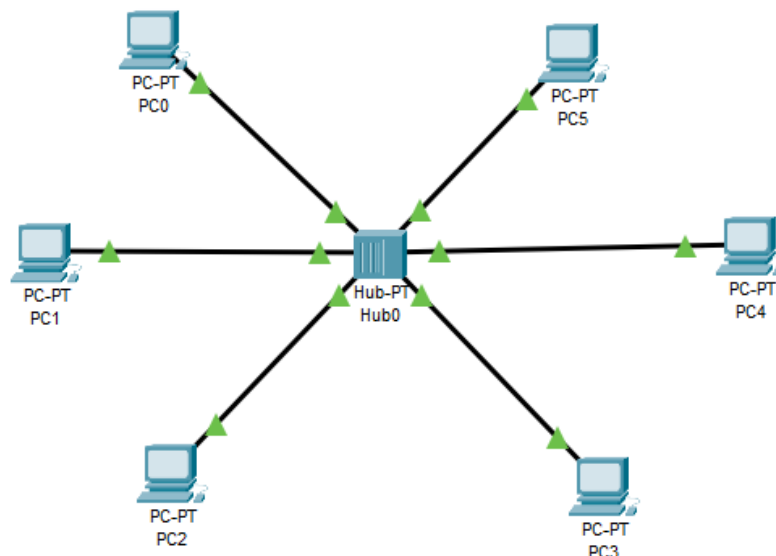


Compte rendu TP2

1) Le type de câble utilisé est : **câble droit**

2) Vérification de la bonne conception :



3) Tous les postes son configurés par une adresse IP et un masque de sous-réseau appartenant au réseau dont l'adresse est 192.168.10.0/24.

4) Configuration :

Device Name: PC0

Device Model: PC-PT

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0	Up	192.168.10.1/24	<not set>	0040.0B6D.16BA
Bluetooth	Down	<not set>	<not set>	0001.4204.DC8C

Gateway: <not set>

DNS Server: <not set>

Line Number: <not set>

Physical Location: Intercity > Home City > Corporate Office > PC0

Device Name: PC1
Device Model: PC-PT

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0	Up	192.168.10.2/24	<not set>	00D0.9755.C005
Bluetooth	Down	<not set>	<not set>	0005.5EEE.C616

Gateway: <not set>
DNS Server: <not set>
Line Number: <not set>

Physical Location: Intercity > Home City > Corporate Office > PC1

Device Name: PC2
Device Model: PC-PT

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0	Up	192.168.10.3/24	<not set>	00D0.974A.8302
Bluetooth	Down	<not set>	<not set>	00E0.8F32.86B4

Gateway: <not set>
DNS Server: <not set>
Line Number: <not set>

Physical Location: Intercity > Home City > Corporate Office > PC2

Device Name: PC3
Device Model: PC-PT

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0	Up	192.168.10.4/24	<not set>	000A.F37C.DD66
Bluetooth	Down	<not set>	<not set>	000C.CF50.B206

Gateway: <not set>
DNS Server: <not set>
Line Number: <not set>

Physical Location: Intercity > Home City > Corporate Office > PC3

Device Name: PC4
Device Model: PC-PT

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0	Up	192.168.10.5/24	<not set>	0001.43C8.1B76
Bluetooth	Down	<not set>	<not set>	0002.17DE.6421

Gateway: <not set>
DNS Server: <not set>
Line Number: <not set>

Physical Location: Intercity > Home City > Corporate Office > PC4

Device Name: PC5
Device Model: PC-PT

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0	Up	192.168.10.6/24	<not set>	00D0.9719.C36D
Bluetooth	Down	<not set>	<not set>	00D0.D33D.6924

Gateway: <not set>
DNS Server: <not set>
Line Number: <not set>

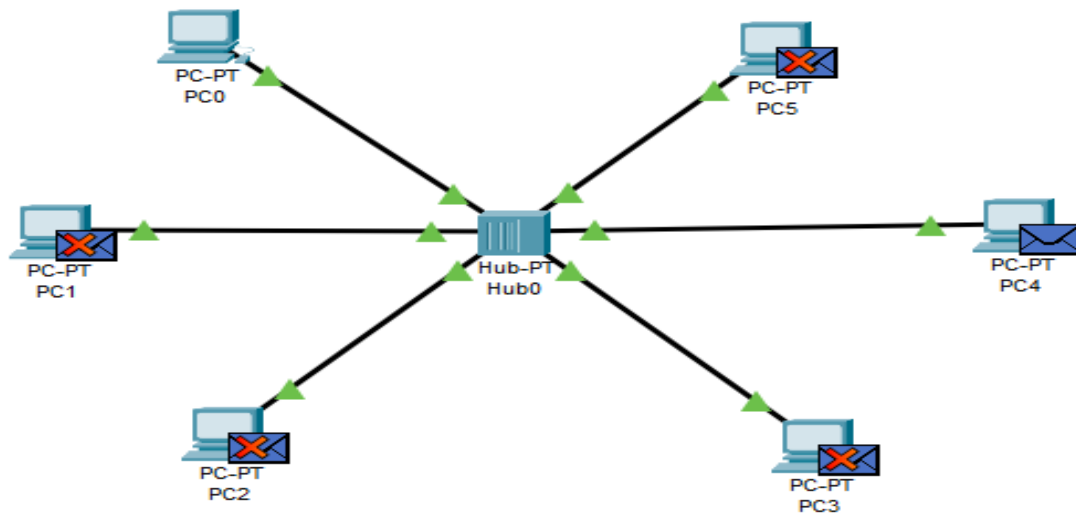
Physical Location: Intercity > Home City > Corporate Office > PC5

