
AWS
re:Invent

XNT303

Performance instrumentation and monitoring for .NET applications

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Principal Developer Advocate

AWS

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Agenda

1

Overview

2

What's new

3

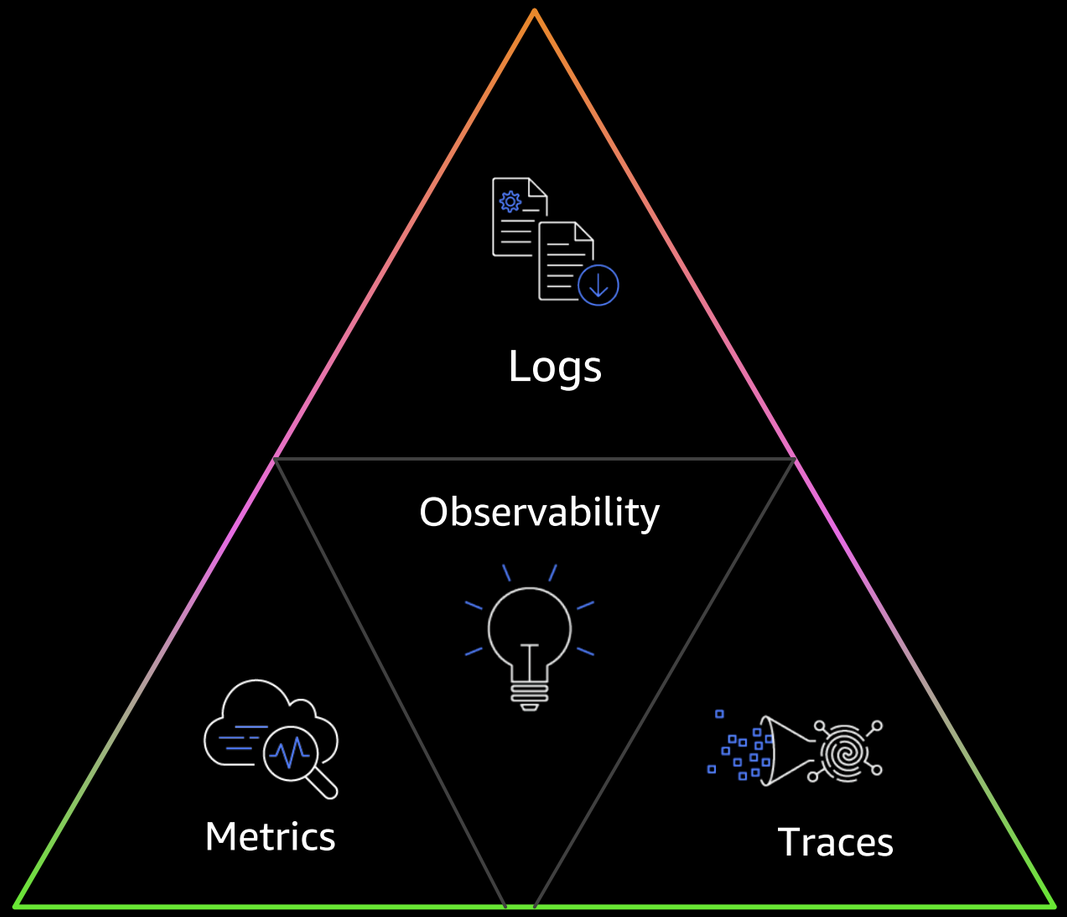
Demo



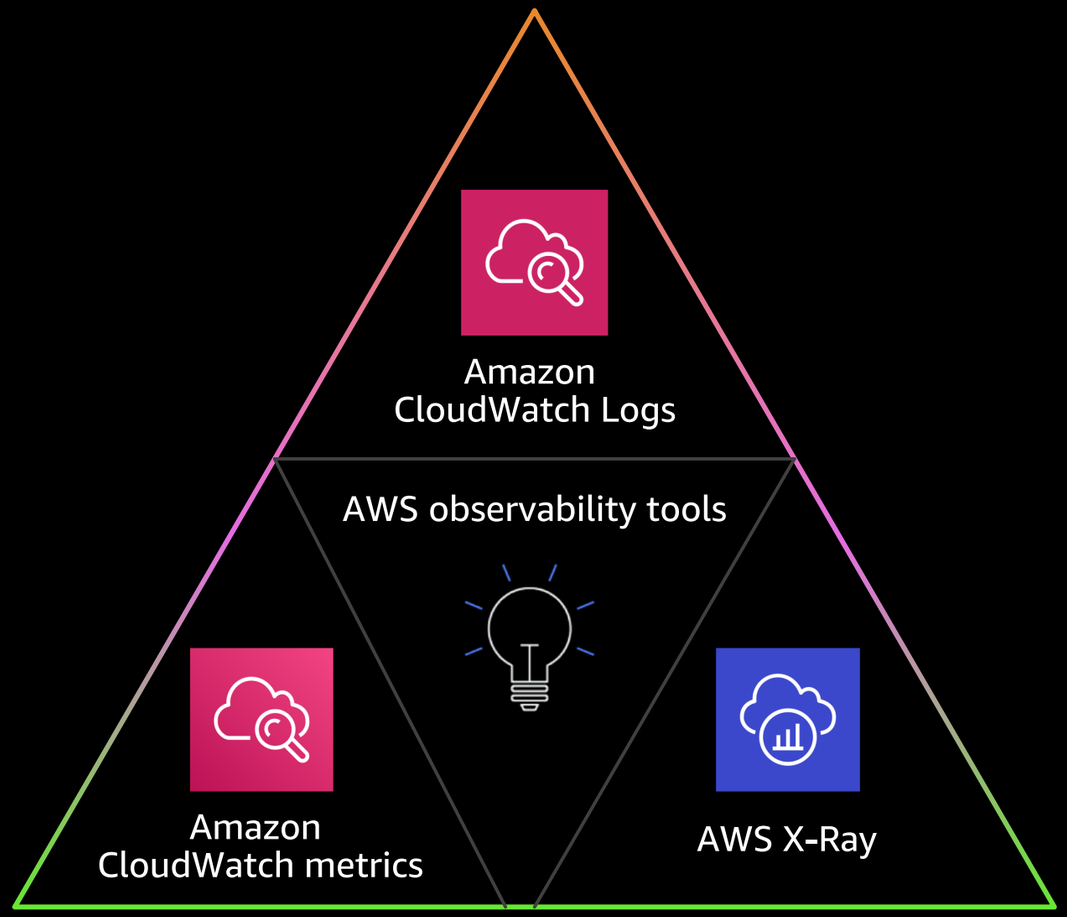
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Observability is the goal



Observability is the goal





Amazon CloudWatch

CloudWatch collects monitoring and operational data in the form of logs, metrics, and events

It visualizes these data using automated dashboards so you can get a unified view of your AWS resources, applications, and services that run in AWS and on premises



AWS X-Ray

AWS X-Ray helps developers analyze and debug production, distributed applications, such as those built using a microservices architecture

With X-Ray, you can understand how your application and its underlying services are performing in order to identify and troubleshoot the root causes of performance issues and errors

