
AWS
re:Invent

MGT306

Increase availability with AWS observability solutions

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AWS

AWS re:Invent

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What is Observability?

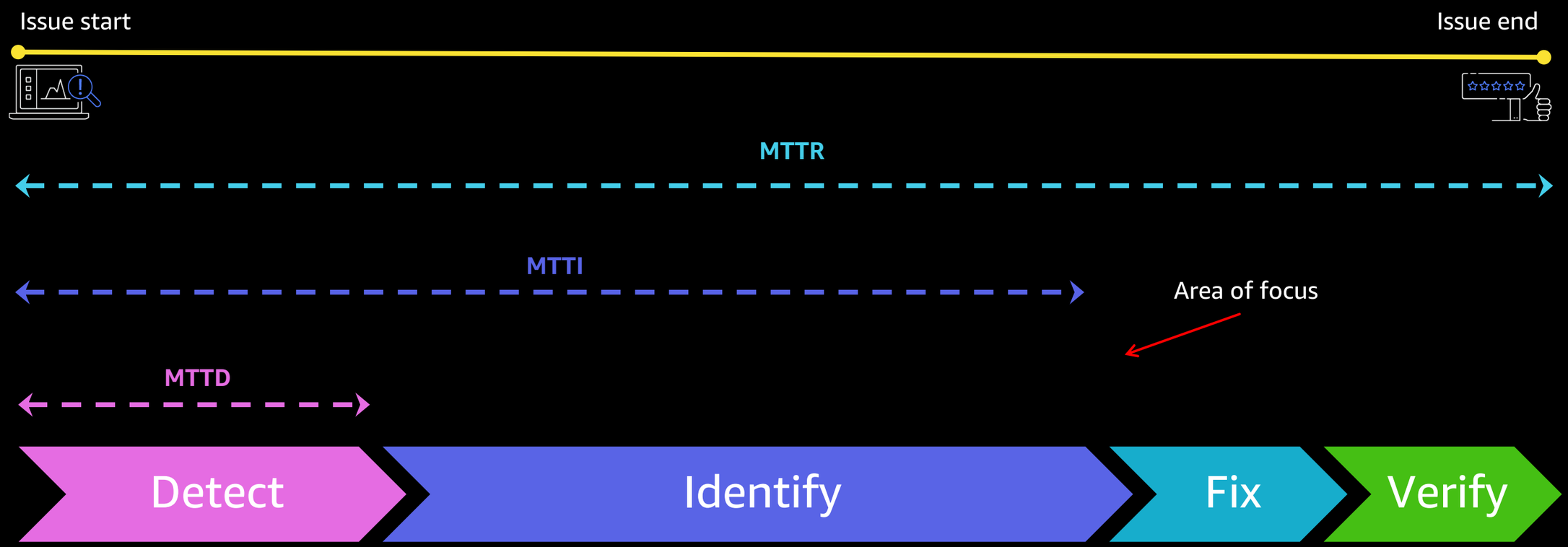
In control theory, **observability** is a measure of how well internal states of a system can be inferred from knowledge of its external outputs

Source: Wikipedia, “Observability.” https://en.wikipedia.org/wiki/Observability

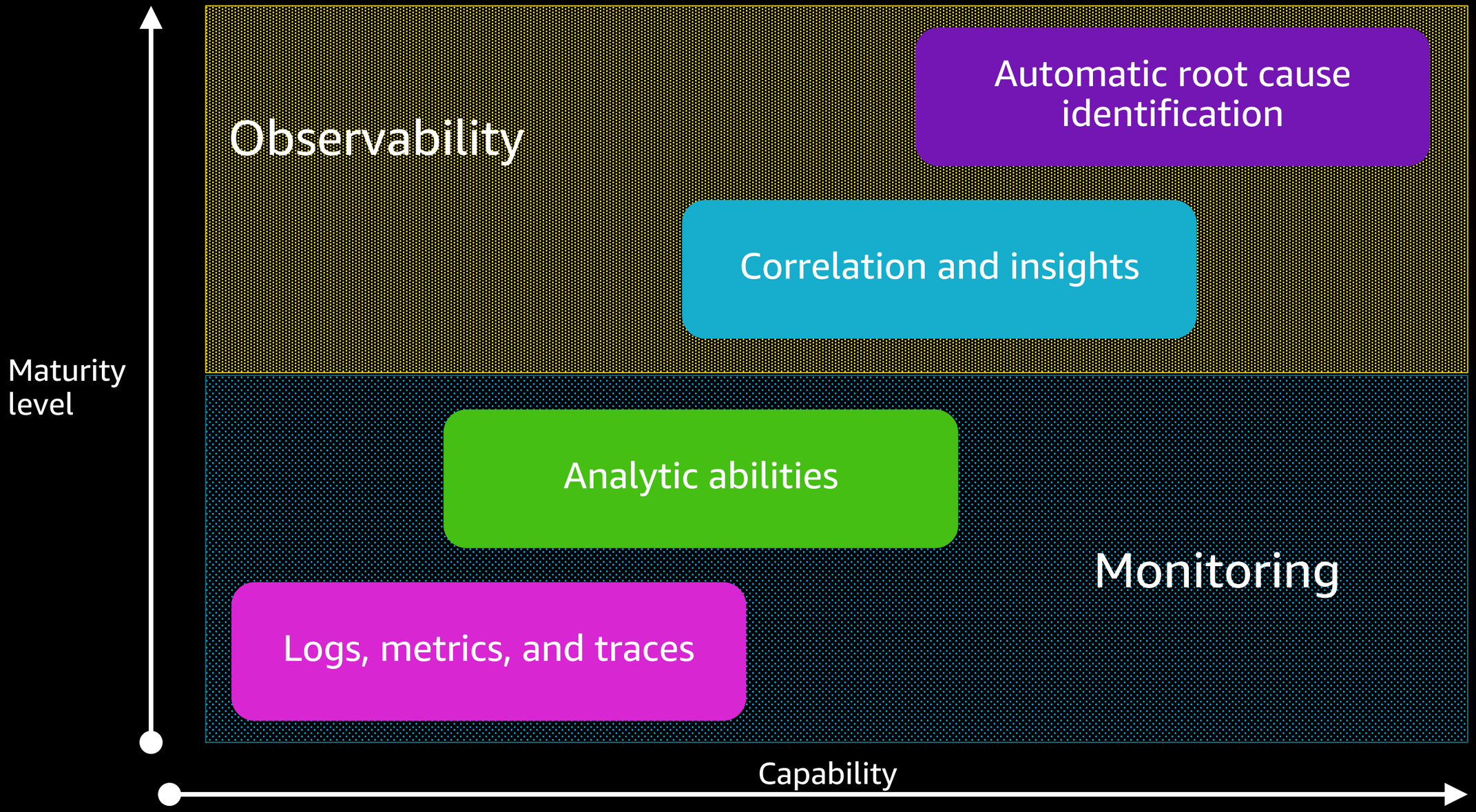
Monitoring tells you whether a system is working;
observability lets you understand why it isn't working

Good observability allows you to answer the questions you didn't know that you needed to ask

