TECHNOLOGY

AWS Solutions Architect : Associate Level

Source: https://docs.aws.amazon.com/

Amazon Route 53

Learning Objectives

By the end of the lesson, you will be able to:

◉ Explain Domain Name System (DNS)

◉ Describe Amazon Route 53

◉ Discuss the concepts of Amazon Route 53

◉ List the AWS recommended best practices for Amazon Route 53

Domain Name System (DNS)

Domain Name System (DNS)

Domain Name System (DNS) translates human readable domain names (www.example.com) to machine readable IP addresses (192.0.2.44).
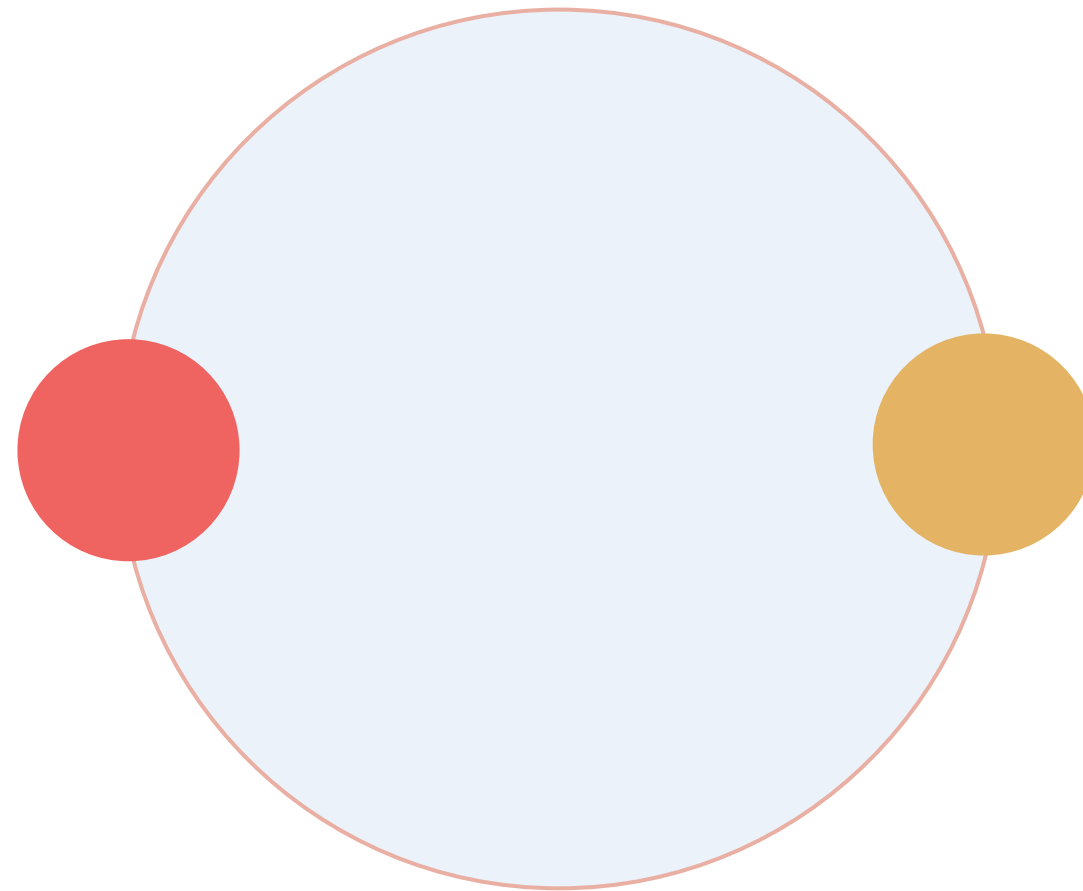
AWS

