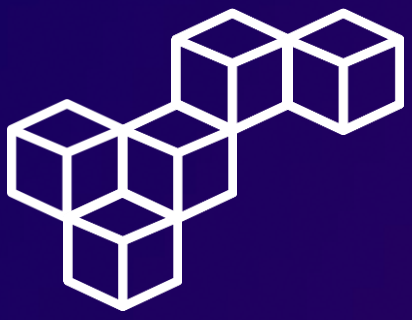
AWS re:Start LAB

Amazon Route 53 Failover Routing

WEEK 9

aws re/start



Overview

Amazon Route 53 offers various routing policies that significantly enhance the performance and reliability of your applications. These policies, including weighted, latency, and geolocation routing, allow you to manage DNS queries effectively, directing traffic based on specific needs to optimize user experiences. By configuring health checks within Route 53, you can continuously monitor the health of your endpoints and receive email notifications if an endpoint becomes unhealthy, enabling you to take immediate corrective action.

Failover routing in Route 53 is crucial for maintaining high availability and implementing disaster recovery strategies. This configuration ensures that traffic is automatically redirected to a secondary resource if the primary one fails, using health checks to verify the status of endpoints continuously. By ensuring traffic is only routed to healthy instances, failover routing minimizes downtime and enhances service reliability. This setup guarantees that your application remains accessible even during outages, providing a robust solution for managing DNS traffic and maintaining continuous availability of critical applications.

Topics covered

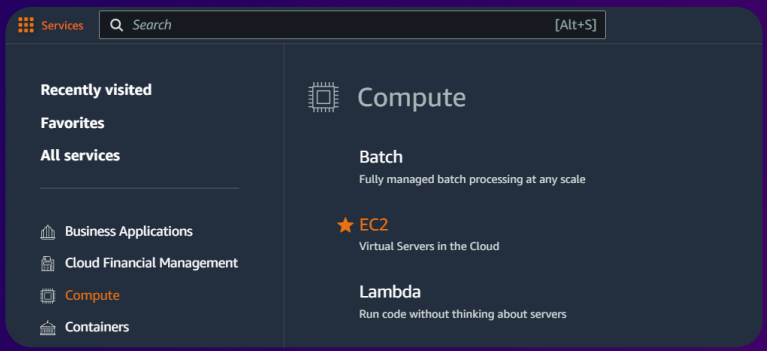
- Configure a Route 53 health check that sends emails when the health of an HTTP endpoint becomes unhealthy.
- Configure failover routing in Route 53.

Task 1

Confirming the café websites

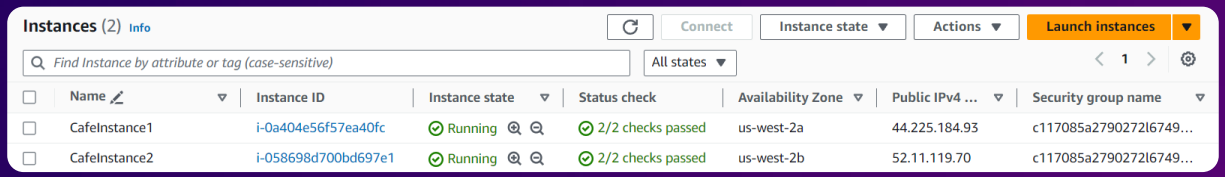
Step 1: Access the EC2 Management Console

Open the AWS Management Console, and select EC2.



Step 2: Review Instances

Navigate to the **Instances** section. Two EC2 instances have already been created for you. **CafeInstance1** is running in Cafe Public Subnet 1 (us-west-2a), and **CafeInstance2** is running in Cafe Public Subnet 2 (us-west-2b).



