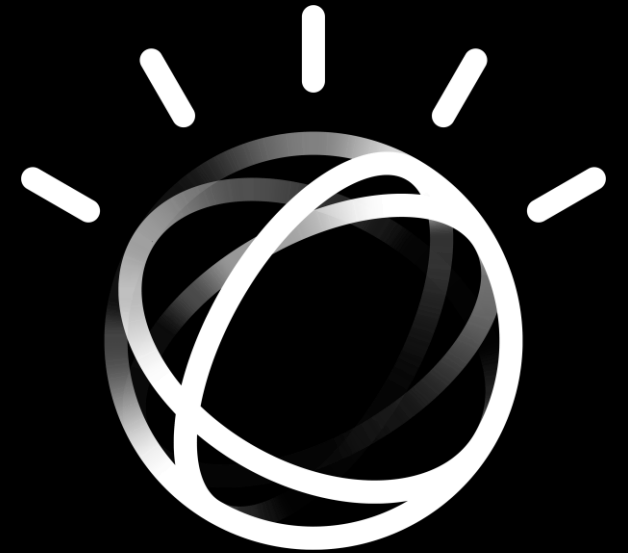


IBM Watson AIOps

Leverage Watson AIOps to better predict IT outages and generate operational efficiencies

What's the AI in AIOps?

Stephen Hussey, Offering Manager



IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal without notice and at IBM's sole discretion.

Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision.

The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract.

The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

IT Operations teams: Stop playing catch-up & unlock your business value

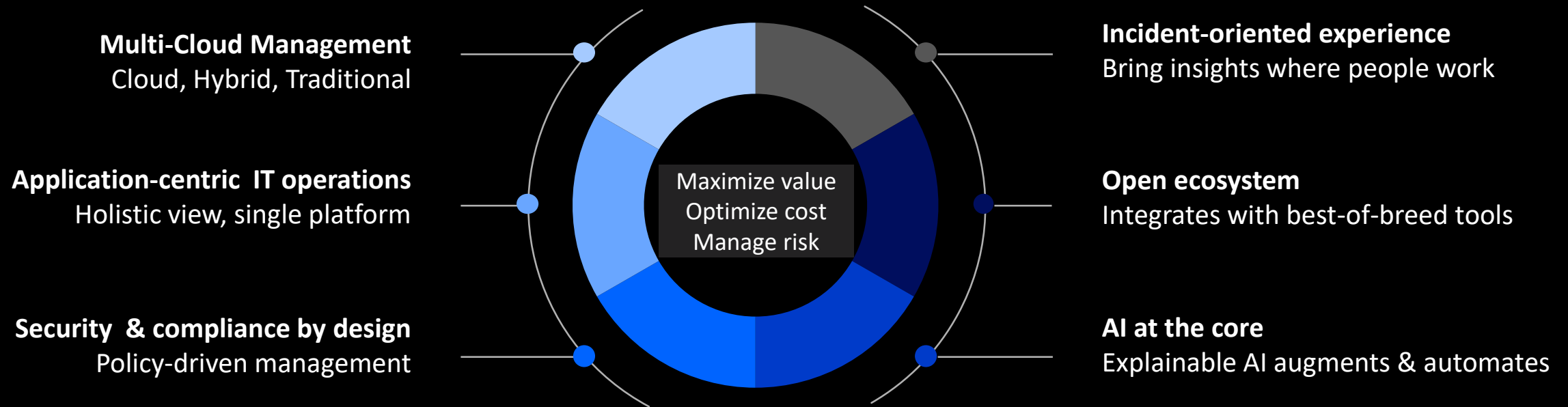
“Teams may have the knowledge and experience to be a strategic partner to the business, but demonstrating value can be a Sisyphean task.”

The daily grind of chasing down alerts and patching problems can lock IT personnel into a cycle in which they are continually playing catch-up instead of preventing problems from arising.”



