Real Time Machine Learning and AI Operations

Heather Wighton / Director of Data Insights
Paul Ireifej / Principal Member of Technical Staff
October 27, 2020

AT&T

Agenda

1: Intro
2: Real-time ML and AI Operations
3: Features and Benefits
4: Fully integrated ELK stack
5: Case Management
6: Demo

In corporate America, we operate by the maxim: what gets measured, gets done. We use data to recognize trends, inform our goals, and drive our decision-making and actions.

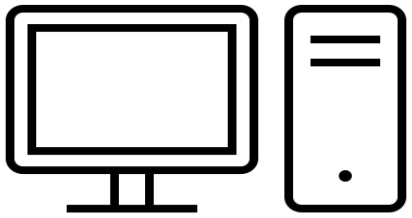
Randall L. Stephenson, Chief Executive Offer of AT&T

This system utilizes big data, modern machine learning and other advanced analytics technologies to, directly and indirectly, enhance IT operations (monitoring, troubleshooting, and automation) functions with proactive and dynamic insight.

AT&T

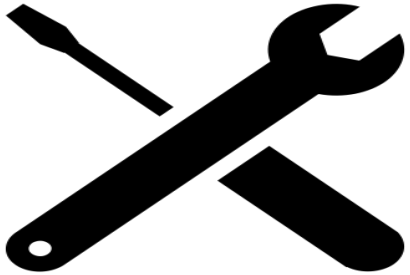
Features & Benefits

Monitor applications and systems



- Monitor, profile user behavior and activities

Real-Time Remediations



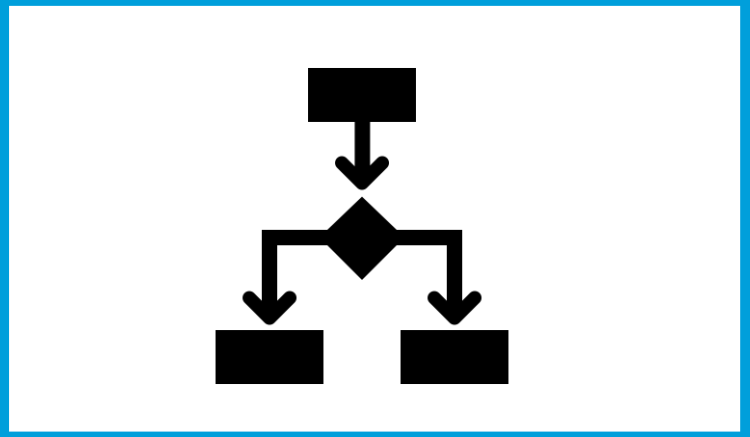
- Auto Email & SMS* Alert
- Auto-generate trouble tickets
- Auto Alert via Instant Messaging
- AutoRun Scripts and Models
- Improved Mean Time to Resolution
- BYOA - Bring Your Own Actions - Extensibl capability to integrate new remediation actior

Machine Learning Models

- Built-In Forecasting Model
- Built-In Anomaly Detection Model
- Built-In Predictive Insights Model
- BYOM - Bring Your Own Model - Integrate your model into the platform

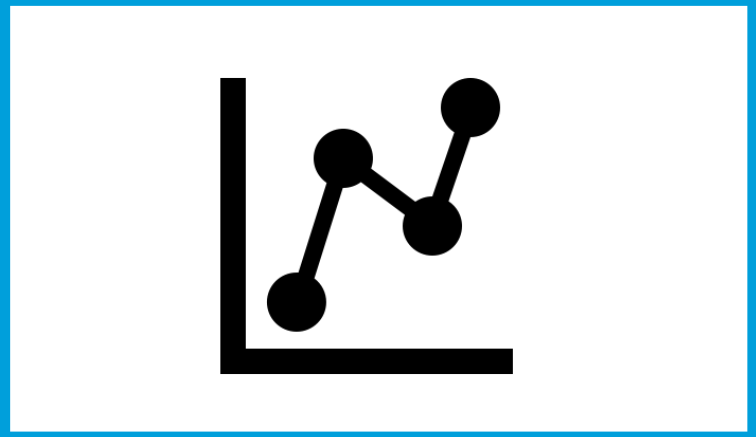
Features & Benefits
(continued)

Decision Functions



- Dynamic decision function generator
- Update Decision Engines in Real-Time to find events

Analytics



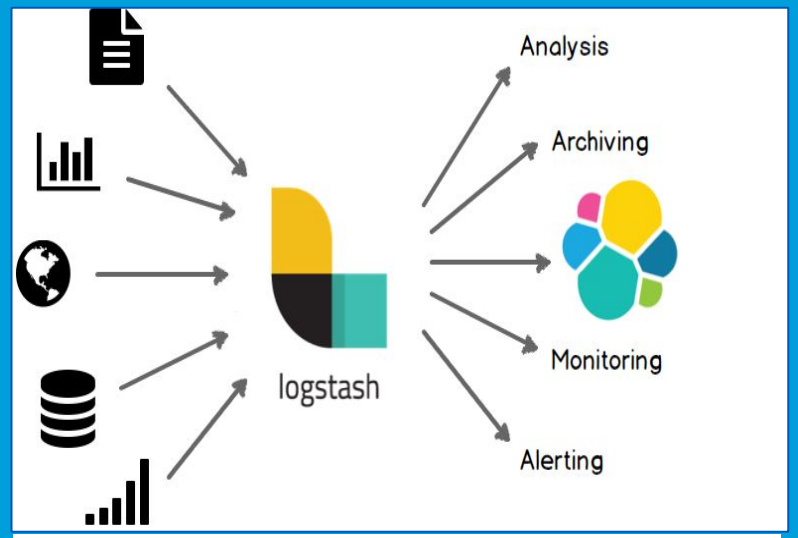
- Correlation generator based on time an events across data streams
- Volume count threshold based on minute hours and days
- Dynamic Aggregations based on calculations and buckets

Data Quality

- Monitor data quality based on the require fields, field length, type of field value and regular expression handling.