Domain name: www.example.com

IP address: 192.0.2.44

Web server

Domain Name System

Domain Name System Services

These are the two types of DNS services:
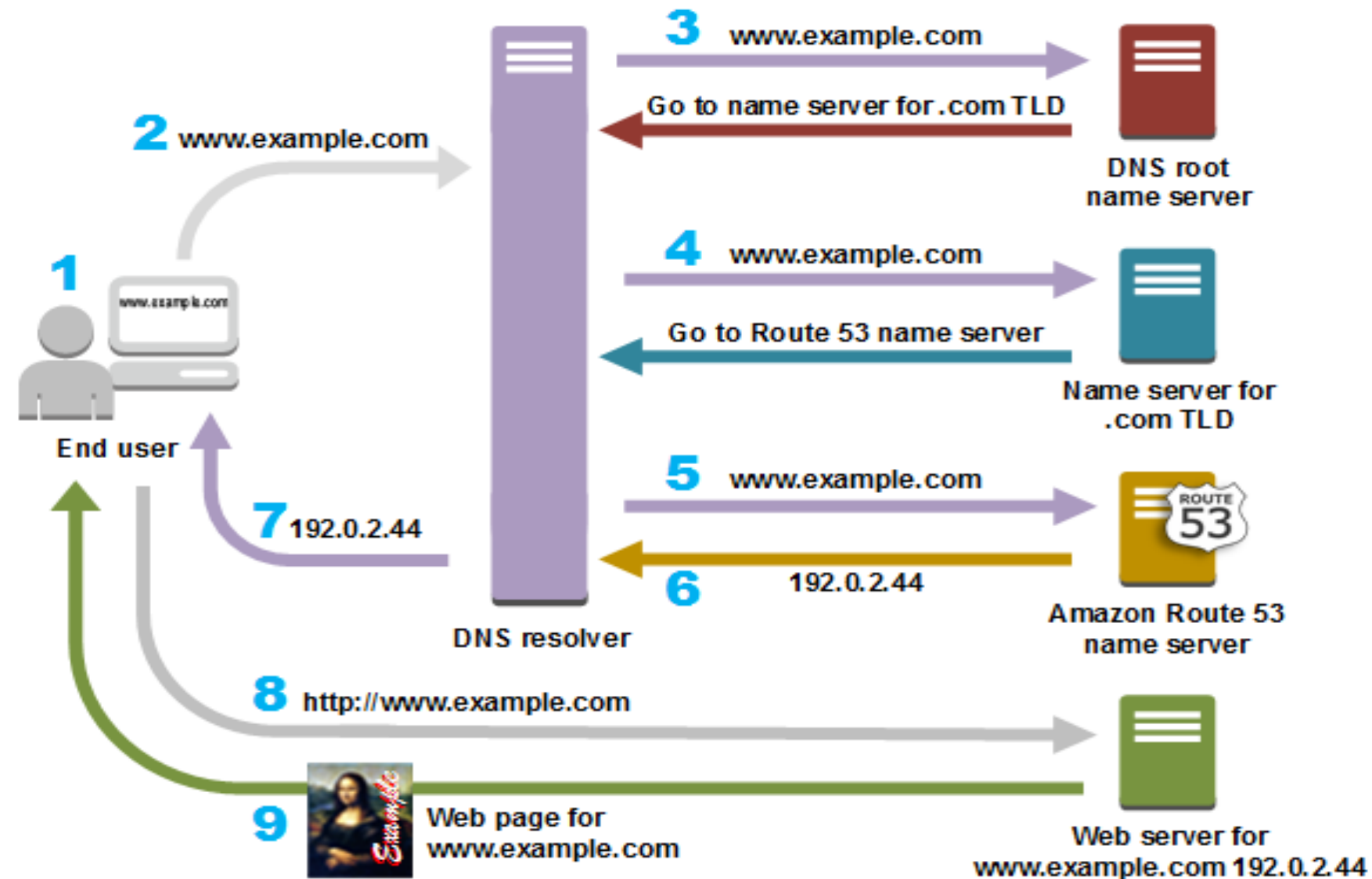
Authoritative DNS   Recursive DNS

Domain Name System Workflow

The following diagram gives an overview of how recursive and authoritative DNS services work together to route an end user to the website or application:

Introduction to Amazon Route 53

Amazon Route 53

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

Amazon Route 53

Features of Amazon Route 53

The following are the features of Amazon Route 53:

01 Resolver

02 Traffic flow

03 Latency based routing

04 Geo DNS

05 Private DNS for VPC

06 DNS failover

07 Health checks and monitoring

Features of Amazon Route 53

The following are the features of Amazon Route 53:

08 Domain registration

09 CloudFront zone apex support

10 S3 zone apex support

11 Amazon ELB integration

12 Management console

13 Weighted round robin

Benefits of Amazon Route 53

The following are some of the benefits of Amazon Route 53:

01	Highly available and reliable

02	Flexible

03	Well designed

04	Easy-to-use

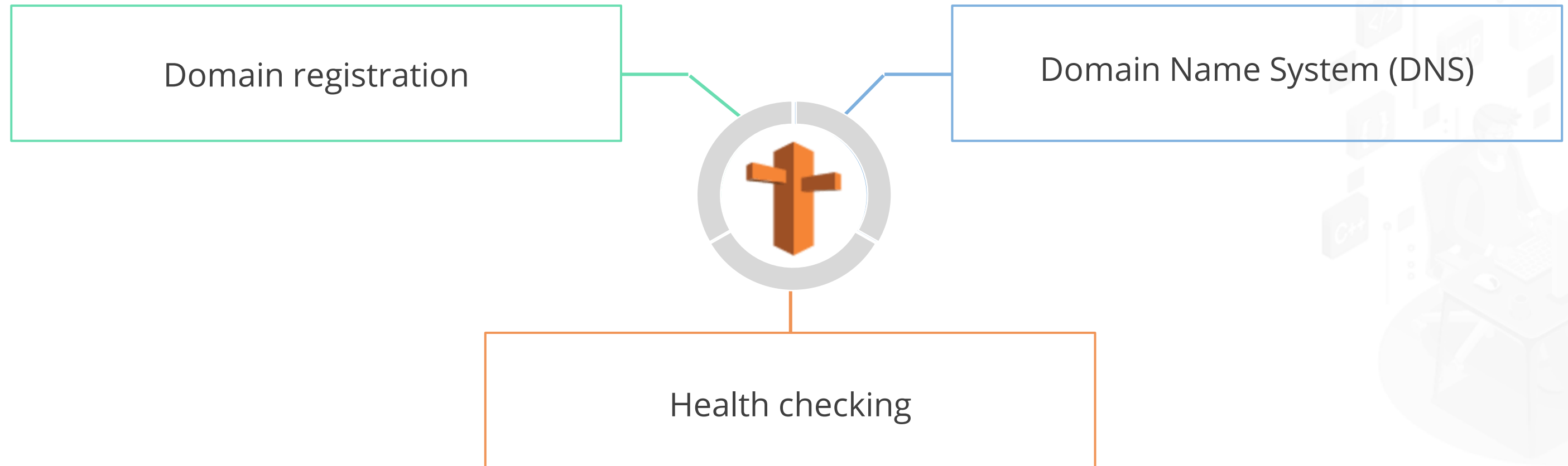| 05	Fast performance

Benefits of Amazon Route 53

The following are some of the benefits of Amazon Route 53:

| 06 | Cost-effective |

| 07 | Secure |

| 08 | Scalable |

| 09 | Simplifies the hybrid cloud |

Amazon Route 53 Concepts and Terminologies

Amazon Route 53 Concepts

The following are the concepts of Amazon Route 53:

Domain registration

Domain Name System (DNS)

Health checking

Amazon Route 53 Concepts

The following concepts are related to domain registration:

01	Domain name

02	Domain registrar

03	Domain registry

04	Domain reseller

05	Top-level domain (TLD)

Amazon Route 53 Concepts

The following concepts are related to Domain Name System (DNS):

01	Authoritative name server

02	DNS query

03	DNS resolver

04	IP address

05	Private DNS

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Amazon Route 53 Concepts

The following concepts are related to Domain Name System (DNS):

06	Recursive name servers

07	Reusable delegation set

08	Routing policy

09	Subdomain

10	Time to live (TTL)

Amazon Route 53 Concepts

The following concepts are related to health checking:

01	DNS failover

02	Endpoint

03	Health check

Amazon Route 53 Terminologies

The following terminologies are used in Amazon Route 53:

