ASSIGNMENT 2 FRONT SHEET

Qualification	**TEC Level 5 HND Diploma in Computing**		
Unit number and title	**Unit 2: Networking**		
Submission date		**Date Received 1st submission**	
Re-submission Date		**Date Received 2nd submission**	
Student Name	Duong Hong Duc	**Student ID**	BH01425
Class	SE07101	**Assessor name**	Nguyen Thi Hong Hanh
Student declaration I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.			
		Student's signature	Duc

Grading grid

P5	P6	P7	P8	M3	M4	D2

❒ Summative Feedback:	❒ Resubmission Feedback:

Grade:	Assessor Signature:	Date:

Internal Verifier's Comments:

Signature & Date:

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I.Introduction

You are employed as a Network Engineer by Nguyen Networking Limited, a high-technetworking solution development company, which have branches in Ho Chi Min City, Hanoi, Da Nang and Can Tho. The company has been contracted to implement a networking project from a local educational institute.

To complete this task successfully you will have to work through a number of parts:

The CEO Mr. Nguyen is happy with your first report and now he has asked you to analyze the specification from the institution, as given earlier.

You need to design and implement the networking project within a given timeframe:

- P5 Design a networked system to meet a given specification.

Add ip address table

Show physical and logical network design

- P6 Design a maintenance schedule to support the networked system.

Network maintenance definition

Show task of network maintenance

Design a maintenance table

- P7 Implement a networked system based on a prepared design.

explain network system step by step base on network design

- P8 Document and analyse test results against expected results.

Create a test table and explain it

P5. Design a networked system to meet a given specification.

Type of user	vlan	Network add	Subnet mask	Default gateway	Ip add
Dhcp	100	192.168.10.0	255.255.255.224	192.168.100.1	192.168.100.2
dns	100	192.168.10.0	255.255.255.224	192.168.100.1	192.168.100.3
Web server	100	192.168.10.0	255.255.255.224	192.168.100.1	192.168.100.5

Type of user	vlan	Net add	Subnet mask	Def gateway	dhcp	Dns
Teacher	10	192.168.10.0	255.255.255.224	192.168.10.1	192.168.100.2	192.168.100.3
Seo	20	192.168.20.0	255.255.255.240	192.168.20.1	192.168.100.2	192.168.100.3
Head	30	192.168.30.0	255.255.255.248	192.168.30.1	192.168.100.2	192.168.100.3
student	40	192.168.40.0	255.255.255.248	192.168.40.1	192.168.100.2	192.168.100.3
It	50	192.168.50.0	255.255.255.128	192.168.50.1	192.168.100.2	192.168.100.3
Staff	50	192.168.50.0	255.255.255.128	192.168.50.1	192.168.100.2	192.168.100.3

