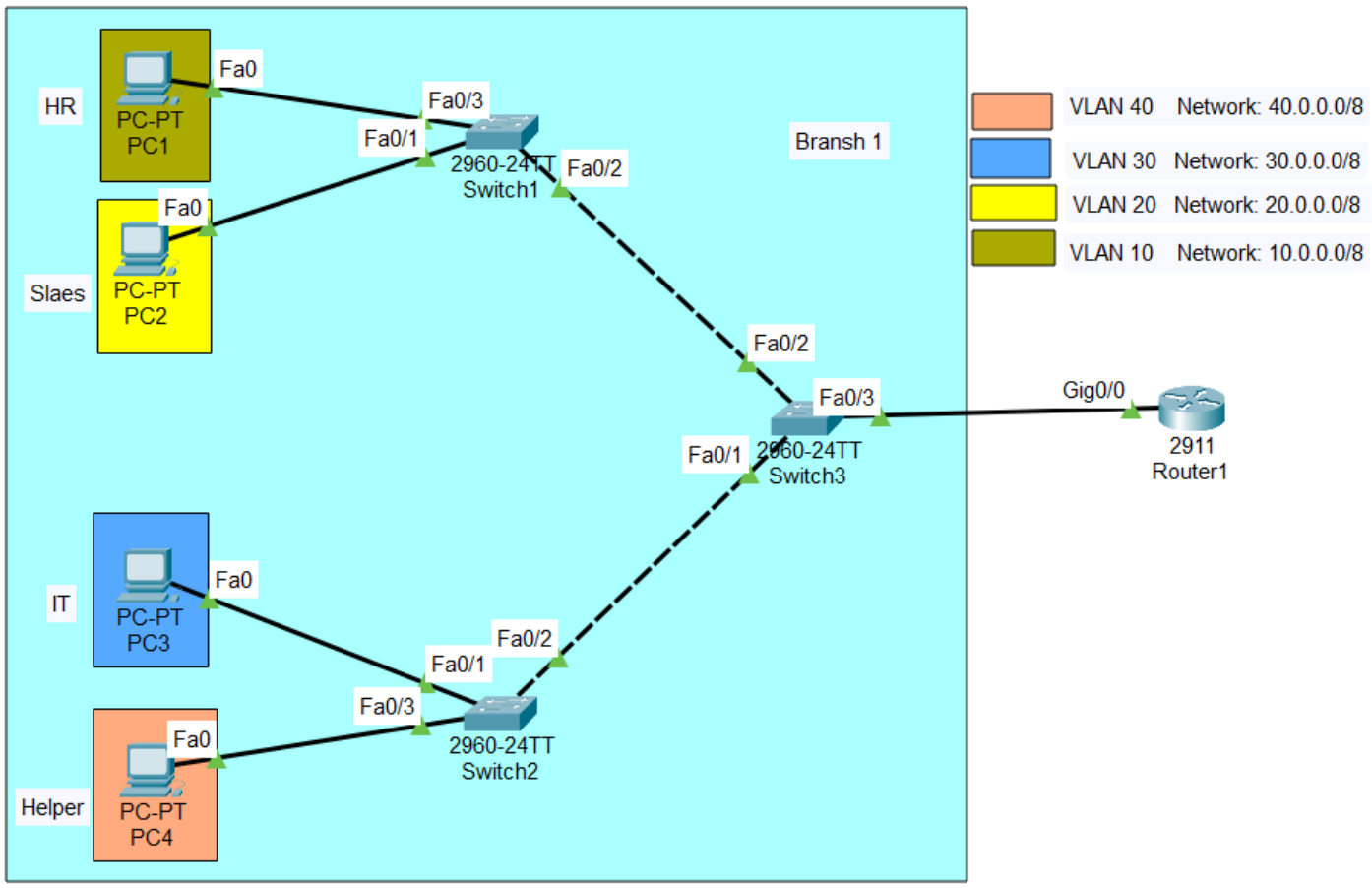
LAB

# DHCP and Inter VLAN

Networking

**Network Engineer:- Ahmed Abou_ELmaged Shallan Allam**

# Network Topology




- A network designed and implemented for a company branch consisting of four departments (HR, Sales, IT, Helper).
- Each of the departments consists of a different network.
- This network connects the departments to each other through Inter VLAN routing.
- The Ips were distributed to all the departments dynamic in router (DHCP).

