Lab – Install Linux in a Virtual Machine and Explore the GUI

Objectives

Part 1: Prepare a Computer for Virtualization

Part 2: Install a Linux OS on the Virtual Machine

Part 3: Explore the GUI

Background / Scenario

Computing power and resources have increased tremendously over the last 10 years. A benefit of multi-core processors and large amounts of RAM is the ability to install multiple operating systems through the use of virtualization on a computer.

With virtualization, one or more virtual computers can operate inside one physical computer. Virtual computers that run within physical computers are called virtual machines. Virtual machines are often called guests, and physical computers are often called hosts. Anyone with a modern computer and operating system can run virtual machines.

In this lab, you will install a Linux OS in a virtual machine using a desktop virtualization application, such as VirtualBox. After completing the installation, you will explore the GUI interface. You will also explore the command line interface using this virtual machine in a lab later in this course.

Required Resources

- Computer with a minimum of 2 GB of RAM and 10 GB of free disk space
- High-speed Internet access to download Oracle VirtualBox and Linux OS image, such as Ubuntu Desktop

Instructions

Part 1: Prepare a Computer for Virtualization

In Part 1, you will download and install desktop virtualization software and a Linux OS image. Your instructor may provide you with a Linux OS image.

Step 1: Download and install VirtualBox.

VMware Player and Oracle VirtualBox are two virtualization programs that you can download and install to support the OS image file. In this lab, you will use the VirtualBox application.

a. Navigate to https://www.virtualbox.org/. Click the download link on this page.

b. Choose and download the appropriate installation file based on your operating system.

c. After the VirtualBox installation file is downloaded, run the installer and accept the default installation settings. When prompted regarding missing dependencies python code / win32 api, click **Yes** to proceed.

Step 2: Download a Linux Image.

a. Navigate to the Ubuntu website at http://www.ubuntu.com. Click the **Download** menu.

b. Click the Download link on this page to download and save an Ubuntu Desktop image.

Step 3: Create a New Virtual Machine.

a. If you did not choose to open VirtualBox after your installation, click **Start** and search for **VirtualBox**. Click **Oracle VM VirtualBox** to open the manager. When the manager opens, click **New** to start the Ubuntu installation.

b. In the **Virtual machine Name and Operating System** screen, type **Ubuntu** in the **Name** field.

Review the location of the **Folder** field. This will be the location of the virtual hard drive for this virtual machine.

In the **ISO Image** field, click the dropdown and locate the downloaded Ubuntu Desktop image. Notice that the Type and Version fields are automatically filled in and grey out.

Click the checkbox **Skip Unattended Installation** to install the guest OS manually.

Click **Next** to continue.

c. In the **Hardware** screen, increase the amount of RAM or number of CPUs as desired. Make sure the selection stays in the green area so it does not adversely affect the performance of the host. You should not need more than 4096 MB of RAM or more than 1 CPU for this lab. You can always adjust it later. Click **Next** to continue.

d. In the **Virtual Hard disk** screen, click **Next** to accept the option to create a virtual hard disk now with the suggested size. Change as desired. The default storage settings for the hard drive is dynamically allocated. Click **Next** to continue.

e. Review the setting in the summary page. Click **Finish** when done.

f. When the hard drive creation is done, the new virtual machine is listed in the **Oracle VM VirtualBox Manager** window. Select **Ubuntu** and click **Start** in the top menu.

Part 2: Install Ubuntu on the Virtual Machine

a. In the GNU GRUB screen, press **Enter** on the highlighted **Try or Install Ubuntu** to start the loading process. This can take several minutes.

b. In the **Welcome** screen, you are prompted to try or install Ubuntu. The try option does not install the OS, it runs the OS straight from the image. In this lab, you will install the Ubuntu OS in this virtual machine. Click **Install Ubuntu**.

c. Follow the on-screen instructions and provide the necessary information when prompted. **Note**: If you

are not connected to the internet, you can continue to install and enable the network later.

1) Accept the defaults on the **Updates and other software** screen. You can also check **Install third party software…** if you wish.

2) Because this Ubuntu installation is in a virtual machine, it is safe to erase the disk and install Ubuntu without affecting the host computer. In the **Installation type** screen, select **Erase disk and install Ubuntu**. Otherwise installing Ubuntu on a physical computer would erase all data on the disk and replace the existing operating system with Ubuntu. Click **Install Now** to start the installation.

3) In the **Write the changes to disks?** screen, click **Continue** to erase the disk and install Ubuntu.

4) In the **Who are you?** screen, provide your name and choose a password. Use **iteuser** for **Your Name** and **ITEpass!** for the password. You can use the username generated or enter a different username. If desired, you can change the other settings. Click **Continue**.

d. The Ubuntu OS is now installing in the virtual machine. This will take several minutes. When the

Installation is complete message displays in Ubuntu, click **Restart Now** to restart the virtual machine. When prompted to remove the installation medium, press **Enter** to continue the booting process.

