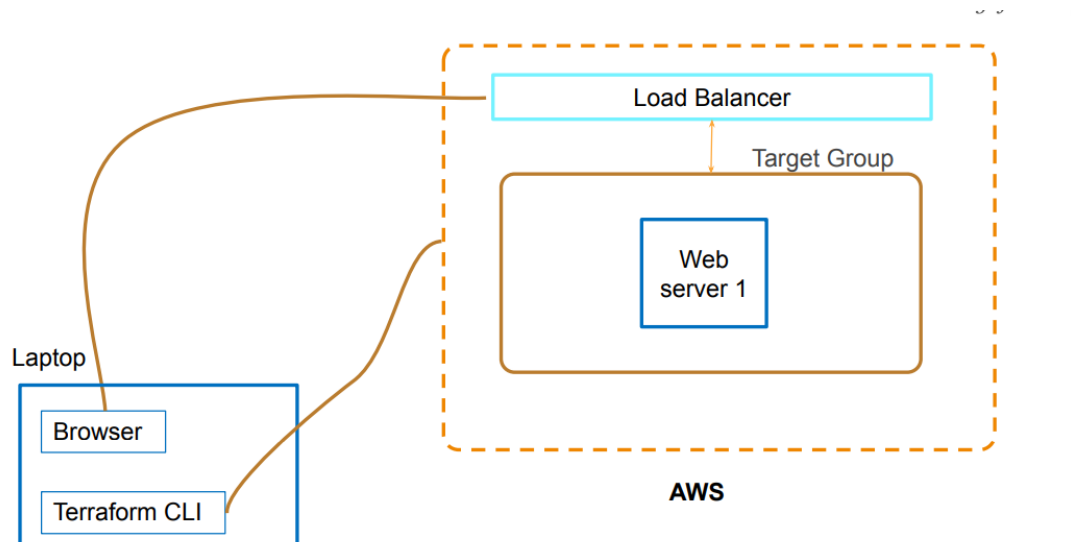


Infrastructure automation using Terraform

Project description:

Here we are creating an application server hosted on Ubuntu. The users will be able to access the application by hitting the load balancer URL. There is a target group configured which will distribute traffic to the EC2 instance accordingly.

Infrastructure diagram:



Implementation steps:

1. First we create an IAM user so that terraform can access the portal and do the necessary changes.
2. Then in the local machine, configure AWS CLI and Terraform CLI
3. Configure AWS CLI with a profile named sriraj. Here is how it's done

Aws configure --profile sriraj

4. Post this we do the infrastructure coding in terraform template format. The specific details are stored in files named **main.tf**, **variables.tf**, **output.tf** and **userdata.sh**

5. Place the above files in the appropriate folder and run the terraform init command to initialize terraform.

Terraform init

6. Then we do terraform plan command and see if there are any errors. If not follow steps below.

Terraform plan

Terraform apply // to create resource

```
root@ip-172-31-19-62: /home x + v
aws_lb_target_group_attachment.web_tg_attachment: Creation complete after 0s [id=arn:aws:elasticloadbalancing:us-east-1:851725346724:targetgroup/webtg/f41b96182967d6aa-20240327081256677500000002]
aws_lb.web_lb: Still creating... [40s elapsed]
aws_lb.web_lb: Still creating... [50s elapsed]
aws_lb.web_lb: Still creating... [1m0s elapsed]
aws_lb.web_lb: Still creating... [1m10s elapsed]
aws_lb.web_lb: Still creating... [1m20s elapsed]
aws_lb.web_lb: Still creating... [1m30s elapsed]
aws_lb.web_lb: Still creating... [1m40s elapsed]
aws_lb.web_lb: Still creating... [1m50s elapsed]
aws_lb.web_lb: Still creating... [2m0s elapsed]
aws_lb.web_lb: Still creating... [2m10s elapsed]
aws_lb.web_lb: Still creating... [2m20s elapsed]
aws_lb.web_lb: Still creating... [2m30s elapsed]
aws_lb.web_lb: Still creating... [2m40s elapsed]
aws_lb.web_lb: Still creating... [2m50s elapsed]
aws_lb.web_lb: Still creating... [3m0s elapsed]
aws_lb.web_lb: Creation complete after 3m2s [id=arn:aws:elasticloadbalancing:us-east-1:851725346724:loadbalancer/app/web
lb/eaf899024846de41]
aws_lb_listener.lb_listener: Creating...
aws_lb_listener.lb_listener: Creation complete after 0s [id=arn:aws:elasticloadbalancing:us-east-1:851725346724:listener
/app/weblb/eaf899024846de41/f68fd74c29dc3db0]

Apply complete! Resources: 6 added, 0 changed, 0 destroyed.

Outputs:

instance_public_ip = "54.237.103.132"
lb_url = "webalb-665140421.us-east-1.elb.amazonaws.com"
root@ip-172-31-19-62: /home/ubuntu/project#
```

7.You can now get the load balancer URL and then hit that in the browser to get the server access.



8.Now to destroy the resources, run **terraform destroy**

```
root@ip-172-31-19-62: /home  x + v
Do you really want to destroy all resources?
  Terraform will destroy all your managed infrastructure, as shown above.
  There is no undo. Only 'yes' will be accepted to confirm.

Enter a value: yes

aws_lb_target_group_attachment.web_tg_attachment: Destroying... [id=arn:aws:elasticloadbalancing:us-east-1:851725346724:targetgroup/webtg/f41b96182967d6aa-20240327081256677500000002]
aws_lb_listener.lb_listener: Destroying... [id=arn:aws:elasticloadbalancing:us-east-1:851725346724:listener/app/webalb/eaf899024846de41/f68fd74c29dc3db0]
aws_lb_listener.lb_listener: Destruction complete after 0s
aws_lb.web_lb: Destroying... [id=arn:aws:elasticloadbalancing:us-east-1:851725346724:loadbalancer/app/webalb/eaf899024846de41]
aws_lb_target_group_attachment.web_tg_attachment: Destruction complete after 0s
aws_lb_target_group.web_tg: Destroying... [id=arn:aws:elasticloadbalancing:us-east-1:851725346724:targetgroup/webtg/f41b96182967d6aa]
aws_instance.websvr1: Destroying... [id=i-0a25db80617c7302f]
aws_lb_target_group.web_tg: Destruction complete after 0s
aws_lb.web_lb: Destruction complete after 2s
aws_instance.websvr1: Still destroying... [id=i-0a25db80617c7302f, 10s elapsed]
aws_instance.websvr1: Still destroying... [id=i-0a25db80617c7302f, 20s elapsed]
aws_instance.websvr1: Still destroying... [id=i-0a25db80617c7302f, 30s elapsed]
aws_instance.websvr1: Still destroying... [id=i-0a25db80617c7302f, 40s elapsed]
aws_instance.websvr1: Destruction complete after 41s
aws_security_group.websvr1_sg: Destroying... [id=sg-089eaae2fa0ad22f4]
aws_security_group.websvr1_sg: Destruction complete after 0s

Destroy complete! Resources: 6 destroyed.
root@ip-172-31-19-62: /home/ubuntu/project#
```