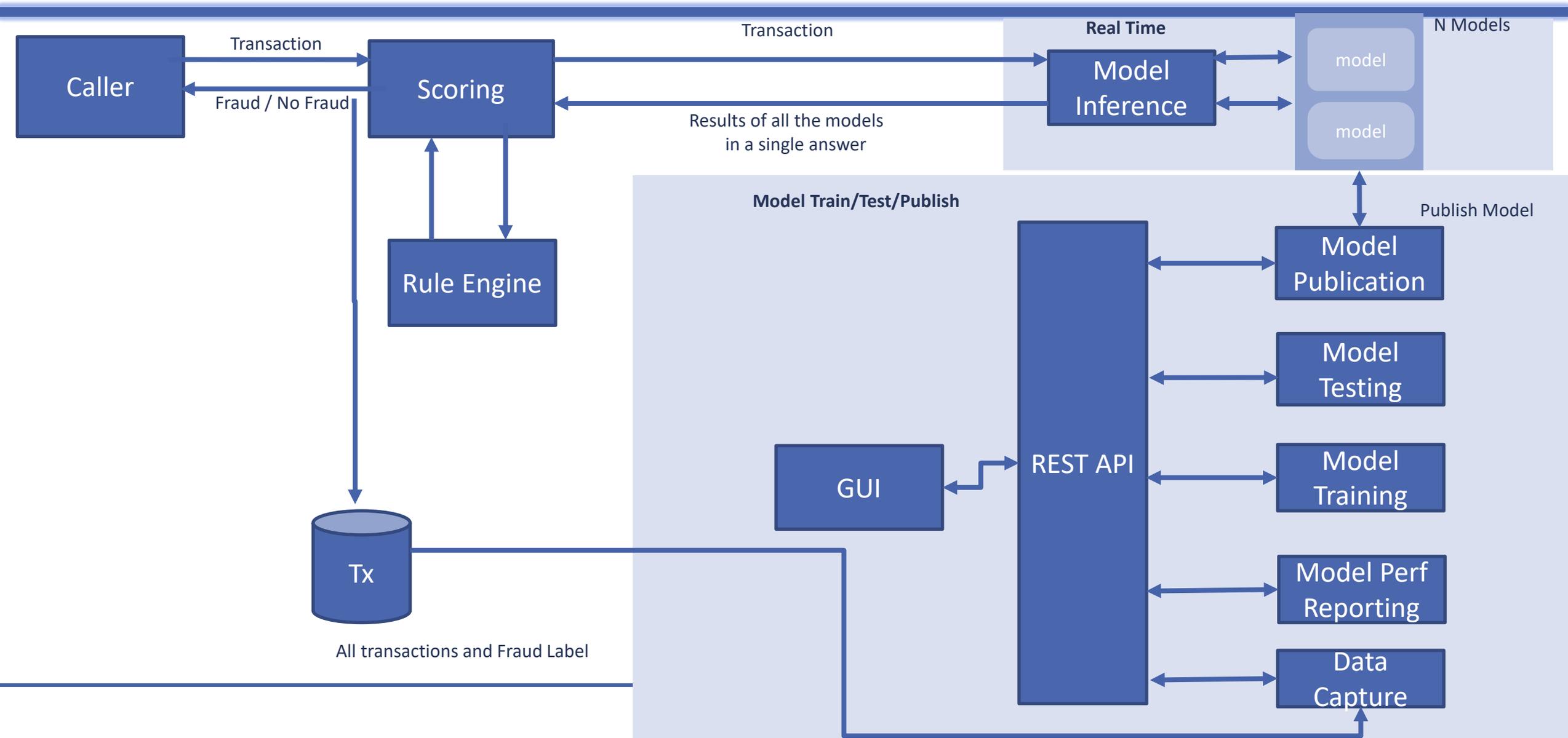
* RE CNX : connector used to call the Rule engine. It can be Inter-TANGO (for Tango), ISO8583 (TISO), JSON (T2A), API, ISO 20022

