

# From Chaos to Clarity

AI-Powered Observability for GStore  
Systems



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# Agenda

- Intro - What is Observability
- Getting Started: Observability in G-Stores
- Best Practices
- Use Cases
- The Transformative Power of AI



# Understanding Observability: A Key to IT Success

UNIFYING METRICS, LOGS, TRACES, AND EVENTS FOR COMPREHENSIVE INSIGHTS

- Metrics, Events, Logs and Traces
- Shifting from *reactive* monitoring to *proactive* insights
- End-to-end visibility across applications, infrastructure, networks, and user experiences
- Goal is to enhance operational effectiveness.





## Full-Stack Observability

# The Goal of Observability

### Unified Insight into IT Systems

Provides a comprehensive view of interconnected IT components.

### Proactive Problem Identification

Shifting from reactive monitoring to proactive insights enhances operational efficiency.

### Holistic Coverage Across Environments

Observability encompasses applications, infrastructure, networks, and user experiences seamlessly.

# The Shift from Traditional Monitoring to Modern Observability

UNDERSTANDING THE PARADIGM SHIFT IN IT MONITORING AND INSIGHTS



## Reactive Monitoring Approach

- Traditional monitoring focuses on whether the system is down
- Emphasizes immediate fixes
- Lacks insight



## Proactive Observability Perspective

- Modern observability shifts the focus to understanding system behaviors and patterns
- Enables teams to identify root causes and prevent issues before they impact users

# The Four Pillars of Observability: MELT



## Metrics

- Provide quantitative data on system performance (e.g. benchmarks, KPIs)
- By analyzing metrics, organizations can identify trends and anomalies efficiently.



## Logs

- Contain detailed records of system activities
- Offers insights into transactions and user interactions
- Analyzing logs can aid in troubleshooting and uncover the root causes of issues



## Events

- Represent significant occurrences within the system, such as deployments or failures.
- Provides context that enhances overall observability and incident response.



## Traces

- Follow the path of requests through complex systems, illuminating the interactions between services
- Correlating traces with metrics and logs, teams gain a comprehensive view of their systems

# Observability Examples for C-Stores



## Equipment Issues

- Pump Offline
- Flow Rate
- Printer Paper Out
- Excessive canceled sales on Pump X
- IoT sensor monitoring (cooler temps, energy consumption, etc.)



## System Issues

- POS Offline
- Peripheral Connectivity Lost
- High CPU utilization
- Credit or Loyalty Offline
- High Latency
- Network Issues



## Operational Issues

- Critical Item Out of Stock
- Too many / Too few Open Shifts
- Speed of Service
- Suspicious No Sale Usage
- Over/Short Trends by Employee

# Getting Started - Observability in Convenience



Start with What  
Matters Most



Build Foundational  
Vis ibility



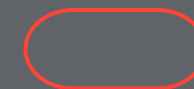
Select the Right  
Platform



Define Success  
Criteria Early



Scale Through  
Automation



Data Sources



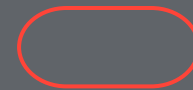
# Best Practices: Align Observability with Business Outcomes



Measure KPIs tied to revenue & customer experience



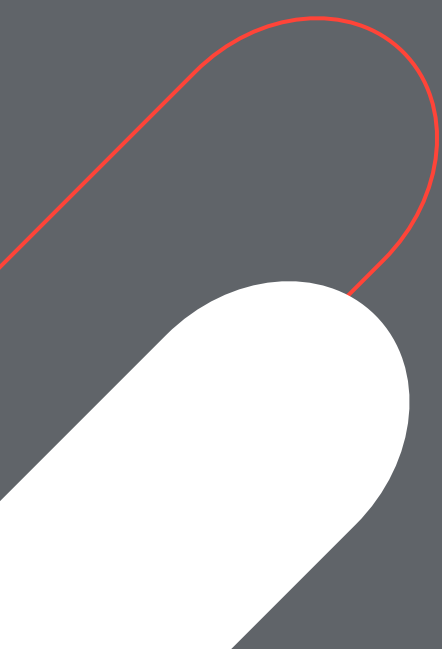
Prioritize alerts for customer -facing failures






Connect system performance to store KPIs



Visualize: Sales impact from downtime (lost throughput)



# Best Practices: Standardize & Automate Everywhere

-  Consistent tagging structure
-  Automate
-  Continuous Integration/  
Continuous Deployment

# Best Practices: Implementation



Identify  
Stakeholders and  
Critical Areas that  
Need Observability



Create Usable  
Alerts



Implementing Effective  
Dashboards



People and Process



Measure Impact



Continuous  
Improvement



# Use Case: POS & SCO Health Monitoring

## Problem:

- Registers and self-checkout lanes intermittently go offline, causing lost transactions and longer queues.
- Root-cause analysis is slow due to limited visibility into local device and service performance.

