Cloud Computing
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Lecture – 16
Open Source Cloud: Openstack Demo

Hi, so we will we will continue our discussion on open stack cloud a open source cloud. And we will so, a sort demo how the open stack work. The primary objective is a open source cloud you can easily download those this open stack in your local systems we if you have couple of systems. And realize this cloud and see it is different aspect earlier. We have discussed the different type of services like compute storage image and other services that we will see that how these are realized, right.

So, as I mentioned that in IIT, Kharagpur we have install a experimental cloud using open source platform open stack. So, a so a demo on that which is in our cloud we called it meghamala. So, we will so, a demo on that it is primarily a open stack based cloud. So, with me rajesh is there. So, rajesh is primarily a administrator of meghamala. So, he will so the how AVMs is created allocated how to run a particular job in that VM how to diallocate and type of things as simple or the some of the operations on meghamala.
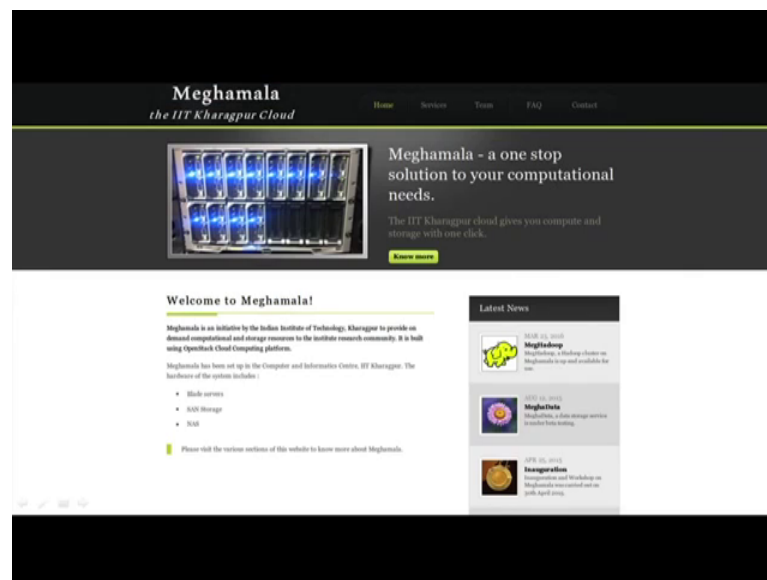
So, before we I hand it over to rajesh for the demonstration on live demonstration on open stack that is meghamala, I will just go through couple of slide to just give you a overview.

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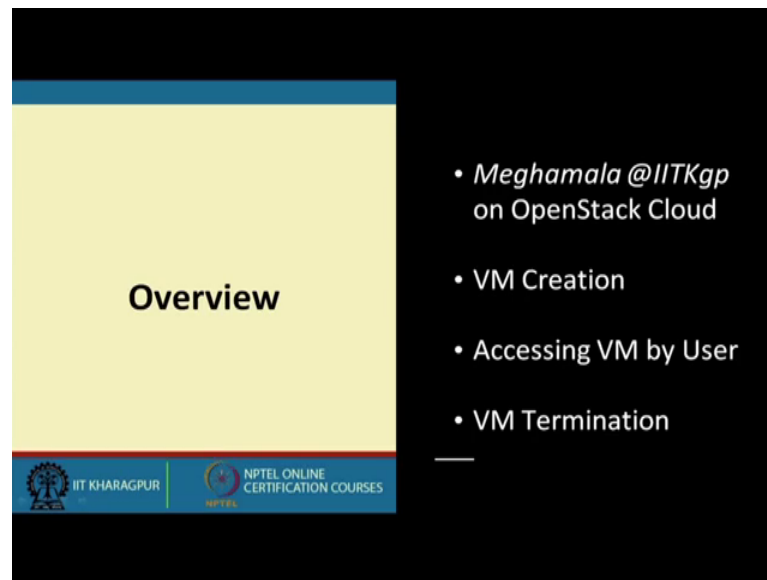
So, it is say open stack base cloud which we called that meghamala. So, what we have VM creation what will.

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So, the VM creation accessing VM by user and VMTermination. Meghamala gives different type of flavors of VM that to what rajesh, we will show and this is a typical our meghamala portal which has different aspects.

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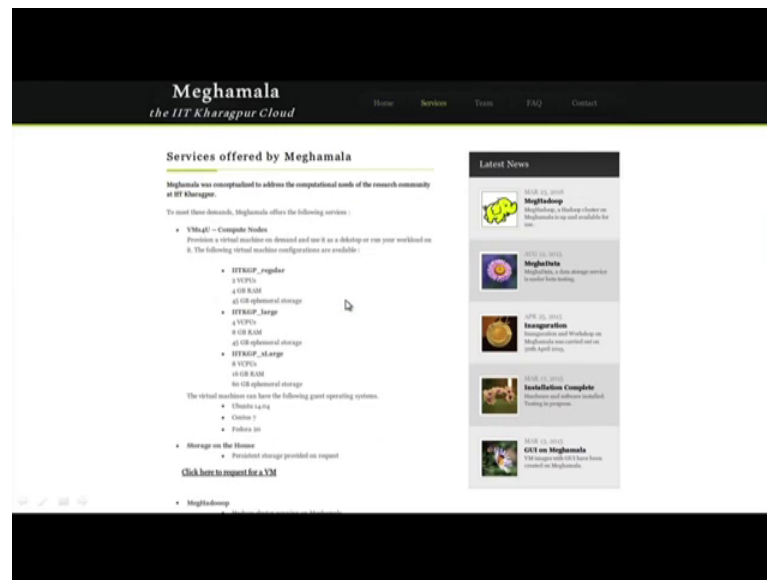
A overview of the thing and these are the different type of flavors which meghamala gives like IIT, KGP regular with 2 b CPU 4 GB RAM for different GB a ephemeral storage. If you remember that a few ephemeral storage and also we have a provision for persistent storage. Typically we give 20 GB persistent storage 20 dB or 60 dB different on the requirement IIT, KGP large and IIT, KGP extra large