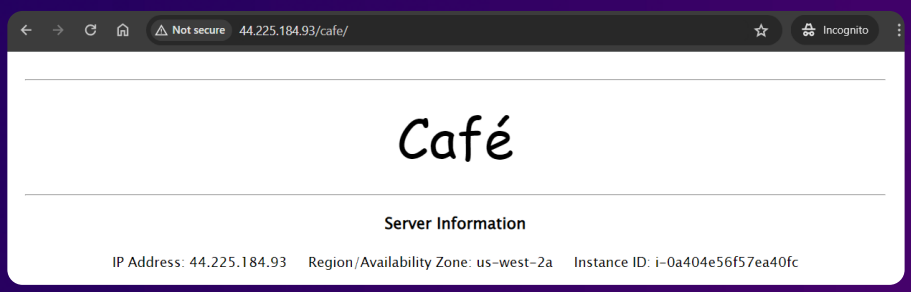
aws re/start

Task 1

Confirming the café websites

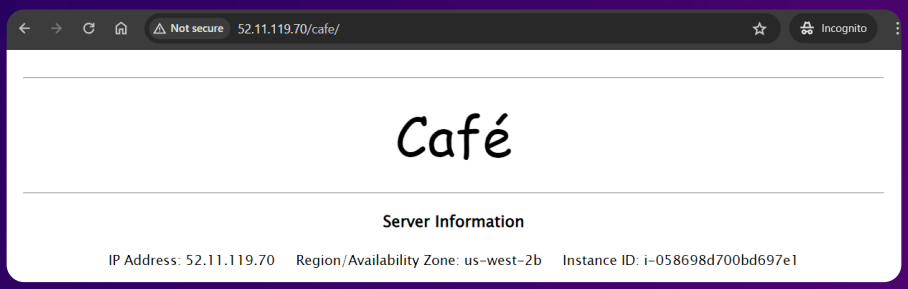
Step 3: Review the Primary Website

Although both EC2 instances have the same configuration and application installed, one instance is a primary instance. Access the primary instance website URL. Notice the Server Information that is displayed. It shows information about the EC2 instance and the Availability Zone where it is running.



Step 4: Review the Secondary Website

Review the secondary instance website. These configurations confirm that the café application is running on both instances.



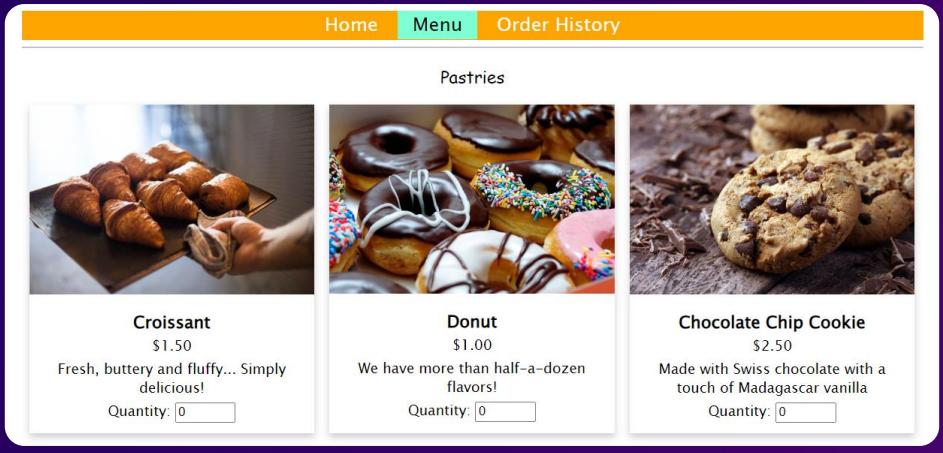
aws re/start

Task 1

Confirming the café websites

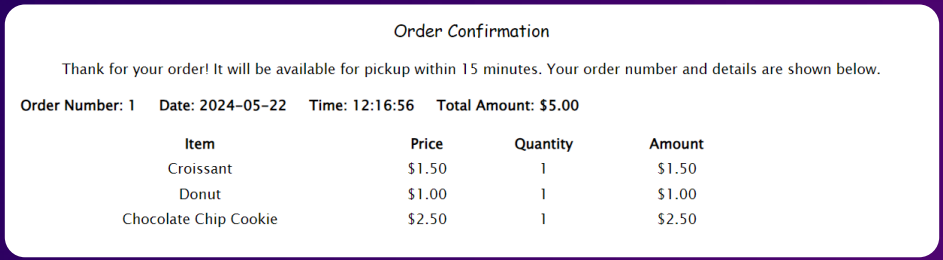
Step 5: Submit Order

On one of the websites, choose **Menu**. Choose any item on the menu, and choose **Submit Order**.