## Challenges:

- High store count means scaling agent deployment and tagging consistency across environments.
- Varying hardware and network configurations at the store edge.

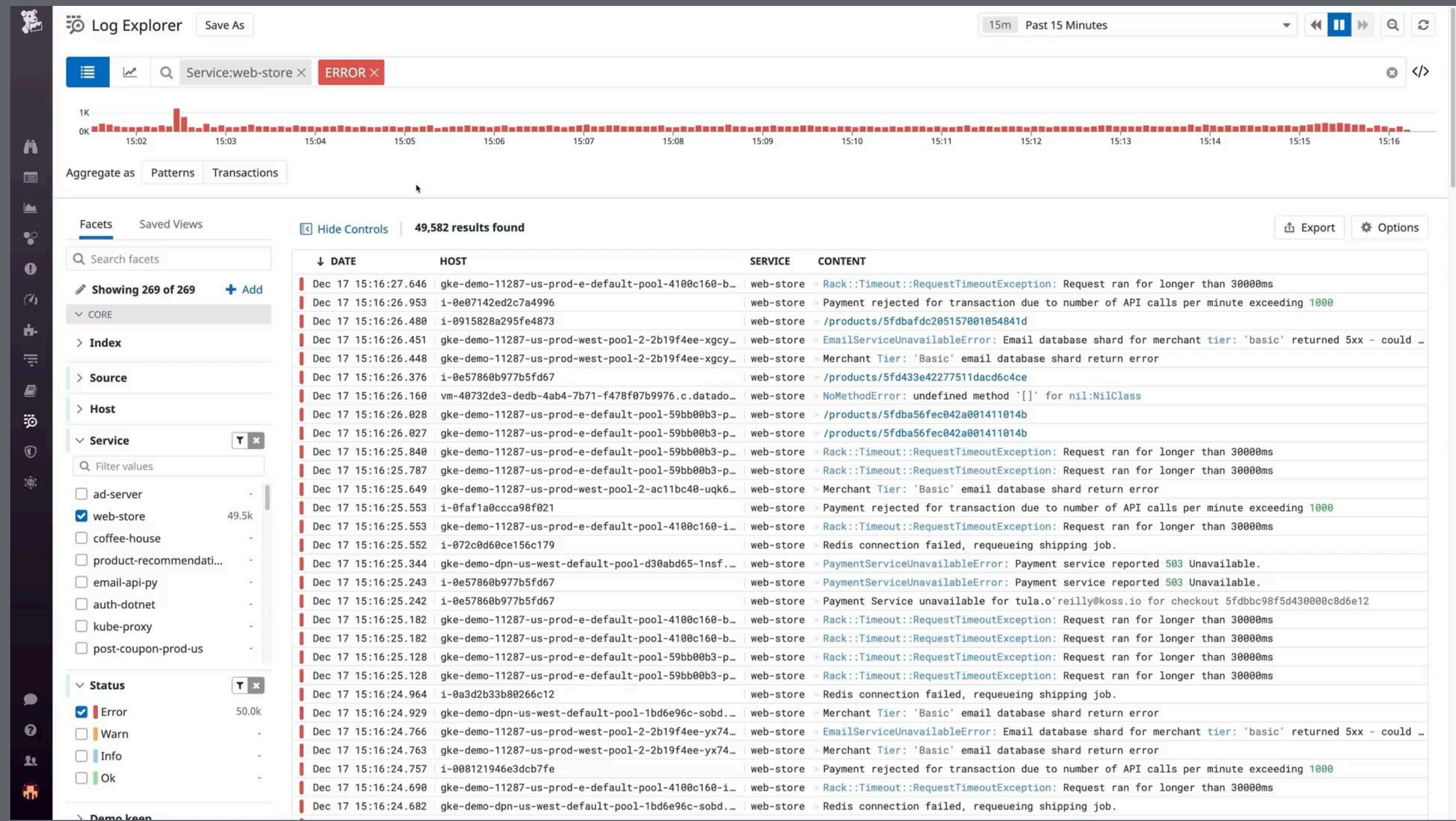
## Solution:

- Implement host and log monitoring for registers, kiosks, and SCO terminals.
- Track service uptime, transaction latency, and device error logs in a unified dashboard.
- Set alerts on payment failures, pin pad disconnects, and POS freezes.