** Ext CNX: connector used to provide data to other fraud engine: API, ISO8583 (TISO), ...



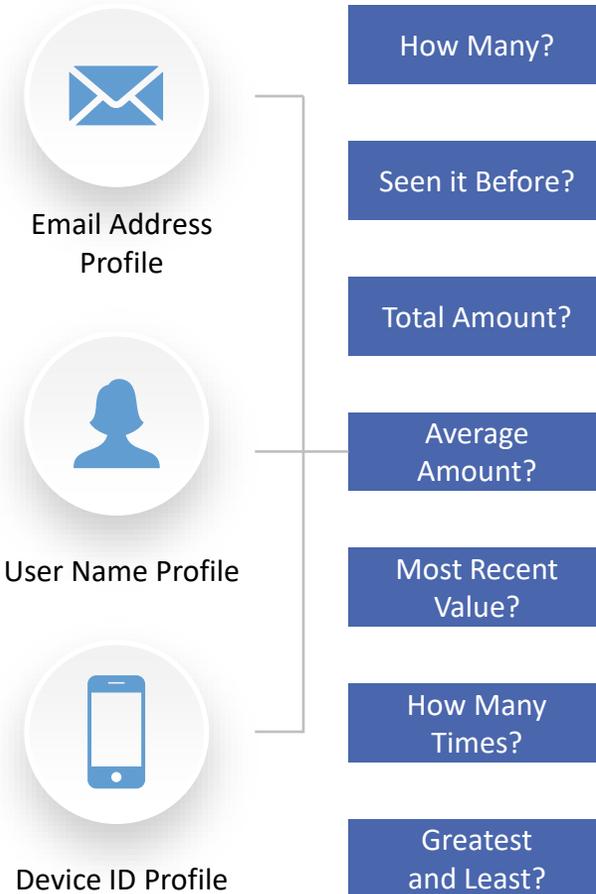
- Rule evaluation is highly accurate due to the Tango architecture design.
- Test in Paris 2020
 - Using Intel(R) Xeon(R) CPU E5-2630 v3 @ 2.40GHz
 - 16 core – 2 thread - RAM 32 GB
 - Linux, Oracle
 - Constant response time under 10 ms:
 - With number of TPS increasing up 2500
 - With number of rules increasing from 40 to 100
 - No failures despite loading

Tango AI/ML Architecture



- TG-Rules can work:
 - Real time
 - Near real time
 - In batch mode
- Standard Rules are provided for each business area
 - Payment acquiring, ATM acquiring, Issuing
- Rules set are managed by end-users using an advanced Boolean language
- Final result is determined by a weighing algorithm based on the individual importance (score) of rules being triggered. Result vector is also provided (results and time performance)
- Tango is providing all the high level functions that are used by the rules (counters, filters...)
- Tango allows the implementation of massive parallelism
- Back testing features are integrated into the work station (GUI)

Profile Data Output



Examples

- How many Credit Cards this Device / this Account?
- How many devices this user / email ?
- How many different BIN countries this device / this user?
- How many accounts registered in this device lifetime?
- Has this device been seen with this account before?
- Has this account and/or device been seen in this city before?
- Has this Credit Card been seen with this account before?
- Total amount purchased this user / device today, this week, etc?
- How many purchases this user / device today, this week, etc?
- Average purchase amount this user lifetime?
- Most recent purchase date?
- Greatest amount purchased lifetime?
- How many failed login attempts this device / user today?

Key Benefits of Multi-Dimensional Layered Fraud Prevention

Delivering multiple layers of control to optimize conversion and mitigate fraud



Latest techniques to tackle fraud in real-time and retrospectively – enabling improved detection rates



Provides access to global data, for the latest fraud intelligence – and intuitive, self-service business analytics



Offers flexibility to tailor the solution by platform, product, customer and payment type, channel or geography



Provides expert advice on design, implementation and adjustment of fraud strategies – and regular performance reviews



Multi-layered decisioning takes advantage of information that is available at or before authentication and during authorization. The use of multiple tools such as device information, geo or IP location, behavioral biometrics, and scoring using Artificial Intelligence provide a wealth of opportunities to determine the risk associated with a transaction.”