Issue timeline

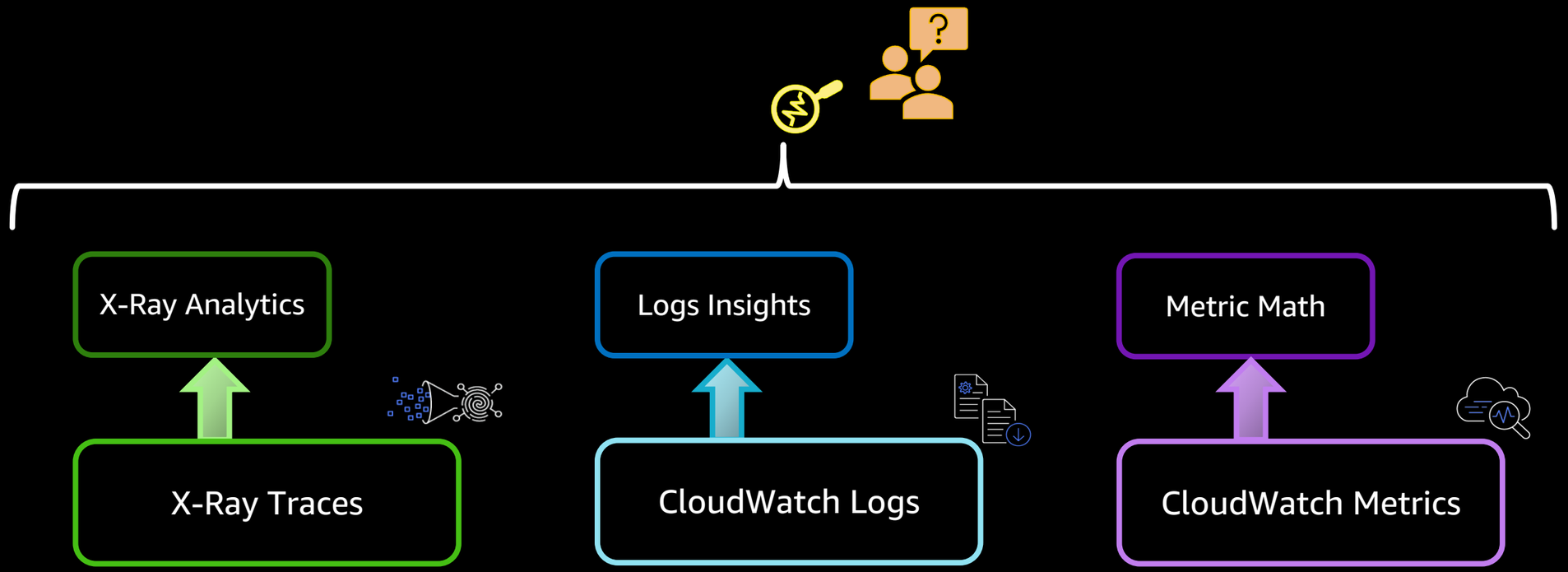


Maturity level

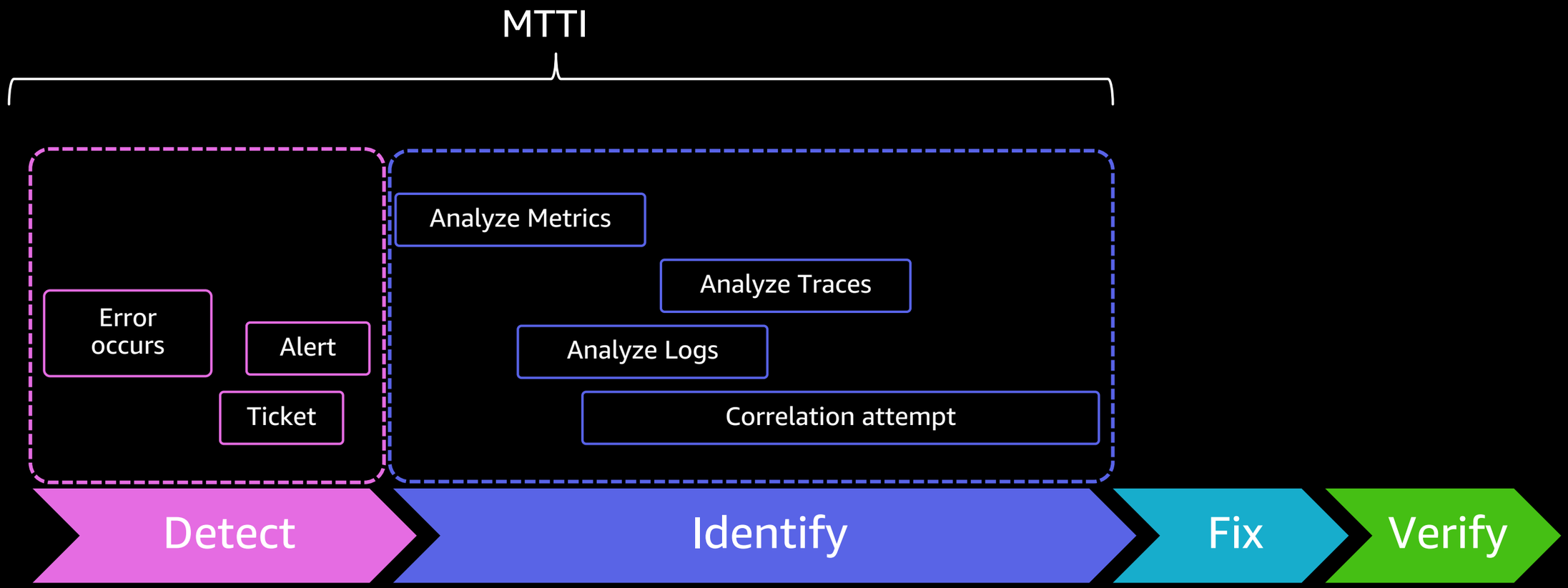


Tools and challenges

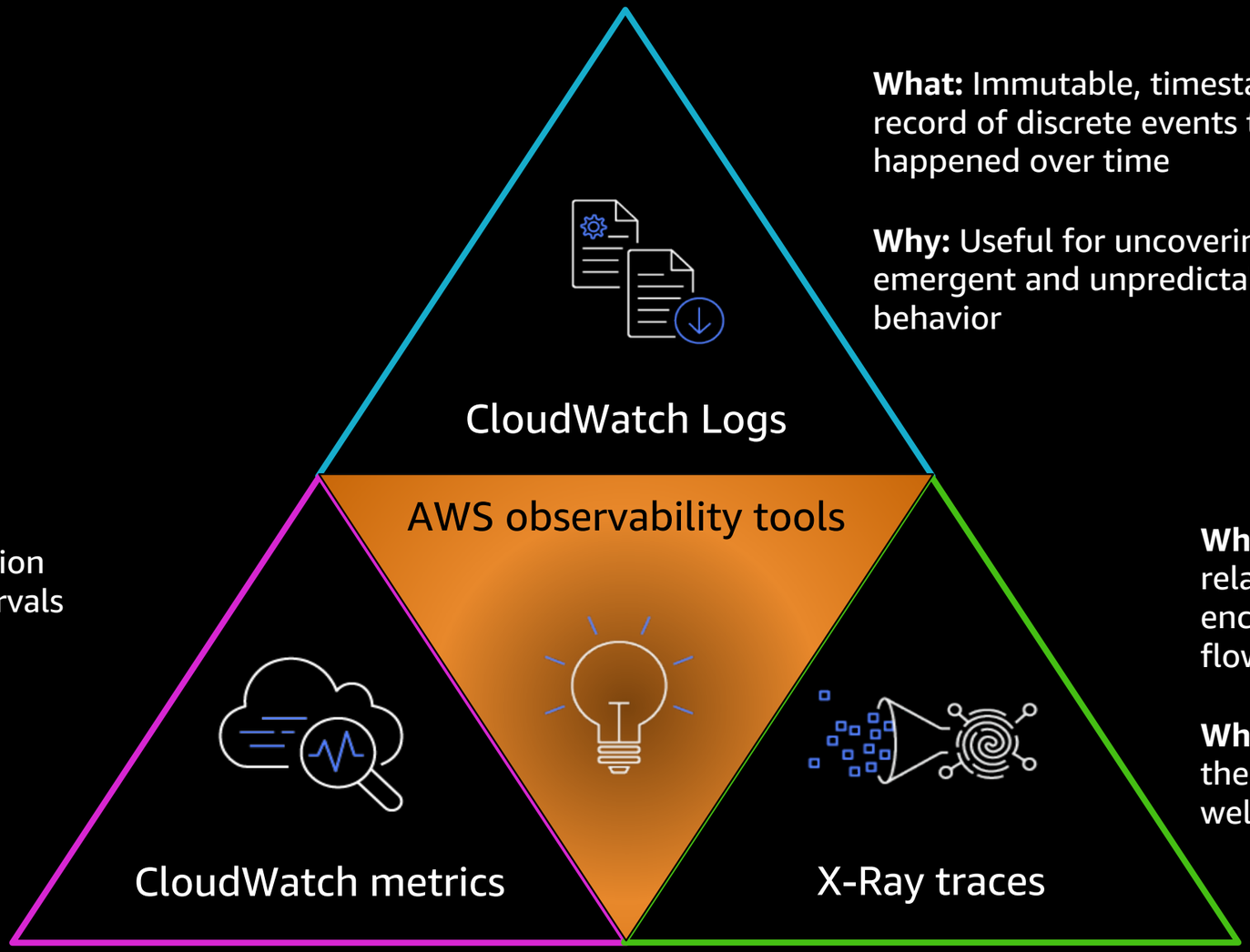
- Want to be able to get a 360^0 view of a problem
- Need to correlate logs, metrics and traces to get deeper insights
- Repetitive troubleshooting process
- Data introspection



