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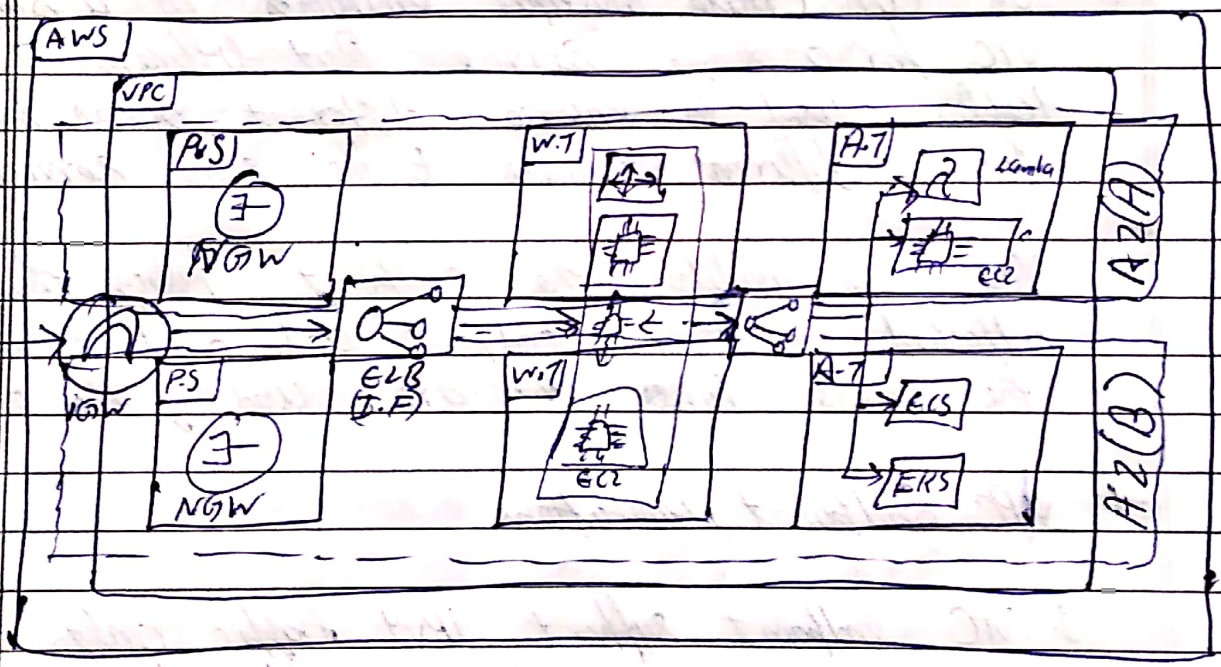
AWS - ELASTIC LOAD BALANCER [ELB]

AWS-ELB automatically distributes your incoming traffic across multiple targets, such as EC2 instances, Containers and IP addresses, in one or more Availability Zones. It monitors the health of its registered targets, and routes traffic only to healthy targets.



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ELB Types:

- Application Load Balancer (ALB)
- Network Load Balancer (NLB)
- Gateway Load Balancer [GWLB]
- Classic Load Balancer [CLB]

ELB Schemes:

- Internet-facing: ELB nodes having public IP addresses.
- Internal: ELB nodes have private IP addresses.