So, these are the 3 flavors and the these are 3 operating systems which are they are in meghamala. Along with that we give we are started giving some other services like meghaduta of data services meghadoop which is running over meghamala, but primarily we will be hovering around these hat VM creation And so on and so forth.
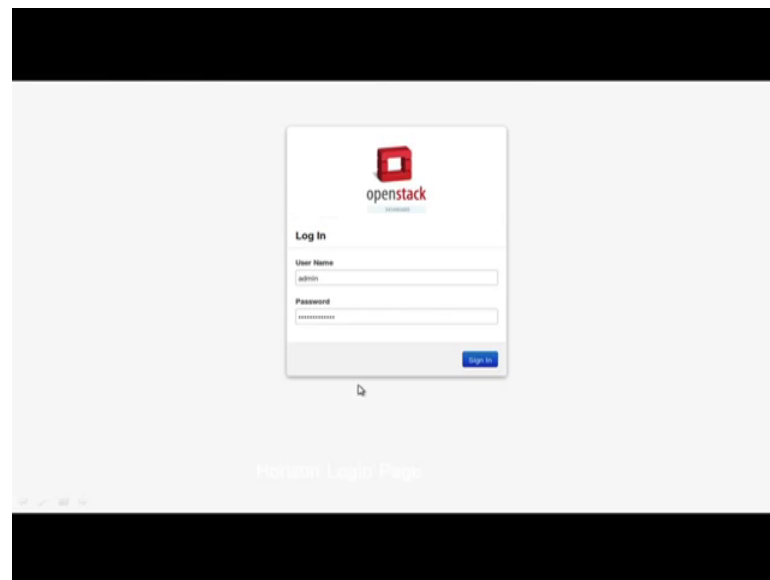
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And this whole thing is based on open stack, and this is a typical request form by which a user can request for AVM.
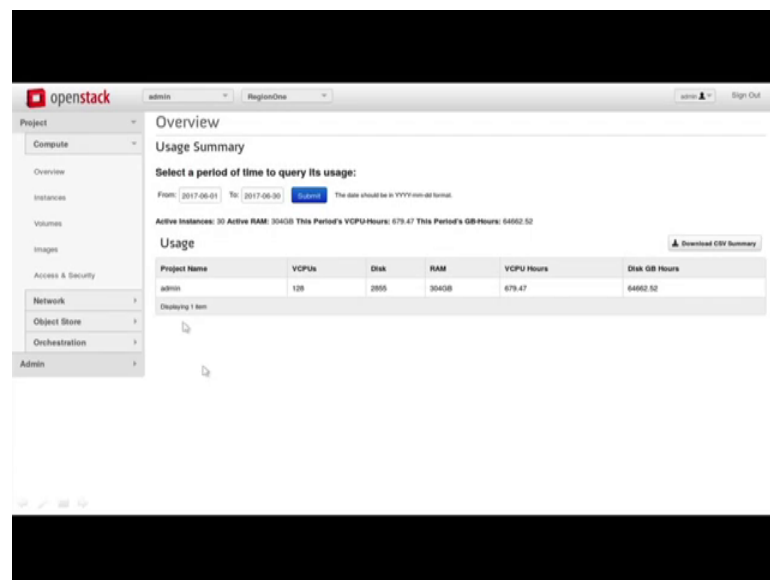
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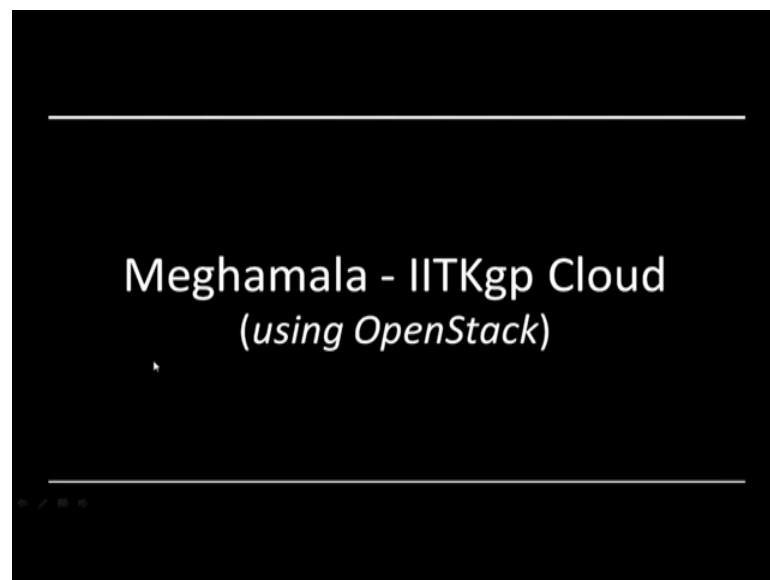
And these are the different people who are involved in this meghamala. So, so, if we look at.
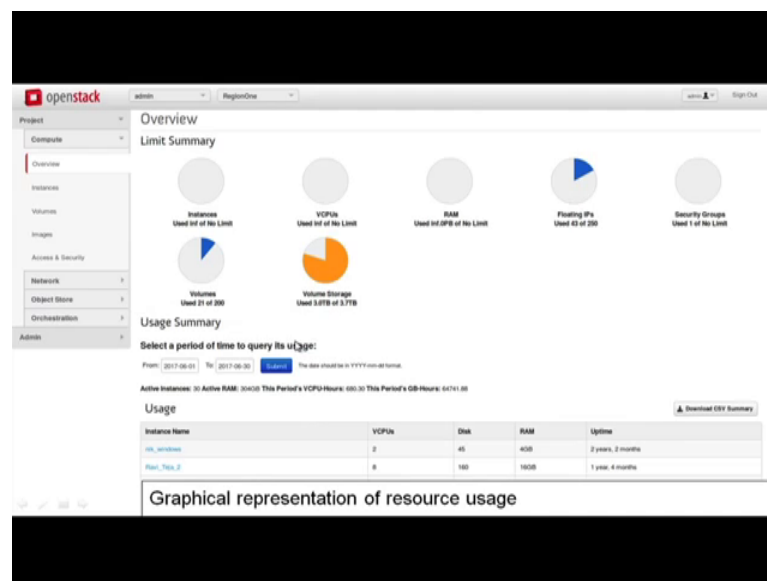
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It is a this is the log in scheme or the open stack by which you can enter the open stack dashboard for management.