01	02	03	04
Name servers	**Alias record**	**Hosted zone**	**DNS record**
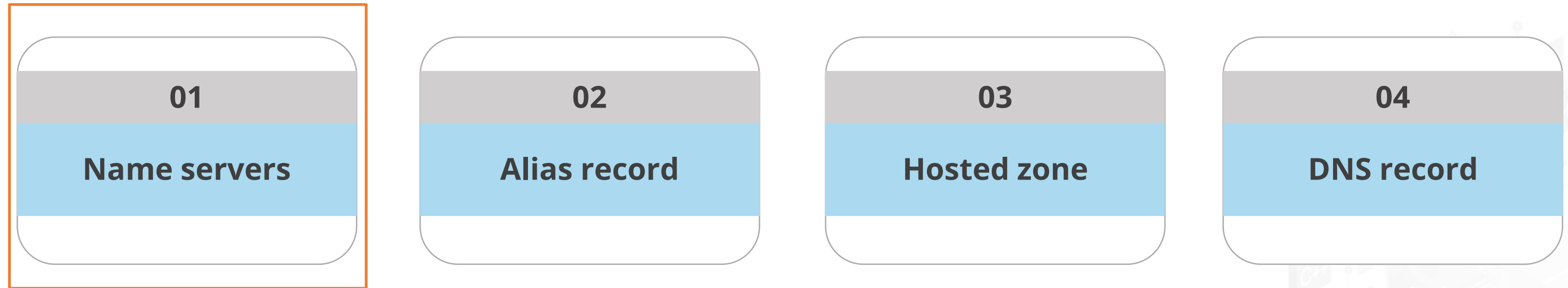
It helps to translate domain names into the IP addresses that computers use to communicate with one another.
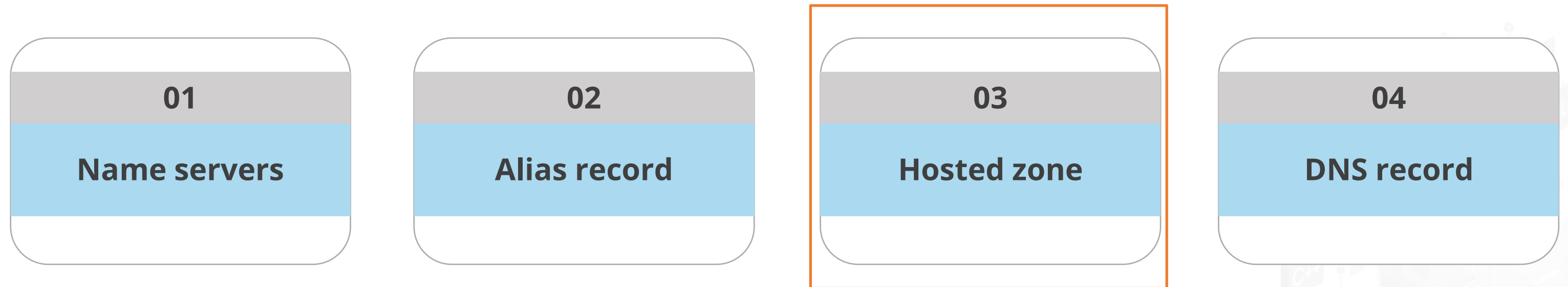
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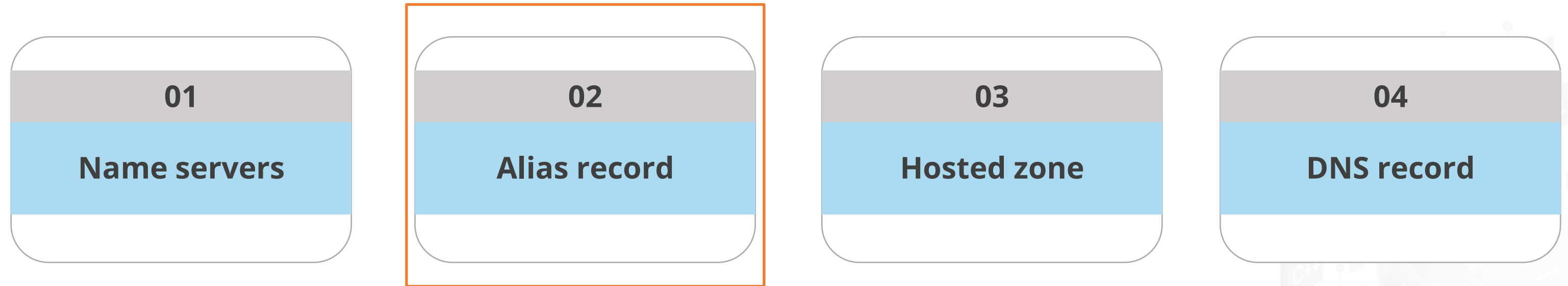
It is a type of record that users can create with Amazon Route 53 to route traffic to AWS resources such as Amazon CloudFront distributions and Amazon S3 buckets.

