

Domain Name System (DNS) and Amazon Route 53

- Domain Name Servers (DNS) are the Internet's equivalent of a phone book. They maintain a directory of domain names and translate them to Internet Protocol (IP) addresses.
- This is necessary because, although domain names are easy for people to remember, computers or machines, access websites based on IP addresses.
- When you type in a web address, e.g., Avinash.website, your Internet Service Provider views the DNS associated with the domain name, translates it into a machine friendly IP address (202.153.xx.xx) and directs your Internet connection to the correct website.
- Amazon Route 53 is an authoritative DNS system. An authoritative DNS system provides an update mechanism that developers use to manage their public DNS names.
- It answers DNS queries, translating domain names into IP addresses so that computers can communicate with each other.

Top-Level Domains (TLDs)

A Top-Level Domain (TLD) is the most general part of the domain. The TLD is the farthest portion to the right (as separated by a dot). Common TLDs are .com, .net, .org, .gov, .edu, and .io.

- 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 name.
- 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/domains/root/db>
- Each domain name becomes registered in a central database, known as the WhoIS database.

Domain Names

A domain name is the human-friendly name that we are used to associating with an Internet resource.

The URL aws.amazon.com is associated with the servers owned by AWS. The DNS allows users to reach the AWS servers when they type aws.amazon.com into their browsers. IP Addresses an IP address is a network addressable location. Each IP address must be unique within its network. For public websites, this network is the entire Internet.

- IPv4 addresses, the most common form of addresses, consist of four sets of numbers separated by a dot, with each set having up to three digits. For example, 111.222.111.222 could be a valid IPv4 IP address.
- With DNS, we map a name to that address so that you do not have to remember a complicated set of numbers for each place you want to visit on a network.
- Due to the tremendous growth of the Internet and the number of devices connected to it, the IPv4 address range has quickly been depleted.
- Today, most devices and networks still communicate using IPv4, but migration to IPv6 is proceeding gradually over time.

Domain Name Registrars

All of the names in a given domain must be unique, there needs to be a way to organize them so that domain names aren't duplicated. This is where domain name registrars come in.

A domain name registrar is an organization or commercial entity that manages the reservation of Internet domain names.

- A registrar is an authority that can assign domain names directly under one or more top-level domains.
- These domains are registered with ICANN (The Internet Corporation for Assigned Names and Numbers), which enforces uniqueness of domain names across the Internet.
- Each domain name becomes registered in a central database known as the WHOIS database.
- Domain registrars : GoDaddy.com, BigRock , Amazon etc

Domain Registration

If you want to create a website, you first need to register the domain name.

- If you already registered a domain name with another registrar, you have the option to transfer the domain registration to Amazon Route 53.
- It isn't required to use Amazon Route 53 as your DNS service or to configure health checking for your resources.
- Amazon Route 53 supports domain registration for a wide variety of generic TLDs (for example, .com and .org) and geographic TLDs (for example, .be and .us).

Name Servers

NS stands for Name Server records and are used by Top Level Domain servers to direct traffic to the Content DNS server which contains the authoritative DNS records.

A name server is a computer designated to translate domain names into IP addresses. These servers do most of the work in the DNS. Because the total number of domain translations is too much for any one server, each server may redirect requests to other name servers or delegate responsibility for the subset of subdomains for which they are responsible.

Name servers can be authoritative, meaning that they give answers to queries about domains under their control. Otherwise, they may point to other servers or serve cached copies of other name servers' data.

Zone Files

A zone file is a simple text file that contains the mappings between domain names and IP addresses. This is how a DNS server finally identifies which IP address should be contacted when a user requests a certain domain name.

Record Types:

Each zone file contains records. In its simplest form, a record is a single mapping between a resource and a name. These can map a domain name to an IP address or define resources for the domain, such as name servers or mail servers. This section describes each record type in detail.

Start of Authority (SOA) Record

A Start of Authority (SOA) record is mandatory in all zone files, and it identifies the base DNS information about the domain. Each zone contains a single SOA record.

