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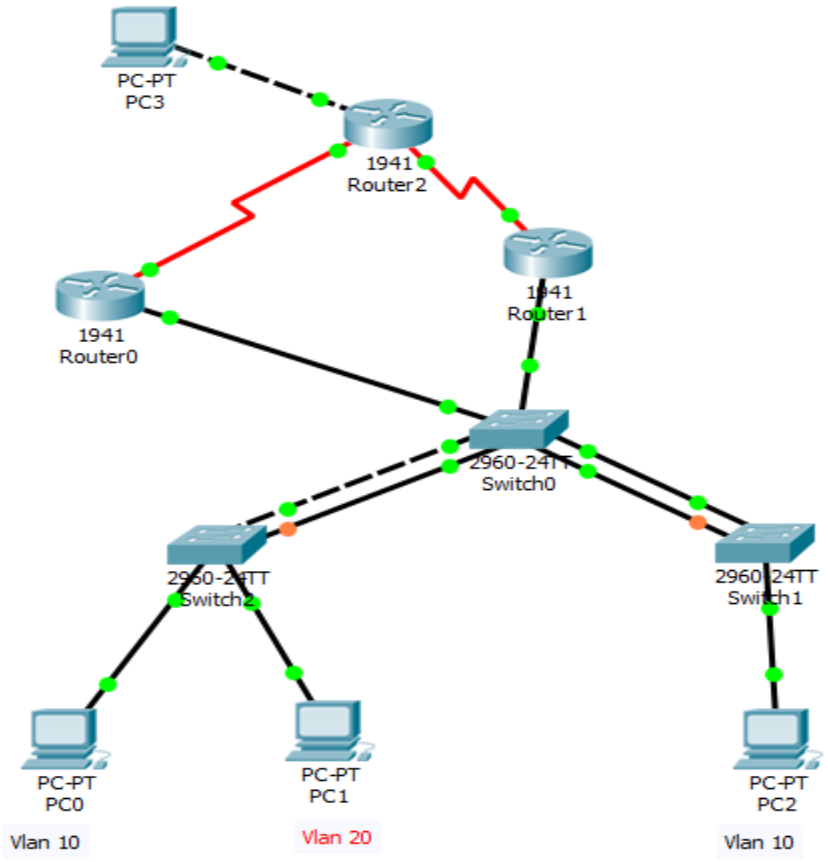
DOCUMENTATION DE PREMIER TRAVAIL PRATIQUE EN RÉSEAUTIQUE



Travail présenté à
Monsieur George Debay et Ghrieb Najoua

Collège de Bois-de-Boulogne
Le 13 mars 2021

Contexte

La compagnie Bdebay Inc. Vous engage pour créer un petit réseau chez un client, donc il faut connecter des périphériques et configurer les ordinateurs hôtes pour une connectivité de base.

Étape 1 : conception du bloc d'adresses de SubnetA

Dans le tableau suivant, indiquez les paramètres IP de SubnetA :

Adresse réseau	Masque	Première adresse d'hôte	Dernière adresse d'hôte	Diffusion
140.100.3.248/30	255.255.255.252	140.100.3.249	140.100.3.250	140.100.3.251

Étape 2 : conception du bloc d'adresses de SubnetB

Dans le tableau suivant, indiquez les paramètres IP de SubnetB :

Adresse réseau	Masque	Première adresse d'hôte	Dernière adresse d'hôte	Diffusion
140.100.3.252/30	255.255.255.252	140.100.3.253	140.100.3.254	140.100.3.255

Étape 3 : conception du bloc d'adresses de SubnetC

Dans le tableau suivant, indiquez les paramètres IP de SubnetC :

Adresse réseau	Masque	Première adresse d'hôte	Dernière adresse d'hôte	Diffusion
140.100.0.0/23	255.255.254.0	140.100.0.1	140.100.1.254	140.100.1.255

Étape 4 : conception du bloc d'adresses de SubnetD

1. Dans le tableau suivant, indiquez les paramètres IP de SubnetD :

Adresse réseau	Masque	Première adresse d'hôte	Dernière adresse d'hôte	Diffusion
140.100.2.0/24	255.255.255.0	140.100.2.1	140.100.2.254	140.100.2.255

