



Load Balancer

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Load Balancer

- ✓ LB distributes the web traffic to the available server (or) LB refers to efficient distributing of incoming traffic across a group of backend servers.

LB Types: APP LB, Network LB, Gateway LB, Classic LB.

- An internet facing load balancer has a publicly resolvable DNS name.
- Domain names for content on the ec2 instances served by the ELB, is resolved by the internet DNS server to the ELB DNS name (and hence IP Address).
- This is how traffic from the internet is directed to the ELB front end.
- Classic load balancer services support HTTP, HTTPS, TCP, SSL.
- Protocol ports supported are 1-65535.
- It support IPv4, IPv6 and dual stack.
- App LB distributes incoming app traffic across multiple targets such as EC2 instances in multiple AZ.
- This increases the availability of our application.
- Network LB has ability to handle volatile workloads and scale to millions of requests per second.

ELB Listener

- An ELB listener is the process that checks for connection request.
- We can configure the protocol/port number on which our ELB listener listen for connection request.
- Frontend listeners check for traffic from client to the listener.
- Backend listeners are configured with protocol/port to check for traffic from the ELB to the EC2 instances.
- It may take some time for the registration of the EC2 instances under the ELB to complete.
- Registered EC2 instances are those that are defined under the ELB.
- ELB has nothing to do with the outbound traffic that is initiated/generated from the registered EC2 instances destined to the internet or to any other instances within the VPC.

ELB Listener

- ELB only has to do with inbound traffic destined to the EC2 registered instances (as the destination) and the respective return traffic.
- We start to be charged hourly(also for partial hours) once our ELB is active.
- If we do not want to be charged as we do not need ELB anymore, we can delete it.
- Before we delete the ELB, it is recommended that we point the route 53 to somewhere else other than the ELB.
- Deleting the ELB does not affect or delete the EC2 instance registered with it.
- ELB forwards traffic to eth0 of our registered instance.
- In case the ec2 registered instances has multiple IP address on eth0,elb will route the traffic to its primary IP address.

How LB finds Unhealthy Instances

- ELB supports IPv4 address only in VPC.
- To ensure that the ELB service can scale ELB nodes in each AZ, ensure that the subnet defined for the LB is at least /27 in a size, and has at least 8 available IP addresses for the ELB nodes an use to scale.
- For fault tolerance, it is recommended that we distribute our registered EC2 instances across multiple AZ, within the VPC region.
- If possible, try to allocate same number of registered instances in each AZ.
- The LB also monitors the health of its reg. instances and ensure that it routes traffic only to healthy instances.
- A healthy instances show as 'healthy' under ELB.
- When the ELB detects an unhealthy instance it stop routing traffic to the instance.
- ■ ■ ■ • An unhealthy instance shows 'unhealthy' under the ELB.
- ■ ■ ■ • By default AWS console uses ping HTTP (port80) for health check.
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How LB finds Unhealthy Instances

- Registered instances must respond with a http 200 Ok message within the timeout period else it will be considered as Unhealthy. AWS API uses ping TCP(port 80) for health check.
- Response timeout is 5 sec (range is 2-60sec).
- Health check interval : Period of time between health checks -default 30 sec (range from 5 to 300 sec).
- Unhealthy Threshold : Number of consecutive failed health check that should occur before the instance is declared unhealthy(range is 2-10) - Default 2.
- Healthy Threshold : Number of consecutive successful health check that must occur before the instance considered unhealthy (range 2-10)-Default – 10.
- By default the ELB distributes traffic evenly between the AZ it is defined in without consideration to the number of registered EC2 instances in each AZ.

Internet Facing or Internal Facing

- ✓ An ELB can be Internet Facing or Internal Facing :

Internet Facing

- ELB nodes will have public IP address.
- DNS will resolve the ELB DNS name to these IP addresses.
- It routes traffic to the private IP address of our instances with private IP.
- We need an public subnet in each AZ where the internet facing ELB will be defined, such that the ELB will be able to route Internet Traffic.
- Format of the public ELB DNS name of internet facing ELB : name-1234567890region.elb. Amazonaws.com.

Internal Facing

- internal-name 1234567890region.elb. amazonaws.com

ELB Listener & Target Group

ELB Listener

- An ELB Listener is the process that checks for connection request.
- Each Network LB needs at least one listener to accept traffic.
- We must assign a security group to our ELB. This will control traffic that can reach our ELB front end listeners.

Target Group

- Logical grouping of targets behind the load balancer.
- TG can exist independently from the load balancer.
- TG can be associated with an autoscaling group.
- TG can contain upto 200 Targets.



Thanks!

Any questions?

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