Amazon Route 53

CLARUSWAY
WAY TO REINVENT YOURSELF

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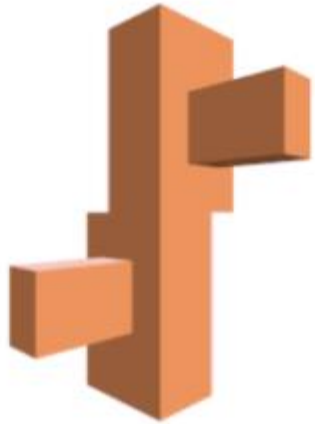
What is Route 53?



- Amazon Route 53 is a highly available and scalable cloud Domain Name System(DNS) web service.

- It is designed to translate names like www.clarusway.com into the numeric IP addresses like 192.0.2.1 that computers use to connect to each other.

Introduction to Route 53

What does Route 53 used for?

Amazon Route 53 has 3 key functions;

- You can use Amazon Route 53 to configure **DNS Health Checks** to route traffic to healthy endpoints.
- You can manage traffic globally through a variety of **Routing** types, including Latency Based Routing and Weighted, etc.
- Amazon Route 53 also offers **Domain Name Registration.**

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Concepts of Amazon Route 53

Concepts of Amazon Route 53

Domain Name System(DNS)

- It is a system used for **transferring human-readable domain names** such as www.clarusway.com to a machine-readable IP address such as 172.23.45.9

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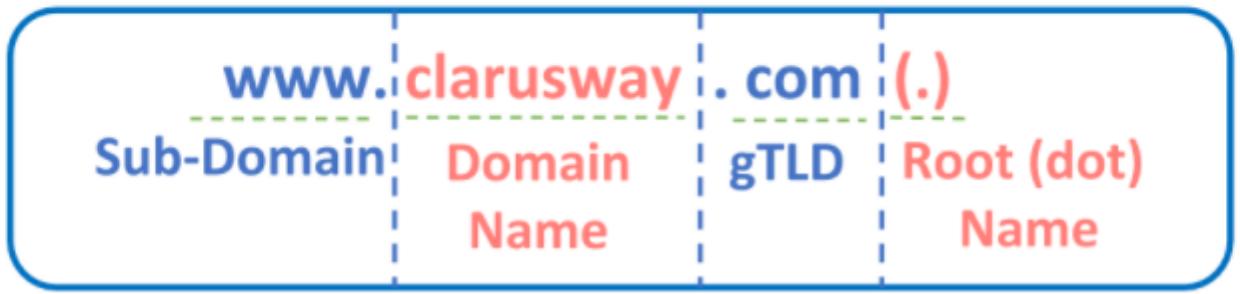
Structure of Domain Name



- **Root (dot) Name** represents the beginning of the DNS query and it is not visible.
- **gTLD** stands for Generic Top-Level Domain. The most common TLDs are **com**, **net** and **org**.
- **A Domain Name** is your website name. It represents to name of the firm, organization or foundation, amazon, google, etc.
- **Sub-domains** are commonly used to specify domains for communication purposes, device type, content type, or for other reasons. **www, mobile, mail, info,** etc.

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How does DNS work?

