**Desktop Virtualization**

You are the Cybersecurity analyst for a midsize software company (around 800 employees) called ​Exodus Development,​ that not only develops applications but also provides phone and Internet support. The company is based in the U.S. and has a primary HQ location and a few satellite offices. The network uses Microsoft Active Directory for authentication. There is an Azure tenant, but the on-premises network has not yet been extended to it. No official reason has been given for this, but rumour has it that it’s on hold simply because other tasks keep being prioritized over it.

Management has been noticing that customers seem to be leaving Exodus, and a partial cause is issues within the Customer Service department. Specifically, agents experience downtime due to network issues, login problems, time spent applying system updates, and travel time. The Customer Service manager is also having difficulty measuring productivity, and senior management has concerns around security and regulatory compliance.

There are other groups such as Marketing, Graphic Design, and Software Engineering who are considered “power users.” Marketing and Graphic design all have laptops, and they are mostly used for graphics and video-editing software, plus specialized I/O devices. The software engineers used high-end desktops with specialized hardware and software.

Senior management’s main concern is the bottom line: solve the problems within the Customer Service department so they can retain customers (and the precious revenue they bring in) and hopefully lower costs at the same time. The CISO is concerned about outsourced staff that must come into the network to provide software development support. The Software Engineering manager has long been worried about the excessive resources being expended on development and test environments. Right now, they must provide multiple PCs to employees to accomplish this, which is both expensive and time consuming, so he would be grateful for any ideas that could address that situation.

Your boss has been tasked with determining whether desktop virtualization makes sense given these requirements, and in typical boss fashion he has delegated this task to you. The good news is that he simply wants a brief overview that answers the following questions. Assuming the company will continue to grow at a healthy rate, answer each question as completely as you can:

1. Which groups or departments should be virtualized, and why?

* There are multiple reasons why the software engineering and customer service departments should be virtualized. With the advantages that Microsoft Hyper-V has to offer, such as the ability to detect unstable environments, snapshot, and quickly restore a working image instead of waiting hours for a rebuilt system, going virtualized can assist the software engineering department increase productivity. The customer service department will benefit once they are virtualized since having the same software and operating system for both the phone and internet assistance will reduce the amount of troubleshooting required. This implies that for each user, you only need to troubleshoot one virtual machine. Also, you can simply offer a fresh copy of the virtual machine to a user and erase the old one if one of their computers encounters a difficulty.

1. Your boss has asked you to focus on Hyper-V and VMware, so between those two which virtualization products would be the best fit?

* Hyper-V would likely be the best option in this scenario because it is a Microsoft product and would work effectively with the company's use of Microsoft Azure and Microsoft Active Directory for authentication. Also, Hyper-V has a feature called Live Migration that lets you move virtual machines between hosts without any downtime, which may be important for the use case of the company.

3. What primary benefits would the company realize for the following

1. Productivity and Availability

* Virtualization has removed the need for IT professionals to repair hardware, clean up viruses from computers, or even diagnose complex problems. Administrators can impose particular security configurations based on the role of the virtual machine using virtualization security policies.

b. Endpoint Management

* Administrators can apply certain security configurations based on the role of the virtual machine by using virtualization security policies. Also, replacing makes it easier to use and manage software-based policies. virtual machines (VMs) are created using software on physical computers.

c. Security

* In a virtualized system, fewer data centers equal to less hardware. In virtualized environments, important data is protected through a centralized storage system in case a device is stolen, or a malicious system is compromised. If server virtualization is used, servers will also be able to return to their normal condition in the case of an attack.

d. Software Development

* Using VM images is the most efficient, affordable, and flexible way to manage several testing environments. The removal of the time-consuming activities involved in setting up test environments would increase corporate productivity.

e. Future growth

* After the implementation of virtualization technology, Exodus should experience a rise in consumers.

4. What potential pitfalls might be encountered if a virtualization project were to be approved?

* The time and expertise required to establish a strong infrastructure and guarantee that all of its fundamental components, such as the CPU, storage devices, operating systems, and network, are compatible are some difficulties that might arise if a virtualization project were to be accepted. Another potential difficulty is that because it is so simple to construct virtual machines and transfer them, if IT staff members get carried away and create more virtual machines than a server can support, this could also be a problem.