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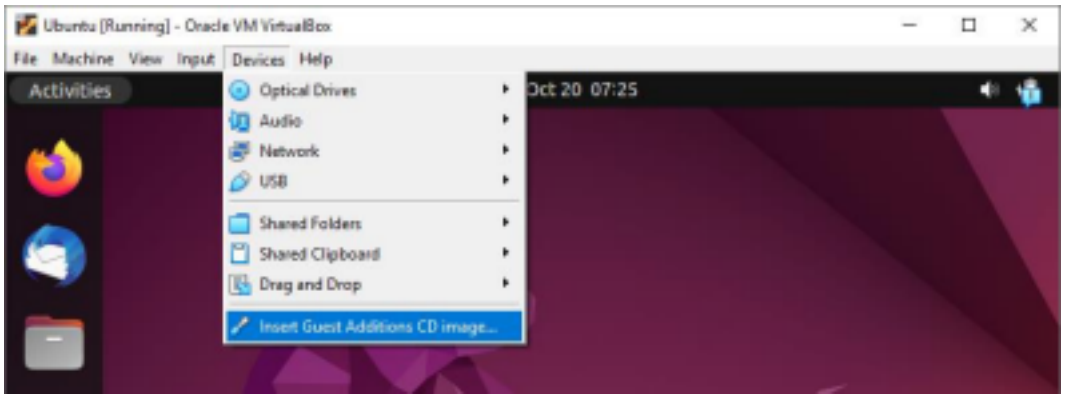
Part 3: Explore the GUI

In this part, you will install the VirtualBox guest additions and explore the Ubuntu GUI.

Step 1: Install Guest Additions.

a. Log on to your Ubuntu virtual machine using the user credentials created in the previous part.

b. Your Ubuntu Desktop window may be smaller than expected. This is especially true on high-resolution displays. Click **Device > Insert Guest Additions CD image…** to install the Guest Additions. This allows more functions, such as changing the screen resolution in the virtual machine.



c. Click **Run** to install the additions. When prompted for a password, use the same password that you used to log on. Click **Authenticate** to continue.

Note: If you were not prompted to install the additions, you can access the Guest Additions CD image to install the guest additions.

1) In the list of **Activities** on the left, scroll down until you see the disk labeled **VBox_GAs_x** where **x** is the version number (e.g. **7.0.2**). Click the CD icon to open it.

2) Right click **autorun.sh** and choose **Run as a Program**.

3) When prompted for a password, use the same password that you used to log on. Click **Authenticate** to continue. Following the instructions on the screen to complete the installation.

d. When the installation of the additions is done, restart the virtual machine again. Click the menu in the upper-right corner and click **Power Off / Log Out**. Click **Restart** to restart Ubuntu.

Step 2: Run applications.

In this step, you will open a couple of applications in the virtual machine.

Note: If the host computer is not connected to the internet, re-connect to the internet and verify that the virtual machine has access to the internet. If the network connection settings need to be changed, power off the virtual machine and click **Settings** in Oracle VM VirtualBox Manager > click **Network** to change the network settings.

a. Power on virtual machine as needed and log into Ubuntu again. After you are logged in again, you can resize the virtual machine window.

b. Open a web browser. Depending on the Linux distribution, you may need to search for a web browser or

there is a link to a web browser already on the Desktop. Navigate to a few websites if desired.

c. Right click the Desktop and choose **Open in Terminal**. You will be using a terminal emulator in later labs. d. Explore the installed Linux distribution and locate a few applications that you may use.

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Reflection Question

What are the advantages and disadvantages of using a virtual machine?

Almirol

-Utilizing a virtual machine (VM) has various benefits, especially among technology students and practitioners. It is flexible because it allows one computer to support several operating systems at a time, making it easy to conduct software testing, study of the environment, and practice in troubleshooting without affecting the primary system. VMs improve security by virtue of isolation, where any damage within the VM, like a virus or system failure, does not extend to the host computer. This is why VMs are ideal for safe and efficient experimentation, education, and program development.However, there are some major drawbacks, including performance, as the host machine must provide resources like CPU, memory, and storage to the VM, which in most instances makes the machine slower than physical machines.VMs require lots of disk space and processing power, which can be a hassle on older or low-end computers. For new users, managing a number of VMs complicates matters, providing leeway for confusion or technical errors.

Bal

A good advantages about using a virtual machine is that it lets you run different operating systems on the same computer, which is helpful for testing or learning. It don’t need to buy another device to try out another OS, but the downside is that it can make your computer slower because it uses a lot of memory and processing power. It will need a computer with enough RAM and CPU to keep it running smoothly. If the PC isn’t strong enough, the virtual machine might lag or crash.

Bandigan

-One advantage of using a virtual machine is you can use different OS on a single pc while a disadvantage of using a virtual machine is you can experience performance issues, you need a decent pc because you need to have extra resources like RAM and CPU.

Baula

- Virtual machines offer advantages like cost and resource efficiency through hardware consolidation, enhanced security and isolation, flexibility for running multiple operating systems, and simplified disaster recovery. But they require much resources to run and are very temperamental when it comes to compatibility with its host machine.

