A SIMPLE NETWORK IN AN OFFICE

Georgescu Marius-Daniel

Project Description

In this project, I am going to set up and configure a simple LAN in an office using **Cisco Packet Tracer.**

With this work, I learned and understood the basic functionality and configurations of switches and routers, as well as the principles of a Local Area Network.

Our office is structured in 2 departments: Finance Department and HR Department, each one being represented by a sub-network of our LAN.

Starting Configurations

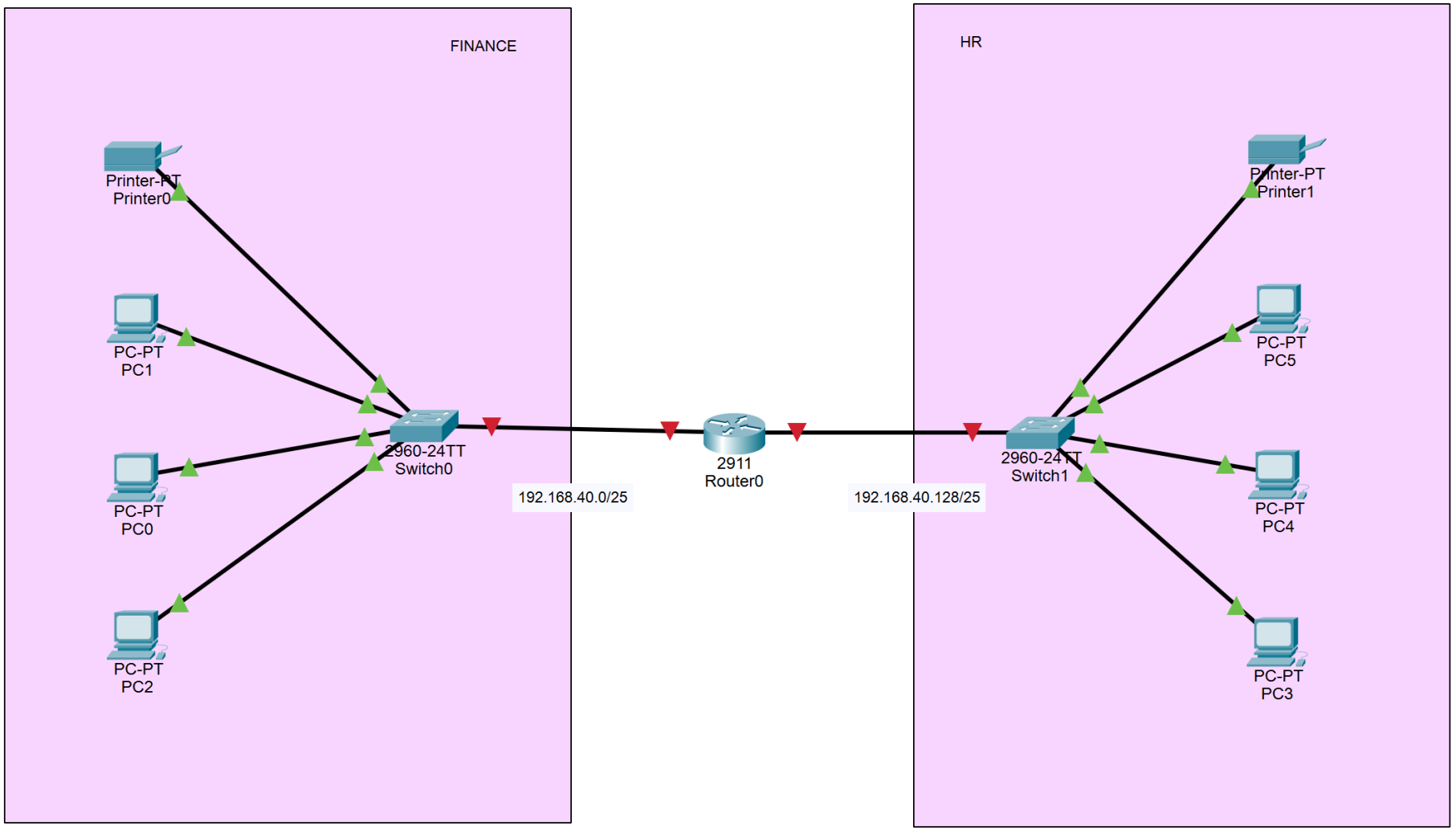
The network address will be **192.168.40.x.** Since we have 2 departments, we'll only have 2 subnets.

Therefore, the subnet mask for this address will be **255.255.255.128**.

For the 1st subnet, the network address is **192.168.40.0**, the range of valid hosts is **192.168.40.1 – 192.168.40.126**, and the broadcast address will be **192.168.40.127**.

For the 2nd subnet, the network address is **192.168.40.128**, the range of valid hosts is **192.168.40.129 – 192.168.40.254,** and the broadcast address will be **192.168.40.255**.