Étape 5 : conception du bloc d'adresses de SubnetE

1. Dans le tableau suivant, indiquez les paramètres IP de SubnetE :

Adresse réseau	Masque	Première adresse d'hôte	Dernière adresse d'hôte	Diffusion
140.100.3.0/25	255.255.255.128	140.100.3.1	140.100.3.126	140.100.3.127

Étape 6 : conception du bloc d'adresses de SubnetF

1. Dans le tableau suivant, indiquez les paramètres IP de SubnetF :

Adresse réseau	Masque	Première adresse d'hôte	Dernière adresse d'hôte	Diffusion
140.100.3.128/26	255.255.255.192	140.100.3.129	140.100.3.190	140.100.3.191

Vlan10 sur commutateur2 ----------→ Adresse IP : 140.100.2.253 /24

PC1 ----------→ Adresse IP : 140.100.3.126 /25
PC2 ----------→ Adresse IP : 140.100.3.130 /26
PC3 ----------→ Adresse IP : 140.100.0.3 /23
PC4 ----------→ Adresse IP : 140.100.2.254 /24

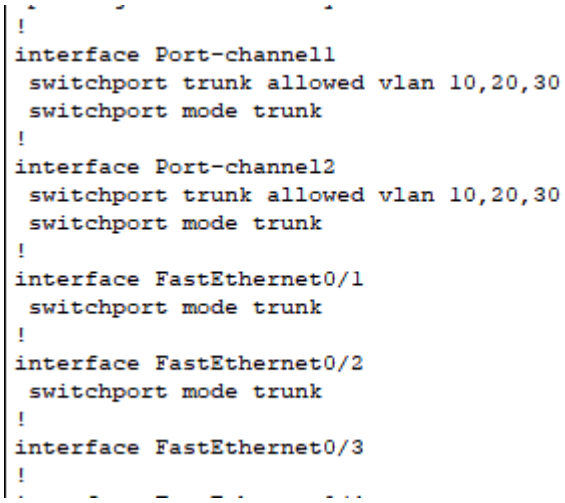
Gateway of Subnet C ----------→ Adresse IP : 140.100.1.254 /23
Gateway of Subnet D ----------→ Adresse IP : 140.100.2.252 /24
Gateway of Subnet E ----------→ Adresse IP : 140.100.3.1 /25
Gateway of Subnet F ----------→ Adresse IP : 140.100.3.190 /26
Point-to-point of Gateway A ----------→ Adresse IP : 140.100.3.249 /30 et 140.100.3.250 /30
Point-to-point of Gateway B ----------→ Adresse IP : 140.100.3.253 /30 et 140.100.3.254 /30

Stanby IP group 1 pour le VLAN 10 : 140.100.2.1
Stanby IP group 2 pour le VLAN 20 : 140.100.3.5
Stanby IP group 3 pour le VLAN 30 : 140.100.3.150

Captures d’écrans des configurations nécessaires

Switch 0 (show running-config) :

```
interface FastEthernet0/7
 switchport trunk allowed vlan 10,20,30
 switchport mode trunk
 channel-group 1 mode active
!
interface FastEthernet0/8
 switchport trunk allowed vlan 10,20,30
 switchport mode trunk
 channel-group 1 mode active
!
interface FastEthernet0/9
!
```



```
!
interface Port-channel1
 switchport trunk allowed vlan 10,20,30
 switchport mode trunk
!
interface Port-channel2
 switchport trunk allowed vlan 10,20,30
 switchport mode trunk
!
interface FastEthernet0/1
 switchport mode trunk
!
interface FastEthernet0/2
 switchport mode trunk
!
interface FastEthernet0/3
!
```

```
!
interface FastEthernet0/13
 switchport trunk allowed vlan 10,20,30
 switchport mode trunk
 channel-group 2 mode active
!
interface FastEthernet0/14
 switchport trunk allowed vlan 10,20,30
 switchport mode trunk
 channel-group 2 mode active
!
interface FastEthernet0/15
!
```