The SOA record stores information about the following:

- The name of the DNS server for that zone
- The administrator of the zone
- The current version of the data file
- The number of seconds that a secondary name server should wait before checking for updates
- The number of seconds that a secondary name server should wait before retrying a failed zone transfer
- The maximum number of seconds that a secondary name server can use data before it must either be refreshed or expire
- The default TTL value (in seconds) for resource records in the zone

A and AAAA

Both types of address records map a host to an IP address. The A record is used to map a host to an IPv4 IP address, while AAAA records are used to map a host to an IPv6 address.

Canonical Name (CNAME)

A Canonical Name (CNAME) record is a type of resource record in the DNS that defines an alias for the CNAME for your server (the domain name defined in an A or AAAA record).

Mail Exchange (MX)

Mail Exchange (MX) records are used to define the mail servers used for a domain and ensure that email messages are routed correctly. The MX record should point to a host defined by an A or AAAA record and not one defined by a CNAME.

Name Server (NS)

Name Server (NS) records are used by TLD servers to direct traffic to the DNS server that contains the authoritative DNS records.

Pointer (PTR)

A Pointer (PTR) record is essentially the reverse of an A record. PTR records map an IP address to a DNS name, and they are mainly used to check if the server name is associated with the IP address from where the connection was initiated.

Text (TXT)

Text (TXT) records are used to hold text information. This record provides the ability to associate some arbitrary and unformatted text with a host or other name, such as human readable information about a server, network, data center, and other accounting information.

Service (SRV)

A Service (SRV) record is a specification of data in the DNS defining the location (the host name and port number) of servers for specified services. The idea behind SRV is that, given a domain name (for example, example.com) and a service name (for example, web [HTTP], which runs on a protocol [TCP]), a DNS query may be issued to find the host name that provides such a service for the domain, which may or may not be within the domain.

Hosted Zones

A hosted zone is a collection of resource record sets hosted by Amazon Route 53. Like a traditional DNS zone file, a hosted zone represents resource record sets

that are managed together under a single domain name. Each hosted zone has its own metadata and configuration information.

There are two types of hosted zones: private and public. A private hosted zone is a container that holds information about how you want to route traffic for a domain and its subdomains within one or more Amazon Virtual Private Clouds (Amazon VPCs). A public hosted zone is a container that holds information about how you want to route traffic on the Internet for a domain (for example, example.com) and its subdomains (for example, apex.example.com and acme.example.com).

- Use an alias record, not a CNAME, for your hosted zone. CNAMEs are not allowed for hosted zones in Amazon Route 53.

Routing Policies:

Simple

This is the default routing policy when you create a new resource. Use a simple routing policy when you have a single resource that performs a given function for your domain (for example, one web server that serves content for the example.com website). In this case, Amazon Route 53 responds to DNS queries based only on the values in the resource record set (for example, the IP address in an A record).

Weighted

With weighted DNS, you can associate multiple resources (such as Amazon Elastic Compute Cloud [Amazon EC2] instances or Elastic Load Balancing load balancers) with a single DNS name.

Use the weighted routing policy when you have multiple resources that perform the same function (such as web servers that serve the same website), and you want Amazon Route 53 to route traffic to those resources in proportions that you specify. For example, you may use this for load balancing between different AWS regions or to test new versions of your website (you can send 10 percent of traffic to the test environment and 90 percent of traffic to the older version of your website).

To create a group of weighted resource record sets, you need to create two or more resource record sets that have the same DNS name and type. You then assign each resource record set a unique identifier and a relative weight.

Latency-Based

Latency-based routing allows you to route your traffic based on the lowest network latency for your end user (for example, using the AWS region that will give them the fastest response time).