## Results:

- Faster incident resolution through centralized alerting.
- Reduced downtime → more completed sales and higher customer throughput.

# Use Case: POS & SCO Health Monitoring





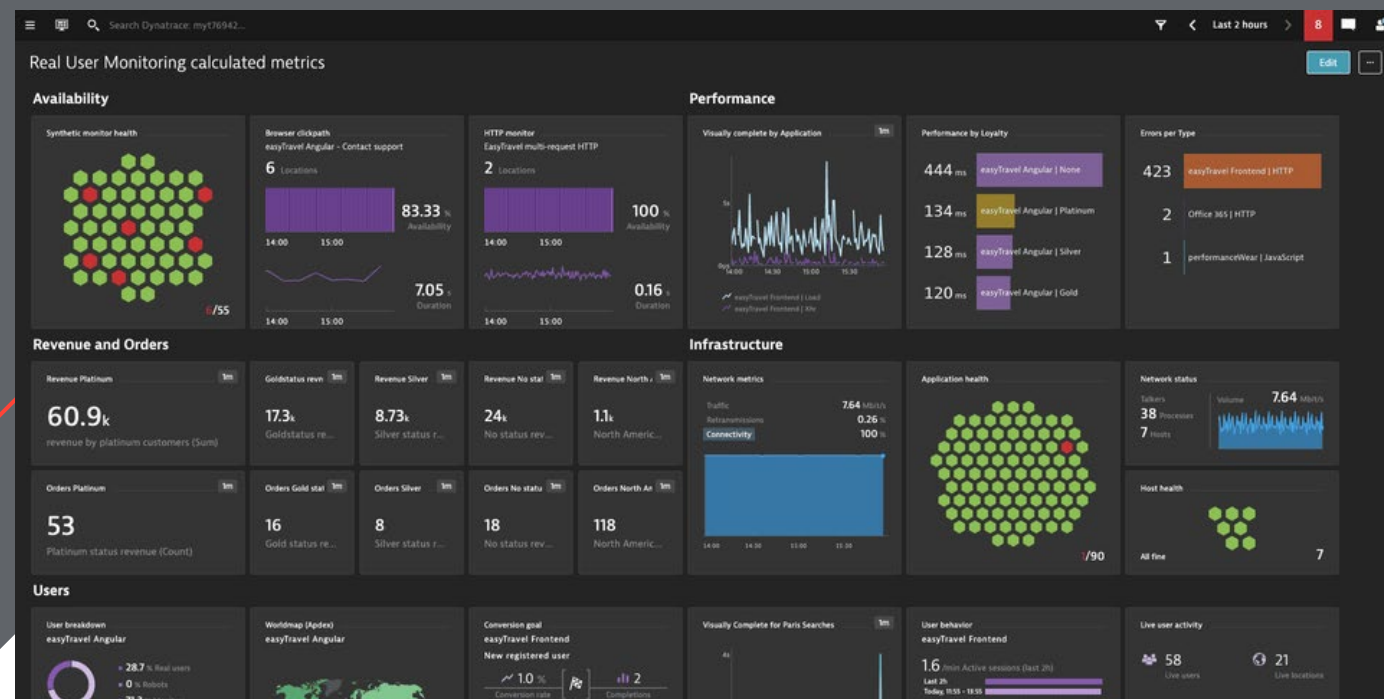
# Use Case: Real-Time Fuel Metrics Dashboard

## Problem:

- Store managers lack visibility into fuel volume flow, pump throughput, and tank inventory.
- Slow or failed pumps impact both sales and customer satisfaction.

## Solution:

- Use metrics pipelines to capture dispenser throughput, wet stock trends, and delivery performance.
- Create real-time dashboards for fuel volume by grade and pump health.



## Challenges:

- Integrating legacy forecourt controllers with modern telemetry.
- Ensuring reliable data buffering and upload during network drops.