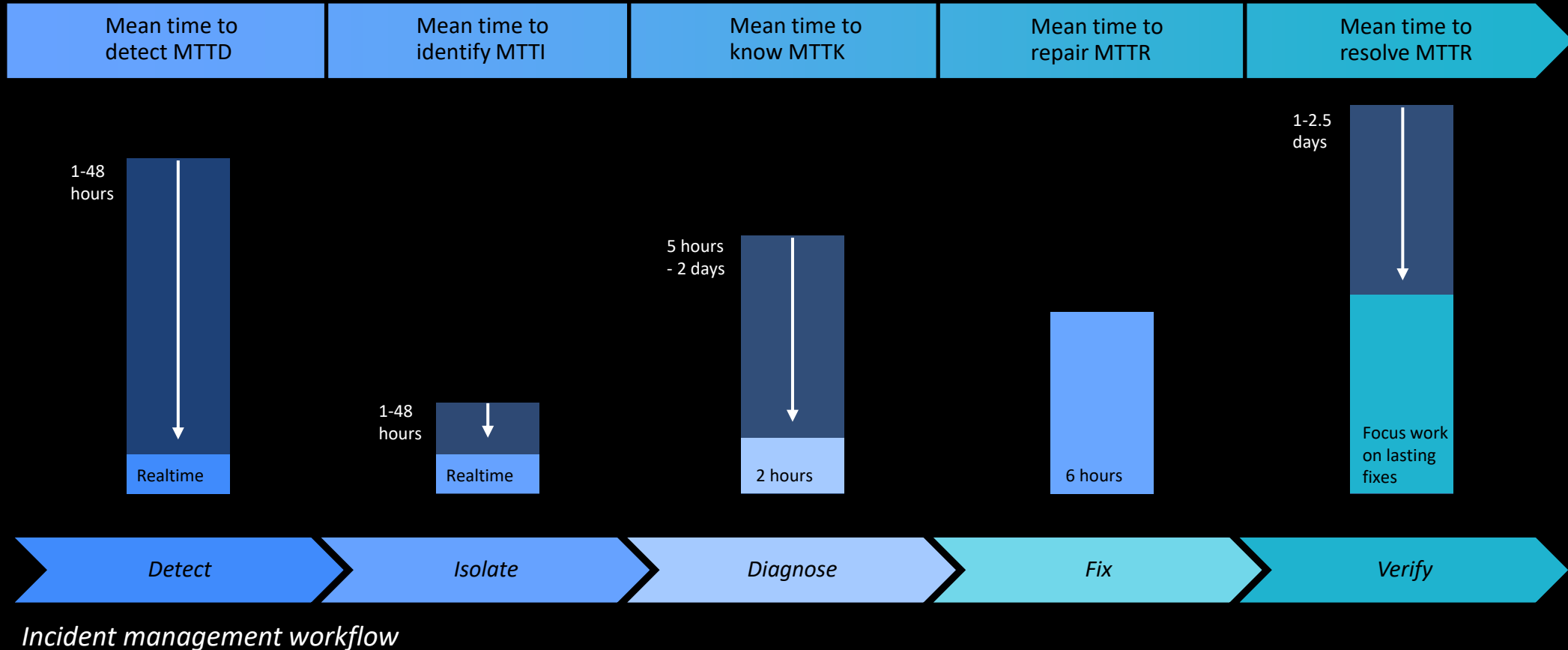
As Development, Security and Operations converge, we need an intelligent and integrated approach to IT Operations

Watson AIOps core principles

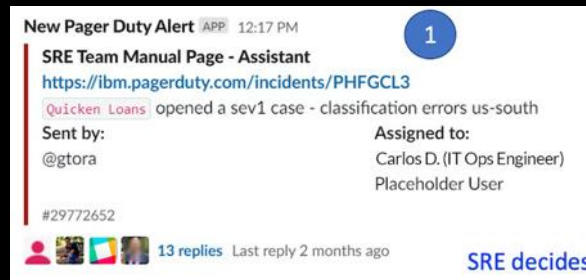


The world with Watson AIOps:

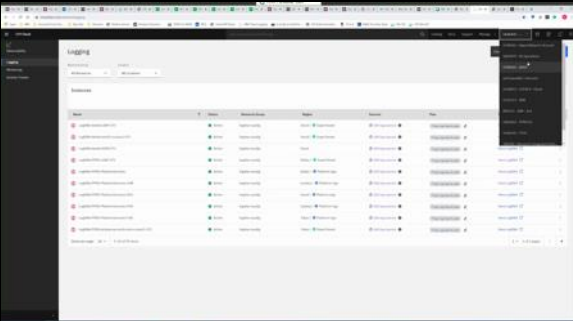
CIO Challenges in incident management & resolution



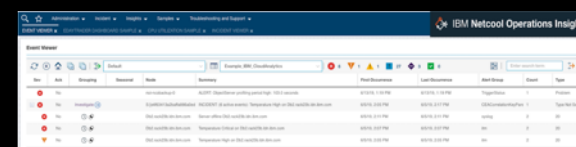
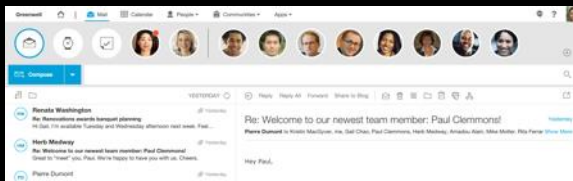
Your tools can provide a lot of useful data



... Resolution times and costs are still high



Bridge existing silos to make your entire operations better



IBM Watson AIOps Fuels your AIOps Journey

Deepen your understanding. Operate proactively. Improve via automation.