ELK

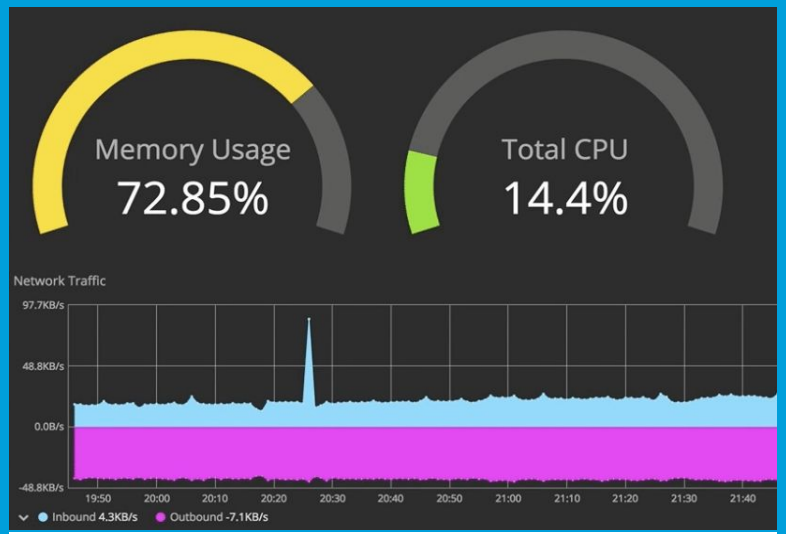
Fully integrated ELK stack for visualizing real-time and historical events.



Logstash

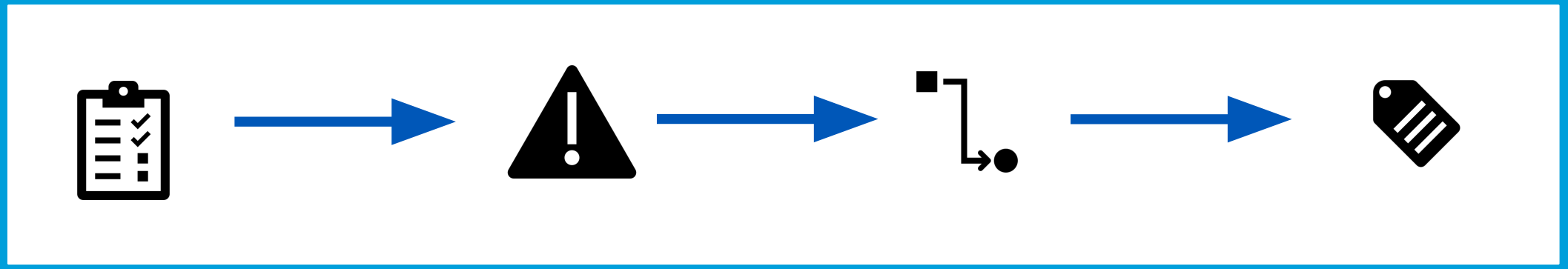
ElasticSearch

Kafka Topics



Kibana visual graphs

Case Management



- Streamed lined workflow to take alerts to Root Cause closure
- Assign Case to members
- Label severity of the case
- Identify Root Cause and label the incidents.

This system utilizes big data, modern machine learning and other advanced analytics technologies to directly and indirectly enhance IT operations (monitoring, troubleshooting and automation) functions with proactive and dynamic insight.

Diagnosis needs –

Real Time Visibility of Health

- Monitor error count of APIs responses
- Monitor Volume per minute of API requests
- Monitor Response round trip to every request
- Alert on anomalies

This system utilizes big data, modern machine learning and other advanced analytics technologies to directly and indirectly enhance IT operations (monitoring, troubleshooting and automation) functions with proactive and dynamic insight.

Business Benefits

- Decrease MTTR (Mean Time to Resolution)
- Proactive Performance Monitoring
- Drive faster and better decision making

Real Time Machine Learning and AI Operations

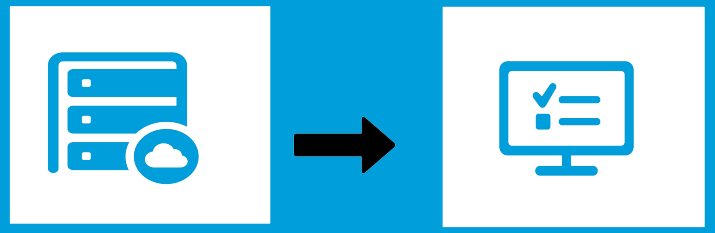
Complete visibility into your system and resources and applications

Collect

Metrics and logs from all your system resources, applications, and services that run on-premises servers.

