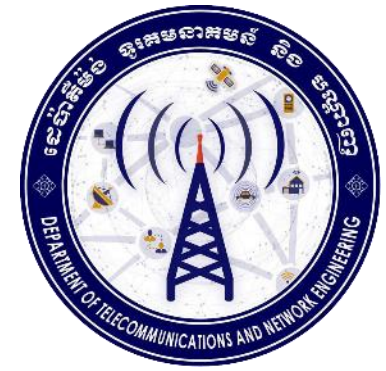




Institute of Technology  
of Cambodia



Department of Telecommunication  
and Network Engineering

# Express Delivery

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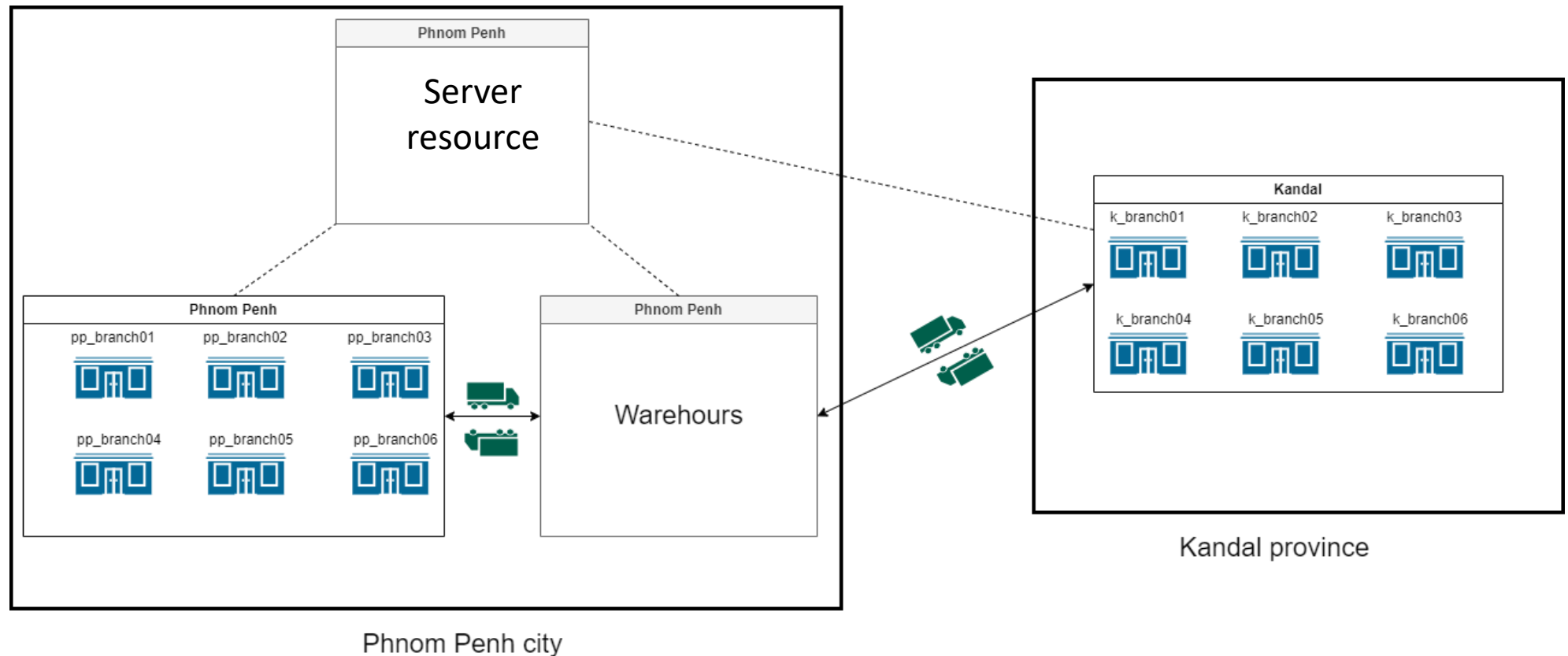
E20190278

## Outline

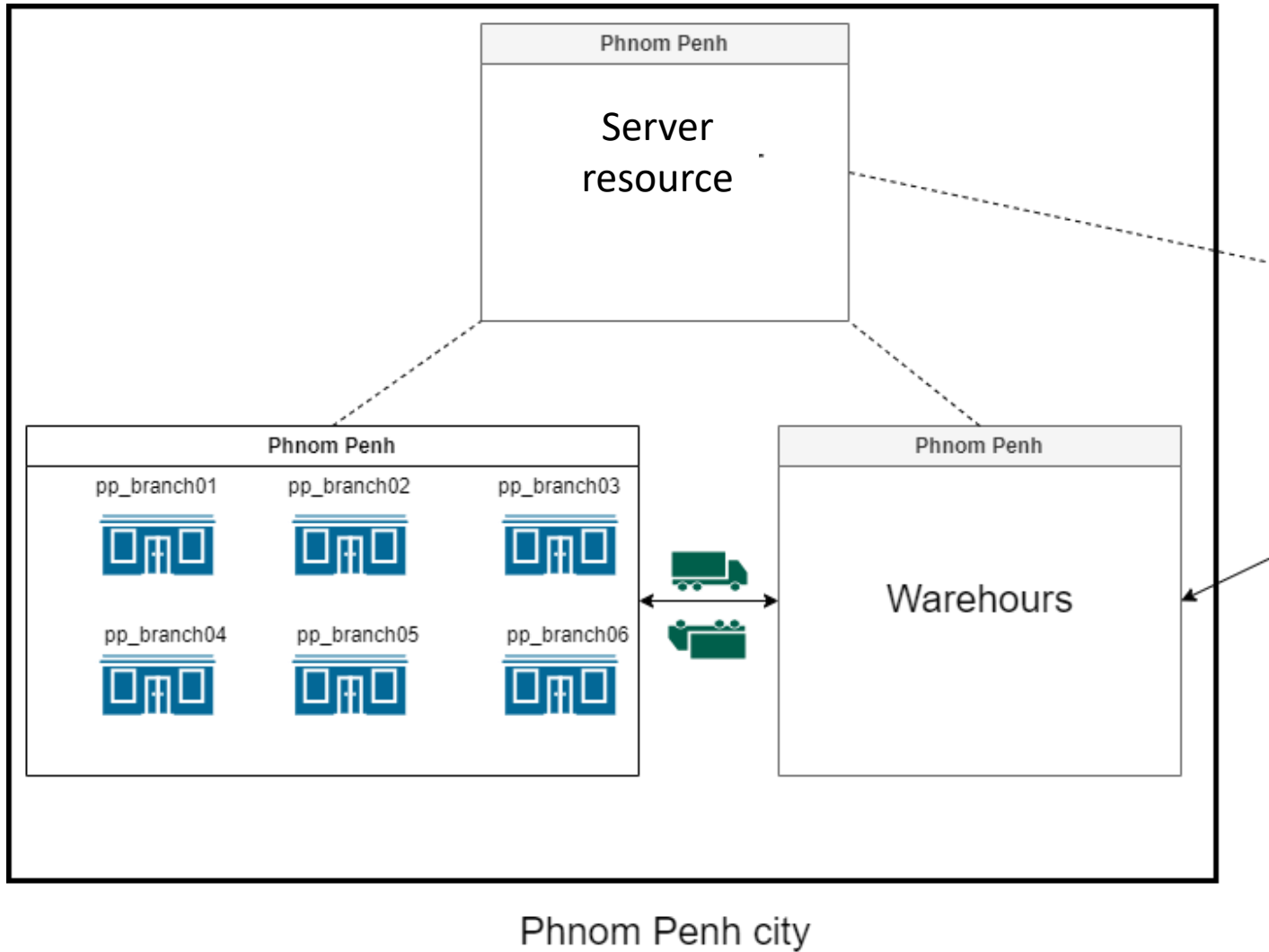
1. Introduction
  2. List of components
  3. IP Address
  4. Logical network topology
  5. Service of Server
-

