AWS EC2 Application Load Balancer – Step-by-Step

Introduction to AWS Load Balancer

An **AWS Load Balancer** automatically distributes incoming application traffic across multiple **Amazon EC2 instances**, ensuring:

- High availability
- Fault tolerance
- Better performance
- Scalability

AWS provides this service through **Elastic Load Balancing (ELB)**.

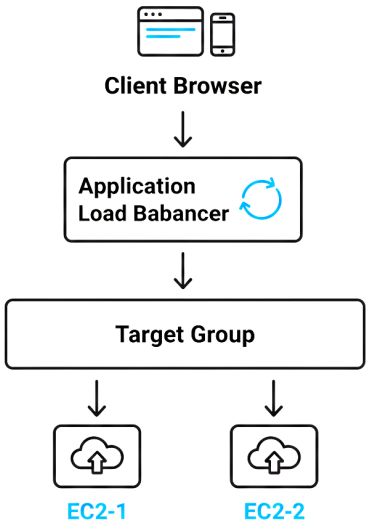
OBJECTIVE

To configure an Application Load Balancer (ALB) using the AWS Management Console

and distribute HTTP traffic across multiple EC2 instances with health checks.

ARCHITECTURE OVERVIEW

Client Browser → Application Load Balancer → Target Group → EC2 Instances (Multi-AZ)



STEP 1: Launch EC2 Instances (Console Steps)

1. Launch at least 2 EC2 instances.

User data (Optional but recommended for testing): To easily differentiate which instance the load balancer is sending traffic to, you can install a simple web server with custom content.

- Select "As text" and paste the following (adjusting the content for `Instance 1` and `Instance 2` for each instance):

Instance 1

```
#!/bin/bash
sudo su
yum update -y
yum install -y httpd
systemctl start httpd
systemctl enable httpd
echo "hii Aswin" > /var/www/html/index.html
```

Instance 2

```
#!/bin/bash
sudo su
yum update -y
yum install -y httpd
systemctl start httpd
systemctl enable httpd
echo "hii Aswin vtk" > /var/www/html/index.html
```

STEP 2: Create Target Group (Console Steps)