What’s new

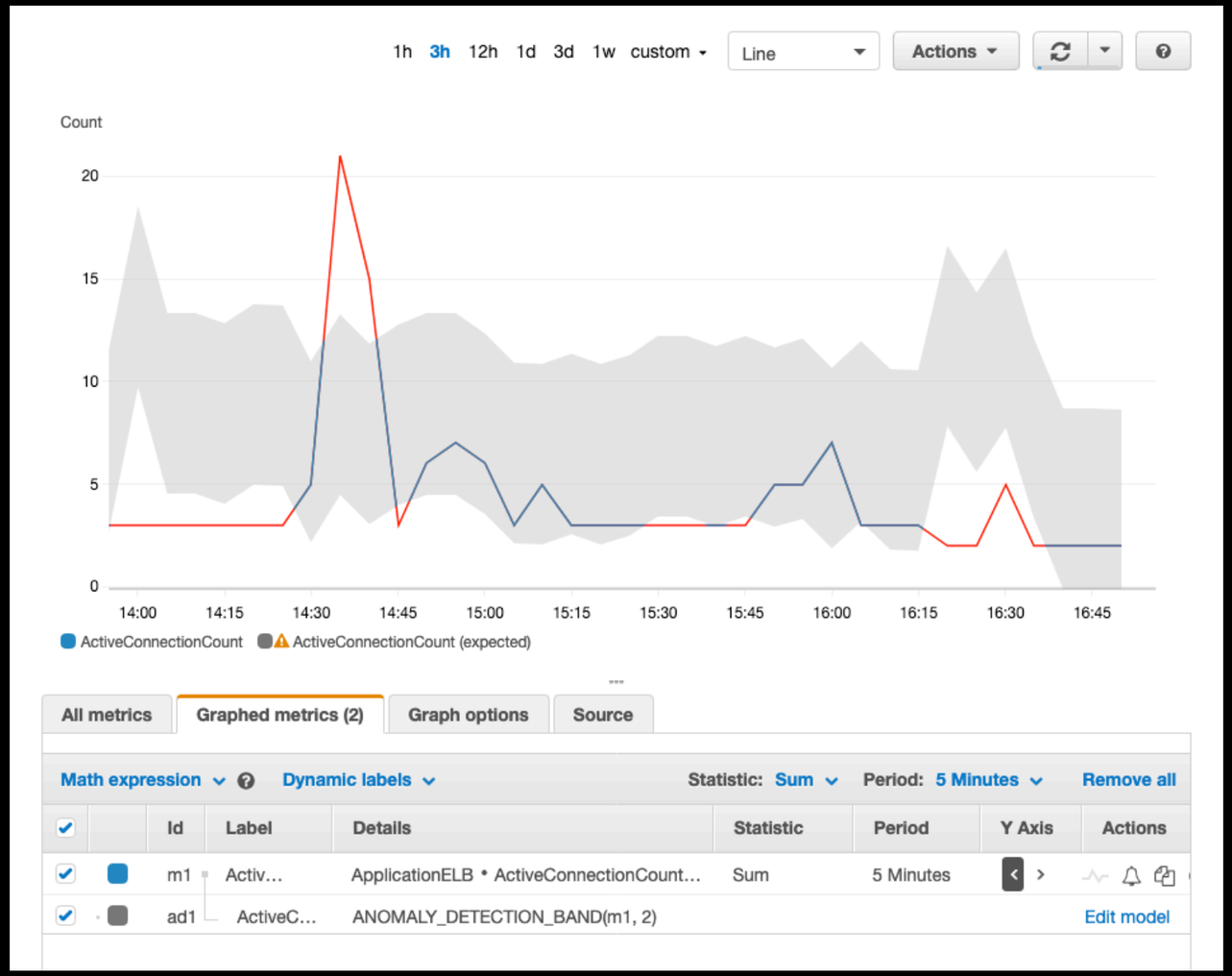


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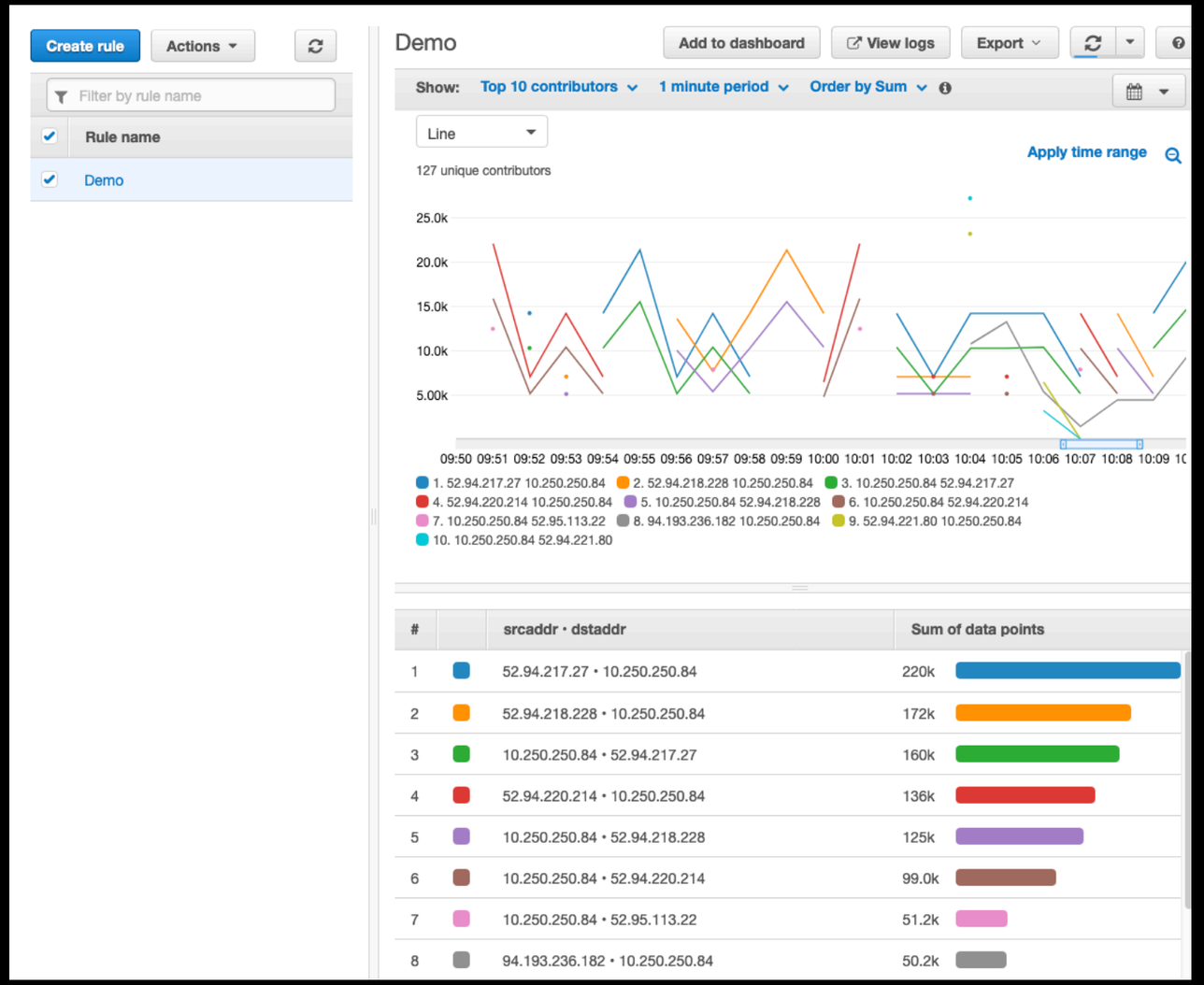
Anomaly detection

Apply machine learning algorithms to the metric's past data to create a model of the metric's expected values