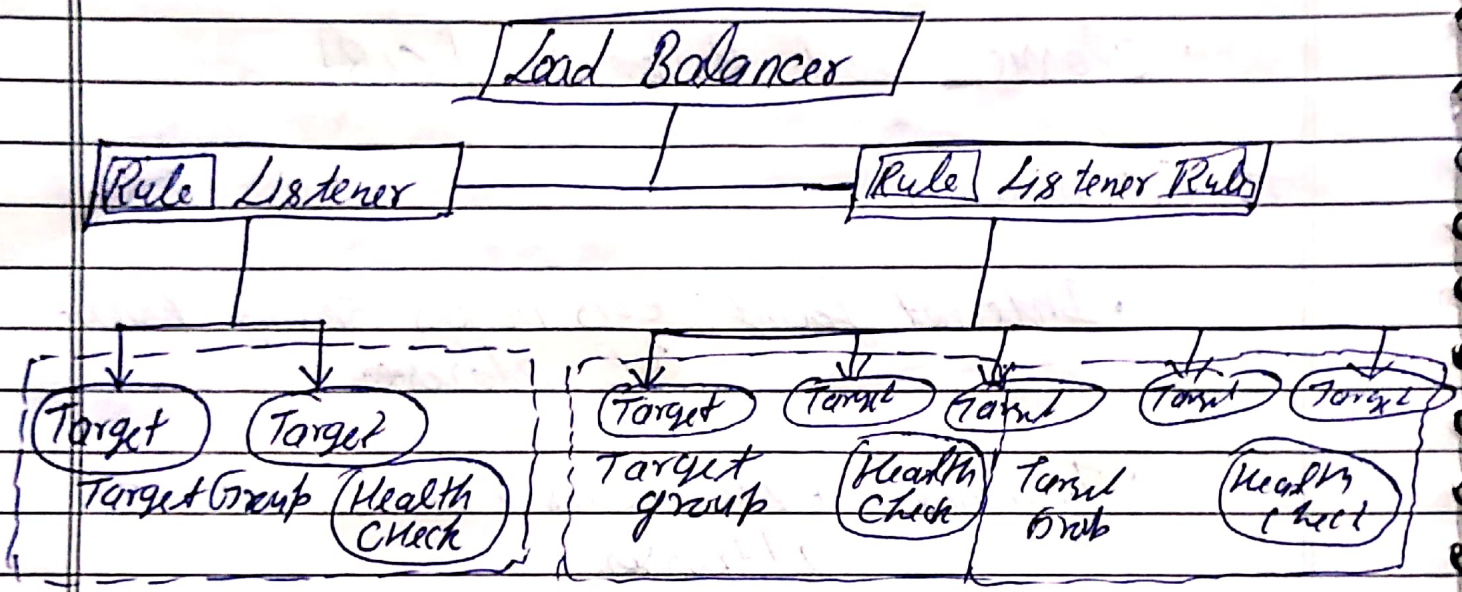
Both internet-facing and internal load balancer route requests to your targets using private IP addresses. Therefore, your target do not need public IP addresses to receive request from an internal or an internet facing load balancer.

ELB Target Types:

ELB distribute incoming traffic to:

- Instance [EC2, EC2 with Auto Scaling, Containers with ECS]
- IP addresses [VPC Subnets, RFC 1918 CIDR, On-premises with Direct Connect or Site-to-Side VPN]
- Lambda functions (for ALB type)

ELB Components Architecture



ELB Load Balancer serves as a single point of Contact for clients and distributes incoming application traffic across multiple health registered targets, such as EC2 instance in multiple Availability Zones.

Listeners:

- Listener check for connection request from clients using protocol and port that you configure
- Listener defines how your inbound connections are routed to your target groups based on rules.
- For every load Balancer, you must configure at least one lister.

Rules: The rules that you define for a listener determine how to load balancer route requests to its registered targets.

- Each rule consist of priority, one or more actions, and one or more conditions
- Each listener has a default rule, and you can optionally define additional rules.

Target Groups:

- A target group is a group of resources that you want your ELB to route request to

- ~~You can Configure your ELB to route request to with~~

- You can Configure your ELB with a number of different target groups, each associated with different listener Configuration and associated rules.

- Each target group routes requests to one or more registered targets, such as EC2 instance, using the protocol and port number that you specify.

- You can register a target with multiple target groups.

⇒ Health Check ⇒ To discover the availability of your targets (eg. EC2 instance) a load balancer periodically send pings attempts connections or sends requests to test the EC2 ~~is~~ instance. These tests are called health checks.

- You can Configure health check on per target group basis.

ELB Key Points

- ELB is one of the most the ideal sol. for adding elasticity to your application.
- ELB does not have defined IPV4 addresses it is resolved using DNS name.
- ELB can manage traffic within a region and not across multiple regions.
- You can specify only one subnet per Availability Zone (AZ).
- ELB has more then one listeners. e.g HTTP, HTTPS
- For internet-facing load balancer, the IPV4 addresses of the nodes are assigned by AWS. For internal load balancers, the IPV4 address are assigned from the subnet CIDR.
- To ensure the traffic is evenly distributed you need to ensure the "Cross-Zone Load balancing" option is enabled.