Un-structured data (Logs and Tickets)



Structured data from Monitoring



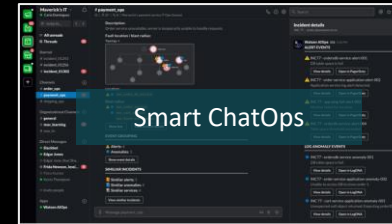
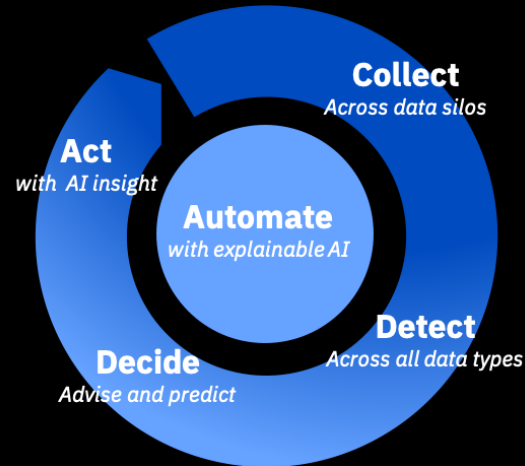
Events and Alerts



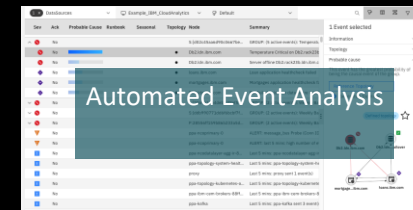
Topology Information



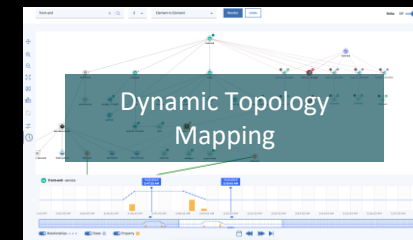
Collect all relevant data



Accelerate data awareness to near-real time into existing workflows or ChatOps

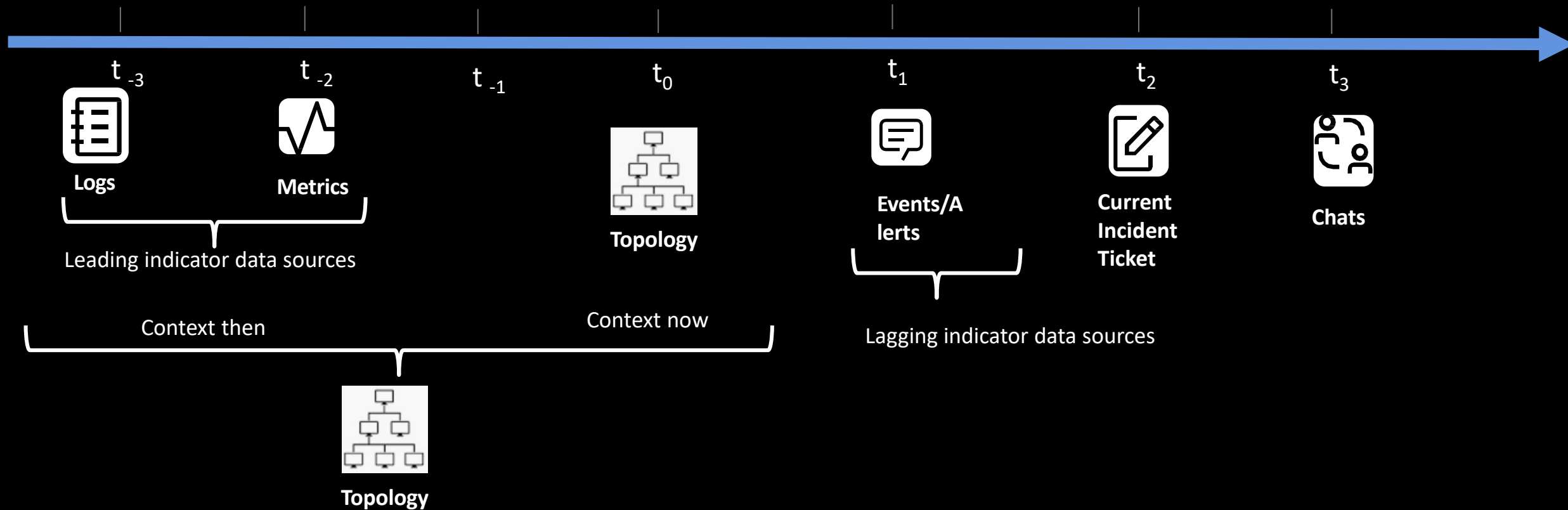


Correlate, curate and highlight most relevant data across tools without manual "deep-dive" investigations



Focus your efforts via automated event grouping, analytics and probable cause

The what, when and where of data in IT Ops environment



AIOps Algorithm Characteristics

Preprocessing

- Each algorithm has their own preprocessing chain.
- Perform a chained set of transforms on the data.
- Validate the data fits the algorithm.