*Mastercard – “Strong Customer Authentication and PSD2 How to adapt to new regulation in Europe” Aug 2018

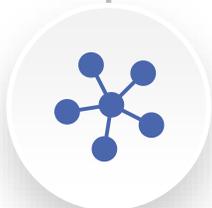
Power of Multi-Layered Approach



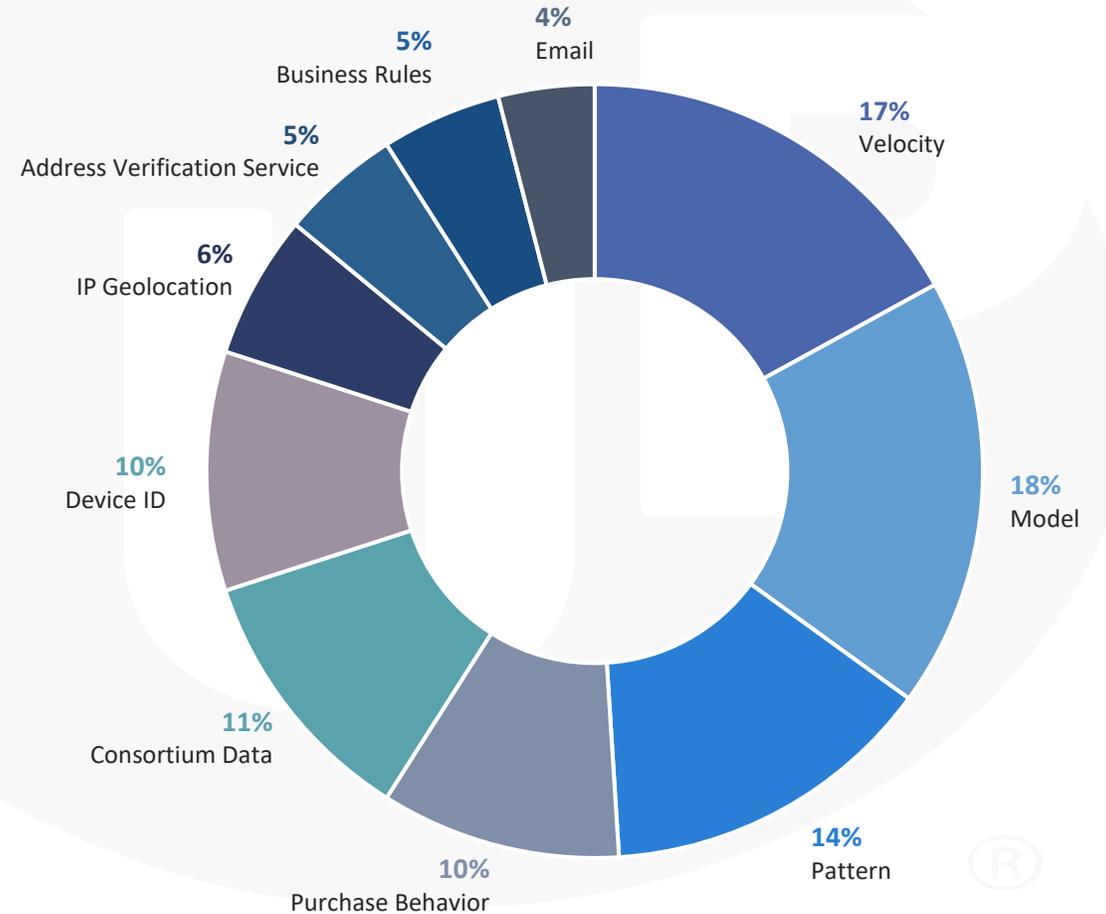
Big data utilises profiling capabilities applied across global transactional data and known fraud intelligence.