Step 6: Review Order Confirmation

The **Order Confirmation** page reflects the time that the order was placed in the time zone where the web server is running.



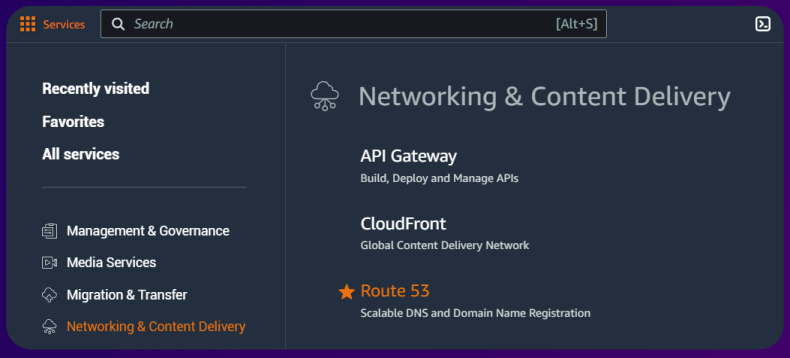
aws re/start

Task 2

Configuring a Route 53 health check

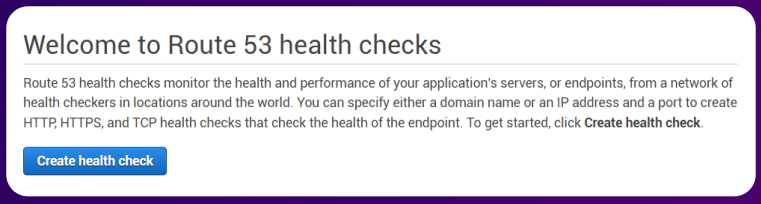
Step 1: Access the Route 53 Console

In the AWS Management Console, select Route 53.



Step 2: Create health check

Navigate to the **Health checks** section, and select Create health check.



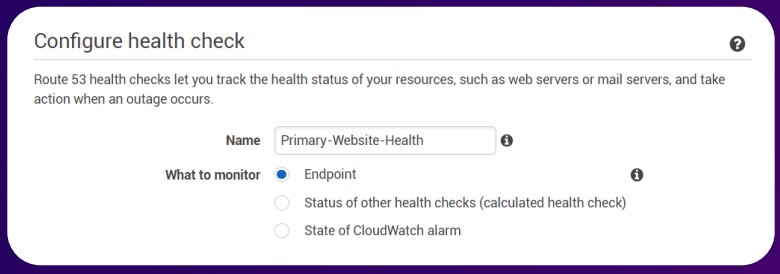
aws re/start

Task 2

Configuring a Route 53 health check

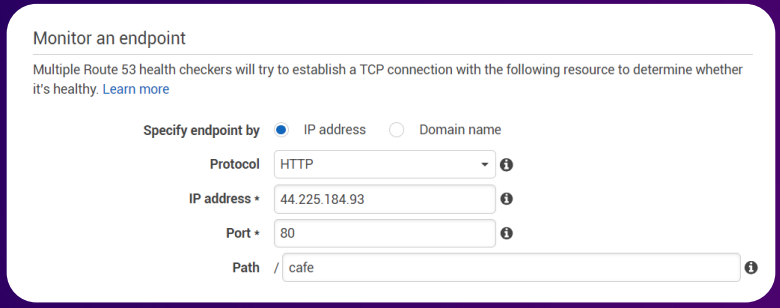
Step 3: Configure health check

In the **Configure health check** section, configure the following settings.