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And these are different aspects of the things like giving a overall summarization of the users summary.

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Graphical representation of resource usage

Giving a overall representation of the resource uses in terms of different graph by graphs.

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Instances

And what are the different instance running at any point of time, volumes and snapshots of things which are maintained by cinder as we as we are discuss some time back.

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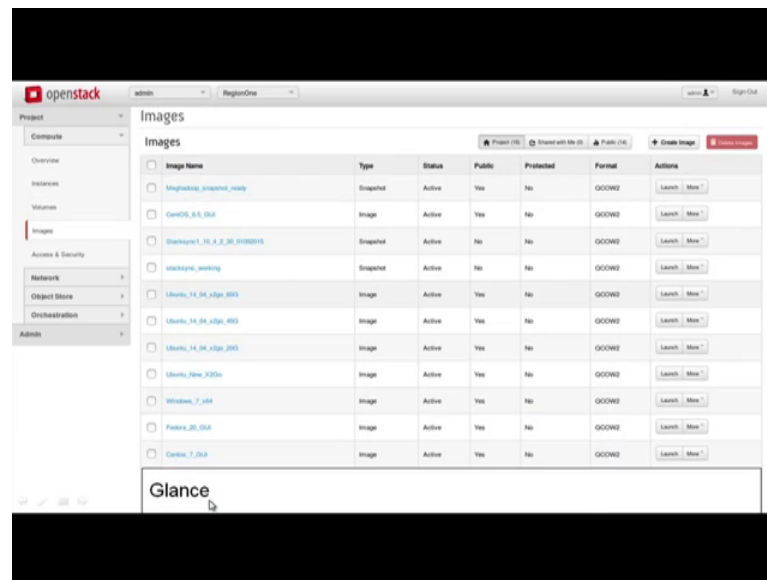
This is the different images which is managed by the glance service, neutron is the networking aspects of the things.

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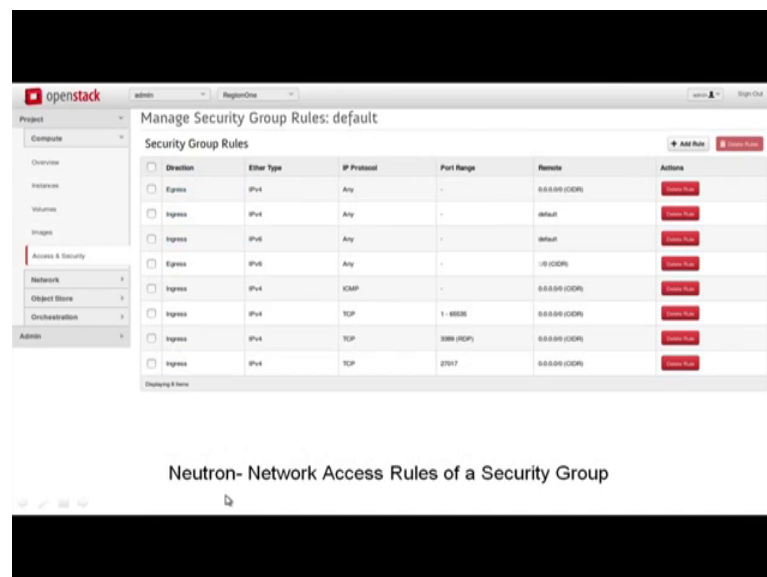
We are using all IP v 4 structure.

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Nova-vCPU, RAM, Storage details of Hypervisors
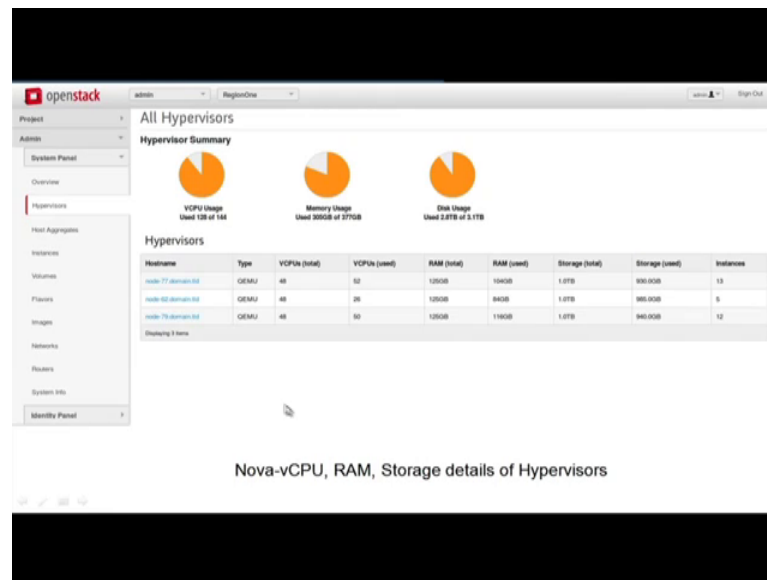
And the hypervisors, nova v CPU is RAM storage details other hypervisors. Different flavors of compute server.

