Lab 6.2 - Build a Network

Building the Network

Using the following list of network components, build and connect a network as illustrated in figure 1.

NB: To connect the serial cables (RED) – You must power down the router and install a WIC-T2 in an expansion slot.

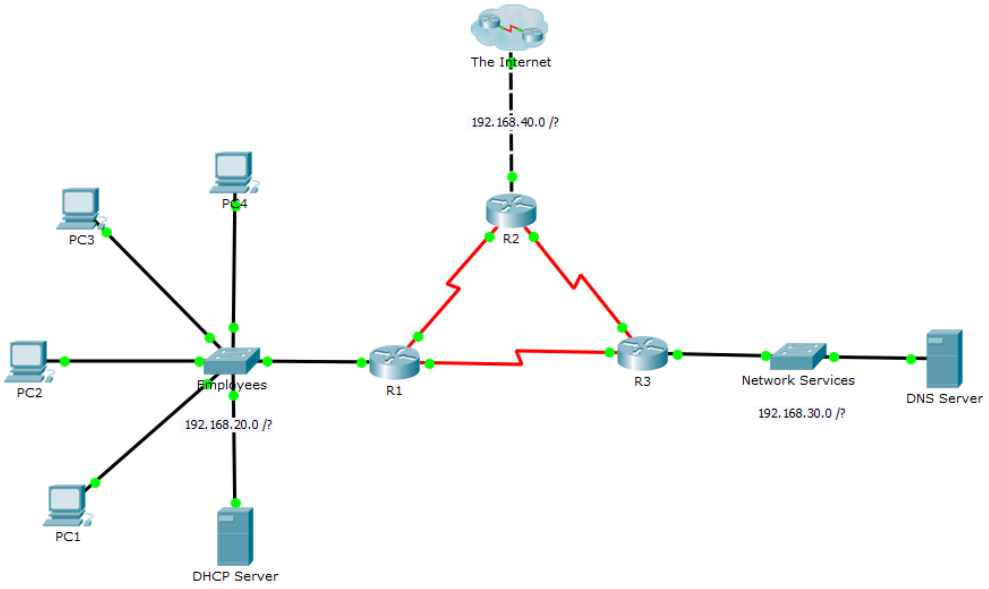

Figure 1: Network Topology

The network configuration consists of:

- 3 x Cisco 1841 Router
- 2 x Cisco 2960 Switch
- 4 x PC's
- 2 x Servers

Configure the Network

Complete the following steps:

- Configure the administrative passwords as outlined in Table 1 on each router.
- Set the MOTD as follows: **"WARNING – NO UNAUTHORIZED ACCESS ALLOWED"**

Table 1: Password Configuration

Devices	Access	Password
R1 R2 R3	Console	consolePwD
	Privileged Mode (Encrypted)	enablePwD

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Configure the Interfaces

You've been provided a network address and the minimum number of hosts required for network topology outlined above. Calculate the subnets. For each router, use the following consecutive subnet. (i.e. all within 192.168.1.X)

- For the Routers, calculate the subnets using the 192.168.1.0 network.

Device	Network	Hosts Required
R1 - R2 **R2 - R3** **R3 - R1**	192.168.1.0	2
R1 - Employees	192.168.20.0	50
R2 - The Internet	192.168.40.0	2
R3 - Network Services	192.168.30.0	2

Document the IP Addressing scheme in the table below:

Device	Interface	IP	Subnet	Default Gateway
R1	F 0/0	192.168.20.1	255.255.255.192	
	S 0/1/0	192.168.1.1	255.255.255.252	
	S 0/1/1	192.168.1.10	255.255.255.252	
R2	F 0/0	192.168.40.1	255.255.255.252	
	S 0/1/0	192.168.1.5	255.255.255.252	
	S 0/1/1	192.168.1.2	255.255.255.252	
R3	F 0/0	192.168.30.1	255.255.255.252	
	S 0/1/0	192.168.1.9	255.255.255.252	
	S 0/1/1	192.168.1.6	255.255.255.252	
PC 1		192.168.20.3	255.255.255.192	192.168.20.1
PC 2		192.168.20.4	255.255.255.192	192.168.20.1
PC 3		192.168.20.5	255.255.255.192	192.168.20.1
PC 4		192.168.20.6	255.255.255.192	192.168.20.1
DHCP Server		192.168.20.2	255.255.255.192	192.168.20.1
DNS Server		192.168.30.2	255.255.255.252	192.168.30.1

Setting up Router RIP

Using lab 6.1 as a reference, configure **RIP V2** on the following devices:

- R1
- R2
- R3

Ensure that all routes are advertised correctly.

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Setting Up a DNS service

What is a domain name? – Provide an example

A domain name is a text mapping to an IP address. It is used to access a website or location through a web browser.
Example: google.ie (IP address: 172.253.116.94

What is the purpose of a DNS Server?

To convert Domain Name to IP address.

Configure the DNS service as follows:

- Click on the services tab on the DNS Server
- Select DNS and switch the service to "On"
- Insert the following information
- Name: www.ait.ie
- Address: 192.168.40.2
- Click Add

Enable DNS on the PC:

- Click on a PC
- Desktop Tab
- IP Configuration
- Enable DHCP
- Repeat for Each PC

Setting Up DHCP

What is the purpose of a DHCP Service?

To obtain and assign a unique IP address to identify devices on a network.

To configure the DHCP service carry out the following on the services tab of the DHCP server:

- Click DHCP and enable the service by turning it on.
- Set the default gateway.
- Set the DNS server to the IP address calculated earlier in the lab.
- Starting IP Address: 192.168.20.20
- Subnet Mask as previously calculated (i.e. enough for 50 hosts minimum).
- Click save.

Why is the DHCP server configured to start from 192.168.20.20?

As all other devices will be configured with IP addresses before reaching 192.168.20.20?
As a method for indicating which group of devices you are configuring i.e. only configuring specific device as .21, .22 (grouping in 192.168.20.20(s))?

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