# Introduction

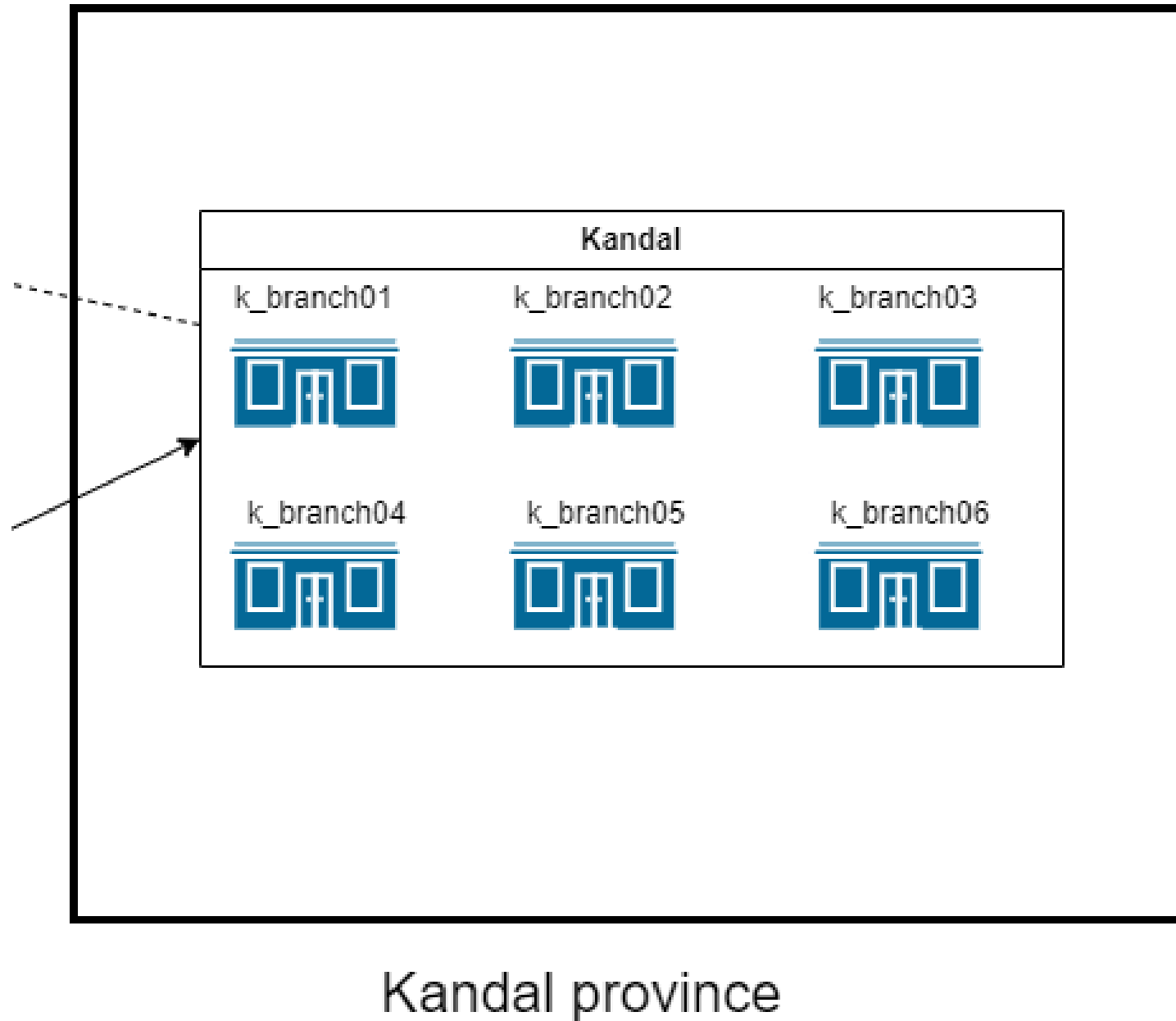
Express delivery is the company to serve delivery service to the customer. To achieve this requirement we are going to build network for Main office, warehouse and branch.



# Introduction



# Introduction



# List of components

Headquarter

Components	Quantity
End devices	
Personal computer (PC)	8
Laptop	2
Printer	1
Network devices	
Server	1
Switch	3
router	1

Branch office

Components	Quantity
End devices	
Personal computer (PC)	8
Laptop	2
Printer	3
Network devices	
Switch	3
router	1

Warehouse

Components	Quantity
End devices	
Personal computer (PC)	5
Laptop	2
Printer	2
Network devices	
Switch	3
router	1

# IP Address

## Branch office

192.168.10.0/24			
VLAN ID	IP Address	Subnet mask	Gateway
VLAN 10	192.168.10.0	255.255.255.224	192.168.10.1
VLAN 20	192.168.10.32	255.255.255.224	192.168.10.33
VLAN 30	192.168.10.64	255.255.255.224	192.168.10.65