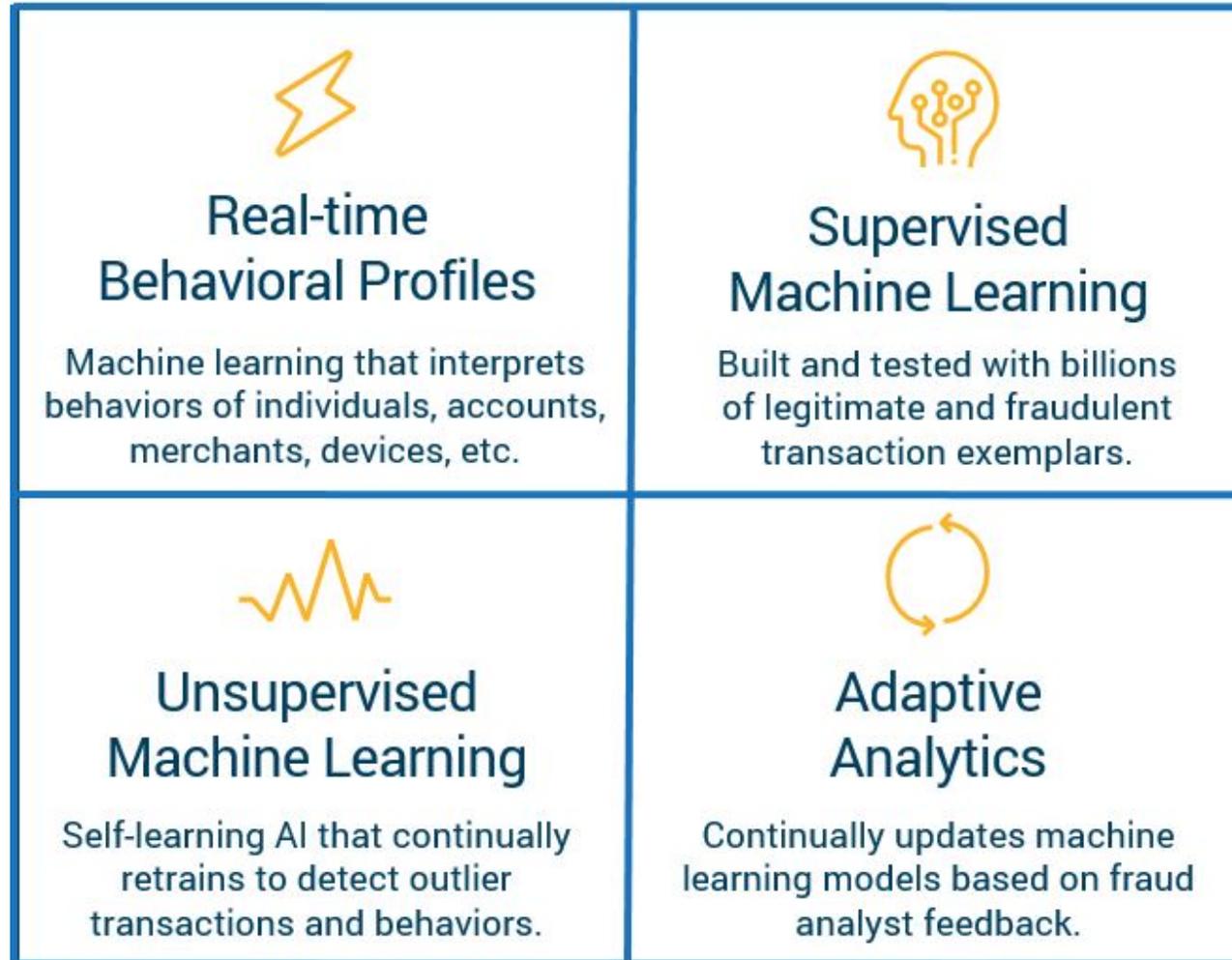


Big data should be one feature of **several** features used within a successful fraud strategy.

