Amazon Route 53

It performs three main functions.

1. Register a domain if needed.
2. Helps to connect the browser with the website/web app when the user enters the domain name.
3. Checks health of resources by sending automated request over the internet to a resource.

Benefits

1. Highly reliable
2. Scalable (Automatically handles large queries without the user’s interaction)
3. Easy to use
4. Cost effective (U are paying only the amount of traffic/request u received, Hosted Zones etc)
5. Secure (Its integrated with AWS IAM)

Types of Routing Policy

1. Simple routing
   1. Route traffic/website to resource/web server
   2. Respond to DNS queries based only on the values in the resource record set (i.e the IP)
2. Failover routing
   1. If the server is down, it will route to healthy/different resource.
   2. All initial requests will go to primary, in case of constant failure, will be redirected to failover.
3. Geolocation routing
   1. Use when you want to route traffic based on the location of your users.
   2. It localized the content.
   3. Route based on continent/contry/state etc.
4. Geoproximity routing
   1. Use when you want to route traffic based on the location of your resources and, optionally, shift traffic from resources in one location to resources in another
   2. Option to route traffic or less to a given resource by config, known as bias
   3. Bias expands or shrinks the size of the geographic location form which traffic is routed to a resource.
5. Latency based routing
   1. Performance/Improves user experience from providing services from AWS region that provides lowest latency.
   2. To use this, we create Latency record in multiple AWS region.
6. Multivalue answer routing
   1. Configure route 53 to return multiple values in response to DNS queries.
   2. We can define 8 records/servers and AWS will do random routing/ Healthy servers.
7. Weighted routing
   1. Useful load balancing and testing new version software.
   2. You update the environment and redirect 10% to redirect to specifc server.

Key Features

1. Traffic flow
2. Domain registration
3. Health checks
4. Weighted round robin load balancing

Access Route 53

1. AWS management console
2. AWS SDKs
3. Route 53 API
4. AWS cli
5. AWS tools for windows power shell

DNS vs Route53

Route 53 is managed service for DNS

<https://www.youtube.com/watch?v=BtiS0QyiTK8&ab_channel=Simplilearn>

MCQ

1. Default DNS IP IN AWS VPC?
   1. When we create VPC, Default DNS IP is assigned.
   2. If u have 172.16.0.0/16, then 172.16.0.**2** is default DNS IP.
   3. If u have 10.1.0.0/16, then 10.1.0.**2** is default DNS IP.
2. Why Route 53?
   1. Route => Load balancer, 53 is port of DNS
      1. Its Global Service
      2. If you want to load balance your service across your region
   2. Elastic Load Balancer
      1. Its regional service
      2. If you want to load balance your service within region, use Elastic load balancer.
3. What is difference b/w public and private hosted zone?
   1. Whenever we host a domain on AWS, its knowns as hosted zone. It has its own hosted zone id.
   2. Public domain can be access anywhere/internet.
   3. Private can be accessed only single VPC/ or multiple VPC associated with private hosted zone, all resources and VPC under them can access this private hosted zone.
4. Can we create private hosted zone without creating VPC?
   1. No, because private hosted zone is used within VPC.
5. Can we point a domain to S3 bucket?
   1. Yes, and much more.
6. What are default records you get when hosted zone is created?
   1. NS = nameserver
   2. SOA = start of authority.
7. Can I host example.com as private and public hosted zone?
   1. Yes, you can.
   2. Private hosted zone will be specific to a VPC.
   3. Public hosted zone will serve internet
8. How can I check history of changes I made to hosted zone?
   1. Cloud Trail
9. Can I use private DNS if I don’t’ want to use VPC?
   1. No. WE cannot use private DNS , if we don’t have a VPC.
10. Can I use Private Hosted Zone across Regions?
    1. Yes, but make sure, those regions are connected with each other via vpc
11. Can I configure backup site in case of failure?
    1. Yes.
12. Do I need connectivity to the outside internet to use Private DNS
    1. To use Private DNS, its not required to have internet
    2. To update system from outside world you need internet.
13. If my endpoint recovers, how does DNS failover reversed?
    1. You have 2 endpoints, DNS will conduct random health checks based on configuration.
       1. A (Primary)
       2. B (Failure)
    2. If all healthchecks are failed, u can get notifications but AWS route 53 will consider the app down.
14. Can I set health check on such URL which redirects to another?
    1. It’s not allowed, temp/perm redirection is not allowed. Code (301,302)
15. What would happen if my all health checks fails?
    1. Configure Cloud watch alarms.
16. How will I be notified if my health check fails?
    1. Cloud Watch Alarms
17. Can I configure health check based on CPU load, Disk usage, network and memory Usage?
    1. Yes.
18. What could be endpoint for my A record (Address record)?
    1. It can be any IP
       1. Cloud Front distribution
       2. Elastic beanstalk
       3. Amazon API Gateway
       4. VPC endpoint
       5. ELB
19. What type of record does AWS route 53 support?
    * 1. A (Address record)
      2. AAAA (IPv6 address record)
      3. CAA (Certification authority authorization)
      4. CNAME (canonical name record)
      5. NS
      6. PTR

Notes:

DNS: translates domain names to IP Addresses to route traffic to websites.

Private DNS prevents these names and your network topology from being exposed to public internet.

You use AWS Route 53 to configure split-view DNS, also known as split-horizon DNS

Enables to maintain both internal and external version of the same website/application by configuring public and private hosted zones to return different internal and external IP addresses for the same domain name.

Useful for tesing changes before making them public

Using Alias helps AWS to redirect to the active Alias value automatically. Ex: a customer has an alias record for ELB load balancer, If IP of the load balancer changes, AWS Route 53 will automatically reflect those changes w/o any changes to the hosted zone that contains the record sets.

<https://www.youtube.com/watch?v=kFWCD3Gu6dY&ab_channel=ServerGyan>

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1. DNS is a collection of rules and records which helps clients understand how to reach a server through URLs.
2. In AWS, the most common records are
   1. A: URL to IPv4
   2. AAAA: URL to IPv6
   3. CNAME: URL to URL
   4. Alias: URL to AWS resource