Real Time Machine Learning and AI Operations

Complete visibility into your system and resources and applications



Collect

Metrics and logs from all your system resources, applications, and services that run on-premises servers.

Monitor

Visualize applications and infrastructure with dashboards.

Real Time Machine Learning and AI Operations

Complete visibility into your system and resources and applications

Collect

Metrics and logs from all your system resources, applications, and services that run on-premises servers.

Monitor

Visualize applications and infrastructure with dashboards.

Analyze

Correlate logs and metrics side by side, apply DevOps rules and Machine Learning techniques to create Cases.

Real Time Machine Learning and AI Operations

Complete visibility into your system and resources and applications

Collect

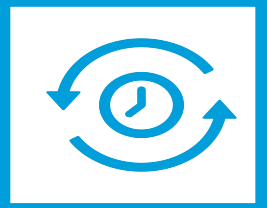
Metrics and logs from all your system resources, applications, and services that run on-premises servers.

Monitor

Visualize applications and infrastructure with dashboards.

Analyze

Correlate logs and metrics side by side, apply DevOps rules and Machine Learning techniques to create Cases.

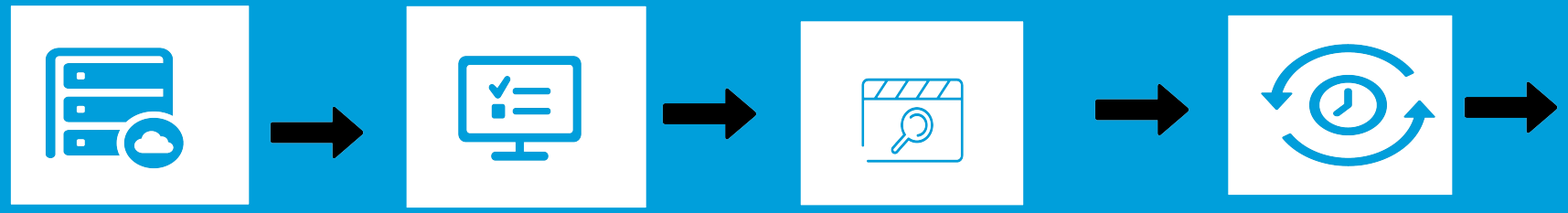


Act

Automate responses to operational changes with events and auto scaling.

Real Time Machine Learning and AI Operations

Complete visibility into your system and resources and applications



Collect

Metrics and logs from all your system resources, applications, and services that run on-premises servers.

Monitor

Visualize applications and infrastructure with dashboards.

Analyze

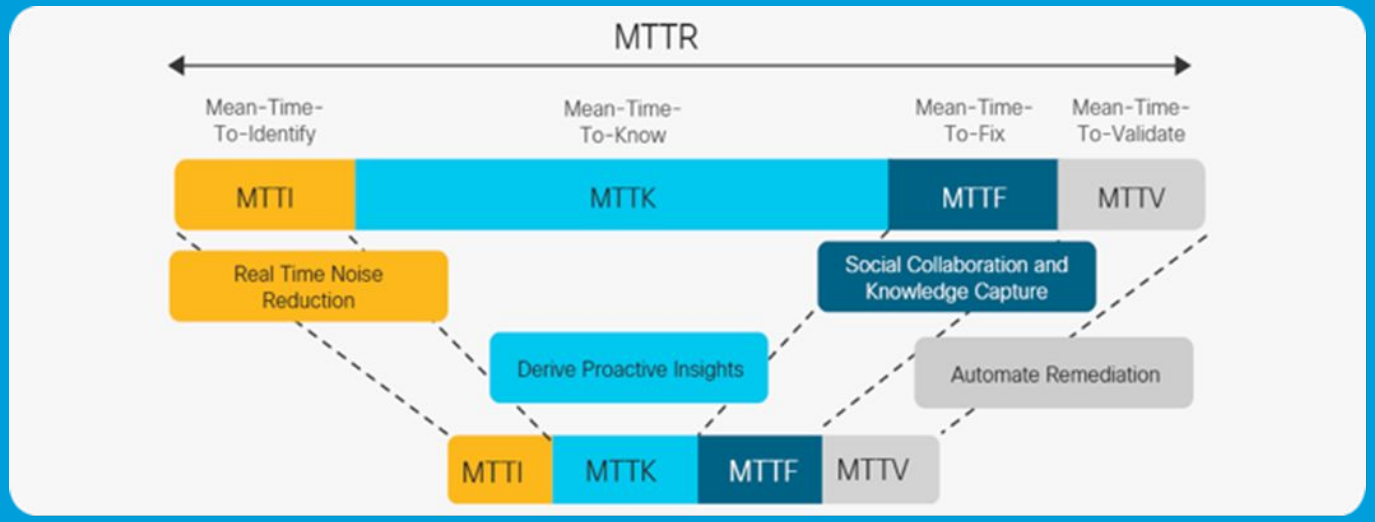
Correlate logs and metrics side by side, apply DevOps rules and Machine Learning techniques to create Cases.