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Nova- Different flavors of VMs in Meghamala
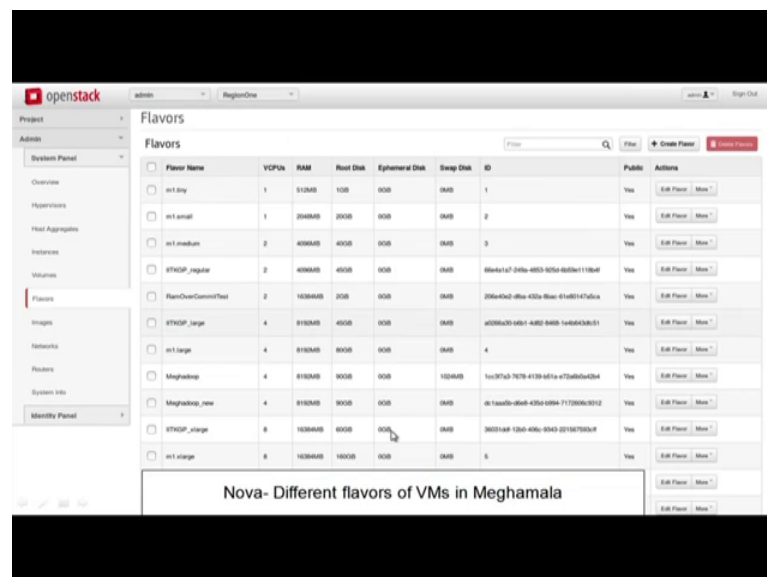
That is a nova compute servers, like you can see that different category of nova.

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Images of Cloud Instance in Meghamala
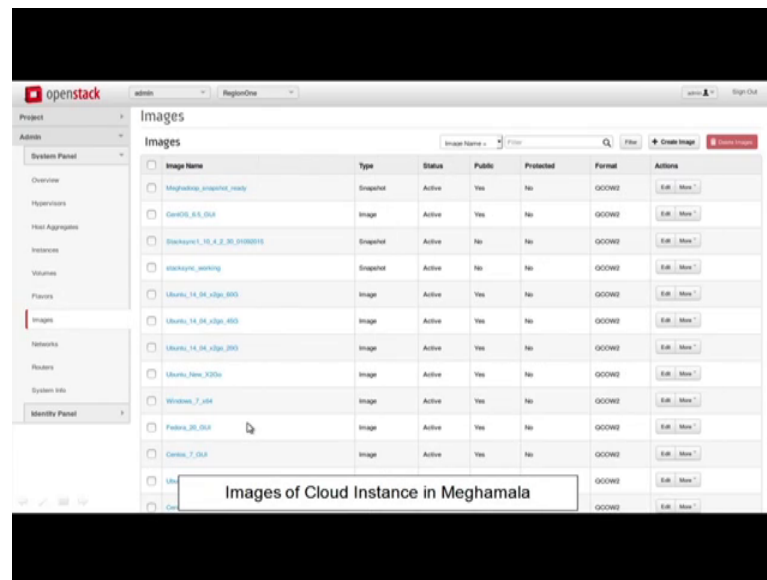
Compute server imaging, instances and overall compute services in meghamala.

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Compute Services in Meghamala
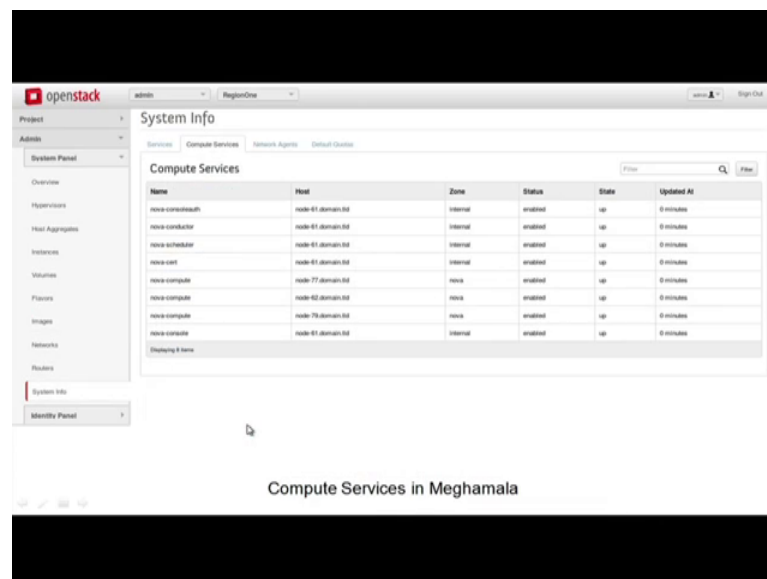
So, with this what I will do I will switch over the control over to rajesh to So write like directly a demo on meghamala, which will you a idea that if you install your a open stack on your system. So, how it is likely to b f. So now, it is over to rajesh. So, we will now start the demo on this open stack cloud what we have install which is installed in our institute that is meghamala. So, it is basically open stack cloud and rajesh is with me to show the demo. So, rajesh will be showing making a walk through these meghamala the

open stack cloud. So, primarily looking at the more on the VMT as an termination on other type of aspects. So, it is over to rajesh to he will start with that meghamala with portal to go to that dash dashboard a open stack and going inside the VM case and etcetera.

So, over to rajesh, rajesh thank you sir happen.

