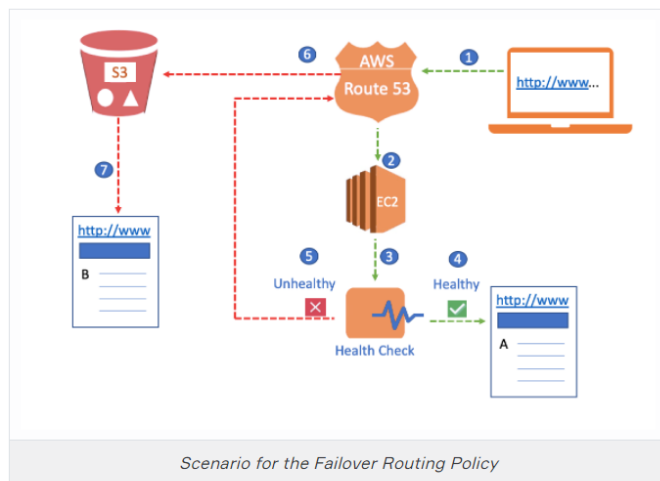# Example of Failover Routing Policy
Scenario for the Failover Routing Policy

Scenario for the Failover Routing Policy

As you remember, in the previous lesson we created EC2 instance installed **httpd** and **Static Website on S3**.

Assume that we map an **EC2 instance** as a web server via Route 53 **A Record**

But in case of failover situations, we are also hosting a website on **S3 bucket** via **Alias Record.**
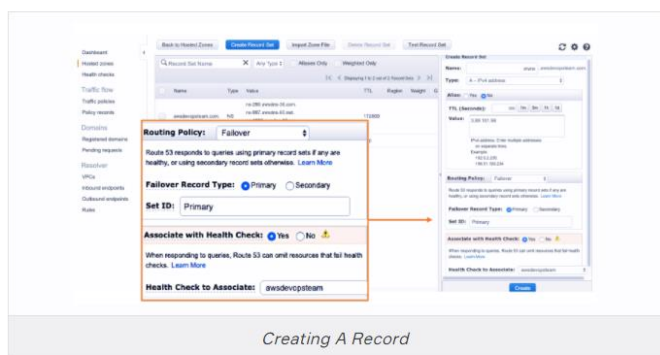
If the health check of EC2 instance occurs **unhealthy** then the other web site hosted in S3 bucket will respond automatically.

Let's do it on AWS Management Console.

Creating EC2 Instances Installed with httpd

Creating Static Website on S3

Setting Failover Policy-EC2 Instance Server

Creating A Record

- First, we'll create an A Record called **Primary** to map IP of the EC2 instance to a web site. So,

- Select **Hosted Zones** on the left-hand menu and then click on **Public Hosted Zone.**

- On the page opened, click **Create Record Set** tab.

Now, Let's begin to create record;

- **Name:**

Here we enter **www**. So we want to reach our web site when entering the browser **wwww.awsdevopsteam.com.**

- **Type:**

We select the record type as A Record-IPv4 address

- **Alias:**

Leave it as default,**No**

- **TTL (Seconds):**

This time we select 1 minute (60 seconds) rather than 300 seconds. Because, the longer TTL value, the longer it takes to switch to a healthy server.

- **Value:**

We enter **Public IP of EC2 Instance** determined as a webserver.

3.89.101.98

- **Routing Policy:**

We select **Failover** Policy

- **Failover Record Type:**

Here, we have two options; Primary and Secondary. We create this record for the webserver installed in EC2 instance and according to our scenario, it's determined as our primary server that will be responded first by Route 53 until it fails. So select **Primary** option

- **Set ID:**

Leave it as Primary

- **Associate with Health Check:**

Here we select whether the record will be associate with Health Check. Since it's a failover scenario, we need to check the Primary server to switch the secondary server in case of any malfunction or latency. So, we select **Yes.**
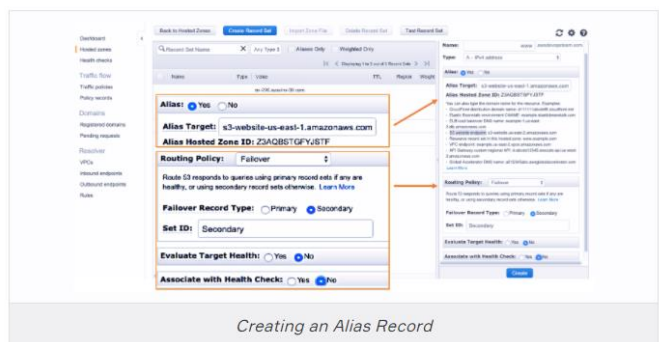
- **Health Check to Associate:**

We select the **Health Check** that we created before.

> **Review of Creating Health Check**
>
> ⚠ **Avoid ! :**
> - If you start/stop your instance after created a health check, you need to edit "Health Check". So, first, select "Health Check" on the left-hand menu and click the "checkbox" near your health check. Then, select "Edit Health Check". Finally, correct the IP address If it's wrong.

Setting Failover Policy-S3 Bucket Static Web Site

Creating an Alias Record

- Now, we'll create an Alias Record called **Secondary** to map the static web site in S3 bucket.

- Select **Hosted Zones** on the left-hand menu and then click on **Public Hosted Zone.**

- On the page opened, click **Create Record Set** tab.