Use the latency routing policy when you have resources that perform the same function in multiple AWS Availability Zones or regions and you want Amazon Route 53 to respond to DNS queries using the resources that provide the best latency. For example, suppose you have Elastic Load Balancing load balancers in the U.S. West (Oregon) region and in the Asia Pacific (Singapore) region, and you created a latency resource record set in Amazon Route 53 for each load balancer. A user in London enters the name of your domain in a browser, and DNS routes the request to an Amazon Route 53 name server. Amazon Route 53 refers to its data on latency between London and the Singapore region and between London and the Oregon region. If latency is lower between London and the Oregon region, Amazon Route 53 responds to the user's request with the IP address of your load balancer in Oregon. If latency is lower between London and the Singapore region, Amazon Route 53 responds with the IP address of your load balancer in Singapore.

Failover

Use a failover routing policy to configure active-passive failover, in which one resource takes all the traffic when it's available and the other resource takes all the traffic when the first resource isn't available. Note that you can't create failover resource record sets for private hosted zones.

For example, you might want your primary resource record set to be in U.S. West (N. California) and your secondary, Disaster Recovery (DR), resource(s) to be in U.S. East (N. Virginia). Amazon Route 53 will monitor the health of your primary resource endpoints using a health check.

A health check tells Amazon Route 53 how to send requests to the endpoint whose health you want to check: which protocol to use (HTTP, HTTPS, or TCP), which IP address and port to use, and, for HTTP/HTTPS health checks, a domain name and path.

After you have configured a health check, Amazon will monitor the health of your selected DNS endpoint. If your health check fails, then failover routing policies will be applied and your DNS will fail over to your DR site.

Geolocation

Geolocation routing lets you choose where Amazon Route 53 will send your traffic based on the geographic location of your users (the location from which DNS queries originate). For example, you might want all queries from Europe to

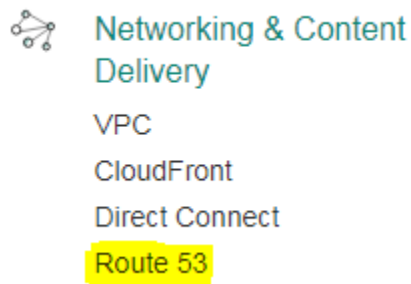
be routed to a fleet of Amazon EC2 instances that are specifically configured for your European customers, with local languages and pricing in Euros.

You can also use geolocation routing to restrict distribution of content to only the locations in which you have distribution rights. Another possible use is for balancing load across endpoints in a predictable, easy-to-manage way so that each user location is consistently routed to the same endpoint.

You can specify geographic locations by continent, by country, or even by state in the United States. You can also create separate resource record sets for overlapping geographic regions, and priority goes to the smallest geographic region. For example, you might have one resource record set for Europe and one for the United Kingdom. This allows you to route some queries for selected countries (in this example, the United Kingdom) to one resource and to route queries for the rest of the continent (in this example, Europe) to a different resource.

Steps to Create a Hosted Zone.

1. Log in to the AWS Management Console, Navigate to Amazon “Route 53” under “Network & Content Delivery”.



2. Create a Hosted Zone by selecting “Create Hosted Zone” and Give the Purchased Domain Name, enter the comments and choose the Type. We have two types of Hosted Zone, Selecting the **Public Hosted Zone** now.
 1. **Public Hosted Zone:** A public hosted zone is a container that holds information about how you want to route traffic on the Internet for a domain and its subdomains.
 2. **Private Hosted Zone:** A private hosted zone is a container that holds information about how you want to route traffic for a domain and its subdomains within one or more VPC.

Create Hosted Zone

A hosted zone is a container that holds information about how you want to route traffic for a domain, such as example.com, and its subdomains.

Domain Name:

Comment:

Type: Public Hosted Zone

A public hosted zone determines how traffic is routed on the Internet.