Network Engineer: - Ahmed Abou_Elmaged Shallan Allam

Branch 1

| department | network | VLAN |
|---|---|---|
| HR | 10.0.0.0/8 | VLAN 10 |
| Sales | 20.0.0.0/8 | VLAN 20 |
| IT | 30.0.0.0/8 | VLAN 30 |
| Helper | 40.0.0.0/8 | VLAN 40 |

## Configurations network.

Create VLANs and operate protocol turnk in switches

### Switch 1

```
Switch(config)#vlan 10
Switch(config-vlan)#vlan 20
Switch(config-vlan)#vlan 30
Switch(config-vlan)#vlan 40
Switch(config)#int fa0/3
Switch(config-if)#switch access vlan 10
Switch(config-if)#int fa0/1
Switch(config-if)#switch access vlan 20
Switch(config-if)#int fa0/2
Switch(config-if)#switch mode trunk
```

### Switch 2

```
Switch(config)#vlan 10
Switch(config-vlan)#vlan 20
Switch(config-vlan)#vlan 30
Switch(config-vlan)#vlan 40
Switch(config-vlan)#int fa0/1
Switch(config-if)#switch access vlan 30
Switch(config-if)#int fa0/3
Switch(config-if)#switch access vlan 40
Switch(config-if)#int fa0/2
Switch(config-if)#switch mode trunk
```

# Switch 3

```
Switch(config)#vlan 10
Switch(config-vlan)#vlan 20
Switch(config-vlan)#vlan 30
Switch(config-vlan)#vlan 40
Switch(config-vlan)#int fa0/2
Switch(config-if)#switch access vlan 10
Switch(config-if)#switch access vlan 20
Switch(config-if)#switch access vlan 30
Switch(config-if)#switch access vlan 40
Switch(config-if)#int fa0/1
Switch(config-if)#switch access vlan 10
Switch(config-if)#switch access vlan 20
Switch(config-if)#switch access vlan 30
Switch(config-if)#switch access vlan 40
Switch(config-if)#int fa0/3
Switch(config-if)#switch mode trunk
```

# Router 1

Operate inter vlan routing and operate protocol DHCP

- **Inter vlan routing**

```
Router(config)#int gig0/0
Router(config)#no shutdown

Router(config)#int gig0/0.10
Router(config-subif)#encapsulation dot1Q 10
Router(config)#ip add 10.0.0.1 255.0.0.0

Router(config)#int gig0/0.20
Router(config-subif)#encapsulation dot1Q 20
Router(config)#ip add 20.0.0.1 255.0.0.0

Router(config)#int gig0/0.30
Router(config-subif)#encapsulation dot1Q 30
Router(config)#ip add 30.0.0.1 255.0.0.0

Router(config)#int gig0/0.40
Router(config-subif)#encapsulation dot1Q 10
Router(config)#ip add 40.0.0.1 255.0.0.0
```

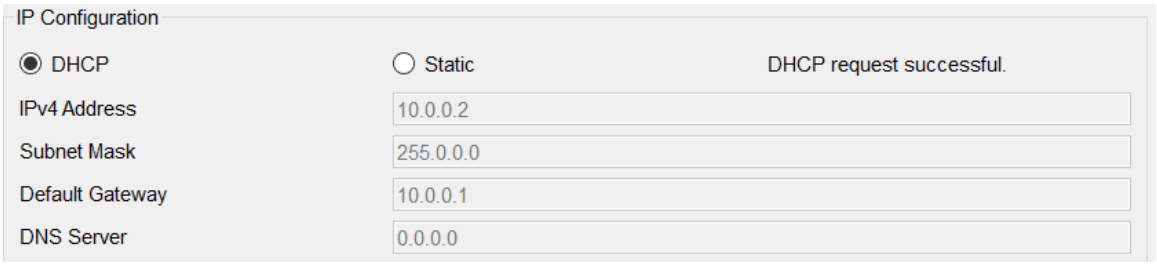
- **Operate protocol DHCP**

```
Router(config)#ip dhcp pool vlan10
Router(dhcp-config)#network 10.0.0.0 255.0.0.0
Router(dhcp-config)#default-router 10.0.0.1

Router(dhcp-config)#ip dhcp pool vlan20
Router(dhcp-config)#network 20.0.0.0 255.0.0.0
Router(dhcp-config)#default-router 20.0.0.1

Router(dhcp-config)#ip dhcp pool vlan30
Router(dhcp-config)#network 30.0.0.0 255.0.0.0
Router(dhcp-config)#default-router 30.0.0.1

Router(dhcp-config)#ip dhcp pool vlan40
Router(dhcp-config)#network 40.0.0.0 255.0.0.0
Router(dhcp-config)#default-router 40.0.0.1
```

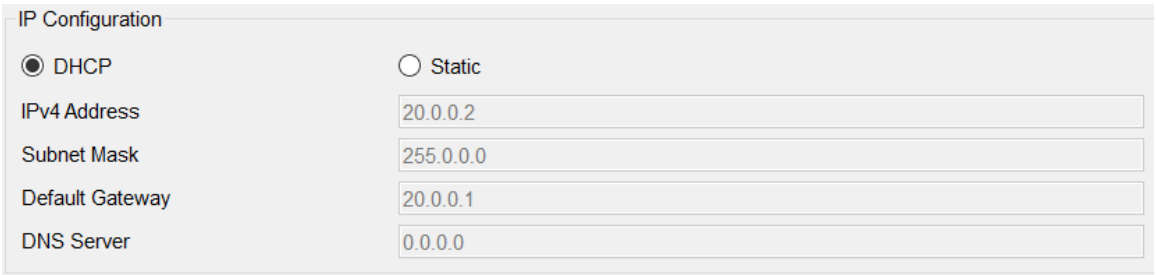
# Testing

❖ Operate dhcp all departments HR, Sales, IT, Helper.