Typical troubleshooting workflow



AWS observability tools



What: Immutable, timestamped record of discrete events that happened over time

Why: Useful for uncovering emergent and unpredictable behavior

What: Numeric representation of data measured over intervals of time

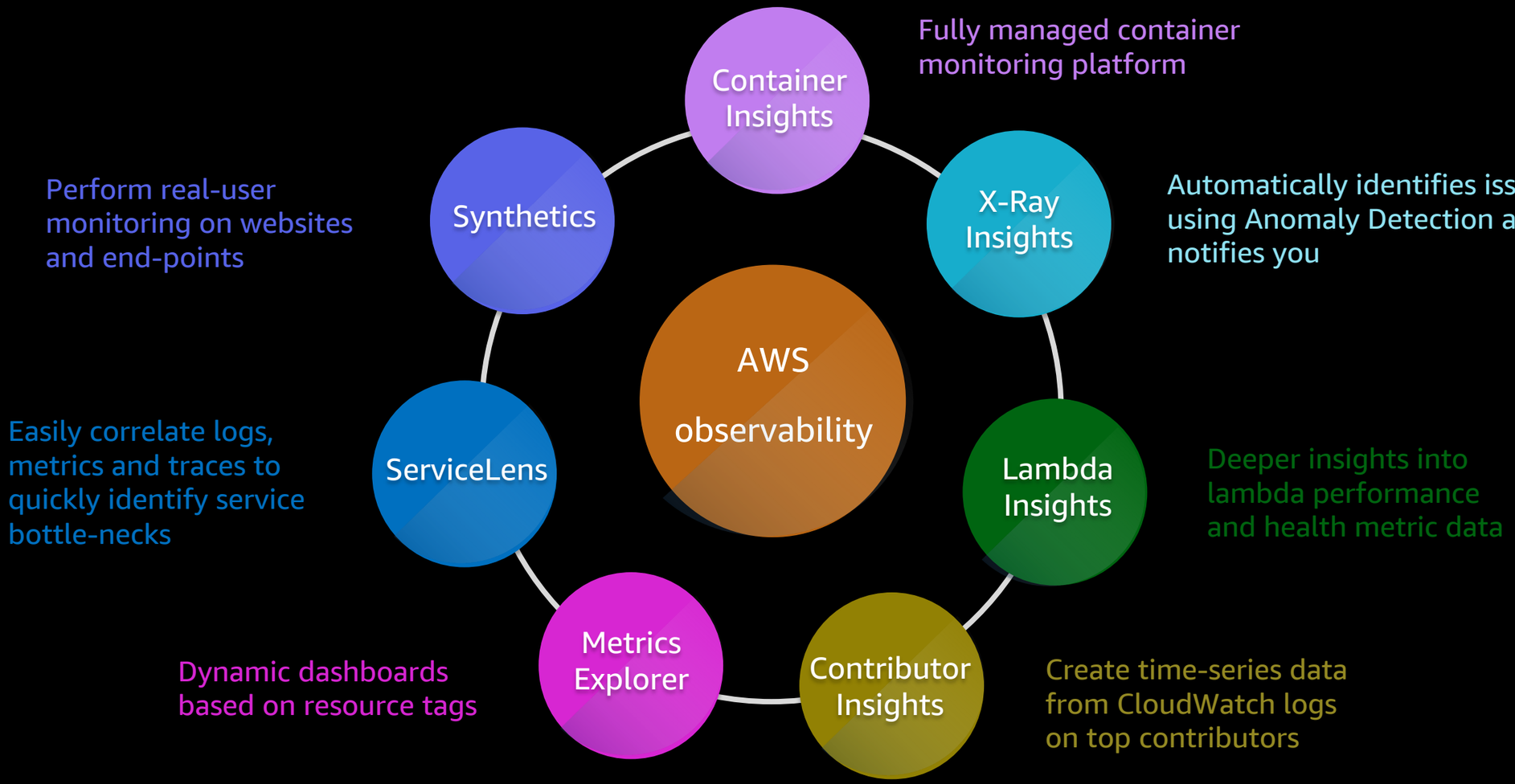
Why: Useful for identifying trends, mathematical modeling, and prediction

What: Representation of a series of related distributed events that encode the end-to-end request flow through a distributed system

Why: Provides visibility into both the path traversed by a request as well as the structure of a request