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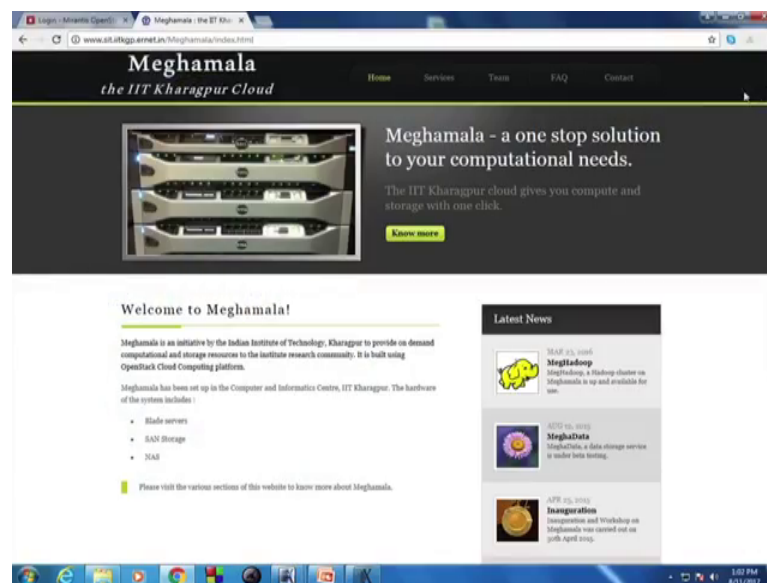
So, I will continue from here. So, this is the homepage of our institute cloud which is meghamala. So, as you can see the services we offer is not only the infrastructure cloud which is provided by meghamala, but also some other services which is built on top of meghamala. Like on top of open stack like mega to this JS a hard do cluster megha data which is a personal cloud. This is a kind of a draw box like thing. So now, come back to coming back to meghamala which is the open stack implementation of open stack cloud. So, you can see here we are offering 3 types of virtual machines. So, one is IIT KGP regulator IIT KGP large, and IIT KGP extra large.

So, these are the specifications of this 3 type of virtual machines that we provide. And apart from that we currently provide 3 types of operating systems to be loaded in the virtual machines, which are whom to (Refer Time: 07:09) and ferrora.

So now,

Go to directly through a.

So we will now go to our open stack installation and see how does it look like, from an administration power point of view. So, this is the dashboard of open stack. So, I am logging into it. So, this is the over view that you get when you log in to log in as an administrator to the open stack cloud.

So, you can see total we have total 134 (Refer Time: 08:02) is use. 2945 GB of disk, 316 GB of RAM and this much time of DCP hour that is currently being used. So, this is an overall description of the cloud which is running. So now, we coming to instances which is where we will find what are the VM's that are currently running. So, see,

So, these are the different VM's running as of now.

Now, as you have seen in the previous video that this volume will provide you this is actually the cinder part of the cloud, which will list the number of volumes that are currently being used, images is actually the glance. So, these are the images that we currently have, but as you as you have seen you only provide 3 types of VM.

So, most of them we are not using we are not giving the public these are for internal purposes. So, in access and security here you will have security groups. So, this is firewall kind of concept in respect to the cloud. So, what will have is that, there will be rules in a defined in each security group. Kind of the rules of the network I mean the this means which type of traffic is allowed in a VM and which type of traffic is not allowed so.

Both we will respect to I mean incoming and outgoing.

 Yeah both incoming and outgoing based on.

So, different port yeah type of services, right.

So, how with these helps is that when you create a VM a new VM you do not have to configure it is firewall independently. So, you can just assign the security group to it and automatically the firewall rules will apply. So now, if you come to the administration page. So, this was the user page as of the project page. So, admin user is also attainment or a attainment of the open stack cloud and also it is an administrator. So, we got 2 components in the dashboard to one is project and one is admin. So, kind most of the things will be same here, but the things which will differ I will show you that is

hypervisors. So, here you will get the number of physical machines that are installed in our open stack cloud.

So, we have 3 physical machines each with 48 v CPU s one 20 GB of 25 GB of RAM. And 100 and one and currently 101 GB is used for the first one. Have you can see and 14 instances such running in the first compute note. So now we will try to create a VM, new virtual machine in our open stack cloud. So, coming to instances, and you will see here and there is a tab called launch instance. So, I am clicking that. So, currently we have only one availability zone which is nova.

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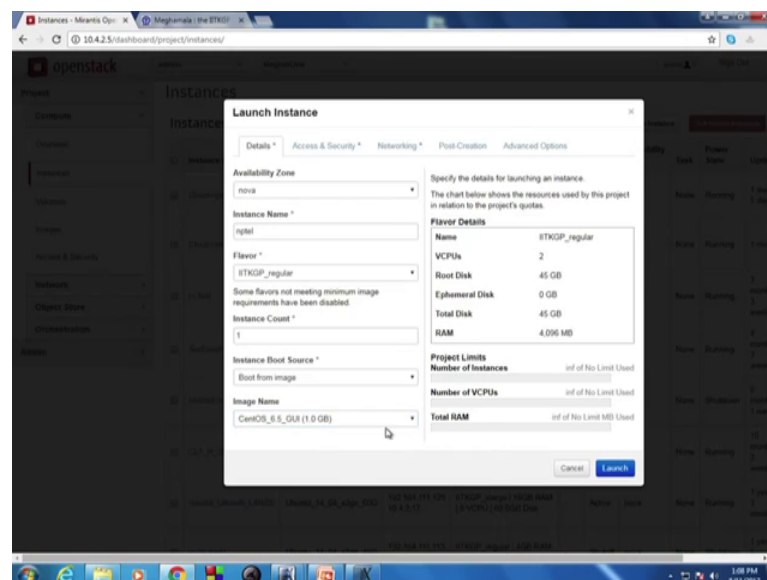
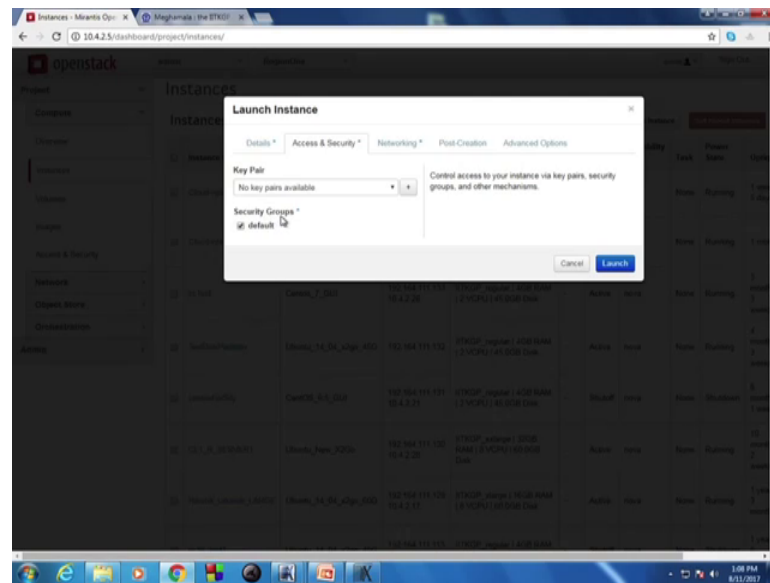And just in typing a.

