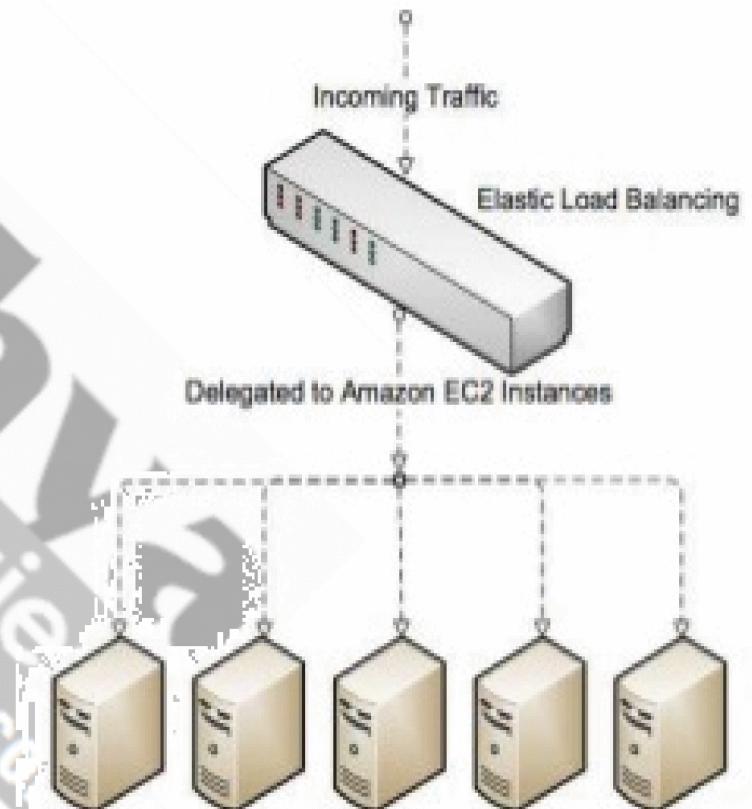


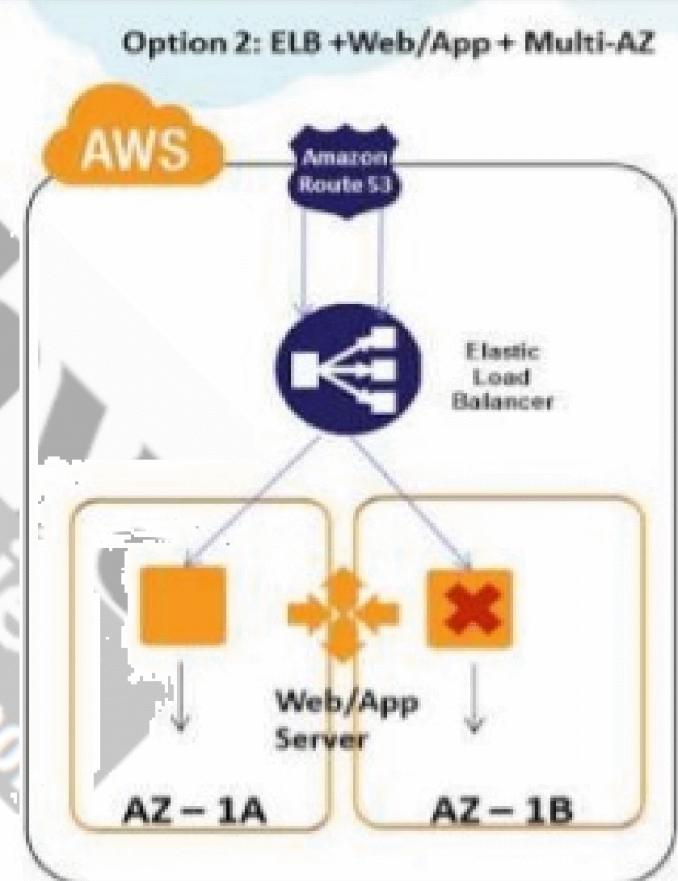
# Elastic Load Balancing

- Elastic Load Balancer distributes incoming traffic across available EC2 instances.
- Monitors EC2's and removes Failed EC2 resources.
- Works in parallel with Auto Scaling to provide FT.



