



Amazon CloudWatch

What is CloudWatch ?



Amazon CloudWatch is a monitoring service for AWS cloud resources and the applications you run on AWS. It is used to collect and track metrics, collect and monitor log files, and set alarms.

CloudWatch watches performance



What can CloudWatch Monitor ?



Amazon CloudWatch can monitor things like

Compute

- EC2 Instances
- Autoscaling Groups
- ELB
- Route53 Health Checks

Storage & Content Delivery

- EBS Volumes
- Storage Gateways
- CloudFront

CloudWatch & EC2



AWS Provided metrics(AWS pushes them)

Basic Monitoring(default): Metrics are collected at a 5 mins interval

Detailed Monitoring: Metrics are collected at a 1 minute interval

Includes CPU, Network, Disk and Status Check Metrics

Custom Metrics (Yours to push):

Basic Resolution: 1 minute resolution

High Resolution: all the way to 1 second resolution

Include RAM, application level metrics

Make sure the IAM permissions on the EC2 instance role are correct

RAM is not included in the AWS EC2 metrics

CloudWatch & EC2



Host Level metrics consists of

CPU

Network

Disk

Status Check

Monitoring



With Amazon CloudWatch, the user can get:

- Up-to-minute statistics(Basic and Detailed Monitoring)
- View graphs
- Set alarms for your metric data
- Use Auto Scaling to add/remove resources based on CloudWatch Metrics

CloudWatch Monitoring:



- **Basic Monitoring for Amazon EC2 instances:** Ten pre-selected metrics at five-minute frequency, free of charge
- **Detailed Monitoring for Amazon EC2 instances:** Seven pre-selected metrics at one-minute frequency, for an additional charge
- **Amazon EBS volumes:** Ten pre-selected metrics at five-minute frequency, free of charge
- **Elastic Load Balancers:** Ten pre-selected metrics at one-minute frequency, free of charge
- **Auto Scaling groups:** Seven pre-selected metrics at one-minute frequency, optional and charged at standard pricing
- **Amazon RDS DB instances:** Thirteen pre-selected metrics at one-minute frequency, free of charge.

CloudWatch Monitoring:



- **CloudWatch Provides metrics for every services in AWS**
- **Metrics:** Metrics is a variable to monitor(CPUUtilization, NetworkIn, etc)
- **Alarms:** An Alarm basically watches over a particular metric for a stipulated period of time and performs some actions based on its trigger. These actions can be anything from sending a notification to the user using SNS.

CloudWatch Monitoring:



- **Namespaces:** A container for CloudWatch metrics. It is a grouping to know what this metric belongs to. For example: AWS/EC2, AWS/AutoScaling/ AWS/ELB
- **Dimensions:** Dimension is a name/value pair that you uniquely identify a metric. For example: AutoScalingGroupName, ImageId, InstanceID, InstanceType, Volume ID.
- **Timestamps:** To know what timestamp it had captured.
- **Units:** Unit represents the statistic's unit of measure. For example: EC2 NetworkIn metric in bytes.

Alarm States



- State is Alarm
- State is OK
- State is INSUFFICIENT

Metrics Retention Period



CloudWatch Metrics now supports the following three retention schedules:

- 1 minute datapoints are available for 15 days
- 5 minute datapoints are available for 63 days
- 1 hour datapoints are available for 455 days

CloudWatch Events



Amazon CloudWatch Events delivers a near real-time stream of system events that describe changes in Amazon Web Services (AWS) resources.

- Determine events of interest
- Create rules to match events
- Route to targets

CloudWatch LOGS



You can Analyze your logs with CloudWatch Logs Insights. No Infrastructure or setup needed.

CloudWatch Logs helps you to aggregate, monitor, and store logs. For example, you can:

- Monitor HTTP response codes in Apache logs
- Receive alarms for errors in kernel logs
- Count exceptions in application logs

CloudWatch LOGS



Start Sending Log Data to CloudWatch



Install the Agent

Install and configure the CloudWatch Logs agent to send your logs to the CloudWatch Logs service.



Monitor

Create metric filters to automatically monitor the logs sent to CloudWatch Logs.



Access

View the log data you have sent and stored in CloudWatch Logs.

What is CloudTrail



AWS CloudTrail increases visibility into your user and resources activity by recording AWS Management Console actions and API calls.

You can identify which users and accounts called AWS, the sources IP address from which the calls were made, and when the calls occurred.



CloudWatch vs CloudTrail



AWS CloudWatch monitor performance

AWS CloudTrail monitors API calls in the AWS Platform



Exam Tips : CloudWatch



- CloudWatch is used for monitoring performance.
- CloudWatch can monitor most of AWS as well as your applications that run on AWS.
- CloudWatch with EC2 will monitor events every 5 mins for default.
- You can have 1 minute intervals by turning on detailed monitoring.
- You can create CloudWatch alarms which trigger notifications.
- CloudWatch is all about performance, CloudTrail is all about auditing