II. Rôle du concentrateur (hub)

5) Visualisation :

- c) PC0 envoie la trame au HUB
- d) HUB envoie la trame reçue par PC0 à PC1, PC2, PC3, PC5 et PC5

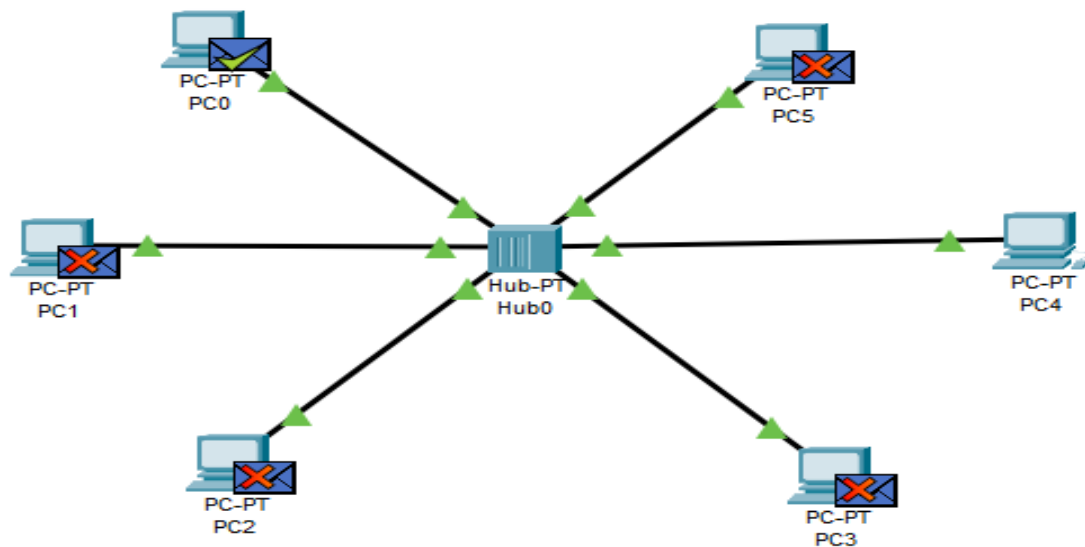
c) Seulement le PC4 accepte la trame



d) Le PC4 renvoie une trame au HUB

e) HUB envoie la trame à tous les autres PC

f) Tous les pc refuse la trame sauf le PC0



6) Visualisation des trames ICMP :

- Pour PC0 :

PDU Information at Device: PC0

OSI Model

Inbound PDU Details

At Device: PC0
Source: PC0
Destination: PC4

In Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 192.168.10.5,
Dest. IP: 192.168.10.1 ICMP Message
Type: 0
Layer 2: Ethernet II Header
0001.43C8.1B76 >> 0040.0B6D.16BA
Layer 1: Port FastEthernet0

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer1

1. FastEthernet0 receives the frame.

PDU Information at Device: PC0

OSI Model

Inbound PDU Details

At Device: PC0
Source: PC0
Destination: PC4

In Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 192.168.10.5,
Dest. IP: 192.168.10.1 ICMP Message
Type: 0
Layer 2: Ethernet II Header
0001.43C8.1B76 >> 0040.0B6D.16BA
Layer 1: Port FastEthernet0

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer1

1. FastEthernet0 receives the frame.

Challenge Me

<< Previous Layer

Next Layer >>

- Pour PC4 :

PDU Information at Device: PC4

[OSI Model](#)

[Inbound PDU Details](#)

[Outbound PDU Details](#)

At Device: PC4
Source: PC0
Destination: PC4

In Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 192.168.10.1, Dest. IP: 192.168.10.5 ICMP Message Type: 8
Layer 2: Ethernet II Header 0040.0B6D.16BA >> 0001.43C8.1B76
Layer 1: Port FastEthernet0

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 192.168.10.5, Dest. IP: 192.168.10.1 ICMP Message Type: 0
Layer 2: Ethernet II Header 0001.43C8.1B76 >> 0040.0B6D.16BA
Layer 1: Port(s): FastEthernet0

