
AWS
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CON201

Getting an insight into your Kubernetes applications

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Principal Product Manager – Tech

AWS

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Agenda

Microservice diagnostic needs

Container Insights and Prometheus

What’s new, and how does it work?

Demo and summary



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Microservice diagnostic needs



Understand distributed architecture

Bird’s eye view of the application to locate the source of the problem



Zoom into individual components

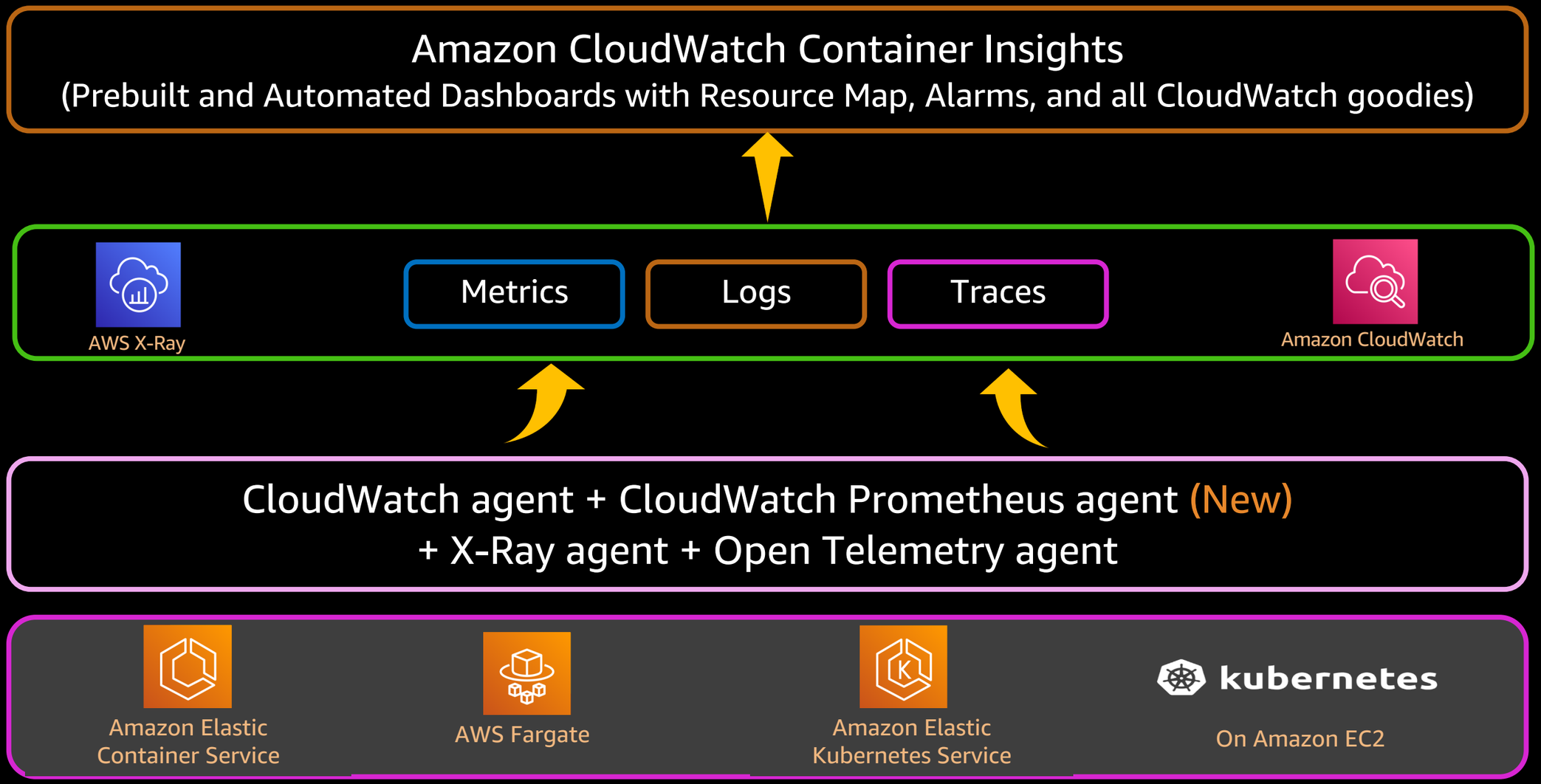
Drill down into specific components or workloads to learn more