Switch 0 (show interfaces trunk + show vlan brief) :

```
Switch#show interfaces trunk
Port        Mode         Encapsulation  Status        Native vlan
Po1         on           802.1q         trunking      1
Po2         on           802.1q         trunking      1
Fa0/1       on           802.1q         trunking      1
Fa0/2       on           802.1q         trunking      1

Port        Vlans allowed on trunk
Po1         10,20,30
Po2         10,20,30
Fa0/1       1-1005
Fa0/2       1-1005

Port        Vlans allowed and active in management domain
Po1         10,20,30
Po2         10,20,30
Fa0/1       1,10,20,30
Fa0/2       1,10,20,30

Port        Vlans in spanning tree forwarding state and not pruned
Po1         10,20,30
Po2         10,20,30
Fa0/1       1,10,20,30
```

```
Switch#show vlan brief

VLAN Name                              Status    Ports
---- --------------------------------- ---------
-------------------------------
1    default                           active    Fa0/3, Fa0/4, Fa0/5,
Fa0/6
                                                 Fa0/9, Fa0/10,
Fa0/11, Fa0/12
                                                 Fa0/15, Fa0/16,
Fa0/17, Fa0/18
                                                 Fa0/19, Fa0/20,
Fa0/21, Fa0/22
                                                 Fa0/23, Fa0/24,
Gig0/1, Gig0/2
10   PC-4                              active
20   PC-1                              active
30   PC-2                              active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
```

Switch 1 (show running-config) :

```
interface Port-channel2
 switchport trunk allowed vlan 10,20,30
 switchport mode trunk
!
interface FastEthernet0/1
 switchport access vlan 30
 switchport mode access
```

```
!
interface FastEthernet0/17
 switchport trunk allowed vlan 10,20,30
 switchport mode trunk
 channel-group 2 mode active
!
interface FastEthernet0/18
 switchport trunk allowed vlan 10,20,30
 switchport mode trunk
 channel-group 2 mode active
!
interface FastEthernet0/19
!
```

Switch 1 (show interfaces trunk + show vlan brief) :

```
Switch#show interfaces tr
Port        Mode         Encapsulation  Status        Native vlan
Po2         on           802.1q         trunking      1

Port        Vlans allowed on trunk
Po2         10,20,30

Port        Vlans allowed and active in management domain
Po2         10,20,30

Port        Vlans in spanning tree forwarding state and not pruned
Po2         10,20,30
```

```
Switch#show vlan brief

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, Fa0/19
                                               Fa0/20, Fa0/21,
Fa0/22, Fa0/23
                                               Fa0/24, Gig0/1,
Gig0/2
10   PC-4                             active
20   PC-1                             active
30   PC-2                             active    Fa0/1
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
```

Switch 2 (show running-config) :

```
interface Port-channel1
 switchport trunk allowed vlan 10,20,30
 switchport mode trunk
!
interface FastEthernet0/1
 switchport access vlan 10
 switchport mode access
!
interface FastEthernet0/2
 switchport access vlan 20
 switchport mode access
!
```

```
interface FastEthernet0/20
 switchport trunk allowed vlan 10,20,30
 switchport mode trunk
 channel-group 1 mode active
!
interface FastEthernet0/21
 switchport trunk allowed vlan 10,20,30
 switchport mode trunk
 channel-group 1 mode active
!
```

```
interface GigabitEthernet0/2
!
interface Vlan1
 no ip address
 shutdown
!
interface Vlan10
 mac-address 00e0.a36b.4601
 ip address 140.100.2.253 255.255.255.0
!
!
!
```

Switch 2 (show interfaces trunk + show vlan brief) :

```
Switch#show interfaces trunk
Port        Mode         Encapsulation  Status        Native vlan
Po1         on           802.1q         trunking      1

Port        Vlans allowed on trunk
Po1         10,20,30

Port        Vlans allowed and active in management domain
Po1         10,20,30

Port        Vlans in spanning tree forwarding state and not pruned
Po1         10,20,30
```

```
Switch#show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- ---------
-------------------------------
1    default                          active    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, Fa0/22,
Fa0/23, Fa0/24
                                               Gig0/1, Gig0/2
10   PC-4                             active    Fa0/1
20   PC-1                             active    Fa0/2
30   PC-2                             active
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
Switch#
```