1. FastEthernet0 receives the frame.

PDU Information at Device: PC4

[OSI Model](#)

[Inbound PDU Details](#)

[Outbound PDU Details](#)

PDU Formats

EthernetII										Bytes
PREAMBLE: 101010...10				DEST ADDR: 0001.43C8.1B76						
SRC ADDR: 0040.0B6D.16BA		TYP: E:0x	DATA (VARIABLE LENGTH)		FCS: 0x00000000					
IP										Bits
VER: 4	IHL: 5	DSCP: 0x00		TL: 28						
ID: 0x000c				FLAGS: 0x0		FRAG OFFSET: 0x000				
TTL: 255		PRO: 0x01		CHKSUM						
SRC IP: 192.168.10.1										
DST IP: 192.168.10.5										
DATA (VARIABLE LENGTH)										
ICMP										Bits
TYPE: 0x08		CODE: 0x00		CHECKSUM						
ID: 0x000d				SEQ NUMBER: 12						
Variable Size PDU										Bytes
DATA (VARIABLE LENGTH)										

PDU Information at Device: PC4

[OSI Model](#)

[Inbound PDU Details](#)

[Outbound PDU Details](#)

PDU Formats

EthernetII										Bytes
PREAMBLE: 101010...10				DEST ADDR: 0040.0B6D.16BA						
SRC ADDR: 0001.43C8.1B76		TYP: E:0x	DATA (VARIABLE LENGTH)		FCS: 0x00000000					
IP										Bits
VER: 4	IHL: 5	DSCP: 0x00		TL: 28						
ID: 0x000b				FLAGS: 0x0		FRAG OFFSET: 0x000				
TTL: 128		PRO: 0x01		CHKSUM						
SRC IP: 192.168.10.5										
DST IP: 192.168.10.1										
DATA (VARIABLE LENGTH)										
ICMP										Bits
TYPE: 0x00		CODE: 0x00		CHECKSUM						
ID: 0x000d				SEQ NUMBER: 12						
Variable Size PDU										Bytes
DATA (VARIABLE LENGTH)										

7) Le rôle de concentrateur HUB est : il permet de relier plusieurs ordinateurs entre eux , il prendre les données binaires parvenant d'un port et les diffuser sur l'ensemble des ports .

8) Le câble utilisé pour relier 2 HUB entre eux : **câble croisée.**

9) On peut conclure qu'on a une saturation de réseau.

Exercice 2 : Réseau avec un commutateur (SWITCH)

I. Création du réseau

1) On utilise le câble droit.

2) Configuration des machines :

Device Name: PC0

Device Model: PC-PT

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0	Up	193.162.5.1/24	<not set>	00D0.58D7.877A
Bluetooth	Down	<not set>	<not set>	0001.C923.55EA

Gateway: <not set>

DNS Server: <not set>

Line Number: <not set>

Physical Location: Intercity > Home City > Corporate Office > PC0

Device Name: PC1

Device Model: PC-PT

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0	Up	193.162.5.2/24	<not set>	00D0.587C.9D44
Bluetooth	Down	<not set>	<not set>	0001.9663.D4E0

Gateway: <not set>

DNS Server: <not set>

Line Number: <not set>

Physical Location: Intercity > Home City > Corporate Office > PC1

Device Name: PC2

Device Model: PC-PT

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0	Up	193.162.5.3/24	<not set>	000C.85CC.C462
Bluetooth	Down	<not set>	<not set>	00D0.D3C1.5649

Gateway: <not set>

DNS Server: <not set>

Line Number: <not set>

Physical Location: Intercity > Home City > Corporate Office > PC2

Device Name: PC3

Device Model: PC-PT

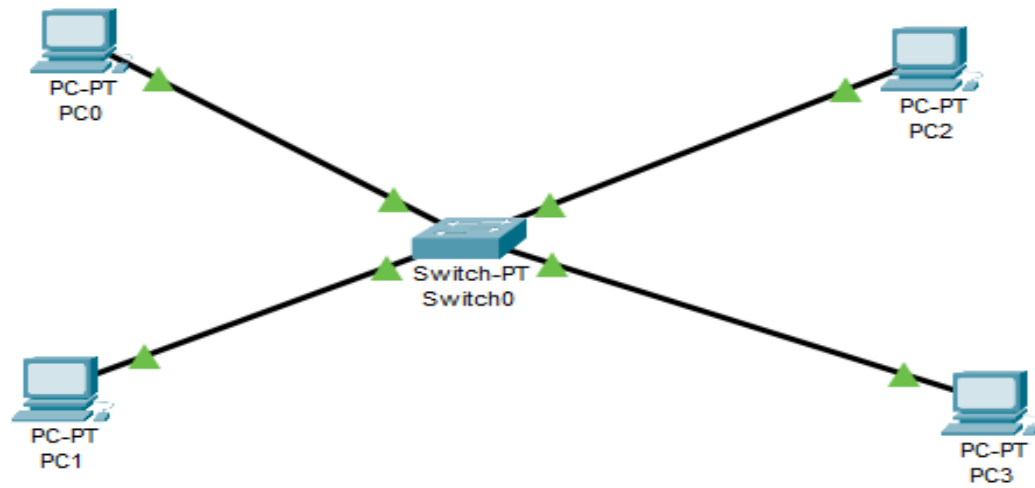
Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0	Up	193.162.5.4/24	<not set>	00E0.B0D8.DA44
Bluetooth	Down	<not set>	<not set>	0001.C9BD.ED01