Derive insights from data collected

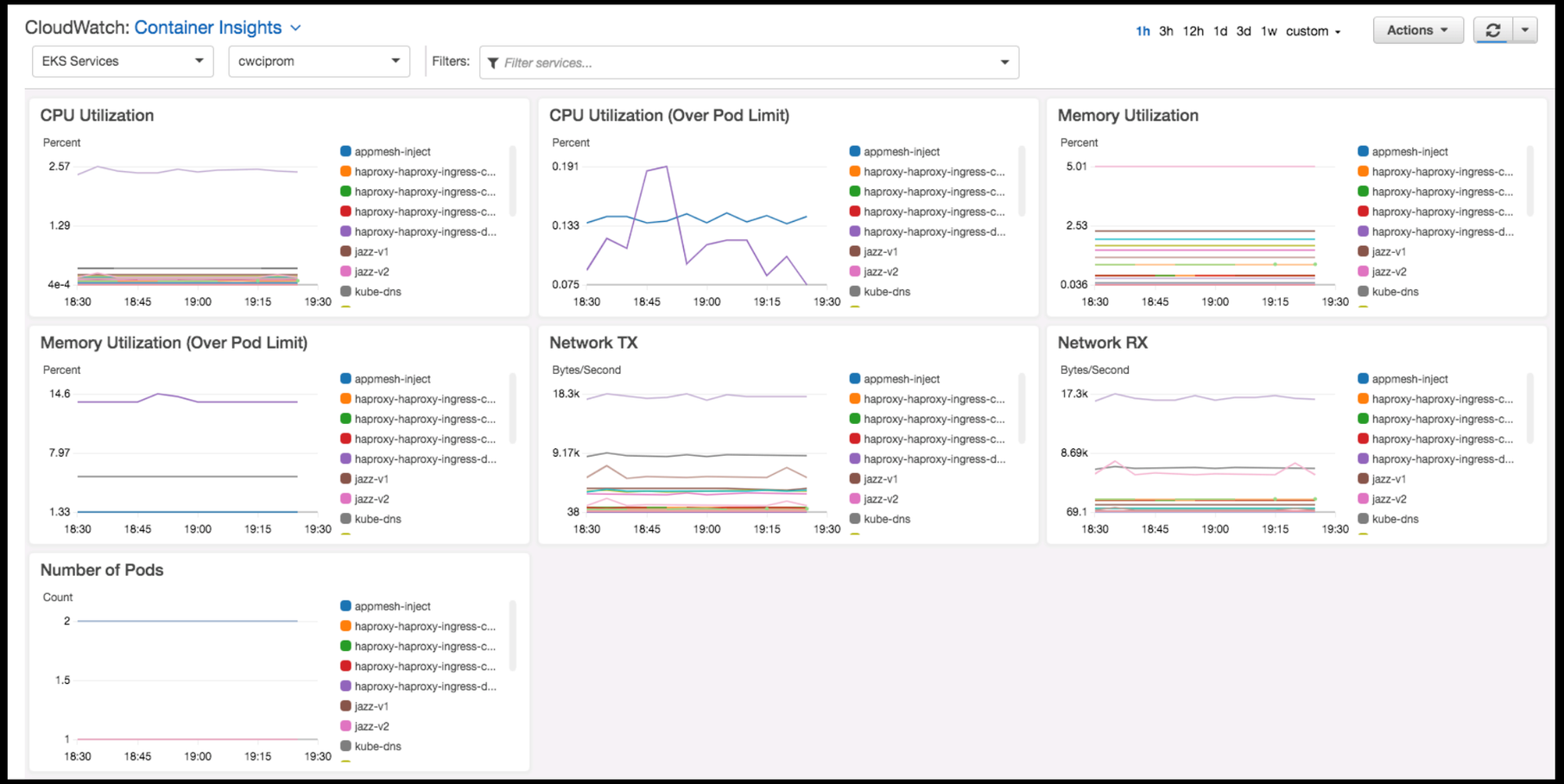
Connect the dots across metrics and logs collected

Amazon CloudWatch Container Insights in a nutshell



CloudWatch Container Insights

Collect, aggregate, and summarize metrics and logs from your containerized applications and microservices



Prometheus

A popular open source monitoring tool that graduated as a Cloud Native Compute Foundation (CNCF) project, with a large and active community of practitioners



Monitor workloads:



HAProxy

MEMCACHED

… and many more

Monitor workload metrics on Container Insights



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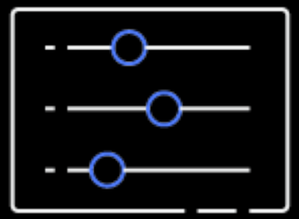
What's new?