Step 4: Monitor an endpoint

In the **Monitor an endpoint** section, configure the following settings.



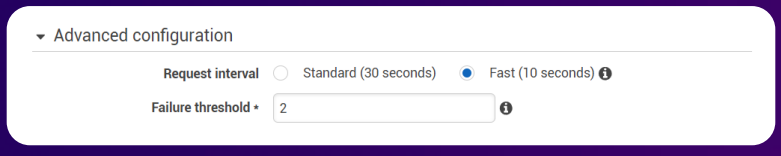
aws re/start

Task 2

Configuring a Route 53 health check

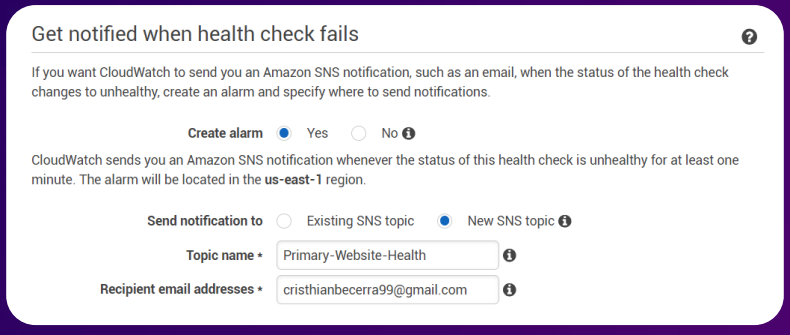
Step 5: Advanced configuration

In the **Advanced configuration** section, configure the following settings.



Step 6: Get notified when health check fails

In the **Get notified when health check fails** section, configure the following settings.



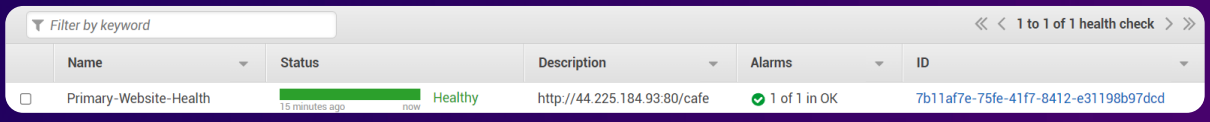
aws re/start

Task 2

Configuring a Route 53 health check

Step 7: Review Health Check Status

Route 53 now checks the health of your site by periodically requesting the domain name that you provided and verifying that it returns a successful response. Review the Healthy Health Check Status.



Step 8: Monitoring

Select the **Primary-Website-Health** health check, and choose the **Monitoring** tab. This tab provides a view of the status of the health check over time. Review the Health Check charts.

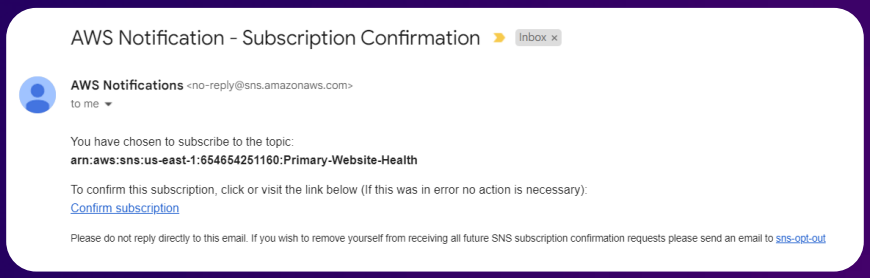
aws re/start

Task 2

Configuring a Route 53 health check

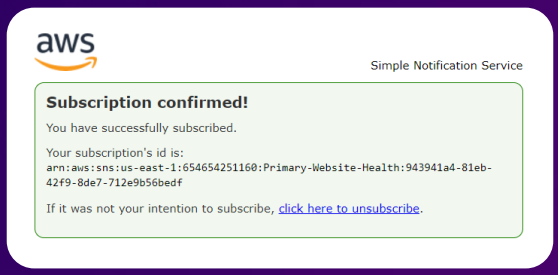
Step 9: Check your email

Check your email. You should have received an email from AWS Notifications.