3. When you created a Hosted Zone, you'll get two record sets. Those are NS record and SOA record.

Back to Hosted Zones
Create Record Set
Import Zone File
Delete Record Set
Test Record Set

Any Type
☐ Aliases Only
 ☐ Weighted Only

<< < Displaying 1 to 2 out of 2 Record Sets > >>

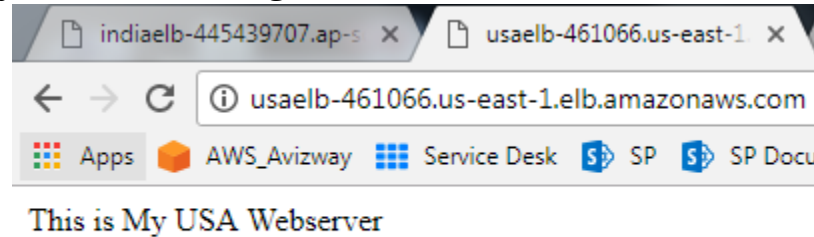
<input type="checkbox"/>	Name	Type	Value	Evaluate Target Health	Health Check ID	TTL
<input type="checkbox"/>	avinash.website.	NS	ns-1937.awsdns-50.co.uk. ns-1264.awsdns-30.org. ns-684.awsdns-09.net. ns-166.awsdns-20.com.	-	-	172800
<input type="checkbox"/>	avinash.website.	SOA	ns-1937.awsdns-50.co.uk. awsdns-hostmaster.amaz	-	-	900

4. Now the Hosted Zone is created. If you purchase the Domain name from any other domain registrar i.e; Godaddy, bigrock we have to configure these NameServers in that account, or we can transfer the domain to AWS.

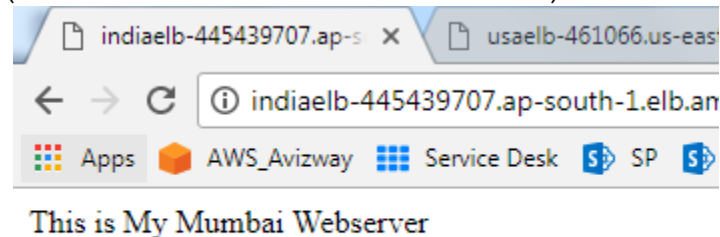
Now, we are going to create two Web Servers in two different regions and going to configure different routing policies. I've choose Mumbai and N. Virginia.

5. Create an EC2 Instance in Mumbai region and connect to the instance

6. Install **httpd** package and create **index.html** under **/var/www/html** and start the **httpd service** and verify the access using public IP address.
7. Create an **Elastic Load Balancer** and add this EC2 instance to ELB and verify the access using the ELB name.



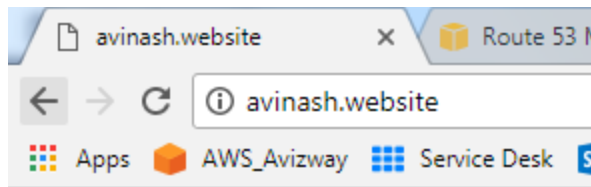
8. Choose another region (N. Virginia) and perform the same in N. Virginia region also. (Instance launch and ELB creation).



9. Now, we have two web servers in two different regions and we are going to configure routing policies between these two region resources.

Simple Routing Policy: This is the default routing policy when you create a new record set. This is most commonly used when you have a single resource that performs a given function for your domain

10. Select the Create Record Set option, you'll get an option like below.
 - a. Give a name for your record set
 - b. Choose Type as **A – IPV4 address**
 - c. Select **Alias** record and click on Alias Target option, you'll get all the available resources under AWS to map your domain with record set. Am selecting **Mumbai ELB** and selected simple **Routing Policy**.



This is My Mumbai Webserver

Create Record Set

Name:

Type:

Alias: ☒ Yes ☐ No

Alias Target:

Alias Hosted Zone ID: ZP97RAFLXTNZK

You can also type the domain name for the resource. Examples:

- CloudFront distribution domain name: d111111abcdef8.cloudfront.net
- Elastic Beanstalk environment CNAME: example.elasticbeanstalk.com
- ELB load balancer DNS name: example-1.us-east-1.elb.amazonaws.com
- S3 website endpoint: s3-website.us-east-2.amazonaws.com
- Resource record set in this hosted zone: www.example.com

[Learn More](#)

Routing Policy:

Route 53 responds to in this record. [Learn More](#)

Evaluate Target:

Create

11. Now all my domain requests should route to Mumbai ELB as this is a simple routing policy and we'll have single resource for this routing type.

