Homework--VMware Workstation Player

Normally this is a lab to install a Hypervisor, so we can work with virtual machines (VMs) in different operating systems and create lab environments. This year we are using the standard SVGS image with a hypervisor already installed for us. We will use VMware Workstation Player, which is available free for academic use. Other hypervisors are Oracle VirtualBox, Microsoft Hyper-V, and Xen.

With a lab of VMs, we can use several different OSs at once without disturbing the OS that is installed on our hardware. For example, if you want to learn about Windows servers and Domain Controllers, you can install a network of VMs and see how they work. We can practice with security tools by having our VMs scan and attack each other, without causing problems on our regular networks. We can also examine malware in a safe environment using VMs. Once we are done, we can either erase the VM we've infected with malware or restore the VM to its original condition.

Required Reading

Read the PowerPoint slides for this class, Virtual Machines.pptx

Read one of the following articles about hypervisors and virtual machines.

https://en.wikipedia.org/wiki/Hypervisor
or
https://www.howtogeek.com/66734/htg-explains-what-is-a-hypervisor/
or
https://searchservervirtualization.techtarget.com/definition/hypervisor

Then read one of the following articles about containers.

https://www.freecodecamp.org/news/a-beginner-friendly-introduction-to-containers-vms-and-docker-79a9e3e119b/
or
https://www.flexiant.com/2015/05/08/containers-vs-hypervisors-and-other-considerations/
or
https://www.electronicdesign.com/dev-tools/what-s-difference-between-containers-and-virtual-machines

At Home

If you wish to install VMware Workstation Player at home or on your laptop, it is available here. The web site talks about purchasing Workstation Player, but the installer should allow you to bypass licensing by affirming that you will use the product for academic purposes. If you wish to buy Workstation Player or Pro, academic discounts are available. I recommend trying the free version first, however.

Hand In

1) Is our hypervisor (VMware Workstation Player) a Type 1 or Type 2 hypervisor? Why?

2) What are some advantages of using virtual machines or containers?

3) What is a fundamental difference between a virtual machine and a container?