Automatically **collects, filters, and creates** aggregated CloudWatch metrics from your workloads



Preselected services are scraped and automatically enriched with metadata such as cluster and pod names



Supports scraping of 150+ open source third-party exporters compatible with OpenMetrics

https://prometheus.io/docs/instrumenting/exporters

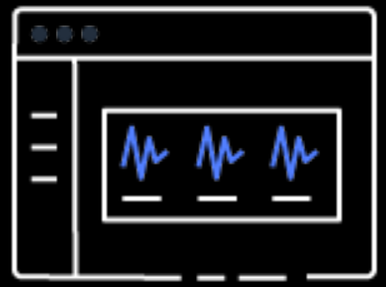


Supports **custom metrics scraping** on services to ingest as CloudWatch metrics

How does it work?



Run the CloudWatch Agent in the Kubernetes cluster

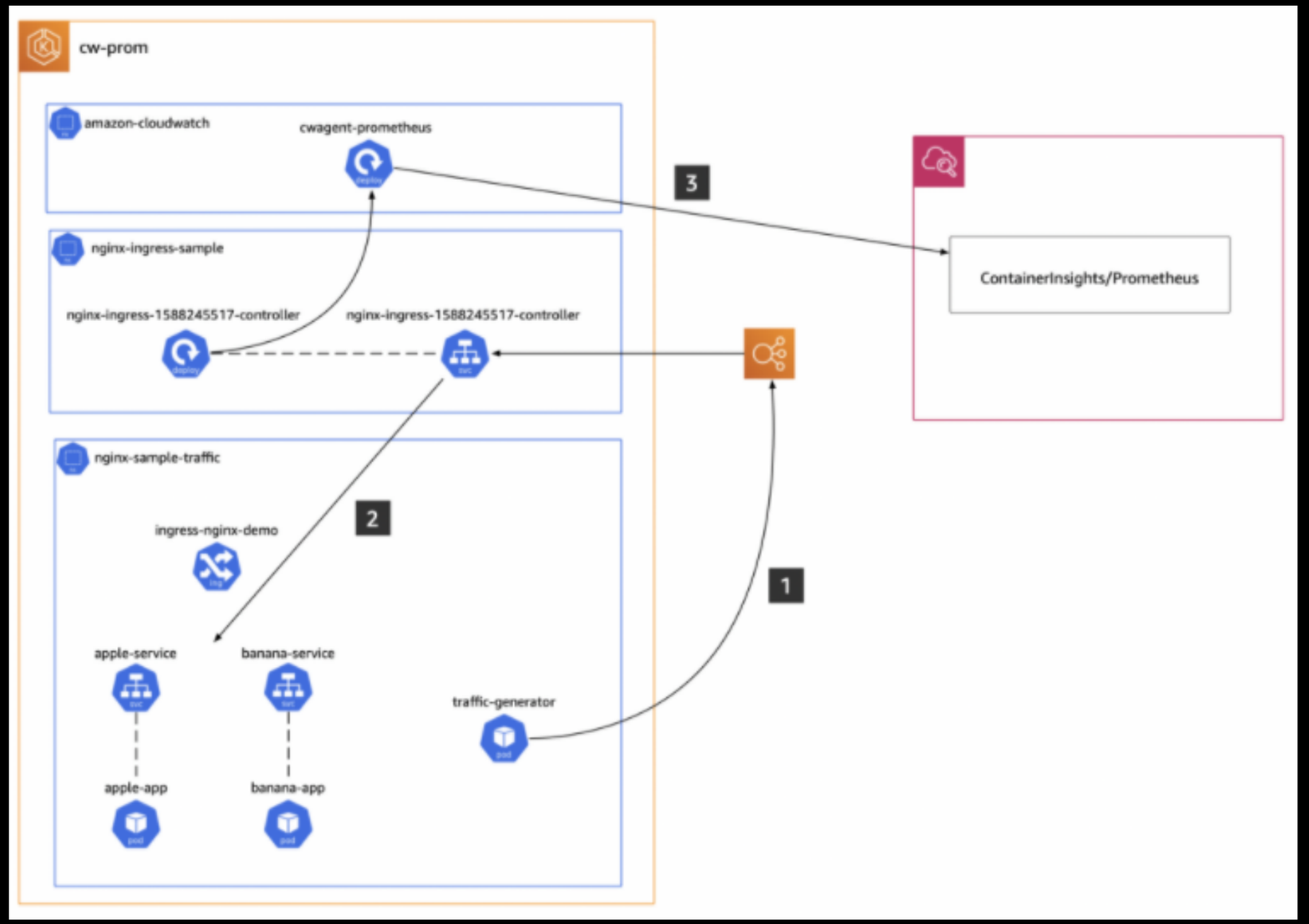


Custom metrics available for a curated set of dimensions that is fully configurable



