

13.07.2023

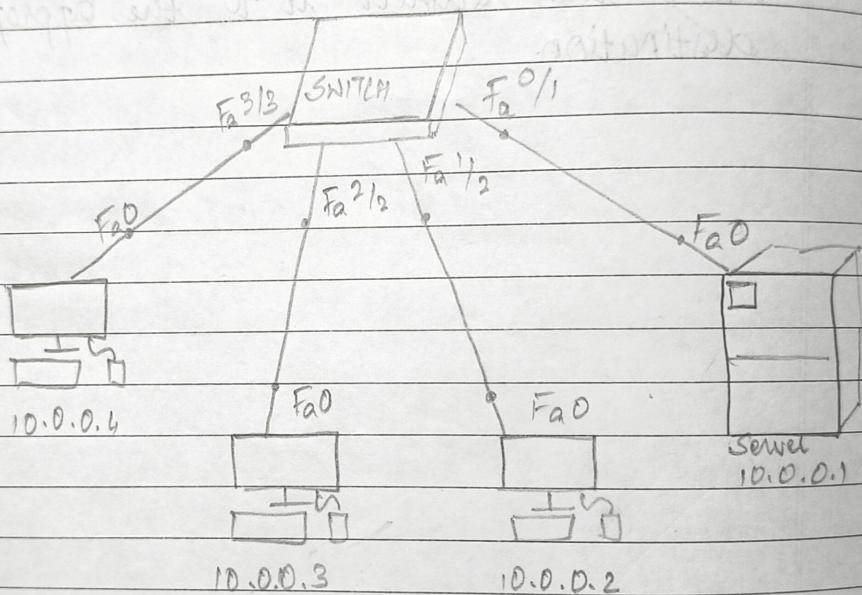
EXP-4

AIM

Configure DHCP within a LAN & outside LAN

① Within a LAN

Topology



PROCEDURE

- ↗ Create a LAN network (10.0.0.0) by selecting 3 PC's a server and connect them to a switch.
- ↗ Set the server's IP address to 10.0.0.1 & set the default gateway to 10.0.0.20
- ↗ Set the server to DHCP mode (services → DHCP → service on)

- Put down the gateway & the start IP address (10.0.0.2)
- Change all the other PC's IP configuration to DHCP.

RESULT

PC > ping 10.0.0.4

Pinging 10.0.0.4 with 32 bytes of data

Reply from 10.0.0.4 bytes = 32 time = 0 ms TTL = 128

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Reply from 10.0.0.4 bytes = 32 time = 0 ms TTL = 128

Reply from 10.0.0.4 bytes = 32 time = 0 ms TTL = 128

Ping statistics for 10.0.0.4

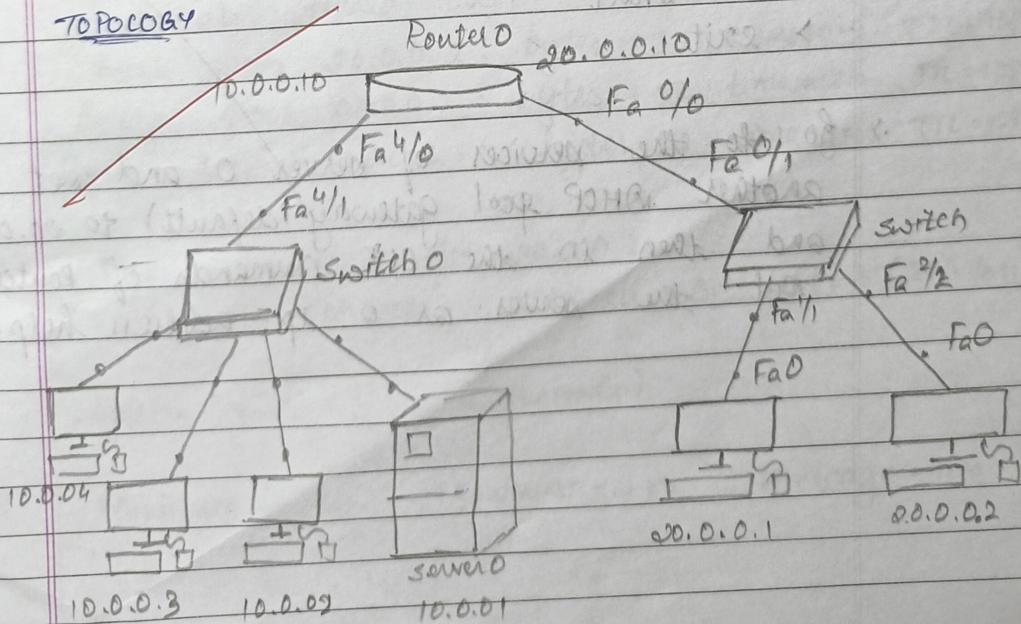
Packet : sent = 4, received = 4, lost = 0 (0% loss)

Approximate round trip times in millisecond.

minimum = 0 ms, maximum = 0 ms, Average = 0 ms

③ Outside of LAN

TOPOLOGY



PROCEDURE

- > Follow the same steps as in case of inside LAN, by creating 10.0.0.0 network with the server IP address - 10.0.0.1 and the gateway 10.0.0.10
- > Create another network with 2 PCs and a switch and connect the 2 networks using a Router.
- > Configure the router to connect the 2 networks through the gateway.
 - > enable
 - > config t
 - > interface fa 4/0
 - > ip address 10.0.0.0 255.0.0.0
 - > no shut
 - > exit
 - > interface fa 0/0
 - > ip address 10.0.0.20 255.0.0.0
 - > no shut
 - > exit
- > Go to the services of server 0 and set another DHCP pool gateway (default) to 10.0.0.10 and then in the CCP commands of router set the server as a ip-address helper.

The following are the pools

PoolName	Default Gateway	DNs Server	Start IP Address	Subnet Mask	Netm
ServerPool	10.0.0.10	0.0.0.0	10.0.0.0	255.0.0.0	512

ServerPool	10.0.0.10	0.0.0.0	10.0.0.1	255.0.0.0	512
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> config t
> interface fa 0/
> ip helper address <server ip-address>
> no shutdown
exit

```

Ping from 10.0.0.2 to 20.0.0.2

RESULT

PC > Ping 20.0.0.2

Pinging 20.0.0.2 with 32 bytes of data

Request timed out.

Reply from 20.0.0.2: bytes = 32 time=0ms TTL=128

Reply from 20.0.0.2: bytes = 32 time = 2ms TTL = 128

Reply from 20.0.0.2: bytes = 32 time = 1ms TTL = 128

Ping statistics for 20.0.0.2

Packet: sent = 4 received = 3, lost = 1 (25% loss)

Approx time (in milliseconds)

Minimum = 0ms

Maximum = 2ms

Average = 1ms

OBSERVATION

- ⇒ The DHCP helps manage allocation of IP address to end users
- ⇒ The device wanting to access a network gets an IP address allocated dynamically to it by the user.

The allocated IP address is taken back, when shutdown.

If the requesting device is outside the SAW (Case a), then the servers IP address must be assigned to the router so the "address helps" so that it can automatically configure that device's IP address.

When playing outside the current network at first it shows "Request timed out" as the router takes time to find the correct.

(1) We assign another server pool in the server's services to that the server knows the gateway to target and the starting IP address to assign to the devices of a different network.