1. Go to EC2 Dashboard

2. Click Target Groups → Create target group

3. Choose:

   - Target type: Instance

   - Target group name: my-target-group

   - Protocol: HTTP

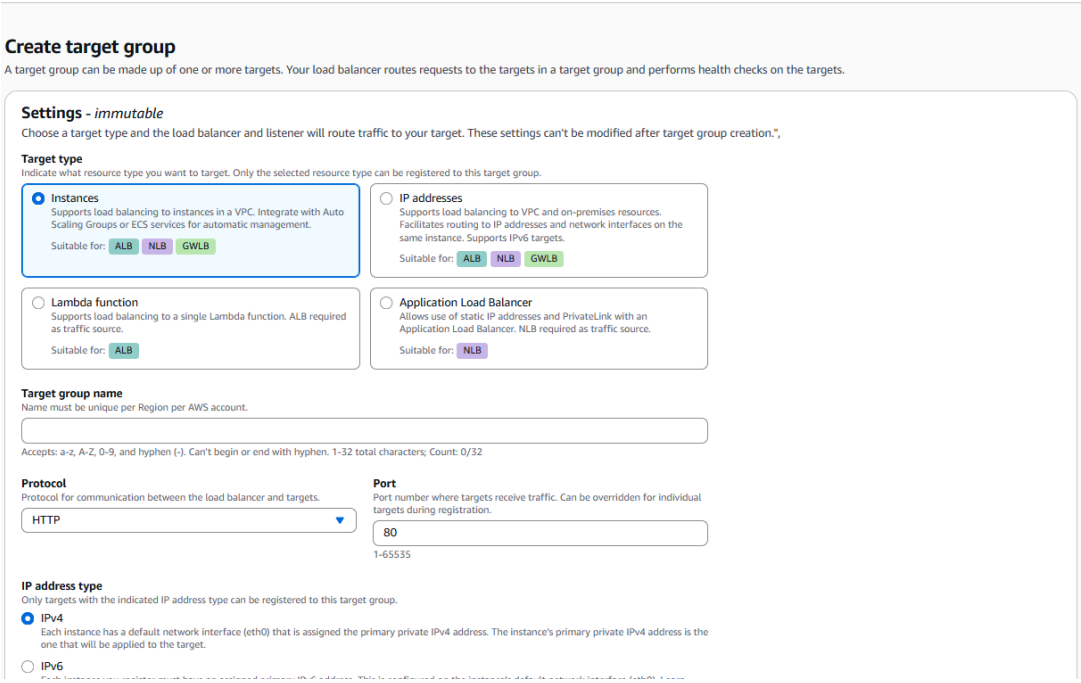
   - Port: 80

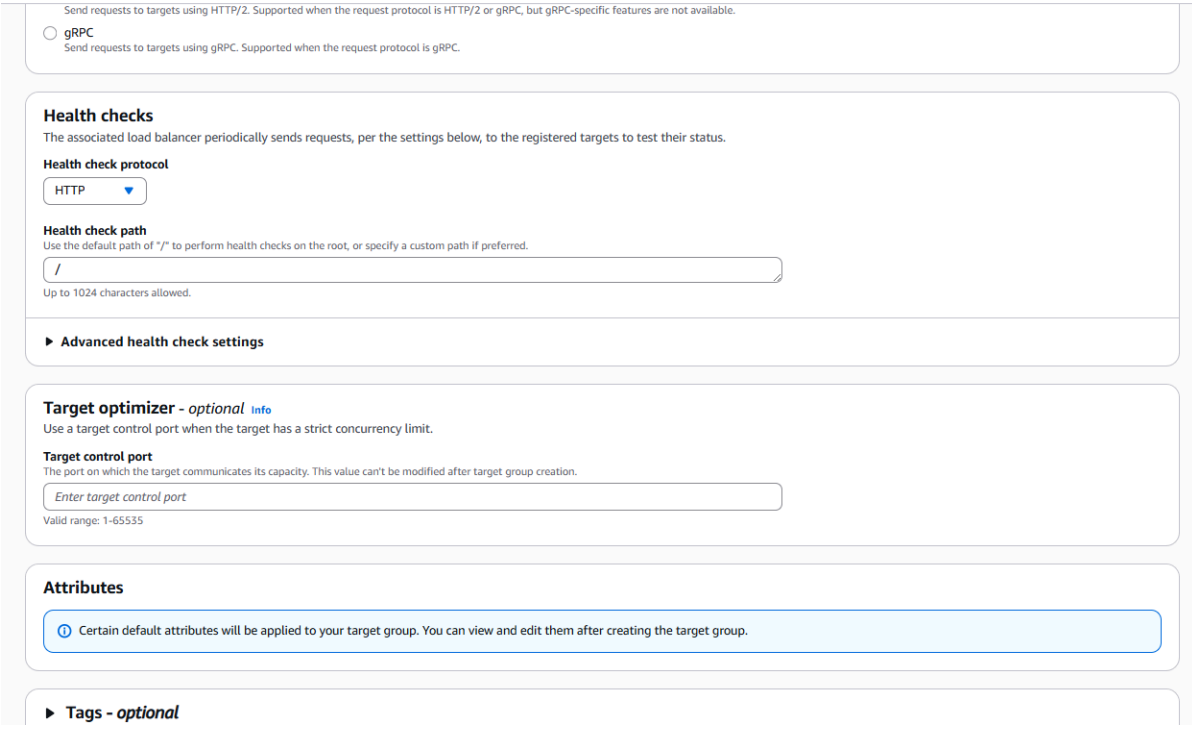
   - VPC: Default

4. Health Check:

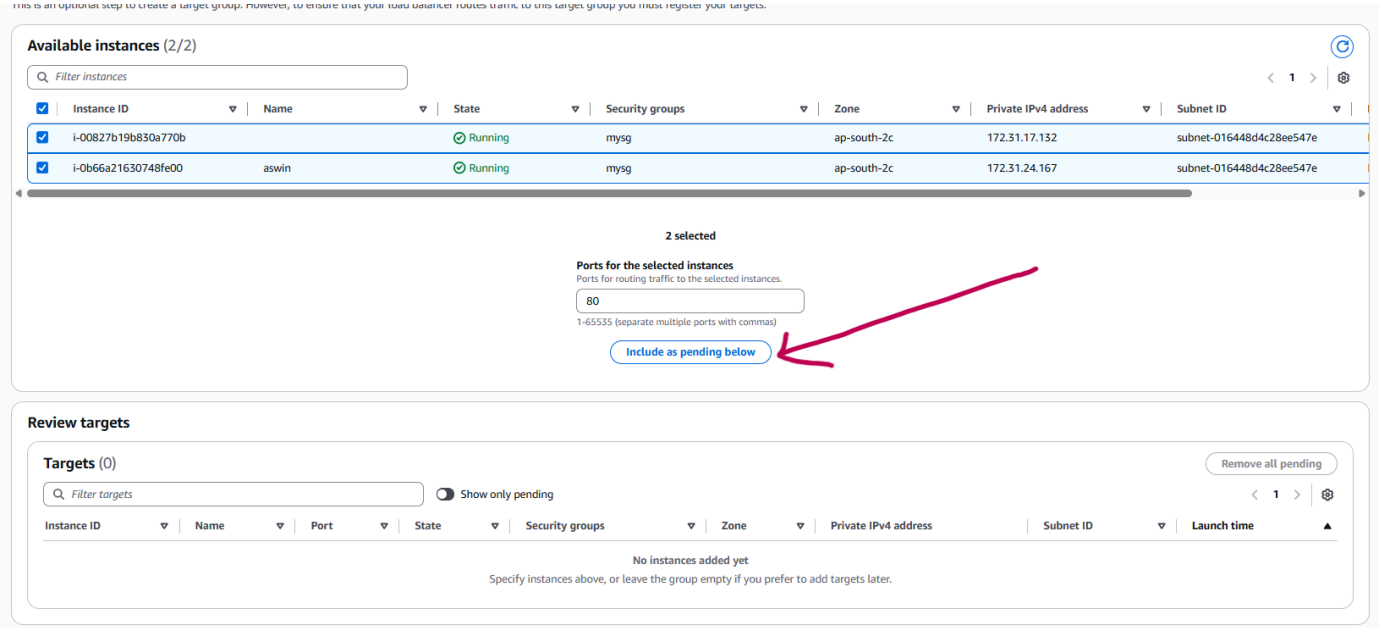
   - Protocol: HTTP

   - Path: /

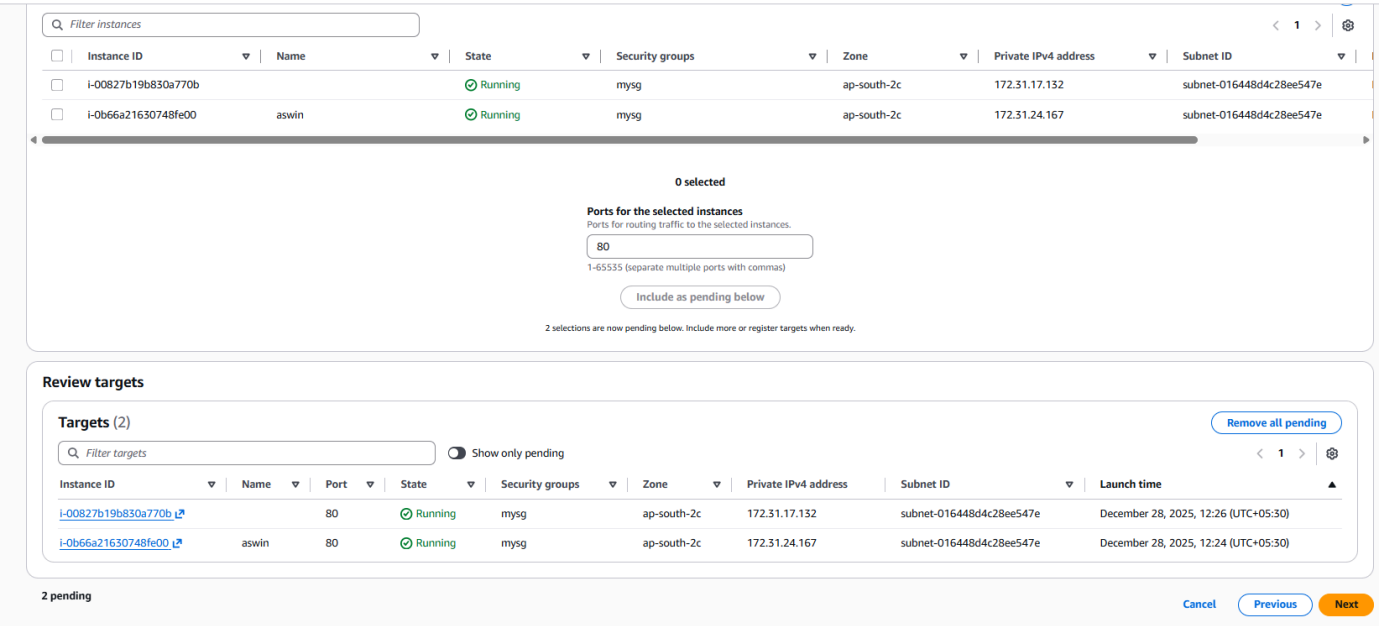




5. Click Next