Network's structure



A screenshot of the network's structure

Router’s setup and configuration

For this LAN to work, we now need to configure the router, which means that we need to turn on its interfaces and assign them an IP address.

```
Router>enable
Router#config t
Router#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface range gig0/0-1
Router(config-if-range)#no shutdown
do wr
Router(config-if-range)#exit
Router(config)#interface gig0/0
Router(config-if)#ip address 192.168.40.1 255.255.255.128
Router(config-if)#exit
Router(config)#interface gig0/1
Router(config-if)#ip address 192.168.40.129 255.255.255.128
Router(config-if)#do wr
```

These are the commands that I have used to configure the router.

Devices configuration

1st. subnet (Finance Department)

All devices in this subnetwork will have assigned the IP addresses from 192.168.40.2/25 to 192.168.40.5/25, with the 255.255.255.128 subnet mask.

Their default gateway will be 192.168.40.1/25, which is the router's interface they are connected to.

2nd. subnet (HR Department)

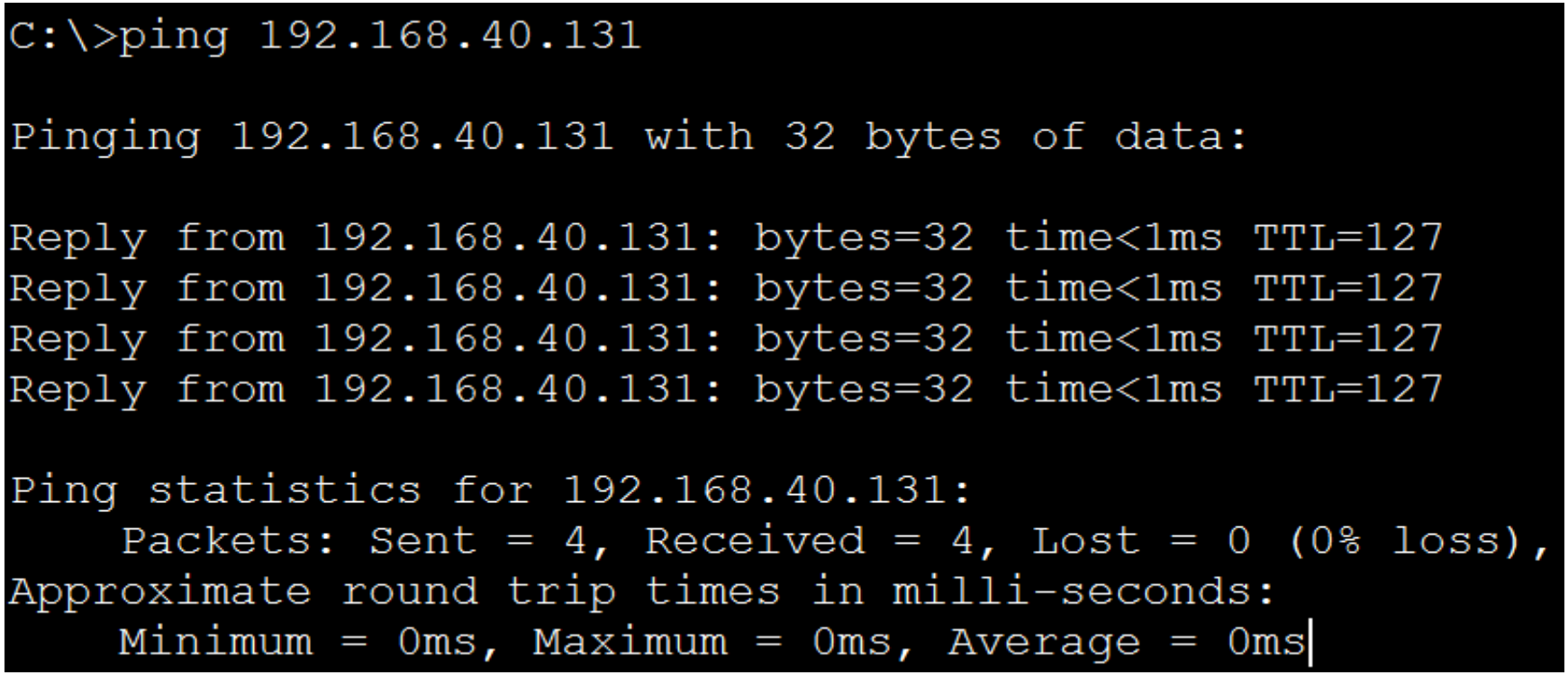
All devices in this subnetwork will have assigned the IP addresses from 192.168.40.130/25 to 192.168.40.133/25, with the 255.255.255.128 subnet mask.

Their default gateway will be 192.168.40.129/25, which is the router's interface they are connected to.

Working Test

In the end, we need to see if the 2 subnetworks can communicate with each other, so we can have a working LAN.

To do this, we have to use the „ping" command. For this test, we'll ping PC1 to PC4, which has the IP address of 192.168.40.131/25.



PC1 sends packets to PC4, and PC4 replies back, so the network is working.