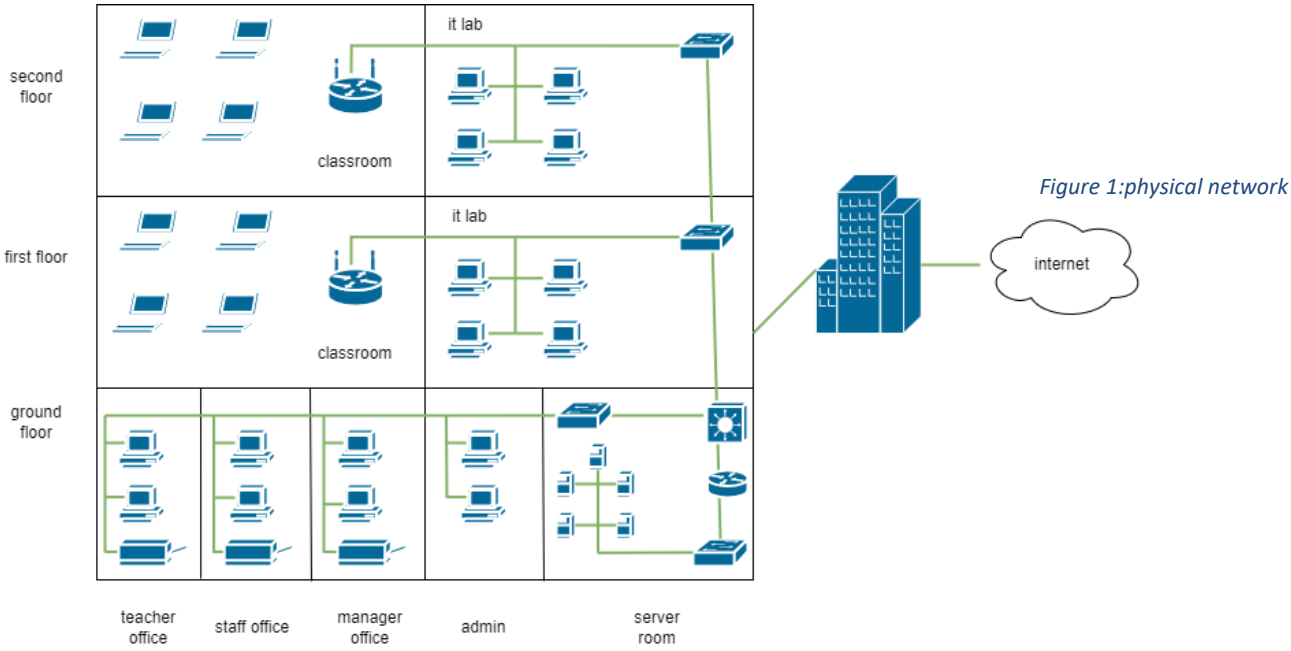


Figure 1:physical network

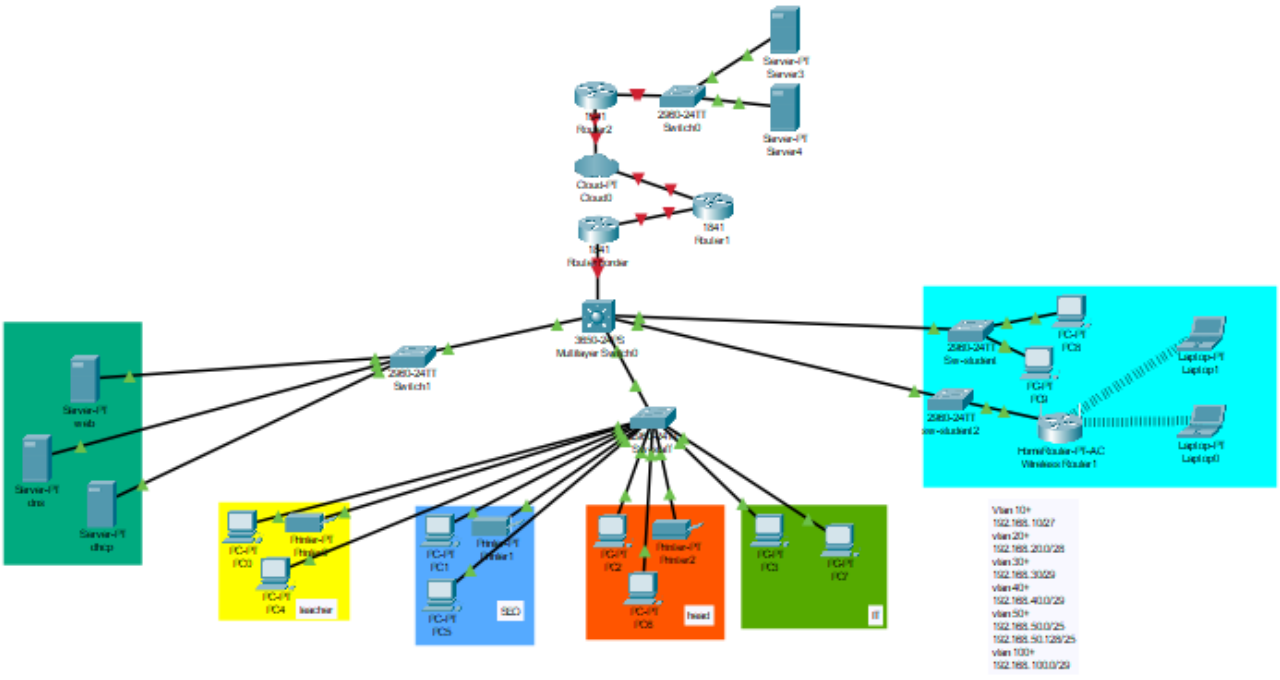


Figure 2:logical network

P6. Design a maintenance schedule to support the networked system.

- What is network maintenance ?

