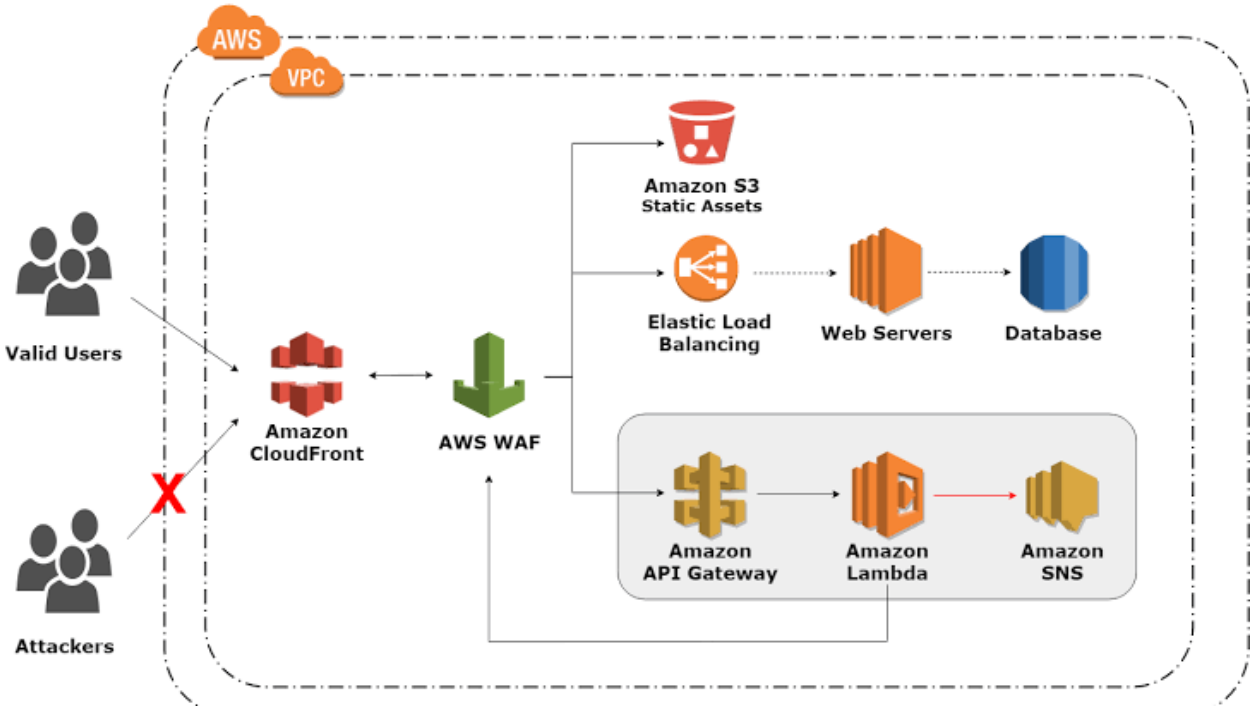
~~Assignment on – Deploying Web Application on AWS CloudFront~~



Basic understanding of Assignment – in this assignment we have to create the infra consisting of services Amazon cloud front, attached to an application firewall which will host both static and dynamic website

The static part will be hosted on S3-bucket while the dynamic part will be hosted on EC2 instances which will be attached to an application load balancer, apart from that we will use the code build , code deploy And code pipeline to implement the project

Detailed explanation of project-

Terraform

S3bucket.tf -the S3 bucket is use to store the artifacts created during the code build , apart from that it is used for hosting the static website

```
bucket = aws_s3_bucket.bucket.bucket


  index_document {
    suffix = "index.html"
  }

  error_document {
    key = "/index.html"
  }
}
```

01-virtualprivatecloud .tf – Is **a private cloud computing environment contained within a public cloud**. Essentially, a VPC provide logically isolated environment in the cloud inside the VPC we have created different services such as,

security groups – is act as a virtual firewall for controlling the incoming and outgoing traffic which allows or block the Ports

```
ingress {
description      = "Allow Port 8000"
from_port        = 8000
to_port          = 8000
protocol         = "tcp"
cidr_blocks      = ["0.0.0.0/0"]
ipv6_cidr_blocks = ["::/0"]
}

egress {
description = "Allow all ip and ports outboun"
from_port   = 0
to_port     = 0
protocol    = "-1"
cidr_blocks = ["0.0.0.0/0"]
}
}
```