## warehouse

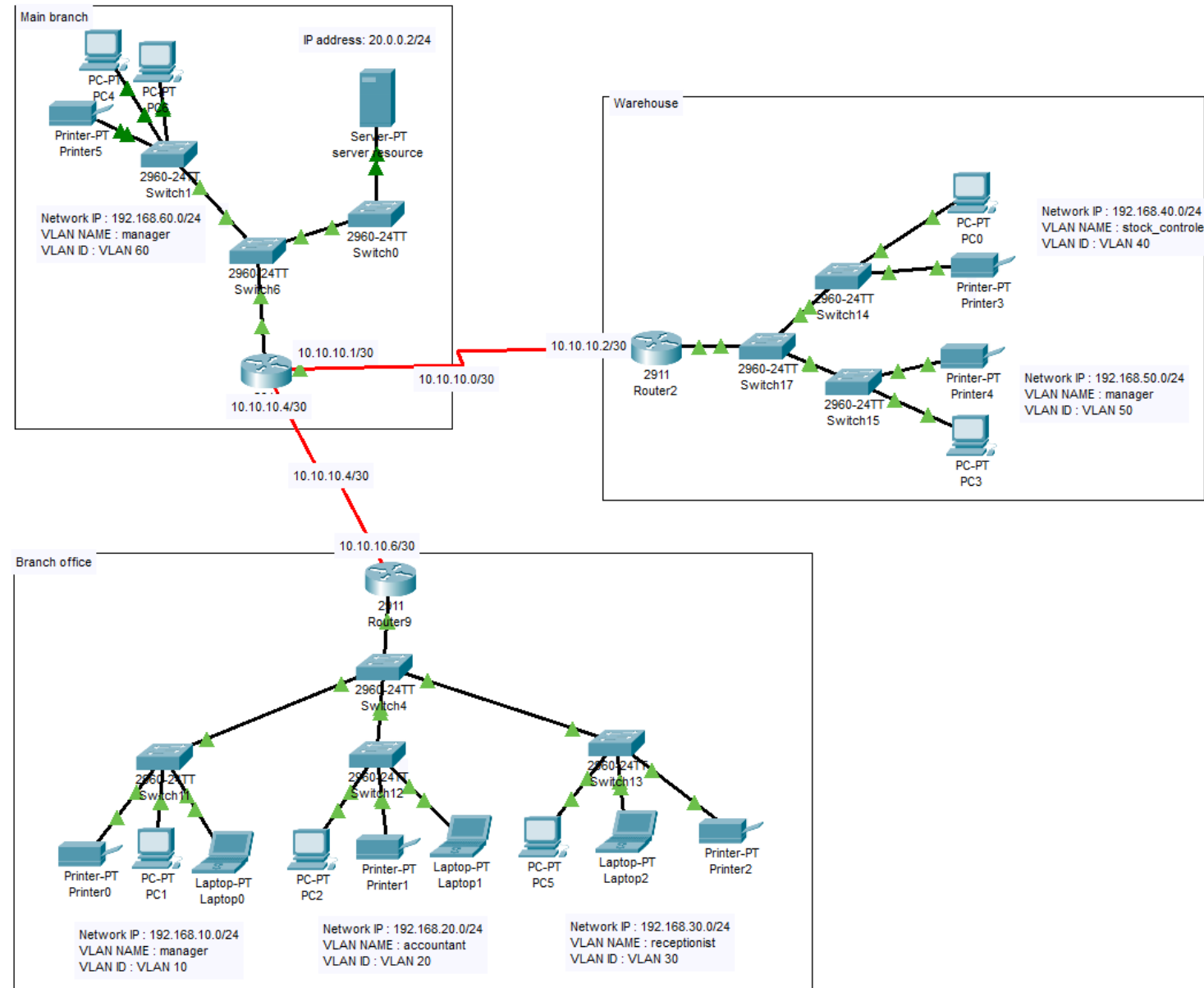
192.168.20.0/24			
VLAN ID	IP Address	Subnet mask	Gateway
VLAN 40	192.168.20.0	255.255.255.224	192.168.20.1
VLAN 50	192.168.20.32	255.255.255.224	192.168.20.33

## Head office

192.168.30.0/24			
VLAN ID	IP Address	Subnet mask	Gateway
VLAN 60	192.168.30.0	255.255.255.224	192.168.30.1

# Network logical topology

- Routing protocol : Routing Information Protocol (RIP)
- User serial port for direct connect from one router to another router.

