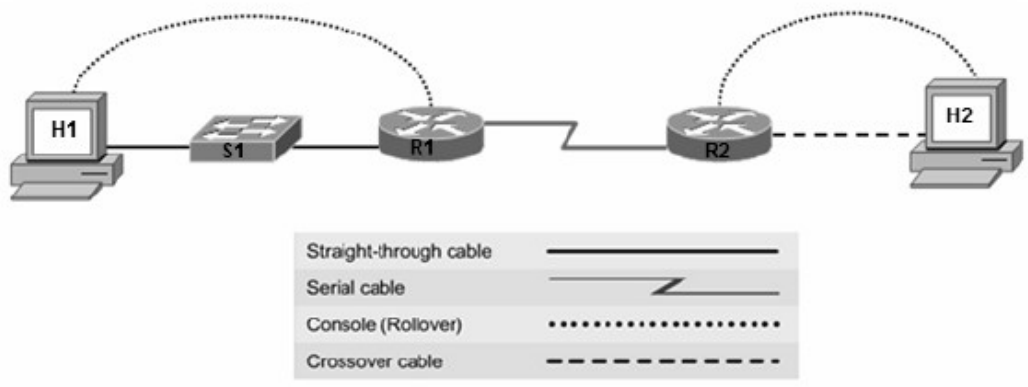
LAB 07:

Building and testing a Router based network

Objectives

- Configure the device host name for a router.
- Configure Ethernet and serial interfaces, including description.
- Configure a message of the day (MOTD) banner.
- Verify connectivity between hosts and routers.



Device	Host Name	Interface	IP Address	Subnet Mask
R1	R1	Serial 0/0/0 (DCE)	172.17.0.1	255.255.0.0
		FastEthernet 0/0	172.16.0.1	255.255.0.0
R2	R2	Serial 0/0/0 (DTE)	172.17.0.2	255.255.0.0
		FastEthernet 0/0	172.18.0.1	255.255.0.0

Required Resources

The following resources are required:

- Two routers, each with an Ethernet and serial interface.
- Two Windows XP computers with HyperTerminal installed
- Two straight-through Category 5 Ethernet cables (H1 to S1 and S1 to R2)
- Crossover Category 5 Ethernet cable (H2 to R2)
- Null serial cable (R1 to R2)
- Console cables (H1 ro R1 and H2 to R2)

- Access to the host H1 and H2 command prompt
- Access to the host H1 and H2 network TCP/IP configuration

From each host computer, start a HyperTerminal session to the attached router.

Step 1: Configure host computer IP settings.

a. Make sure that the host computers are connected according to the topology diagram.

b. Configure the hosts with static IP addresses using the following settings.

H1 attached to the S1 switch:

IP address: 172.16.0.2
Subnet mask: 255.255.0.0
Default gateway: 172.16.0.1

H2 attached to R2 directly:

IP address: 172.18.0.2
Subnet mask: 255.255.0.0
Default gateway: 172.18.0.1

Step 2: Log in to each router and configure the basic settings.

Note: Perform each step for both routers.

a. Configure a host name for each of the two routers.

Router>**enable**
Router#**configure terminal**
Router(config)#**hostname R1**

Note: Use **R2** for the name of the second router.

b. Configure a message-of-the-day (MOTD) banner using the **banner motd** command. When a user connects to the router, the MOTD banner appears before the login prompt. In this example, the number sign (#) is used to start and end the message. The # is converted to ^C when the running-config is displayed.
R1(config)#**banner motd #Unauthorized Use Prohibited#**

Step 3: Configure the serial interface on R1.

In global configuration mode, configure serial interface 0/0/0 on R1. See the Router Interface Summary table at the end of the lab for the proper designation of the serial interface on the router that you are using. Because the R1 serial 0/0/0 interface is acting as the DCE for the WAN link, it is necessary to configure the clock rate. When configuring an interface, always use the **no shutdown** command to enable it.

R1(config)#**interface serial 0/0/0**

```
R1(config-if)#description WAN link to R2
R1(config-if)#ip address 172.17.0.1 255.255.0.0
R1(config-if)#clock rate 64000
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config-if)#exit
```

Step 4: Configure the serial interface on R2.

In global configuration mode, configure serial 0/0/0 on router R2. See the Router Interface Summary table at the end of the lab for the proper designation of the serial interface on the router that you are using.

```
R2(config)#interface serial 0/0/0
R2(config-if)#description WAN link to R1
R2(config-if)#ip address 172.17.0.2 255.255.0.0
R2(config-if)#no shutdown
R2(config-if)##exit
R2(config)#exit
```

Step 5: Verify that the serial connection is functioning.

a. Use the **ping** command to test connectivity to the serial interface of the other router. From R1, ping the R2 router serial interface.

```
R1#ping 172.17.0.2
```

Does the ping work? _____

b. From R2, ping the R1 router serial interface.

```
R2#ping 172.17.0.1
```

Step 6: Configure the Fast Ethernet interface on R1.

In global configuration mode, configure the Fast Ethernet 0/0 interface on router R1. See the Router Interface Summary table at the end of the lab for the proper designation of the Ethernet interface on the router that you are using.

```
R1(config)#interface FastEthernet 0/0
R1(config-if)#description R1 LAN Default Gateway
R1(config-if)#ip address 172.16.0.1 255.255.0.0
R1(config-if)#no shutdown
```

Step 7: Configure the Fast Ethernet interface on R2.

In global configuration mode, configure the Fast Ethernet 0/0 interface on R2. Refer to the Router Interface Summary table at the end of the lab for the proper designation of the Ethernet interface on the router that you are using.

R2(config)#**interface FastEthernet 0/0**
R2(config-if)#**description R2 LAN Default Gateway**
R2(config-if)#**ip address 172.18.0.1 255.255.0.0**
R2(config-if)#**no shutdown**
R2(config-if)#**exit**