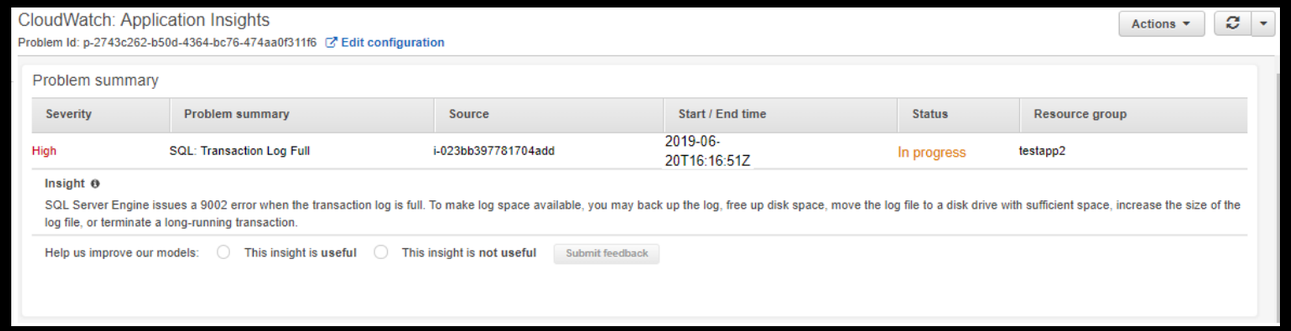
Amazon CloudWatch Contributor Insights

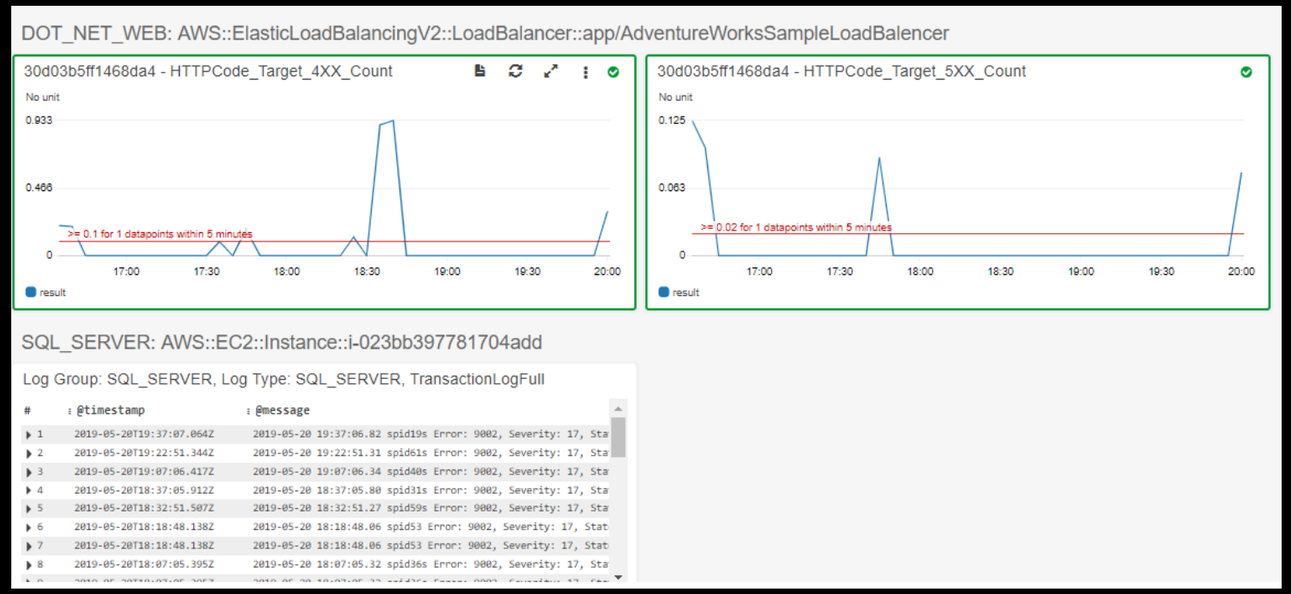
Analyze time-series data to provide a view of the top contributors influencing system performance