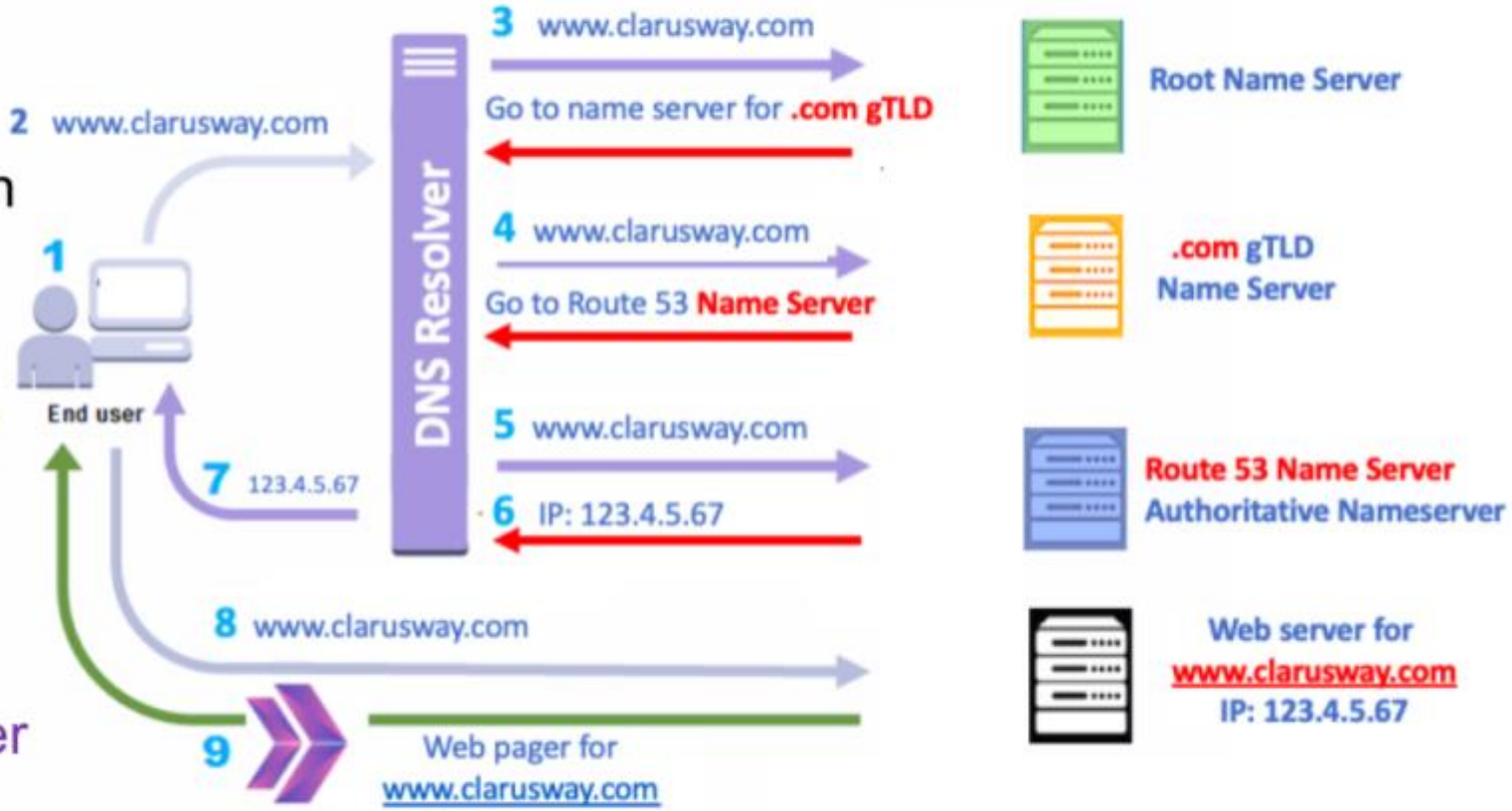
- DNS process depends on 4 DNS Servers :

  -DNS Recursor/Resolver

  -Root Name Server

  -gTLD Name Server

  -Authoritative Nameserver



*Amazon Route 53 works as an Authoritative Nameserver

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Domain Registration

- **A domain name registrar** is a company that allows you to purchase and **register domain names**.
- All domain name registrars are accreditated by **ICANN (Internet Corporation for Assigned Names and Numbers),** a non-profit organization responsible for managing domain names.
- AWS handles the domain registrar process through the **Amazon Route 53** service.

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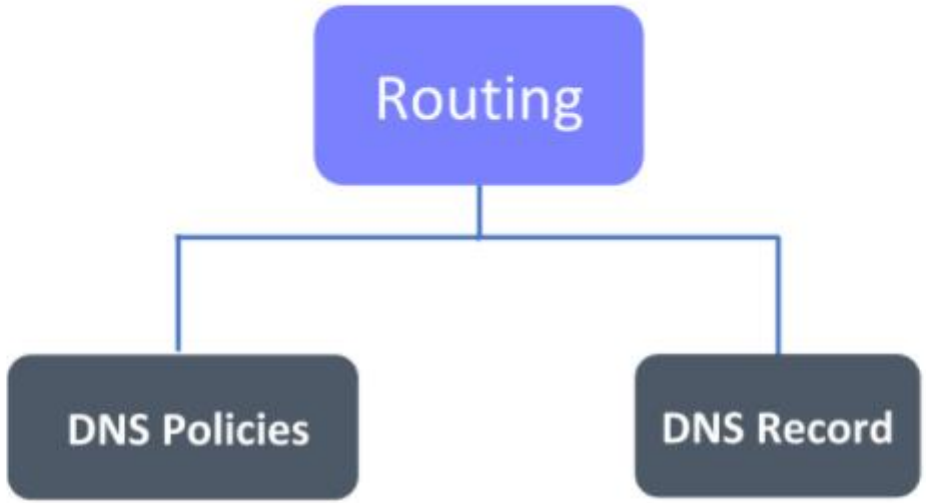
DNS Routing



- Route 53 route the internet traffic by providing a connection and mapping between your **website domain and available web server**
- Route 53 routes the web traffic of your domain with the help of the **DNS Record Sets** and **DNS Policies**.