Amazon Route 53 Terminologies

The following terminologies are used in Amazon Route 53:

01	02	03	04
Name servers	**Alias record**	**Hosted zone**	**DNS record**

It is a container for records, which includes information about how the users want to route traffic for a domain and all of its subdomains.

Amazon Route 53 Terminologies

The following terminologies are used in Amazon Route 53:

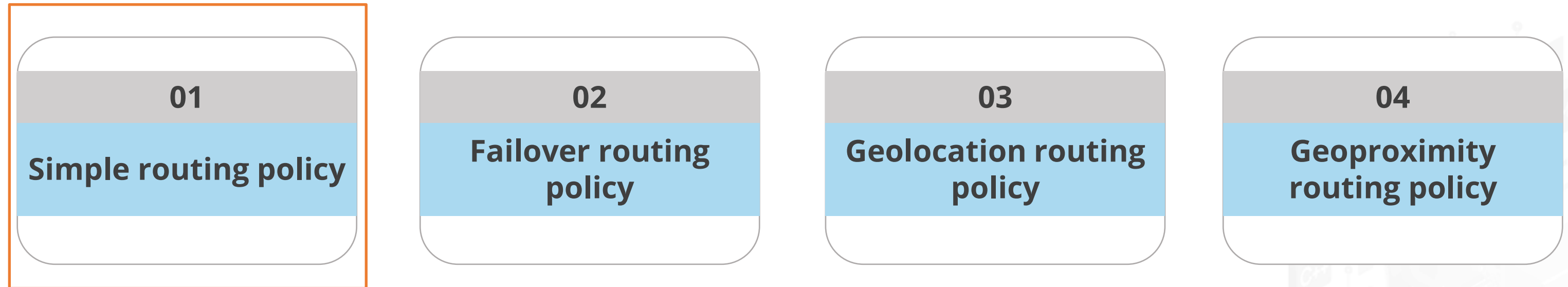| 01	02	03	04
Name servers	**Alias record**	**Hosted zone**	**DNS record**
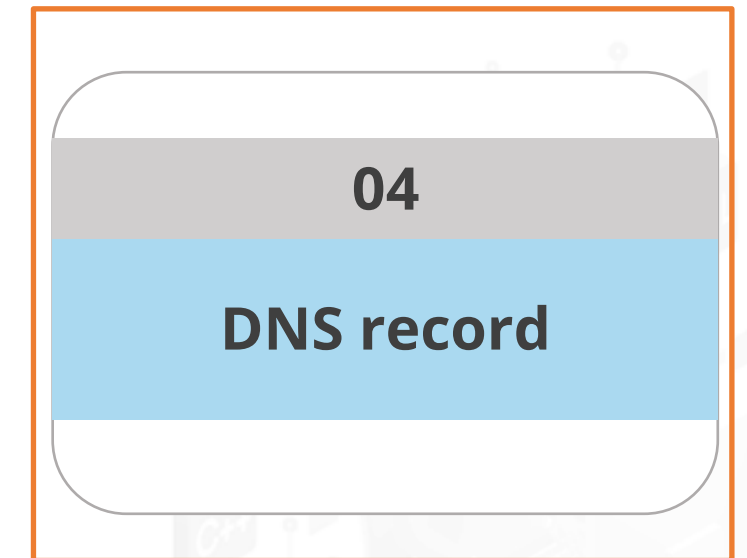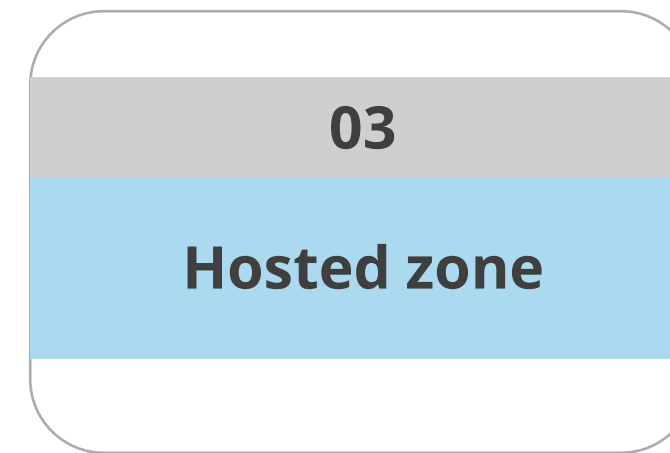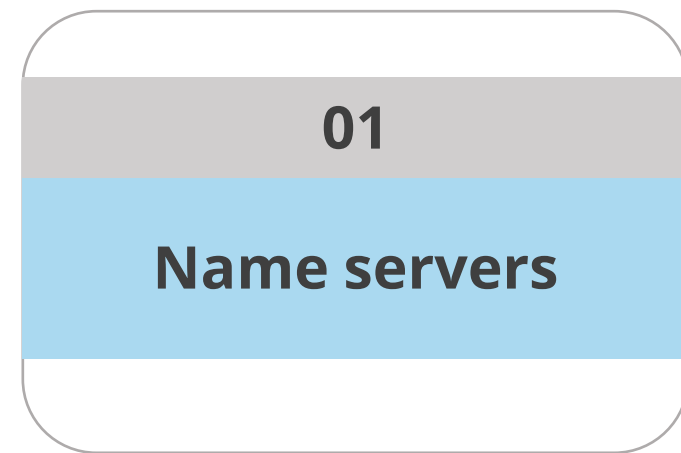
It is an object in a hosted zone that the users use to define how they want to route traffic for the domain or a subdomain.