Gateway: <not set>

DNS Server: <not set>

Line Number: <not set>

Physical Location: Intercity > Home City > Corporate Office > PC3



Edition filtres :

Cisco Packet Tracer

IPv4

IPv6

Misc

☐ ARP

☐ DNS

☒ ICMP

☐ BGP

☐ EIGRP

☐ OSPF

☐ DHCP

☐ HSRP

☐ RIP

Edit ACL Filters

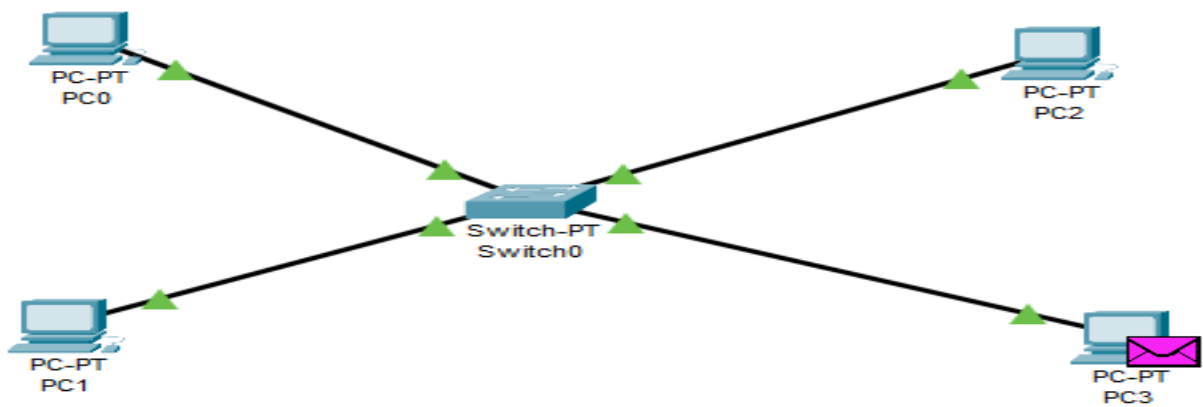
II. Appréhender le rôle du commutateur (SWITCH)

1) Visualisation :

a) PC0 envoie la trame vers le SWITCH

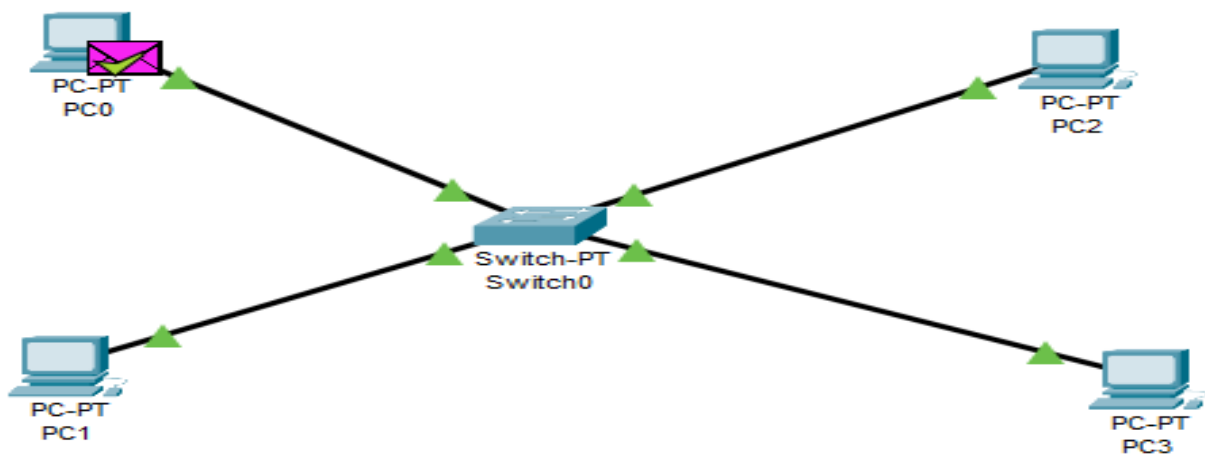
b) La trame arrive au SWITCH

c) La trame arrive au seulement au PC3



d) PC3 envoie la réponse au SWITCH

e) La trame arrive seulement au PC0



2) Visualiser le détail des trames ICMP :

