Amazon
Route 53

❖ AMAZON ROUTE-53:

- Amazon Route 53 is a scalable **Domain Name System (DNS).**
- DNS is a globally distributed service that translates human readable names like **www.example.com** into the numeric IP addresses like **192.168.10.10** those computers use to connect to each other.
- Amazon Route 53 provides highly available and scalable Domain Name System (DNS), domain name registration, and health-checking web services.
- Route 53 can create and manage your public DNS records.
- Route 53 is commonly used with an ELB to direct traffic from the domain to the ELB.
- Route 53 can also be used to manage internal DNS for custom internal hostnames within a VPC as long as the VPC is configured for it.

➤ KEY FEATURES:

DOMAIN REGISTRATION:
- A domain name registrar is an organization that manages the reservation of Internet domain names.

DOMAIN NAME SYSTEM SERVICE:
- It translates friendly domain names like www.cloudans.co.in into numeric IP address like 192.168.10.10.
- Amazon Route 53 responds to DNS queries using a global network of authoritative DNS servers which reduces latency.

TRAFFIC MANAGEMENT:
- Amazon Route 53 Traffic Flow is an easy-to-use and cost-effective global traffic management service.
- Route 53 traffic flow provides a visual tool that you can use to create and update sophisticated routing policies to route end users to multiple endpoints for your application.

HEALTH CHECKING:
- Health checks are automated requests sent over the Internet to your application to verify that your application is reachable, available, and functional.

➢ ROUTE 53 HOSTED ZONES:

- A hosted zone is a container for records, and records contain information about how you want to route traffic for a specific domain
- A hosted zone is analogous to a traditional DNS zone file; it represents a collection of records that can be managed together, belonging to a single parent domain name. All resource record sets within a hosted zone must have the hosted zone's domain name as a suffix.
- Hosted zones come pre-populated with NS (Name Server) and SOA (Start of Authority) record sets.
- There are both Public and Private hosted Zones.

PUBLIC HOSTED ZONES:
- It contains records that specify how you want to route traffic on the internet. For more information, see Working with public hosted zones.

PRIVATE HOSTED ZONES:
- It contains records that specify how you want to route traffic in an Amazon VPC. For more information, see Working with private hosted zones.

➢ RECORD SETS:

- DNS manages all DNS records using record sets.
- A record set (also known as a resource record set) is the collection of DNS records in a zone that have the same name and are of the same type. Most record sets contain a single record.

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A (address record)	**:** Point a domain to an IPV4 address.
AAAA (IPv6 address)	**:** Point a domain to an IPV6 address.
CNAME (canonical name)	**:** Translates one domain name to another.
NS (name server)	**:** Nodes that hold information about a given name.
PTR (pointer record)	**:** Reverse DNS records (opposite to what A record does).
SOA (start of authority record)	**:** Manager of DNS. Overall information about domain.
TTL (Time to Live)	**:** Storage time for cached results.

➢ ROUTING POLICIES:

- When you create a record, you choose a routing policy, which determines how Amazon Route 53 responds to queries:
- DNS routing policies steer traffic based on query (for example, round robin or geolocation). You can configure routing policies by creating special ResourceRecordSets (in the collection sense) with special routing policy values.

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Simple	: Route all traffic to one endpoint.
Weighted	: Route traffic to multiple endpoints (Manual Load Balancing)
Geolocation	: Route traffic to an endpoint based on the geographical location of the user.
Latency	: Route traffic to an endpoint based on the user's latency to various endpoints.
Failover	: Route Traffic to a "Secondary" endpoint if the "Primary" is unavailable.
Multivalue answer	: Route traffic to DNS queries with up to eight healthy records selected at random.