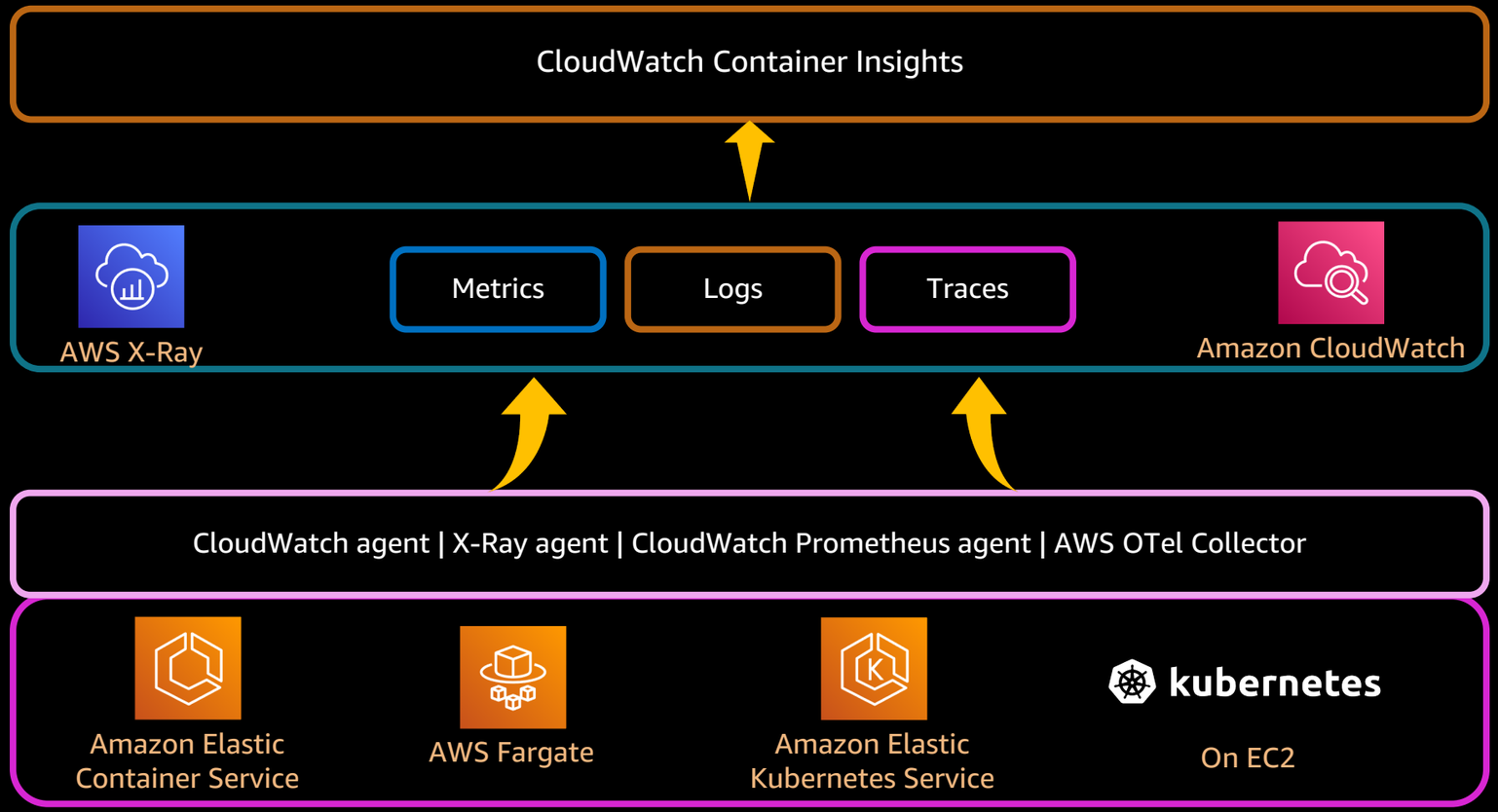
AWS observability tools

- Infrastructure monitoring
- Application monitoring
- Synthetic monitoring



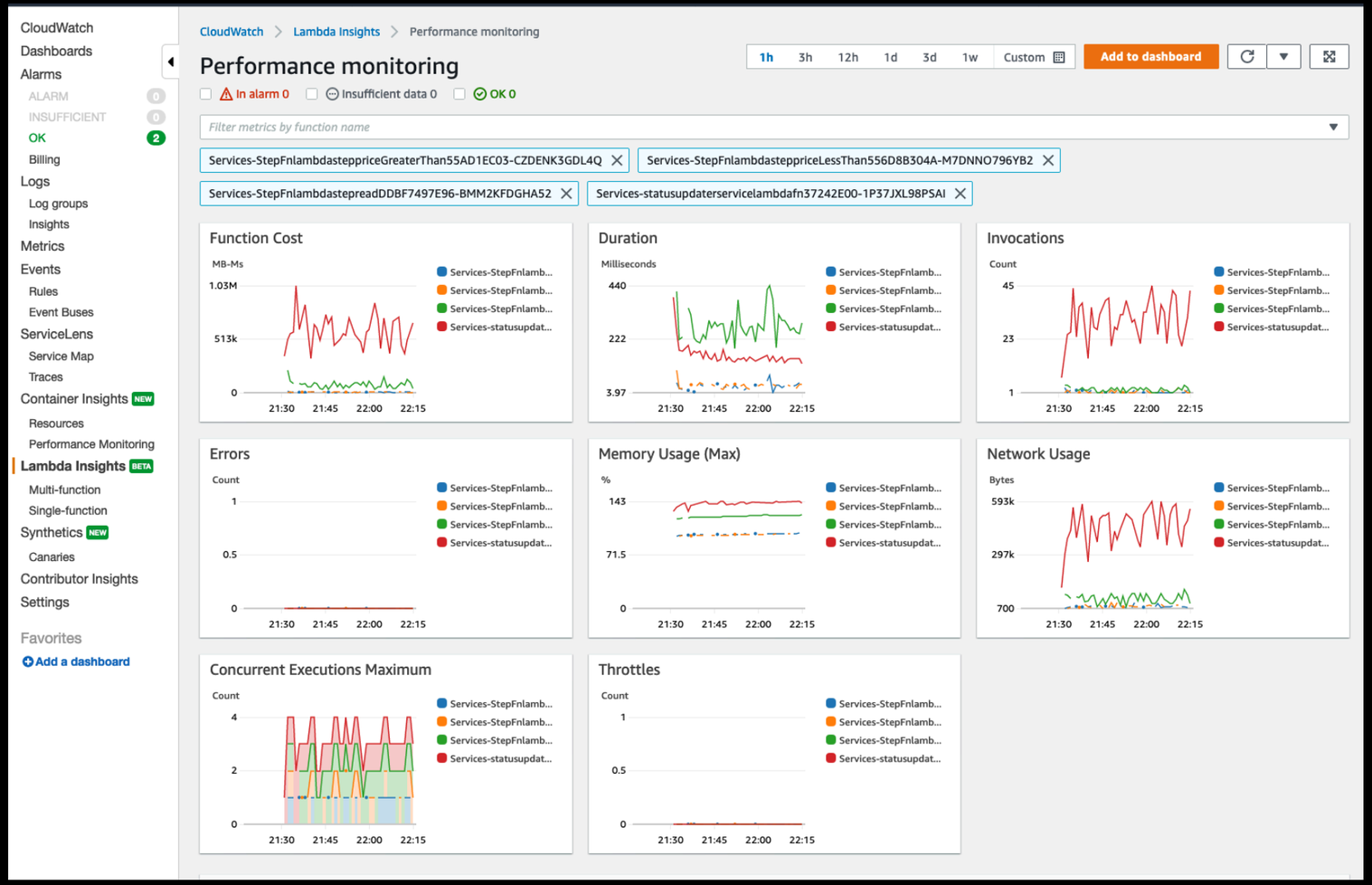
CloudWatch Container Insights

- Built-in dashboards to see performance metrics for cluster resources at different levels
- Out of the box dashboards for popular workloads such as AppMesh, Java/JMX, NGINX, HAProxy etc
- Collect Prometheus metrics from workloads



