



Module 4: Case Study - 1

Problem Statement:

You work for XYZ Corporation that uses on premise solutions and a limited number of systems. With the increase in requests in their application, the load also increases. So, to handle the load the corporation has to buy more systems almost on a regular basis. Realizing the need to cut down the expenses on systems, they decided to move their infrastructure to AWS.

Tasks To Be Performed:

1. Manage the scaling requirements of the company by:
 - a. Deploying multiple compute resources on the cloud as soon as the load increases and the CPU utilization exceeds 80%
 - b. Removing the resources when the CPU utilization goes under 60%
2. Create a load balancer to distribute the load between compute resources.
3. Route the traffic to the company's domain.

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https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#TargetGroup:targetGroupArn=arn:aws:elasticloadbalancing:us-east-1:917...

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AMI Catalog

EC2 > Target groups > DemoEC2InstanceTG-2409

DemoEC2InstanceTG-2409

Actions

Details

arn:aws:elasticloadbalancing:us-east-1:917788167444:targetgroup/DemoEC2InstanceTG-2409/e978b5fed8de84f6

Target type	Protocol : Port	Protocol version	VPC
Instance	HTTP: 80	HTTP1	vpc-0e1d54cef9823402c
IP address type	Load balancer		
IPv4	DemoEC2LB-2409		

0	0	0	0	0	0
Total targets	Healthy	Unhealthy	Unused	Initial	Draining
	0 Anomalous				

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Total targets

Healthy

Unhealthy

Unused

Initial

Draining

0 Anomalous

Targets Monitoring Health checks Attributes Tags

Registered targets (0) [Info](#) [Anomaly mitigation: Not applicable](#) [Deregister](#) [Register targets](#)

Target groups route requests to individual registered targets using the protocol and port number specified. Health checks are performed on all registered targets according to the target group's health check settings. Anomaly detection is automatically applied to HTTP/HTTPS target groups with at least 3 healthy targets.

Filter targets

Instance ID	Name	Port	Zone	Health status	Health status details
-------------	------	------	------	---------------	-----------------------

No registered targets

You have not registered targets to this group yet

[Register targets](#)

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https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LoadBalancer:loadBalancerArn=arn:aws:elasticloadbalancing:us-east-1:91... ☆

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- Snapshots
- Lifecycle Manager

▼ Network & Security

- Security Groups
- Elastic IPs
- Placement Groups
- Key Pairs
- Network Interfaces

▼ Load Balancing

- Load Balancers
- Target Groups
- Trust Stores **New**

▼ Auto Scaling

- Auto Scaling Groups

EC2 > Load balancers > DemoEC2LB-2409

DemoEC2LB-2409

Actions

▼ Details

Load balancer type Application	Status Active	VPC vpc-0e1d54cef9823402c	IP address type IPv4
Scheme Internet-facing	Hosted zone Z35SXDOTRQ7X7K	Availability Zones subnet-04e03fc88e94c7a43 us-east-1a (use1-az1) subnet-0ef12bc63f174664d us-east-1b (use1-az2)	Date created December 20, 2023, 11:50 (UTC+05:30)
Load balancer ARN arn:aws:elasticloadbalancing:us-east-1:917788167444:loadbalancer/app/DemoEC2LB-2409/670559bfe80c12a2		DNS name Info DemoEC2LB-2409-385954547.us-east-1.elb.amazonaws.com (A Record)	

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https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LoadBalancer:loadBalancerArn=arn:aws:elasticloadbalancing:us-east-1:91... ☆

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▼ Elastic Block Store

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▼ Load Balancing

- Load Balancers
- Target Groups
- Trust Stores **New**

▼ Auto Scaling

- Auto Scaling Groups

subnets-0ef12bc63f174664d
us-east-1b (use1-az2)

Load balancer ARN
[arn:aws:elasticloadbalancing:us-east-1:917788167444:loadbalancer/app/DemoEC2LB-2409/670559bfe80c12a2](#)

DNS name **Info**
[DemoEC2LB-2409-385954547.us-east-1.elb.amazonaws.com](#) (A Record)

Listeners and rules Network mapping Security Monitoring Integrations Attributes Tags

Listeners and rules (1) **Info** Manage rules Manage listener Add listener

A listener checks for connection requests on its configured protocol and port. Traffic received by the listener is routed according to the default action and any additional rules.

