

The background features a dark navy blue field with abstract, overlapping organic shapes in vibrant magenta and deep red. Thin, light blue lines crisscross the composition, adding a technical or architectural feel. The overall aesthetic is modern and high-tech.

AWS re:Invent

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COP352 - R

Effortless observability for modern workloads

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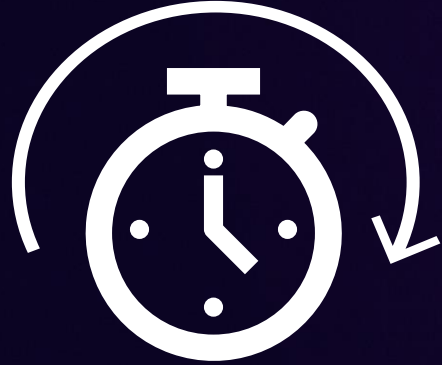
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Amazon CloudWatch

Customers need observability across their applications to **identify issues quickly** and achieve **operational excellence easily**





Once the telemetry is collected, it needs
correlation, visualizations, and alerts



What will we focus on?

- Lambda Insights
- Container Insights
- Application Signals



How do I get started?

- What data is important?
- How do we get that data?
- How do we get a meaningful picture of our data?

What does this look like?

- Easy setup
- Meaningful data
- Out-of-the-box dashboards

Effortless Lambda observability



Customer challenges



- Identify function issues such as memory leaks
- Identify high-cost functions
- Identify performance changes caused by new function versions
- Understand latency drivers in functions

Demo



Code

Test

Monitor

Configuration

Aliases

Versions

- Monitoring and operations tools**

Additional monitoring tools [Info](#)

Logs and metrics (default)

Enabled


CloudWatch Application Signals and AWS X-Ray

Application Signals
Enabled

Lambda service traces
Enabled

Lambda Insights enhanced monitoring

Enabled



Edit

Extensions

Use extensions to integrate existing tools with your Lambda functions. Visit the [Extensions page](#) to learn about the available AWS partner extensions.

Amazon CloudWatch [Info](#)

CloudWatch Application Signals and AWS X-Ray

Application Signals Info

☒ Enable

Lambda service traces [Info](#)

☒ Enable

CloudWatch Lambda Insights [Info](#)

☒ Enhanced monitoring

Extensions

Use extensions to integrate existing tools with your Lambda functions. Visit the [Extensions page](#) to learn about the available AWS partner extensions.

► Permissions


If your execution role doesn't have the required permissions for the selected monitoring tools, then Lambda will attempt to add the permissions to the role.

Cancel

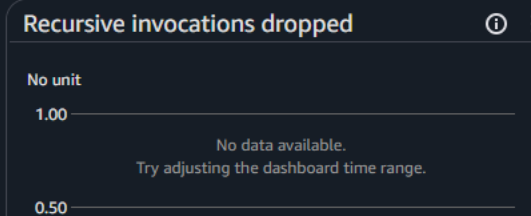
Save

Function URL Info

Monitor Info

[View Lambda Insights](#) UTC timezone ▼  

Lambda sends runtime metrics for your functions to Amazon CloudWatch. The metrics shown are an aggregate view of all function runtime activity. To view metrics for the unqualified or \$LATEST resource, choose **Filter by**. To view metrics for a specific function version or alias, choose **Aliases** or **Versions**, select the alias or version, and then choose **Monitor**.



```
{
  "tmp_max": 550461440,
  "threads_max": 10,
  "_aws": {
    "CloudWatchMetrics": [
      {
        "Namespace": "LambdaInsights",
        "Dimensions": [
          "function_name"
        ]
      }
    ],
    "Metrics": [
      {
        "Name": "cpu_total_time",
        "Unit": "Milliseconds"
      },
      {
        "Name": "tx_bytes",
        "Unit": "Bytes"
      },
      {
        "Name": "rx_bytes",
        "Unit": "Bytes"
      },
      {
        "Name": "total_network",
        "Unit": "Bytes"
      },
      {
        "Name": "tmp_used",
        "Unit": "Bytes"
      },
      {
        "Name": "memory_utilization",
        "Unit": "Percent"
      },
      {
        "Name": "total_memory",
        "Unit": "Megabytes"
      }
    ]
  }
}
```

```
{
  "Timestamp": 1732299508244,
  "LambdaInsights": {
    "ShareTelemetry": true
  },
  "function_name": "PetClinicApp-LambdasVisitsLambdaBF1F614A-6RgKXhSx4ZL1",
  "fd_use": 21,
  "duration": 10,
  "event_type": "performance",
  "cold_start": false,
  "cpu_system_time": 0,
  "used_memory_max": 180,
  "cpu_total_time": 10,
  "tmp_free": 538324992,
  "tx_bytes": 2276,
  "rx_bytes": 516,
  "agent_memory_avg": 11,
  "total_memory": 256,
  "billed_mb_ms": 2816,
  "tmp_used": 12136448,
  "cpu_user_time": 10,
  "memory_utilization": 70,
  "total_network": 2792,
  "agent_memory_max": 11,
  "billed_duration": 11,
  "request_id": "1aba06b4-9c7a-40d3-8a8e-981c96f1ae38",
  "agent_version": "1.0.333.0",
  "fd_max": 1024
}
```