NPTEL.

 Typing the.

NPTEL.

V m name and the flavor. So, as small whatever yeah regular. So, I am giving IIT, KGP regular.

So, number of inst number of VM's that we want of this flavor you have putting one. So, instance good source is where I am selecting image and pointing to the waste image that will be loaded in this VM.
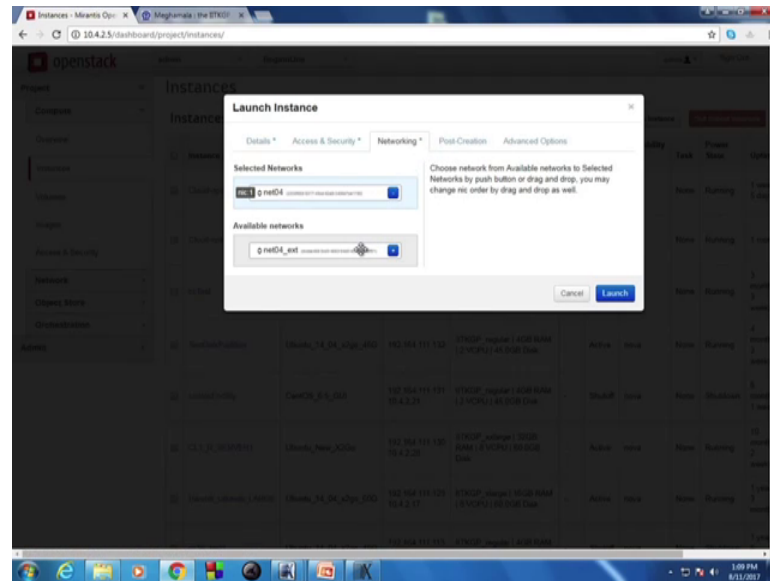
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So, say I put sent wise. Now in access and security there is nothing to do you will can see as we have only one security group. So, it is currently selected. In networking part there are 2 networks one is external and one is internal to the cloud.
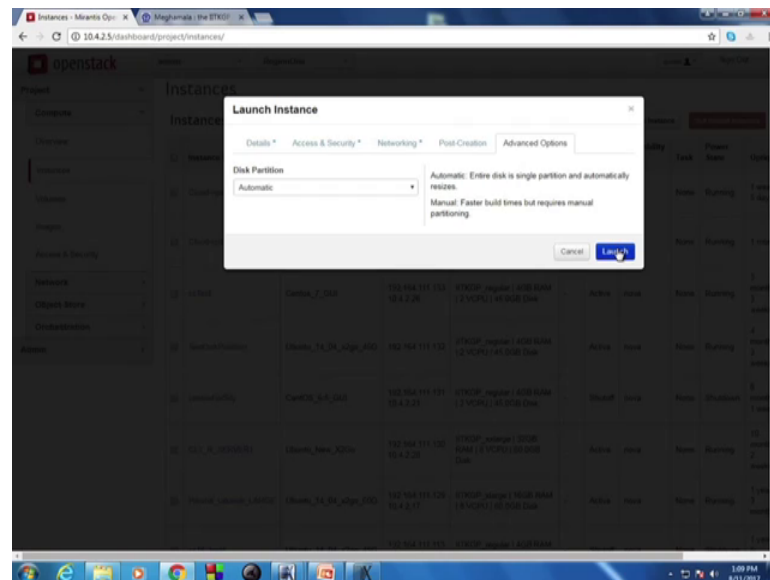
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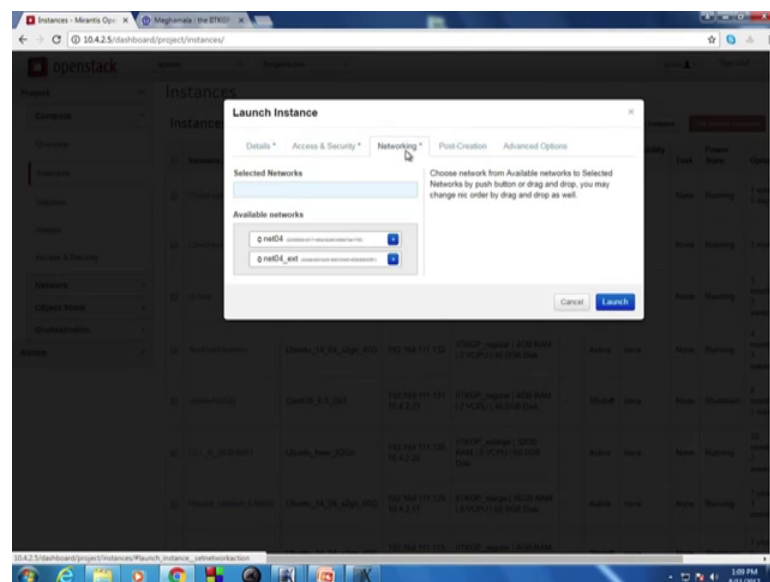
So, currently I will select the internal network and I will come back to this external network later.