Unsupervised

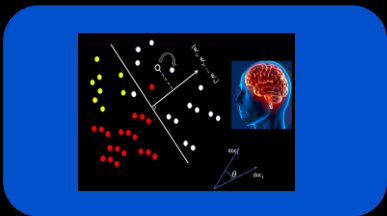
- Algorithm is built by IBM using labelled data to prove out the algorithm, but the algorithm builds models without labels.
- We do not ship models, just algorithms
- *The algorithm is purely looking at numbers to build a mathematical model per timeseries.*

Validation

- Understand if the model is not overfitting / underfitting the data.

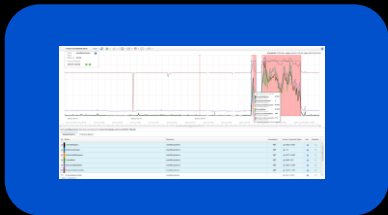
Algorithms in Watson AIOps

Log Anomaly Detection



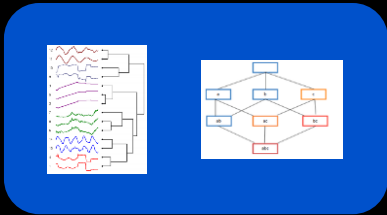
Detect anomalies from log messages

Metric Anomaly Detection



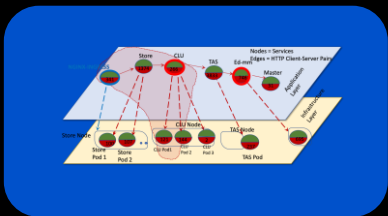
Detect anomalies from time series metrics

Event Grouping with Entity Linking



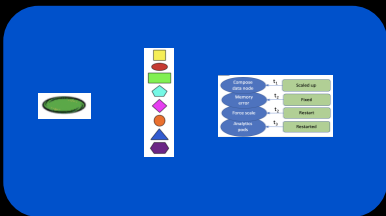
Group events, alerts, anomalies to reduce tickets

Fault Localization & Blast Radius



Derive root fault component and derive full scope of components that are affected by the incident

Incident Similarity

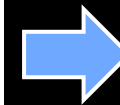
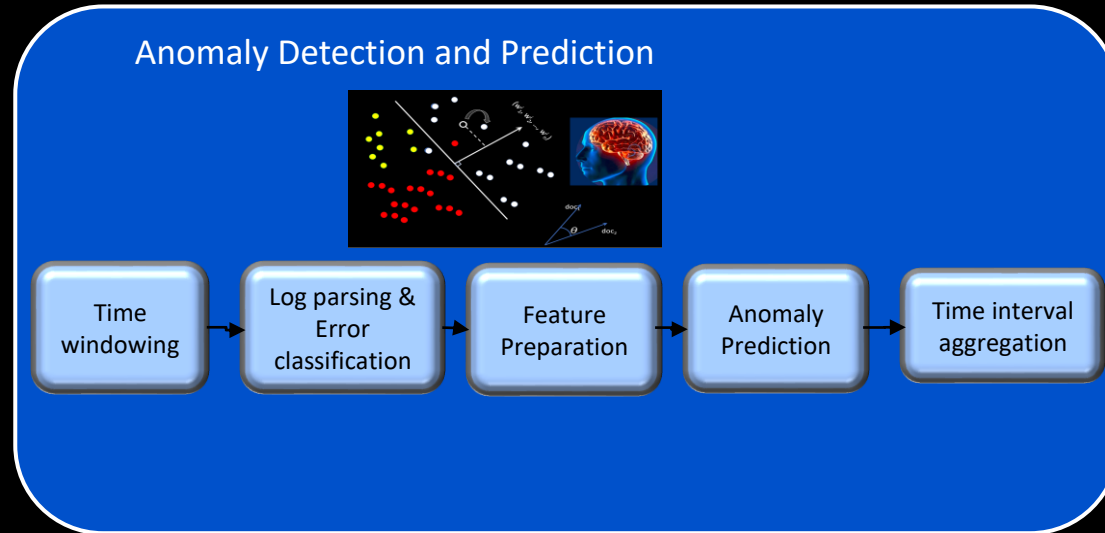


For a given problem description, find top k ranked similar incidents from the past.

Log Anomaly Detection



Logs



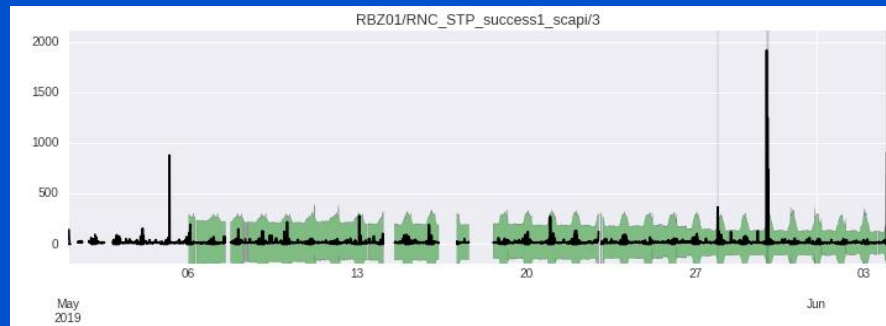
- Anomalous time period prediction
- Entity mentions in error logs
- Explanation & Pointer to log messages from anomalous time periods