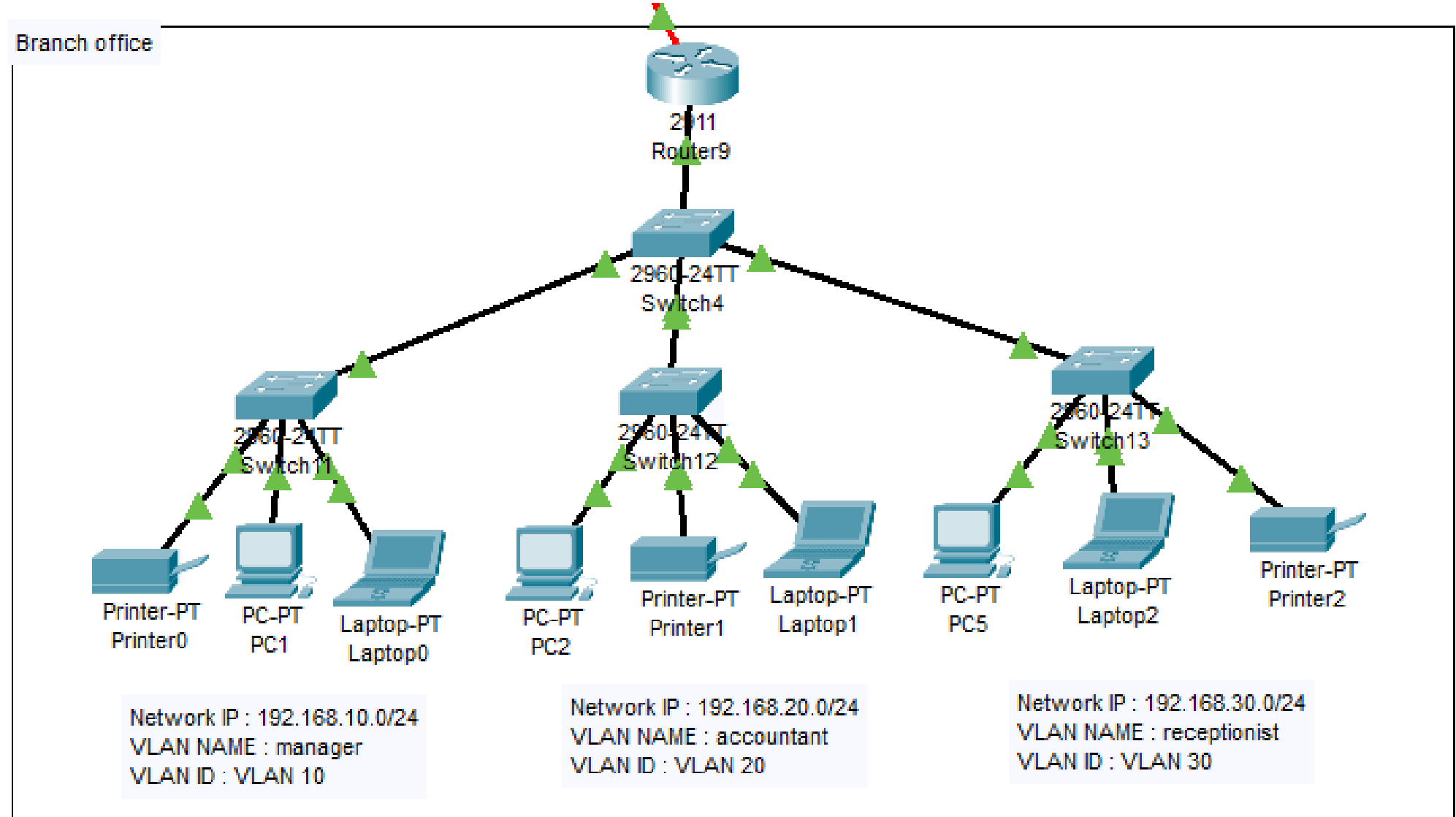




# Network logical topology

## Branch office

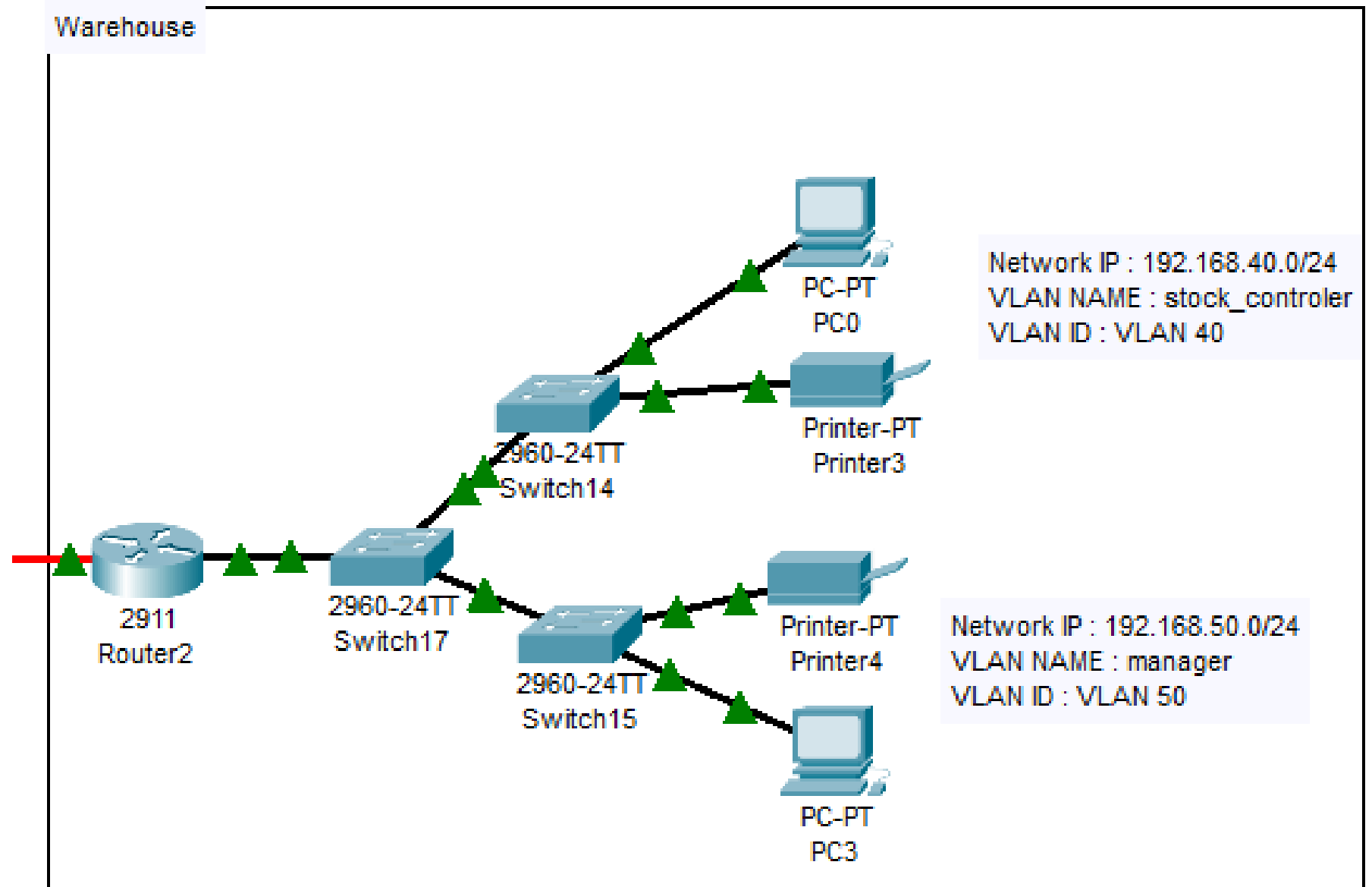
- Each VLAN dynamically assigned IP from router. Because router can work as DHCP server
- We use sub-interface in router to make a connection from VLAN to foreign network. For example when we need to access to the server at the Headquarter



# Network logical topology

## Warehouse office

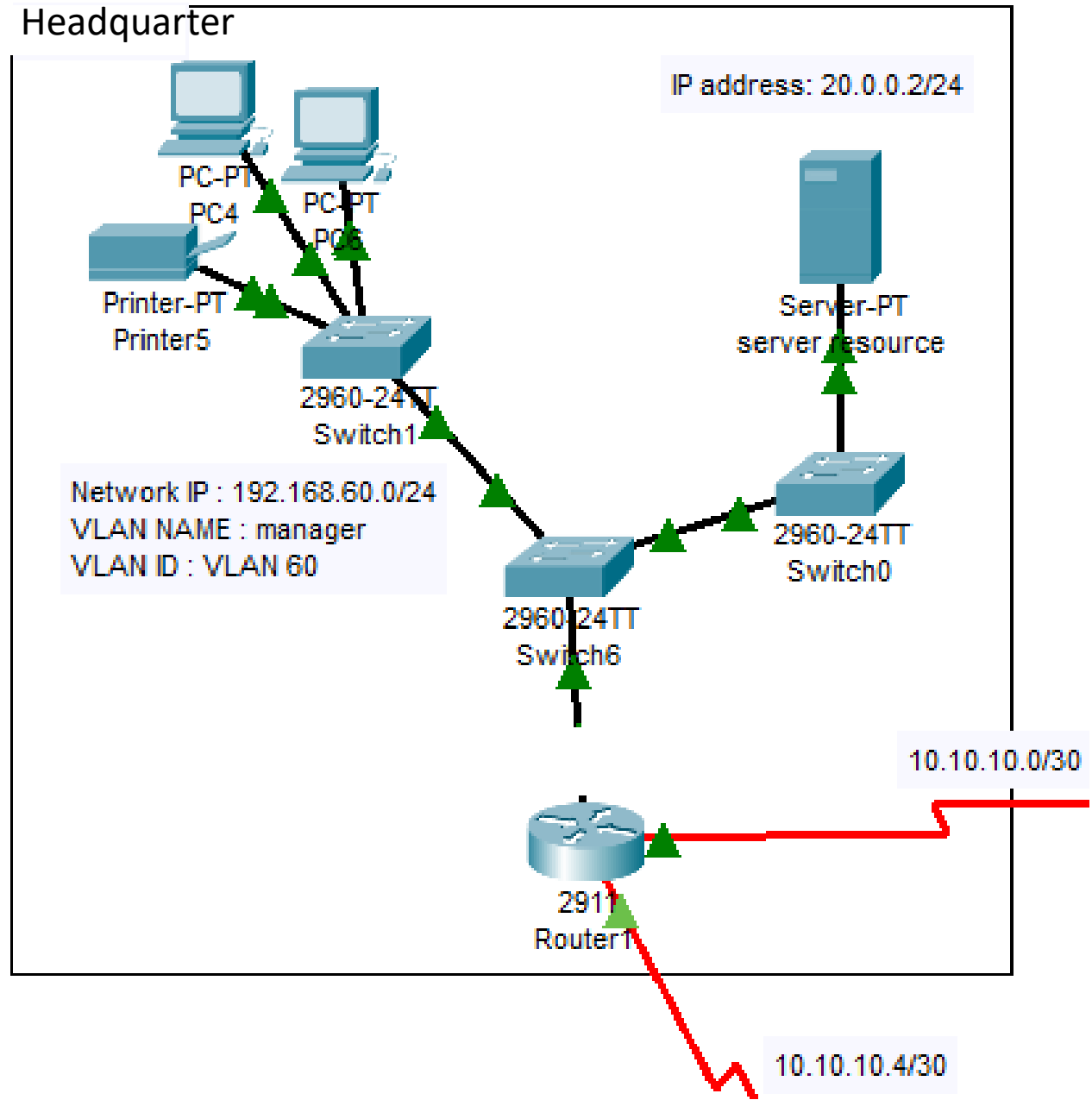
- Each VLAN dynamically assigned IP from router. Because router can work as DHCP server
- We use sub-interface in router to make a connection from VLAN to foreign network. For example when we need to access to the server at the Headquarter