Step 10: Confirm subscription

In the email, choose the Confirm subscription link to finish setting up the email alerting that you configured when you created the health check.



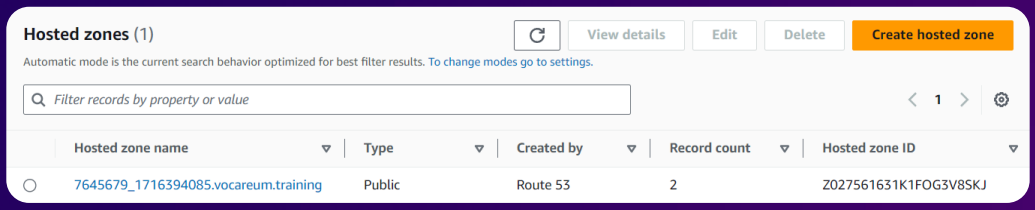
aws re/start

Task 3

Configuring Route 53 records

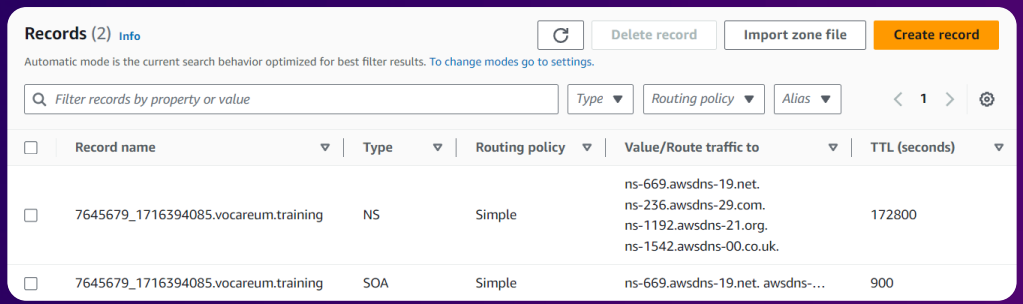
Step 1: Review Hosted zones

Navigate to the **Hosted Zones** section. A unique domain name has already been created for you. Select your Hosted zone name.



Step 2: Review Records

Two records that already exist in this hosted zone are displayed, the **NS** or name server record, and the **SOA** or start of authority record. These two records were created when the domain was registered with Route 53. Choose Create record.