Weighted: Weighted Routing Policies let you split your traffic based on different weights assigned.

Below we have assigned 60% of your traffic to go to AP-SOUTH-1 and 40% to go to US-EAST-1.

Alias: ☒ Yes ☐ No

Alias Target:

Alias Hosted Zone ID: ZP97RAFLXTNZK

You can also type the domain name for the resource. Examples:

- CloudFront distribution domain name: d1111111abcdef8.cloudfront.net
- Elastic Beanstalk environment CNAME: example.elasticbeanstalk.com
- ELB load balancer DNS name: example-1.us-east-1.elb.amazonaws.com
- S3 website endpoint: s3-website.us-east-2.amazonaws.com
- Resource record set in this hosted zone: www.example.com

[Learn More](#)

Routing Policy:

Route 53 responds to queries based on weighting that you specify in this and other record sets th same name and type. [Learn More](#)

Weight:

Set ID:

Description of this record set that is unique within the group of weighted sets

[Save Record Set](#)

Alias: ☒ Yes ☐ No

Alias Target:

Alias Hosted Zone ID: Z35SXDOTRQ7X7K

You can also type the domain name for the resource. Examples:

- CloudFront distribution domain name: d111111abcdef8.cloudfront.net
- Elastic Beanstalk environment CNAME: example.elasticbeanstalk.com
- ELB load balancer DNS name: example-1.us-east-1.elb.amazonaws.com
- S3 website endpoint: s3-website.us-east-2.amazonaws.com
- Resource record set in this hosted zone: www.example.com

[Learn More](#)

Routing Policy:

Route 53 responds to queries based on weighting that you specify in this and other record sets with the same name and type. [Learn More](#)

Weight:

Set ID:

Description of this record set that is unique within the group of weighted sets.

Example:

My Seattle Data Center

[Create](#)

Latency: Latency based routing allows you to route your traffic based on the lowest network latency for your end user (ie which region will give them the fastest response time).

To use latency-based routing you create a latency resource record set for the Amazon EC2 (or ELB) resource in each region that hosts your website. When Amazon Route 53 receives a query for your site, it selects the latency resource record set for the region that gives the user the lowest latency. Route 53 then responds with the value associated with that resource record set.

Alias: ☒ Yes ☐ No

Alias Target:

Alias Hosted Zone ID: ZP97RAFLXTNZK

You can also type the domain name for the resource. Examples:

- CloudFront distribution domain name: d1111111abcdef8.cloudfront.net
- Elastic Beanstalk environment CNAME: example.elasticbeanstalk.com
- ELB load balancer DNS name: example-1.us-east-1.elb.amazonaws.com
- S3 website endpoint: s3-website.us-east-2.amazonaws.com
- Resource record set in this hosted zone: www.example.com

[Learn More](#)

Routing Policy:

Route 53 responds to queries based on regions that you specify in this and other same name and type. [Learn More](#)

Region:

Set ID:

Description of this record set that is unique within the group of latency sets.

Example:

My Seattle Data Center

[Create](#)

Alias: ☒ Yes ☐ No

Alias Target:

Alias Hosted Zone ID: Z35SXD0TRQ7X7K

You can also type the domain name for the resource. Examples:

- CloudFront distribution domain name: d111111abcdef8.cloudfront.net
- Elastic Beanstalk environment CNAME: example.elasticbeanstalk.com
- ELB load balancer DNS name: example-1.us-east-1.elb.amazonaws.com
- S3 website endpoint: s3-website.us-east-2.amazonaws.com
- Resource record set in this hosted zone: www.example.com

[Learn More](#)

Routing Policy:

Route 53 responds to queries based on regions that you specify in this and other record sets with the same name and type. [Learn More](#)

Region:

Set ID:

Description of this record set that is unique within the group of latency sets.

