Step By Step

Steps to Set Up a VPC and Access Instances

1. **Create a VPC**:

   - Set up a new VPC with one public subnet and one private subnet.

2. **Configure Availability Zones**:

   - Ensure the VPC spans across two Availability Zones (AZs) for high availability.

3. **Set Up a NAT Gateway**:

   - Create a NAT Gateway in the public subnet for routing internet traffic for instances in the private subnet.

4. **Create EC2 Instances**:

   - Launch two EC2 instances in the private subnet without public IP addresses for added security.

5. **Set Up a Bastion Server**:

   - Deploy a bastion host in the public subnet to manage and SSH into the private subnet instances.

6. **Copy Key Pair to Bastion Server**:

   - Use SCP to transfer your private key to the bastion server:

     ```bash
     scp -i test-key.pem server.pem ubuntu@ec2-3-86-28-158.compute-1.amazonaws.com:~
     ```

7. **SSH into the Bastion Server**:

   - Connect to the bastion server using SSH:

     ```bash
     ssh -i /path/to/bastion-key.pem ec2-user@<bastion-public-ip>
     ```

```

8. **Check and Change File Permissions**:
   - Update the file permissions of the copied private key:
     ```bash
     chmod 600 ~/server.pem
     ```

9. **SSH into Private Instances**:
   - From the bastion server, connect to the private instance:
     ```bash
     ssh -i server.pem ubuntu@10.0.143.201
     ```

10. **Install a Web Server**:
    - If using Amazon Linux, run:
      ```bash
      yum update -y
      yum install httpd.x86_64 -y
      systemctl start httpd.service
      systemctl enable httpd.service
      echo "Hello world from $(hostname -f)" > /var/www/html/index.html
      ```
    - If using Ubuntu, run:
      ```bash
      sudo su
      apt update -y
      apt install apache2 -y
      systemctl start apache2
      systemctl enable apache2
```
```

```
rm /var/www/html/index.html
echo "Hello world from $(hostname -f)" > /var/www/html/index.html
```

11. **Create an Elastic Load Balancer (ELB)**:
    - Set up an ELB to distribute traffic evenly across the private instances.

12. **Access Instances Through the ELB DNS**:
    - Use the ELB DNS name to access the web servers running on the private instances.