Metric Anomaly Detection

GRANAT_TOTAL	10001	2.54264051
GRANAT_TOTAL_UNIQ_IDs	1267	2.8888135
GRANAT_TOTAL_UNIQ_INSTANCES_AEL	1887	3.92156887
GRANAT_reboot_ALL_INSTANCES_DS	0	0
GRANAT_reboot_UNIQ_INSTANCES_DS	0	0
GRANAT_reboot_UNIQ_IDs_DS	0	0
GRANAT_reboot_UNIQ_INSTANCE_IDS_DS	0	0
GRANAT_reboot_UNIQ_INSTANCE_IDS_DS	0	0
GRANAT_reboot_ALL_INSTANCES_DS	17936	9.32203898
GRANAT_reboot_UNIQ_INSTANCES_DS	6106	6.82897874
GRANAT_reboot_UNIQ_IDs_DS	1006	2.87929125
GRANAT_reboot_UNIQ_INSTANCE_IDS_DS	534	9.02217808
GRANAT_reboot_UNIQ_INSTANCE_IDS_DS	7867	10.4238275
GRANAT_preprodreboot_UNIQ_IDs_DS	107	12.8126624
GRANAT_preprodreboot_ALL_INSTANCES_DS	735	3.0655368
GRANAT_preprodreboot_UNIQ_INSTANCES_DS	320	9.42148093
GRANAT_preprodreboot_UNIQ_IDs_DS	353	13.979737
GRANAT_preprodreboot_UNIQ_INSTANCE_IDS_DS	38	2.54435106
GRANAT_preprodreboot_UNIQ_INSTANCE_IDS_DS	413	13.408791
GRANAT_preprodreboot_UNIQ_INSTANCE_IDS_DS	28	2.54435106

Metrics

Anomaly Detection and Prediction



- Deviation from normal operating range
- Change from variable to flat
- High & low range changes
- • Relationships between metrics change
- Exceed previous range
- Exceed normal range variance

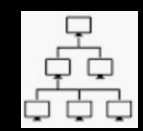
Event Grouping



Anomaly events



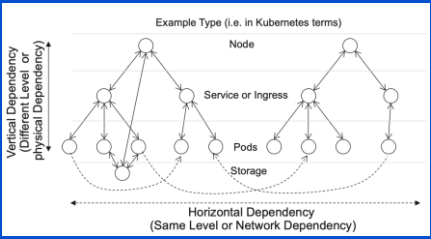
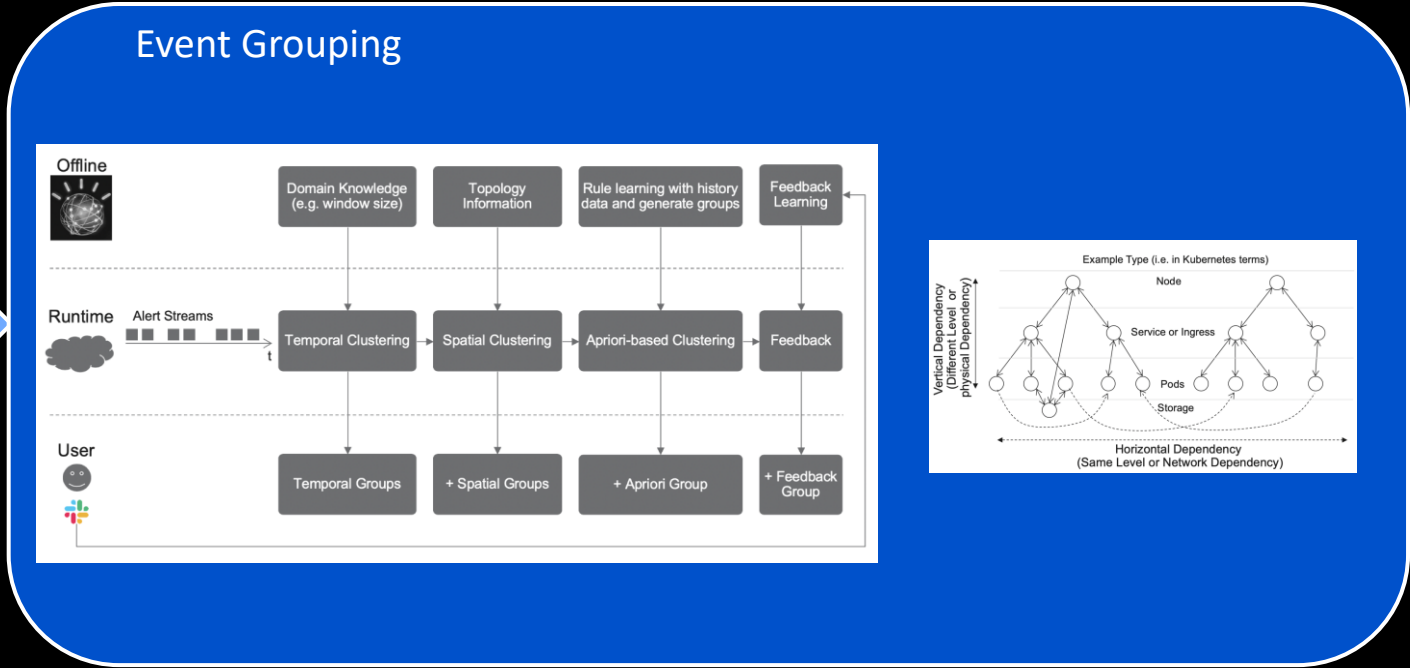
Alerts