Amazon CloudWatch Application Insights

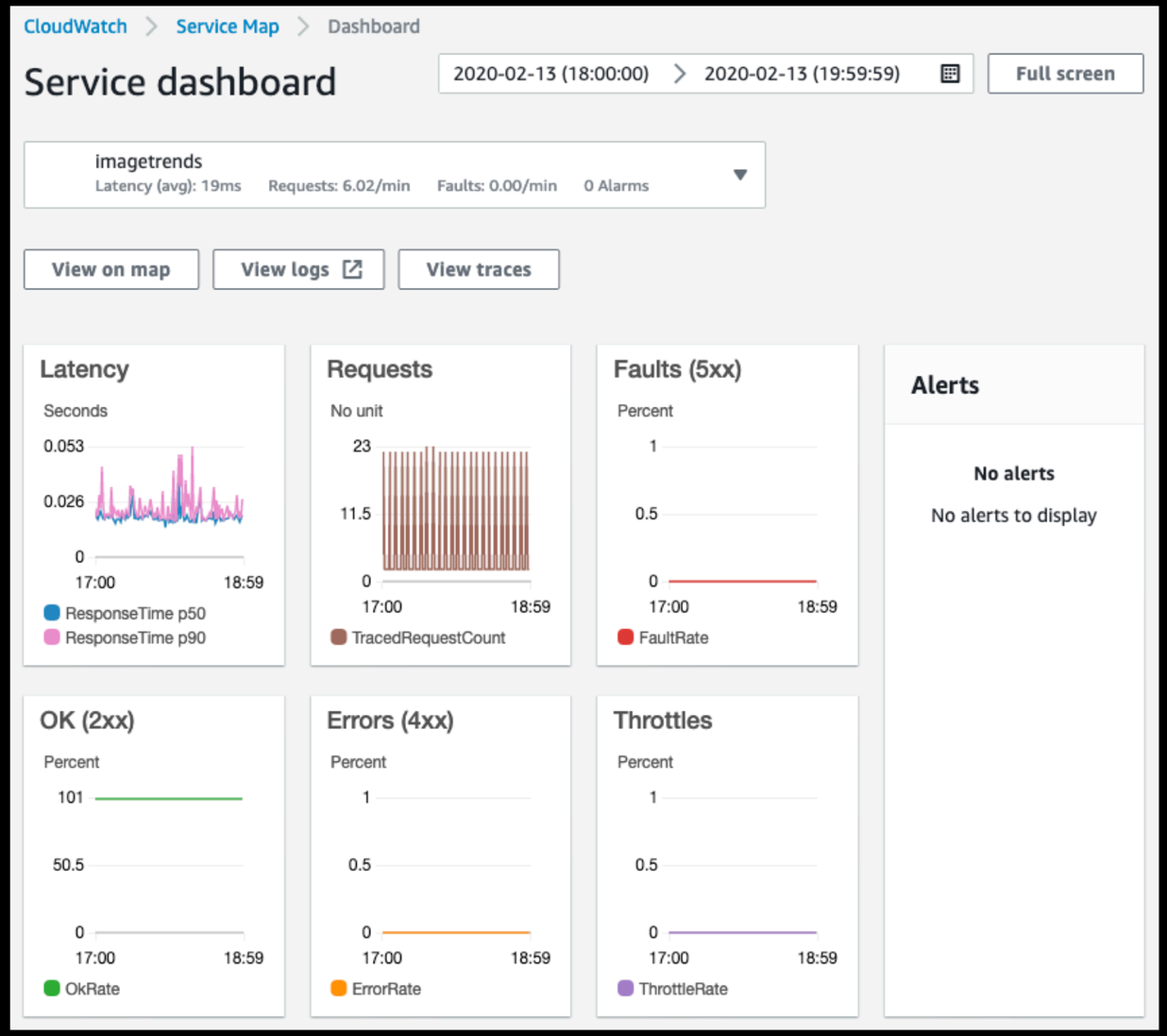
Automate the selection of telemetry, metrics, and logs; the configuration of monitoring; and the creation of dashboards and alerts for enterprise applications





Amazon CloudWatch ServiceLens

Visualize and analyze the health, performance, and availability of your applications in a single place



Home Page - Observability Pet | CloudFormation - Stack Servic | CloudWatch Management Con | Elastic Load Balancing and AW | A new, more simplified setup

