Your company is investigating using virtualization to help minimize the number of servers in its data center. The company would like to ensure that the virtualization solution chosen is the most efficient use of limited resources while still allowing them to run a full operating system for each virtual machine being hosted by the server. What type of virtualization should the company choose?

1. Type I hypervisor
2. Type II hypervisor
3. Type III hypervisor
4. Containerization

Answer: A

Explanation: A Type I (bare metal) hypervisor allows each virtual machine (VM) to have its own operating system (OS) without requiring the underlying physical server to have a full OS like Windows, OS X, or Linux. A Type I hypervisor is more efficient than a Type II hypervisor because a Type II requires a full desktop or server OS to be installed on the server AND in each of the VMs. A Type III hypervisor is a made-up term to distract the student. Containerization is the most efficient of any of the options listed, but it doesn’t allow each VM to have its own OS since all containers share the same host OS. (Lesson 07\_02 hypervisor)

What is the biggest security benefit of using multiple virtual machines on a shared physical server?

1. Virtual machines cannot be hacked
2. If one virtual machine is compromised, the negative effects can be compartmentalized and not spread to the other virtual machines on the same physical server
3. If one virtual machine is compromised, none of the other virtual machines can be compromised
4. When you patch the shared physical server, all the virtual machines hosted by it are automatically patched

Answer: B

Explanation: If one virtual machine is compromised, the negative effects can be compartmentalized and not spread to the other virtual machines on the same server. The keyword here is “can”. Virtual machines on the same server can be compromised if the attacker performs a VM escape, or if the other virtual machines have the same type of vulnerability. Virtual machines can be hacked, just like physical servers. Each virtual machine has its own operating system and therefore must be patched. (Lesson 07\_05 Securing VMs)