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So, post creation script you can give I am not getting anything here and this partition is automatic.
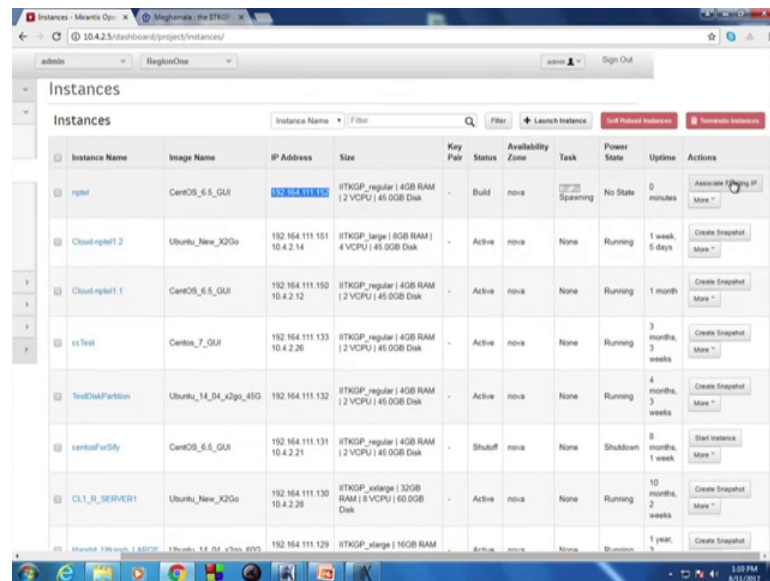
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So, I will now press launch to launch the VM.

NPTEL.

So, as you can see new VM came up here and it is current status is build.

So, it is building it will take some time.

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So,

Rajesh has created 2 more VM's earlier. So, that the time can be the NPTEL 1 and 2 NPTEL already there you continue.

So, as I was saying that there is there are 2 networks one is internal and one is external. So now, you can assign the see now here. The internal network from internal network it has got the IP address. So, I will now allocate and external network IP address. So, that it can be accessed from outside the cloud.

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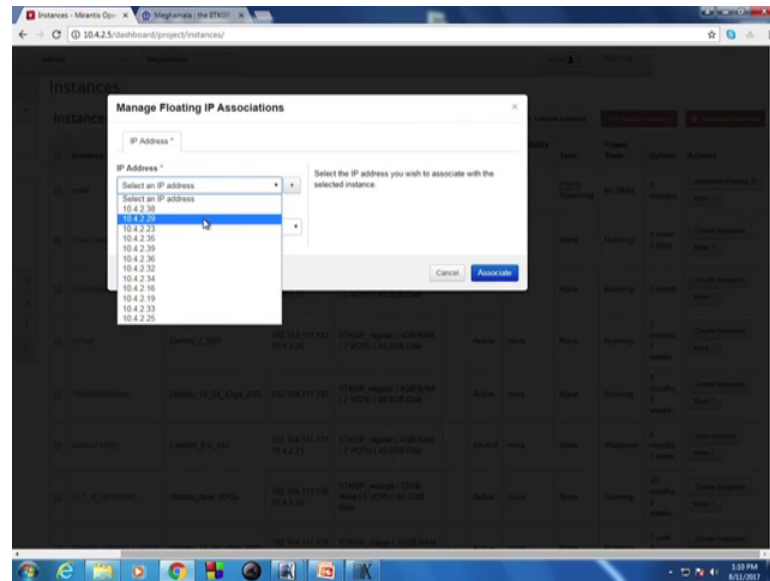
So, we have some allocated IP address, we have some IP address see if we are finished with this list we can add this and new IP address from the pool will be generated.

So, let us say this and I click on associate. So, as you can see, this new IP address yeah. So, this new external IP address is also associated with the VM. So now, I will show you how to connect to this frame from AGI frontend. So, for that I am using a software called x to go.

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So, in our website in our cloud website, we have we have put the link and how to use it for the users. So, I have installed it and I am just showing you how do I connect with.

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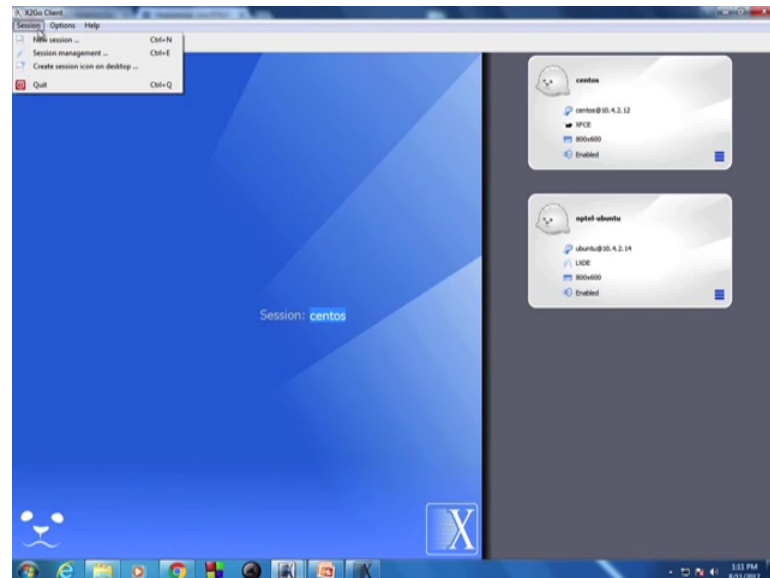
So, this is the x 2 go client. So, the server part is installed already installed again the VMV. So, here what we have to do is or you have to create a new session and we have to put the credentials and the host ID and login ID of the VM.

