Setup Instruction to install custom Ubuntu VM for our Labs

CISC-335 (Networks II)

Part 1: Virtualization

1.1 Background

Virtualization OS in computer science is a computing environment that users are able to run any chosen operating system without concerning about actual physical computing resources.

Virtualization is also an important feature in cloud computing.

There are many advantages in using virtualization. We are able to run multiple operating systems simultaneously. This will greatly reduce our lab setup. For example, instead of three machines that act as a server, a client and a tester, we can simply use one machine to have all three roles. Virtualization also makes software installation easier. We can install and configure any new application in a VM and propagate them. We can also do test and recovery experiments in a confined environment. We can start from fresh any time we want.

Host operating system (host OS) is the operating system of the physical computer. ***Virtual machine (VM)*** is an operating system environment or emulator hosted by virtual application software like VMware, VirtualBox or HyperV. The operating system that is running inside the virtual machine is called ***Guest operating system (guest OS)***.

There are many products that host virtual machines, for example, VMware player or VMware Fusion, Virtualbox, MS Hyper V, etc.

1.2 Virtual Machine Setup[1]

1. For window operating system, download and install either

- VMware Player [7]

https://my.vmware.com/web/vmware/free#desktop_end_user_computing/vmware_player/7_0

or virtualbox [3]. For Mac, download VMware Fusion or VirtualBox.

2. Download OS emulators. Click the Vplayers you use: VMPlayer, or VirtualBox

The following is on VMPlayer. I will do the virtualbox late.

[1] Much of the materials are from Professor Li-Chiou Chen who built the image and modules. We have permission to use her materials.

3. On your computer, create a folder called VM, extract unbuntu10tm.zip under VM to obtain the virtual machine.

1.3 Boot up Linux Virtual Machine

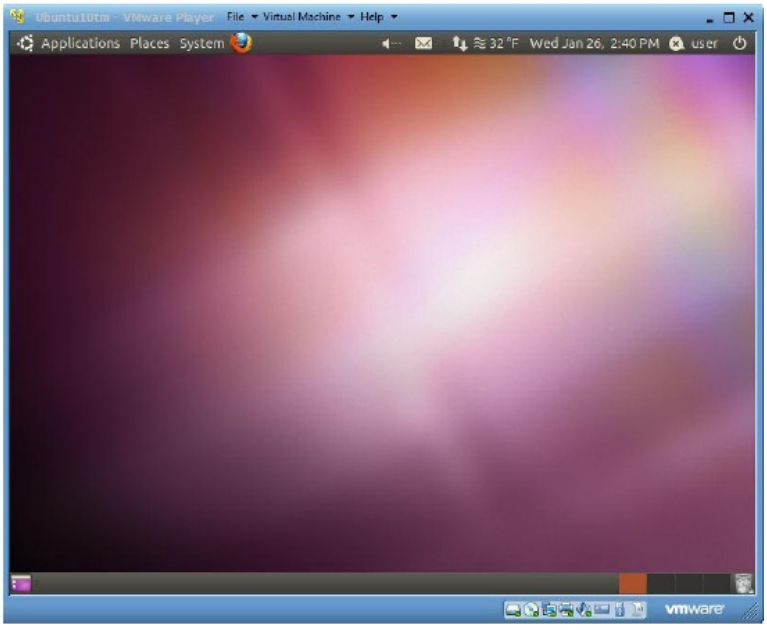
1. After VMware Player is installed, run the software and you should see a blue VMware Player Window pops up. Click on “Open a Virtual Machine” and select “Ubuntu10tm.vmx” from the “ubuntu10tm” folder under the ubuntu10tm folder.

2. Click on “play virtual machine”. When being asked “Did you move this virtual machine, or did you copy it?” check “copy it”.

3. When being asked “Would you like an attempt to be made to connect this virtual device every time you power on the virtual machine?”, press “No” to avoid connecting to a virtual floppy.

4. When being asked if you would like to download VMware tools for Linux, answer “remind me later.” Linux will boot up in about 2-3 minutes.

