



Route53

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ROUTE53

Amazon Route 53 is a highly available and scalable cloud Domain Name System (DNS) web service. It is designed to give developers and businesses an extremely reliable and cost effective way to route end users to Internet applications by translating names like `www.example.com` into the numeric IP addresses like `192.0.2.1` that computers use to connect to each other. Amazon Route 53 is fully compliant with IPv6 as well.

Benefits:

- Highly Available and Reliable
- Flexible
- Use with other AWS Services
- Simple
- Fast
- Cost-effective
- Secure
- Scalable
- Simplify the Hybrid Cloud

Domain Name System (DNS): DNS is the Internet Equivalent of a phonebook. They maintain a directory called Hosted Zone of domain names and translate them to IP Address.

Every website will be accessible with the help of DNS, when you type `nareshit.com` it will retrieve the actual IP Address of the website and the request will be redirected to the actual IP Address.

Top-Level Domains (TLD):

A top-level domain (TLD) is one of the domains at the highest level in the hierarchical Domain Name System of the Internet after the root domain.

Ex: `.com`, `.org`, `.net` etc..

These top level domain names are managed and controlled by the organization called ICANN (Internet Corporation for Assigned Names and Numbers)

Each Domain name will be registered in a central database, known as the Whois (`who.is`) Database.

Domain Name Registrars: All the domain names must be unique and they need to be managed by someone, so that the domain names aren't duplicated. This is where domain name registrars come in.

A domain Name registrar is an organization that manages the reservation of Internet Domain names.

Popular Domain Registrars: `godaddy.com`, `bigrock.in`, `namecheap.com`, `amazon route53` etc..

Route53 acts as a Domain registrar as well as a DNS service.

Route53 allows you to transfer your domain name from another registrar to Route53.

Route53 Records: DNS service contains different types of records, we create records to tell the DNS, how you want to traffic to be routed for that domain

Amazon Route53 supports the DNS record types that are listed below.

NS: An NS record identifies the name servers for the hosted zone. Note the following:

1. The most common use for an NS record is to control how internet traffic is routed for a domain.
2. You can create a separate hosted zone for a subdomain (acme.example.com) and use that hosted zone to route internet traffic for the subdomain and its subdomains

SOA: A start of authority (SOA) record provides information about a domain and the corresponding Amazon Route 53 hosted zone.

A : To route traffic to a resource, such as a web server, using an IPv4 address

AAAA: To route traffic to a resource, such as a web server, using an IPv6 address

CNAME: A CNAME record maps DNS queries for the name of the current record, such as blog.example.com, to another domain (example.com or example.net) or subdomain (blog1.example.com or blog2.example.org).

MX: An MX record specifies the names of your mail servers and, if you have two or more mail servers, the priority order. Each value for an MX record contains two values, priority and domain name.

CAA: specifies which certificate authorities (CAs) are allowed to issue certificates for a domain or subdomain

DS: A delegation signer (DS) record refers a zone key for a delegated subdomain zone

NAPTR: A Name Authority Pointer (NAPTR) is a type of record that is used by Dynamic Delegation Discovery System (DDDS) applications to convert one value to another or to replace one value with another. For example, one common use is to convert phone numbers into SIP URIs.

PTR: A PTR record maps an IP address to the corresponding domain name.

SPF: SPF records were formerly used to verify the identity of the sender of email messages.

SRV: An SRV record Value element consists of four space-separated values. The first three values are decimal numbers representing priority, weight, and port. The fourth value is a domain name. SRV records are used for accessing services, such as a service for email or communications.

TXT: A TXT record contains one or more strings that are enclosed in double quotation marks ("). When you use the simple routing policy, include all values for a domain (example.com) or subdomain (www.example.com) in the same TXT record.

Note: AWS will charge 0.50\$ per Hosted Zone per month

Routing Policies:

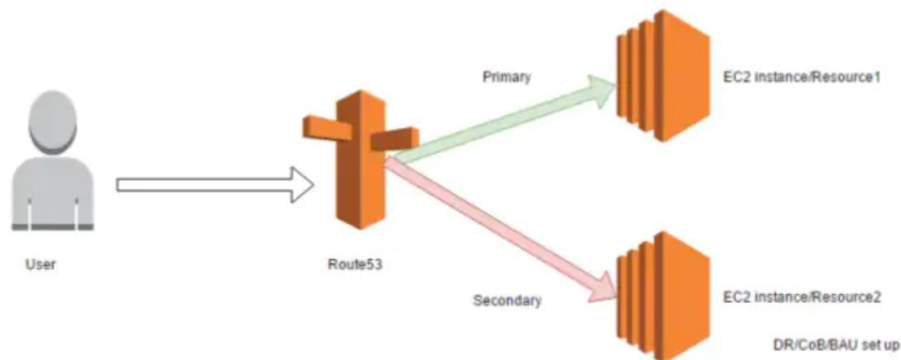
When you create a record, you choose a routing policy, which determines how Amazon Route 53 responds to queries:

- Simple Routing
- Failover Routing
- Geo Location Routing
- Latency-based Routing
- Multivalue Answer Routing
- Weighted Routing

Simple Routing: Simple routing lets you configure standard DNS records, with no special Route 53 routing. With simple routing, you typically route traffic to a single resource, for example, to a web server for your website.