Filter listeners

<input type="checkbox"/>	Protocol:Port	Default action	Rules	ARN	Security policy
<input type="checkbox"/>	HTTP:80	Forward to target group <ul style="list-style-type: none">DemoEC2InstanceTG-2409: 1 (100%)Group-level stickiness: Off	1 rule	ARN	Not applicable

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https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchTemplateDetails:launchTemplateId=lt-0e3165573f033d16d

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DemoTemplateEC2-2409 (lt-0e3165573f033d16d)

Actions Delete template

Launch template details

Launch template ID lt-0e3165573f033d16d	Launch template name DemoTemplateEC2-2409	Default version 1	Owner arn:aws:iam::917788167444:root
--------------------------------------------	----------------------------------------------	----------------------	-----------------------------------------

Details Versions Template tags

Launch template version details

Actions Delete template version

Version 1 (Default)	Description -	Date created 2023-12-20T06:34:44.000Z	Created by arn:aws:iam::917788167444:root
------------------------	------------------	------------------------------------------	----------------------------------------------

Instance details Storage Resource tags Network interfaces Advanced details

AMI ID ami-001fe41c81d75e9f0	Instance type t2.micro	Availability Zone -	Key pair name -
Security groups -	Security group IDs sg-03eb743d46eca760c		

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https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#AutoScalingGroupDetails:AutoScalingGroup:DemoASG-2409;view=details

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EC2 > Auto Scaling groups > DemoASG-2409

DemoASG-2409

Details Activity Automatic scaling Instance management Monitoring Instance refresh

Group details

Edit

Auto Scaling group name DemoASG-2409	Desired capacity 2	Desired capacity type Units (number of instances)	Amazon Resource Name (ARN) arn:aws:autoscaling:us-east-1:917788167444:autoScalingGroup:78573a2f-40b9-420d-a133-f2258f2c8c18:autoScalingGroup:DemoASG-2409
Date created Wed Dec 20 2023 14:51:57 GMT+0530 (India Standard Time)	Minimum capacity 1	Status -	
	Maximum capacity 4		

Launch template

Edit

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https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#AutoScalingGroupDetails:Id=DemoASG-2409;view=activity

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No notifications are currently specified

Create notification

Activity history (2)

Filter activity history

Status	Description	Cause	Start time	End time
Success	Launching a new EC2 Instance: i-0b6e9687ee2f074a2	At 2023-12-20T09:21:57Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2023-12-20T09:22:01Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2023 December 20, 02:52:03 PM +05:30	2023 December 20, 02:52:36 PM +05:30
Success	Launching a new EC2 Instance: i-0f1a995c54cd51b94	At 2023-12-20T09:21:57Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2023-12-20T09:22:01Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.	2023 December 20, 02:52:03 PM +05:30	2023 December 20, 02:52:35 PM +05:30

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https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:instanceState=running;v=3;\$case=tags:true%5C,client:fa...

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Instances (2) Info

Find Instance by attribute or tag (case-sensitive)