Not Secure | servi-petsi-10909cdgelihs-1223993686.us-east-2.elb.amazonaws.com

Observability
PET ADOPTIONS

See Adoption List Perform Housekeeping



TYPE All COLOR All Search



Take me home

PUPPY-BLACK

$ 89

❤️❤️❤️❤️❤️



Not available

PUPPY-BLACK

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Take me home

PUPPY-BROWN

$ 99

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zsh

AWS: profile:default

AWS X-Ray auto-instrumentation for ASP.NET

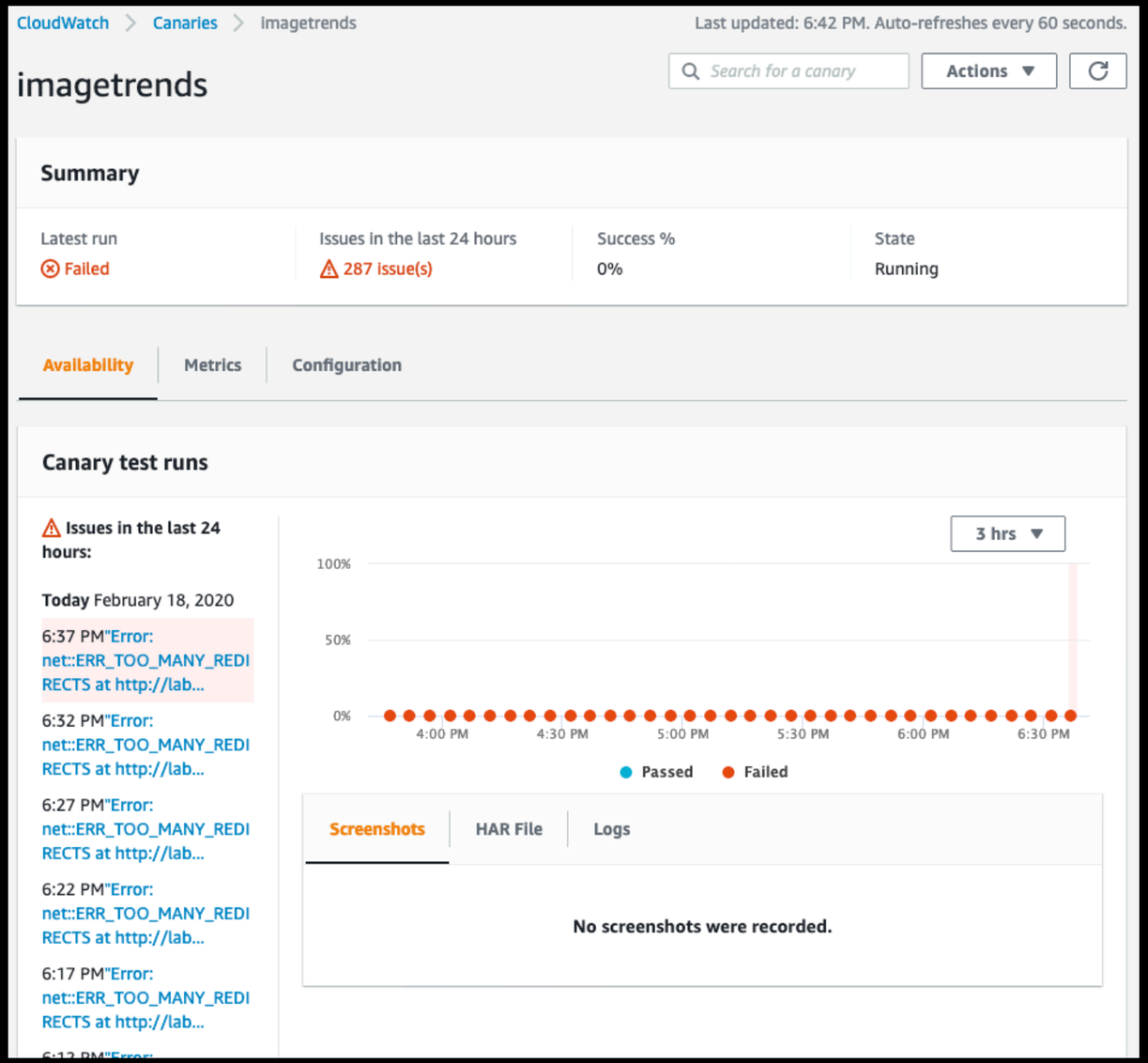
Simplify instrumentation of .NET framework and .NET core applications using the X-Ray agent