## Results:

- Early detection of low volume pumps reduces fuel downtime.
- Optimized replenishment scheduling via visibility into tank performance.

# Use Case: Loyalty & Customer Engagement Monitoring

## Problem:

- Loyalty sign -ups and redemptions intermittently fail due to API latency or service timeouts.
- Failures go unnoticed until customers complain or revenue declines.

## Challenges:

- Correlating POS logs, cloud API telemetry, and mobile app activity.
- Maintaining data privacy and secure observability across systems.

## Solution:

- Instrument loyalty APIs and POS integration points using APM traces and custom metrics
- Track response times, error rates, and customer engagement patterns.
- Visualize loyalty activity per store and promotion in real time.

## Results:

- Reduction in loyalty API errors through proactive monitoring.
- Enhanced promotion performance tracking and customer retention.

# Use Case: Loyalty & Customer Engagement Monitoring



# Business Impact & ROI from Observability



Measured ROI



Reduced downtime =  
higher sales  
throughput



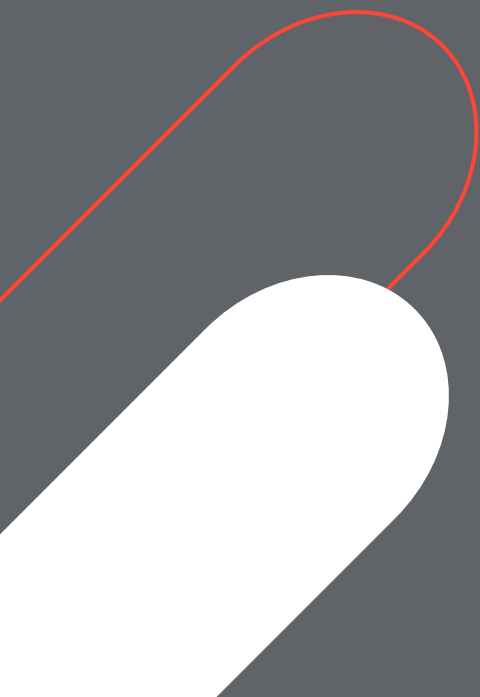
Operational  
Efficiency Gains



Improved customer  
experience



Data-driven Decisions



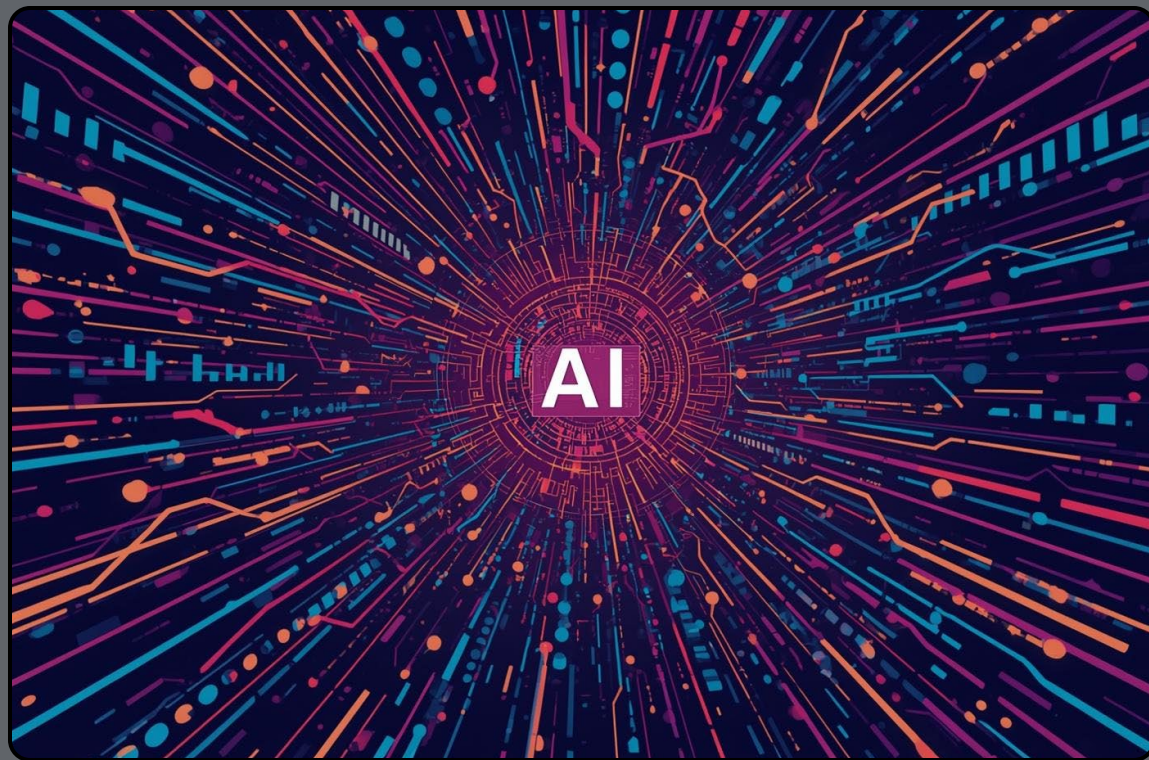
# The Transformative Power of AI in Observability