Example:

My Seattle Data Center

Geolocation: Geolocation routing lets you choose where your traffic will be sent based on the geographic location of your users (ie the location from which DNS queries originate).

For example, you might want all queries from Europe to be routed to a fleet of EC2 instances that are specifically configured for your European customers. These servers may have the local language of your European customers and all prices are displayed in Euros.

Alias: ☒ Yes ☐ No

Alias Target:

Alias Hosted Zone ID: Z35SXD0TRQ7X7K

You can also type the domain name for the resource. Examples:

- CloudFront distribution domain name: d1111111abcdef8.cloudfront.net
- Elastic Beanstalk environment CNAME: example.elasticbeanstalk.com
- ELB load balancer DNS name: example-1.us-east-1.elb.amazonaws.com
- S3 website endpoint: s3-website.us-east-2.amazonaws.com
- Resource record set in this hosted zone: www.example.com

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Routing Policy:

Route 53 responds to queries based on the locations from which DNS queries originate. You create a Default location resource record set. [Learn More](#)

Location:

Sublocation:

Set ID:

Description of this record set that is unique within the group of geolocation sets.

Example:

Alias: ☒ Yes ☐ No

Alias Target:

Alias Hosted Zone ID: ZP97RAFLXTNZK

You can also type the domain name for the resource. Examples:

- CloudFront distribution domain name: d1111111abcdef8.cloudfront.net
- Elastic Beanstalk environment CNAME: example.elasticbeanstalk.com
- ELB load balancer DNS name: example-1.us-east-1.elb.amazonaws.com
- S3 website endpoint: s3-website.us-east-2.amazonaws.com
- Resource record set in this hosted zone: www.example.com

[Learn More](#)

Routing Policy:

Route 53 responds to queries based on the locations from which DNS queries origin you create a Default location resource record set [Learn More](#)

Location:

Set ID:

Description of this record set that is unique within the group of geolocation sets.

Example:
Route to Seattle data center

[Create](#)

Failover : Failover routing policies are used when you want to create an active/passive set up. For example you may want your primary site to be in US-East-1 and your secondary DR Site in AP-South-1.

Route53 will monitor the health of your primary site using a health check.

A health check monitors the health of your end points.

Configure health check

Route 53 health checks let you track the health status of your resources, such as web servers or mail servers

Name ⓘ

What to monitor ☐ Endpoint

Monitor an endpoint

Multiple Route 53 health checkers will try to establish a TCP connection with the following resource to determine its health.

Specify endpoint by ☐ IP address

Protocol ☐ HTTP ⓘ

IP address ⓘ

Host name ⓘ

Port * ⓘ

Path / ⓘ

Alias: ☒ Yes ☐ No

Alias Target:

Alias Hosted Zone ID: ZP97RAFLXTNZK

You can also type the domain name for the resource. Examples:

- CloudFront distribution domain name: d1111111abcdef8.cloudfront.net
- Elastic Beanstalk environment CNAME: example.elasticbeanstalk.com
- ELB load balancer DNS name: example-1.us-east-1.elb.amazonaws.com
- S3 website endpoint: s3-website.us-east-2.amazonaws.com
- Resource record set in this hosted zone: www.example.com

[Learn More](#)

Routing Policy:

Route 53 responds to queries using primary record sets if any are healthy, or using s otherwise. [Learn More](#)

Failover Record Type: ☒ Primary ☐ Secondary

Set ID:

Evaluate Target Health: ☐ Yes ☒ No

Associate with Health Check: ☒ Yes ☐ No

[Create](#)

Alias: ☒ Yes ☐ No

Alias Target:

Alias Hosted Zone ID: Z35SXDOTRQ7X7K

You can also type the domain name for the resource. Examples:

- CloudFront distribution domain name: d1111111abcdef8.cloudfront.net
- Elastic Beanstalk environment CNAME: example.elasticbeanstalk.com
- ELB load balancer DNS name: example-1.us-east-1.elb.amazonaws.com
- S3 website endpoint: s3-website.us-east-2.amazonaws.com
- Resource record set in this hosted zone: www.example.com

[Learn More](#)

Routing Policy:

Route 53 responds to queries using primary record sets if any are healthy, or using : record sets otherwise. [Learn More](#)

Failover Record Type: ☐ Primary ☒ Secondary

Set ID:

Evaluate Target Health: ☐ Yes ☒ No

Associate with Health Check: ☐ Yes ☒ No

[Create](#)

Multivalue answer routing policy – Use when you want Amazon Route 53 to respond to DNS queries with up to eight healthy records selected at random.

1. Which type of record is commonly used to route traffic to an IPv6 address?

- A. An A record
- B. A CNAME
- C. An AAAA record
- D. An MX record

2. Where do you register a domain name?

- A. With your local government authority
- B. With a domain registrar
- C. With InterNIC directly
- D. With the Internet Assigned Numbers Authority (IANA)

3. You have an application that for legal reasons must be hosted in the United States when U.S. citizens access it. The application must be hosted in the European Union when citizens of the EU access it. For all other citizens of the world, the application must be hosted in Sydney. Which routing policy should you choose in order to achieve this?

- A. Latency-based routing
- B. Simple routing
- C. Geolocation routing
- D. Failover routing

4. Which type of DNS record should you use to resolve an IP address to a domain name?

- A. An A record
- B. A C Name
- C. An SPF record
- D. A PTR record

5. You host a web application across multiple AWS regions in the world, and you need to configure your DNS so that your end users will get the fastest network performance possible. Which routing policy should you apply?

- A. Geolocation routing
- B. Latency-based routing
- C. Simple routing
- D. Weighted routing

6. Which DNS record should you use to configure the transmission of email to your intended mail server?

- A. SPF records

- B. A records
- C. MX records
- D. SOA record

7. Which DNS records are commonly used to stop email spoofing and spam?

- A. MX records
- B. SPF records
- C. A records
- D. C names

8. You are rolling out A and B test versions of a web application to see which version results in the most sales. You need 10 percent of your traffic to go to version A, 10 percent to go to version B, and the rest to go to your current production version. Which routing policy should you choose to achieve this?

- A. Simple routing
- B. Weighted routing
- C. Geolocation routing
- D. Failover routing

9. Which DNS record must all zones have by default?

- A. SPF
- B. TXT
- C. MX
- D. SOA

10. Your company has its primary production site in Western Europe and its DR site in the Asia Pacific. You need to configure DNS so that if your primary site becomes unavailable, you can fail DNS over to the secondary site. Which DNS routing policy would best achieve this?

- A. Weighted routing
- B. Geolocation routing
- C. Simple routing
- D. Failover routing

11. Which type of DNS record should you use to resolve a domain name to another domain name?

- A. An A record
- B. A CNAME record
- C. An SPF record
- D. A PTR record

12. Which is a function that Amazon Route 53 does not perform?

- A. Domain registration
- B. DNS service
- C. Load balancing
- D. Health checks

13. Which DNS record can be used to store human-readable information about a server, network, and other accounting data with a host?

- A. A TXT record
- B. An MX record
- C. An SPF record
- D. A PTR record

14. Which resource record set would not be allowed for the hosted zone example.com?

- A. www.example.com
- B. www.aws.example.com
- C. www.example.ca
- D. www.beta.example.com

15. Which port number is used to serve requests by DNS?

- A. 22
- B. 53
- C. 161
- D. 389

16. Which protocol is primarily used by DNS to serve requests?

- A. Transmission Control Protocol (TCP)
- B. Hyper Text Transfer Protocol (HTTP)
- C. File Transfer Protocol (FTP)
- D. User Datagram Protocol (UDP)