Topology



Deployment Config



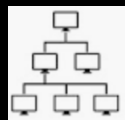
- Grouped events
- Entity mentions in each group



Fault Localization & Blast Radius



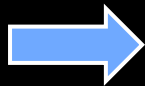
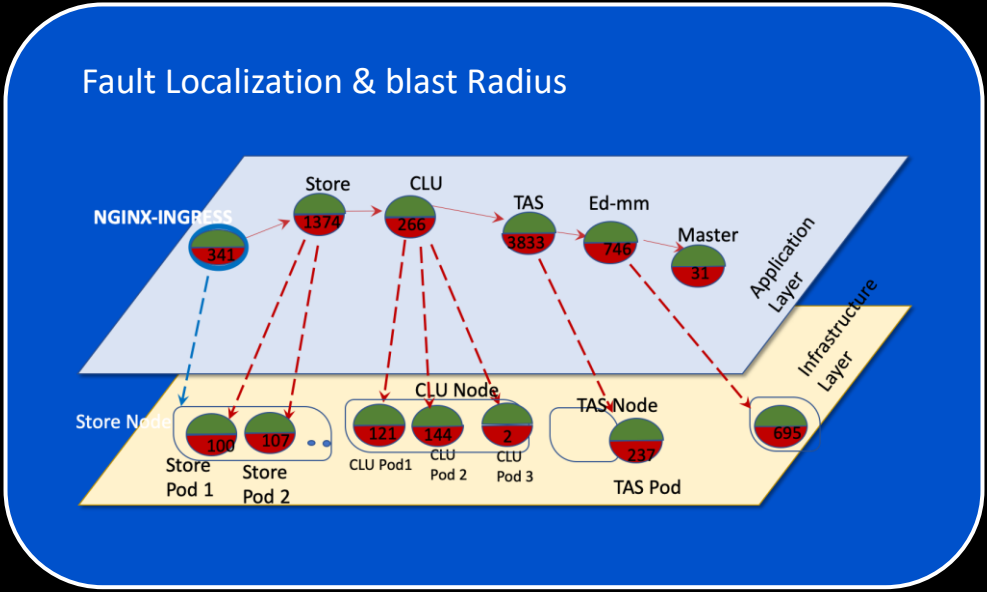
- Grouped events
- Entity mentions in each group



