AWS Route 53 Notes

What is DNS:
DNS is a globally distributed service that translates human readable domain names
(like www.myfacebook.com) into their corresponding IP addresses (like 180.210.160.210)
of machines where the servers actually live.
The servers are responsible for delivering the content that we want to see,
and the DNS system is how we get there.

This request to resolve a domain name into its numerical IP address is called a
"query".
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How does DNS route traffic to your web application/server?

1) A user opens a web browser, enters www.myfacebook.com in the address bar,
and presses Enter.

2) The request for www.myfacebook.com is routed to a DNS resolver, which is typically
managed by the user's Internet service provider (ISP),
such as a cable Internet provider, a DSL broadband provider, or a corporate network.

3) The DNS resolver for the ISP forwards the request for www.myfacebook.com to
a DNS root name server.

4) The DNS resolver for the ISP forwards the request for www.myfacebook.com again,
this time to one of the TLD name servers for .com domains.

5) The name server for .com domains responds to the request with the names of the
four Amazon Route 53 name servers that are associated with the myfacebook.com domain.

6) The DNS resolver for the ISP chooses an Amazon Route 53 name server and
forwards the request for www.myfacebook.com to that name server.

7)The Amazon Route 53 name server looks in the myfacebook.com hosted zone
for the www.myfacebook.com record, gets the associated value, such as the IP address
for a web server, 180.210.160.210, and returns the IP address to the DNS resolver.

8)The DNS resolver for the ISP finally has the IP address that the user needs.
The resolver returns that value to the web browser.
The DNS resolver also caches (stores) the IP address for myfacebook.com for
an amount of time(TTL) that you specify so that it can respond more quickly the next
time someone browses to myfacebook.com.

9)The web browser sends a request for www.myfacebook.com to the IP address
that it got from the DNS resolver. This is where your content is, for example,
a web server running on an Amazon EC2 instance .
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Types of DNS systems :
Recursive DNS: Clients typically first connect to a Recursive DNS which knows where
to get the corresponding IP address for a domain. It will connect to an
Authoritative DNS to get this information, then cache this information for a

period of time. Recursive DNS does not itself have the target IP addresses.

Authoritative DNS: This type of DNS is the final authority on DNS information. They keep the IP addresses for domain names, and provide an update mechanism for changing those values.

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Route 53
Route 53 is an Authoritative, highly available and scalable cloud DNS management service provided by AWS. It is reliable and cost-effective. It is compatible with IPv6 also. Route 53 allows management of mappings between domain names and IP addresses (records), and replies to "queries" for translating domain names to their corresponding IP addresses.

Route53 policies:

1)Simple :

2)Weight-based routing: Weights can be assigned to different record sets for the same DNS name to manage the proportion of traffic to be routed to a given record set.
For example, one record can have a weight of 1, and another a weight of 3, meaning the first record will be returned 25% of the time.
This is useful for doing A/B testing, by routing a portion of the traffic to another cluster. Weights can have values between 0 and 255.

3) Latency-based routing: Users will be routed to the AWS region that provides the lowest latency.

4) Geo-routing: Users will be routed to different endpoints based on where the request comes from. This is useful for serving localised content, such as serving content in the right language or restricting content to only certain locations.
Routing can be localised by continent, country, and state.
Geo-routing can be combined with latency-based routing and DNS failover.
A global record can be created which will be returned in case Route 53 can't figure out where the request comes from, or if you haven't configured that location.
Records can also overlap, and Route 53 will return the most specific record.
If it doesn't find one, it will travel up and return the first one it finds.
First it will return the record for the state, if found, or the country, or the continent, or finally the global record.

5) failover: Route 53 will monitor health of applications and route requests awayfrom unhealthy resources. Useful for creating backup sites.

Hosted Zones
A hosted zone is a Route 53 concept which designed to allow easy management of multiple domain names and records. Each hosted zone is created for a second-level domain, such as "intelliq.in" can in turn contain records and sub-domains for that second-level domain. Route 53 allows creation of multiple hosted zones for the same second-level domain, allowing for the creation of "test" and "production" set ups.

2)There are 2 type of hosted zones

a) public: It is accessble from any where
b) private: this type hosted zones are accessble within a VPC only.

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DNS, or the Domain Name System, is what translates human-readable domain names like ayushsharma.in to the IP address of the machine which hosts the files and services for that domain.

When you enter a domain name into your browser, it looks up the IP address of the machine where the files for the domain name reside, and serves those files back to you. That's a basic working of DNS, and it's in play every time you browse the web.

DNS has several record types that have different functions, and unless you have your own website and domain name, you'll rarely have to interact with them. In the event that you do, here are the basic record types.

A Record
It maps a human-readable domain to the IP address of the machine where your files reside.

AAAA Record
Same as the A record, except this is for IPv6 addresses.

CNAME Record
Canonical name refers to an alias. It is used to map an alias to a true or canonical domain name. For example, www.google.in maps to docs.google.in. You can use it to map one sub-domain to another.

NS Record
Name server records point to the servers that host DNS information. You'll generally have primary and secondary name server records.

MX Record
Mail exchanger records determine where to send the email sent to your domain.

TXT Record
This is a generic record, and can contain human-readable or machine-readable data used for a number services. It is useful for proving ownership of the domain, or for implementing security protocols such as SPF and DKIM.

TTL
TTL, or time-to-live, determines how many seconds the name server caches your information for.