Router 0 (show running-config + show standby brief + show ip eigrp topology + show ip route)

```
interface GigabitEthernet0/0
 no ip address
 duplex auto
 speed auto
 standby version 2
!
interface GigabitEthernet0/0.10
 encapsulation dot1Q 10
 ip address 140.100.2.252 255.255.255.0
 standby 1 ip 140.100.2.1
 standby 1 priority 150
 standby 1 preempt
!
interface GigabitEthernet0/0.20
 encapsulation dot1Q 20
 ip address 140.100.3.1 255.255.255.128
 standby 2 ip 140.100.3.5
 standby 2 priority 150
 standby 2 preempt
!
interface GigabitEthernet0/0.30
 encapsulation dot1Q 30
 ip address 140.100.3.190 255.255.255.192
 standby 3 ip 140.100.3.150
 standby 3 priority 150
 standby 3 preempt
!
interface Serial0/0/1
 ip address 140.100.3.249 255.255.255.252
!
interface Vlan1
 no ip address
 shutdown
!
router eigrp 1
 eigrp router-id 1.1.1.1
 passive-interface GigabitEthernet0/0
 network 140.100.3.248 0.0.0.3
 network 140.100.2.0 0.0.0.255
 network 140.100.3.0 0.0.0.127
 network 140.100.3.128 0.0.0.63

!
ip classless
!
```

```
Router#show standby br
                     P indicates configured to preempt.
                     |
Interface   Grp  Pri P State    Active          Standby
Virtual IP
Gig         1    150 P Active   local           140.100.2.252
140.100.2.1
Gig         2    150 P Active   local           140.100.3.1
140.100.3.5
Gig         3    150 P Active   local           140.100.3.190
140.100.3.150
```

```
Router#show ip eigrp topology
IP-EIGRP Topology Table for AS 1/ID(1.1.1.1)

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - Reply status

P 140.100.0.0/23, 1 successors, FD is 2172416
         via 140.100.3.250 (2172416/5120), Serial0/0/1
P 140.100.2.0/24, 1 successors, FD is 28160
         via Connected, GigabitEthernet0/0.10
P 140.100.3.0/25, 1 successors, FD is 28160
         via Connected, GigabitEthernet0/0.20
P 140.100.3.128/26, 1 successors, FD is 28160
         via Connected, GigabitEthernet0/0.30
P 140.100.3.248/30, 1 successors, FD is 2169856
         via Connected, Serial0/0/1
P 140.100.3.252/30, 1 successors, FD is 2681856
         via 140.100.3.250 (2681856/2169856), Serial0/0/1
```

```
Gateway of last resort is not set

     140.100.0.0/16 is variably subnetted, 10 subnets, 6 masks
D       140.100.0.0/23 [90/2172416] via 140.100.3.250, 00:36:19,
Serial0/0/1
C       140.100.2.0/24 is directly connected, GigabitEthernet0/0.10
L       140.100.2.252/32 is directly connected, GigabitEthernet0/0.10
C       140.100.3.0/25 is directly connected, GigabitEthernet0/0.20
L       140.100.3.1/32 is directly connected, GigabitEthernet0/0.20
C       140.100.3.128/26 is directly connected, GigabitEthernet0/0.30
L       140.100.3.190/32 is directly connected, GigabitEthernet0/0.30
C       140.100.3.248/30 is directly connected, Serial0/0/1
L       140.100.3.249/32 is directly connected, Serial0/0/1
D       140.100.3.252/30 [90/2681856] via 140.100.3.250, 00:36:19,
Serial0/0/1
```