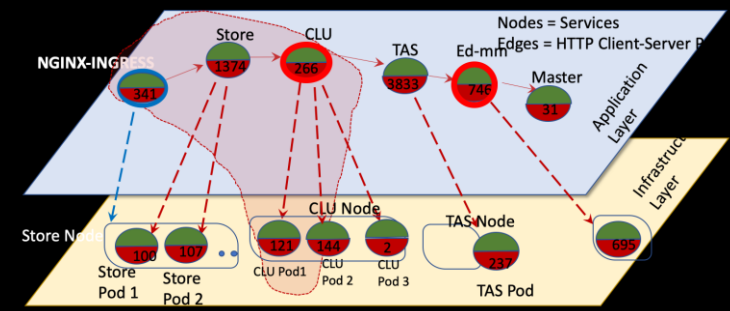
Topology



Deployment Config



- Faulty component names
- Impacted components as blast radius



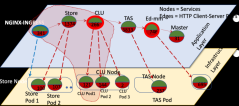
Incident Similarity



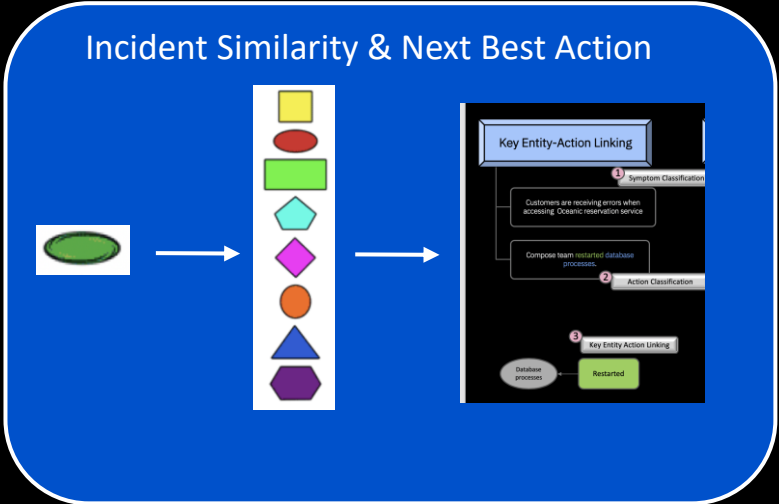
Tickets



Chats



Faulty component names
Impacted components as
blast radius



- Top-k similar incidents
- Incident resolution phrase

rc_on_fyre_app_11 APP: 8:12 PM
Similar Incidents Search Results

Hey @akkiraju, we found 9 result(s) for your query **Watson Assistant experiencing intermittent classification errors monitoring alerts** on INC 174.

Similar Incidents (5)
relevant historical incidents based on similarity and search

- Watson Assistant service experiencing Training failures** [+ Add to Incident](#)
The ICD deployment got healthy after the scale up and restarts and training is working again
INC1761061 created Dec 20
- Watson Visual Recognition Intermittent Errors** [+ Add to Incident](#)
Team **restarted** 3 VRLS pods and this resolved the issue.
INC1365775 created Nov 7
- Premium customer (Sprint) experiencing intermittent RC50x errors in Assistant and Tone Analyzer.** [+ Add to Incident](#)
Customer has no longer been getting this error after they restarted their servers. No action performed on Watson side.
INC1347428 created Nov 4
- Customers may experience intermittent errors when using Watson Assistant service.** [+ Add to Incident](#)
MongoDB recovered. TAS pods were then **restarted** in order to reconnect to the MongoDB This resolved the issue.
Case open with ICD team to **provide** further details on actions to **restore** MongoDB
INC1337263 created Nov 1
- Watson Discovery Intermittent Errors** [+ Add to Incident](#)
ALB (loadbalancers) have been **recycled**.
INC1330858 created Oct 30

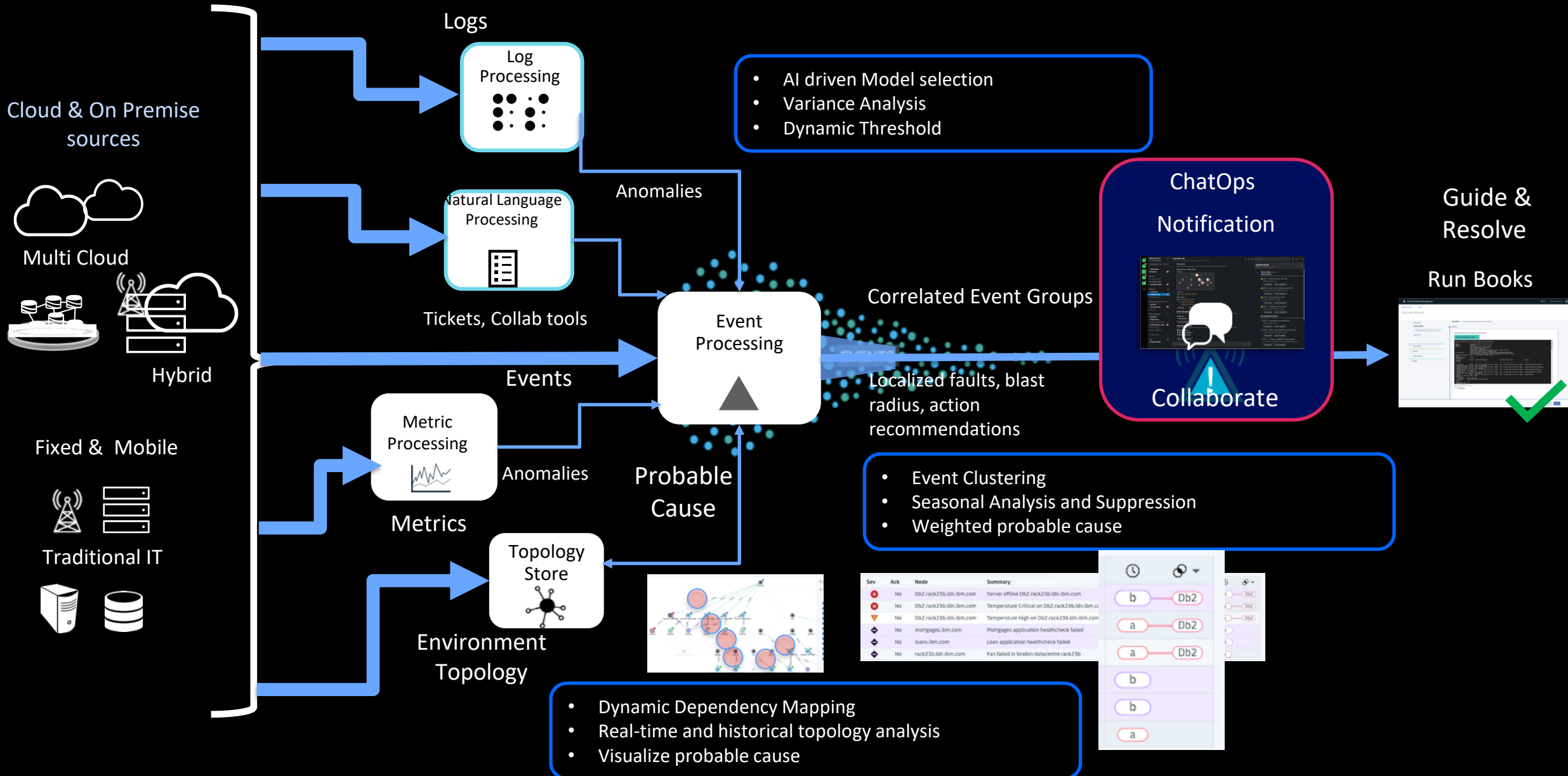
Recommended Actions (4)
action(s) that helped in resolving similar incidents