# Network logical topology

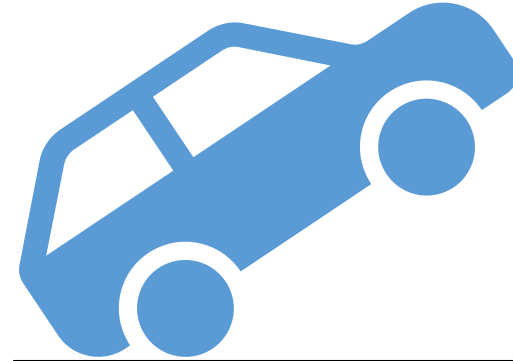
## Headquarter

- For the VLAN 60 we create it by central switch and user router as DHCP for dynamically assigned IP to the end devices
- We use sub-interface in router to make a connection from VLAN 60 to foreign network. For example when we need to access to the server at the Headquarter



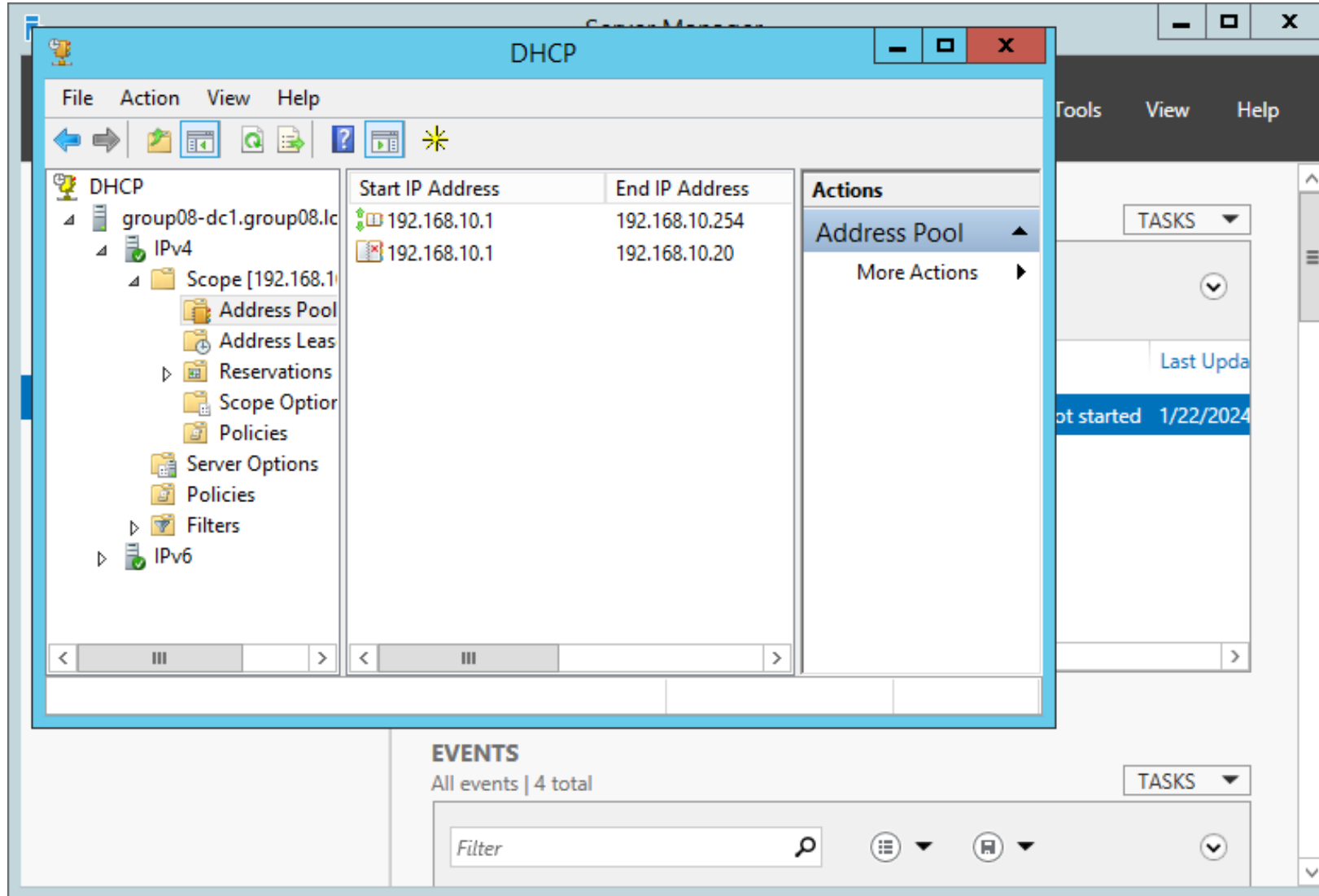
# Demo (1)