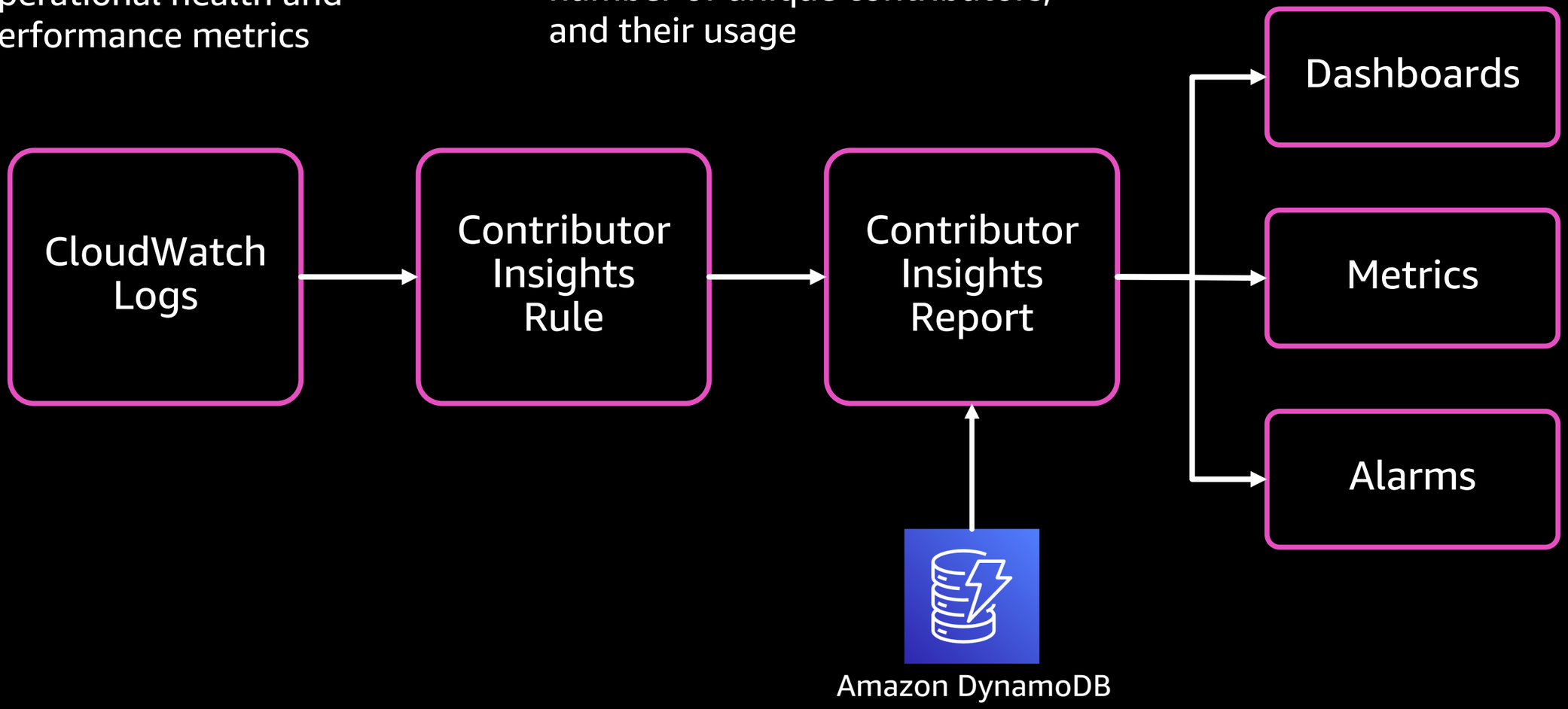
CloudWatch Lambda Insights

- Understand how compute, memory allocation, and function duration changes over time, to help optimize over- and under-utilized Lambda functions
- Deep linking to services such as CloudWatch Logs Insights to further analyze function logs, and CloudWatch ServiceLens to analyze trace dependencies



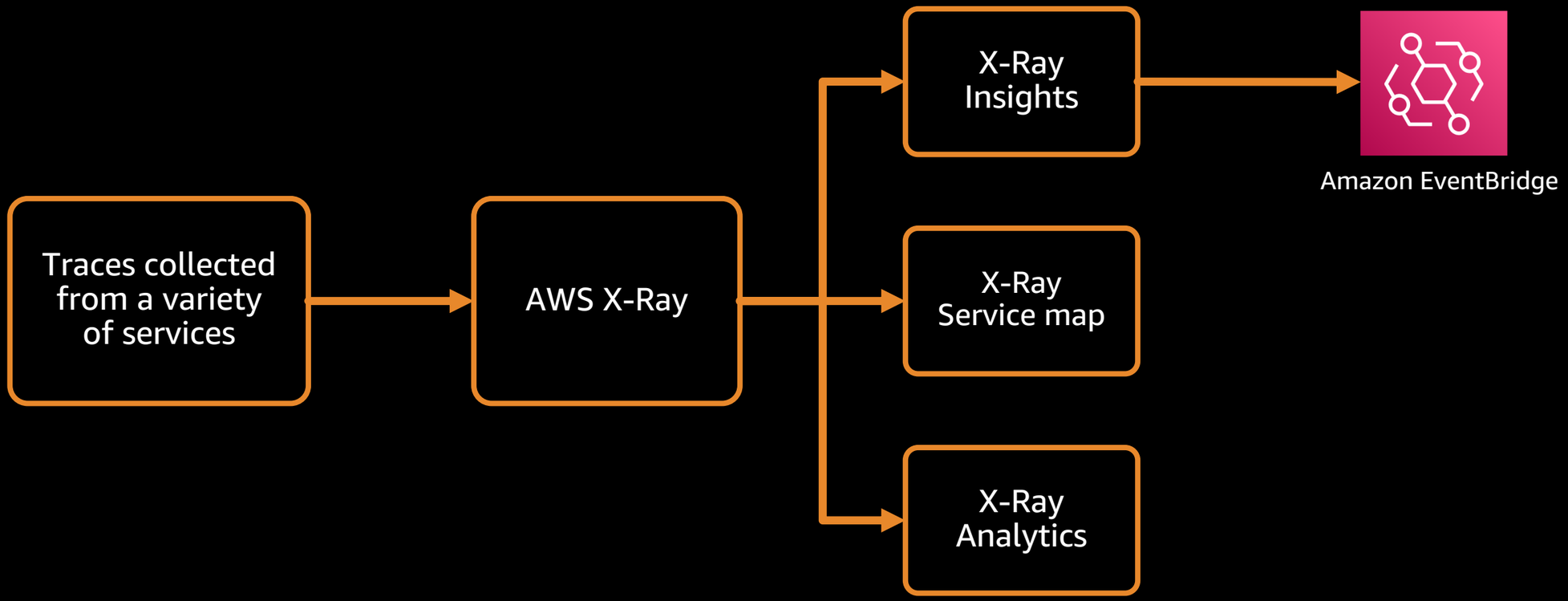
CloudWatch Contributor Insights

- Filter, aggregate, and visualize operational health and performance metrics
- Top-N contributors, the total number of unique contributors, and their usage