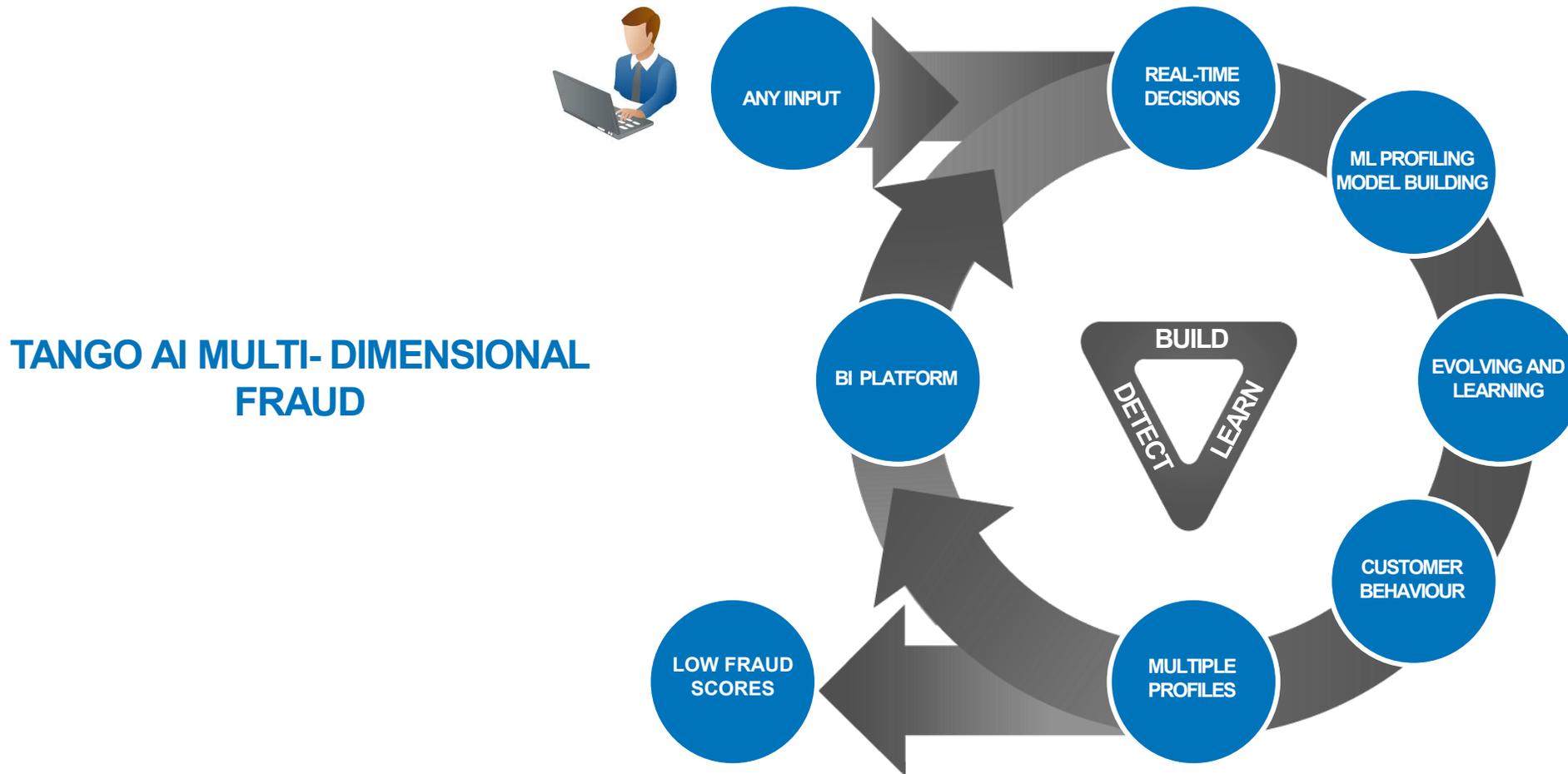


Combination of approaches and metrics to measure which provides best results to minimize false positives and increase conversion.