Let's go into our virtual environment



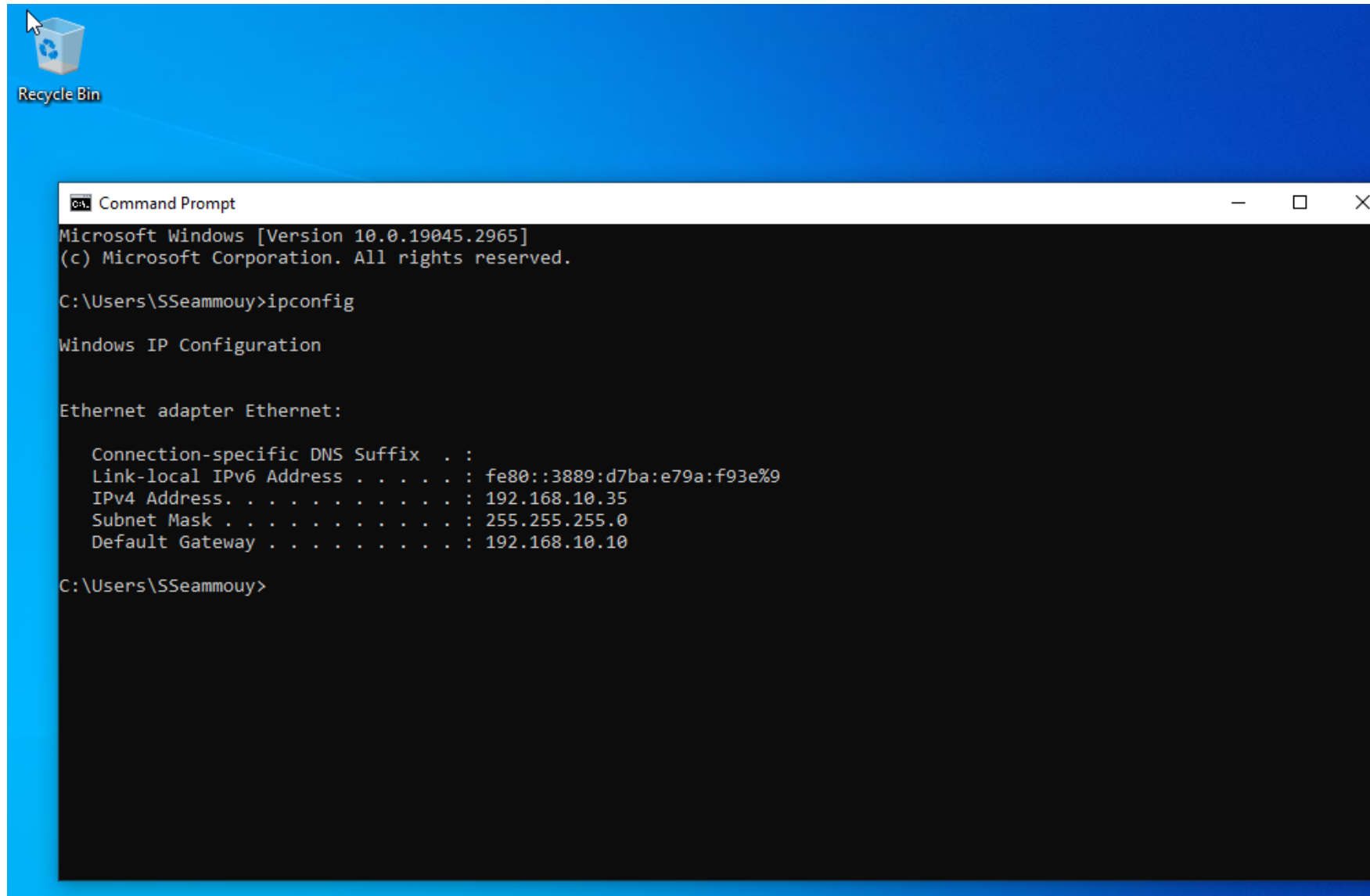
# Service of server

**DHCP : Dynamic Host Configuration protocol in window server**



# Service of server

## Testing DHCP with computer client



```
Command Prompt
Microsoft Windows [Version 10.0.19045.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\SSeammouy>ipconfig

Windows IP Configuration

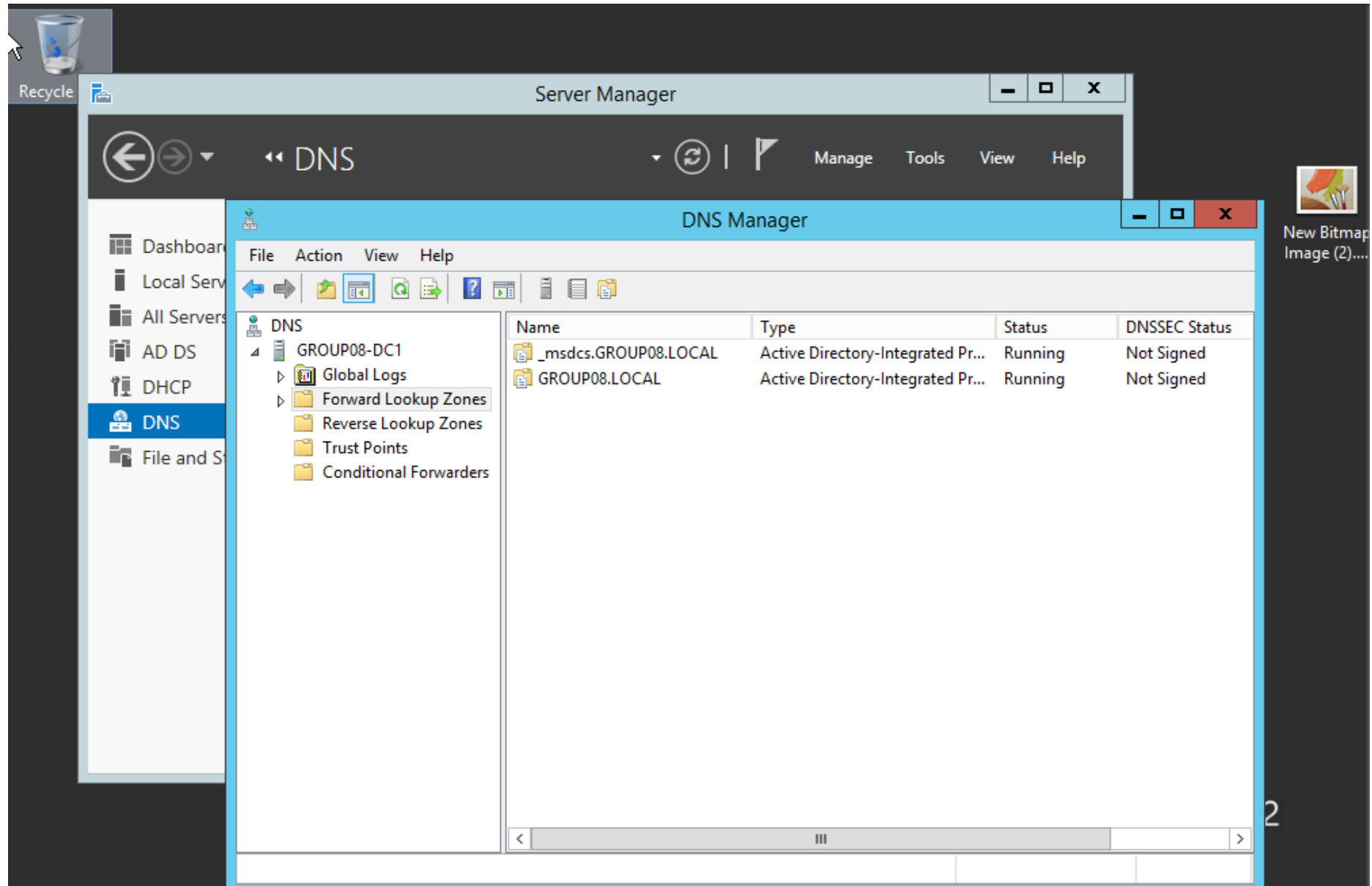
Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::3889:d7ba:e79a:f93e%9
    IPv4 Address. . . . . : 192.168.10.35
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.10.10

C:\Users\SSeammouy>
```