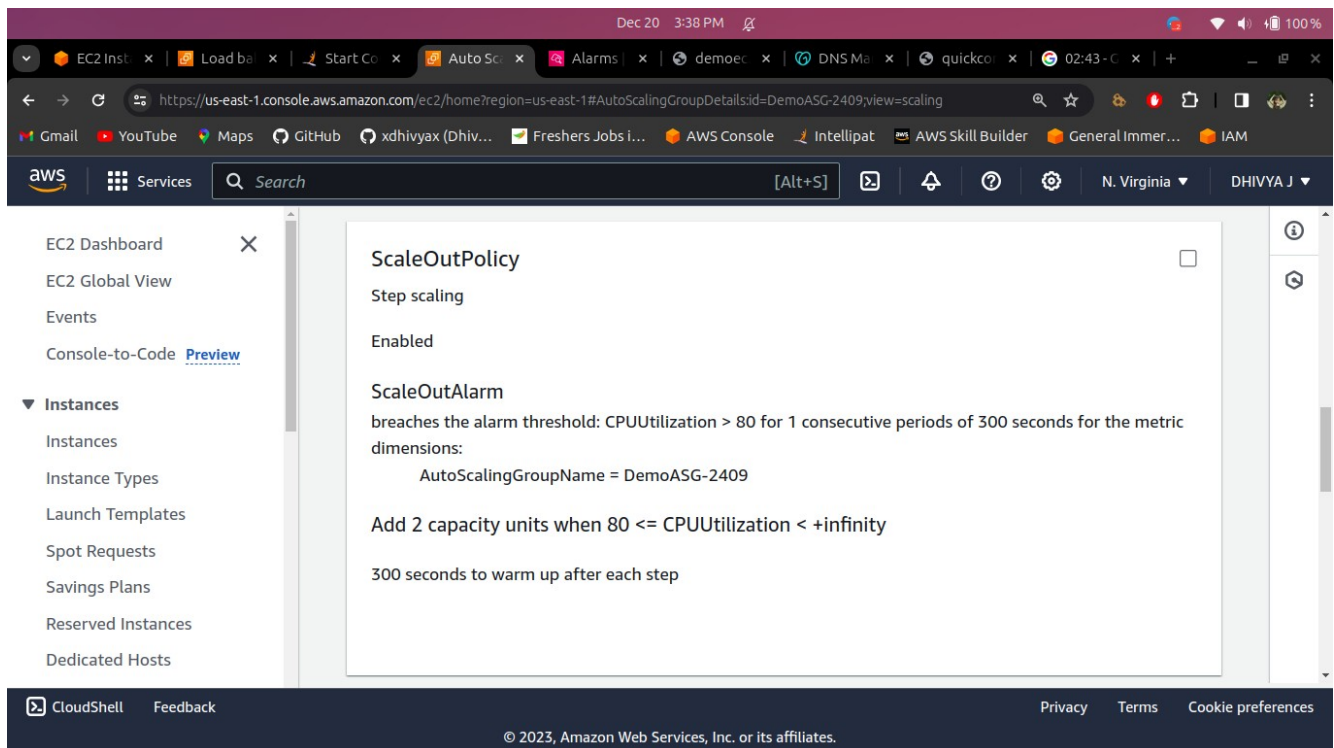
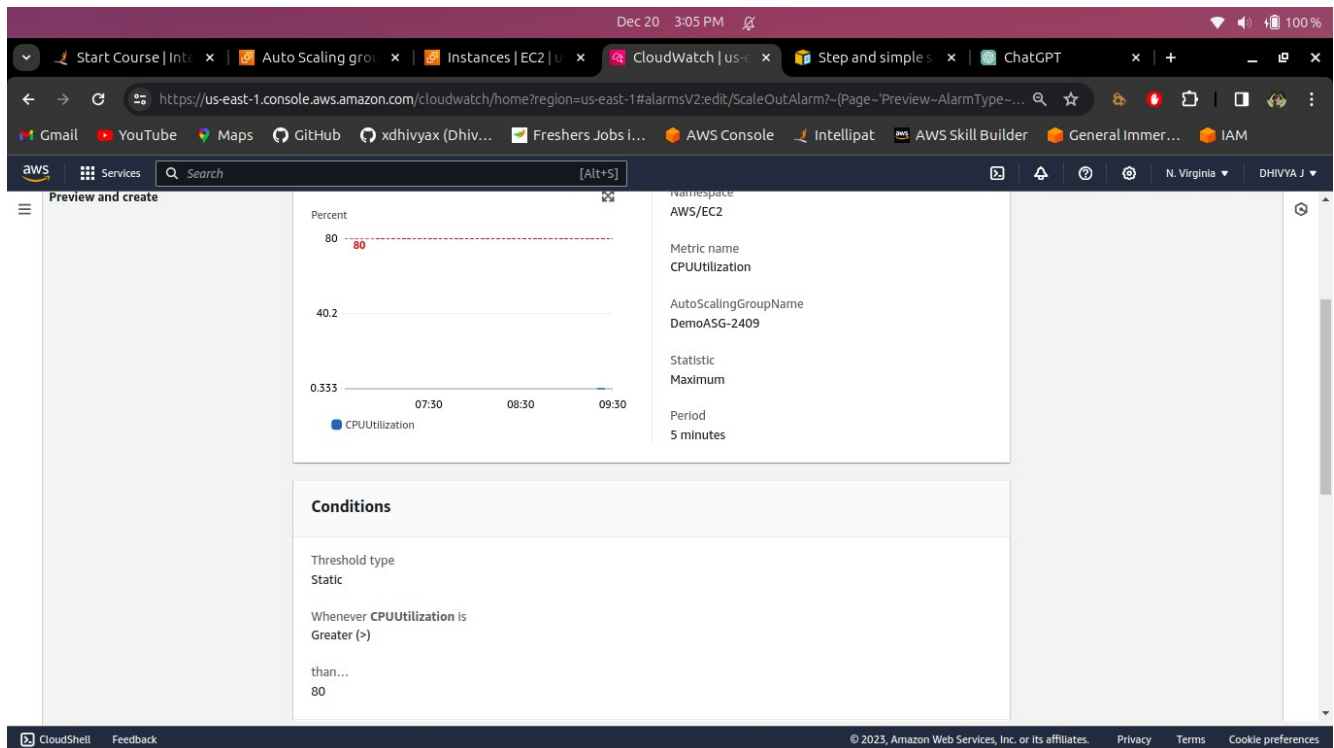
Instance state = running Clear filters

