SCII/00825/2019
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IT
NETWORK DESIGN INSTALLATION CONFIGURATION

TASK 2

1. Based on the design requirements what specifications for network devices and transmission media can you recommend for this network

✔ Routers to connect around the city businesses and the internet.
✔ Fiber optic because cables have greater transmission speed, high bandwidth, and the signal can travel longer distances when compared to coaxial and twisted pair cables to run around the city
✔ Coaxial cables to connect homes from the main line fiber optic cable
✔ Modems to connect in homes
✔ Switches
✔ UTP cables

2. As a network consultant draw the network diagram / model for this network showing all the interconnections

The model is done in the espn as kfn net.topo

2. What recommendations can you give to improve on the overall performance of this network?

✔ Go For the Virtual Local Area Networks (VLANs)

A VLAN creates its broadcasting domain by splitting a physical network that is in existence into numerous logical networks. Thereby ensuring that through a group of devices is located on different LAN segments, they communicate as if they are on the same wire.

✔ Provide a Different Network for Guests

Having too many users on a network can be likened to having too many vehicles on a road, the chances of having a traffic jam will be higher, and with a traffic jam, all the vehicles on the road will tend to move slowly – both the joyriders and those that have emergency tasks to accomplish.

✔ Data Compression

Compression algorithms can be used to reduce the size of files being transmitted within a network, invariably increasing the network speed significantly.

✔ Do the Necessary Updates and Upgrades

In essence, for a network to function optimally, all component software and firmware involved will need to be updated as new updates are rolled out

✔ Monitoring Tools

They provide detailed insight and analysis on the causes of network errors and where they are located, thereby eliminating the downtime experienced while trying to find the source of errors.

3. With the help of an example explain the remote access configurations you can do for both routers and switches for this network

On the routers

(i) Configure interfaces

(ii) Advertise networks using eigrp

On the switch

(i) Configure an IP address for the management interface

(ii) Assign the switch a default gateway

(iii) Configure enable secret password

(iv) Configure ssh

On the PCs

(i) Assign IP addresses, subnetmask and default gateways.

Implementation.

Configuration commands on Router1

Router1(config)#interface Serial0/3/0

Router1(config-if)#ip address 192.168.1.1 255.255.255.0

Router1(config-if)#clock rate 64000

Router1(config-if)#no shut

Router1(config-if)#int f0/0

Router1(config-if)#ip add 192.168.0.1 255.255.255.0

Router1(config-if)#no shut

Router1(config-if)#exit

Router1(config)#

Router1(config)#router eigrp 1

Router1(config-router)#network 192.168.0.0

Router1(config-router)#network 192.168.1.0

Router1(config-router)#no auto-summary

Router1(config-router)#exit

Router1(config)#exit

Router1#copy run start

Configuration commands on the switch

Switch#conf t

Switch(config)#int vlan 1

Switch(config-if)#ip add 192.168.2.2 255.255.255.0

Switch(config-if)#no shut

Switch(config)#ip default-gateway 192.168.2.1

Switch(config)#username admin password cisco

Switch(config)#hostname timigate

timigate(config)#ip dmain-name yourdomain.com

imigate(config)#crypto key generate rsa

timigate(config)#ip ssh authentication 3

timigate(config)#ip ssh time-out 30

timigate(config)#line vty 0 4

timigate(config-line)#transport input ssh

timigate(config-line)#exit

timigate(config)#exit

timigate#copy run start