Effortless container observability

Customer challenges



- Onboarding challenges
- Depth of observability
- Cost vs. depth
- Overall health and performance visibility
- Fragmented observability vs. end-to-end observability

Container Insights easy onboarding – Amazon ECS

Amazon Elastic Container Service > Clusters > Create cluster

Create cluster info

An Amazon ECS cluster groups together tasks, and services, and allows for shared capacity and common configurations. All of your tasks, services, and capacity must belong to a cluster.

Cluster configuration

Cluster name

Cluster name must be 1 to 255 characters. Valid characters are a-z, A-Z, 0-9, hyphens (-), and underscores (_).

Default namespace - optional

Select the namespace to specify a group of services that make up your application. You can overwrite this value at the service level.

▼ **CloudWatch Container Insights Observability - optional** info

CloudWatch Container Insights is a monitoring and troubleshooting solution for containerized applications and microservices.

Select the level of observability you want to achieve with Container Insights

- ☒ **Container Insights with Enhanced Observability** Recommended
Provides detailed health and performance metrics at task and container level in addition to aggregated metrics at cluster and service level. Enables easier drill downs for faster problem isolation and troubleshooting.
- ☐ **Container Insights**
Provides aggregated metrics at cluster and service level. You can run deep dive analysis with Logs Insights analytics.
- ☐ **Turned off**
No observability.

Cluster-level
enablement

Amazon Elastic Container Service > Account settings

Account settings

Account info

The settings on this page apply to this specific IAM user or role.

IAM user or role

Admin/acriqui-lsengard

Fargate Managed Instances info

Turn on Fargate Managed Instances to allow ECS to manage capacity for EC2 instances with specific hardware requirements, such as GPU accelerators, CPU instruction sets, and network optimization. Once enabled, ECS will set a default instance profile and infrastructure role for all clusters, and will automatically include 3 default capacity providers: 1 Fargate Managed Instance, 1 Fargate, and 1 Fargate Spot capacity providers. There is no cost to enabling this feature.

☐ **Fargate Managed Instances**

Turn on or turn off Fargate Managed Instances. A change in setting applies to new clusters launched after you change your setting.

AWSVPC Trunking info

Amazon ECS awsvpc trunking increases the number of tasks that you can run in the awsvpc network mode for each EC2 instance in a specific EC2 instance type family.

☐ **AWSVPC Trunking**

Turn on or turn off trunking. A change in setting applies to new instances launched after you change your setting.

CloudWatch Container Insights Observability info

CloudWatch Container Insights is a monitoring and troubleshooting solution for containerized applications and microservices.

Select the level of observability you want to achieve with Container Insights

- ☒ **Container Insights with Enhanced Observability** Recommended
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- ☐ **Container Insights**
Provides aggregated metrics at cluster and service level. You can run deep dive analysis with Logs Insights analytics.
- ☐ **Turned off**
No observability.

ECS account
settings

Account-wide
enablement

Container Insights easy onboarding – Amazon EKS

ENHANCED CONTAINER OBSERVABILITY WITH EASY GETTING STARTED AND FASTER TROUBLESHOOTING

A new Kubernetes version is available for this cluster.