Braganza

The advantage of a VM (virtual machine) is that each VM runs independently, so if one crashes or gets infected by malware (which in most cases VMs are used for malware testing), the other VMs remain safe and untouched. The other advantage of a VM is that it can be used for personal testing and trying out new OSs like Linux, or you could develop a personal project without needing to buy a new computer. The disadvantage, however, is that VMs require a decent PC to be able to run depending on what you are using them for, and running multiple VMs can consume large amounts of RAM, CPU, and disk space, which may slow down the host system that you are running the VM on.

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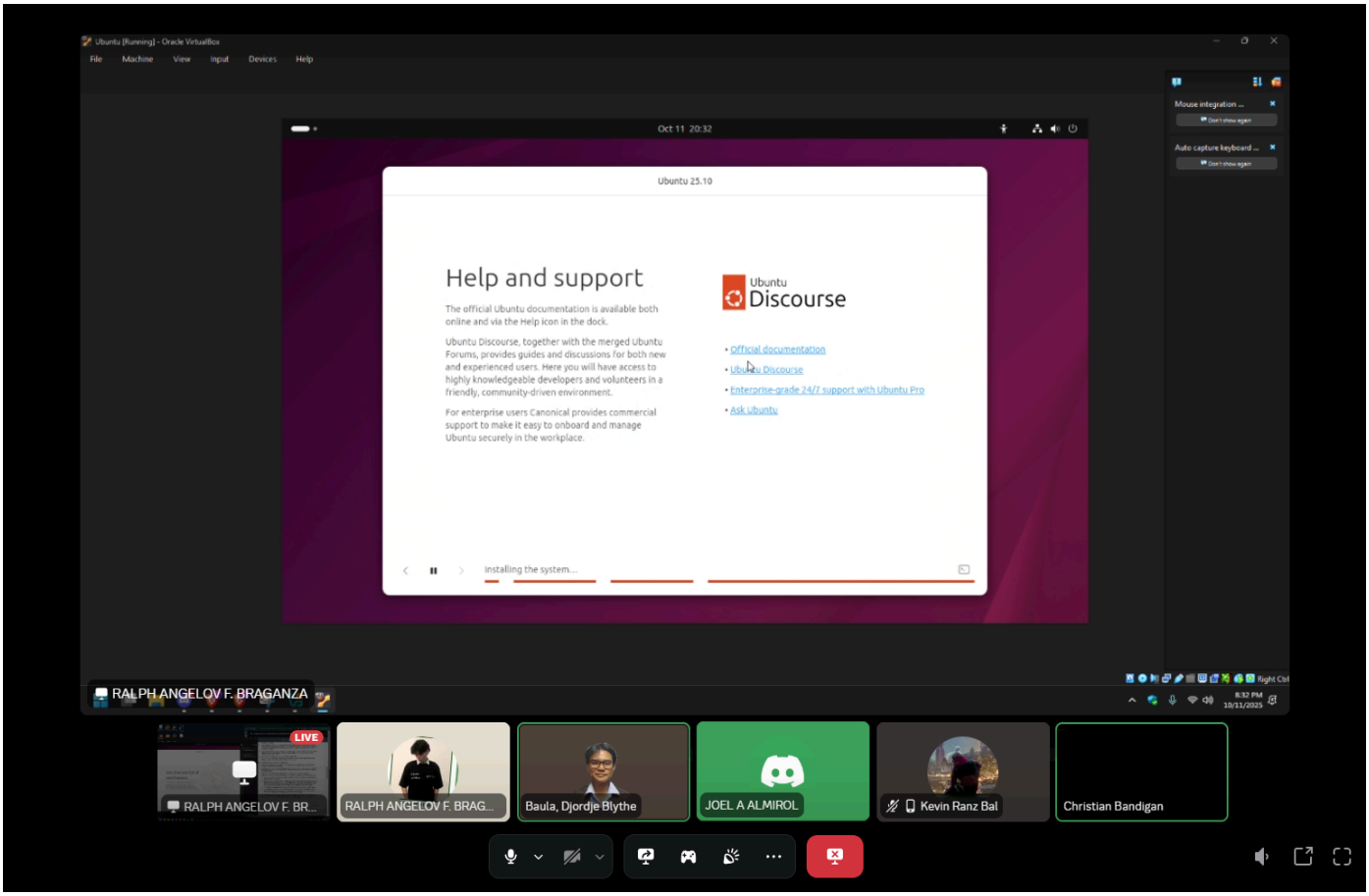
Conclusion

In this activity we were able to install linux in one pc and explore its GUI. Employing virtual machines provides a good solution for learning, testing, and playing with different environments for computing without additional hardware. They allow for flexibility, security, and ease because multiple operating systems can be run at once and experimentation can be conducted safely. Reduced performance, higher resource consumption, and potential issues of compatibility are some challenges that can exist. Even with these challenges, virtual machines are vital to students and experts when used on strong systems and properly administered. Being able to utilize their advantages and overcome their disadvantages is key to future IT practitioners in making good technological choices in their work and studies.



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