- De SWITCH0 vers PC3 :

PDU Information at Device: PC3

OSI Model

Inbound PDU Details

Outbound PDU Details

At Device: PC3
Source: PC0
Destination: PC3

In Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 193.162.5.1,
Dest. IP: 193.162.5.4 ICMP Message Type:
8
Layer 2: Ethernet II Header
00D0.58D7.877A >> 00E0.B0D8.DA44
Layer 1: Port FastEthernet0

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 193.162.5.4,
Dest. IP: 193.162.5.1 ICMP Message Type:
0
Layer 2: Ethernet II Header
00E0.B0D8.DA44 >> 00D0.58D7.877A
Layer 1: Port(s): FastEthernet0

1. FastEthernet0 receives the frame.

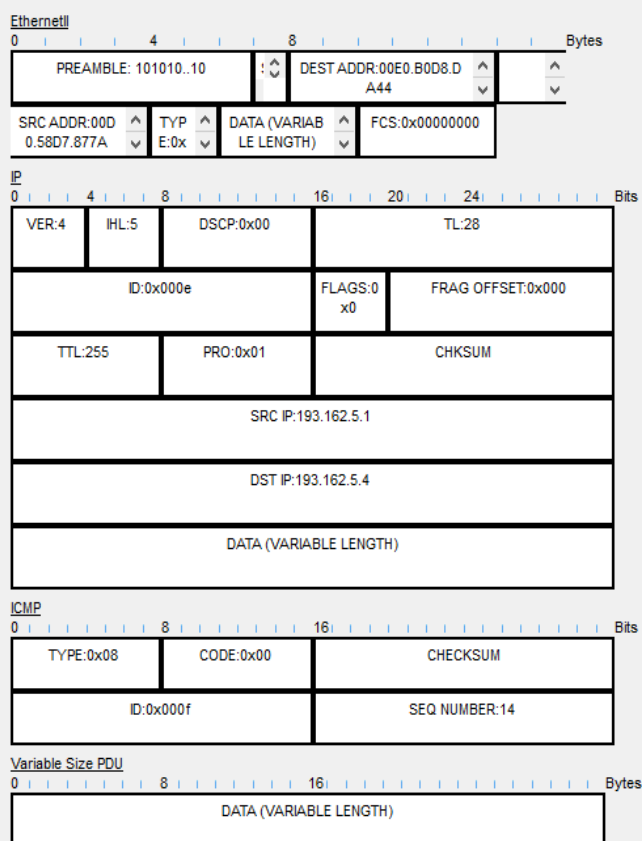
PDU Information at Device: PC3

OSI Model

Inbound PDU Details

Outbound PDU Details

PDU Formats



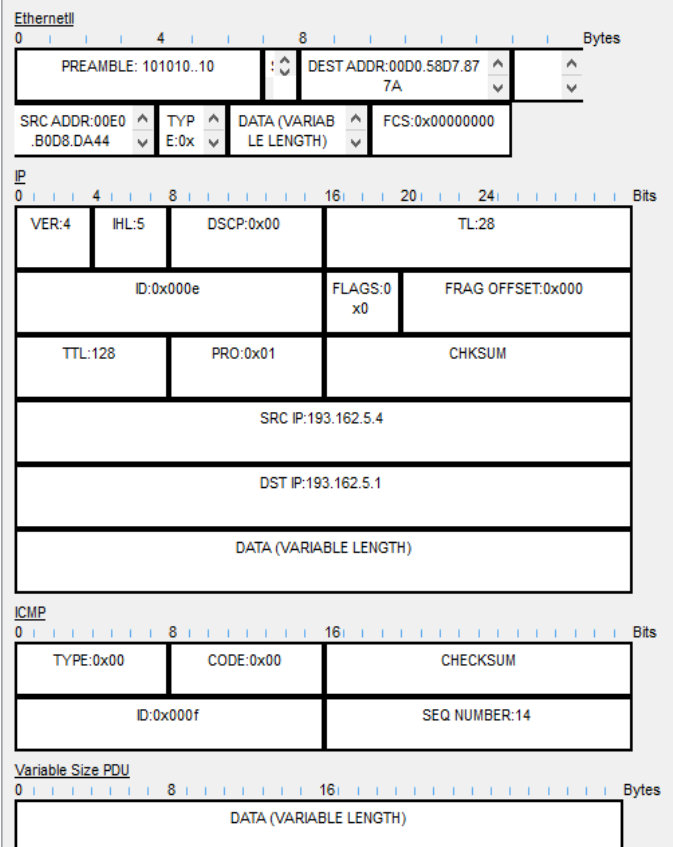
PDU Information at Device: PC3

OSI Model

Inbound PDU Details

Outbound PDU Details

PDU Formats



- De SWITCH vers PC0 :

