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Study review 2

ABSTRACT

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In this report, we aimed to get practical knowledge by building network through Cisco Packet Tracer.

When building network, there are 3 phases which are topology, subnetting and configuration part and most of building network is configuration part.

The configuration part consists of the followings.

- turning interfaces up
- configuring layer 2 switches
- configuring layer 3 switches
- setting the encapsulation format
- setting IP address on the interface
- configuring DHCP
- getting IP address
- testing communication
- implementing RIPv2

Through this exercise, we were able to get more practical knowledge and experience about building network. However, to acquire this completely, we need to repeat practice.

ABSTRACT
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1 INTRODUCTION

We learned about how to use Cisco Packet Tracer and the basics of building network in previous report. This is quite basic knowledge; therefore, we need to deepen it more for our career.

In this report, we aim to get practical knowledge by building network through Cisco Packet Tracer.

2   WHAT I LEARNED

2.1   Topology part

When building network using Cisco Packet Tracer, what we should do first is thinking about network topology (PICTURE 1).

In this exercise, we need network for Albion Main Campus, Albion Branch Campus, and Cloud. Networks for Albion Branch Campus and Cloud are connected to Main Campus Router by serial DCE cables and routers.

Albion Main Campus has totally 8 sub networks and Branch Campus has 2 sub networks. These networks are connected to switch to communicate each other in same network.

To communicate between different networks, Main Campus switch is connected to Main Campus router and Branch Campus switch is connected to Branch Campus router.
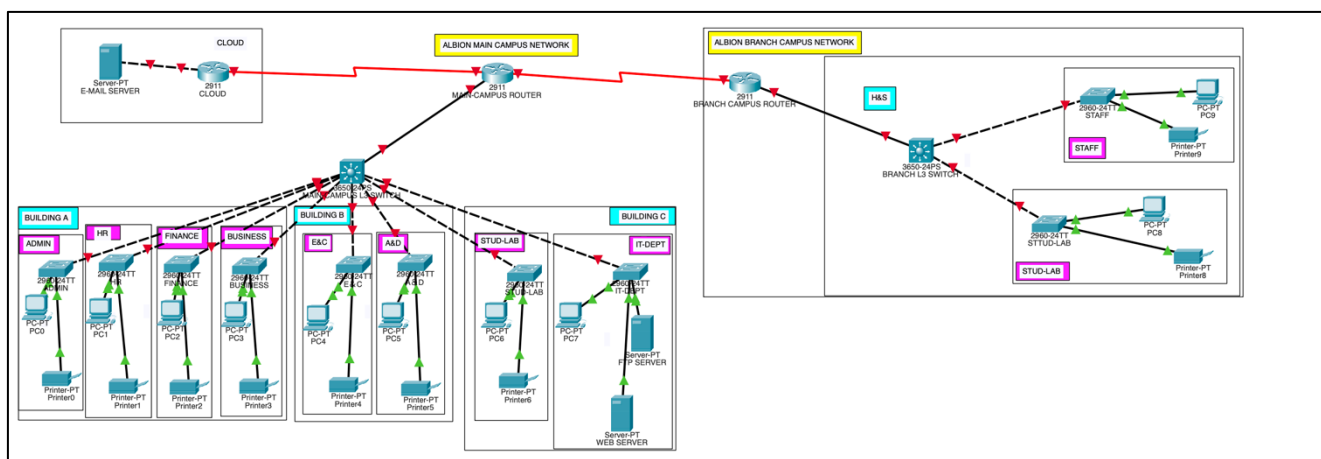
PICTURE 1. Network Topology

2.2   Subnetting part

After topology part, we need to do subnetting (PICTURE 2). Of course, we do subnetting for each 10 sub networks such as ADMIN, HR, FINANCE and so on. Each sub networks are named VLAN n (n = 10 - 100). In addition, routers should be done subnetting, for example MAIN CAMPUS Router and CLOUD router.

PICTURE 2. Subnetting

2.3 Configuration part

First to do is **turning interfaces** of routers **up** (PICTURE 3). Then command is followings.