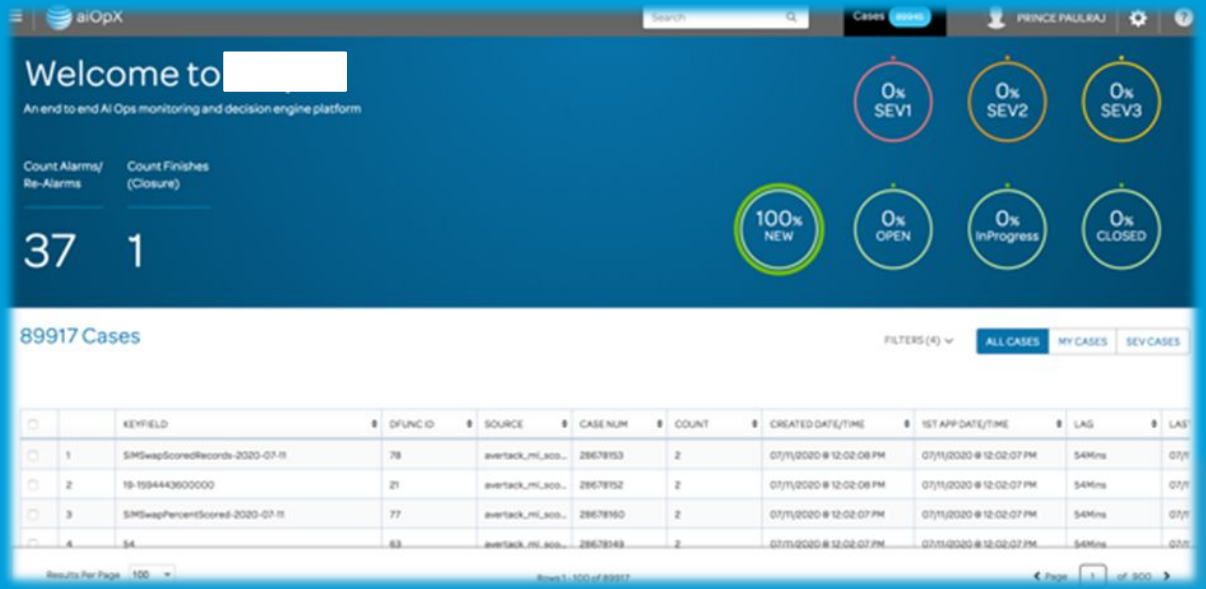
Act

Automate responses to operational changes with events and auto scaling.

- Observability on a single platform across applications and infrastructure
- Easiest way to collect metrics on-premises
- Get operational visibility and insight
- Derive actionable insights from logs
- Improve operational performance and resource optimization

