Route 53

What is DNS ?

- If you've used the internet, you've used DNS. DNS is used to convert human friendly domain names (Such as http://netleap.co.in) into an Internet Protocol (IP) address (Such as http://82.124.52.1).

- IP addresses are used by computers to identify each other on the network. IP addresses commonly come in 2 different forms, IPv4 and IPv6.

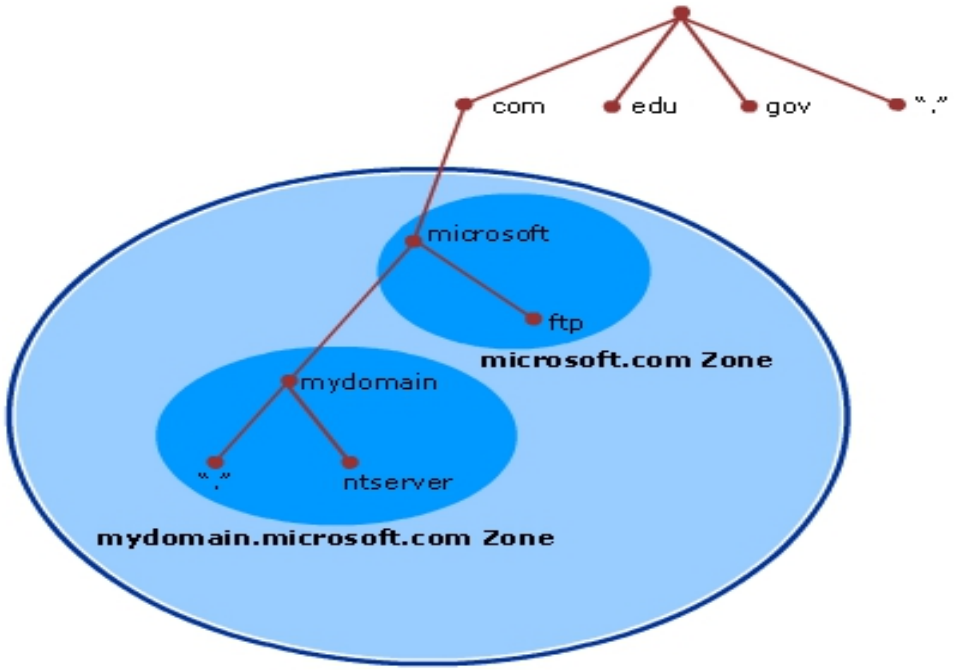
*****IPv4 Addresses are running out…….********

- The IPv4 space is a 32 bit filed and has over 4 billion different addresses (4,294,967,296 to be precise).

- IPv6 was created to solve this depletion issue and has an address space of 128 bits which in theory is 340,282,366,920,412,549,698,238,496,234,645,897,479,945, ……and so on…….addresses or 340 undecillion addresses.

Top Level Domains ?

- If we look at common domain names such as google.com,bbc.co.uk, youtube.com. You will notice a string of characters seprated by dots (periods). The last word in a domain name represents the "Top Level Domain". The Second word in a domain name is known as a Second Level Domain (this is optional through and depends on the domain name).



Ex - .com
.edu
.gov
netleap.co.in
.gov.org
Gov.in

- These top level domain names are controlled by the **Internet Assigned Numbers Authority (IANA)** in a root zone database which is essentially a database of all available top level domains. You can view this database by visiting :

http://www.iana.org/domain/root/db

What is Domain Registrars ?

- Because all of the names in a given domain name have to be unique there need to be a way to organize this all so that domain names aren't duplicated. This is where domain registers came in.

- A Registrar is an authority that can assign domain names directly under one or more top level domains. These domains are registered with InterNIC, a service of ICANN, which enforces uniqueness of domain names across the Internet.

- Each domain name becomes registered in a central database known as the WhoIS database.

- Popular domain registrars include

Example - Amazon, GoDaddy.com, 123-reg.co.uk etc.

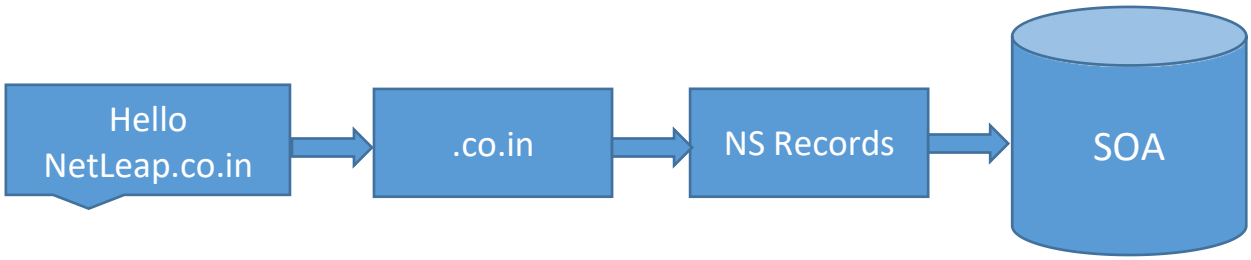
Domain Records ?

1 - SOA Record (Start of Authority)

-The Name of the Server that supplied the data for the zone.
-The administrator of the zone.
-The current version of the data file.
- The default number of seconds for the time-to-live file on resource records.

2 - NS Record

-They are used by Top Level Domain Servers to direct traffic to the content DNS Server which contains the Authoritative DNS records.



Hello NetLeap.co.in. To 17280 IN NS ns.hiox.co.in

3 - A record

- An “A” record is the fundamental type of DNS record. The “A” in A record stands for “Address”. The A record is used by a computer to translate the name of the domain to an IP address.

Example - http://www.netleap.co.in might be point to http://123.10.20.69.

What is TTL ?

- The length that a DNS record is cached on either the Resolving Server or the users own local PC is equal to the value of the “Time to Live (TTL)” in seconds. The Lower the time to live, the faster changes to DNS records take to propagate throughout the internet.

What is CName ?

- A Cannonical Name (CName) can be used to resolve one domain name to another.

Example - you may have a mobile website with the domain name http://m.netleap.co.in that is used for when users browse to your domain name on their mobile devices. You may want the name http://mobile.netleap.co.in to resolve to this same address.

What is Alias Records ?

- Alias records are used to map resource record sets in your hosted zone to Elastic Load Balancers, CloudFront distributions, or S3 buckets that are configured as websites.
- Alias records work like a CNAME record in that you can map one DNS name (www.example.com) to another "target" DNS name (elb1234.elb.amazonaws.com)

- Key Difference - A CNAME can't be used for naked domain names (name apex record). You can't have a CNAM for http://netleap.co.in , it must be either an A record or an Alias.

Exam Points

- ELBs do not have pre defined IPv4 addresses: you resolve to them using a DNS name.
- Understand the difference between an Alias Record and a CNAME.
- Given the choice, always choose an Alias Record over a CNAME.

Common DNS Types

- SOA Records
- NS Records
- A Records
- CNAMES
- MX Records
- PTR Records