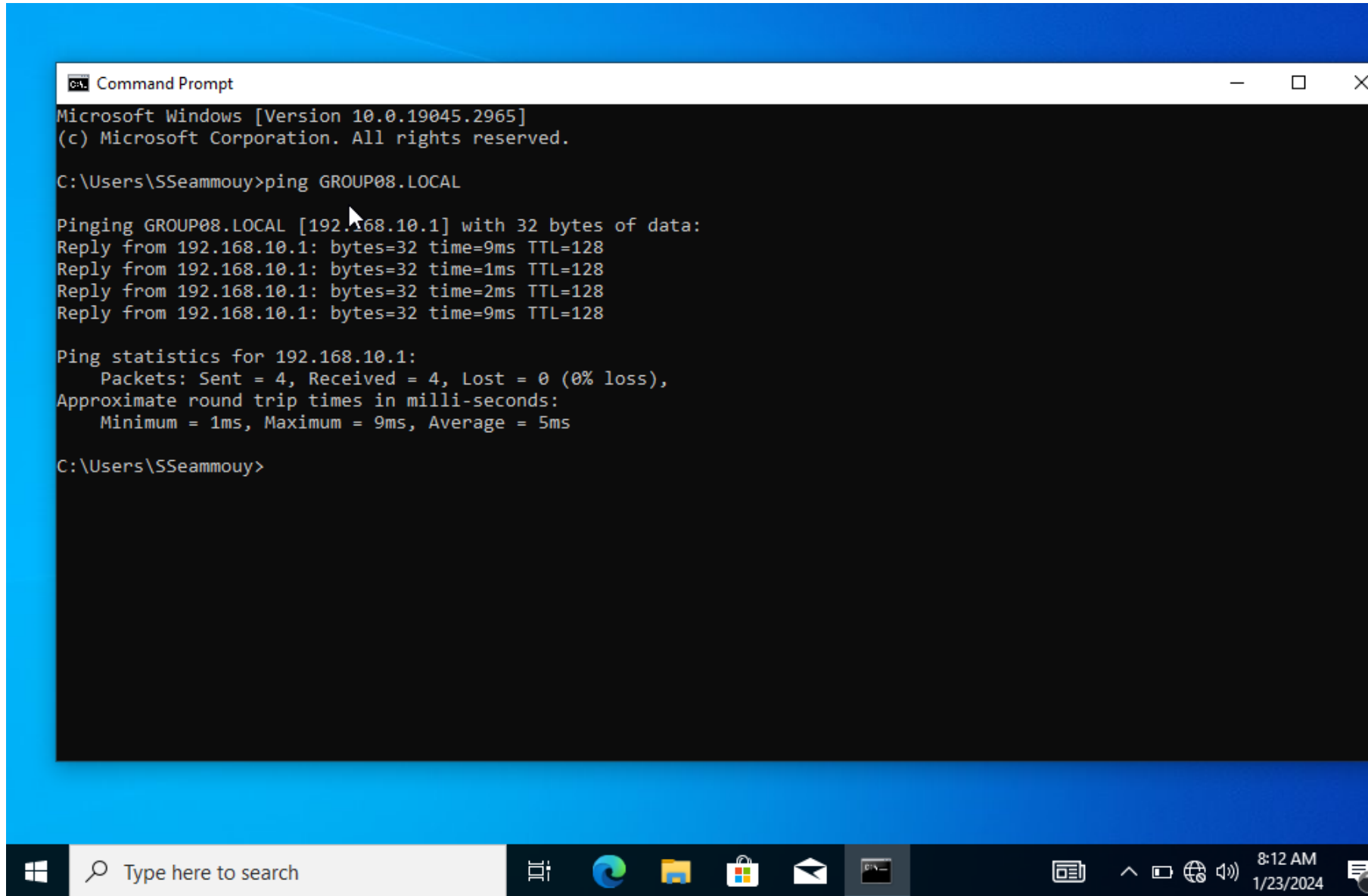
# Service of server

## DNS Server



# Service of server

## Testing DNS Server with client



```
Command Prompt
Microsoft Windows [Version 10.0.19045.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\SSeammoury>ping GROUP08.LOCAL

Pinging GROUP08.LOCAL [192.168.10.1] with 32 bytes of data:
Reply from 192.168.10.1: bytes=32 time=9ms TTL=128
Reply from 192.168.10.1: bytes=32 time=1ms TTL=128
Reply from 192.168.10.1: bytes=32 time=2ms TTL=128
Reply from 192.168.10.1: bytes=32 time=9ms TTL=128

Ping statistics for 192.168.10.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 9ms, Average = 5ms

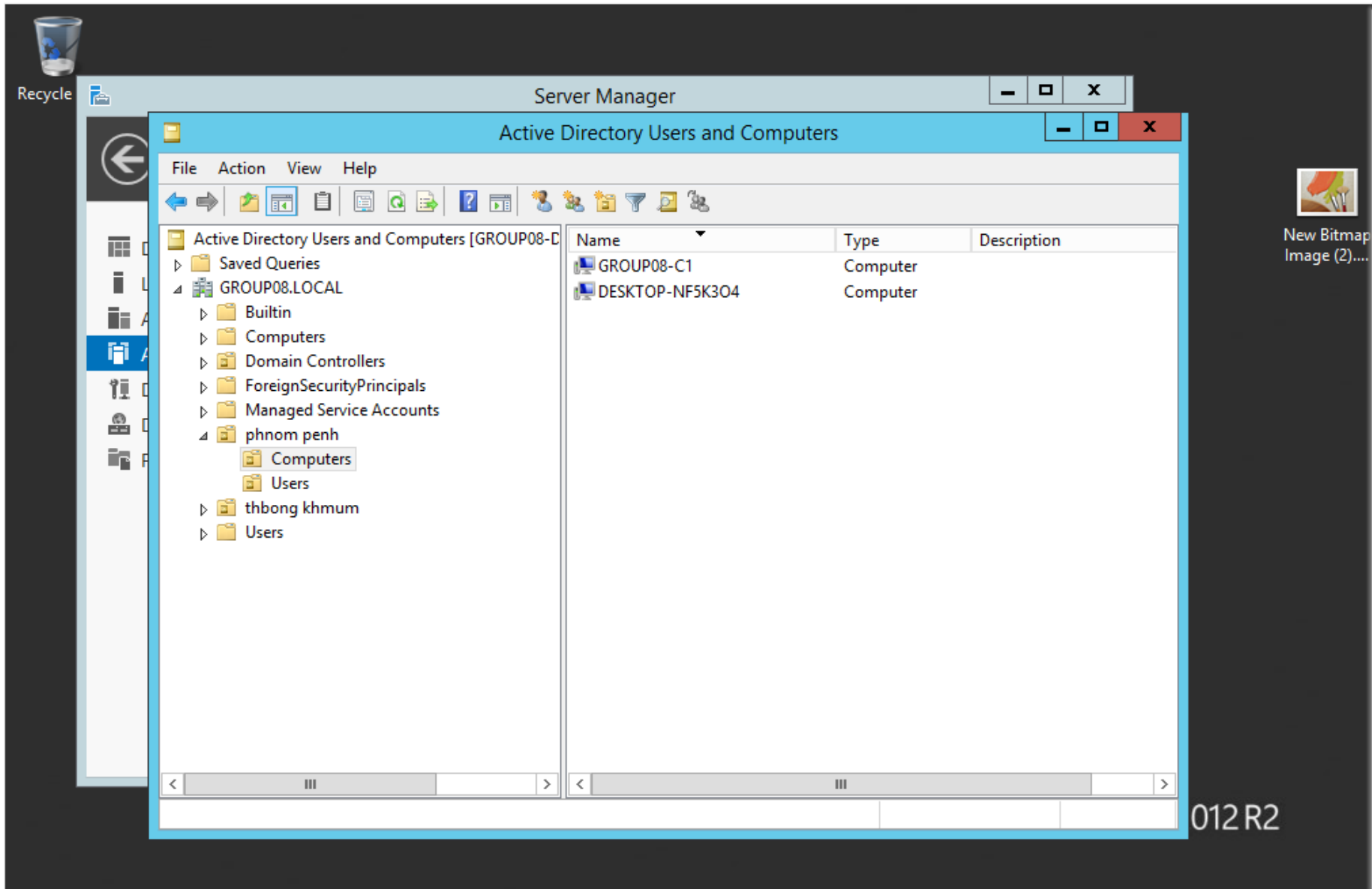
C:\Users\SSeammoury>
```