Network maintenance covers everything that needs to be done in order to keep a network up and running efficiently. Having a structured, predefined plan for network maintenance will allow you to ensure that IT related problems are being resolved before they can cause any actual harm, while also helping to reduce the need for reactive problem solving.

Figure 3:definition

- Some task for maintenance :

+ Data backups: Data backups are the most crucial maintenance activity. No matter what kind of network disaster takes place, it's crucial to be able to recover up-to-date data. For some firms, an end-of-day backup is sufficient, while others require continuous backup. Backups can be made locally or across the network. Local backups should be stored off-site to protect against fire or other factors that could damage them.

Figure 4:data backup

+ Malware protection: Malware protection is increasingly important. Update protection software, run scans and keep track of new attack types. It's also important to keep server OSes and network device software up to date.

Figure 5:malware protection

+ Network documentation updates: Keep network documentation up to date. It's easy for teams to accidentally skip this task when dealing with an emergency. Record the time and date of every fix, the name of the person who made the fix and a description of why the fix was made.

Figure 6:network documentation

+ Power checks: When teams are focused on all the other things that can go wrong in the network, it's easy for them to forget that power failures can occur. If possible, connect to power from two poles and regularly test uninterruptible power supply (UPS) systems. Increase UPS capacity when adding to the network.

Figure 7:power check

Maintenance list task	daily	weekly	monthly	yearly
Data backups	x			
Malware protection		x		
Network documentation updates	x			
Device inventory			x	
Power checks	x			
Device filter dusting			x	
Cable organization				x

Maintenance table

P7.Implement a networked system based on a prepared design.

+ set vtp

Switch>ena

Switch#config

Switch(config)#vtp m server

Switch(config)#vtp domain BTEC VN

Switch(config)#vtp password 123

```
Switch(config)#do show vtp status
VTP Version capable             : 1 to 2
VTP version running             : 1
VTP Domain Name                 :
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 00E0.8F46.2800
Configuration last modified by 0.0.0.0 at 0-0-00 00:00:00
Local updater ID is 0.0.0.0 (no valid interface found)

Feature VLAN :
--------------
VTP Operating Mode                : Server
Maximum VLANs supported locally   : 255
Number of existing VLANs          : 5
Configuration Revision            : 0
MD5 digest                        : 0x7D 0x5A 0xA6 0x0E 0x9A 0x72 0xA0 0x3A
                                    0xF0 0x58 0x10 0x6C 0x9C 0x0F 0xA0 0xF7
```

Figure 8:vtp

+ Set vlan

Switch(config)#vlan 10

Switch(config-vlan)#name teacher

Switch(config-vlan)#vlan 20

Switch(config-vlan)#name seo

Switch(config-vlan)#vlan 30

Switch(config-vlan)#name head

```
Switch>ena
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#do sh vl br

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/2, Fa0/3, Fa0/4, Fa0/5
                                                 Fa0/6, Fa0/7, Fa0/8, Fa0/9
                                                 Fa0/10, Fa0/11, Fa0/12, Fa0/13
                                                 Fa0/14, Fa0/15, Fa0/16, Fa0/17
                                                 Fa0/18, Fa0/19, Fa0/20, Fa0/21
                                                 Fa0/22, Fa0/23, Fa0/24, Gig0/1
                                                 Gig0/2
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
```

Figure 9:vlan

Switch(config-vlan)#vlan 40

Switch(config-vlan)#name student

Switch(config-vlan)#vlan50

Switch(config-vlan)#name it

+ set trunking

Switch(config)#int g0/1

Switch(config-if)#sw mod trunk

switch(config)#do show int trunk

… (figure …)

```
Switch(config)#do sh int tr
Port        Mode         Encapsulation  Status        Native vlan
Fa0/1       on           802.1q         trunking      1

Port        Vlans allowed on trunk
Fa0/1       1-1005

Port        Vlans allowed and active in management domain
Fa0/1       1

Port        Vlans in spanning tree forwarding state and not pruned
Fa0/1       1
```