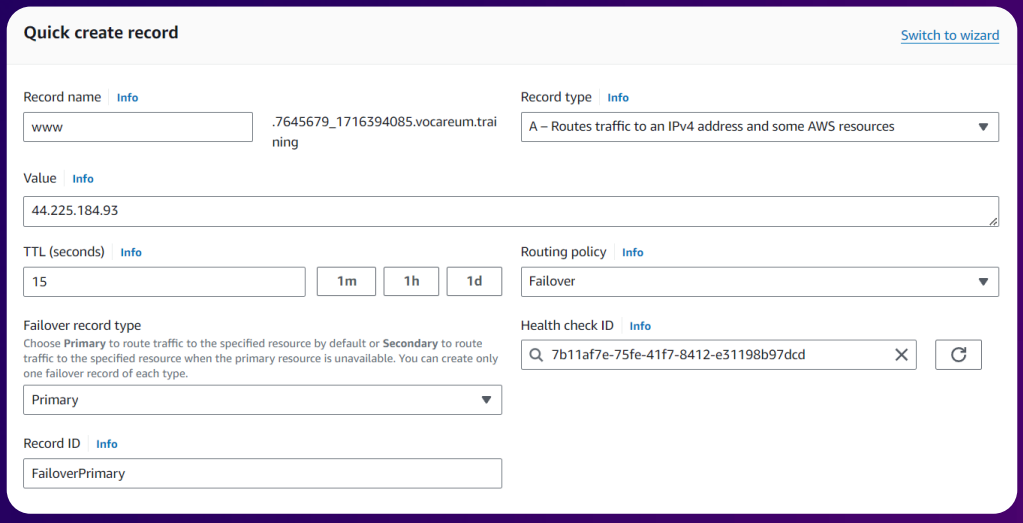
aws re/start

Task 3

Configuring Route 53 records

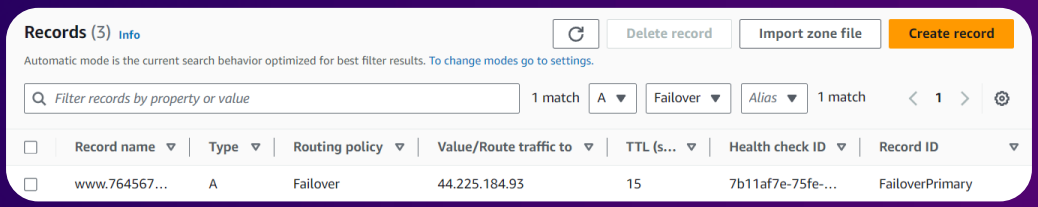
Step 3: Create a primary record

In the **Quick create record** section, configure the following settings to create an A record for the primary website.



Step 4: Review record

The A-type record that you created should now appear on the Hosted zones page. Choose Create record.



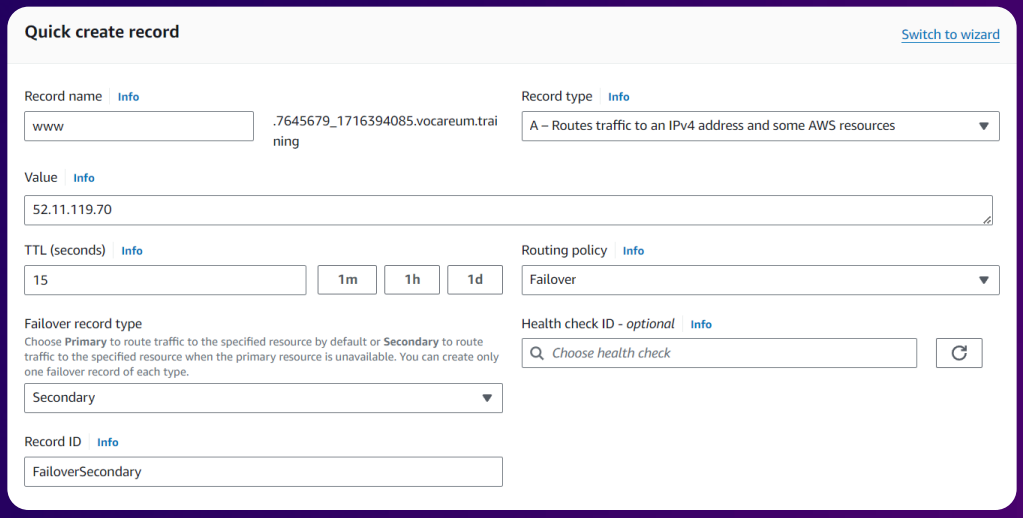
aws re/start

Task 3

Configuring Route 53 records

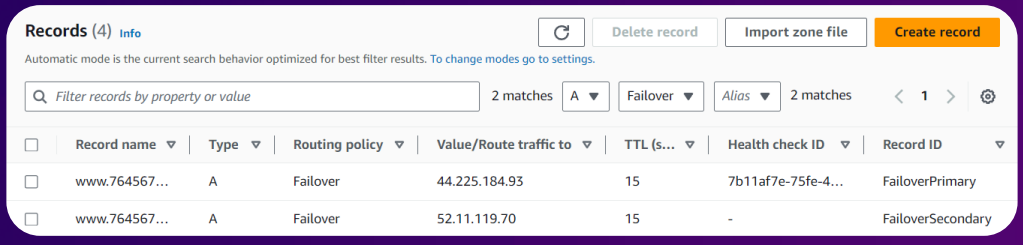
Step 5: Create a secondary record

In the **Quick create record** section, configure the following settings to create an A record for the secondary website.



