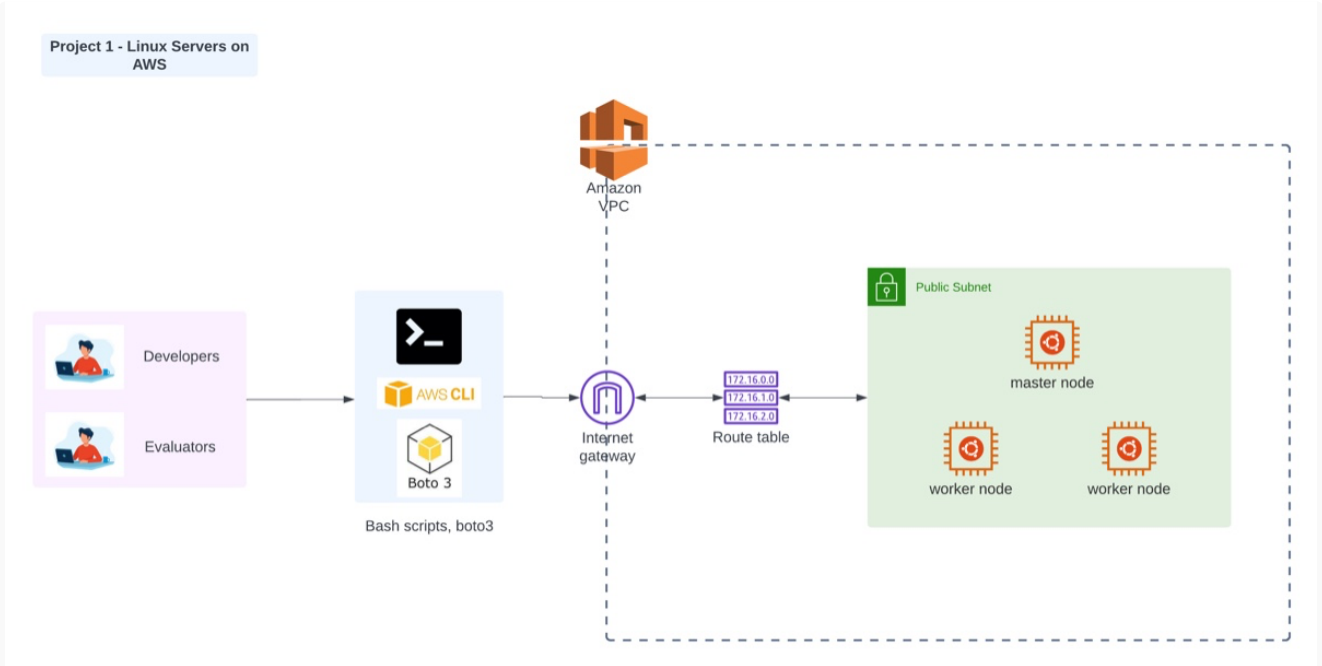
Project 1 - Linux Servers on AWS

Due date: October 15, 2023

Linux servers



In this project, students will work in a team to deploy AWS cloud infrastructure using the AWS CLI command line tool in bash shell scripts and/or using Python boto3 SDK connected to AWS. Specifically, the AWS cloud environment will have a VPC, internet gateway, public subnet, public route table, and EC2 instances. These scripts will be stored in GitHub and used by evaluators to bring up the AWS infrastructure.

Requirements

1. Create bash shell script(s) that leverages the AWS CLI tool or use Python boto3 SDK in Python script(s) to create the following AWS cloud architecture and set up:
    1. All resources to be in us-east-1
    2. VPC
    3. Internet gateway
        1. Internet gateway attached to VPC
    4. Public subnet
    5. Enable auto-assign public IP on public subnet
    6. Public route table for public subnet
        1. Route table has a routing rule to internet gateway
    7. Associate the public subnet with the public route table

8. EC2 instances
    1. Master node 1
        1. Size: t2.small
        2. Image: Ubuntu 20.04
        3. Installed software
            1. Python 3.10
            2. Node 18.0
            3. Java 11.0
            4. Docker engine
        4. Tag
            1. key=`Name` ,value=`master-node-01`
    2. Worker node 1
        1. Size: t2.micro
        2. Image: Ubuntu 20.04
        3. Installed software
            1. Python 3.10
            2. Node 18.0
            3. Java 11.0
            4. Docker engine
        4. Tag
            1. key=`Name` ,value=`worker-node-01`
    3. Worker node 2
        1. Size: t2.micro
        2. Image: Ubuntu 20.04
        3. Installed software
            1. Python 3.10
            2. Node 18.0
            3. Java 11.0
            4. Docker engine
        4. Tag
            1. key=`Name` ,value=`worker-node-02`
9. All three EC2 instances are
    1. In the same public subnet and VPC,
    2. Are reachable to each other - e.g. via the ping command
    3. Are accessible remotely by SSH
10. All resources created are tagged

    1. key=`project` ,value=`wecloud`
2. Documentation
    1. The scripts are stored in a public GitHub repo
    2. README.md file in the GitHub repo containing
        1. URL to public GitHub repo
        2. Architectural diagrams depicting the AWS cloud infrastructure setup and any other pertinent visualizations
        3. Instructions on how to run the scripts and deploy the cloud infrastructure using these scripts

Submission Instructions

1. In the README.md of your GitHub repo include the names of members in your group.
2. Download a zip of your completed GitHub repo.
3. Click on `Hand In` tab in the learning portal project page.
4. Click on `Upload Assignment` and upload the zip file.