CS208 Cloud Computing and Cloud Networking

Assignment 1

Virtual Machine

The goal of this assignment is to give an introduction to Virtual machines.

Problem Statement

In this assignment, you will create two virtual machines and write a client-server socket program. You will run server program on one VM and client program on another VM. Once the client establishes a connection with the server, the server will send a file from the local filesystem, and the client will save it on the local system.

Server Application

1. Create a file “mydata.txt” of any size with random content. Note down its checksum.
2. When you run the server application, it will read a file “mydata.txt” from the local filesystem.

Client Application

1. The client application connects to the server running on a different VM, receives the file that the server sends, and saves it in its local filesystem “mydata_client_copy.txt”.
2. Open another terminal and verify that the file “mydata_client_copy.txt” is received properly by checking the checksum.

General instructions

- The client and server application itself can be built using any language you are comfortable with.
- You can use Virtual Box to create two VMs locally on your laptop or use Cloudlab experiment with the small-lan profile and use ubuntu-20.04 image and check VM box.

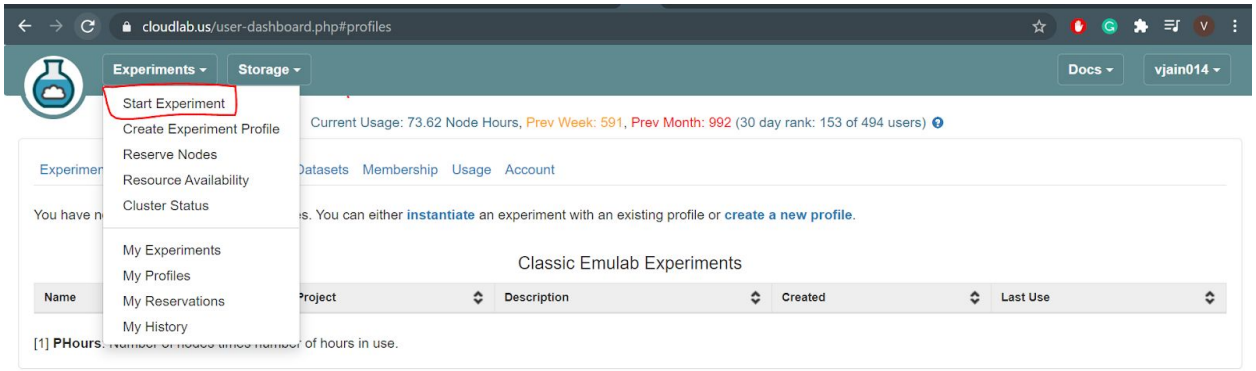
Grading

Grade Distribution

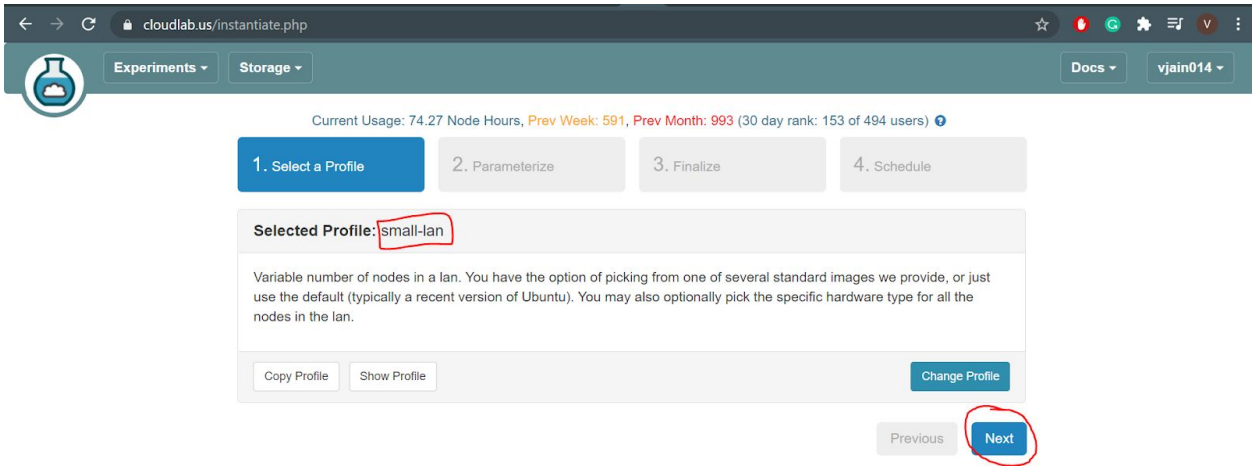
- Server and client programs - 30
- Screenshot of server application running on VM 1- 25 points
- Screenshot of client application running on VM 2- 25 points
- Checksum verification - 10 points
- Steps and screenshot to reproduce the experiment- 10 points

Creating VMs on Cloudlab

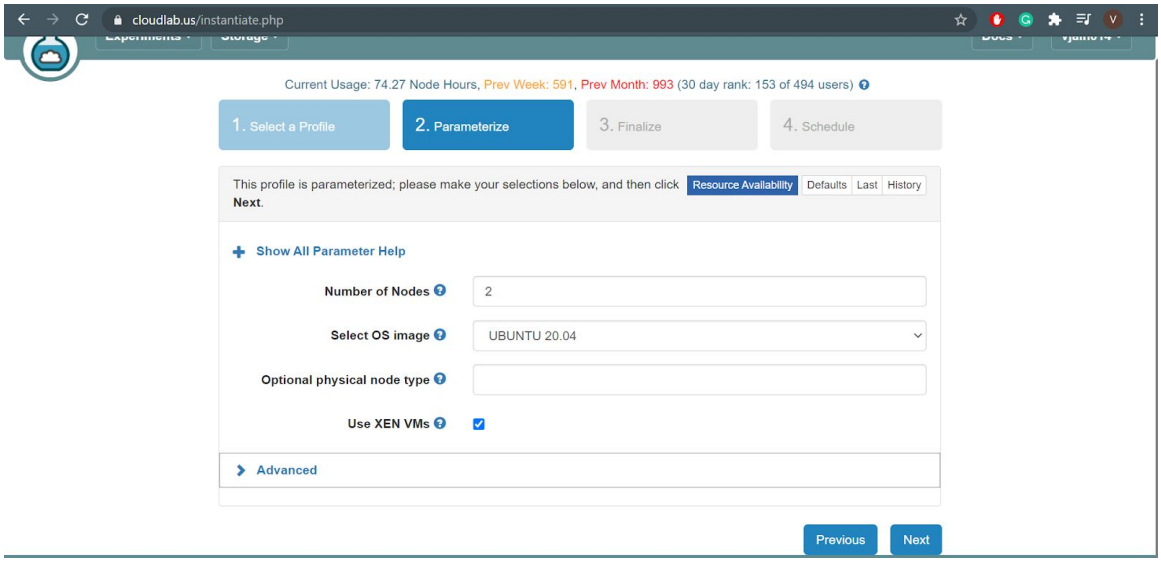
1. Make sure when you create the cloudlab account, you provide your public ssh key.
2. Login to the cloudlab portal and start an experiment



3. Use small-lan profile



4. Enter the number of VMs, OS version and Check “Use XEN VMs”



5. Press Next and select any cluster
6. After starting the experiment, you will get login details about VMs