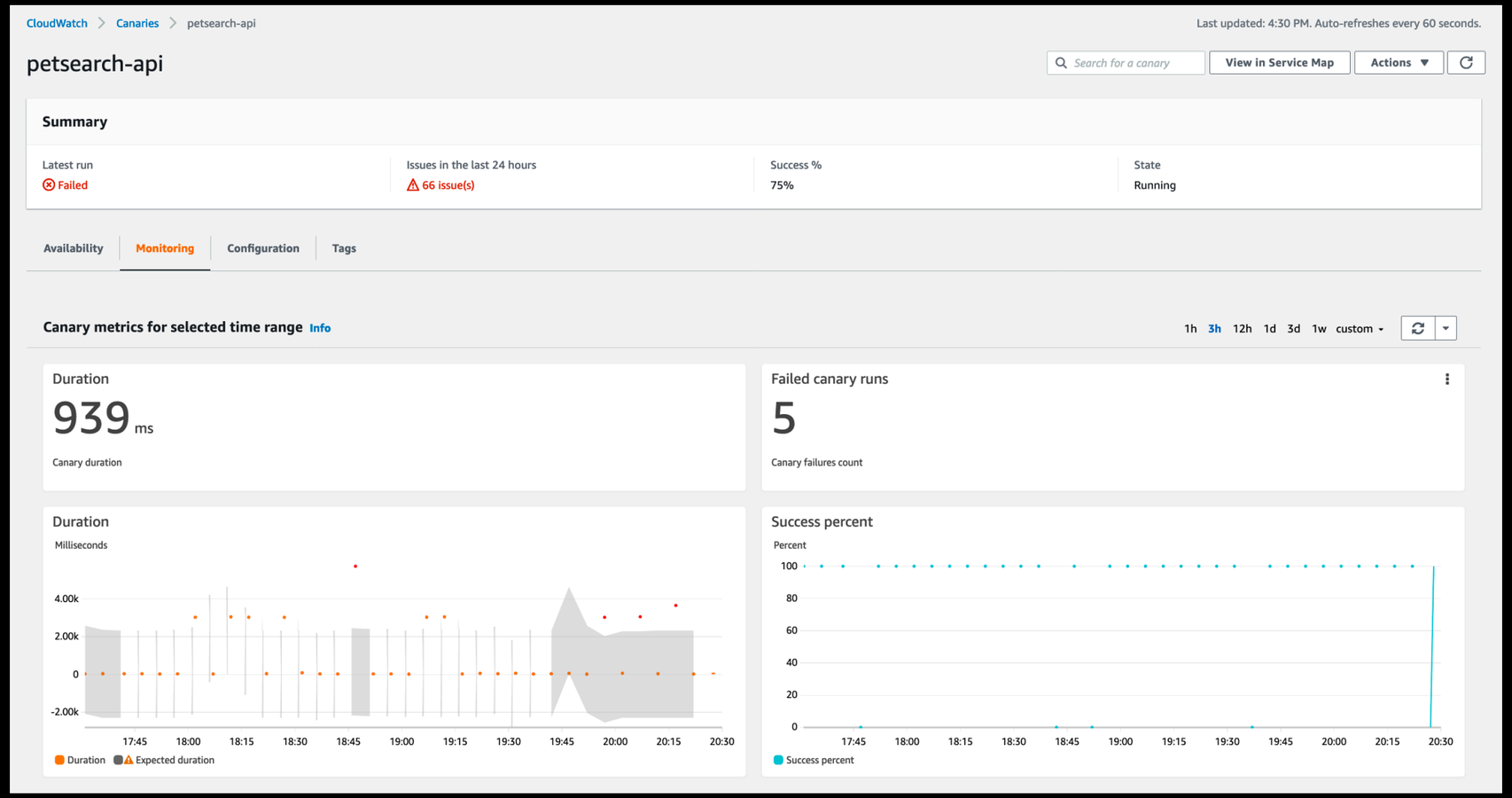
AWS X-Ray Insights

- Collect traces from a variety of sources
- Identify anomalous services & automatically identify potential root cause for a service fault
- Actionable insights based on anomaly detection in AWS X-Ray



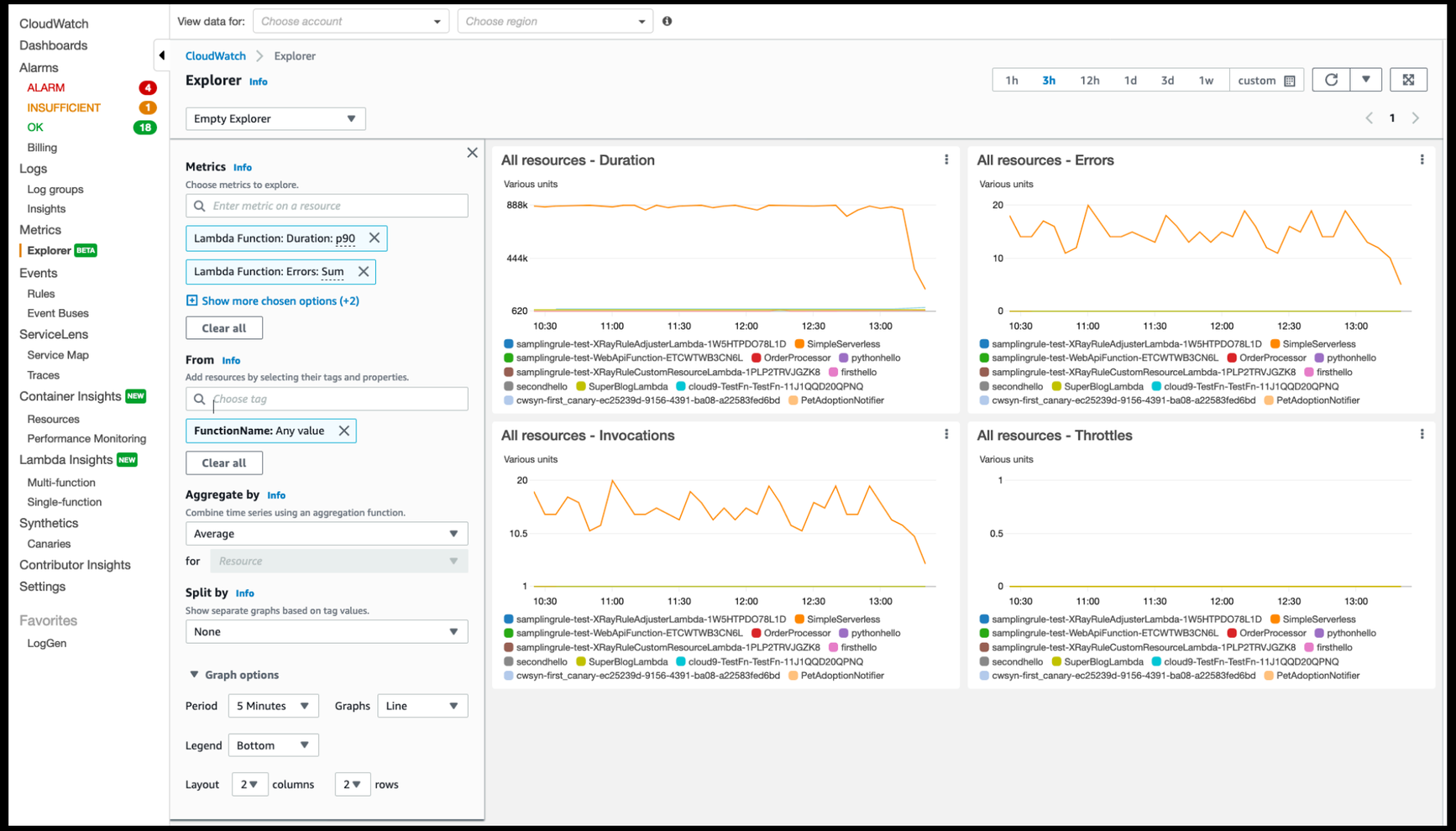
CloudWatch Synthetics

- Configurable scripts (Canaries) that run on a schedule, to monitor your endpoints and APIs
- Check the availability and latency of your endpoints store load time data and screenshots of the UI actions
- Use blueprints to easily test APIs, check broken links, perform UI automation & heart beat monitoring



