Assignment Two

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1 Lab 4

1.1 Question 1: What is the relationship between a guest operating system and a host operating system in a system like VMware? What factors need to be considered in choosing the host operating system?

A guest operating system has the hardware of a computer abstracted into its components, such as CPU, memory, drivers) into execution environments that create the illusion that another operating system, the guest, is running on top of the one that is actually on the computer, the host. VMware has the virtualization tool run on user mode as an application that acts as an operating system, but it is abstracted enough that the user is actually running a simple application. This allows several guest operating systems to run on a host operating system. In order to simulate hardware that the guest operating system does not actually have, such as a disk drive, there can be a file created for guests that acts as how a disk drive would. This means that multiple guests can have their own disks, even if there are not enough actual disk drives from the host operating system to be dispersed to the guest operating systems. Also, the relationship between the guest OS and host OS is independent, for example if one of them got a virus then that does not mean the other will. Some factors to consider when picking a host operating system is if it will support having multiple guest operating systems. Running a virtual machine is very resource intensive, and having an OS that can handle that is crucial. You also want to make sure that the host operating system will not have the kernel become compromised in any fashion, a lot of times it is best to treat the kernel as hardware. If the kernel on the host goes down, all of the guest OS's on top of it will suffer as well.