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DNS Health Checking

- Health Checking is a function that checks whether **our servers working properly.**
- It route internet traffic away from unhealthy server and keep the web application alive and prevents interruption.
- We may say, it is a **kind of Load Balancer.**

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TTL (Time to Live)

- TTL(Time to Live) is a parameter that determines how long ISPs (Internet Service Provider) will **cache the DNS record.**
- If the DNS resolver receives a request for the same domain before the TTL expires, **the resolver returns the cached** value.
- It decreases the workload of the servers. (Think about google)
- So this provides great convenience in a static environment where IP addresses do not change.

Route 53 Components&Solutions

- DNS Record Sets
- Hosted Zones
- Routing Policies

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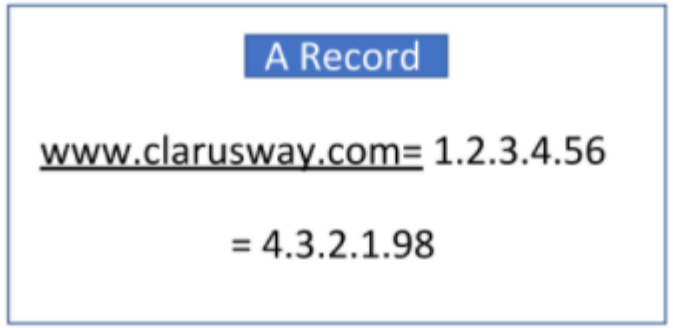
DNS Record Sets



- DNS Record Sets are **documents** that help you to manage your domain name.
- DNS record sets are an information records used to **map the domain names to an IP address in AWS Route 53.**
- For example, thanks to the DNS record we can associate our web site to one IP or multiple IP or you can also map multiple domain name (clarusway.com, www.clarusway.net, etc) to single IP, etc.

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DNS Record Sets

- Amazon Route 53 currently supports 13 DNS record types (most used in red)

- NS (Name Server Record)
- SOA (Start of Authority Record)
- A (Address Record)
- CNAME (Canonical Name Record)
- ALIAS(Alias Record)
- PTR (Pointer Record)
- TXT (Text Record)
- CAA (Certification Authority Authorization)
- MX (Mail Exchange Record)
- NAPTR (Name Authority Pointer Record)
- AAAA (IPv6 Address Record)
- SPF (Sender Policy Framework)
- SRV (Service Locator)

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DNS Record Sets

- **SOA (Start Of Authority):** contains administrative basic information about the associated domain. It is the ID card of domain name. It includes fields such as serial number, refreshes rate, retries timeout, expiration time, and negative cache time.

- **NS (Name Server)**: as the name suggests, is a record that contains a list of servers authorized to host Name Server. By default, it holds the four name servers that are the authoritative name servers for your hosted zone. You are not recommended to add, change, or delete name servers in these records.

- These two records are **created automatically** by Route 53 when you register a domain name.

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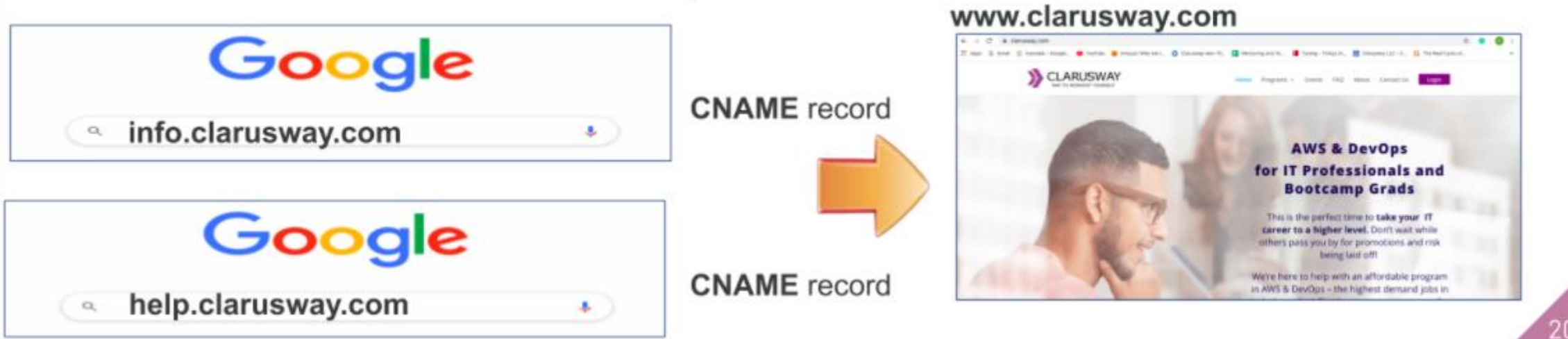
DNS Record Sets- A Records- CNAME Records

- "**A Records**" are the most common DNS record. It is used for matching with the domain or subdomain to IPs.

