Cloud Domain Name System

TJ Cloud Computing Club

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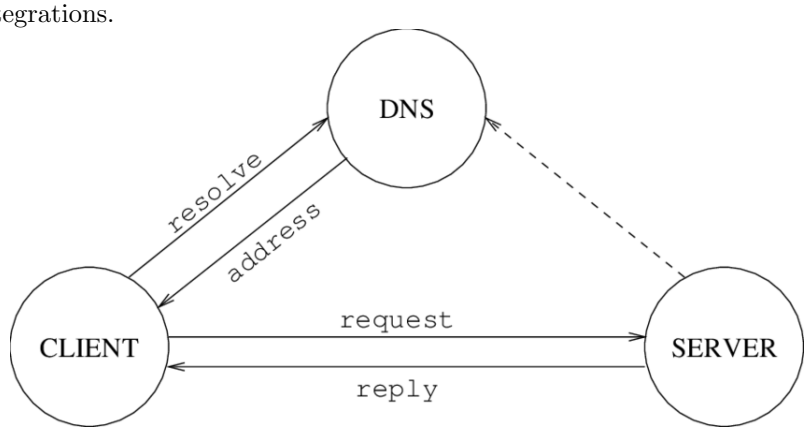
1 Introduction

Networking tools provide an important aspect of cloud computing because it allows you to securely connect to the cloud and then isolate, control, and distribute your applications across resources. A place to start off using networking tools is the cloud domain name system (DNS).

2 What is a DNS

DNS is a hierarchical distributed database that lets you store IP addresses and other data, and look them up by name. Most cloud computing services offers both publicly managed and privately managed DNS zones. A public zone is visible to the public Internet, while a private zone is visible only from one or more virtual private cloud networks that you specify. Individual services also have other DNS appliances that can be used to add layers of security or service integrations.



3 Differences in AWS, GCP, and Azure

Like many other tools, Amazon Web Services, Google Cloud, and Azure all have ways to host domains. THe names of the services are listed below:

- AWS Amazon Route 53
- GCP Cloud DNS
- Azure DNS

4 How Domain Registration Works

If you want to create a website or a web application, you start by registering the name of your website, known as a domain name. Your domain name is the name, such as example.com, that your users enter in a browser to display your website.

1. You choose a domain name and confirm that it's available, meaning that no one else has registered the domain name that you want. If it is in use, you can change the top-level domain (.com to .potato)
2. When you register a domain, you provide names and contact information for the domain owner and other contacts.
3. The service creates a hosted zone with the same name as the domain and a number of name servers which are used to tell the browser where to find resources.

5 AWS Example: Route 53

- **Registering Domain**
  - Sign into AWS Management console and go to **Route 53**
  - Under **Domain Registration** choose **Get Started Now** and click on **Register Domain**
  - Enter the domain name and click on **Check** to see if it is available
- **Creating S3 Bucket to Host Website**
  - Create a bucket and enter the name of your domain (example.com) as your **Bucket Name**
  - On the **Configure Options** click next for defaults
  - On the **Set Permissions** page, uncheck the **Block all public access** box
  - Create the bucket

- **Settings**
  - Choose the name of the bucket you just created and click **Properties**
  - Choose **Static Website Hosting**
  - Choose **Redirect Requests** and the target bucket domain should be the name of the bucket you created and **protocol** should be **http**
  - After saving, you should be able to upload html to your bucket.
- **Route DNS Traffic**
  - Open the **Route 53** console and choose **Hosted Zones**
  - Choose the name of your domain and choose **Create Record Set**
  - **Name:** Default
  - **Type:** A – IPv4 address
  - **Alias:** Yes
  - **Alias Target:** For the first record, choose the bucket name that has the same name as the hosted zone and for the second record, choose the bucket www.your-domain-name
  - **Routing Policy:** Simple
  - **Evaluate Target Health:** No
- **Test Your Website!** Navigate to http://your-domain-name to see your website running.

5.1 AWS Integrations

One thing useful about using AWS is there are many other tools that can be used with Route 53 for monitoring resources. Here are a few:

- **AWS CloudTrail:** a service that captures information about every request that is sent to the Route 53 API, including source IP address.
- **Amazon CloudWatch:** monitors the status of Route 53 health checks of web applications (functionality)
- **Amazon CloudFront:** speeds up delivery of web content by using the AWS content delivery network (CDN)