17. Which protocol is used by DNS when response data size exceeds 512 bytes?

- A. Transmission Control Protocol (TCP)
- B. Hyper Text Transfer Protocol (HTTP)
- C. File Transfer Protocol (FTP)
- D. User Datagram Protocol (UDP)

18. What are the different hosted zones that can be created in Amazon Route 53?

- A. Public hosted zone
- B. Global hosted zone
- C. Private hosted zone
- D. 1 and 2
- E. 1 and 3
- F. 2 and 3
- G. 1, 2, and 3

19. Amazon Route 53 cannot route queries to which AWS resource?

- A. Amazon CloudFront distribution
- B. Elastic Load Balancing load balancer
- C. Amazon EC2
- D. AWS OpsWorks

20. When configuring Amazon Route 53 as your DNS service for an existing domain, which is the first step that needs to be performed?

- A. Create hosted zones.
- B. Create resource record sets.
- C. Register a domain with Amazon Route 53.
- D. Transfer domain registration from current registrar to Amazon Route 53.

Answers:

1. C. An AAAA record is used to route traffic to an IPv6 address, whereas an A record is used to route traffic to an IPv4 address.
2. B. Domain names are registered with a domain registrar, which then registers the name to InterNIC.
3. C. You should route your traffic based on where your end users are located. The best routing policy to achieve this is geolocation routing.
4. D. A PTR record is used to resolve an IP address to a domain name, and it is commonly referred to as “reverse DNS.”
5. B. You want your users to have the fastest network access possible. To do this, you would use latency-based routing. Geolocation routing would not achieve this as well as latency based routing, which is specifically geared toward measuring the latency and thus would direct you to the AWS region in which you would have the lowest latency.
6. C. You would use Mail eXchange (MX) records to define which inbound destination mail server should be used.

7. B. SPF records are used to verify authorized senders of mail from your domain.
8. B. Weighted routing would best achieve this objective because it allows you to specify which percentage of traffic is directed to each endpoint.
9. D. The start of a zone is defined by the SOA; therefore, all zones must have an SOA record by default.
10. D. Failover-based routing would best achieve this objective.
11. B. The CNAME record maps a name to another name. It should be used only when there are no other records on that name.
12. C. Amazon Route 53 performs three main functions: domain registration, DNS service, and health checking.
13. A. A TXT record is used to store arbitrary and unformatted text with a host.
14. C. The resource record sets contained in a hosted zone must share the same suffix.
15. B. DNS uses port number 53 to serve requests.
16. D. DNS primarily uses UDP to serve requests.
17. A. The TCP protocol is used by DNS server when the response data size exceeds 512 bytes or for tasks such as zone transfers.
18. B. Using Amazon Route 53, you can create two types of hosted zones: public hosted zones and private hosted zones.
19. D. Amazon Route 53 can route queries to a variety of AWS resources such as an Amazon CloudFront distribution, an Elastic Load Balancing load balancer, an Amazon EC2 instance, a website hosted in an Amazon S3 bucket, and an Amazon Relational Database (Amazon RDS).
20. D. You must first transfer the existing domain registration from another registrar to Amazon Route 53 to configure it as your DNS service.

Route53 is Amazon's DNS Service.

- A. Yes
- B. No

Does Route 53 support MX Records?

- A. Yes
- B. No
- C. Only in US Region

Route53 is named so because

- A. It was invented in 1953
- B. Rote 63 is registered with Microsoft
- C. DNS port is on Port 53 and Route 53 is a DNS Service
- D. Only marketing people can tell the reason behind its name

Route53 does not support zone apex records (or naked domain names)

- A. Correct
- B. Incorrect
- C. Only in US-East-1

There is a limit to the number of domain names that you can manage using Route 53.

- A. True. There is a hard limit of 10 domain names. You cannot go above 10.
- B. True and False. There is a limit of 50 domain names however this limit can be raised by contacting AWS support.
- C. False. AWS can support as many domain names on Route53 as you want, by default.