NAME: [redacted]
PROJECT #01

Changing to /home/ckelly/it341/[redacted]/reports

Current working directory is: /home/ckelly/it341/[redacted]/reports

-rw-r--r-- 1[redacted] it341-1G 12120 Feb 17 20:16 report_01.txt

Wednesday, January 24, 2018

Project 1
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+ After the end of the lecture, my teammate and I found ourselves already sitting at the machine we signed up for, IT28. Because the other team did not approach us until near the end of class, we decided to start our project first after a few minutes of waiting, so as to not waste a whole day of potential labor.

    * Admittedly, we ought to have gone looking for them ourselves in order to discuss ordering (given they signed off on being team A, leaving us as B) and to have them watch our progress for their own sakes, but there was nothing that could be done at this time. I understand!

+ Before anything else, because I bring a laptop, I had my teammate [redacted] sign into the IT28. His windows account would be the active one for the duration of this first project.

+ Our first task was checking the Ethernet outlets connected to IT28. We discovered the cable was already in the desired right hand side plug, leaving it on the it.cs.umb.edu network, rather than the larger cs.umb.edu network the left outlet connects to.

+ With no action necessary on the previous step, we set up our VMWare. [redacted] went to jot down the VMWare key on the wall, since we couldn't see it clearly from our positions sitting in front of IT28.

    * When he returned, I entered it while he read it back to me, and once accepted I handed the keyboard back to him to use for the remainder of the project.

+ As I read the instructions, [redacted] followed them, first clicking the button on VMWare's startup screen to create a new virtual machine. We chose typical configuration, and then chose to install the OS later. For the guest operating system, Linux was chosen, then ubuntu 64-bit. The virtual machine was named itvm28-1b, after our team name.

+ The VM save location on IT28 was C:\IT341\section1b. We picked the option to split the virtual disk into multiple files, using the default option of 20GB of disk capacity. The configuration was then finished.

+ Now we edited the CD/DVD drive under the devices list of our VM. We turned auto-detect to use ISO image, and chose the Ubuntu 16.04 LTS server ISO, located at the following location:

    C:\OS ISOs\Linux\Ubuntu\Server\ubuntu-16.04.3-server-amd64.ISO

+ We then powered on the virtual machine as per the instructions, [redacted] still at the keyboard and me reading off the instructions. There was slight confusion, as the keyboard would not interact with the VM. We realized we needed to click into the VM's window so it could take control of they keyboard, and noted the ctrl-alt hotkey to unlock the KB/M and interact with the real IT28 again.

+ [redacted] chose to install Ubuntu server, picked English language and United States through the three following localization options menus, and then chose "no" when asked to autodetect keyboard layout. "English (US)" was chosen for both keyboard origin and keyboard layout.

+ We waited as the installation processed all of these choices, and then were requested a hostname. Changing it from the Ubuntu default, we put "itvm28-1b" here, and then set up the sysadmin user account. Full name and username were of course both set to sysadmin, and the password was set to "itvm28-1b", as with all the other instances we were instructed to use our team-name to name elements of the VM, and entered twice to confirm it as correct.

+ We declined to encrypt the sysadmin home directory, and accepted the existing New York time-zone as correct. At around this time, the other team approached us, watched us work for a little bit, and then returned to their seats before we had much of a chance to talk to them.

+ When asked to set up the disk partitions, we picked the first option, "Guided - use entire disk". We then confirmed the default partition was the one we wished to put our data into. We selected yes to write these changes to disk, and waited for the action to complete.

+ We left the HTTP proxy blank and hit enter to continue, waited again, and then chose to not enable automatic updates, as these would have the potential to break things.

+ When asked to choose software to install, we kept only the already-ticked standard system utilities option, leaving all the rest blank, and continued. GRUB boot loader was then installed to the master boot record, and we again waited for the installation to complete its operations.

+ Once this finished, we hit continue to finish the installation and reboot, before then returning focus to the host machine with the aforementioned ctrl+alt hotkey, and shutting the VM down in the middle of its reboot cycle.

+ Due to time constraints, we were forced to conclude work on the project for the day, agreeing that we had reached a sufficient completion level.

Monday, January 29, 2018

Project 1
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+ After reaching the classroom early, I decided to start work on the project again, mainly to ensure we were not taking up too much of the other team's time. I signed onto my own Windows account, then continued on with the directions in the project PDF, by turning VMWare on, and switching the CD/DVD drive of our VM from the installation disc ISO file to the physical drive, with auto-detect selected.

+ The login screen appeared after the VM booted, and I signed into the sysadmin account with the password itvm28-1b with no problems. I ran the ping test, using the command:

```
ping -o 5 www.yahoo.com
```

to get the output:

```
PING atsv2-fp.wg1.b.yahoo.com (98.139.180.180) 56(84) bytes of data.
64 bytes from media-router-fp1.prod.media.vip.bf1.yahoo.com
(98.139.180.180): icmp_seq=1 ttl=128 time=37.2 ms
64 bytes from media-router-fp1.prod.media.vip.bf1.yahoo.com
(98.139.180.180): icmp_seq=2 ttl=128 time=26.5 ms
64 bytes from media-router-fp1.prod.media.vip.bf1.yahoo.com
(98.139.180.180): icmp_seq=3 ttl=128 time=33.0 ms
64 bytes from media-router-fp1.prod.media.vip.bf1.yahoo.com
(98.139.180.180): icmp_seq=4 ttl=128 time=34.9 ms
64 bytes from media-router-fp1.prod.media.vip.bf1.yahoo.com
(98.139.180.180): icmp_seq=5 ttl=128 time=28.8 ms

--- atsv2-fp.wg1.b.yahoo.com ping statistics ---
```

