 

**Placement Empowerment Program**

***Cloud Computing and DevOps Centre***

Set Up a Cloud-Based Monitoring Service Enable basic cloud monitoring (e.g., CloudWatch on AWS). View metrics like CPU usage and disk I/O for your cloud VM.

Name: MIRDULA C Department : ADS



**Introduction and Overview**

Cloud-based monitoring services allow users to track, analyze, and optimize their cloud resources in real time. AWS CloudWatch is a powerful monitoring tool that collects and visualizes key performance metrics such as CPU usage, memory utilization, network activity, and disk I/O. By enabling CloudWatch, users can proactively monitor system health, troubleshoot performance issues, and optimize resource allocation.

This guide walks through the process of setting up AWS CloudWatch to monitor an EC2 instance. You will:

1. Enable **AWS CloudWatch monitoring** on an EC2 instance.
2. Configure **custom metrics and alarms** to track resource utilization.
3. View real-time **CPU usage, memory, and disk I/O**.
4. Set up alerts for **critical performance issues**.

AWS CloudWatch helps administrators maintain application reliability and prevent downtime by providing automated monitoring and alerting features.

**Objective**

* Enable CloudWatch monitoring for an EC2 instance.
* Collect and analyze key performance metrics (CPU, disk I/O, memory).
* Configure CloudWatch Alarms for performance threshold violations.
* Understand real-time resource monitoring and log management.

**Importance of Local Hosting**

**Real-time Performance Monitoring** – Helps track application health and performance.  
 **Automated Alerts** – Notifies users of unusual activity or resource spikes.  
 **Cost Optimization** – Helps identify underutilized or over-provisioned resources.  
 **Security & Troubleshooting** – Detects potential threats and resolves issues faster.

**Step-by-Step Overview**

**Step 1: Enable AWS CloudWatch on Your EC2 Instance**

1. Log in to your AWS account and navigate to the EC2 Dashboard.
2. Select your EC2 instance, click on the Monitoring tab, and check if CloudWatch metrics are enabled.
3. If detailed monitoring is disabled, enable it:
   * Click Modify under Monitoring.
   * Select Enable detailed monitoring (may incur additional costs).
   * Click Save changes**.**

**Step 2: View CloudWatch Metrics**

1. Open the AWS CloudWatch console.
2. Click on Metrics in the left-hand menu.
3. Choose EC2 Metrics and select your instance.
4. View key metrics such as:
5. CPU Utilization – Measures processor workload.
6. Disk I/O – Tracks read/write speeds of the disk.

Network In/Out – Monitors network traffic.

Memory Usage – Requires additional setup (detailed below).

**Step 3: Enable Memory and Disk Usage Monitoring**

By default, AWS CloudWatch does not track memory and disk usage. You need to install the CloudWatch Agent.

1. Connect to Your EC2 Instance via SSH
2. **Install CloudWatch Agent**

* **Configure CloudWatch Agent**
* Select **EC2** as the resource type.
* Enable **CPU, memory, and disk metrics**.
* Save and apply the configuration.

1. Start the CloudWatch Agent

**Step 4: Create CloudWatch Alarms for Alerts**

1. Open the CloudWatch console and go to Alarms.
2. Click Create Alarm → Select EC2 Metric (e.g., CPU Utilization).
3. Set Thresholds (e.g., Alert if CPU exceeds 80%).
4. Configure Actions:
   * Choose SNS Notification to receive alerts via email/SMS.
5. Click Create Alarm to activate monitoring.

**Step 5: View Logs in CloudWatch**

1. In CloudWatch, navigate to Logs.
2. Enable EC2 instance logging by configuring the CloudWatch Agent to push logs.
3. Use Log Insights to filter logs for error detection.

**Expected Outcome**

After completing this setup, you will have:  
 Real-time **monitoring of EC2 performance** (CPU, Memory, Disk I/O).  
 **Automated alerts** for system health issues.  
 **Detailed logs** for troubleshooting and security analysis.  
 A **proactive approach** to managing cloud resources efficiently.