Router 1 (show running-config + show standby brief + show ip eigrp topology + show ip route)

```
interface GigabitEthernet0/1
 no ip address
 duplex auto
 speed auto
 standby version 2
!
interface GigabitEthernet0/1.10
 encapsulation dot1Q 10
 ip address 140.100.2.252 255.255.255.0
 standby 1 ip 140.100.2.1
!
interface GigabitEthernet0/1.20
 encapsulation dot1Q 20
 ip address 140.100.3.1 255.255.255.128
 standby 2 ip 140.100.3.5
!
interface GigabitEthernet0/1.30
 encapsulation dot1Q 30
 ip address 140.100.3.190 255.255.255.192
 standby 3 ip 140.100.3.150
!
interface Serial0/0/0
 no ip address
 clock rate 2000000
 shutdown
!
interface Serial0/0/1
 ip address 140.100.3.253 255.255.255.252
!
interface Vlan1
 no ip address
 shutdown
router eigrp 1
 eigrp router-id 3.3.3.3
 passive-interface GigabitEthernet0/1
 network 140.100.3.252 0.0.0.3
 network 140.100.2.0 0.0.0.255
 network 140.100.3.0 0.0.0.127
 network 140.100.3.128 0.0.0.63

!
ip classless
!
ip flow-export version 9
!
!
!
no cdp run
!
!
!
```

```
Router#show standby br
                     P indicates configured to preempt.
                     |
Interface   Grp  Pri P State    Active          Standby         Virtual IP
Gig         1    100   Standby  140.100.2.252   local           140.100.2.1
Gig         2    100   Standby  140.100.3.1     local           140.100.3.5
Gig         3    100   Standby  140.100.3.190   local           140.100.3.150
```

```
Router#show ip eigrp topology
IP-EIGRP Topology Table for AS 1/ID(3.3.3.3)

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - Reply status

P 140.100.0.0/23, 1 successors, FD is 2172416
         via 140.100.3.254 (2172416/5120), Serial0/0/1
P 140.100.2.0/24, 1 successors, FD is 28160
         via Connected, GigabitEthernet0/1.10
P 140.100.3.0/25, 1 successors, FD is 28160
         via Connected, GigabitEthernet0/1.20
P 140.100.3.128/26, 1 successors, FD is 28160
         via Connected, GigabitEthernet0/1.30
P 140.100.3.248/30, 1 successors, FD is 2681856
         via 140.100.3.254 (2681856/2169856), Serial0/0/1
P 140.100.3.252/30, 1 successors, FD is 2169856
         via Connected, Serial0/0/1
```

```
Router#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     140.100.0.0/16 is variably subnetted, 10 subnets, 6 masks
D       140.100.0.0/23 [90/2172416] via 140.100.3.254, 00:44:15, Serial0/0/1
C       140.100.2.0/24 is directly connected, GigabitEthernet0/1.10
L       140.100.2.252/32 is directly connected, GigabitEthernet0/1.10
C       140.100.3.0/25 is directly connected, GigabitEthernet0/1.20
L       140.100.3.1/32 is directly connected, GigabitEthernet0/1.20
C       140.100.3.128/26 is directly connected, GigabitEthernet0/1.30
L       140.100.3.190/32 is directly connected, GigabitEthernet0/1.30
D       140.100.3.248/30 [90/2681856] via 140.100.3.254, 00:44:15, Serial0/0/1
C       140.100.3.252/30 is directly connected, Serial0/0/1
L       140.100.3.253/32 is directly connected, Serial0/0/1
```