Amazon Route 53 Policies
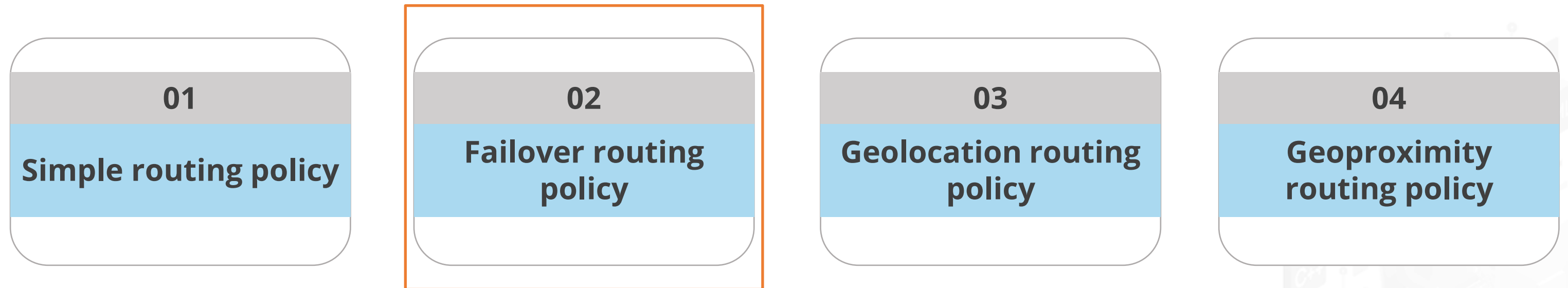
Amazon Route 53 Policies

Amazon Route 53 supports the following routing policies:

01	02	03	04
Simple routing policy	**Failover routing policy**	**Geolocation routing policy**	**Geoproximity routing policy**

It is used to route internet traffic to a single resource that performs a given function for the domain, for example, a web server that serves content for the example.com website.