ENHANCING VISIBILITY AND DECISIONMAKING ACROSS COMPLEX IT  
LANDSCAPES

- Revolutionizes observability by enabling **real-time insights** from vast data sets
- Addresses the challenges of alert fatigue and data overload through advanced anomaly detection and event correlation
- Empowers organizations to move to proactive problem resolution and maximize operations and uptime



# The Transformative Role of AI in Observability



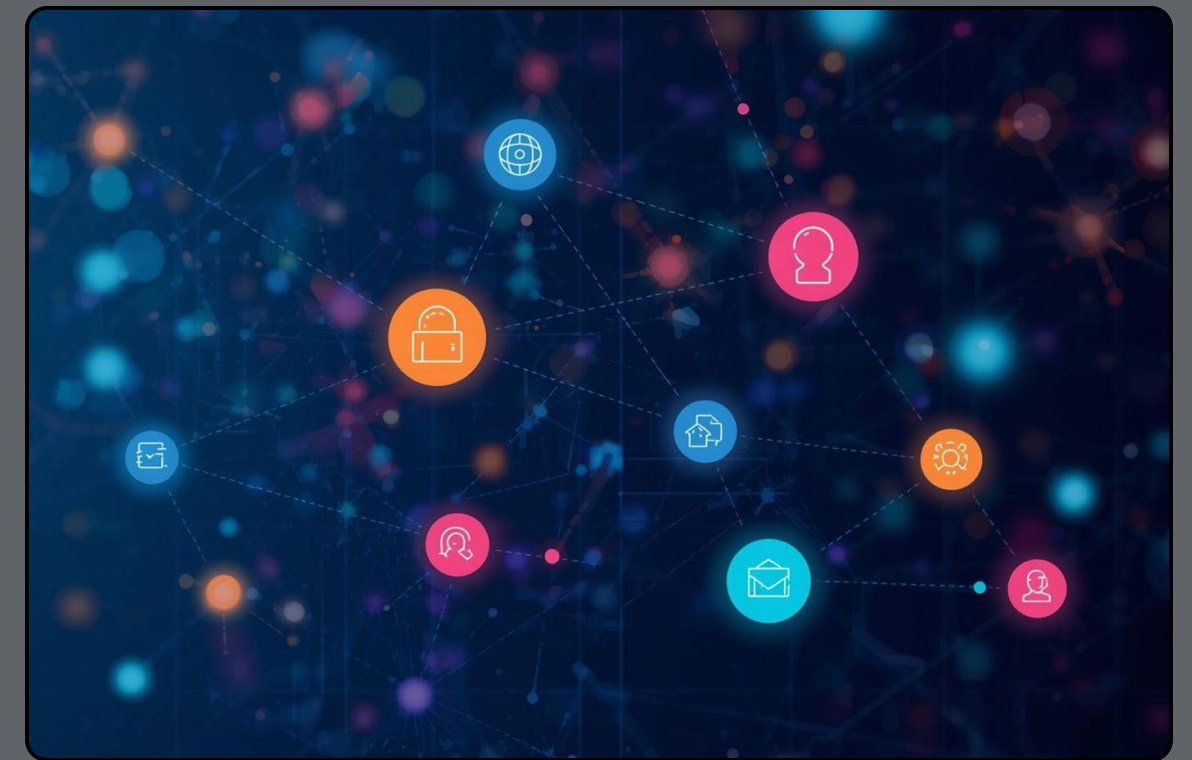
## Overwhelming Data Volume

- AI helps manage vast data inflows, turning chaos into actionable insights for users.