Mean Time to Resolution





Conclusion

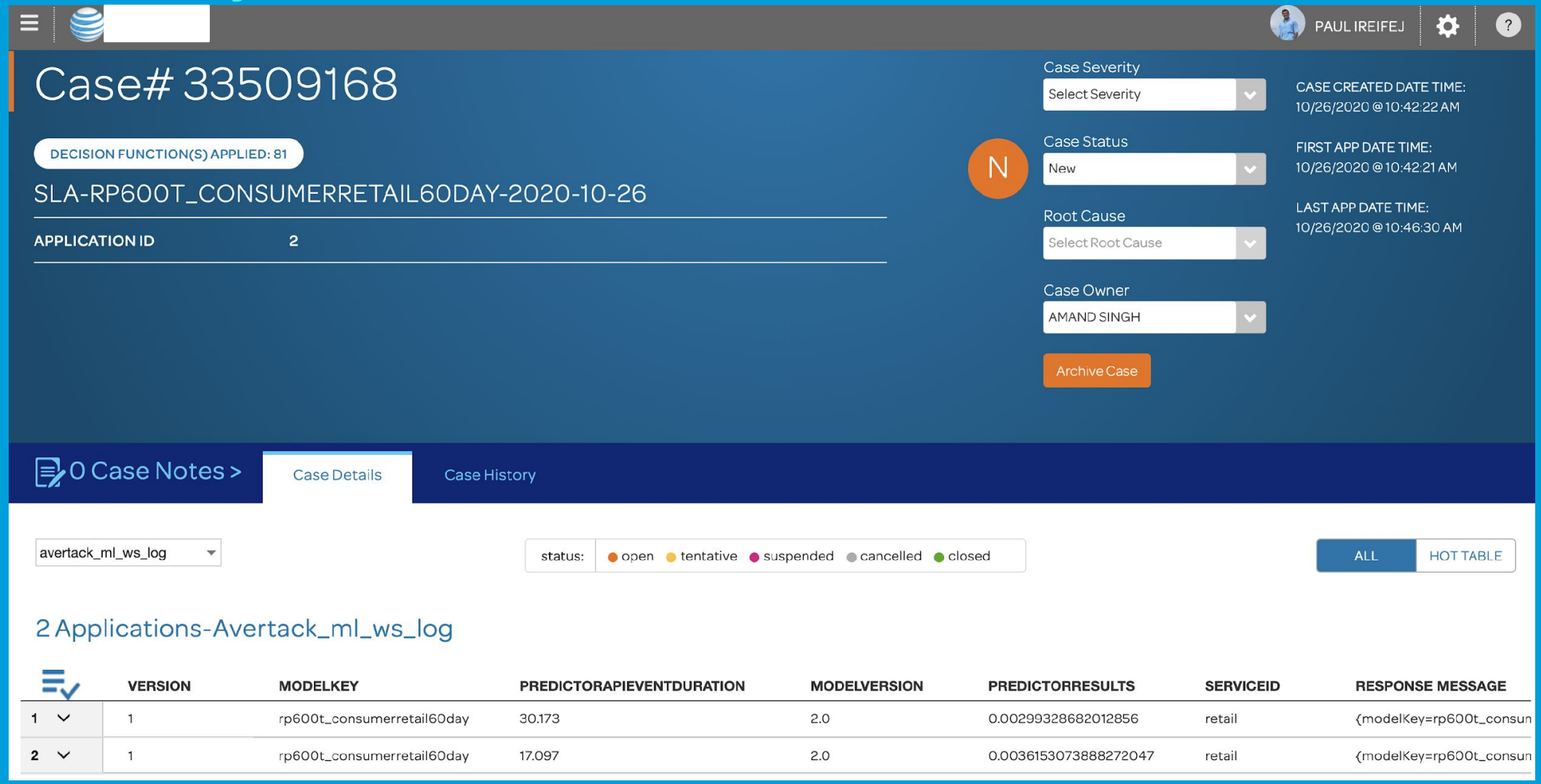
Identify and Adapt to Vulnerabilities

As AI becomes more prevalent in fraud detection, it needs to be supported by self learning tools to **identify** and **adapt** to vulnerabilities.

Real Time monitoring systems can mean the difference between an outbreak that last several hours-days to manually remedy, whereas with our solution, we can **detect**, **react** and **mitigate** within minutes.