# Load Balancing Tier

- Option 1: **Elastic Load Balancer**
- Inherently Fault Tolerant.
- Automatically distributes incoming traffic among EC2 Instances.
- Automatically creates more ELB EC2 Instance when load increases to avoid SPOF.
- Detects health of EC2 Instances and routes to only healthy instances.



The screenshot shows the AWS EC2 Instances page. On the left sidebar, under the 'INSTANCES' section, 'Instances' is selected. The main content area displays a table of instances:

	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks
	HAProxy	i-05cec71oe728ca650	t2.micro	us-east-2c	stopped	
	Server-1	i-06731a19912d0eb...	t2.micro	us-east-2c	stopped	
	2a-instance	i-072da9f4c49e54ba0	t2.micro	us-east-2a	running	2/2 checks
	2c-instance	i-07e61dc1688372750	t2.micro	us-east-2c	running	2/2 checks
	GIT	i-09713dd0900406e...	t2.micro	us-east-2c	stopped	

A red banner with the text "create two diff. Instances in two diff. availability Zones" is overlaid on the table.

Below the table, a detailed view of the '2c-instance' is shown:

Instance ID	i-07e61dc1688372750	Public DNS (IPv4)	ec2-13-58-88-165.us-east-2.compute.amazonaws.com
Instance state	running	IPv4 Public IP	13.58.88.165
Instance type	t2.micro	IPv6 IPs	-
Elastic IPs		Private DNS	ip-172-31-45-223.us-east-2.compute.internal
Availability zone	us-east-2c	Private IPs	172.31.45.223

← → C ⌂ ⓘ 18.188.77.227

☆ ⌂ G :

**Good day from 2a-Availability Zon**

**mymail2sateesh@gmail.com**

**Hello from 2c-Availability Zone**

**mymail2sateesh@gmail.com**

The screenshot shows the AWS Elastic Load Balancing (ELB) service page. On the left, there's a navigation sidebar with categories like NETWORK & SECURITY, LOAD BALANCING (which is selected and highlighted with a red box), AUTO SCALING, SYSTEMS MANAGER SERVICES, and others. Under LOAD BALANCING, 'Load Balancers' is also highlighted with a red box. The main content area has a header with 'Create Load Balancer' and 'Actions'. Below it is a search bar with the placeholder 'Filter by tags and attributes or search by keyword'. To the right of the search bar are buttons for 'None found' and navigation arrows. A large red arrow points from the bottom of the 'Load Balancers' sidebar box up towards the 'Create Load Balancer' button. The central message says 'You do not have any load balancers in this region.' At the bottom, there's a 'Select a load balancer' section and three small square icons.



## Select load balancer type

Elastic Load Balancing supports three types of load balancers: Application Load Balancers, Network Load Balancers (new), and Classic Load Balancers.

Choose the load balancer type that meets your needs. [Learn more about which load balancer is right for you](#)

### Application Load Balancer

**Create**

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

### Network Load Balancer

**Create**

Choose a Network Load Balancer when you need ultra-high performance and static IP addresses for your application. Operating at the connection level, Network Load Balancers are capable of handling millions of requests per second while maintaining ultra-low latencies.

### Classic Load Balancer

**PREVIOUS GENERATION**  
for HTTP, HTTPS, and TCP

**Create**

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

[Learn more >](#)

[Cancel](#)

The screenshot shows the AWS Elastic Load Balancing wizard at Step 1: Define Load Balancer. The page title is "Define Load Balancer". Below it, a section titled "Basic Configuration" contains the following fields:

- Load Balancer name:** my Classic ELB
- Create LB Inside:** My Default VPC (172.31.0.0/16)
- Create an internal load balancer:**  (what's this?)
- Enable advanced VPC configuration:**

Below these fields is a "Listener Configuration" section with four tabs:

Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port
HTTP	80	HTTP	80

Buttons for "Add" and "Remove" are available for the listener configuration. At the bottom right are "Cancel" and "Next: Assign Security Groups" buttons.