Tiny flaws are not a huge deal. Just a reminder to be thorough and attentive

```
5 packets transmitted, 5 received, 0% packet loss, time 4009ms
rtt min/avg/max/mdev = 22.805/30.908/37.224/5.389 ms
```

+ It seemed the ping was successful, as packets were sent to and from yahoo.com without error. At this time, [redacted] walked into the classroom, and I showed him these steps I had done this morning, while also sparing him the tedium of typing the ping output into my rough report notes by hand, as I was not aware of any ways to copy text on the VM's screen through VMWare. I gave him the controls again, and we ran the command:

```
sudo apt-get update
```

  along with the password for sysadmin, and watched it run successfully. Next we ran:

```
sudo apt-get upgrade
```

  and pressed y to continue, which also completed successfully. Then:

```
sudo apt-get install openssh-server
```

  once again confirming the yes/no question given by apt-get to install, with "y". This, too, was a successful operation.

    * Somewhat regrettably, I did not record the outputs of any of these three commands, as they very quickly scrolled too far up to see the beginning any more. Going forward, my intent is to take screenshots of everything and transcribe it later on my own time, while also forwarding the transcriptions alone to [redacted] if not giving him the screenshots as well to split this workload.

+ With these commands completed, we logged out of sysadmin on our VM, and used ctrl+alt to interact with VMWare itself again. We took our first snapshot, with [redacted] naming it "Project1- Complete" [sic], mentioning in its description that we completed the project, and that our last operation was the installation of the openssh server.

+ We then noted the other snapshot buttons, learning how to revert to a previous one, and how to manage all snapshots for the machine. Our last act was searching for the location the snapshots were saved to, finding the 5 megabyte file named itvm28-1b-Snapshot1, as well as a 1 gigabyte file named itvm28-1b-Snapshot1.vmem, both inside the directory C:\IT341\section1b.

Answers to Questions
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1. What does *LTS* *stand for* and what does it *mean*? Explain:

   > LTS stands for "Long Term Support". LTS versions of ubuntu are only ever released once per two years, and the long term support aspect refers to the fact each LTS version will be supported with updates for five years past its release, regardless of whether it's desktop or server since Ubuntu 12.04 LTS.

   Source: https://wiki.ubuntu.com/LTS

2. What is an *LVM (logical volume manager)*? explain what a *logical volume* is and what a *logical volume manager* does

   > A logical volume is two or more physical volumes (hard drives, etc) which are combined by software to behave as a single drive. The software which handles this, as well as specific tasks like allocating disks and resizing, striping or mirroring logical volumes, is the logical volume manager.

   Source: https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/5/html/deployment_guide/ch-lvm

3. Please explain what the *sudo* command is, how it's used and why we need it

> In Ubuntu and some other linux forms, sudo is an administrative tool for indirectly allowing total control of the computer. Every Ubuntu installation comes with a "Root" user, which has unlimited control of the system, even to the point of deleting system files until the system crashes and becomes unbootable. This is a lot of power, and a lot of responsibility, so sudo is a way of abstracting this. It gives the person who invokes the command, and then provides the correct password, the power to do anything root is capable of, but only so long as their account has been approved to use it. This makes it easy to take away sudo rights from an ex employee without needing to change passwords company-wide each time, as an example. This is much simpler and more effective than giving everyone access to root, risking misuse and making people forget, should the root password need to be changed. Without sudo, only root would be able to do such things as installing, removing or changing software on the machine, and of course would be susceptible to the mentioned negatives that sudo bypasses.

Source: https://www.linux.com/blog/how-use-sudo-and-su-commands-linux-introduction

4. Please explain what *apt-get* is and why we use it

> Apt-get is a package manager for installing and updating software on Ubuntu. Needing root (or sudo) priveleges to operate it, you supply the name of a given software, and apt-get checks a list of sources. When it finds a match, it uses the information to download the software files from a server and to the computer, and then installs it. It would be much more difficult to install software without the ease of use apt-get provides.

Source: https://help.ubuntu.com/community/AptGet/Howto

5. Please explain *what snapshots are* and *why they are useful to us*

> Snapshots are a way of saving the exact state of a virtual machine at a certain point in time. It preserves everything about the machine, from disks and memory to the configuration of devices like virtual network interfaces. They are extremely useful in the event something catastrophic occurs to a virtual machine. For instance, if someone were to sign into root and delete system files until it became entirely inoperable, a snapshot from right before this incident occurred would quickly bring it back to the working condition it used to be in.

Source: https://kb.vmware.com/s/article/1015180

Formatting **1.5** = Good, **1** = Acceptable, **0.5** = Needs Improvement, **0** = Unacceptable	1.5	/ 1.5
Writing Quality **1.5** = Good, **1** = Acceptable, **0.5** = Needs Improvement, **0** = Unacceptable	1.5	/ 1.5
Log Content **5** = Excellent, **4** = Good, **3** = Fair, **2** = Needs Improvement, **1** = Poor, **0** = Nothing/Minimal	5	/ 5.0
Questions Content **2** = Great, **1.5** = Good, **1**= Fair, **0.5** = Poor, **0** = Nothing/Minimal	2	/ 2.0
TOTAL	10	/ 10.0