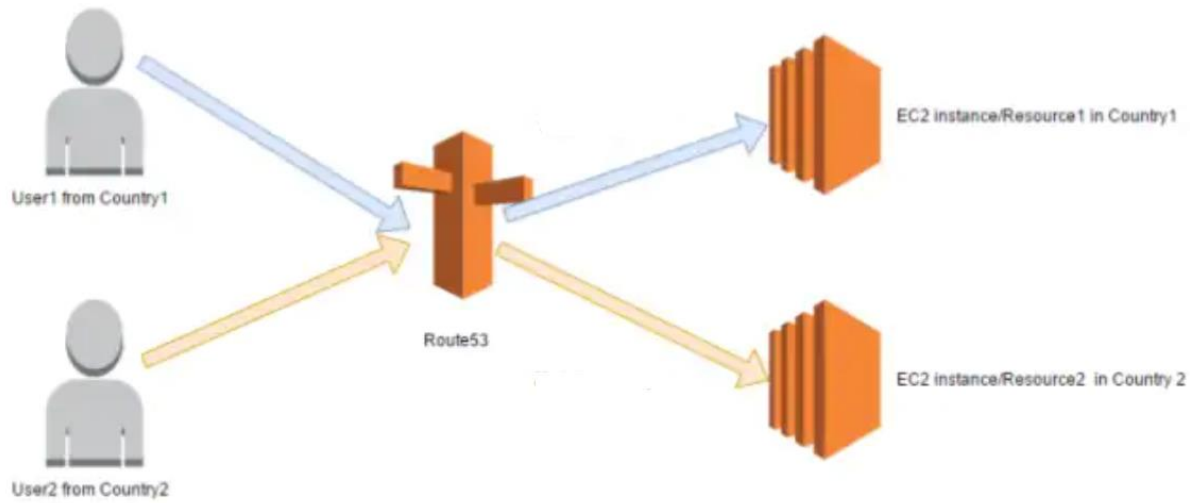


Failover Routing: Failover routing lets you route traffic to a resource when the resource is healthy or to a different resource when the first resource is unhealthy.

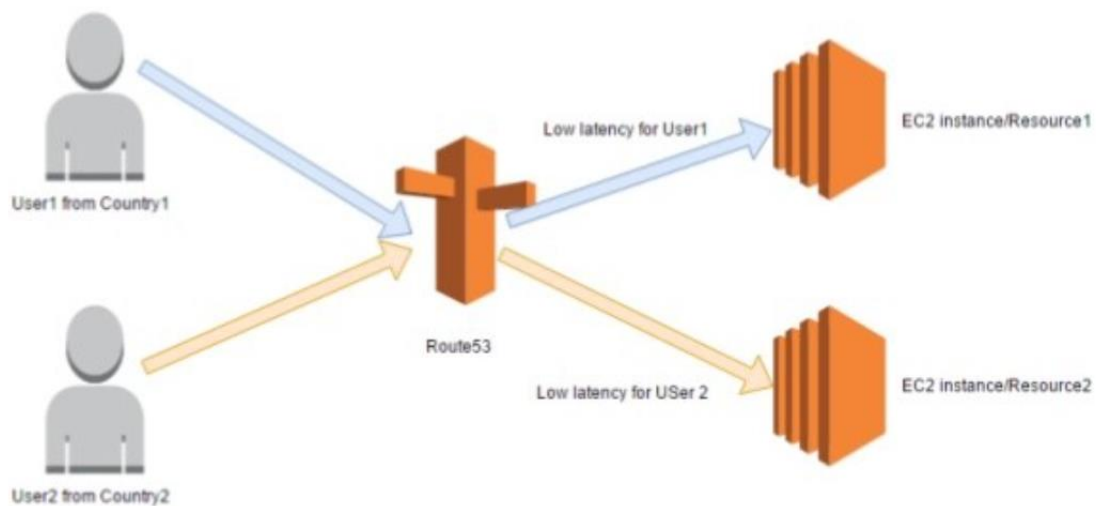


Geo Location Routing: Geolocation routing lets you choose the resources that serve your traffic based on the geographic location of your users, meaning the location that DNS queries originate from. For example, you might want all queries from Europe to be routed to an ELB load balancer in the Frankfurt region.

You can specify geographic locations by continent, by country, or by state in the United States. If you create separate records for overlapping geographic regions—for example, one record for North America and one for Canada—priority goes to the smallest geographic region.



Latency-Based Routing: If your application is hosted in multiple AWS Regions, you can improve performance for your users by serving their requests from the AWS Region that provides the lowest latency.



When Route 53 receives a DNS query for your domain (example.com), it determines which AWS Regions you've created latency records for, determines which region gives the user the lowest latency, and then selects a latency record for that region.

Multivalue Answer Routing: Multivalue answer routing lets you configure Amazon Route 53 to return multiple values, such as IP addresses for your web servers, in response to DNS queries. You can specify multiple values for almost any record, but multivalue answer routing also lets you check the health of each resource, so Route 53 returns only values for healthy resources. It's not a substitute for a load balancer.

Weighted Routing: Weighted routing lets you associate multiple resources with a single domain name (example.com) or subdomain name (acme.example.com) and choose how much traffic is routed to each resource.