Compatibility Chart

Feature	X-Ray SDK(.NET)	X-Ray SDK(.NET Core)	X-Ray Agent(.NET)	X-Ray Agent(.NET Core)
AWS	✓	✓	✓	✓
Incoming Http	✓	✓	✓	✓
HttpClient	✓	✓	✓	✓
HttpWebRequest	✓	✓	✓	✓
System.Data.SqlClient	✓	✓	✓	✓
Microsoft.Data.SqlClient	✗	✗	✗	✓
EntityFramework	✗	✓ (EF Core)	✓ (EF 6)	✓ (EF Core)
Local Sampling	✓	✓	✓	✓
Dynamic Sampling	✓	✓	✓	✓
Multithreaded Execution	✓	✓	✓	✓
Plugins	✓	✓	✓	✓
Custom Subsegment	✓	✓	✓	✓

Amazon CloudWatch Synthetics

Run tests on your endpoints every minute, 24/7, and receive alerts as soon as your application endpoints don’t behave as expected



CloudWatch
Dashboards
Alarms
ALARM 3
INSUFFICIENT 0
OK 1
Billing
Logs
Log groups
Insights
Metrics
Explorer NEW
Events
Rules
Event Buses
ServiceLens
Service Map
Traces
Container Insights NEW
Resources
Performance Monitoring
Lambda Insights NEW
Performance monitoring
Synthetics
Canaries
Contributor Insights
Settings
Favorites
Add a dashboard

Last updated: 5:25 PM. Auto-refreshes every 60 seconds.

Canaries

3 hours

Status

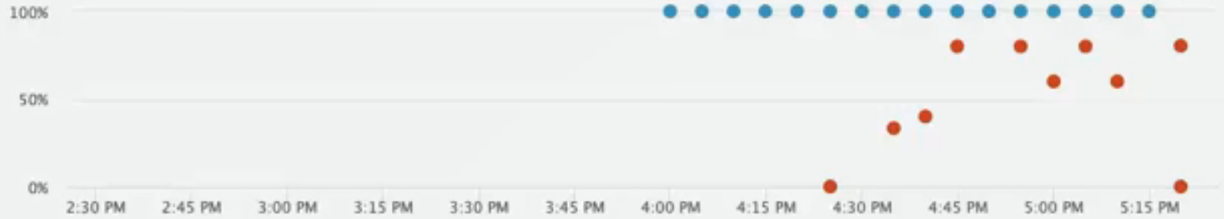
The status distribution of currently running canaries



Passed Failed (2)

Canary runs

Each data point is an aggregate of runs for a single canary. Hover for details. Click and drag plot area to zoom.



Canaries (2)

Actions | Create canary

Search for a canary | View all | 1

Name	Last run	Success %	Created	State	Runtime version	Alarms
pet-site-canary	Failed	94%	Nov 17 2020	Running	syn-nodejs-2.1	1
pet-api-canary	Failed	64%	Nov 17 2020	Running	syn-nodejs-2.1	1

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Helpful links

- AWS Logging .NET

  https://github.com/aws/aws-logging-dotnet
- Configuring the X-Ray SDK for .NET

  https://docs.aws.amazon.com/xray/latest/devguide/xray-sdk-dotnet-configuration.html
- Tracing SQL queries with the X-Ray SDK for .NET

  https://docs.aws.amazon.com/xray/latest/devguide/xray-sdk-dotnet-sqlqueries.html
- Tutorial: Set up monitors for .NET application using SQL Server

  https://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/appinsights-tutorial-dotnet-sql.html
- A new, more simplified setup for X-Ray tracing of .NET applications

  https://aws.amazon.com/blogs/developer/a-new-more-simplified-setup-for-x-ray-tracing-of-net-applications/
- Create and configure CloudWatch Application Insights monitoring using CloudFormation templates

  https://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/appinsights-cloudformation.html

Call to action

- Configure X-Ray before you need it
- Centralize you logs with CloudWatch logs
- Monitor your application with CloudWatch Synthetics
- Attend other sessions
  - CMP209 – Quickly containerize .NET & Java applications with AWS App2Container
  - WIN201 – Migrating Microsoft workloads to AWS
  - XNT304 – Modernize .NET development with CI/CD and AWS Elastic Beanstalk
- Your feedback is important

Thank you!



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