Now, Let's begin to create a record;

- **Name:**

Here we enter **www** again.

> ⚠ **Avoid ! :**
> - Normally, we are not able to create another record set with the same name. But with the help of failover routing policies we're able to create multiple record sets of the same name.

- **Type:**

We select the record type as A Record-IPv4 address

- **Alias:**

Since we use the S3 bucket, we select **Yes.**

- **Alias Target:**

We choose S3 website endpoint.

- **Routing Policy:**

We select **Failover** Policy

- **Failover Record Type:**

Here, we select **Secondary** option

- **Set ID:**

Leave it as Secondary
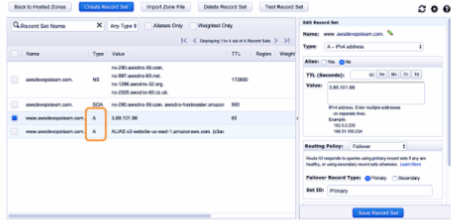
- **Evaluate Target Health:**

Leave it as default, No

- **Associate with Health Check:**

Leave it as default, No
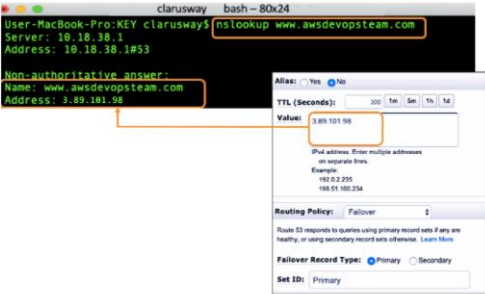
Finally, click **Create**.

Checking Failover Policy

Checking Failover Routing Policy

- As you see in the picture above, There are **multiple** records with the same name and they are listed together with SOA and NS records.
- Let's check from the Terminal. So, we'll use the command of **nslookup** together with the domain name.

```
nslookup www.awsdevopsteam.com (your domain name)
```


Checking on Terminal

- In the picture above, you'll see the IP of 3.89.101.98 listed on the screen. It means the website is running on the EC2 instance. Because we determined EC2 instance as Primary server and until it fails, we'll be returned the value of this IP address.
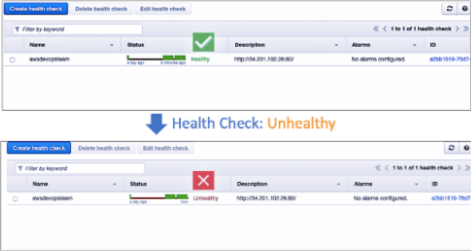

Checking on Web Browser

- When you enter **www.awsdevopsteam.com** on the web browser, Route 53 records ask whether the health check of instance associated with the IP is okay. If the instance is healthy you'll be returned the page of **"Street Fighter Winner KEN"** as you see in the picture above.

So, let's now test the failover.
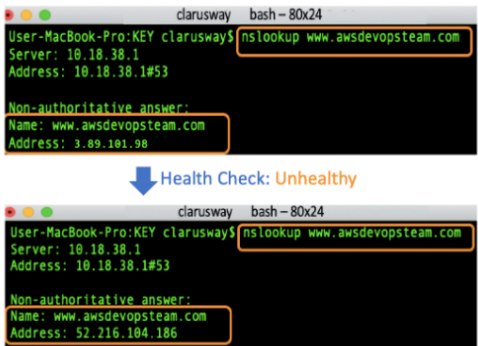

Testing the Failover Policy

- For testing failover;
    - First we will create an artificial malfunction via switching the EC2 instance state to **Stop**
    - Then, Health Check status of this is instance will be unhealthy.
    - After that, Health Check will trigger the failover routing policy
    - Finally, Route 53 will respond as the website hosted in the S3 bucket
- So First of all, let's go to **EC2 dashboard** and click the **Instance** tab on the left-hand side.
- Select the instance determined as a Primary server and **Stop** the instance from **Action** menu.
- Wait for a while (TTL) and then go to **Health Checks** on Route 53 dashboard.
- Select the Health Check that we created. You'll see that status of the health check change from healthy to **unhealthy** as you see in the picture below.
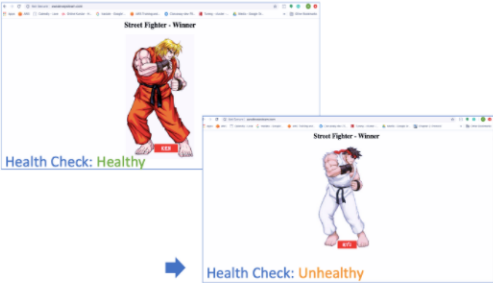

Changing of Health Check's Status

- Let's check from the Terminal. So, we'll use the command of **nslookup** together with the domain name again.

```
nslookup www.awsdevopsteam.com (your domain name)
```


Checking on Terminal

- For the first time, while returned to IP of 3.89.101.98, this time we are returned to IP belonging to S3 endpoint as you see in the picture above

Checking on Web Browser

- Finally, when we enter the domain name, **www.awsdevopsteam.com** on the browser, Route 53 will respond as the website hosted in the S3 bucket which publishes the picture of **"Street Fighter Winner RYU"** on the screen.
- Because, when we stop the EC2 instance, Health Check triggers the failover routing policy and Route 53 maps the traffic to a website hosted S3 which is determined as the secondary server in the record.