Analyze the high-fidelity Prometheus metrics

Example: Out-of-the-box metrics from NGINX



CloudWatch
Dashboards
Alarms
ALARM 4
INSUFFICIENT 1
OK 17
Billing
Logs
Log groups
Insights
Metrics
Events
Rules
Event Buses
ServiceLens
Service Map
Traces
Container Insights NEW
Resources
Performance Monitoring
Synthetics NEW
Canaries
Contributor Insights
Settings
Favorites
Add a dashboard

Update
Identify the top contributors influencing your system performance and find the heaviest traffic patterns. Learn more

CloudWatch: Overview

1h 3h 12h 1d 3d 1w custom Actions

All resources

Alarms by AWS service

Services

Status	Alarm	Insufficient	OK
AWS/X-Ray	1	-	-
DynamoDB	-	-	4
API Gateway	-	-	-
Application ELB	-	-	-
Classic ELB	-	-	-
CloudWatch Events	-	-	-
CloudWatch Logs	-	-	-
EC2	-	-	-
Elastic Block Store	-	-	-
Elastic Container Service	-	-	-

Recent alarms View recent alarms dashboard

AppMesh
Percent • Alarm: pod_cpu_utilization is not within the band for 1 data...
0.723 0.635 0.548
21:30 22:00 22:30 23:00 23:30 00:00
pod_cpu_utilization appmesh-sample-traffic-test (expected)

2SecResponeBreach
No unit
0.556 0.278 0
ApproximateTraceCount > 0 for 1 datapoints within 5 ...
21:30 22:00 22:30 23:00 23:30 00:00
ApproximateTraceCount

Synthetics-Alarm-myfirstcanary
Alarm: SuccessPercent is not within the band for 2 datapoints within...
1 0.5 0
21:30 22:00 22:30 23:00 23:30 00:00
SuccessPercent SuccessPercent (expected)

Pod Restart Count
2 1 0
pod_number_of_container_restarts > 1 for 1 datapoints...
21:30 22:00 22:30 23:00 23:30 00:00
pod_number_of_container_restarts

