CREATE BLOCKCHAIN NETWORK

Step1: Sign up for LinuxONE community Cloud trial account.

Link: https://linuxone20.cloud.marist.edu/cloud/#/login

- Log on to the self-service portal (using username&password)

Step2: Create an SSH key pair

(Virtual server instances require SSH key pairs for user authentication. Password is disabled for SSH. You must create one or import an existing public key to be used for instance deployment)

- At the home page, click on your account name to display a list of options
- Select Manage SSH Key Pairs
- To import an existing SSH public key:
    a. Click on Import
    b. Provide a name for this key
    c. Click on Browse to select a file from your local file system
    d. Click on Upload your public key
- To create a new SSH key pair:
    a. Click on Create
    b. Provide a name for this key
    c. Click on Create a new key pair
    d. Save the generated key

Step3: Deploy a virtual server instance

- From home page, click on Manage Instances from the Virtual Servers tile.
- Click on create
- Fill in all required information:
    a. Server name and description of the server
    b. Select an Image from the available catalog
    c. Select a flavor (resource definitions)
    d. Select an SSH key.
- Create the instance:
    a. Verify your selection.
    b. Make any changes if necessary
    c. Click on Create

Step4: Access virtual server with Secure Shell (SSH) (You can use Putty for example)

Step5: Build the hyperledger fabric

a. Log on to your virtual server with your created username through SSH client like Putty
b. Switch to root user.
   sudo -i
c. Create a new directory under /data:
   mkdir /data/docker
d. Create a symbolic link to the /data/docker directory:
   ln -s /data/docker /var/lib/docker
e. Switch to the root directory:
   cd /root

f. Get the hyperledger fabric build script and save it to a file:
   wget https://raw.githubusercontent.com/harrijk/docs/master/zSystemsFabricBuild.sh
g. Run the script to build the hyperledger fabric:
   . zSystemsFabricBuild.sh
h. The script will print the following message to the screen when complete: "Done" The Hyperledger Fabric and its supporting components have been successfully installed.

Step6: Create a four peer network

a. Switch to root user
   sudo –i
b. Switch to the following directory:
   cd $GOPATH/src/github.com/hyperledger/fabric/build/bin
c. Use Docker-Compose to define four peers in the chain,set up the containers and open ports 30303 and 5000.Get the docker-compose.yml file using the following command:
   Wget https://raw.githubusercontent.com/cheeye/blockchain/master/docker-compose.yml

Step7: Start the four peers in Docker containers:

docker-compose up

Step8: Deploy the example smart contract application

a. Switch to root user
   Sudo –i
b. Switch to the following directory:
   cd $GOPATH/src/github.com/hyperledger/fabric/build/bin
c. Issue the following command to deploy the example smart contract application, initialize the contract, and propagate to all peers. Variables ‘a’ and ‘b’ represent “account” numbers initialized to 100 and 200, respectively:

   NAME=CORE_PEER_ADDRESS=172.17.0.2:30303 ./peer chaincode deploy -p github.com/hyperledger/fabric/examples/chaincode/go/chaincode_example02 -c '{"Function":"init","Args": ["a","100", "b", "200"]}'

d. The smart contract deployment is complete when all 4 peers have a status of “Up” Issue this command to monitor the status:
   docker ps -a