**CloudLab Assignment using OpenStack**

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Step1. Creating the OpenStack profile, clicking on the change profile.

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Step 2: Now we need to configure the parameterize details.

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Make sure to check that the no. of IP addresses is set to 4 then click next.

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Step 3: Now configure the finalize menu in which select the cluster as Cloudlab Utah then click next.

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Step 4: Creating the experiment with default 16-hour duration.

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Step 5: Our experiment environment is now created, click on the profile instructions to access the OpenStack dashboard using the generated password.

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**Managing the Cloudlab Environment**

Step 1: Login to the OpenStack dashboard using the default credentials generated in the profile instructions page.

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Step 2: After login to the OpenStack dashboard. This is the default network topology of the experiment environment.

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Step 3: Now, Creating the new network by configuring the subnet details of the network.

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Step 4: Now, we can find the newly created virtual network in the network’s tabs. Below is the image which shows the created network named “funplex”.

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Below is the network topology after creating the new virtual network.

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Step 5: Creating the router to connect the created network by selecting the required configurations.

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Below is the newly created router named “funplex-router”.

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Step 6: Following is the network topology after creating the network and router.

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Step 7: Now, let’s create the new instance under compute section by clicking on the launch instance button by providing all the required details for source, flavor, networks sections as instructed by the reference document.

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In the below image, we are giving the instance details like name, availability zone, etc.

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Selecting the source image as “bionic-server”.

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Selecting the instance flavor as “m1.small”.

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Adding the created network to the instance.

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Selecting the SSH Key Pair.

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Below image shows the created instance named “funplex-instance”.

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Go to network topology to visually see whether the created instance is connected to the virtual network.

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Step 8: Associate Floating IP address. So that their network IP address will allow you to access the virtual machine through an external SSH. For that, Selecting the VM instances and click on ‘Actions’ tab, then choose ‘Associate floating IP’.

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Step 9: Click on the “+” icon, then click on Allocate IP. After allocating the IP let’s click on Associate. So, that the “Associate floating IP” will gets created.

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Step 10: Now, click on the console, which allows us to access the ubuntu through SSH connection. Now, login to the ubuntu by using the username as “ubuntu” and password is the default one that was generated before in the profile instruction page.

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Step 11: After login to the console, Run the ifconfig command to view the bridges and the tunnels that are supporting to our network in the cloud.

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Step 12: Running the ‘ps -ef’ command to get the OpenStack services list that are executing currently.

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Step 13: Termination of the experiment (Clicking on the terminate button will terminate our experiment environment). After termination of the experiment the state of it will be change to terminating.

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