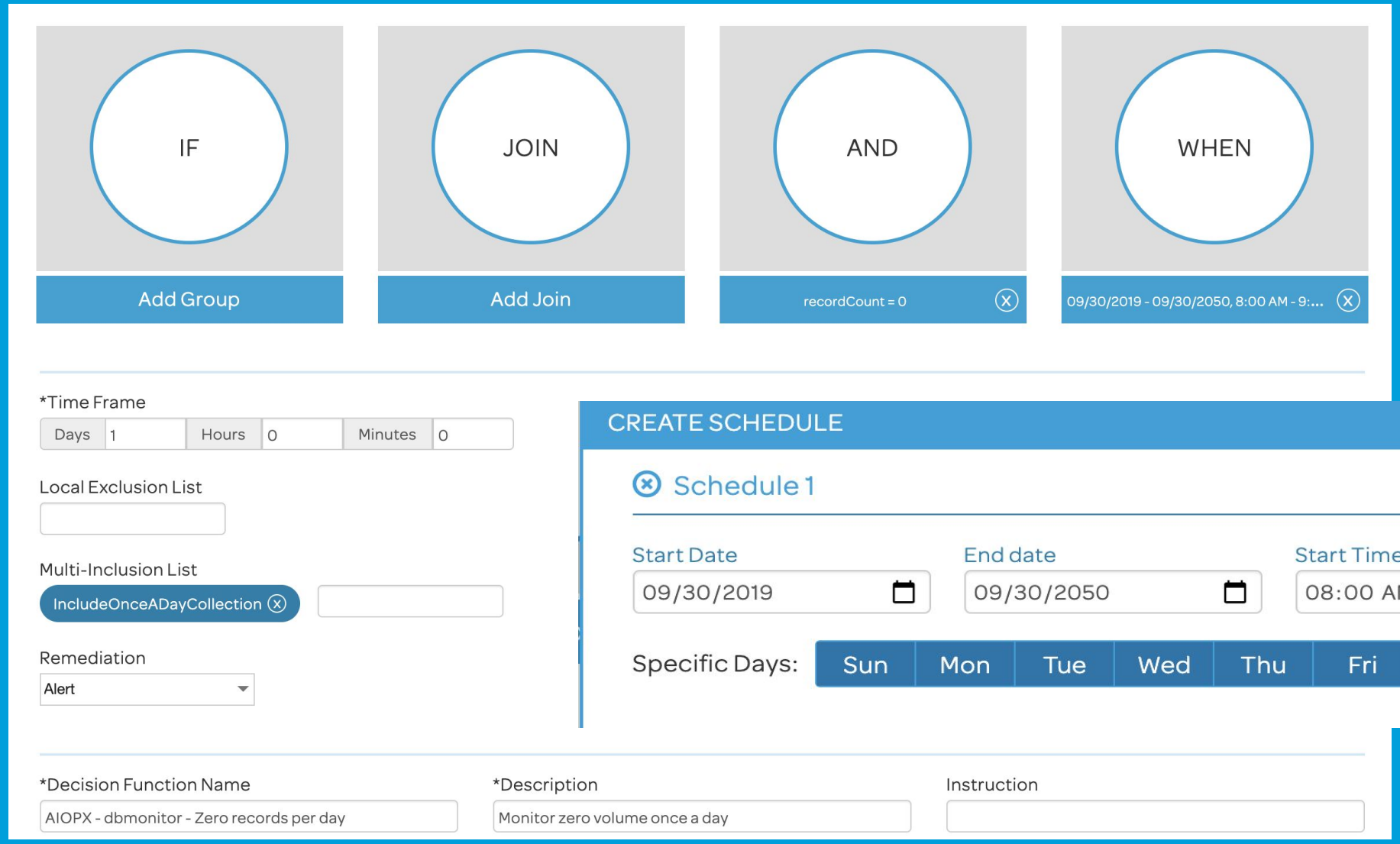
Demo: Case Details

Case Severity, Status, Root Cause, Owner

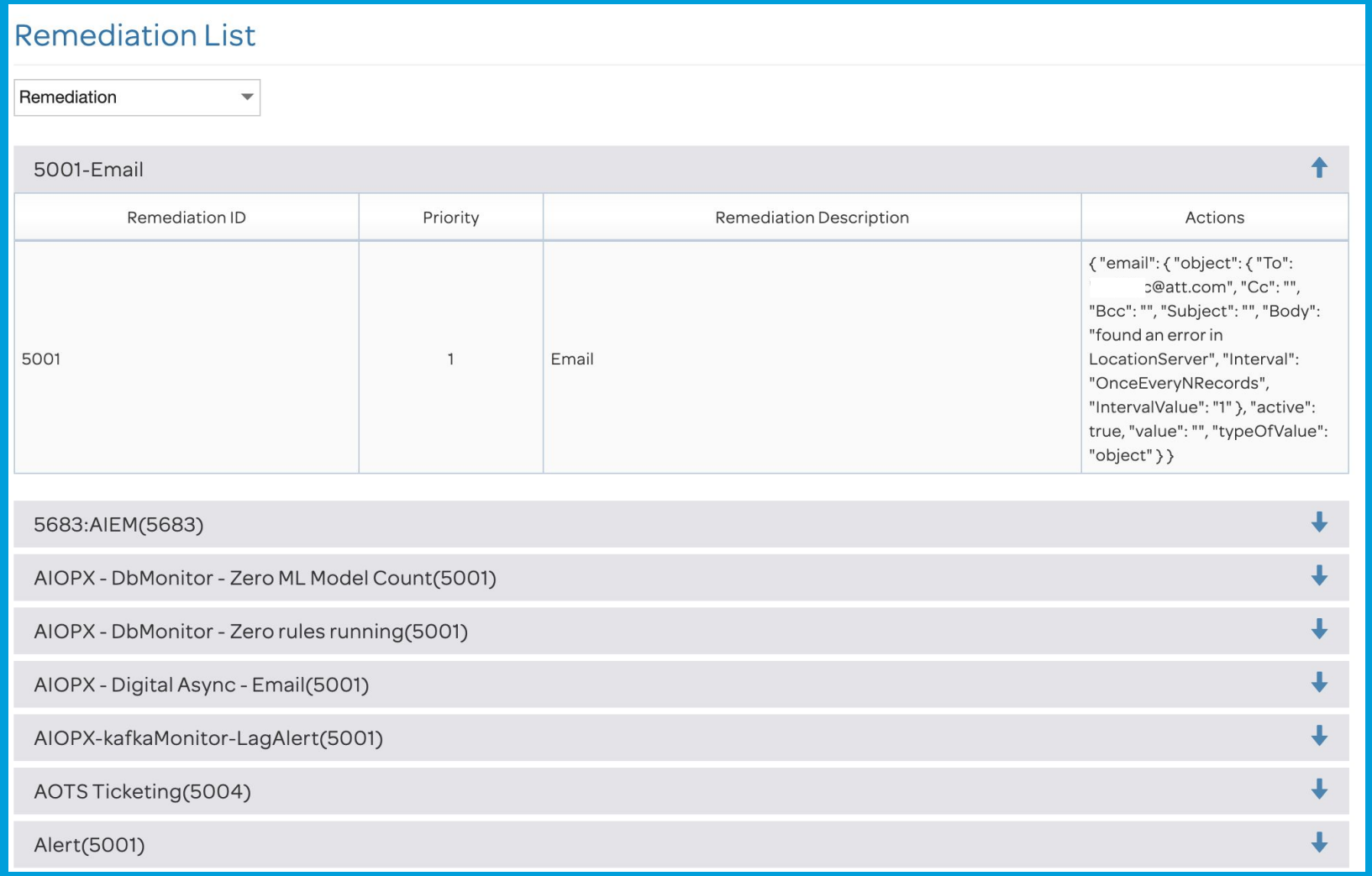


Demo: Decision Function

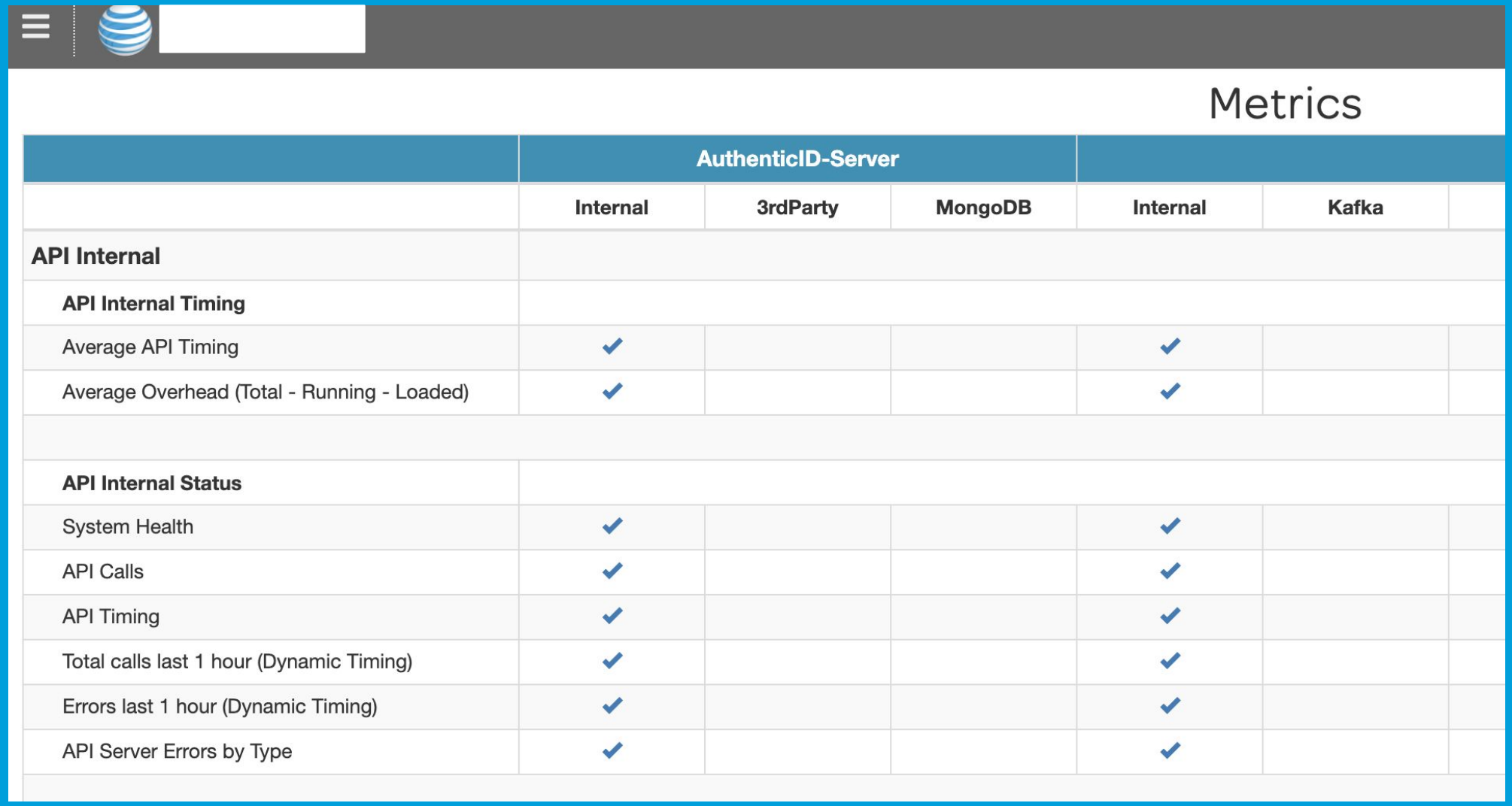
Monitor zero volume once a day



Demo: Remediation List
Email



Demo: Metrics
Third party server