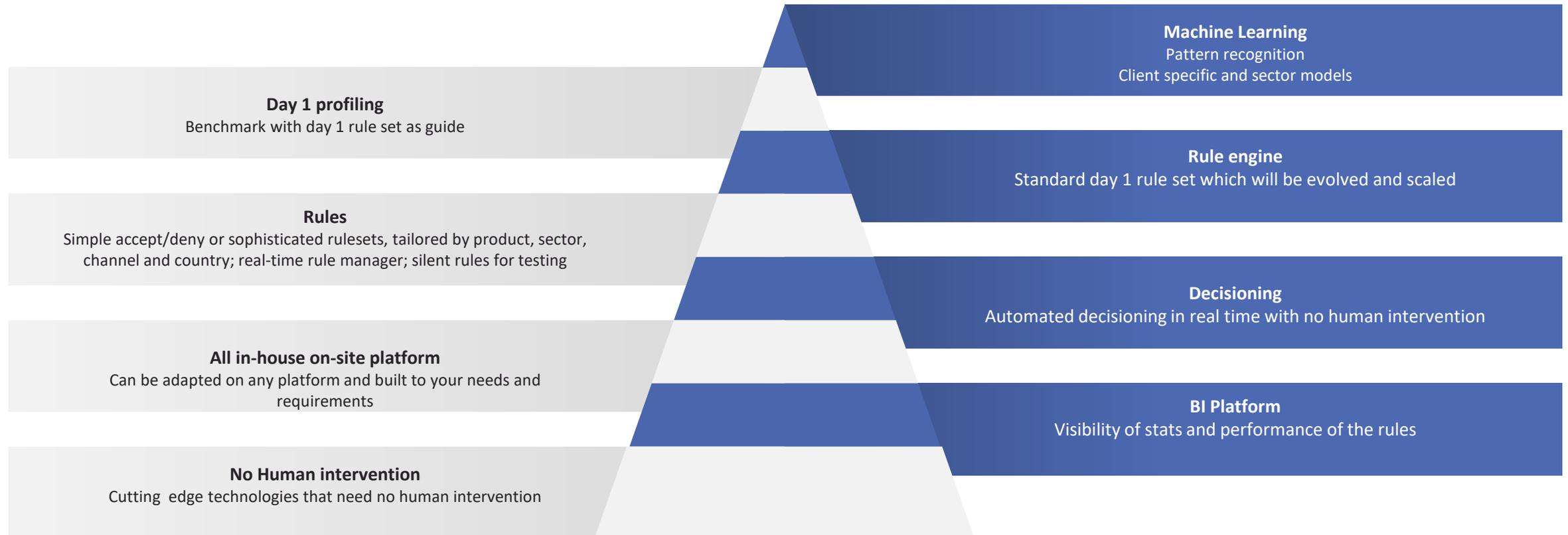


Layered Detection Approach



Multiple Layers of profiles and profiling

Modern market leading AI and deep learning fraud controls



Non-Functional Requirements must be high focus for growth

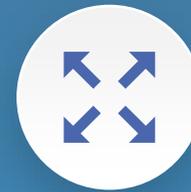
Continued focus is crucial for a global best-of-breed platform