- enable

    - changing user EXEC level to privilege EXEC level

- configure terminal

    - changing privilege EXEC level to global configuration mode

- interface (name of interface)

    - changing global configuration mode to interface configuration mode

- no shutdown

    - being interface up

PICTURE 3. Turning interfaces up

Next to do is **configuration of layer 2 switches** (PICTURE 4). Then command is followings.

- enable
- configure terminal
- interface range (name of interface**s**)
- switchport mode (name of mode = access)

PICTURE 4. Configuration of layer 2 switches

- changing interface to access port or trunk port

- switchport access vlan (vlan ID)
  - assigning layer 2 interface to the specified VLAN

Next to do is **configuration of layer 3 switches** (PICTURE 5). Then command is followings.
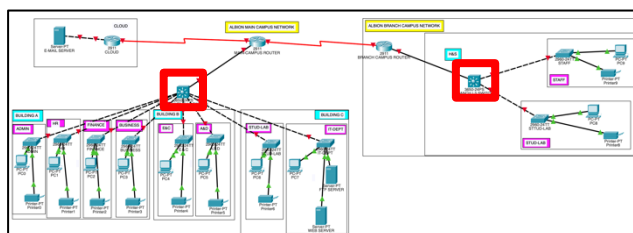
- enable
- configure terminal
- interface (name of interface)
- switchport mode (name of mode = access)
- switchport access vlan (vlan ID)
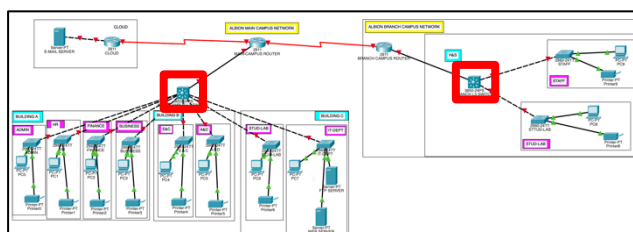
PICTURE 5. Configuration of layer 3 switches

Next to do is **setting the encapsulation format** (PICTURE 6). Then command is followings.
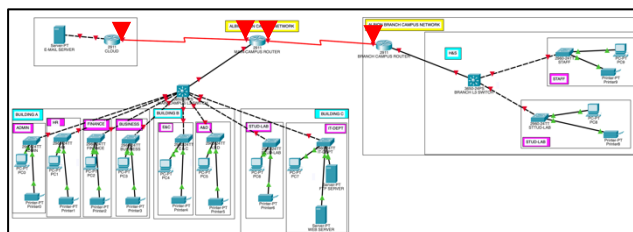
- enable
- configure terminal
- interface (name of interface)
- switchport trunk encapsulation (encapsulation form)
  - setting the encapsulation format used in the trunk port
- switchport mode (name of mode = trunk)

PICTURE 6. Setting the encapsulation format

Next to do is **setting IP address on the interface** between routers (PICTURE 7). Then command is followings.

- enable
- configure terminal
- interface (name of interface)
- ip address (IP address Subnet mask)
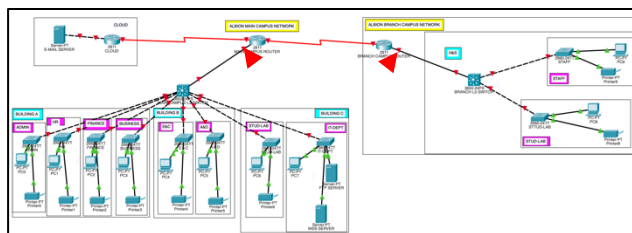 - setting IP address on the interface

PICTURE 7. Setting IP address on the interface

Next to do is **setting IP address on the interfaces** between router and lower layer (PICTURE 8). Then command is followings.

- enable
- configure terminal
- interface (name of interface)
- encapsulation (encapsulation form)
- ip address (IP address Subnet mask)

PICTURE 8. Setting IP address on the interface

Next to do is **configuring DHCP** (PICTURE 9). Then command is followings.

