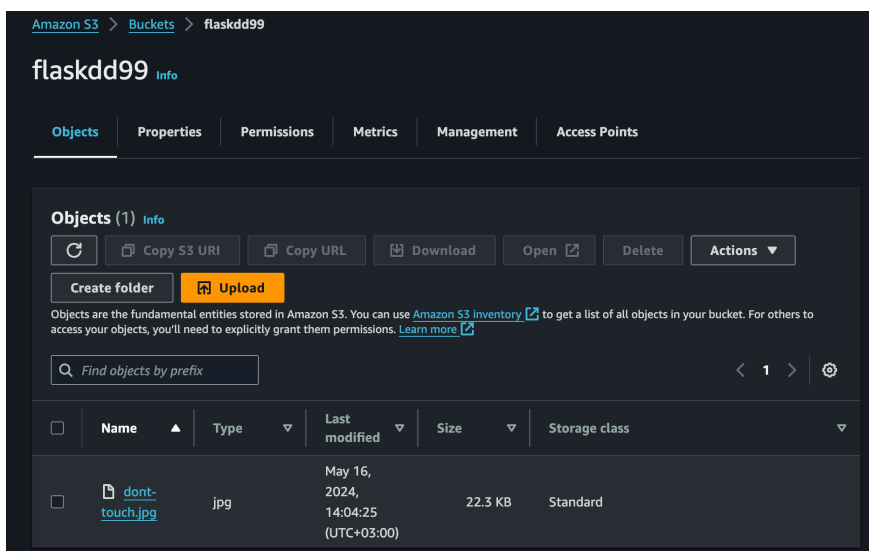


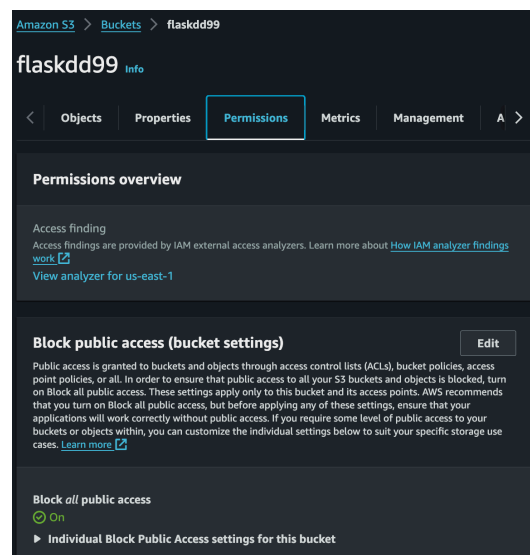
Description

This project showcases developing, containerizing, and deploying a scalable and resilient Flask web application using various AWS services. It includes features like user authentication and image display from S3, with EC2 instances, Auto Scaling, and a load balancer to ensure high availability and scalability. This implementation provides a robust foundation for hosting applications that need to handle variable traffic loads efficiently.

1. S3 - Bucket:



Permissions overview - Block all public access.



2. Create Template:

Name: devOpsTemp

Configure Template Content:

Operating System: Ubuntu 22.04

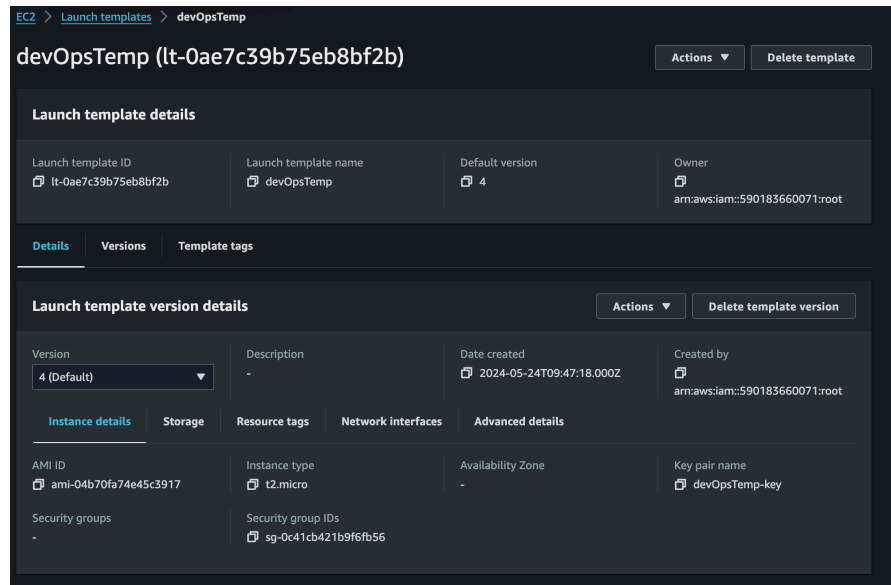
Instance Type: t2.micro

Key Pair: devOpsTemp-key

IAM Role : s3ReadOnlyAccess

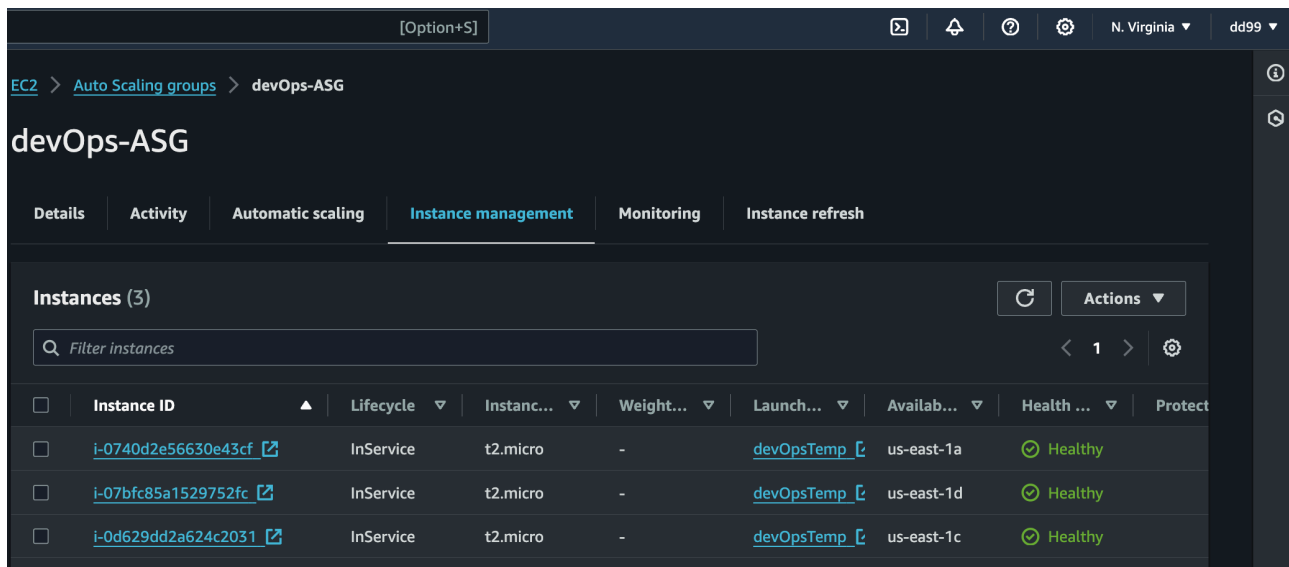
User Data:

```
#!/bin/bash
# Update and install necessary packages
sudo apt-get update -y
sudo apt-get upgrade -y
sudo apt-get install git -y
sudo apt-get install -y docker.io
# Start Docker service
sudo systemctl start docker
sudo systemctl enable docker
# Install Docker Compose
sudo curl -L "https://github.com/docker/compose/releases/latest/download/docker-compose-$(uname -s)-$(uname -m)" \
-o /usr/local/bin/docker-compose
sudo chmod +x /usr/local/bin/docker-compose
# Add current user to the docker group
sudo usermod -aG docker $USER
# Clone your project repository
git clone https://github.com/111dd/devOpsEx.git
# Change directory to your project
cd devOpsEx/Docker-compose-Prediction-main
# Create .env file for Docker Compose with environment variables
echo "DB_USERNAME=postgres
DB_PASSWORD=start123
DB_NAME=usersdb
DB_HOST=postgres_server
DB_PORT=5432
AWS_BUCKET_NAME=flaskdd99
AWS_REGION=us-east-1
PIC_URL=https://flaskdd99.s3.amazonaws.com/dont-touch.jpg
FLASK_ENV=development" > .env
# Build and run Docker Compose services
docker-compose up --build -d
# Run database setup commands
docker-compose exec postgres_server psql -U postgres -c "CREATE DATABASE usersdb;"
docker-compose exec postgres_server psql -U postgres -c "connect usersdb;"
docker-compose exec postgres_server psql -U postgres -d usersdb -c
"CREATE TABLE users (
  id SERIAL PRIMARY KEY,
  name VARCHAR(50) NOT NULL,
  password VARCHAR(50) NOT NULL);"
# Check if the table was created successfully
docker-compose exec postgres_server psql -U postgres -d usersdb -c "\dt"
```