Step 6: Review records

Another A-type record should now be listed on the Hosted zones page.



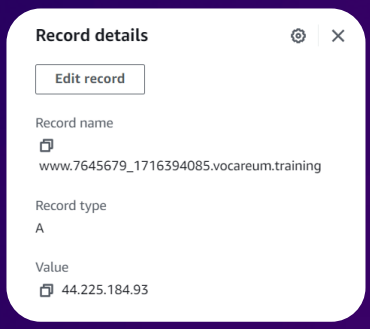
aws re/start

Task 4

Verifying the DNS resolution

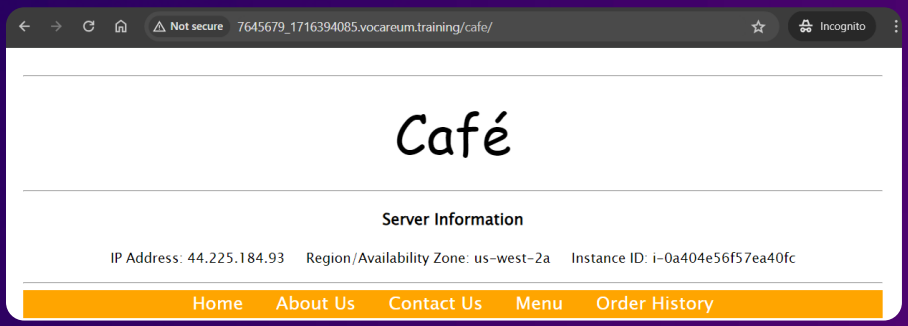
Step 1: Review Record details

Select the check box for either one of the A records. A Record details panel appears that includes the Record name.



Step 2: Access the Record name

Access the Record name, enter /cafe at the end of the URL, and then load the page. The café primary website should load, as indicated by the Server Information section of the page, which should display the Region/Availability Zone.



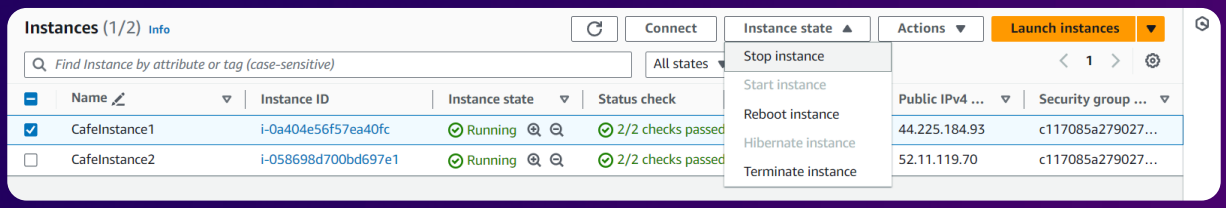
aws re/start

Task 5

Verifying the failover functionality

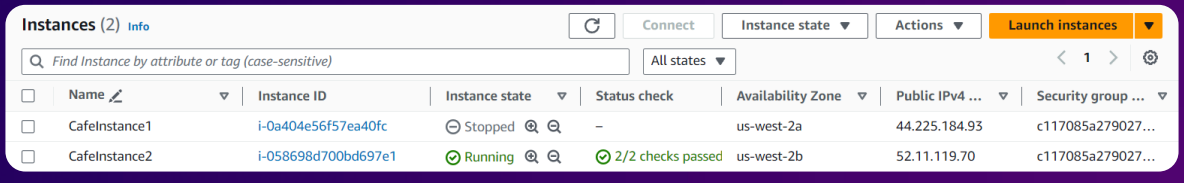
Step 1: Simulate a failure

Simulate a failure by manually stopping **CafeInstance1**. Navigate to the **Instances** section, select the **CafeInstance1** instance, and choose Stop instance.