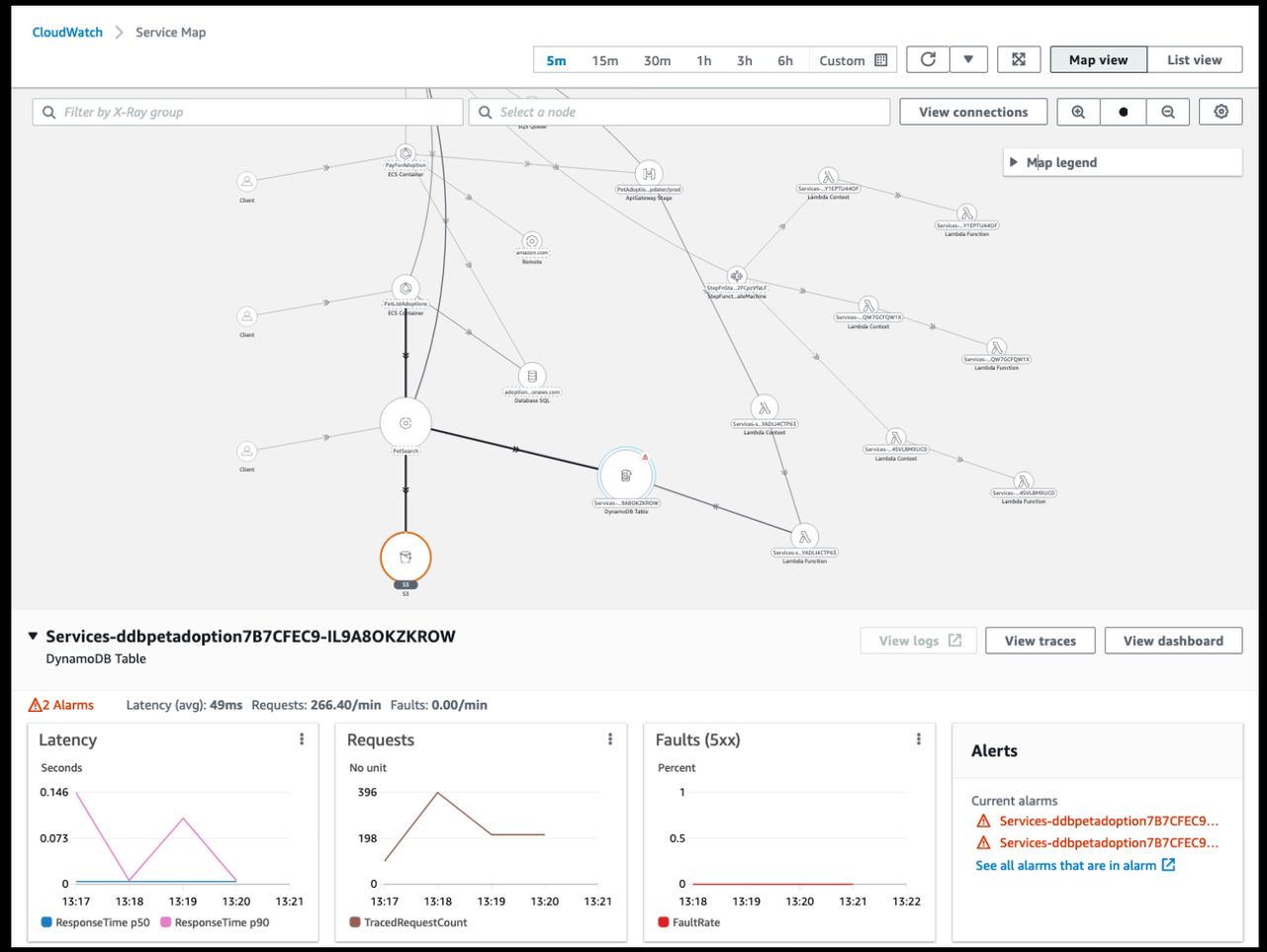
CloudWatch Metrics Explorer

- Tag-based dashboard builder to filter, aggregate, and visualize operational health and performance metrics by tags or resource properties
- Tag based dashboards will stay up to date with resources as the resources matching a tag change

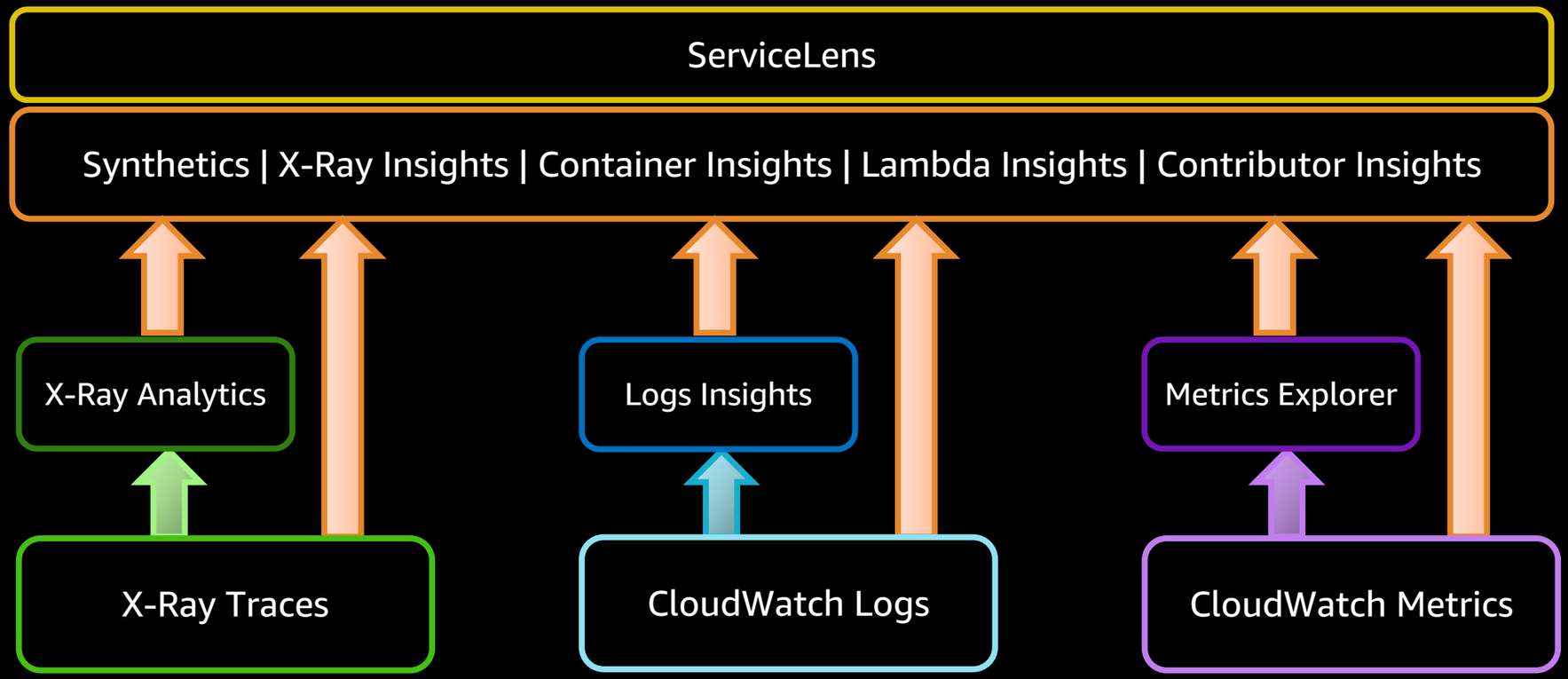


CloudWatch ServiceLens

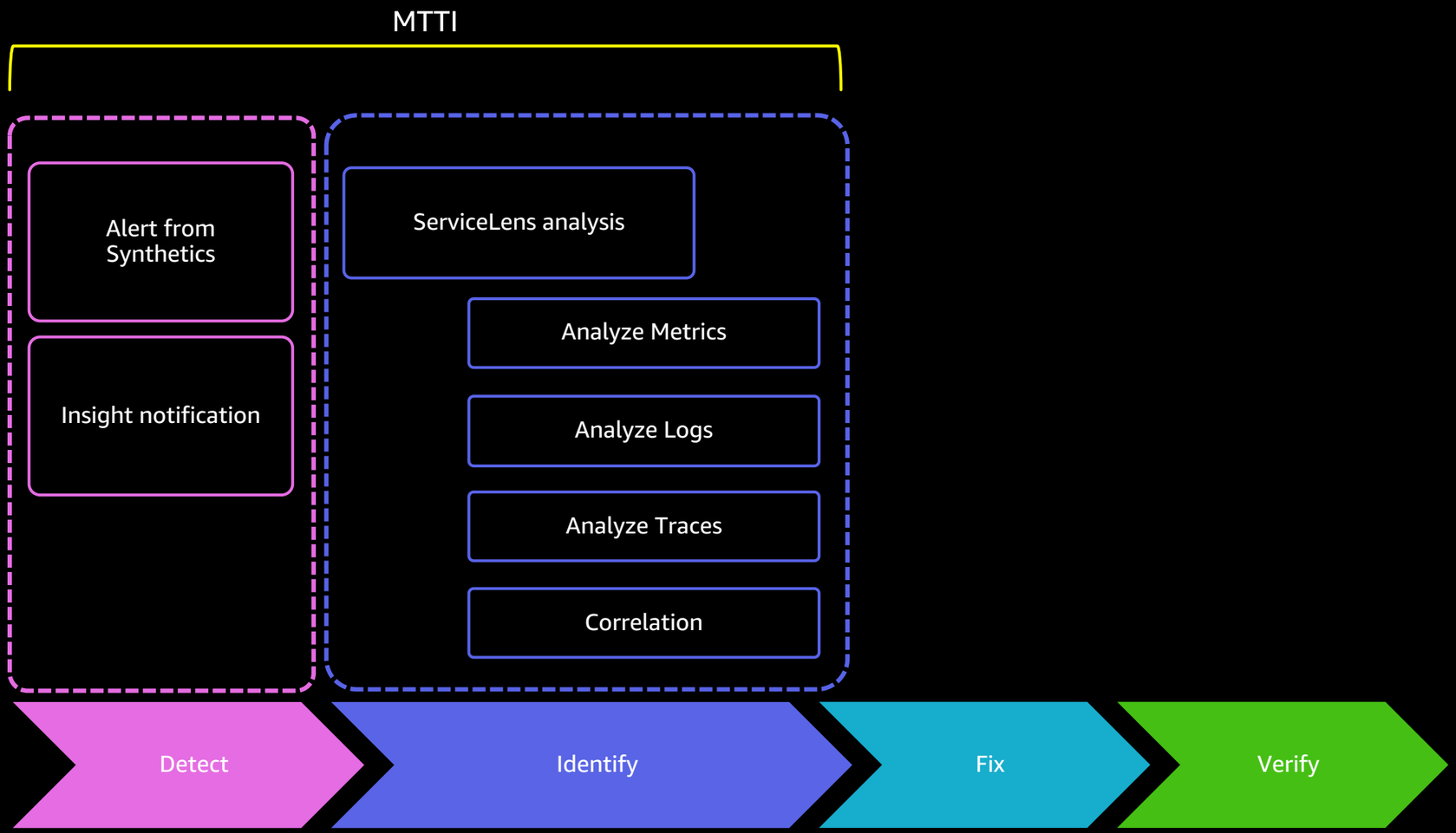
- Enhances the observability of your services and applications by enabling you to integrate traces, metrics, logs, and alarms into one place
- Identify service bottlenecks, performance issues and pinpoint impacted users
- Correlate logs, metrics and traces across different services