- "**CNAME Records**" are used to point a domain or subdomain to another hostname. It's a kind of alias for any hostname.



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DNS Record Sets- Alias Records

- "Alias Records" are basically the same as the CNAME record, but instead of the IP address, we do DNS name **mapping to the AWS resources like AWS Elastic Load Balancers, Amazon Cloudfront, AWS Elastic Beanstalk, or Amazon S3 Buckets.**

- This is a DNS feature of **Route 53 only.**
- Alias records are **embedded in the other Route 53 records**. So you can only create an Alias record **inside the other records**(A, AAA, etc.)

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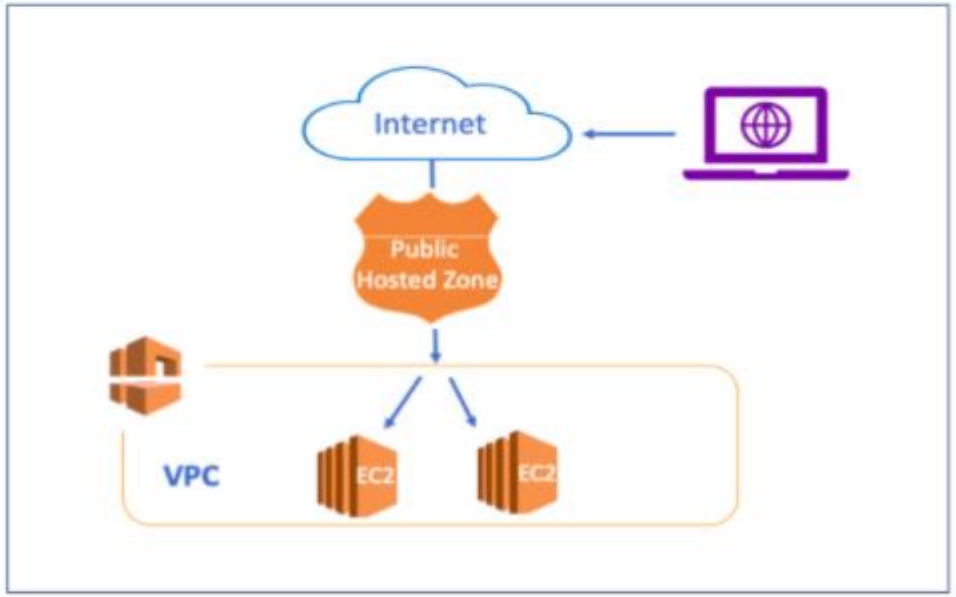
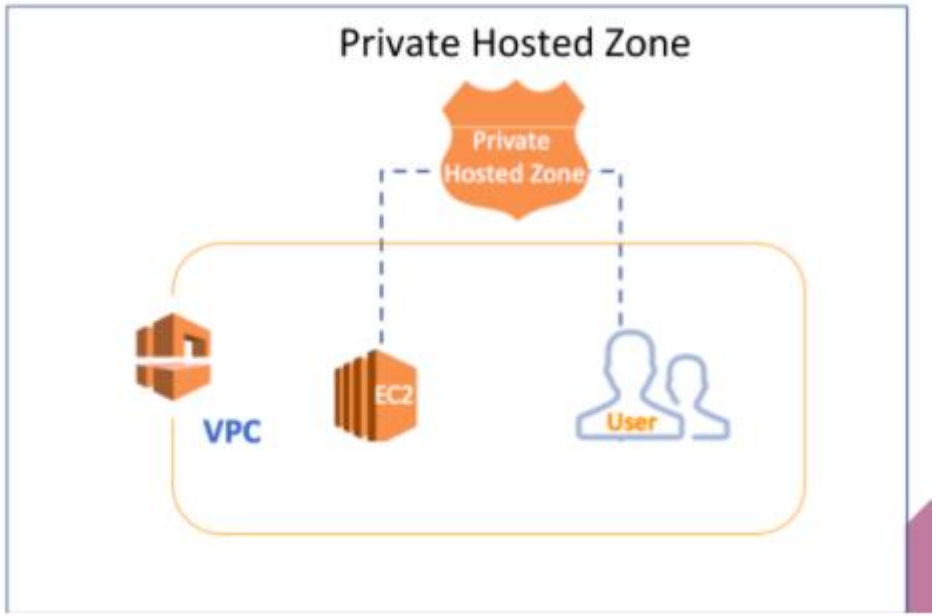
Hosted Zones



A hosted zone is a container for DNS records. There are two types of hosted zones: **Public Hosted Zones** and **Private Hosted Zones**

When you register a domain name Public Hosted Zone is **created automatically** by Route 53 **with the same name of your domain. It contains the records that routes traffic in public internet.**



Private hosted zones contain records that specify how to route traffic in an Amazon VPC. **They can only be accessed from your VPC.**