SIMPLE ROUTING POLICY:
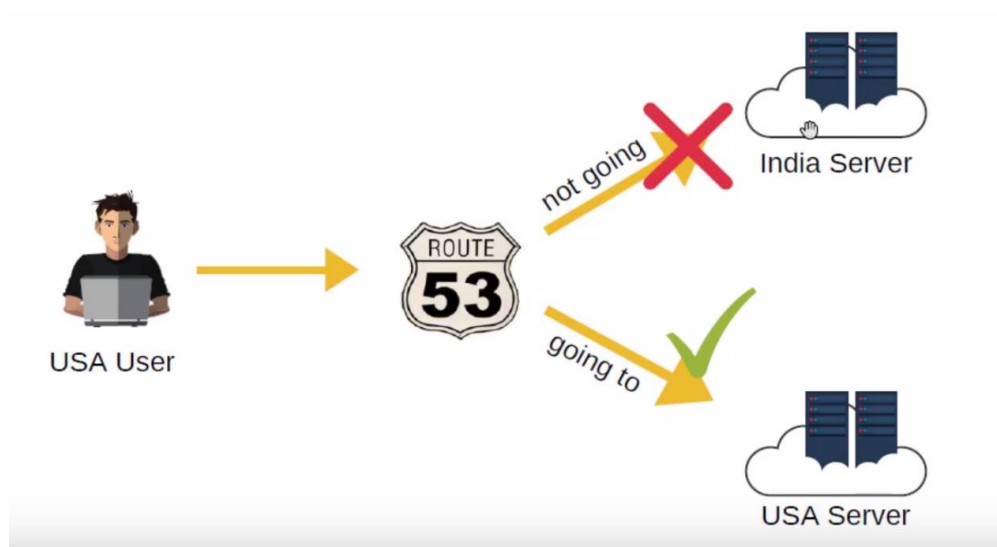
- Route all traffic to one endpoint.
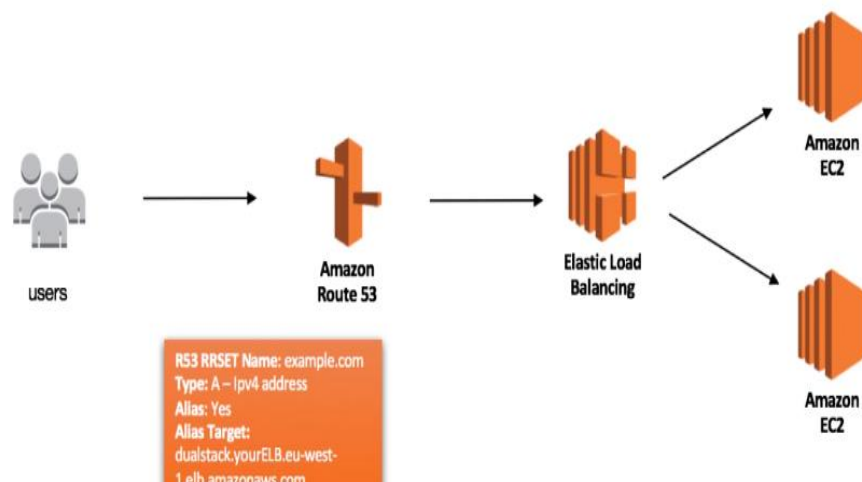
WEIGHTED ROUTING POLICY:

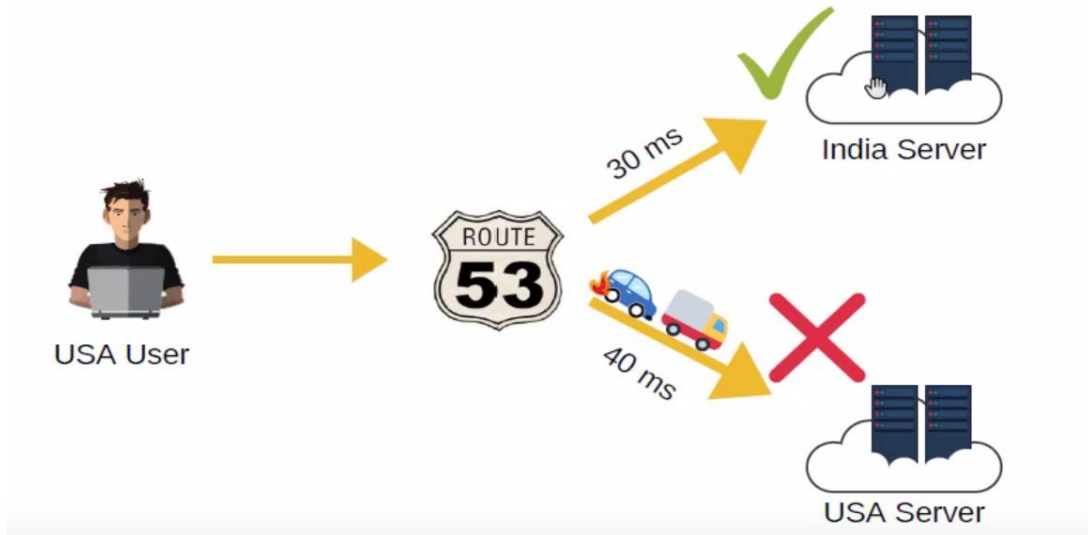- Route traffic to multiple resources in proportions that you specify.
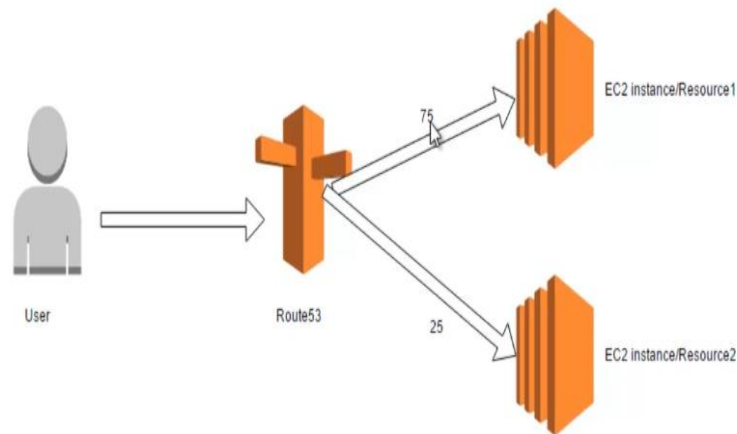
GEOLOCATION ROUTING POLICY:

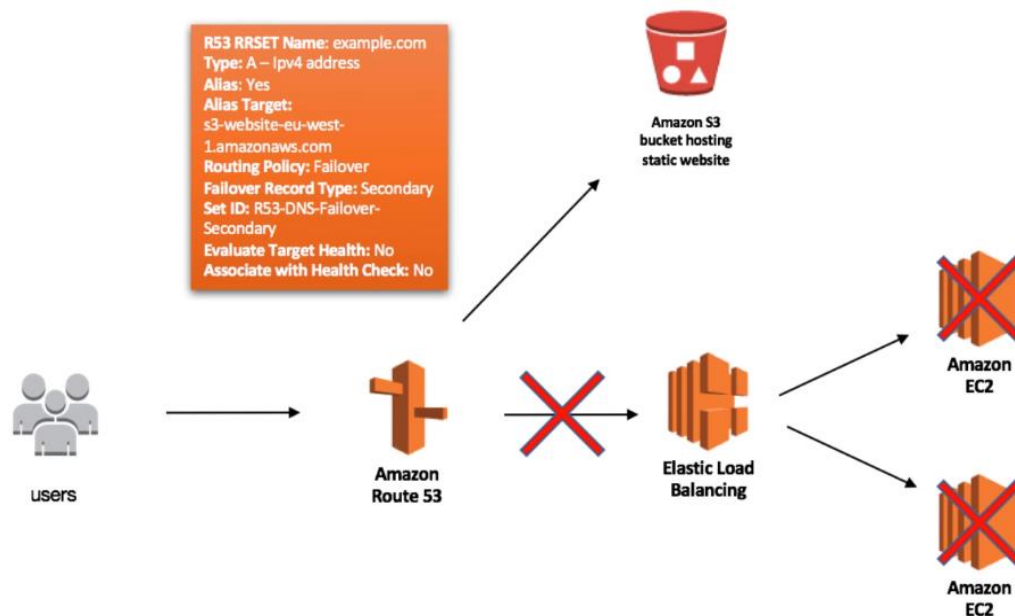- Route traffic to an endpoint based on the geographical location of the user.

LATENCY ROUTING POLICY:

- Route traffic to an endpoint based on the user's latency to various endpoints.

FAILOVER ROUTING POLICY:

- Route Traffic to a "Secondary" endpoint if the "Primary" is unavailable.

S3 FOR DNS FAILOVER:

- By using a failover routing policy in a Route 53 record set, an S3 bucket can be used as a failover endpoint.
- This can provide an extremely reliable backup solution if your primary endpoint fails.
- And even though S3 should only be used for static web hosting, it gives you the opportunity to provide your users with some type of information until the primary endpoint is working again.
- An S3 bucket can also be used as a primary endpoint, if you just want to host a simple static website.

  NOTE: For a DNS record to use an S3 bucket as an endpoint, the bucket name must be the same as the domain name.

➢ HEALTH CHECKS:

- Amazon Route 53 health checks monitor the health and performance of your web applications, web servers, and other resources.
- Each health check that you create can monitor one of the following:
  - The health of a specified resource, such as a web server.
  - The status of other health checks.
  - The status of an Amazon CloudWatch alarm.