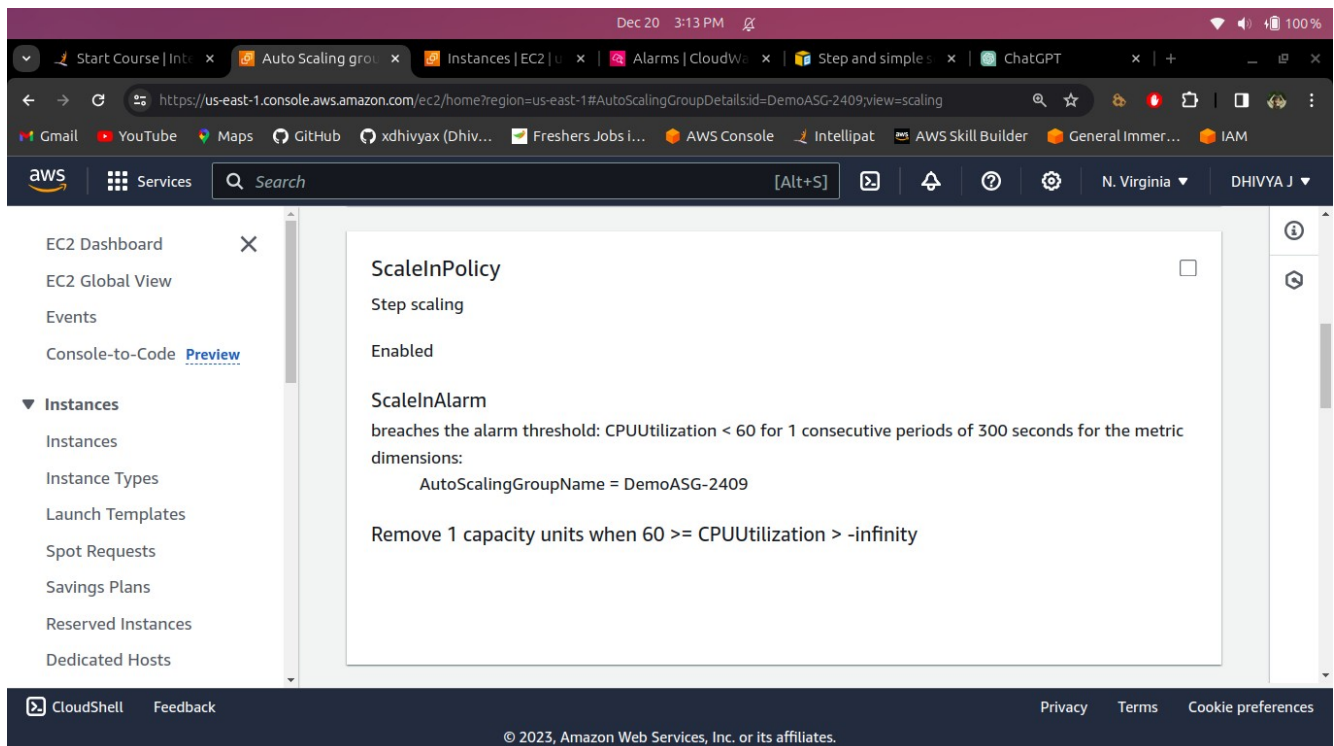
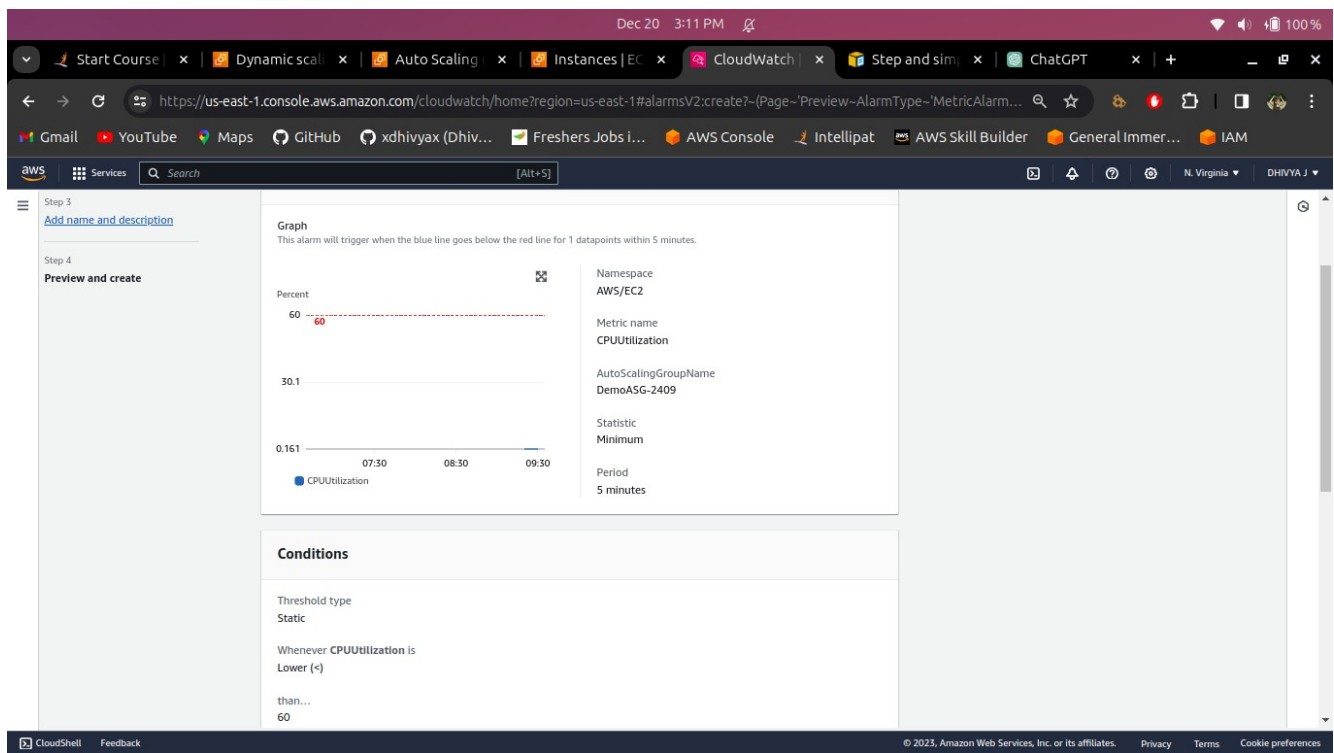
	Name	Instance ID	Instance state	Instance type	Status check	Alarm status
<input type="checkbox"/>		i-0b6e9687ee2f074a2	Running	t2.micro	2/2 checks passed	No alarms
<input type="checkbox"/>		i-0f1a995c54cd51b94	Running	t2.micro	2/2 checks passed	No alarms