The screenshot shows a Windows 10 desktop with a blue taskbar. The taskbar includes the Start button, a search bar with the text "Type here to search", and several pinned application icons: Task View, Microsoft Edge, File Explorer, Microsoft Store, Mail, and Command Prompt. The Command Prompt window is open, displaying the results of a ping command to GROUP08.LOCAL. The output shows four successful replies from 192.168.10.1 with varying round-trip times. The system tray in the bottom right corner shows the time as 8:12 AM on 1/23/2024.



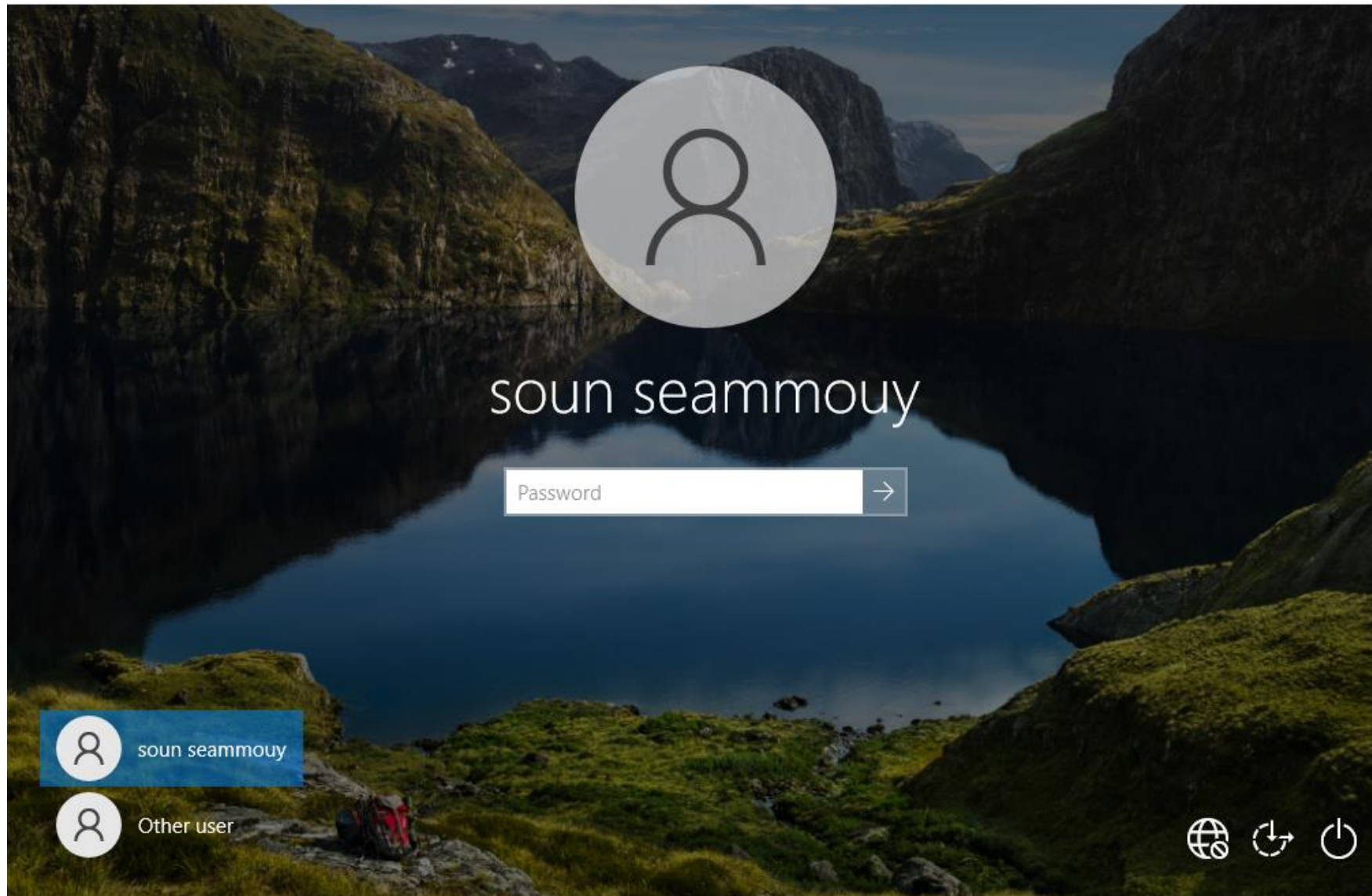
# Service of server

## Active Directory Users and Computers (AD UC)



# Service of server

## Testing AD UC with client computer



Thank you for your listening !!