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ISDS 4120

Hands-On Assignment #4

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CHAPTER 6

1. I would choose a dedicated-server network for the International Services Division. There are several driving factors in making this choice:

a. A peer-to-peer LAN does not offer the type of scalability that NDAS desires if their company continues to grow.

b. A peer-to-peer LAN is too small

c. A dedicated-server network can handle their workload today and as the company increases in size

2. I would draw a network plan similar to figure 6-5 on page 177 of the textbook. This figure would display the location of routers, switches, and physical connections between floors. I would suggest using Ethernet connections because it would be cheap, effective, and reliable.

3. LAN bottlenecks typically occur in one or two specific places: either the computers on the network or in the network circuit. You can find a LAN bottleneck by monitoring the utilization of a network and pinpointing either the server or the network circuit as the culprit. If the server utilization is high, then it’s the server’s fault. If the server utilization is low, then it’s the network circuit’s fault. Essentially, either the server cannot process all of the requests being made or t he circuit cannot transmit requests fast enough. LAN performance can be increased by upgrading your server and upgrading your circuit capacity.

4. Because this is a workplace, employees should be discouraged from and punished for using any kind of personal software on work computers. This will reduce the number of malware/viruses that could potentially harm NDAS property. NDAS should also inform its employees about installing any kind of illegal software on company computers. This would include pirated software. NDAS should come up with a system or routine for checking for these things to protect themselves.

CHAPTER 7

1. The servers will be connected to a WLAN Switch/Access Controller. 802.11 Non-Real Time Frames will be tunneled to Thing Access Points, which the wireless clients will connect to.

2. More than one access point allows the signal strength to be manipulated more efficiently. Make sure that the wireless network is securely protected with a good password. Wired-Equivalent Privacy is a security protocol that can add another layer to the network security. Have a firewall require user authentication to access using a VPN.

3. RFID is commonly used for inventory tracking and supply chain applications. Bluetooth is used for phones or wireless audio devices. Infrared can be used to detect system overloads, defective components, and damaged electrical switches.

CHAPTER 8

1. I would suggest a distributed backbone network. This is because it is practical for a large network and allows for multiple devices to be connected to a series of central connection devices (hubs/switches). This type of backbone network also has a smaller percent chance of single point of failure.

2. This network would cost around $3,000 to install. Upgrading the servers, fiber-optic cables, and infrastructure is not cheap.

3. Benefits from growing the network:

a. Faster communication between devices

b. Reduced chance of system failure

c. Faster response time due to higher availability of the system (better system overall is better for efficiency)