Router 2 (show running-config + show ip eigrp topology + show ip route) :

```
!
!
!
interface GigabitEthernet0/0
 ip address 140.100.1.254 255.255.254.0
 duplex auto
 speed auto
!
interface GigabitEthernet0/1
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial0/0/0
 ip address 140.100.3.250 255.255.255.252
 clock rate 2000000
!
interface Serial0/0/1
 ip address 140.100.3.254 255.255.255.252
 clock rate 2000000
!
!
router eigrp 1
 eigrp router-id 2.2.2.2
 passive-interface GigabitEthernet0/0
 network 140.100.3.248 0.0.0.3
 network 140.100.3.252 0.0.0.3
 network 140.100.0.0 0.0.1.255

!
ip classless
!
```

```
Router#show ip eigrp topology
IP-EIGRP Topology Table for AS 1/ID(2.2.2.2)

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - Reply status

P 140.100.0.0/23, 1 successors, FD is 5120
         via Connected, GigabitEthernet0/0
P 140.100.2.0/24, 2 successors, FD is 2172416
         via 140.100.3.253 (2172416/28160), Serial0/0/1
         via 140.100.3.249 (2172416/28160), Serial0/0/0
P 140.100.3.0/25, 2 successors, FD is 2172416
         via 140.100.3.253 (2172416/28160), Serial0/0/1
         via 140.100.3.249 (2172416/28160), Serial0/0/0
P 140.100.3.128/26, 2 successors, FD is 2172416
         via 140.100.3.253 (2172416/28160), Serial0/0/1
         via 140.100.3.249 (2172416/28160), Serial0/0/0
P 140.100.3.248/30, 1 successors, FD is 2169856
         via Connected, Serial0/0/0
P 140.100.3.252/30, 1 successors, FD is 2169856
         via Connected, Serial0/0/1
```

```
Router#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     140.100.0.0/16 is variably subnetted, 9 subnets, 6 masks
C       140.100.0.0/23 is directly connected, GigabitEthernet0/0
L       140.100.1.254/32 is directly connected, GigabitEthernet0/0
D       140.100.2.0/24 [90/2172416] via 140.100.3.253, 00:54:04, Serial0/0/1
                       [90/2172416] via 140.100.3.249, 00:54:04, Serial0/0/0
D       140.100.3.0/25 [90/2172416] via 140.100.3.253, 00:54:04, Serial0/0/1
                       [90/2172416] via 140.100.3.249, 00:54:04, Serial0/0/0
D       140.100.3.128/26 [90/2172416] via 140.100.3.253, 00:54:04, Serial0/0/1
                         [90/2172416] via 140.100.3.249, 00:54:04, Serial0/0/0
C       140.100.3.248/30 is directly connected, Serial0/0/0
L       140.100.3.250/32 is directly connected, Serial0/0/0
C       140.100.3.252/30 is directly connected, Serial0/0/1
L       140.100.3.254/32 is directly connected, Serial0/0/1
```

Aboutissement des requêtes ping

PC4 vers PC1 :

```
Pinging 140.100.3.126 with 32 bytes of data:

Reply from 140.100.3.126: bytes=32 time<1ms TTL=127
Reply from 140.100.3.126: bytes=32 time<1ms TTL=127
Reply from 140.100.3.126: bytes=32 time<1ms TTL=127
Reply from 140.100.3.126: bytes=32 time=1ms TTL=127

Ping statistics for 140.100.3.126:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

PC4 vers PC2 :

```
C:\>ping 140.100.3.130

Pinging 140.100.3.130 with 32 bytes of data:

Request timed out.
Reply from 140.100.3.130: bytes=32 time=1ms TTL=127
Reply from 140.100.3.130: bytes=32 time<1ms TTL=127
Reply from 140.100.3.130: bytes=32 time=1ms TTL=127

Ping statistics for 140.100.3.130:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 140.100.3.130

Pinging 140.100.3.130 with 32 bytes of data:

Reply from 140.100.3.130: bytes=32 time<1ms TTL=127
Reply from 140.100.3.130: bytes=32 time<1ms TTL=127
Reply from 140.100.3.130: bytes=32 time=2ms TTL=127
Reply from 140.100.3.130: bytes=32 time=2ms TTL=127

Ping statistics for 140.100.3.130:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 1ms
```

PC4 vers PC3 :

```
C:\>ping 140.100.0.3

Pinging 140.100.0.3 with 32 bytes of data:

Request timed out.
Reply from 140.100.0.3: bytes=32 time=1ms TTL=126
Reply from 140.100.0.3: bytes=32 time=1ms TTL=126
Reply from 140.100.0.3: bytes=32 time=1ms TTL=126

Ping statistics for 140.100.0.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 1ms, Average = 1ms

C:\>ping 140.100.0.3

Pinging 140.100.0.3 with 32 bytes of data:

Reply from 140.100.0.3: bytes=32 time=2ms TTL=126
Reply from 140.100.0.3: bytes=32 time=1ms TTL=126
Reply from 140.100.0.3: bytes=32 time=3ms TTL=126
Reply from 140.100.0.3: bytes=32 time=2ms TTL=126

Ping statistics for 140.100.0.3:
```

Les requêtes ping démontrent explicitement que les pc arrivent à se communiquer