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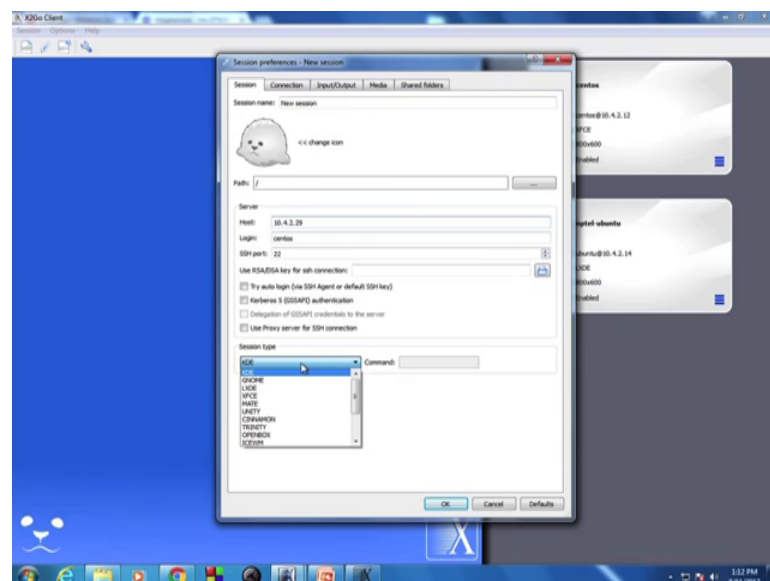
For example our new VM was 10 4 2 29. So, this was the top public IP address of the VM. So, and the login ID was sent OS and the session type for sent wise type of VM's, we are we are having x ps installed as that desktop. So, I am selecting it.

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So now, so entering the password and this will land us to the VM desktop. So, let us see. So, this is the VM that we have just created. And you can see the as usual options which you getting a sent wise machine are there. So, we are say opening at terminal and let us say we want to check the internet connection why.

So, you know your enter that VM.

Yeah now you are using the z m yeah, yeah now I am inside the VM yeah.

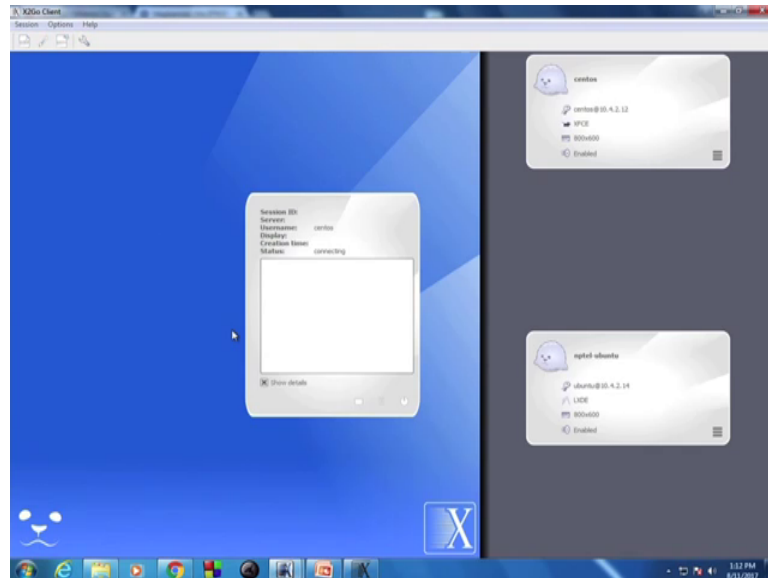So, from the x 2 o yeah from the go claim you like the enter the meghamala that is sent wise VM right say.

So, let us check whether internet. So, inside the VM. So, as you can see the from inside the VM we can access internet and it is as usual like any other machine. So, this is no different from any other machine running sent wise or whatever operating system you have chosen so.

So, it when it come comes up you can. So, some other aspects of the now what I am seeing that from the this you know open stack dashboard that. So, tangential will come

that before that like it is running down it is same way yeah that NPTL. So, it is any character yeah more characterizations are there yeah, yeah.

So, when you build it we saw that the status first build. So now, that it has been it has been build and built. So now, the status changed to active and the power state is running. So, here are other few options from here which are useful when you are administrating for example, shut down, but that logging itself yeah was So that yeah activities of the VM yeah and terminate the instance we will actually delete the VM and will I mean delete the VM from the cloud.

So, it releases that yeah. So, it will releases the all the resources that that was the allocated do it. So, just check that whether that your you tube and alright this is alright. So, as you can see you tube is running in this VM that is the introductory yeah this is also the introductory. So, it is running over the VM I mean using the VM That going to truth.

So, you can do other computing and etcetera yeah everything is same. So now, as we have used VM. So now, let us see how to terminate the VM and release all the resources. So, here I am clicking on the terminating step, step. And the option is straight forward terminating. So, this will terminate the our instance and release the resources as you can see this will be no longer available here ok.

So, schedule termination of instance NPTL it may takes sometime, but it is deleting yeah it is deleting. So, that is resource will be (Refer Time: 19:54) released yeah. So, that is one. So, that is a overall I mean quick demo on the things again what we wanted to show you that you can have your own small scale a open source like in this is case of open stack installation. And you can do lot of (Refer Time: 20:14). So, you can have a field of as a administrator how things are work also you can have a feel that as a user how people can work.

So, it will it is it will be nice that if you have couple of systems and install the open stack. And there are lot of nitty gitty you need to follow the open stack installation thing which is true for any installation, but it is a good exercise to have a open source cloud of you.

Thank you, thank you.