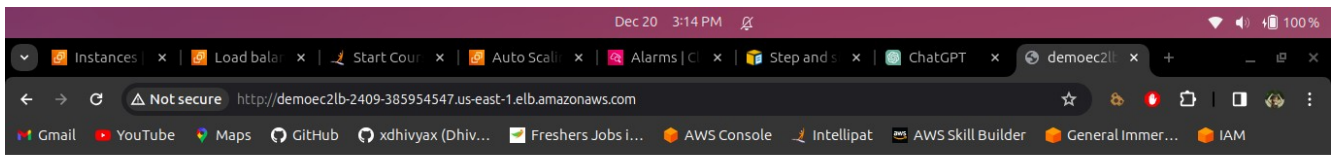
Select an instance

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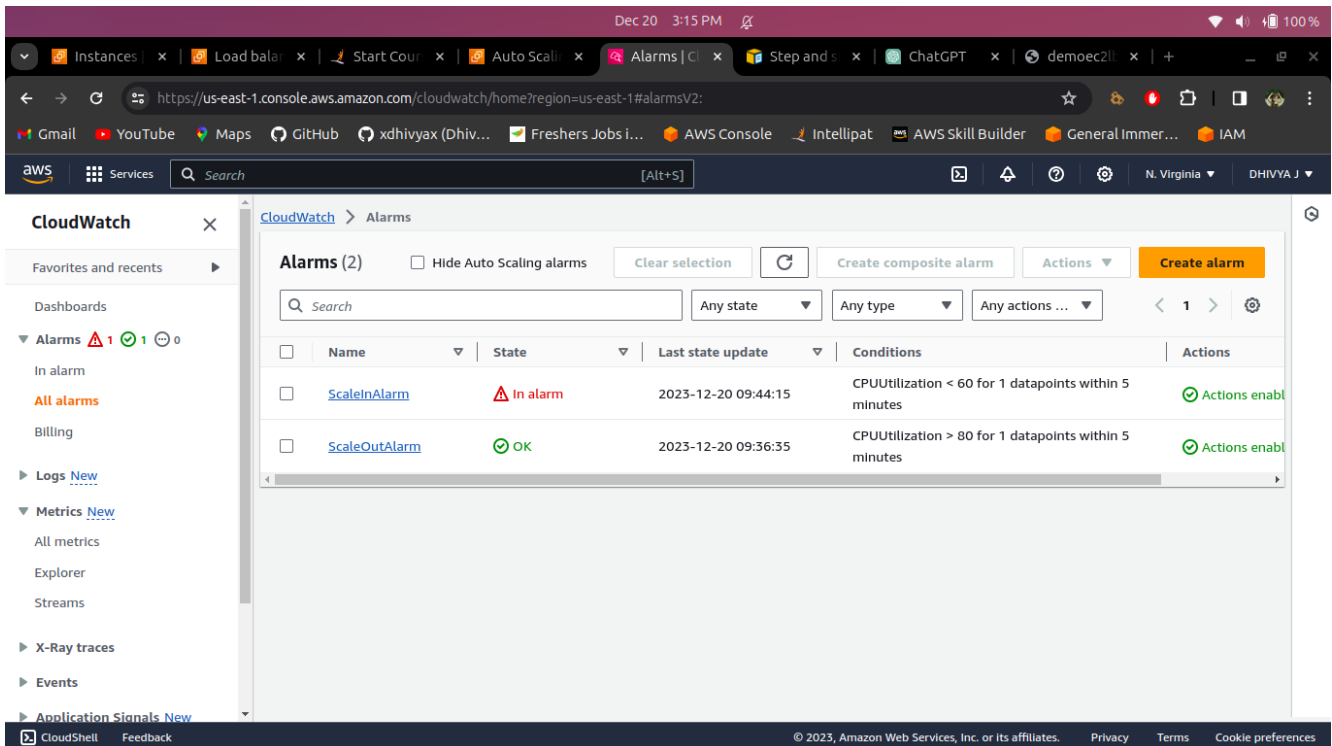
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Hello All from ip-172-31-18-208.ec2.internal



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https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#AutoScalingGroupDetails:Id=DemoASG-2409/view=activity

Activity history (3)