PDU Information at Device: PC0

OSI Model

Inbound PDU Details

At Device: PC0
Source: PC0
Destination: PC3

In Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 193.162.5.4, Dest. IP: 193.162.5.1 ICMP Message Type: 0
Layer 2: Ethernet II Header 00E0.B0D8.DA44 >> 00D0.58D7.877A
Layer 1: Port FastEthernet0

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer1

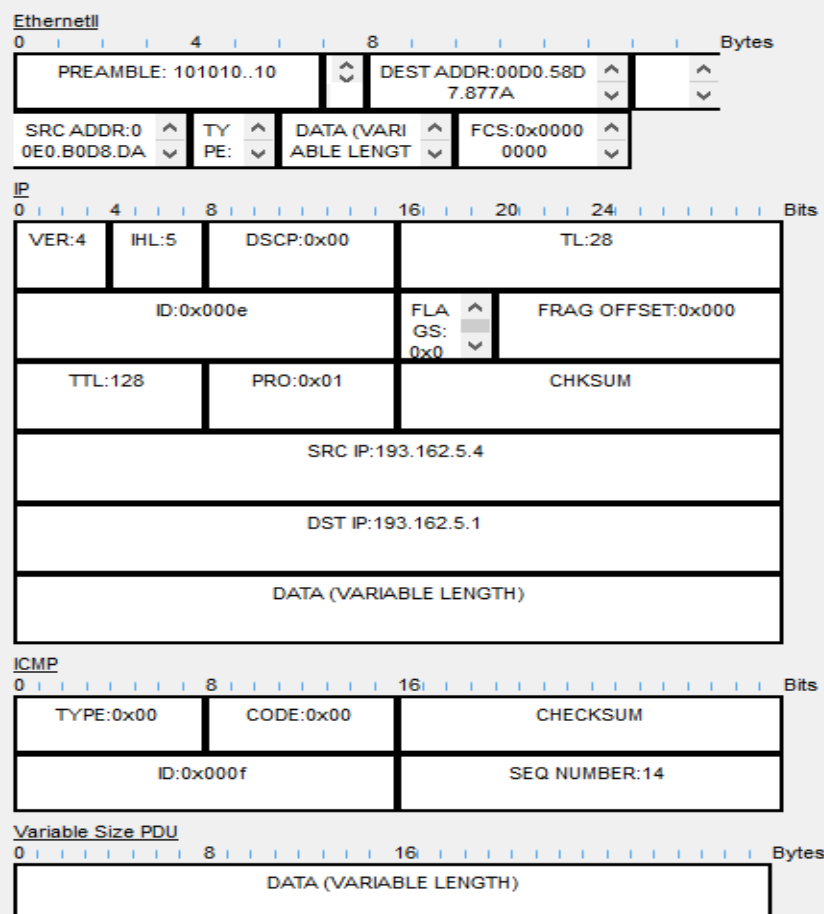
1. FastEthernet0 receives the frame.

PDU Information at Device: PC0

OSI Model

Inbound PDU Details

PDU Formats



3) En mode temp réel :

```
C:\>PING 193.162.5.4

Pinging 193.162.5.4 with 32 bytes of data:

Reply from 193.162.5.4: bytes=32 time=17ms TTL=128
Reply from 193.162.5.4: bytes=32 time<1ms TTL=128
Reply from 193.162.5.4: bytes=32 time<1ms TTL=128
Reply from 193.162.5.4: bytes=32 time<1ms TTL=128

Ping statistics for 193.162.5.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 17ms, Average = 4ms

C:\>
```

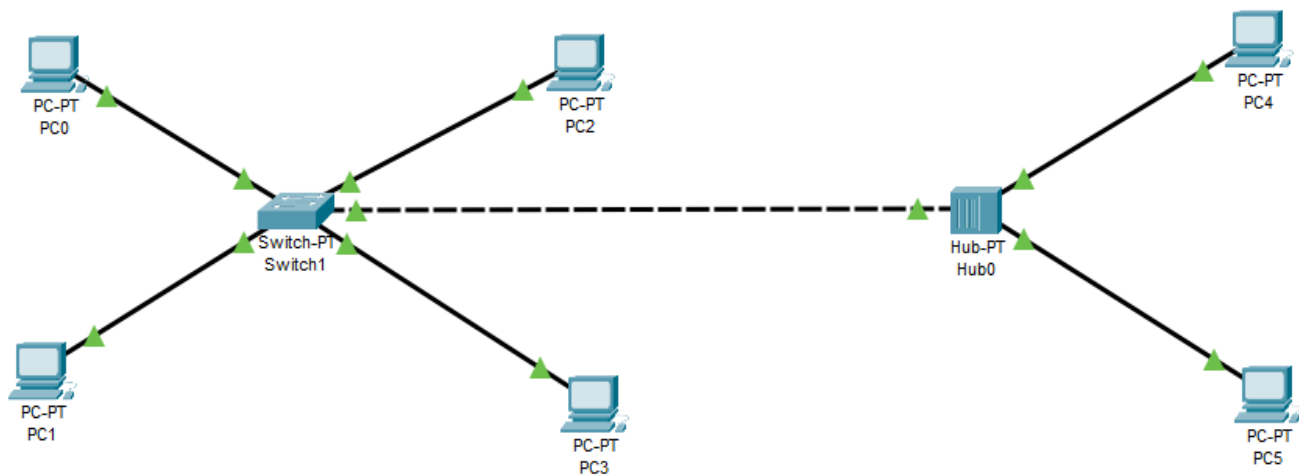
4) Le rôle d'un commutateur est :