## Anomaly Detection

Utilizing AI, organizations can identify unusual patterns swiftly, enhancing operational responsiveness.



## Event Correlation

AI correlates events across systems, enabling faster understanding of complex interactions and dependencies.



# Natural Language Queries

The image displays three overlapping screenshots of the Davis CoPilot AI interface integrated into Dynatrace dashboards.

**Top Left Screenshot (CPU analysis dashboard):**

- Query:** "Generate a DQL query to show the top 5 K8's nodes by CPU."
- Result:** A DQL query is generated: 

```
1 timeseries avg_cpu_req = avg(dt.kubernetes.node.requests_cpu, by:{k8s.node.name})
2 | fieldsAdd total = arrayAvg(avg_cpu_req)
3 | fields k8s.node.name, total
4 | sort total desc
5 | limit 5
```

**Top Right Screenshot (Vulnerability Reporting & Escalation workflow):**

- Query:** "Trigger a notification for the relevant team handling vulnerability analysis."
- Result:** A workflow action is triggered: "HTTP Request" with the instruction "Issue an HTTP request to any API".

**Bottom Left Screenshot (Problems dashboard):**

- Query:** "Summarize all my open problems and suggest appropriate remediations."
- Result:** A summary of the root cause for "www.easytravel.com: User action duration degradation" is provided, including affected applications, services, and users.

**Bottom Center Screenshot (Root cause analysis):**

- Query:** "Summarize all my open problems and suggest appropriate remediations."
- Result:** A detailed root cause analysis for "www.easytravel.com: User action duration degradation" is provided, including affected applications, services, and users.

# Intelligent Alerting

## Correlation

Triage faster and reduce the number of notifications you receive by correlating events into cases [Learn more](#)

### Pattern

Correlate events by configuring patterns

### Intelligent BETA

Correlate events with machine learning

#### CORRELATE EVENTS AUTOMATICALLY

Machine generated correlations will appear in a new view within Case Management. Reduce noise and personalize your view by using tags relevant to you, your team, environment, services and so on .

#### Customize your view

Filter only to these events \*

Q Add tags like "team:security" ✕ </>

Name this view \*

Example: "Security Team"

See results in your new View within **Intelligent Correlations** project of Case Management.

[Learn More](#)

[Enable Intelligent View](#)

Preview

This intelligent correlation would create 100 cases

Preview displays up to 20 cases, limited to the first 1000 events in the timeframe.

4h Feb 1, 2024, 6:00 am – Feb 1, 2024, 10:00 am

EVENTS INGESTED

1000 events

Raw events

EVENTS TO ALERTS

539 alerts

53.9% Deduplication

CASES CREATED

120 cases

77.74% Compression

- [us1.prod.dog][mork] [NLA] Mork-Storage is under-replicated for us1.prod.dog...

CASE-1 | Started Jan 3, 1:10pm | Matching grouping: env:prod service:internal-datascience-api

Preview

- [Customer Impact][Logs] [Event Store] [Non-Paging]We are seeing an elevated...

CASE-1 | Started Jan 3, 1:10pm | Matching grouping: env:prod service:event-query

Preview

- [IR-21702] Scale down kafka connect sketches deployments

CASE-1 | Started Jan 3, 1:10pm | Matching grouping: env:prod service:kafka

Preview

- [us3.staging.dog] elastic search process reuquests failing is high

CASE-1 | Started Jan 3, 1:10pm | Matching grouping: env:prod service:elastic search