EKS > Clusters > container-insights-riv-demo

container-insights-riv-demo

Your cluster's Kubernetes version (1.25) will reach the end of standard support on May 2024. Update your cluster to a supported version. If you don't, your cluster will be onboarded to extended support. After the extended support period, you will incur additional support fees. [Learn more](#)

▼ Cluster info

Info

Status

Active

Kubernetes version

1.25

Info

Support type

Standard support until May 2024

Overview

Resources

Compute

Networking

Add-ons

Access

Observability

Upgrade insights

Update history

Tags

Finish setting up CloudWatch Application Signals

Amazon CloudWatch Observability add-on comes with CloudWatch Application Signals enabled by default. Additional steps are required to enable CloudWatch Application Signals on services.

Add-ons (1)

Info

Find add-on

Any category

Any status

Amazon CloudWatch Observability

Install CloudWatch Agent and enable Container Insights within your cluster.

Category

observability

Status

Active

Version

v1.2.0-eksbuild.1

IAM role

Not set

Use Amazon CloudWatch Observability add-on

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Container Insights easy onboarding – Amazon EKS

EKS > Clusters > Create EKS cluster

Step 1
[Configure cluster](#)

Step 2
[Specify networking](#)

Step 3
Configure observability

Step 4
Select add-ons

Step 5
Configure selected add-ons settings

Step 6
Review and create

Configure observability

Amazon observability [Info](#)
Collect and send application and infrastructure telemetry.

☐ Send Prometheus metrics to Amazon Managed Service for Prometheus
Prometheus metrics for containers, nodes, Kubernetes API server, and Kubernetes kubectl.
[► Advanced configuration](#)

☒ Send application and infrastructure telemetry to Amazon CloudWatch
Send application metrics from CloudWatch APM and infrastructure telemetry from CloudWatch Container insights.
[► Products and telemetry included](#)

Please complete the following step to finish setting up the Amazon CloudWatch observability agent.
Setup IAM permission. IAM permissions are required to collect telemetry data. [View IAM setup guide](#)

Control plane logging [Info](#)
Send audit and diagnostic logs from the Amazon EKS control plane to CloudWatch Logs.

☐ API server
Logs pertaining to API requests to the cluster.

☐ Audit
Logs pertaining to cluster access via the Kubernetes API.

☐ Authenticator
Logs pertaining to authentication requests into the cluster.

☐ Controller manager
Logs pertaining to state of cluster controllers.

☐ Scheduler
Logs pertaining to scheduling decisions.

Enable
Container Insights &
Application Signals

Effortless application observability

Additional challenges in application observability



- Lack of standard application metrics
- Difficulty in prioritizing anomalies with business goals

Demo



Challenge checklist

- ☒ Onboarding
- ☒ Which metrics to collect and how?
- ☒ Depth vs. cost management
- ☒ Achieving single pane of glass observability
- ☒ Achieving end-to-end observability
- ☒ Observability against business metrics

“

With enhanced observability, integrating AWS Container Insights with our EKS clusters was **seamless**, providing **visibility into every layer** of our Kubernetes environment, **enhancing operational effectiveness**, and **improving our incident response capabilities**.

Vasant Balakrishnan

Director, Cloud Development at Trellix

Trellix is a cybersecurity company that provides hardware, software, and services to investigate cybersecurity attacks, protect against malicious software, and analyze IT security risks



Want to know more?

Container Insights



Application Signals



One Observability Workshop
for hands-on learning



Lambda Insights



AWS observability
best practices guide



AWS native observability section

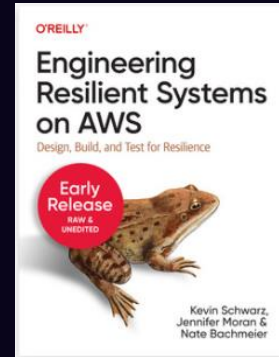
- Container Insights
- Lambda Insights
- Application Signals
- And much more

Cloud Ops Kiosks

Cloud Operations | Observability | Governance & Compliance | Resilience



**VR
EXPERIENCE**



**BOOK
GIVEAWAYS**



SWAG

MEET US AT THE KIOSKS IN THE AWS VILLAGE

Thank you!

Omur Kirikci

Helen Ashton



Please complete the session
survey in the mobile app