Il permet relier plusieurs ordinateurs entre eux

5) L'avantage du commutateur (switch) par rapport au concentrateur (hub) c'est le commutateur est capable de connaître l'adresse physique des machines qui lui sont connectées et d'analyser les trames pour les diriger vers la machine de destination.

6) J'ai ajouté un connecteur de type CFE pour connecter le switch au HUB





Configuration des 2 nouveaux postes

Device Name: PC4

Device Model: PC-PT

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0	Up	193.162.5.5/24	<not set>	0060.5CA8.827B
Bluetooth	Down	<not set>	<not set>	0002.4A84.6150

Gateway: <not set>

DNS Server: <not set>

Line Number: <not set>

Physical Location: Intercity > Home City > Corporate Office > PC4

Device Name: PC5

Device Model: PC-PT

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0	Up	193.162.5.6/24	<not set>	0060.2F82.3A63
Bluetooth	Down	<not set>	<not set>	0030.F21B.8689

Gateway: <not set>

DNS Server: <not set>

Line Number: <not set>

Physical Location: Intercity > Home City > Corporate Office > PC5

L'envoi de trame depuis PC0 vers PC5 :

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Switch1	ICMP
	0.002	Switch1	Hub0	ICMP
	0.003	Hub0	PC4	ICMP
	0.003	Hub0	PC5	ICMP
	0.004	PC5	Hub0	ICMP
	0.005	Hub0	PC4	ICMP
	0.005	Hub0	Switch1	ICMP
	0.006	Switch1	PC0	ICMP

Reset Simulation

☒ Constant Delay

Captured to: 1.997 s

Play Controls

Le détail des trames ICMP :

- De HUB0 vers PC5

PDU Information at Device: PC5

OSI Model

Inbound PDU Details

Outbound PDU Details

At Device: PC5
Source: PC0
Destination: PC5

In Layers

Layer7

Layer6

Layer5

Layer4

Layer 3: IP Header Src. IP: 193.162.5.1, Dest. IP: 193.162.5.6 ICMP Message Type: 8

Layer 2: Ethernet II Header 00D0.58D7.877A >> 0060.2F82.3A63

Layer 1: Port FastEthernet0

Out Layers

Layer7

Layer6

Layer5

Layer4

Layer 3: IP Header Src. IP: 193.162.5.6, Dest. IP: 193.162.5.1 ICMP Message Type: 0

Layer 2: Ethernet II Header 0060.2F82.3A63 >> 00D0.58D7.877A

Layer 1: Port(s): FastEthernet0

1. FastEthernet0 receives the frame.

PDU Information at Device: PC5

OSI Model [Inbound PDU Details](#) [Outbound PDU Details](#)

PDU Formats

EthernetII			
0	4	8	Bytes
PREAMBLE: 101010..10		DEST ADDR: 0060.2F82.3A63	
SRC ADDR: 00D0.58D7.877A	TYP E: 0x	DATA (VARIABLE LENGTH)	FCS: 0x00000000

IP						
0	4	8	16	20	24	Bits
VER: 4	IHL: 5	DSCP: 0x00	TL: 28			
ID: 0x0023		FLAGS: 0x0	FRAG OFFSET: 0x000			
TTL: 255		PRO: 0x01	CHKSUM			
SRC IP: 193.162.5.1						
DST IP: 193.162.5.6						
DATA (VARIABLE LENGTH)						

ICMP			
0	8	16	Bits
TYPE: 0x08	CODE: 0x00	CHECKSUM	
ID: 0x001a		SEQ NUMBER: 34	

Variable Size PDU		
0	16	Bytes
DATA (VARIABLE LENGTH)		

PDU Information at Device: PC5

OSI Model [Inbound PDU Details](#) [Outbound PDU Details](#)

PDU Formats

EthernetII			
0	4	8	Bytes
PREAMBLE: 101010..10		DEST ADDR: 00D0.58D7.877A	
SRC ADDR: 0060.2F82.3A63	TYP E: 0x	DATA (VARIABLE LENGTH)	FCS: 0x00000000