Filter activity history

Status	Description	Cause
Successful	Terminating EC2 Instance: I-0b6e9687ee2f074a2	At 2023-12-20T09:44:15Z a monitor alarm ScaleInAlarm in state ALARM triggered policy ScaleInPolicy changing the desired capacity from 2 to 1. At 2023-12-20T09:44:24Z an instance was taken out of service in response to a difference between desired and actual capacity, shrinking the capacity from 2 to 1. At 2023-12-20T09:44:24Z Instance I-0b6e9687ee2f074a2 was selected for termination.
Successful	Launching a new EC2 Instance: I-0b6e9687ee2f074a2	At 2023-12-20T09:21:57Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2023-12-20T09:22:01Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.
Successful	Launching a new EC2 Instance: I-0f1a995c54cd51b94	At 2023-12-20T09:21:57Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2023-12-20T09:22:01Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.

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https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:search=running,v=3;\$case=tags:true%5C,client:false;\$regex=ta...

Instances (1) Info

Find instance by attribute or tag (case-sensitive)

running X Clear filters

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
	I-0f1a995c54cd51b94	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b

Select an instance

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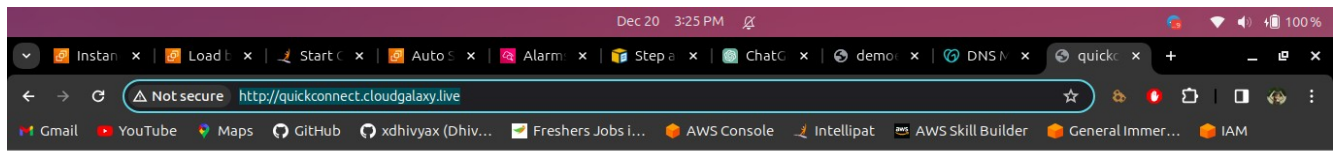
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The screenshot shows the AWS CloudWatch Alarms console. The left sidebar contains navigation links for CloudWatch services. The main panel displays a list of alarms with the following details:

Name	State	Last state update	Conditions	Actions
ScaleInAlarm	OK	2023-12-20 10:08:15	CPUUtilization < 60 for 1 datapoints within 5 minutes	Actions enabled
ScaleOutAlarm	In alarm	2023-12-20 10:03:31	CPUUtilization > 80 for 1 datapoints within 5 minutes	Actions enabled

The screenshot shows the AWS Auto Scaling console, specifically the activity history for an Auto Scaling Group. The left sidebar contains navigation links for EC2 services. The main panel displays a list of activities with the following details:

Status	Activity	Description
Successful	Launching a new EC2 Instance: i-04df2f383af5643d	At 2023-12-20T10:08:31Z a monitor alarm ScaleOutAlarm in state ALARM triggered policy ScaleOutPolicy changing the desired capacity from 1 to 3. At 2023-12-20T10:08:36Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 1 to 3.
Successful	Launching a new EC2 Instance: i-07b45472ea1da11ca	At 2023-12-20T10:08:31Z a monitor alarm ScaleOutAlarm in state ALARM triggered policy ScaleOutPolicy changing the desired capacity from 1 to 3. At 2023-12-20T10:08:36Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 1 to 3.
Successful	Terminating EC2 Instance: i-0b6e9687ee2f074a2	At 2023-12-20T09:44:15Z a monitor alarm ScaleInAlarm in state ALARM triggered policy ScaleInPolicy changing the desired capacity from 2 to 1. At 2023-12-20T09:44:24Z an instance was taken out of service in response to a difference between desired and actual capacity, shrinking the capacity from 2 to 1. At 2023-12-20T09:44:24Z instance i-0b6e9687ee2f074a2 was selected for termination.
Successful	Launching a new EC2 Instance: i-0b6e9687ee2f074a2	At 2023-12-20T09:21:57Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2023-12-20T09:22:01Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.
Successful	Launching a new EC2 Instance: i-0f1a995c54cd51b94	At 2023-12-20T09:21:57Z a user request created an AutoScalingGroup changing the desired capacity from 0 to 2. At 2023-12-20T09:22:01Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 0 to 2.



Hello All from ip-172-31-18-208.ec2.internal