6. Select EC2 instances → click the button below ” **included as pending below** ” Add to registered



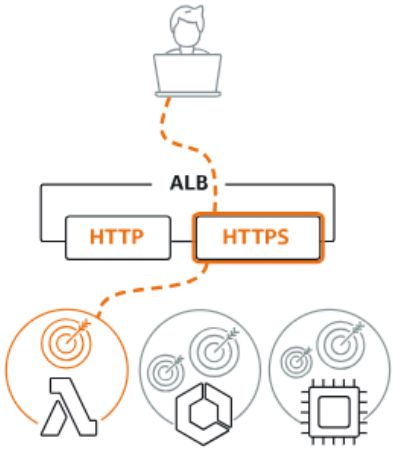
7. Click Create target group

STEP 3: Load Balancer (Console Steps)

Type of Loadbalancer

Load balancer types

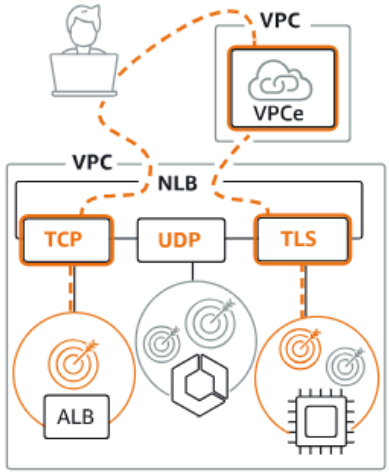
Application Load Balancer Info



Choose an Application Load Balancer when you need a flexible feature set for your applications with HTTP and HTTPS traffic. Operating at the request level, Application Load Balancers provide advanced routing and visibility features targeted at application architectures, including microservices and containers.

Create

Network Load Balancer Info



Choose a Network Load Balancer when you need ultra-high performance, TLS offloading at scale, centralized certificate deployment, support for UDP, and static IP addresses for your applications. Operating at the connection level, Network Load Balancers are capable of handling millions of requests per second securely while maintaining ultra-low latencies.