Internet gateway – the basic purpose of gateway is to allow the communication between the VPC and internet

Subnet -it is use to define the IP address of the cider block

Rotatable. the file consist of basic creation of the route table and route which uses the default configuration of the rote and an resource that associate the route table

ALB.tf – the file contains the Resource of application load balancer which distribute the load among the different Instance we have create(instance1,instance 2)apart form that it consist of the target groups which target the two subnet created at different availability zone and a listener group and listen to listen to port 80

Instances – we have created two instance where at one with different applications

Instance 1 .- will have the os and ubuntu and code deploy agent is installed and attached to subnet 1

```
subnet_id = aws_subnet.subnet1.id
user_data = <<-EOF
            #!/bin/bash

            sudo apt update -y
            sudo apt install ruby-full -y
            sudo apt install wget -y
            sudo wget https://aws-codedeploy-us-east-1.s3.us-east-1.amazonaws.com/latest/install
            sudo chmod +x ./install
            sudo ./install auto
            sudo service codedeploy-agent status
            sudo service codedeploy-agent restart

            EOF
```

Instance 2 - will have basic Apache server update

```
user_data = <<-EOF
            #!/bin/bash
            sudo apt update
            sudo apt install apache2 -y
            EOF
```

CICD-pipeline.tf - consist of the basic code for the

Code build – the basic purpose of the code build is to build the code from source artifact created in the source stage of pipeline

```
stage {

  name = "Source"

  action {
    name = "name"
```

```
      category = var.category
      owner = "ThirdParty"
      provider = "GitHub"
      version = "1"
      output_artifacts = ["SourceArtifact"]
```

Code deploy – now that source artifact will be used as the input for build stage and that give the output of build artifact

3 now in final stage these artifact will be deployed at S3 (source artifact as static) and at EC2

Code for deployment for EC2

```
  name = "Deploy_to_EC2"

    action {
      name = "Deploy"
      category = "Deploy"
      owner = "AWS"
      provider = "CodeDeploy"
      input_artifacts = ["BuildArtifact"]
      version = "1"
```

S3 (source artifact as static)

```
stage {
    name = "Deploy"

    action {
      name            = "Deploy"
      category        = "Deploy"
      owner           = "AWS"
      provider        = "S3"
      input_artifacts = ["SourceArtifact"]
      version         = "1"
```

Codebuild.tf – the file consist of IAM role and policy for the code

Build along with the resource along with the source destination

```
   source {
    type            = "GITHUB"
    location        = "https://github.com/harshhhit/djangot2.git"
    git_clone_depth = 1
  }

  tags = {
```

```
  Environment = "Test"
}
```

Code deploy- will create the Police and role for the deploy along with application and deploy group is created

Cloud front .tf- CloudFront is **a web service that speeds up distribution of your static and dynamic web content, by storing the cache at edge location. In this code we have created a cloud front and configure it with S3 and loadbalancer**

Configure it with S3

```
    custom_origin_config {

     http_port = 80
     https_port = 443
     origin_protocol_policy = "http-only"
     origin_ssl_protocols = ["TLSv1","TLSv1.1","TLSv1.2"]
```

Configure it with load balancer –

```
custom_origin_config {
  http_port = 80
  https_port = 443
  origin_protocol_policy = "http-only"
  origin_ssl_protocols = ["TLSv1","TLSv1.1","TLSv1.2"]
  }
}

enabled             = true
is_ipv6_enabled     = true
# comment             = "Some comment"
# default_root_object = "index.html"


default_cache_behavior {
```

```
    allowed_methods  = ["HEAD", "DELETE", "POST", "GET", "OPTIONS", "PUT",
"PATCH"]
    cached_methods   = ["GET", "HEAD"]
    target_origin_id = "lbattached"
```

Blocking the region

```
  restrictions {
    geo_restriction {
      restriction_type = "blacklist"
      locations        = ["US", "CA", "GB", "DE"]
    }
  }
```

WAF.tf(Application firewall) – the application firewall let you monitor the HTTP and HTTPS request that are foreword to the cloud front in this file we created the WAF