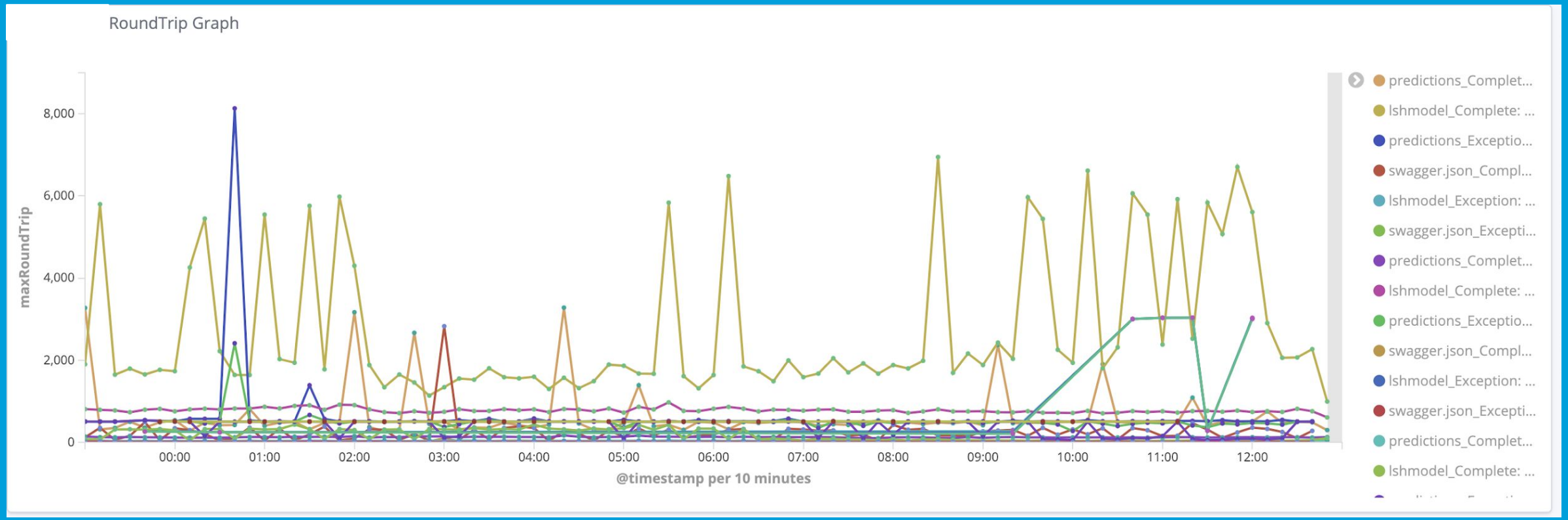
Metrics

	AuthenticID-Server					
	Internal	3rdParty	MongoDB	Internal	Kafka	
API Internal						
API Internal Timing						
Average API Timing	✔			✔		
Average Overhead (Total - Running - Loaded)	✔			✔		
API Internal Status						
System Health	✔			✔		
API Calls	✔			✔		