Amazon Route 53 Policies

Amazon Route 53 supports the following routing policies:

01	02	03	04
Simple routing policy	**Failover routing policy**	**Geolocation routing policy**	**Geoproximity routing policy**

It is used when the users want to configure active-passive failover.

Amazon Route 53 Policies

Amazon Route 53 supports the following routing policies:

01	02	03	04
Simple routing policy	**Failover routing policy**	**Geolocation routing policy**	**Geoproximity routing policy**

It is used when the users want to route internet traffic to the resources based on the location of the users.

Amazon Route 53 Policies

Amazon Route 53 supports the following routing policies:

01	02	03	04
Simple routing policy	**Failover routing policy**	**Geolocation routing policy**	**Geoproximity routing policy**

It is used when the users want to route traffic based on the location of the resources and, optionally, shift traffic from resources in one location to resources in another.

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Amazon Route 53 Policies

Amazon Route 53 supports the following routing policies:

| 05	06	07
Latency routing policy	**Multivalue answer routing policy**	**Weighted routing policy**

It is used when the users have resources in multiple locations, and they want to route traffic to the resource that provides the best latency.

Amazon Route 53 Policies

Amazon Route 53 supports the following routing policies:

05	06	07
Latency routing policy	**Multivalue answer routing policy**	**Weighted routing policy**
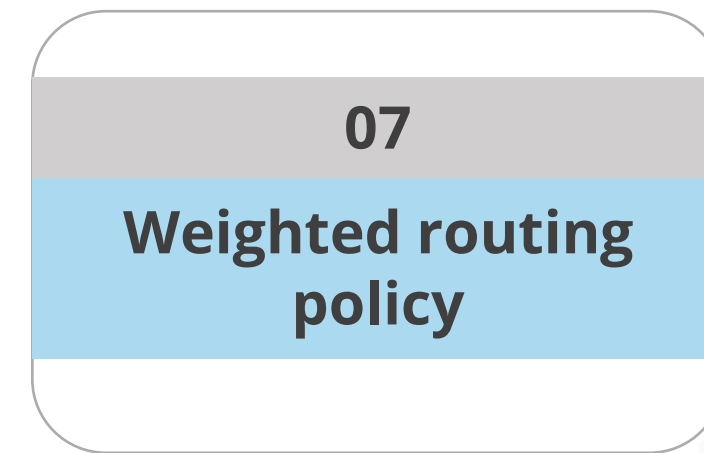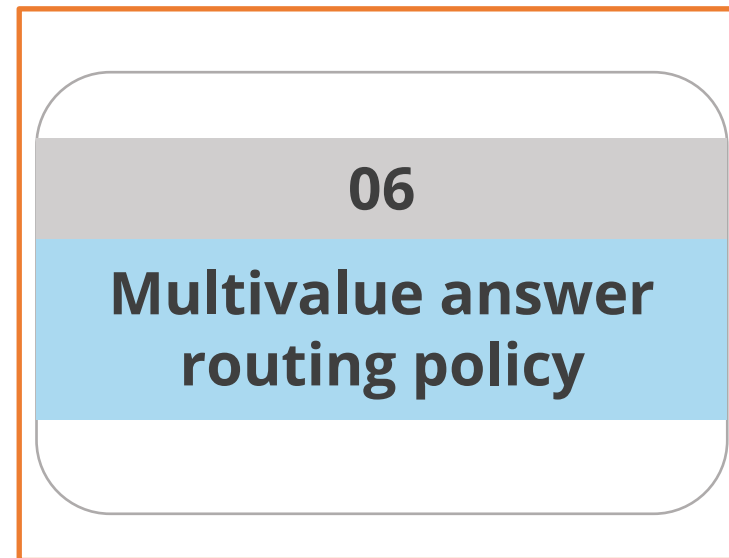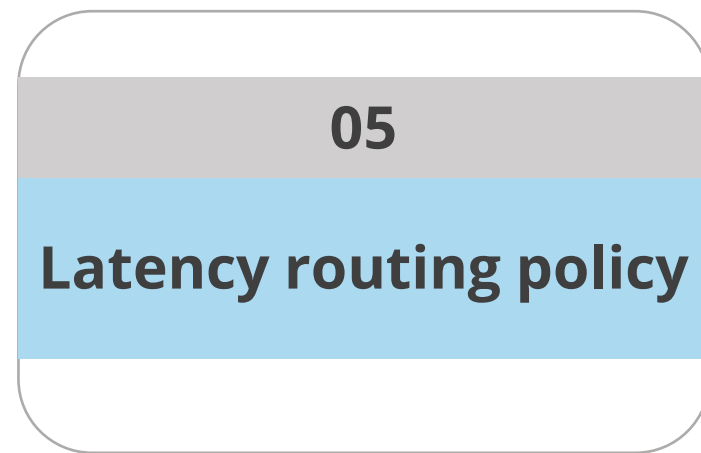
It helps the users to check the health of each resource, so Amazon Route 53 returns only values for healthy resources.