- ALB (loadbalancers) have been recycled.** [+ Add to Incident](#)
- Team **restarted** 3 VRLS pods and this resolved the issue. [+ Add to Incident](#)
- TAS pods were then **restarted** in order to reconnect to the MongoDB This.. [+ Add to Incident](#)
- Case open with ICD team to **provide** further details on actions to **restore** MongoDB [+ Add to Incident](#)

[Delete this Search](#)

Implementing AIOps with IBM

Structured + Unstructured data



ChatOps

INC 178

Title: Changes in story identified

Status: OPEN
Severity: 3

Description: New group related changes in story identified
Service: 1

Created: Today at 5:03 PM by @rc_on_fyre_app_11
Updated: Today at 5:28 PM by @rc_on_fyre_app_11

Localization

Services: mm-runtime

Blast Radius

Services: mm-runtime, nginx-ingress, nlu, store, tas, ui

Incident Context

Other

Event count: 20

View all events

Incident Insights

There's nothing here yet! Try searching.

Search Incidents and Actions

All Events

We have found 4 events.

1

Updated stale lastUsed time in registry for model <*> from <*> (<*> <*> ago) to <*> <*> <*> ago)

Go to source

Hide

1

```
<*> <*> <*> <*> <*> <*> id=df75f8-16zhv <*> <*> <*> <*>
<*> <*> for <*> <*> <*> <*> <*> Interrupting request thread
due to gRPC Context cancellation or deadline expiry:
java.util.concurrent.TimeoutException: context timed out
Removed sidcar record for model <*> after unexpected
NOT_FOUND received from inference request Retryable onError #
<*> on underlying stream of method <*>
io.grpc.StatusRuntimeException: UNAVAILABLE: io exception
Updated stale lastUsed time in registry for model <*> from <*>
(<*> <*> ago) to <*> <*> <*> ago) null
```

Close

Search Similar Incidents

Enter your search query:

Watson Assistant experiencing intermittent classification errors mon

Exit

Search

rc_on_fyre_app_11 APP 8:12 PM
Similar Incidents Search Results

Hey @akkiraju, we found 9 result(s) for your query **Watson Assistant experiencing intermittent classification errors monitoring alerts** on INC 174.

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+ Add to Incident

Team **restarted** 3 VRLS pods and this resolved the issue.

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TAS pods were then **restarted** in order to reconnect to the MongoDB This..

+ Add to Incident

Case open with ICD team to **provide further details** on actions to **restore MongoDB**

+ Add to Incident

Delete this Search

Differentiation achieved through IBM AI

Entity Linking



Breaks down silos across various data sources in IT Ops lifecycle

Advances in AI & Holistic Problem Context



Uses deep natural language understanding, machine learning techniques, and the holistic problem context to deliver accurate diagnosis and resolution recommendations

Better Explainability



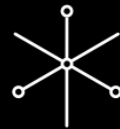
Enables correlation, causality and pattern identification for better reasoning and explanation of the rationale behind insights to better inform stakeholders

“Out of the box” Insights & Customizable Models



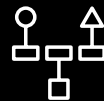
Out-of-the-box models for IT challenges in cloud-native applications, customizable to adapt to specific client needs

Open Platform



Consumable on any cloud, connects to any collaboration platform (Slack, Teams, etc) to provide insights directly in the workflow, and integrates with a variety of IT Ops tools

AI Model Lifecycle Management



AI life cycle management capabilities (e.g. continuous learning, fairness, drift, data lineage etc.) via integration with IBM's Cloud Pak for Data solution

Thank you