[1. Define Load Balancer](#)[2. Assign Security Groups](#)[3. Configure Security Settings](#)[4. Configure Health Check](#)[5. Add EC2 Instances](#)[6. Add Tags](#)

## Step 1: Define Load Balancer

You will need to select a Subnet for each Availability Zone where you wish traffic to be routed by your load balancer. If you have instances in only one Availability Zone, please select at least two Subnets in different Availability Zones to provide higher availability for your load balancer.

VPC vpc-36325d5e (172.31.0.0/16)

### Available subnets

Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
	us-east-2b	subnet-fcd80586	172.31.16.0/20	

### Selected subnets

Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
	us-east-2a	subnet-8ed5b0e6	172.31.0.0/20	
	us-east-2c	subnet-67d4d92a	172.31.32.0/20	

At least one subnet must be specified for a VPC load balancer.

[Cancel](#)[Next: Assign Security Groups](#)

[1. Define Load Balancer](#)[2. Assign Security Groups](#)[3. Configure Security Settings](#)[4. Configure Health Check](#)[5. Add EC2 Instances](#)[6. Add Tags](#)

## Step 2: Assign Security Groups

You have selected the option of having your Elastic Load Balancer inside of a VPC, which allows you to assign security groups to your load balancer. Please select the security groups to assign to this load balancer. This can be changed at any time.

- Assign a security group:
- Create a **new** security group
  - Select an **existing** security group

Filter [VPC security groups ▾](#)

Security Group ID	Name	Description	Actions
<input type="checkbox"/> sg-c40809af	default	default VPC security group	<a href="#">Copy to new</a>
<input checked="" type="checkbox"/> sg-006f7f11406cf861a	mygroup	launch-wizard-1 created 2018-04-20T18:22:29.832+05:30	<a href="#">Copy to new</a>

[Cancel](#)[Previous](#)[Next: Configure Security Settings](#)

[1. Define Load Balancer](#)[2. Assign Security Groups](#)[3. Configure Security Settings](#)[4. Configure Health Check](#)[5. Add EC2 Instances](#)[6. Add Tags](#)

## Step 3: Configure Security Settings



**Improve your load balancer's security. Your load balancer is not using any secure listener.**

If your traffic to the load balancer needs to be secure, use either the HTTPS or the SSL protocol for your front-end connection. You can go back to the first step to add/configure secure listeners under [Basic Configuration](#) section. You can also continue with current settings.

[Cancel](#)[Previous](#)[Next: Configure Health Check](#)



Ping Protocol

HTTP

Ping Port

80

Ping Path

/index.html

#### Advanced Details

Response Timeout (i)  secondsInterval (i)  secondsUnhealthy threshold (i) Healthy threshold (i) 

\* for every 30 sec it will ping the server  
and it will wait for 5 sec. to get response

\* It will do 10 healthy checks

[Cancel](#)[Previous](#)[Next: Add EC2 Instances](#)



1. Define Load Balancer    2. Assign Security Groups    3. Configure Security Settings    4. Configure Health Check    5. Add EC2 Instances    6. Add Tags

## Step 5: Add EC2 Instances

The table below lists all your running EC2 Instances. Check the boxes in the Select column to add those instances to this load balancer.

VPC vpc-36325d5e (172.31.0.0/16)

Select	Instance	Name	State	Security groups	Zone	Subnet ID	Subnet CIDR
<input type="checkbox"/>	i-09713dd0900406ead	GIT	stopped	mygroup	us-east-2c	subnet-67d4d92a	172.31.32.0/20
<input checked="" type="checkbox"/>	i-07e61dc1688372750	2c-instance	running	mygroup	us-east-2c	subnet-67d4d92a	172.31.32.0/20
<input type="checkbox"/>	i-05cec71ce728ca650	HAProxy	stopped	mygroup	us-east-2c	subnet-67d4d92a	172.31.32.0/20
<input type="checkbox"/>	i-06731a19912d0eb09	Server-1	stopped	mygroup	us-east-2c	subnet-67d4d92a	172.31.32.0/20
<input checked="" type="checkbox"/>	i-072da9f4c49e54ba0	2a-instance	running	mygroup	us-east-2a	subnet-8ed5b0e6	172.31.0.0/20

### Availability Zone Distribution

1 instance in us-east-2a

1 instance in us-east-2c

[Cancel](#)

[Previous](#)

[Next: Add Tags](#)



1. Define Load Balancer
2. Assign Security Groups
3. Configure Security Settings
4. Configure Health Check
5. Add EC2 Instances
6. Add Tags

## Step 6: Add Tags

Apply tags to your resources to help organize and identify them.