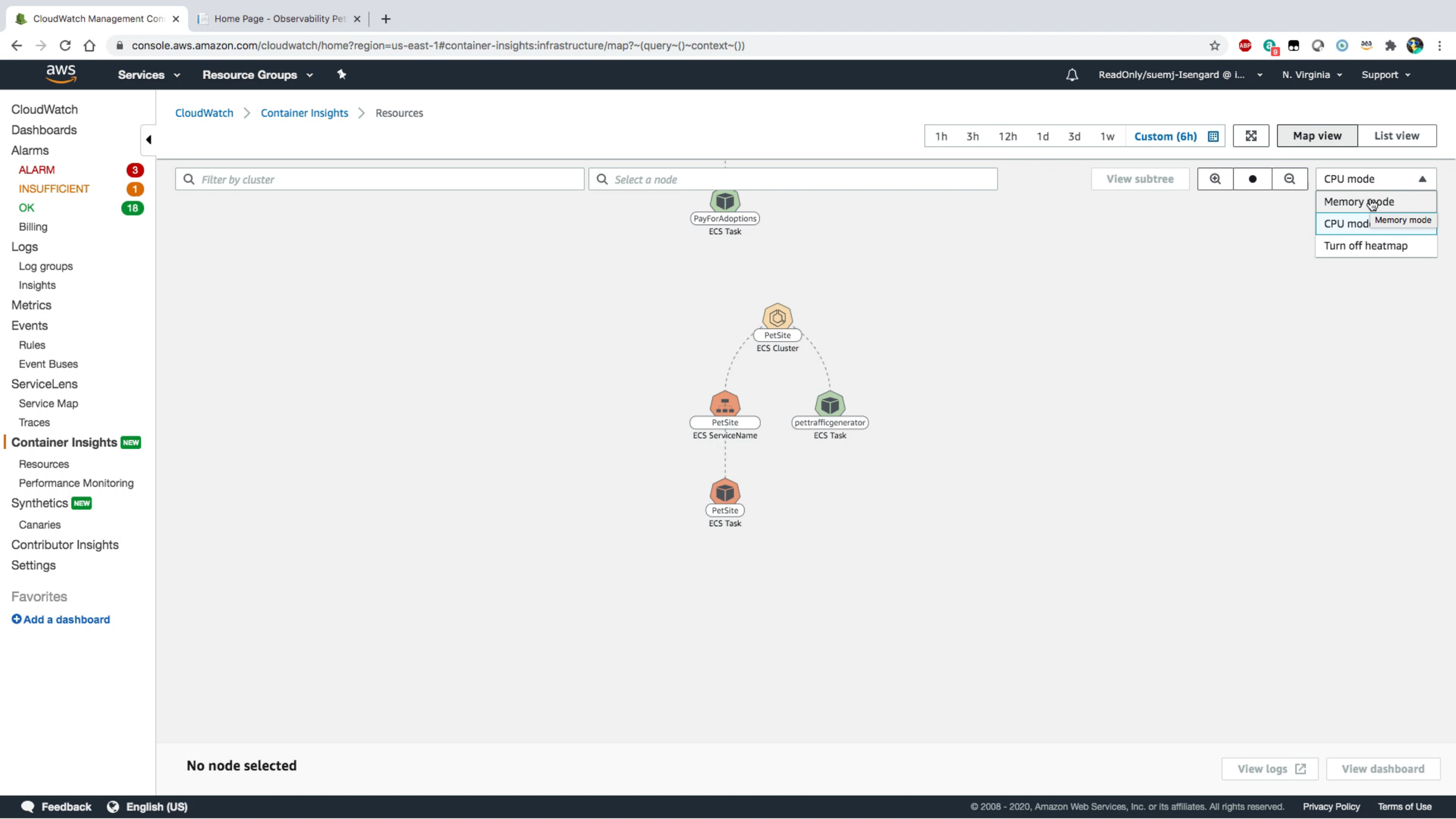
Default dashboard Edit dashboard

Click Here for PetAdoptions Demo App URL (on EKS)
Click Here for PetAdoptions Demo App URL (on ECS)

ECSDemo Statistics

2SecResponseBreach
0.556 0.278 0
ApproximateTraceCount > 0 for 1 datapoints within 5 minutes

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CloudWatch Management Con
Home Page - Observability Pet
console.aws.amazon.com/cloudwatch/home?region=us-east-1#container-insights:infrastructure/map?~(query~()~context~())
aws
Services
Resource Groups
ReadOnly/suemj-Isengard @ i...
N. Virginia
Support
CloudWatch
Dashboards
Alarms
ALARM 3
INSUFFICIENT 1
OK 18
Billing
Logs
Log groups
Insights
Metrics
Events
Rules
Event Buses
ServiceLens
Service Map
Traces
Container Insights NEW
Resources
Performance Monitoring
Synthetics NEW
Canaries
Contributor Insights
Settings
Favorites
Add a dashboard
CloudWatch > Container Insights > Resources
1h 3h 12h 1d 3d 1w Custom (6h)
Map view
List view
Filter by cluster
Select a node
View subtree
CPU mode
Memory mode
CPU mode
Turn off heatmap
PayForAdoptions
ECS Task
PetSite
ECS Cluster
PetSite
ECS ServiceName
pettrafficgenerator
ECS Task
PetSite
ECS Task
No node selected
View logs
View dashboard
Feedback
English (US)
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QuickTime Player File Edit View Window Help
100% Thu 7:03 PM
demo — -bash — 130×37
38f9d370e741:demo vssarat$ kubectl get pods -n java
CloudWatch Management
promethe...
NodeJS
Other Bookmarks
N. Virginia
Support
Performance Monitoring
Lambda Insights NEW
Multi-function
Single-function
Synthetics
Canaries
Feedback
English (US)

Microservice diagnostic needs



Understand distributed architecture

Resource view with Map and list to organize containerized resources



Zoom into individual components

Narrow down to specific Namespace, Service, or pod with issues



Derive insights from data collected

Connect the dots across metrics and logs collected

Learn more about Container Insights

Container Insights
https://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/ContainerInsights.html

Prometheus metrics support

https://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/ContainerInsights-Prometheus.html

Thank you!



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