Availability



Performance



Scalability



Security



Serviceability

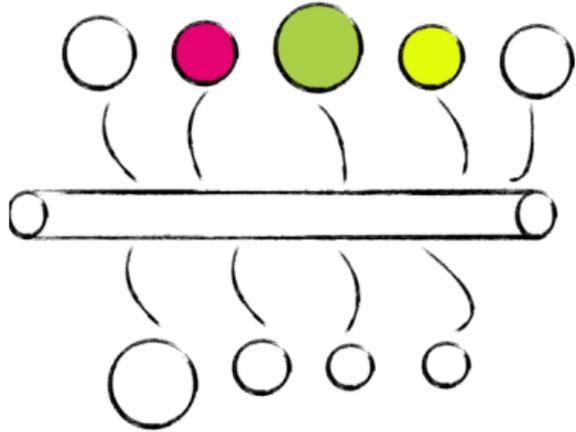


Capacity



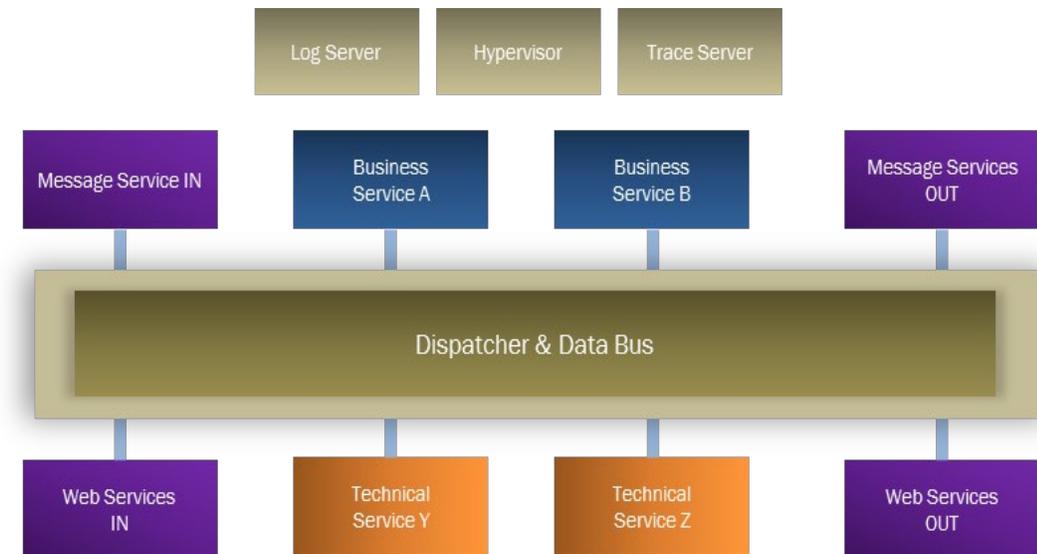
Globality

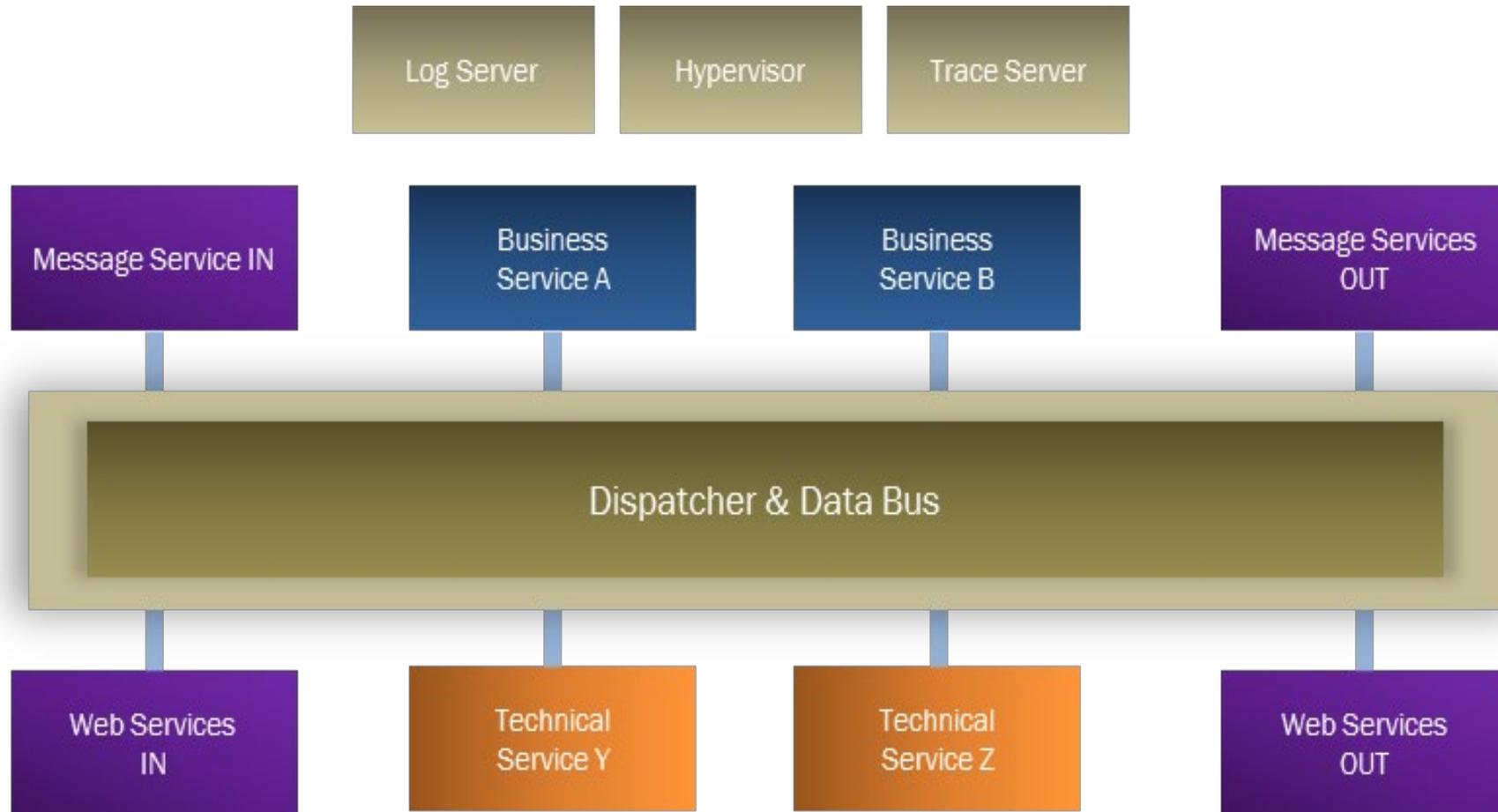
Our Technology: TANGO



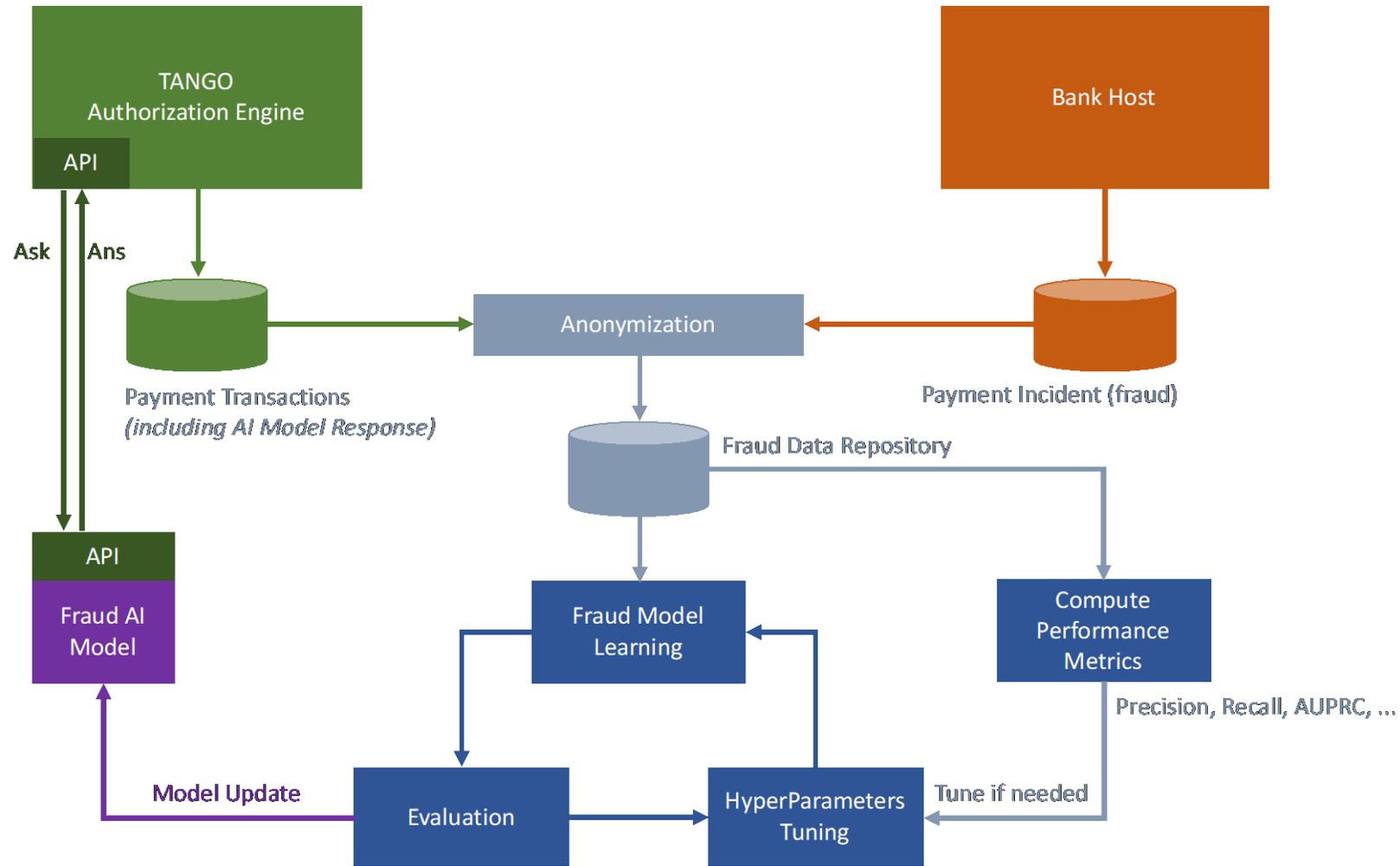
TANGO is an efficient implementation of micro-service concepts in the real world. TANGO is the best tool for the API rising

A micro-service architecture is SOA + load balancer + Data Bus





Score ML/DL Continuous Training



How to benefit quickly, safely, effectively

- Lusis is a state-of-the-art technology provider with modern cutting-edge products and deliverables
- 1 tier 1 customer already
- Early adopter scheme
- We build what you need in a true partnership not what we have in the box
- Low TCO as all cloud and modular based and speed to build and deliver
- Build POC
- Funded refunded
- Rapid, reliable delivery no long tail projects: Contract to Live in 6 Months
- Case studies from tier 1 clients
- Scalable and global reach
- Robust tried and tested platform
- Since 1999 and our inception we have never had an outage





Thank you