3. Auto Scalling Group:

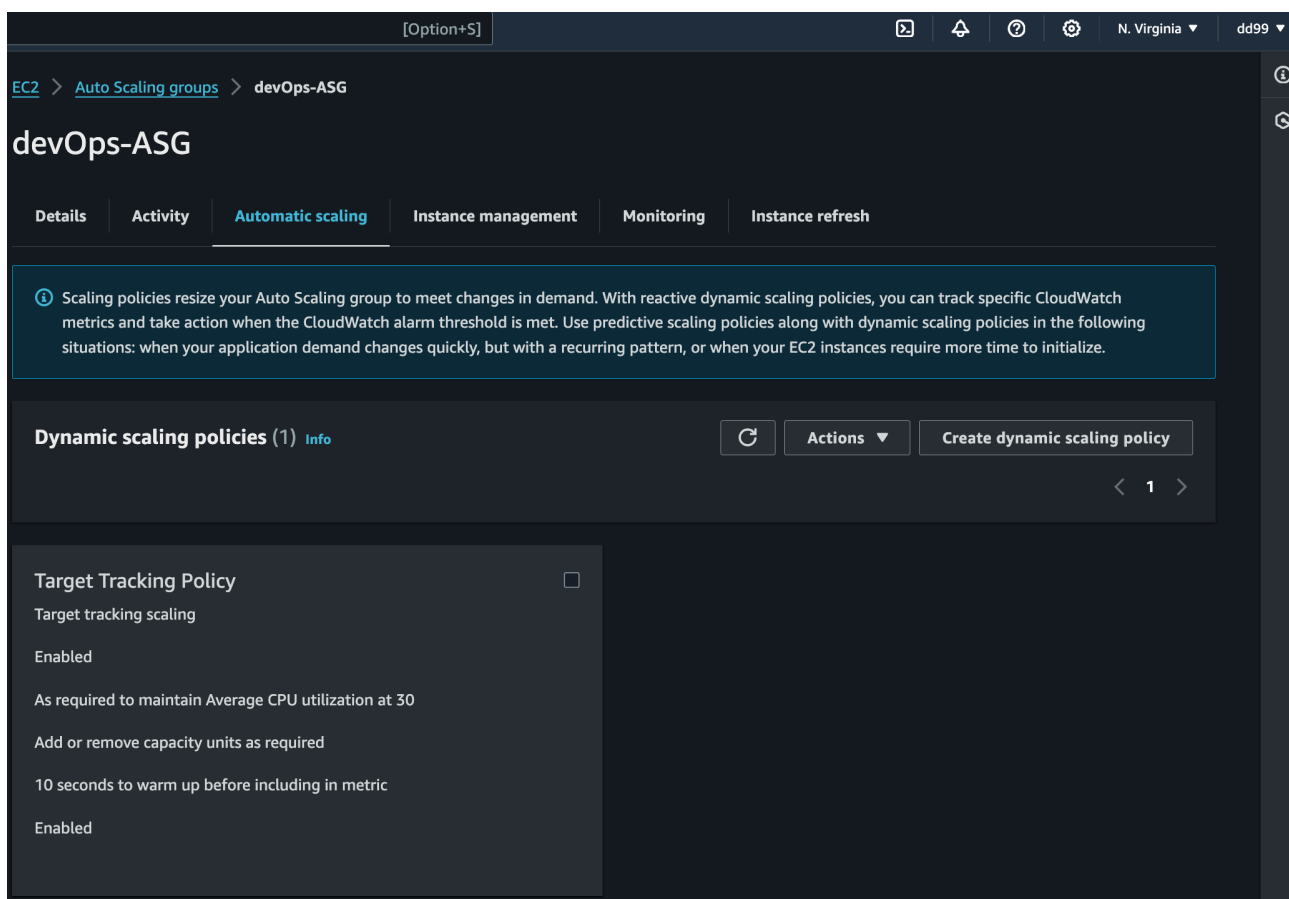
Powerful tool in AWS that automates the scaling of EC2 instances to match the current demand, providing both performance and cost benefits while ensuring high availability and reliability for your applications.



The screenshot shows the AWS Management Console for the 'devOps-ASG' Auto Scaling Group. The 'Instance management' tab is selected, showing a table of 3 instances. The table columns include Instance ID, Lifecycle, Instance type, Weight, Launch template, Availability zone, Health status, and Protect. All three instances are in 'InService' state and are 'Healthy'.