Amazon Route 53 Policies

Amazon Route 53 supports the following routing policies:

05	06	07
Latency routing policy	**Multivalue answer routing policy**	**Weighted routing policy**

It is used to route traffic to multiple resources in proportions that the users specify.

Register a New Domain Name

Problem Statement:

You are given a project to register a new domain name.

ASSISTED PRACTICE

Assisted Practice: Guidelines to Register a New Domain Name

Steps to perform:

- Open the Amazon Route 53 console
- Register a new domain name

Create a Public Hosted Zone

Problem Statement:

You are given a project to create a public hosted zone.

Assisted Practice: Guidelines to Create a Public Hosted Zone

Steps to perform:

- Open the Amazon Route 53 console
- Create a public hosted zone

Amazon Route 53 Best Practices

Amazon Route 53 Best Practices

The following are the best practices for Amazon Route 53:

Name server delegation

TTL resource record sets

Alias record

Minimize latency

- It helps to translate domain names into IP addresses.
- It updates the registrar's name server configuration with the name servers to provide maximum availability.

Amazon Route 53 Best Practices

The following are the best practices for Amazon Route 53:

Name server delegation

TTL resource record sets

Alias record

Minimize latency

- Resource records can benefit from a lower TTL value.
- For long TTLs, DNS resolvers take longer to request updated DNS records.

Amazon Route 53 Best Practices

The following are the best practices for Amazon Route 53:

Name server delegation

TTL resource record sets

Alias record

Minimize latency

- Alias record sets are used while configuring resource record sets that route DNS queries to AWS resources.
- These are available at no cost.

Amazon Route 53 Best Practices

The following are the best practices for Amazon Route 53:

Name server delegation

TTL resource record sets

Alias record

Minimize latency

- Latency or Geolocation routing policies are used to provide users with the best response times.
- Health check ensures that the users are rerouted to healthy instances during an outage.

Amazon Route 53 Costs

Amazon Route 53 Costs

The following are the costs associated with Amazon Route 53:

01	Pay-per-use
02	Hosted zones and records
03	Queries
04	Alias queries
05	Traffic flow

Amazon Route 53 Costs

The following are the costs associated with Amazon Route 53:

06	Health checks

07	Route 53 resolver

08	Domain names

09	DNS query logs

10	Taxes and promotional credits

11	API calls

Limitations of Amazon Route 53

Limitations of Amazon Route 53

The following are the limitations of Amazon Route 53:

1 Amazon Route 53 private endpoints are not available in VPN or Direct Connect.

2 It provides no forwarding or conditional forwarding options for domains used on an on-premise network.

3 It does not support private zone transfers.

Key Takeaways

⦿ DNS translates human readable domain names to machine readable IP addresses.

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

⦿ A routing policy determines how Amazon Route 53 responds to DNS queries.

⦿ Amazon Route 53 allows the users to pay only for the resources that they use.

Register a New Domain and Create a Hosted Zone and a Record Set

Duration: 40 min.

Problem Statement:

As a developer, your team has asked you to register a new domain and create a public hosted zone and a record set.

Perform the following:
- Open the Amazon Route 53 console
- Register a new domain name
- Create a public hosted zone
- Create a record set