- enable
- configure terminal
- service dhcp
  - enabling DHCP service
- ip dhcp pool (name of pool)
  - configuring name of DHCP pool
- network (IP address Subnet mask)
  - specifying IP address to assign the DHCP client
- default-router (IP address)
  - specifying IP address to notice the DHCP client
- dns-server (IP address)
 - specifying IP address of DNS server to notify the DHCP client
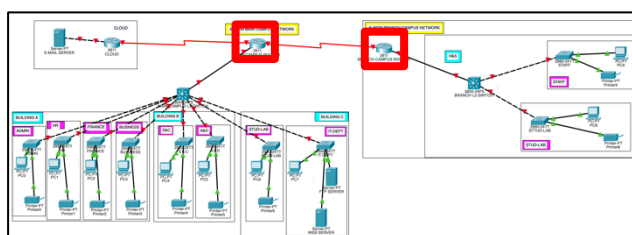
PICTURE 9. Configuring DHCP

Next to do is **getting IP address** (PICTURE 10). Beforehand we configured DHCP, therefore we can get IP address only by check "DHCP" check box.
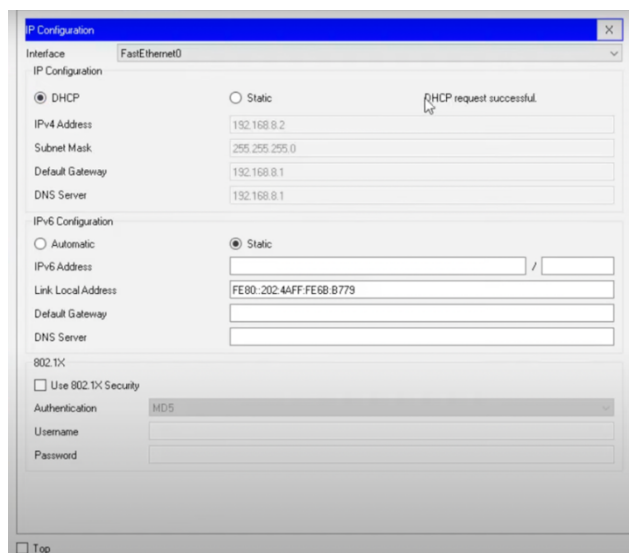

PICTURE 10. getting IP address

Next to do is **testing communication** using ping command (PICTURE 11). In the same network, communication worked properly, however it did not work when communicating to the different network.
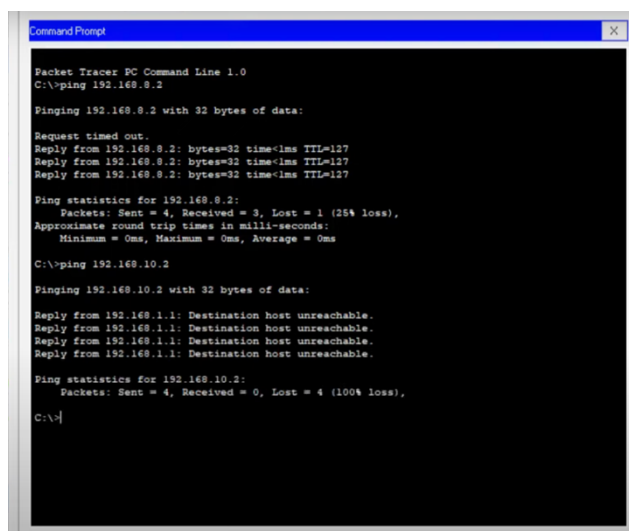
PICTURE 11. Test

Next to do is **implementing RIPv2** (PICTURE 12). Then command is followings.

- enable
- configure terminal
- router rip
  - changing global configuration mode to router configuration mode
- version (version No. = 2)
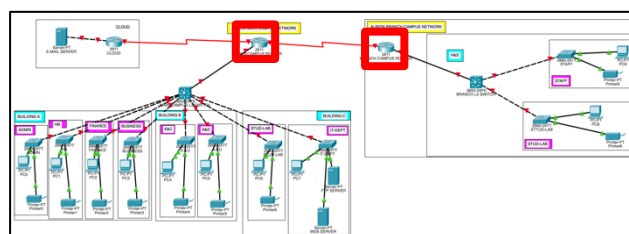
PICTURE 12. Implementing RIPv2

- specifying the version to be sent and received by RIP

- network

  - specifying the network to use this RIP

3   CONCULUSION

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REFERENCES

4. Cisco Packet Tracer Project 2022 | University/ CAMPUS Networking Project using Packet Tracer
https://www.youtube.com/watch?v=e1cD2KIme-E