API Timing	✔			✔		
Total calls last 1 hour (Dynamic Timing)	✔			✔		
Errors last 1 hour (Dynamic Timing)	✔			✔		
API Server Errors by Type	✔			✔		

Demo: Kibana

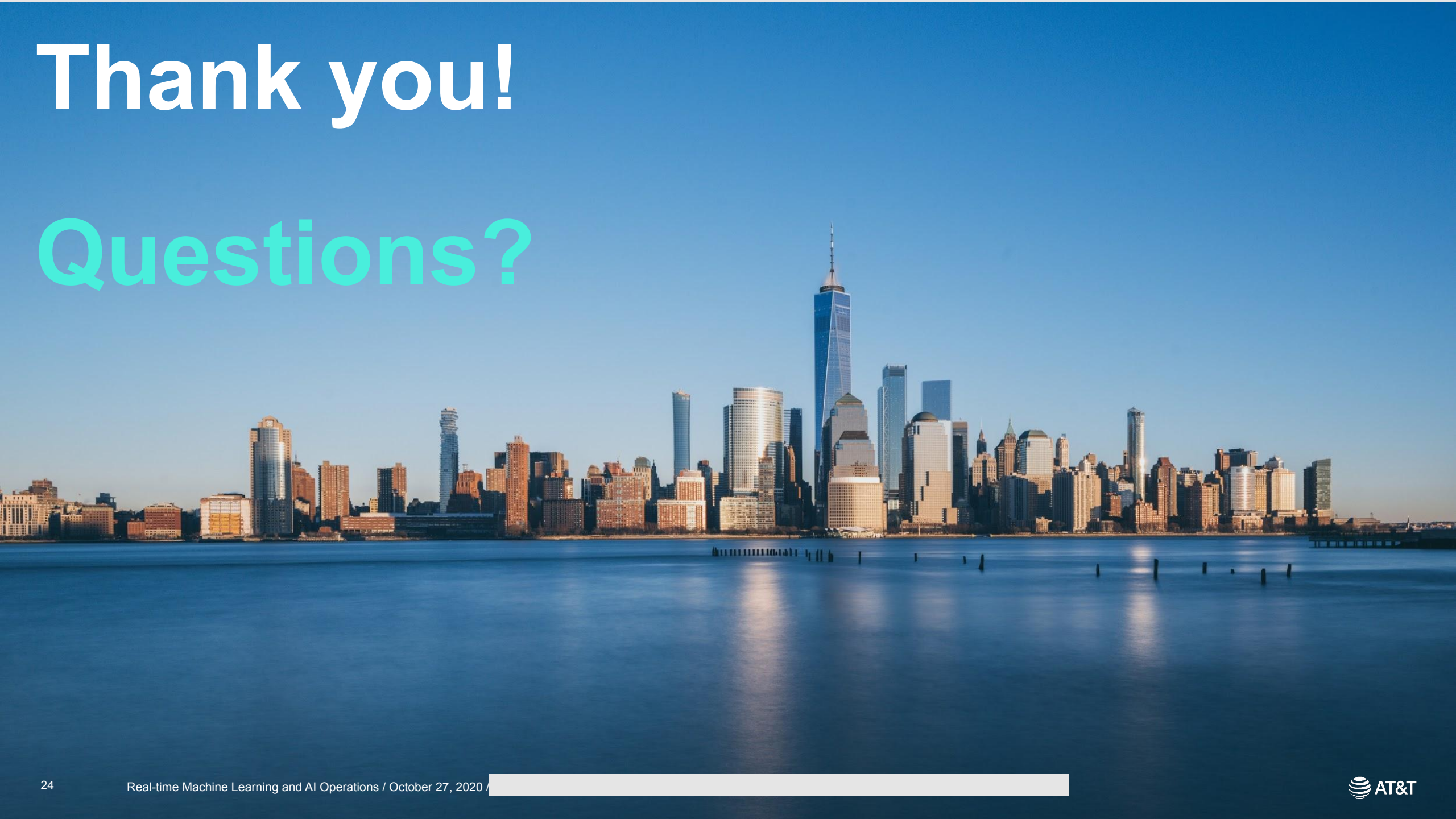
API Exception and Transaction Volume

Demo: Kibana
RoundTrip Graph



Thank you!

Questions?




AT&T