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Operating Systems

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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 systems run on host operating systems. The underlying operating

        system that interfaces directly with the hardware is the host, while the guest is the

        operating system that interfaces to the host. VMware is software run on a host OS

        that allows it to run guest operating systems. The VM in VMware stands for

        Virtual Machines, which is another word for a guest operating system. Choosing a

        host operating system is an important decision depending on what kinds of guest

        operating systems might be able to run, and how fast they will run. Firstly, the

        host OS must be able to run software (e.g. VMware) that allows guest OS's to

        run, otherwise it's just a simple OS. The host OS also must run that software fast;

        it must be efficient at translating requests down to bare metal because each CPU

        cycle is simulated. A poorly translating host OS will take lots of its own, raw

        CPU cycles to run a single guest OS CPU cycle, slowing the guest OS down

        tremendously. Another factor to take into consideration is how well the host OS

        schedules and parallelizes its process' threads. If the host OS is meant to run

many guest OS's, it must be able to parallelize execution well, or the more guest

OS' running, the slower the host OS (and therefore all of the guest OS's) run.