IP						
0	4	8	16	20	24	Bits
VER: 4	IHL: 5	DSCP: 0x00	TL: 28			
ID: 0x0003		FLAGS: 0x0	FRAG OFFSET: 0x000			
TTL: 128		PRO: 0x01	CHKSUM			
SRC IP: 193.162.5.6						
DST IP: 193.162.5.1						
DATA (VARIABLE LENGTH)						

ICMP			
0	8	16	Bits
TYPE: 0x00	CODE: 0x00	CHECKSUM	
ID: 0x001a		SEQ NUMBER: 34	

Variable Size PDU		
0	16	Bytes
DATA (VARIABLE LENGTH)		

- De SWITCH vers PC0

PDU Information at Device: PC0

[OSI Model](#) [Inbound PDU Details](#)

At Device: PC0
Source: PC0
Destination: PC5

In Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 193.162.5.6, Dest. IP: 193.162.5.1 ICMP Message Type: 0
Layer 2: Ethernet II Header 0060.2F82.3A63 >> 00D0.58D7.877A
Layer 1: Port FastEthernet0

Out Layers

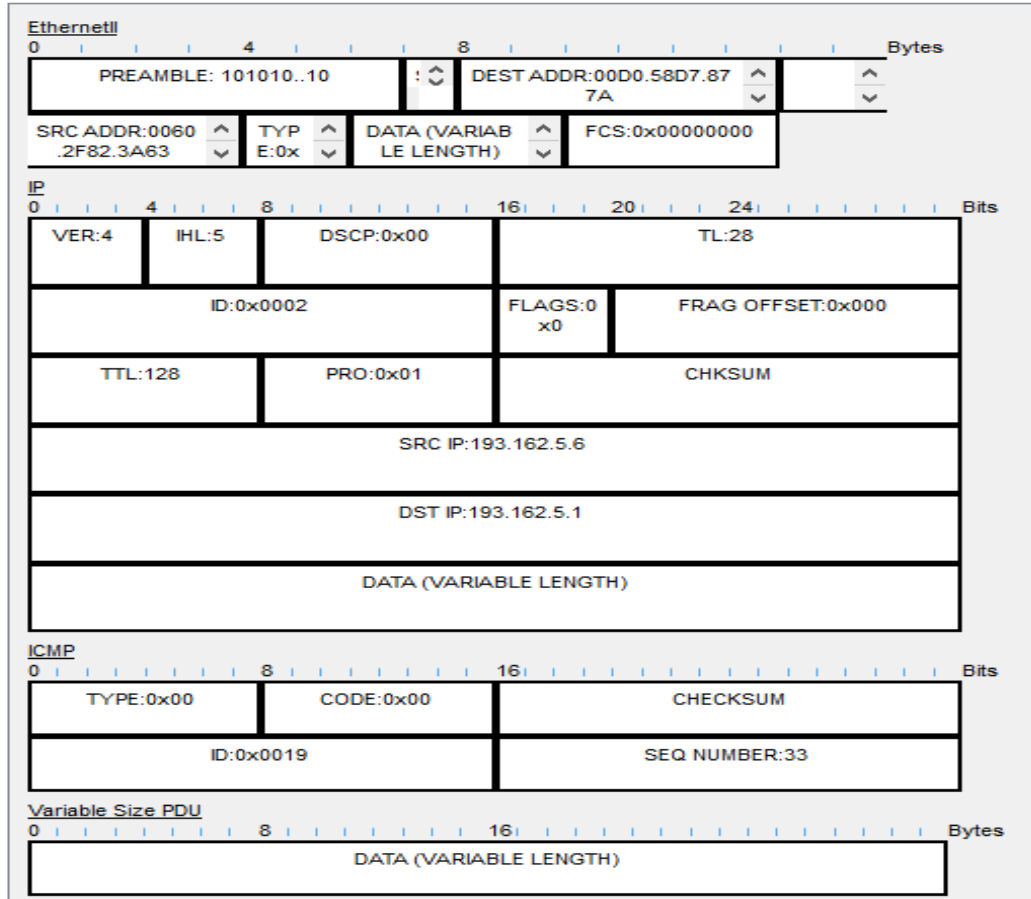
Layer7
Layer6
Layer5
Layer4
Layer3
Layer2
Layer1

1. FastEthernet0 receives the frame.

PDU Information at Device: PC0

OSI Model [Inbound PDU Details](#)

PDU Formats



Modification de l'adresse IP de PC5 :

Device Name: PC5

Device Model: PC-PT

Port	Link	IP Address	IPv6 Address	MAC Address
FastEthernet0	Up	192.162.5.6/24	<not set>	0060.2F82.3A63
Bluetooth	Down	<not set>	<not set>	0030.F21B.8689

Gateway: <not set>

DNS Server: <not set>

Line Number: <not set>

Physical Location: Intercity > Home City > Corporate Office > PC5

6) Le switch ne connait pas l'adresse de destinataire.