Instance ID	Lifecycle	Instance type	Weight	Launch template	Availability zone	Health status	Protect
i-0740d2e56630e43cf	InService	t2.micro	-	devOpsTemp	us-east-1a	Healthy	
i-07bfc85a1529752fc	InService	t2.micro	-	devOpsTemp	us-east-1d	Healthy	
i-0d629dd2a624c2031	InService	t2.micro	-	devOpsTemp	us-east-1c	Healthy	

My Target Tracking Policy ensures that the Auto Scaling Group will automatically adjust the number of EC2 instances to maintain an average CPU utilization of 30%. This helps optimize resource utilization and maintain application performance by scaling the number of instances up or down based on real-time CPU usage metrics. The warm-up period of 10 seconds ensures that new instances are given time to initialize before being considered in the metric calculations



The screenshot shows the AWS Management Console for the 'devOps-ASG' Auto Scaling Group. The 'Automatic scaling' tab is selected, showing a 'Target Tracking Policy' configuration. The policy is named 'Target Tracking Policy' and is enabled. It is configured to maintain 'Average CPU utilization' at 30%. The policy is set to 'Add or remove capacity units as required' and has a '10 seconds' warm-up period before including in the metric. The policy is also set to 'Enabled'.

Target Tracking Policy

- Target tracking scaling
- Enabled
- As required to maintain Average CPU utilization at 30
- Add or remove capacity units as required
- 10 seconds to warm up before including in metric
- Enabled

4. **Load Balancer:**

This (devopsLB) is configured to handle web traffic, is internet-facing, and is distributed across multiple availability zones within the us-east-1 region for high availability and fault tolerance. It has an active status and a specific DNS name that can be used to access the load balancer.

EC2 > Load balancers > devopsLB

devopsLB

Details

Load balancer type

Application

Status

Active

Scheme

Internet-facing

Hosted zone

Z35SXDOTRQ7X7K

VPC

vpc-0014c240a37937010

IP address type

IPv4

Availability Zones

subnet-0382e73184df71019 us-east-1e (use1-az3)

subnet-0b1b6e7ee9da90661 us-east-1d (use1-az6)

subnet-0e5a0b9590448db36 us-east-1f (use1-az5)

subnet-09cba5699a8c15649 us-east-1a (use1-az1)

subnet-02dfc47180bd1fdc6 us-east-1b (use1-az2)

subnet-017434ce73b9c6755 us-east-1c (use1-az4)

Load balancer ARN

arn:aws:elasticloadbalancing:us-east-1:590183660071:loadbalancer/app/devopsLB/84e811fb5de9b52a

DNS name

devopsLB-465398880.us-east-1.elb.amazonaws.com (A Record)

Listeners and rules

Network mapping

Resource map - new

Security

Monitoring

Integrations

Attributes

Tags

Listeners and rules (2)