5. Login Linux using username “**ubuntu10tm” and password “123456”.** After logging in, you will see Ubuntu 10 GNOME interface. The virtual machine runs Linux as if it is an independent computer. Actually, the Linux is run in the memory of the computer and simulate another physical machine that the virtual machine (VM) was created.
6. Once you logging in the system, you will see the Linux desktop, which looks like the screen below.



7. Below are some basic skills to use a virtual machine

· To start directing mouse and keyboard input to a running virtual machine, type Ctr+g or click anywhere in the virtual machine window.

· To start directing mouse and keyboard input to the host PC, type Ctr+Alt.

· To get the logon window for Windows, use Ctr+Alt+Insert, instead of Ctr+Alt+Delete.

· Scroll the bar on the right and at the bottom of the virtual machine window to see a wider screen.

· To transfer files between the host and a running Windows virtual machine, just drag-and-drop the files.

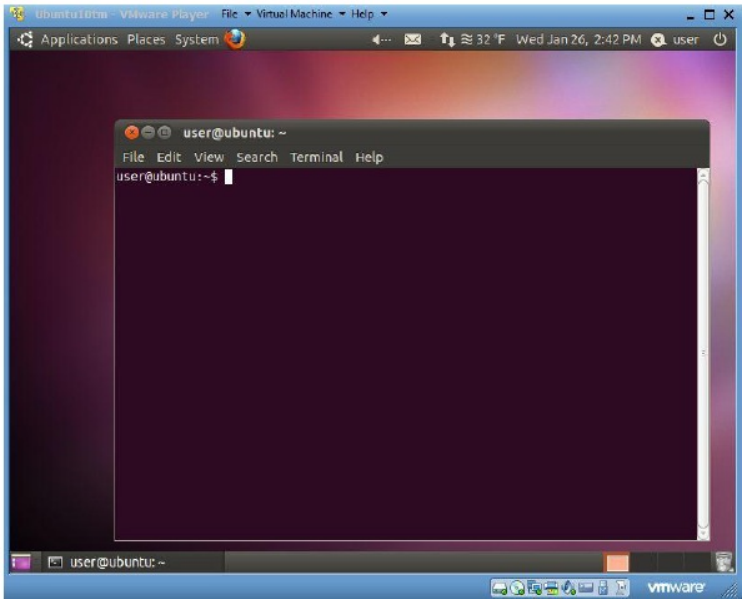
· USB disk is also a convenient way for transferring files between the host PC and a virtual machine. Inserting a USB disk to your PC when the virtual machine is active will attach the USB disk to the virtual machine.

8. Check out the menu bar for Linux GUI on the top panel of the window. The menu bar includes Applications (similar to Windows Start Panel), Places (all devices and storages), and System (Linux system functions).

1.4 Basic Linux Commands

1. Click on Applications, Accessories and Terminal (You may need to scroll the window down to see Terminal if your screen is not big enough).

2. It opens up a Linux command prompt like the screen below.



3. Try Linux commands under the command prompt “user@ubuntu~$” (we will use $ referring the command prompt for all the instructions below). We will practice several basic Linux commands. For more Linux commands, please read the Linux Tutorial.

4. Try the following to see the files in this directory.
$ls –al

1.5 Turn off Virtual Machines

1. *Firefox* proxy setting should be reset so that it stops using the proxy server. Otherwise you would not be able to visit web sites without running the proxy server at port 8088. To do so, Launch your Firefox web browser, and follow its menu item path “Edit|Preferences|Advanced|network Tab|Settings button” to reach the “Connection Settings” window. Check the “Use System Proxy Settings” checkbox.

2. Close all applications, such as Firefox, ZAP, Paros, Web Scarab, etc. Close **Terminal** Windows (type “**exit**” under command line.)

3. Click on the power button on the VM and turn it off.

Reference and credit to

1. http://csis.pace.edu/~lchen/sweet/

2. http://downloads.vmware.com/

3 http://www.virtualbox.org\

4. http://www.virtualbox.org/manual/ch01.html