**Elastic Load Balancer**

Our Outline is,

1) What is Elastic Load Balancer and need of ELB?

2) Types of Load Balancers in AWS

* Application Load Balancer (ALB)
* Network Load Balancer (NLB)
* Classic Load Balancer (CLB)

**Elastic LB**: Elastic LB are automatically distributing incoming traffic into multiple targets like EC2 instances, IP addresses and Containers in one or more availability zones.

**Need of Load Balancers**:

In case there is server, it can access by some multiple users, whenever traffic goes high and due to more traffic or for any reason server goes down then nobody cannot access the server.

To avoid this kind of issues we need to add some more servers. In case there are multiple servers, it can access by some multiple users, in case any server goes down we can access it from another server.

For doing this activity who is responsible to distribute the traffic between the servers. For that we are using **ELB**.

The benefits of ELB is to ensure the high availability and fault tolerance.

**Types of Load Balancers:**

1. Application Load Balancer (ALB)
2. Network Load Balancer (NLB)
3. Classic Load Balancer (CLB)

**Application Load Balancer (ALB):**

It is Basically used for the applications. Whenever the demand of application will be very high at that time more than one server are required at that time load balancer becomes into the picture, to distribute the traffic among more than one server.

* It works on 7th layer (Application Layer) of OSI model.
* It supports HTTP and HTTPS protocols Because HTTP and HTTPS are the protocols of application layer.
* Application Load Balancer is best suited for load balancing of HTTP and HTTPS traffic and provides advanced request routing targeted at the delivery of modern application architectures, Including microservices and Containers.
* Application Load Balancer routes traffic to targets within amazon VPC based on the content of the requests.

**Network Load Balancer:**

* It works on 4th layer (Transport Layer) of OSI model.
* It supports TCP and UDP protocols Because TCP and UDP are the protocols of Transport layer.
* Network Load Balancers operates at the connection level of Layer4-Transport layer, it is routing connections to targets like EC2 Servers, Microservices and containers within Amazon VPC, based on the IP protocols.
* Ideal for Load Balancing of both TCP and UDP traffic, Network Load Balancing is capable of handling millions of requests per second while maintaining ultra-low latencies.
* It is integrated with other AWS Services such as Auto Scaling, Amazon EC2, Container Services, Amazon Cloud Formation etc.

**Classic Load Balancer:**

* It is also Known as Previous Generation Load Balancer.
* Its woks on 4th and 7th layer of OSI model. So, it supports HTTP, HTTPS, TCP, and SSL also.

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Creation of Load Balancer on AWS

**Outline**

1. Basic about Elastic Load Balancer
2. Step to Setup Load Balancer on AWS
3. Verification whether Load Balancer is working or not.

**1) Elastic LB**: Elastic LB are automatically distributing incoming traffic into multiple targets like EC2 instances, IP addresses and Containers in one or more availability zones.

2) Step to Setup Load Balancer:

* Create more than servers.
* Install Web Server IIS on all the servers.
* Create Target Group
* Create Load Balancer

1. Configure Load Balancer
2. Configure Security Settings
3. Configure Security Groups
4. Configure Routings
5. Register Targets
6. Review.

Creation of Application Load Balancer using this Steps

Note: Here Create 2 Instances with Different Availability Zones

Let’s Login into AWS console 🡪 Click on Launch an instance 🡪 give Name for the instance 🡪 select the AMI 🡪 Select key pair 🡪 In Security Group “All Traffic” {or} add new Security Groups, (Select HTTP with port “80” and “Anywhere” in Source) and (Select HTTPS with port “443” and “Anywhere” in Source) 🡪 No of instances is “2” 🡪 Click on Launch Instance.

🡺 Click On Right side of EC2 Console “Target Group” 🡪 Click on create Target Group 🡪 here we need to click on “instances” 🡪 Give name for Target Group” 🡪 click on advanced health check settings 🡪 check the default values are there are not 🡪 click on save. 🡺 In Register Targets 🡪 select the instance 🡪 click on Include as pending below 🡪 click on create Target Group.

🡺 On Right side Click on Load Balancer 🡪 click on create Load Balancer 🡪 Select Application Load Balancer here 🡪 give name 🡪 In Availability Zones Select the subnets which are used for instances 🡪 click on Next 🡪Click o Next 🡪 Here Select our Security Groups which are used in Instances 🡪 Click on Next 🡪 here we already have Target Group 🡪 In target group select Existing Target Group 🡪 In Name “Select our target group name” 🡪 Click on Next 🡪 click on Next 🡪 Review and Launch here.

🡺 After the Load Balancer is Successfully completed 🡪 we need to wait for “Active” in state 🡪 Here it comes in Active, Copy the DNS Name 🡪 Paste it in External Browser 🡪 here it shows “Server-1” 🡪 if you refresh the page it comes “Server-2”.

* It means that I will automatically transfer request from one server to another server.
* If you refresh the page it will automatically transfer from one server to another.