Manage rules

Manage listener

Add listener

Filter listeners

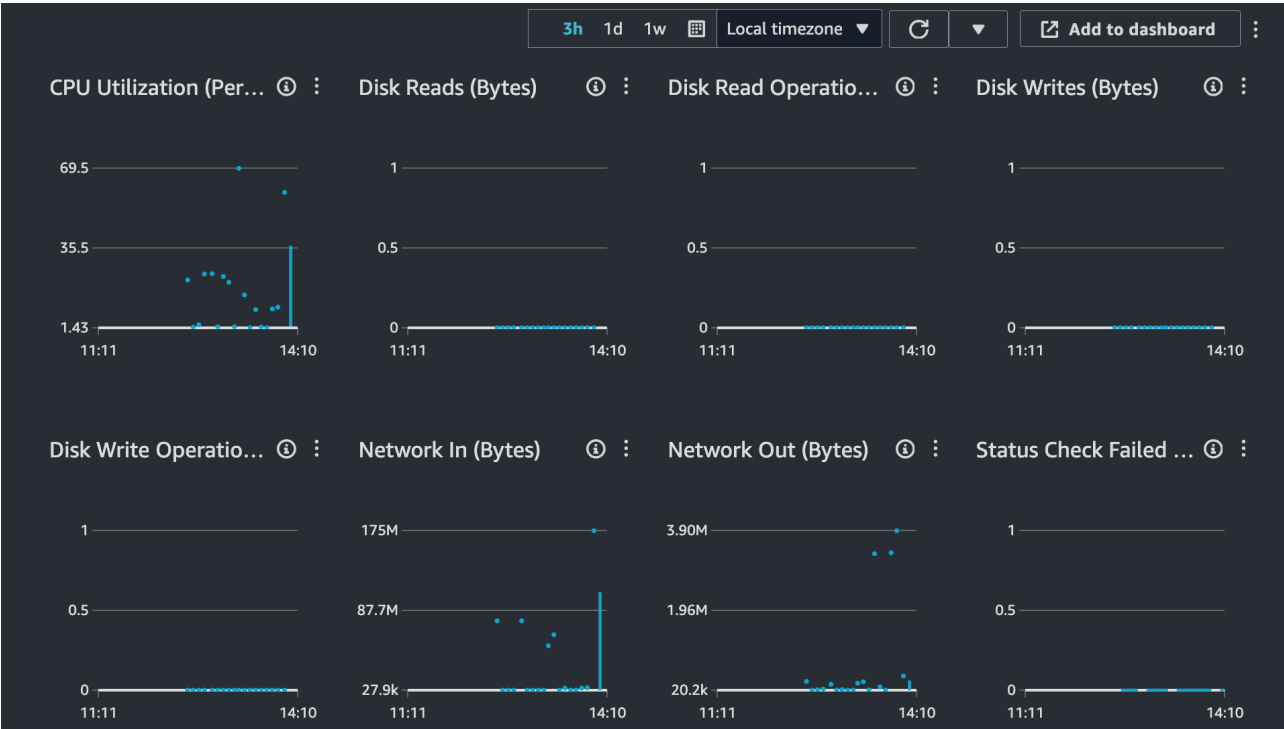
< 1 >

	Protocol:Port	Default action	Rules	ARN	Security policy
<input type="checkbox"/>	HTTP:5555	<div>Forward to target group<ul style="list-style-type: none">devOpsTarGro: 1 (100%)Group-level stickiness: Off</div>	1 rule	ARN	Not applicable
<input type="checkbox"/>	HTTP:80	<div>Forward to target group<ul style="list-style-type: none">devOpsTarGro: 1 (100%)Group-level stickiness: Off</div>	1 rule	ARN	Not applicable

5. Simulate Load for Auto-Scaling

```
dordavid@DorDavidPro14 ~ % wrk -t12 -c10000 -d500s http://devopslb-465398880.us-east-1.elb.amazonaws.com/

Running 8m test @ http://devopslb-465398880.us-east-1.elb.amazonaws.com/
12 threads and 10000 connections
Thread Stats Avg      Stdev     Max    +/-  Stdev
Latency  170.14ms  46.60ms  1.91s   96.95%
Req/Sec   200.77    115.96   580.00  62.18%
699062 requests in 8.34m, 224.67MB read
Socket errors: connect 9758, read 0, write 0, timeout 1
Non-2xx or 3xx responses: 699062
Requests/sec: 1397.83
Transfer/sec: 460.03KB
```



Activity history (9)			
Filter activity history			
Status	Description	Cause	Start time
Successful	Launching a new EC2 instance: i-0d629dd2a624c2031	At 2024-05-24T11:06:53Z a monitor alarm TargetTracking-devOps-ASG-AlarmHigh-8aee92ee-9156-48e4-803a-31fbb289dfd0 in state ALARM triggered policy Target Tracking Policy changing the desired capacity from 2 to 3. At 2024-05-24T11:07:00Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 2 to 3.	2024-05-24, 07:00 PM +
Successful	Launching a new EC2 instance: i-0740d2e56630e43cf	At 2024-05-24T11:04:53Z a monitor alarm TargetTracking-devOps-ASG-AlarmHigh-8aee92ee-9156-48e4-803a-31fbb289dfd0 in state ALARM triggered policy Target Tracking Policy changing the desired capacity from 1 to 2. At 2024-05-24T11:05:02Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 1 to 2.	2024-05-24, 07:00 PM +
Successful	Launching a new EC2 instance: i-07bfc85a1529752fc	At 2024-05-24T11:00:16Z an instance was launched in response to an unhealthy instance needing to be replaced.	2024-05-24, 07:00 PM +

6. Screen Shots:

http://devopslb-465398880.us-east-1.elb.amazonaws.com/

כל היסטוריה << yael notion TAZ... פולי קפה 1 קילו פולי קפה 1 קילו Ap... בקשת החזר Amazon.com: ...סטון מכללת תל-חי: פורטל YouTube Discord | AI - 1.1.24 קורס AI liza-ai

Hello to my Server

View Users

Name:


Password:

Add User

http://devopslb-465398880.us-east-1.elb.amazonaws.com/

כל היסטוריה << yael notion TAZ... פולי קפה 1 קילו פולי קפה 1 קילו Ap... בקשת החזר Amazon.com: ...סטון מכללת תל-חי: פורטל YouTube Discord | AI - 1.1.24 קורס AI

Hello dorda99, Welcome to my secret site!



Back to Home

User List

1: John Doe - password123
2: Jane Smith - mypassword
3: dor - 77899
4: test3 - 12344556
5: fff - 766554
6: test3 - 776544
7: fff - 5678
8: test4 - 12345

Back to Home