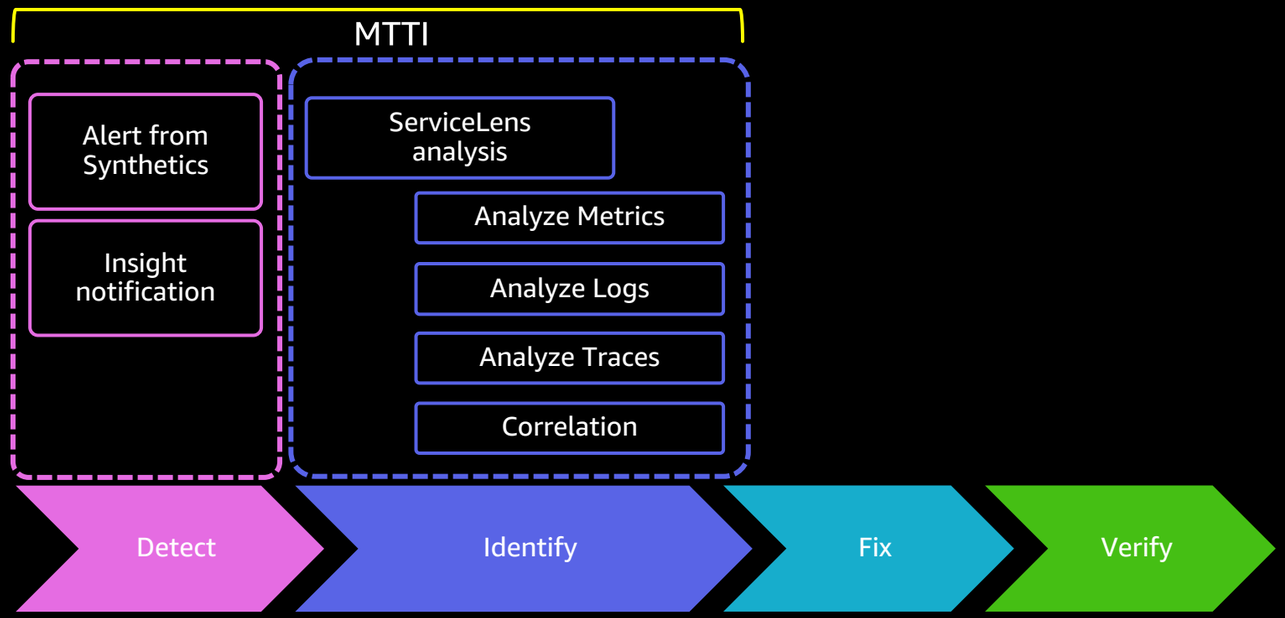
Insights into apps and infrastructure



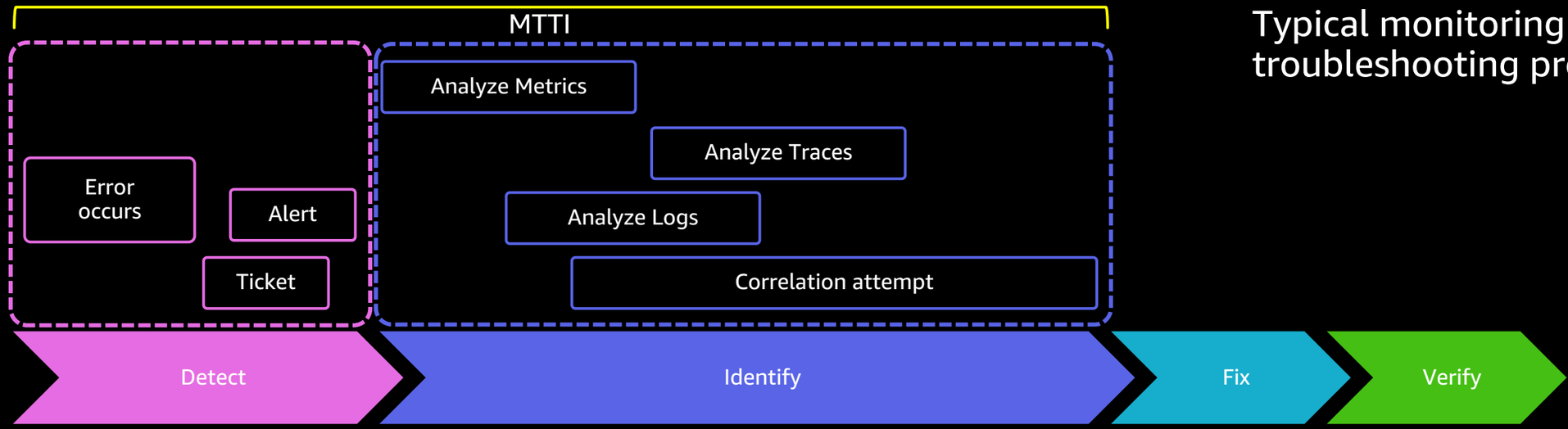
New troubleshooting workflow



Comparison



Using AWS observability tools



Typical monitoring troubleshooting process

Summary

- Purpose built features that allow you to easily identify issues quickly
- Correlate logs, metrics and traces for deeper insights
- Automatic potential root cause identification
- Deep integration with other AWS services take actions
- Easy to setup and maintain

Hands-on experience

- Visit https://observability.workshop.aws/ to get a hands-on experience on all AWS observability features.
- Available in English, Japanese, Spanish and Korean languages

Interacting with Amazon CloudWatch



AWS Management Console



AWS CLI



Amazon CloudWatch API



AWS SDKs

ISVs using CloudWatch

DATADOG
splunk>
dynatrace
solarwinds papertrail
sumologic
APPDYNAMICS
New Relic.
pagerduty
Prometheus
VictorOps
logz.io
cloudability
CloudHealth Technologies

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Thank you!

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