User Guide: Auto Eucalyptus Installation on Deter

Overview

Eucalyptus is an open-source software platform that implements IaaS-style cloud computing using the existing Linux-based infrastructure found in the modern data center. It is interface compatible with Amazon's AWS making it possible to move workloads between AWS and the data center without modifying the code that implements them. Eucalyptus also works with most of the currently available Linux distributions including Ubuntu, Red Hat Enterprise Linux (RHEL), CentOS, SUSE Linux Enterprise Server (SLES), openSUSE, Debian and Fedora. Similarly, Eucalyptus can use a variety of virtualization technologies including VMware, Xen, and KVM to implement the cloud abstractions it supports.

Helpful Links:

http://www.eucalyptus.com/products/overview

http://open.eucalyptus.com/wiki/EucalyptusUserGuide_v1.6

http://open.eucalyptus.com/wiki/eucalyptus-administrators-guide-16

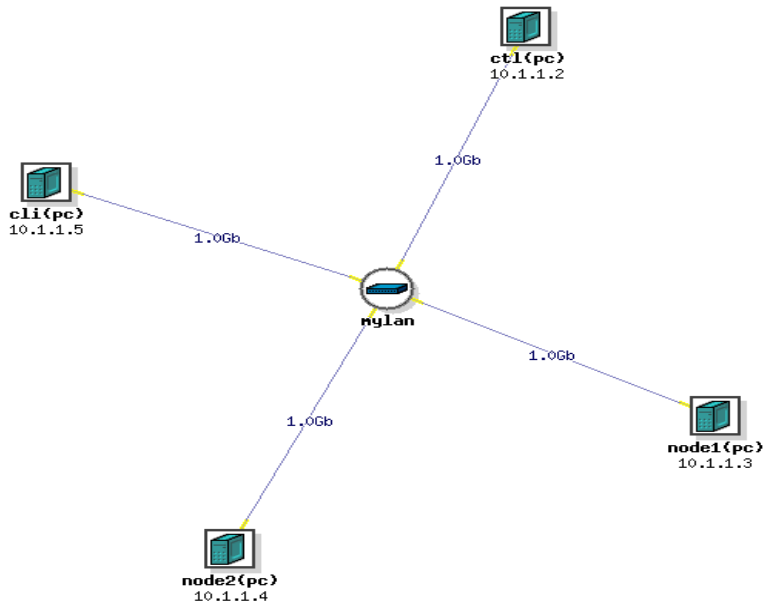
Quick Example

First of all, please review some basic concept of NS script from the link (https://users.emulab.net/trac/emulab/wiki/Tutorial)
Now let's take a quick example about how to install eucalyptus on the deter.

```
set ns [new Simulator]

source tb_compat.tcl

tb-set-delay-capacity 1

set node1 [$ns node]  # [0]  to  new a node named node1

tb-set-node-os $node1 Ubuntu-Xen-904  # [1]  set up node1 with OS: Ubuntu-Xen-904

set node2 [$ns node]

tb-set-node-os $node2 Ubuntu-Xen-904

set ctl [$ns node]

tb-set-node-os $ctl  Ubuntu904-unsup # [2]  set up ctl node with OS: Ubuntu-904

set cli [$ns node]

tb-set-node-os $cli  Ubuntu904-unsup # [3]  set up cli node with OS: Ubuntu-904
```

```
set mylan [$ns make-lan "$ctl $node1 $node2 $cli" 1000Mb 0ms] [4] setup topology
$ns rtproto Static

tb-set-sync-server $ctl # [5]  set up the ctl as the synchronization server

tb-set-node-startcmd $ctl "bash /proj/Virtual/script/eucalyptus_setup/install_ctl.sh node1
node2 >& /tmp/ctl.log "  # [6]  set up the start command to run ctl node

tb-set-node-startcmd $node1 "bash /proj/Virtual/script/eucalyptus_setup/install_node.sh >&
/tmp/node1.log" # [7]  set up the start command to run node1 node

tb-set-node-startcmd $node2 "bash /proj/Virtual/script/eucalyptus_setup/install_node.sh >&
/tmp/node2.log"

tb-set-node-startcmd $cli "bash /proj/Virtual/script/eucalyptus_setup/install_cli.sh >&
/tmp/cli.log"# [8]  set up the start command to run cli  node

$ns run
```

In this example, there are 2 working nodes in the cluster, 1 node controller and 1 front end node as shown below:



Add More Nodes

To setup more nodes in the cloud, all the user need to do is to add these nodes in the NS script.

Step 1: set up a new node and set up the OS: Ubuntu-Xen-904 for this node, as statement [0] and statement [1].

Step 2: add this node into the topology statement [4]

Step 3: add the new node name as a parameter for the install_ctl.sh script, as the statement [6] shown.

Step 4: setup the startup command for this new node as the statement [7].