Figure 10:trunking

+ set ip address

```
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/1        unassigned      YES manual up                    up
FastEthernet0/2        unassigned      YES manual up                    up
FastEthernet0/3        unassigned      YES manual up                    up
FastEthernet0/4        unassigned      YES manual up                    up
FastEthernet0/5        unassigned      YES manual up                    up
FastEthernet0/6        unassigned      YES manual up                    up
FastEthernet0/7        unassigned      YES manual up                    up
FastEthernet0/8        unassigned      YES manual up                    up
FastEthernet0/9        unassigned      YES manual up                    up
FastEthernet0/10       unassigned      YES manual up                    up
FastEthernet0/11       unassigned      YES manual up                    up
FastEthernet0/12       unassigned      YES manual down                  down
FastEthernet0/13       unassigned      YES manual down                  down
FastEthernet0/14       unassigned      YES manual down                  down
FastEthernet0/15       unassigned      YES manual down                  down
FastEthernet0/16       unassigned      YES manual down                  down
FastEthernet0/17       unassigned      YES manual down                  down
FastEthernet0/18       unassigned      YES manual down                  down
FastEthernet0/19       unassigned      YES manual down                  down
FastEthernet0/20       unassigned      YES manual down                  down
FastEthernet0/21       unassigned      YES manual down                  down
 --More--
```

Figure 11:ip address

P8. Document and analyse test results against expected results.

	Test case	Expected result	Actual result	Evidence(s)
1	One distinct ip range is used for each department	Vlan 10:teacher Vlan 20:seo Vlan 30:head Vlan 40:student Vlan 50:it, staff	successfully	Figure 9
2	Set trunk mode	Set trunk successfully	Successfully	Figure 10
3	Check the dhcp address of devices in network system	Dhcp requested successfully	successfully	Figure 12
4	Computer of other vlan can ping each other	Pinged successfully	successfully	Figure 13

Evidences:

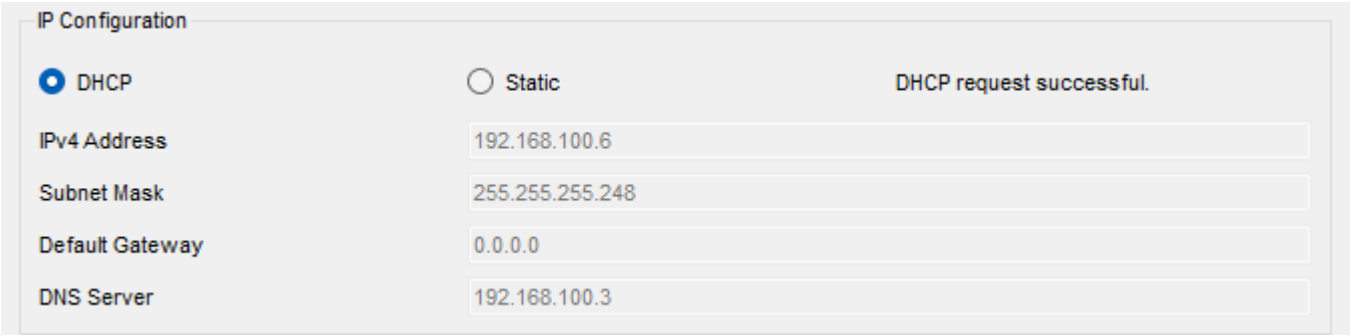
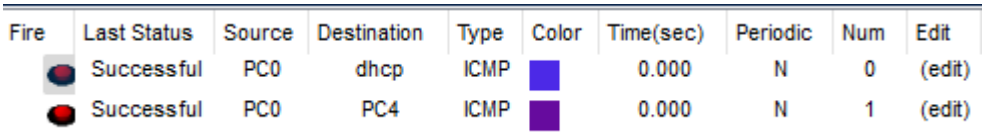


Figure 12:dhcp request



Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	PC0	dhcp	ICMP		0.000	N	0	(edit)
	Successful	PC0	PC4	ICMP		0.000	N	1	(edit)

Figure 13:devices ping

III.conclusion

On successful completion of this unit, students will have gained the knowledge and skills needed to successfully install, operate and troubleshoot a small network; and the operation of IP data networks, router, switching technologies, IP routing technologies, IP services and basic troubleshooting.

IV.reference

Worldwide Services. (2018). What Is Network Maintenance? | Network Maintenance Plans & Tips. [online] Available at: https://worldwideservices.net/network-maintenance-guide-upkeep/.

Velayudhan, D. (2023). 11 Critical Tasks in a Network Maintenance Checklist | ConnectWise. [online] www.connectwise.com. Available at: https://www.connectwise.com/blog/rmm/network-maintenance-checklist-tasks.