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about tagging your Amazon EC2 resources.

Key	Value
<input type="text" value="name"/>	<input type="text" value="myELB"/> <span style="color: red;">×</span>

**Create Tag**

**Cancel** **Previous** **Review and Create**



1. Define Load Balancer
2. Assign Security Groups
3. Configure Security Settings
4. Configure Health Check
5. Add EC2 Instances
6. Add Tags

## Step 7: Review

Please review the load balancer details before continuing

### ▼ Define Load Balancer

[Edit load balancer definition](#)

**Load Balancer name:** myclassELB1

**Scheme:** internet-facing

**Port Configuration:** 80 (HTTP) forwarding to 80 (HTTP)

### ▼ Configure Health Check

[Edit health check](#)

**Ping Target:** HTTP:80/index.html

**Timeout:** 5 seconds

**Interval:** 30 seconds

**Unhealthy threshold:** 2

**Healthy threshold:** 10

### ▼ Add EC2 Instances

[Edit instances](#)

**Cross-Zone Load Balancing:** Enabled

**Connection Draining:** Enabled, 300 seconds

[Cancel](#) [Previous](#) [Create](#)



## Load Balancer Creation Status

Successfully created load balancer

Load balancer [myclassELB1](#) was successfully created.

Note: It may take a few minutes for your instances to become active in the new load balancer.

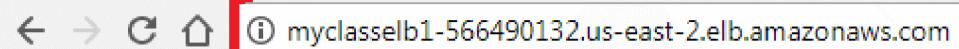
[Close](#)

The screenshot shows the AWS Elastic Load Balancing (ELB) service in the AWS Management Console. On the left, there's a navigation sidebar with categories like ELASTIC BLOCK STORE, NETWORK & SECURITY, LOAD BALANCING (selected), AUTO SCALING, and SYSTEMS MANAGER SERVICES. Under LOAD BALANCING, 'Load Balancers' is selected, and 'Target Groups' is listed below it. The main content area has a header 'Create Load Balancer' and 'Actions'. A search bar at the top says 'Filter by tags and attributes or search by keyword'. Below it, a table lists one load balancer: 'myclassELB1' with the DNS name 'myclassELB1-566490132.us-east-2.elb.amazonaws.com' and VPC ID 'vpc-36325d5e'. A red callout box highlights three points: '\* ELB does not contain public IPs and it contains A-Record', '\* A-Record will map to public IP of any Instance', and '\* copy A-Record / DNS check in Browser'. The 'Basic Configuration' section for 'myclassELB1' shows details: Name: myclassELB1, \* DNS name: myclassELB1-566490132.us-east-2.elb.amazonaws.com (A Record), Type: Classic (Migrate Now), Creation time: April 22, 2018 at 8:29:05 AM UTC+5:30, Hosted zone: Z3AADJGX6KTTL2, Status: 0 of 2 instances in service. A red arrow points from the third bullet point in the callout box down to the 'DNS name' field in the configuration table.

Name	DNS name	State	VPC ID
myclassELB1	myclassELB1-566490132.us-east-2.elb.amazonaws.com	Active	vpc-36325d5e

**Basic Configuration**

Name:	myclassELB1	Creation time:	April 22, 2018 at 8:29:05 AM UTC+5:30
* DNS name:	myclassELB1-566490132.us-east-2.elb.amazonaws.com (A Record)	Hosted zone:	Z3AADJGX6KTTL2
Type:	Classic (Migrate Now)	Status:	0 of 2 instances in service



← → C ⌛ ⌂ ⓘ myclasselb1-566490132.us-east-2.elb.amazonaws.com



**Good day from 2a-Availability Zon**

**mymail2sateesh@gmail.com**