Create

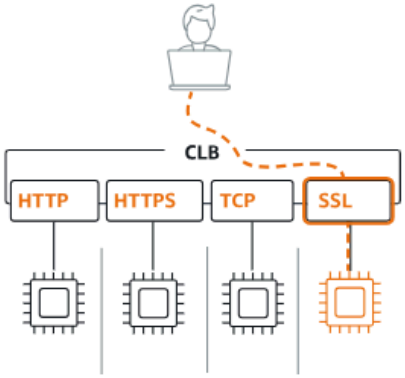
Gateway Load Balancer Info

Choose a Gateway Load Balancer when you need to deploy and manage a fleet of third-party virtual appliances that support GENEVE. These appliances enable you to improve security, compliance, and policy controls.

Create

▼ Classic Load Balancer - *previous generation*

Classic Load Balancer Info



Choose a Classic Load Balancer when you have an existing application running in the EC2-Classic network.

Create

Continue with Application Loadbalancer

1. Go to EC2 → Load Balancers

2. Click Create Load Balancer

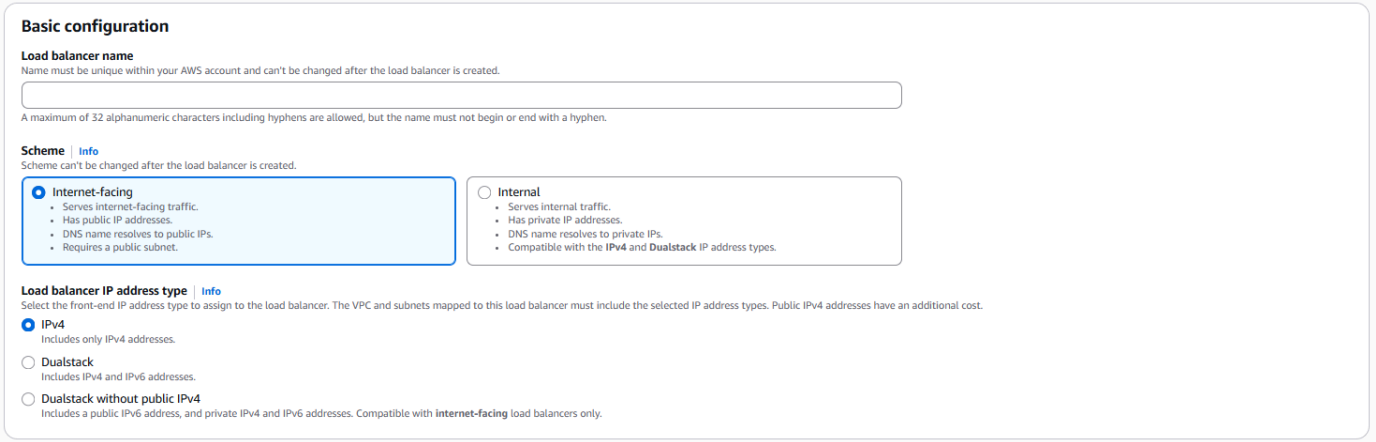
3. Select Application Load Balancer

4. Basic Configuration:

   - Name:

   - Scheme: Internet-facing

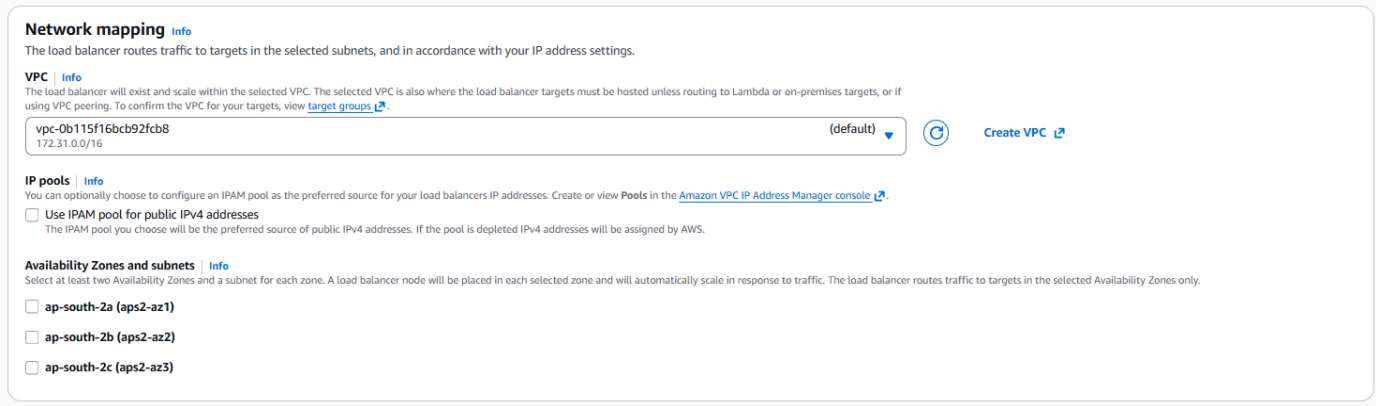
   - IP address type: IPv4



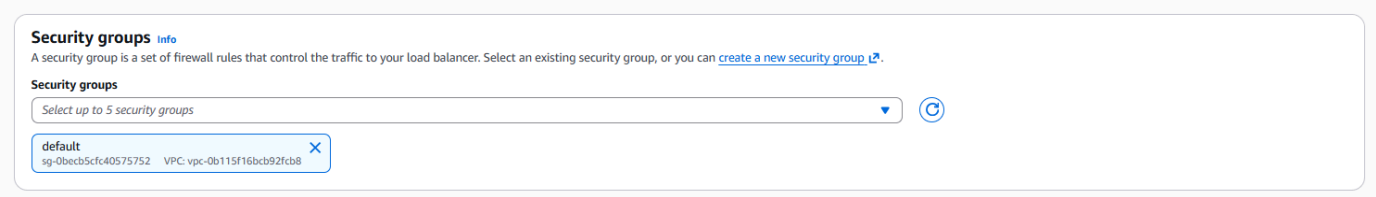
5. Network Mapping:

   - Select VPC

   - Select minimum two Availability Zones

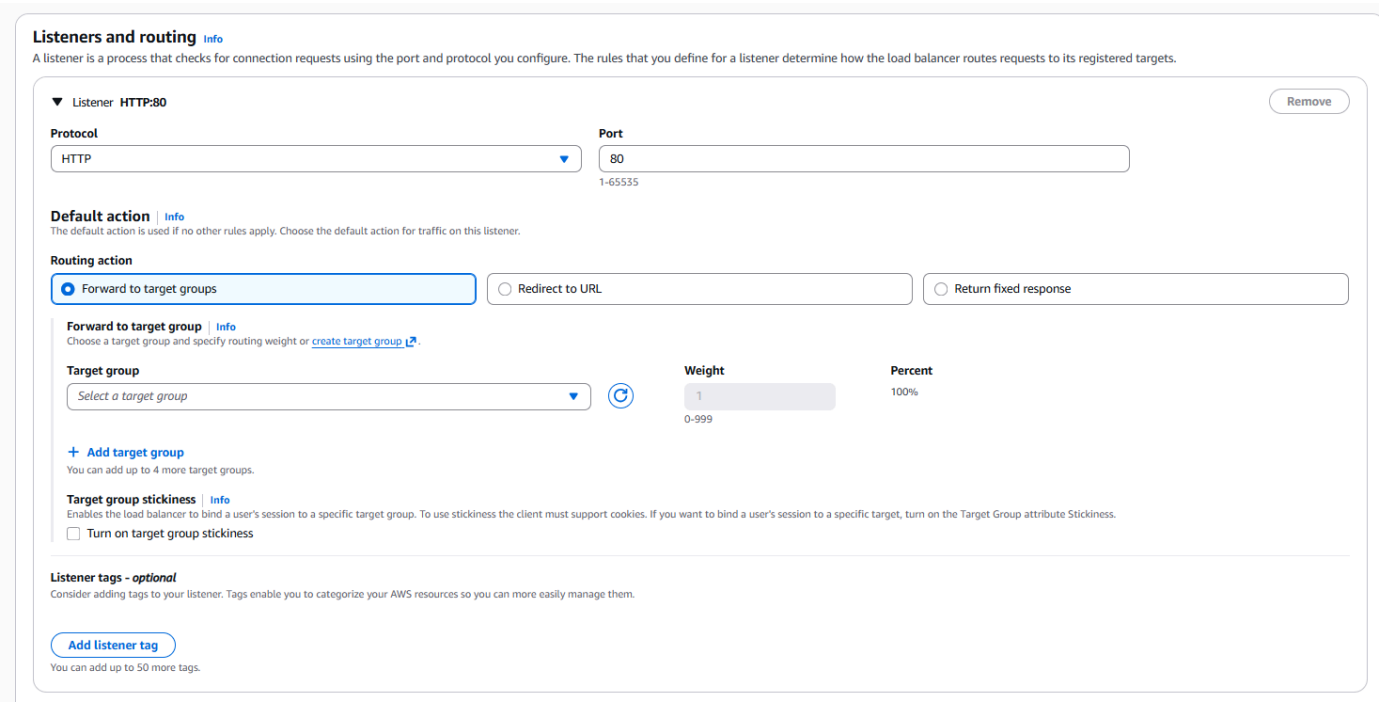


6. Security Groups: - Select or create SG allowing HTTP (80)



7. Listener:

   - HTTP:80 → Forward to my-target-group



8. Click Create Load Balancer

STEP 4 : Update EC2 Security Group

1. Go to EC2 → Security Groups

2. Select EC2 instance security group

3. Edit Inbound Rules:

   - HTTP (80) → Source: Load Balancer Security Group

   - SSH (22) → My IP

4. Save rules

STEP 5 : Verify Target Health

1. Go to EC2 → Target Groups

2. Select my-target-group

3. Open Targets tab

4. Confirm Status = Healthy

STEP 7: Test Load Balancer

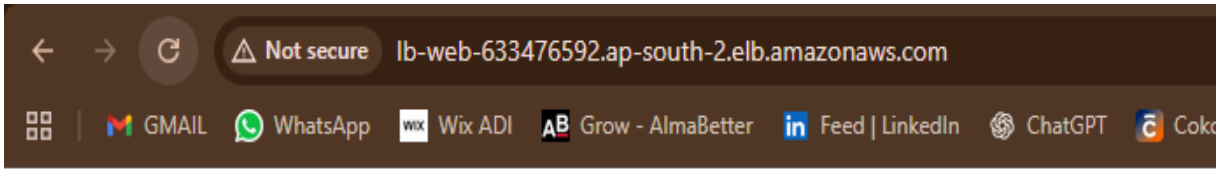
1. Go to EC2 → Load Balancers

2. Copy Load Balancer DNS name

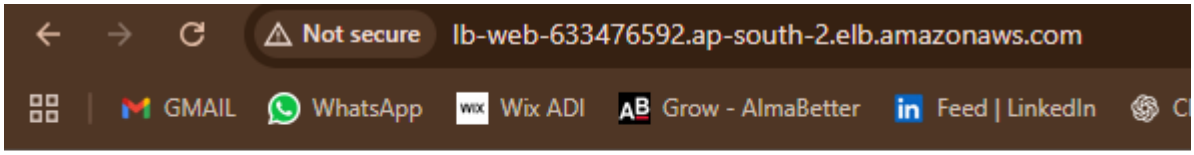
3. Paste DNS in browser

4. Refresh multiple times

5. Observe response switching between EC2 servers



hii Aswin



hii Aswin vtk