Step 2: Review Instance state

The **CafeInstance1** Instance state changed to Stopped.



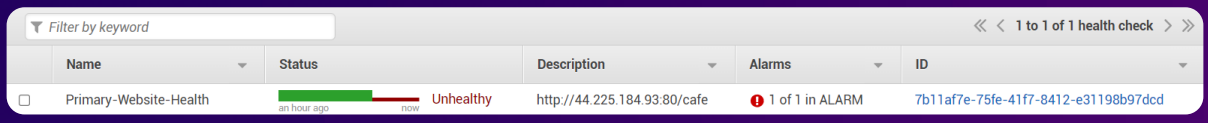
aws re/start

Task 5

Verifying the failover functionality

Step 3: Review Health Check Status

The primary website now stops functioning. The Route 53 health check that you configured notices that the application is not responding, and the record entries that you configured cause DNS traffic to fail over to the secondary EC2 instance. Navigate to the **Health checks** section. Review the Unhealthy Health Check Status.



Step 4: Review Monitoring

Select the **Primary-Website-Health** health check, and choose the **Monitoring** tab. You should see failed health checks within minutes of stopping the EC2 instance.

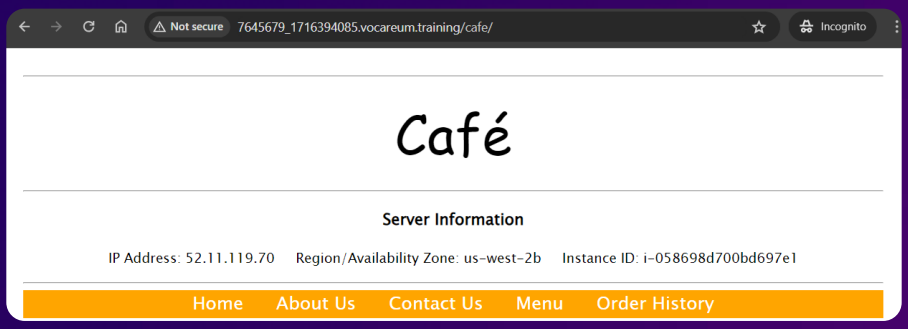
aws re/start

Task 5

Verifying the failover functionality

Step 5: Review failover

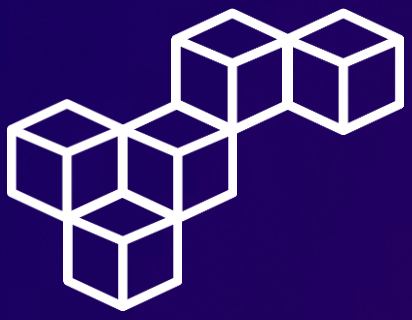
Reload the website accessed using the Record name. Notice that the Region/Availability Zone value now displays a different Availability Zone (us-west-2b instead of us-west-2a). You are now seeing the website served from your **CafeInstance2** instance.



Step 6: Review alarm email

Check your email. You should have received an email from AWS Notifications titled "ALARM: Primary-Website-Health-awsroute53-..." with details about what initiated the alarm.

aws re/start



Conclusions

Amazon Route 53 Routing Policies

Amazon Route 53 Routing Policies enhance traffic management by directing DNS queries based on weighted, latency, geolocation, and other criteria.

Failover Routing

Failover Routing in Route 53 ensures high availability by automatically redirecting traffic to a secondary resource if the primary endpoint fails.

Amazon Route 53 Health Checks

Amazon Route 53 Health Checks continuously monitor the status of endpoints and notify administrators via email when an endpoint becomes unhealthy.

Hosted Zones

Hosted Zones in Route 53 represent a domain and contain the DNS records that define how traffic is routed for that domain.

Records

DNS records in Route 53, such as A, CNAME, and MX records, are crucial for directing traffic and specifying resource locations within hosted zones.

aws re/start

Cristhian Becerra

cristhian-becerra-espinoza

+51 951 634 354

cristhianbecerra99@gmail.com

Lima, Peru