Preview

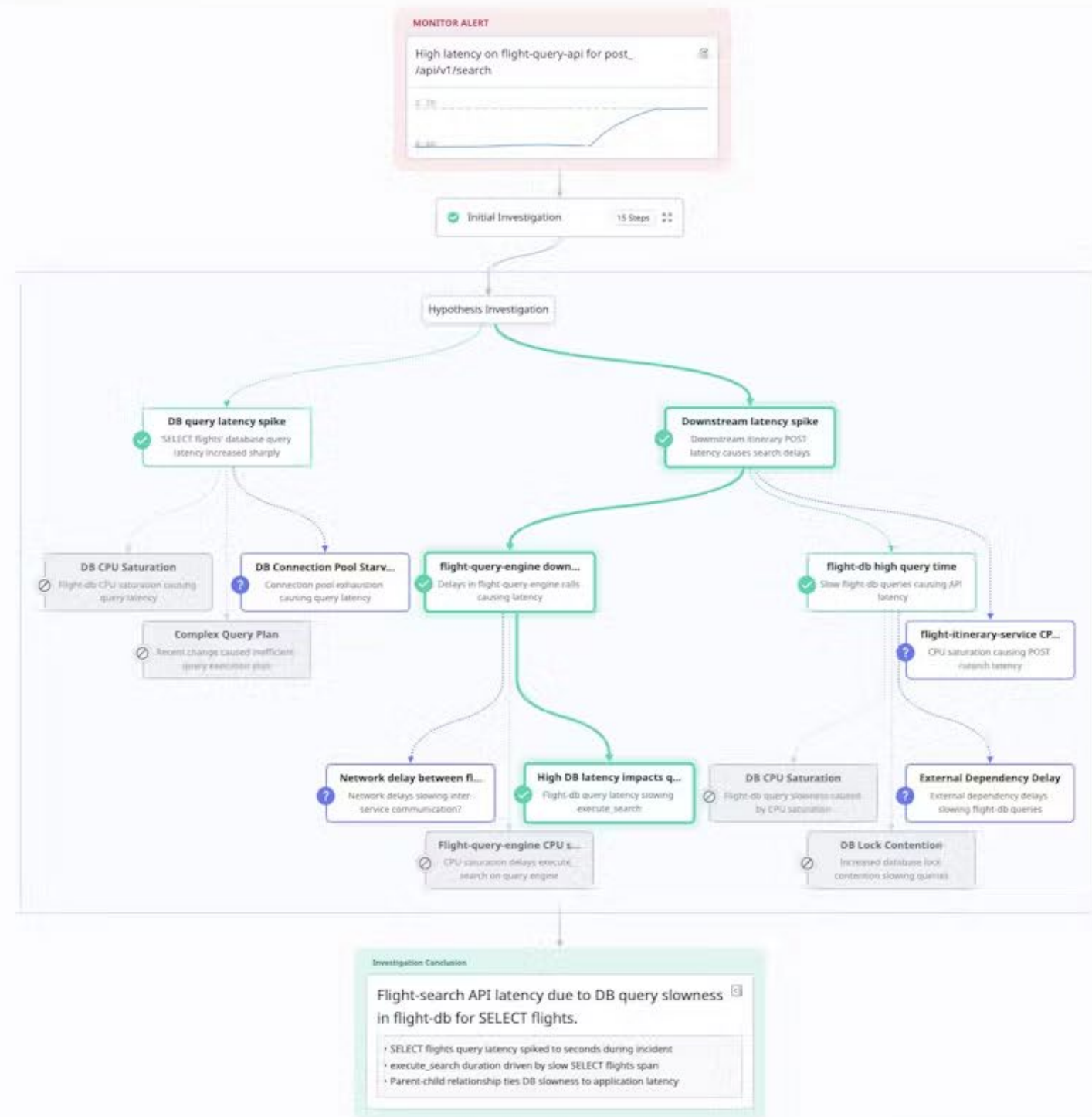
- Poor performing Usage API Endpoints in usage on env:prod,env:prod-us5,resource\_...

CASE-1 | Started Jan 3, 1:10pm | Matching grouping: env:prod datacenter:usage

Preview



# Event Correlation



State	Priority	Created	Issue Name	Entity name	Notified	Contains
Active	Critical	1h 24m ago	CartService query result is >...	CartService		14 incidents
Active	Critical	6h 4m ago	LON-Juniper-EX2200-Swite...	LON-Juniper-EX2		1 incident
Active	Critical	10h 4m ago	LON-Juniper-T4000-Core-R...	LON-Juniper-T40		1 incident
Active	Critical	Jan 12, 202...	Apdex < 0.9 for at least 20 r			

Incidents: 14

**Critical** Open

Error percentage > 45% for at least 5 minutes on 'Fulfillment Service'

Created: Today 3:43pm 2m

**High** Open

Web response time > 500 milliseconds for at least 5 minutes on 'Play Service'

Created: Today 3:41pm 4m

**High** Open

CPU % 45.0 for at least 5 minutes on 'ip-172-31-21-114'

Created: Today 3:41pm 4m

# Thank You for Your Attention!

Reach out if you have any questions!

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