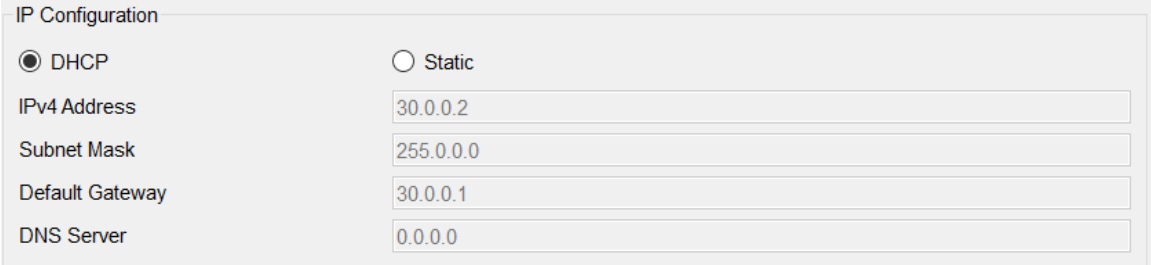
✓ HR network 10.0.0.0/8



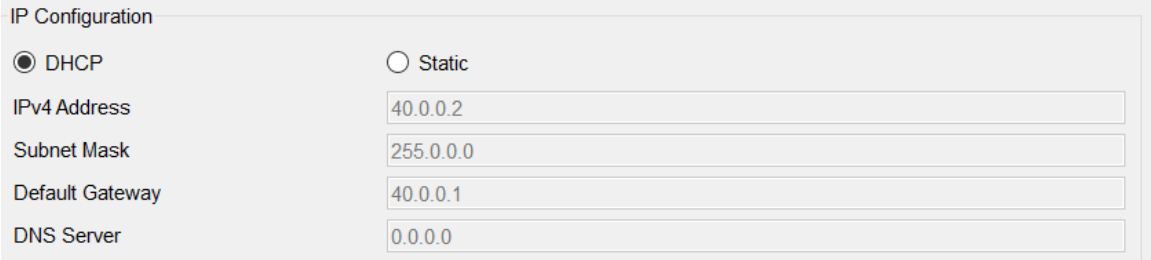

✓ Sales network 20.0.0.0/8



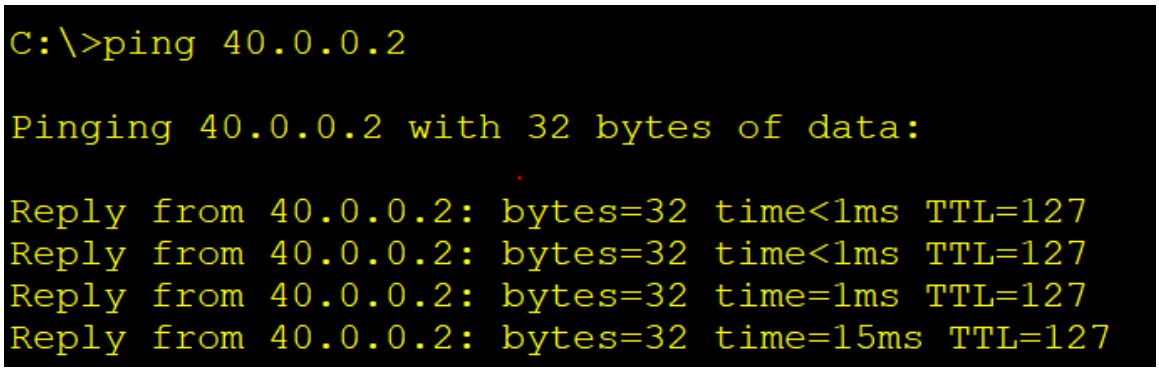
✓ IT network 30.0.0.0/8



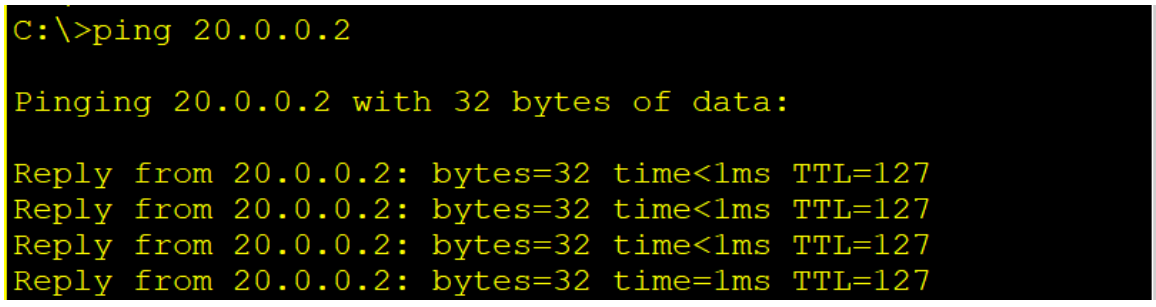

✓ Helper network 40.0.0.0/8




✓ Ping From HR to Helper




✓ Ping From IT to Sales




# Thank You

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