Upload Image

Check the installation

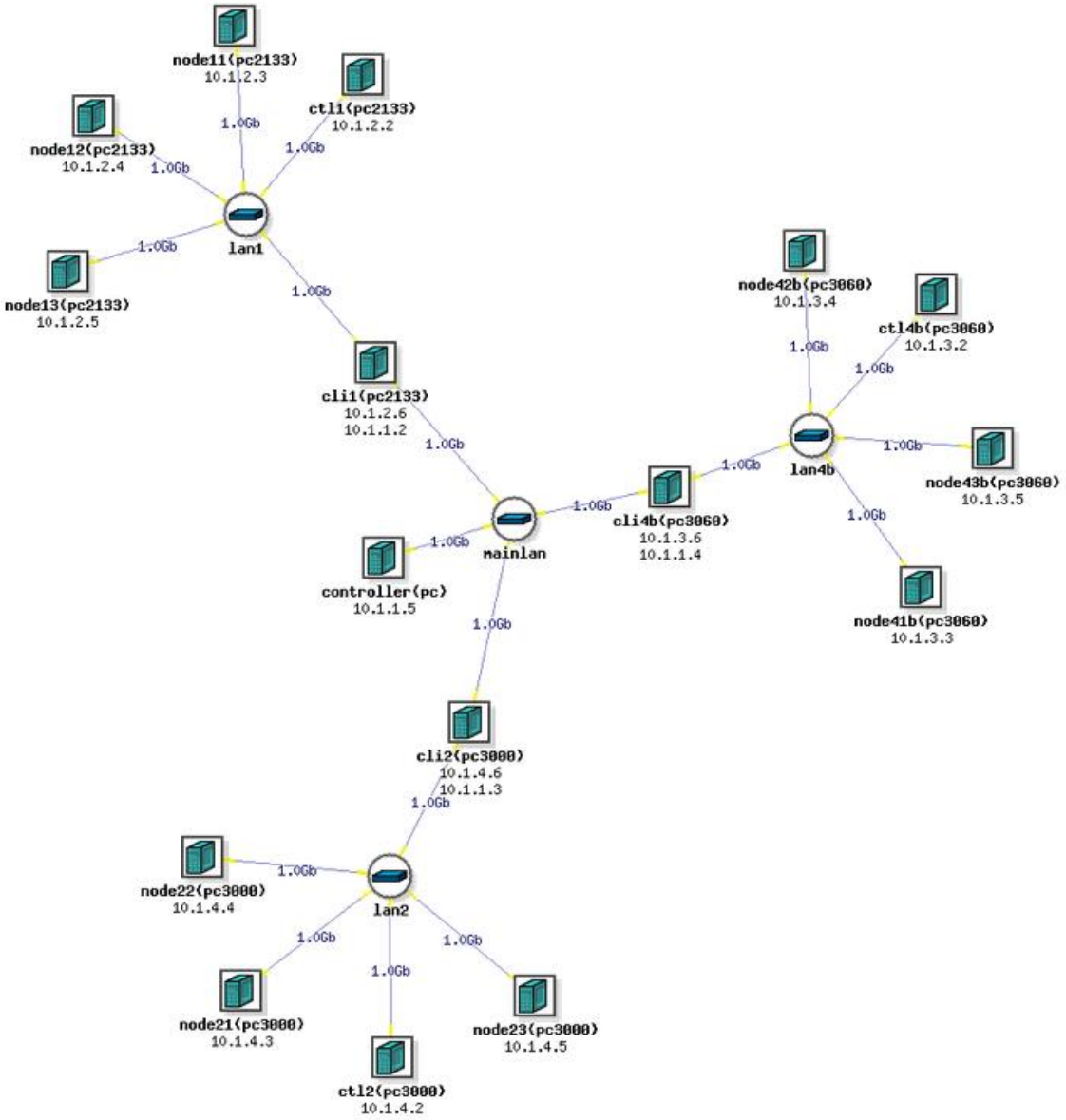
1. ssh log on the cli node and check the log file: /tmp/cli.log
2. if the last line shows: Setup succeed, then the setup is finished.

Upload Image

1. Change directory to /proj/Virtual/script/eucalyptus_setup
2. Switch user to root.
    a. sudo (all the commands below all assume to be invoked by root user)
3. Upload the os image by the command as the user of eucalyptus:
    su eucalyptus –c "./upload_image.sh -i [image name] "
    a. the supported image name now are ubuntu9.04; centos5.3; debian5.0; fedora11;
    b. if user wants to upload the ubuntu9.04, the command should be:
    su eucalyptus –c "./upload.sh -i ubuntu9.04 "
4. Set up environmental variables by the command: source /var/lib/eucalyptus/euca/eucarc
5. check out the status of virtual node by the command: euca-describe-instances
    a. if the status of the node is running instead of pending, it means the node is ready, you can login to this virtual node.
    b. login command: ssh -i /var/lib/eucalyptus/euca/mykey.private root@10.1.1.101 (you should change the IP address to the IP of the virtual node. In my case it was 10.1.1.101)

Install Multiple Eucalyptus

In some applications, users may need to install multiple eucalyptus instances in one deter experiment. For example, if users want to create an experiment running 3 different private clouds and there is a central control node to manage them. So they can create such an experiment as shown below:



In this example, there are 3 private clouds and they are running in different subnet. By default, all the ip address of virtual machines begins with 10.1.1.1. That means we need to config the IP address of virtual machines, otherwise the nodes in the eucalyptus cannot find these virtual machines even though all the virtual machines are installed successfully.