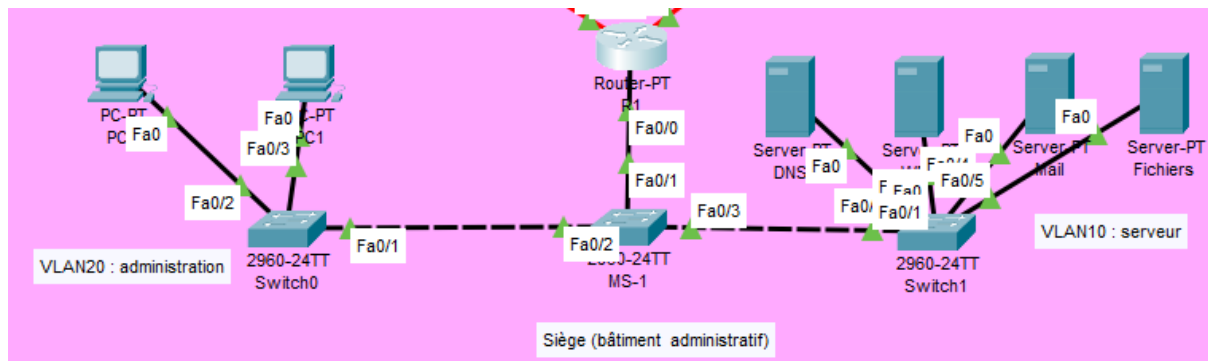# Déploiement d'un réseau d'entreprise

Siège de l'entreprise

Configuration du routeur R1

```
Device Name: R1
Device Model: Router-PT
Hostname: Router

Port               Link    IP Address          IPv6 Address        MAC Address
FastEthernet0/0    Up      192.168.0.254/24    <not set>           0002.4A2A.8944
FastEthernet0/0.10 Up      192.168.10.254/24   <not set>           0002.4A2A.8944
FastEthernet0/0.20 Up      192.168.20.254/24   <not set>           0002.4A2A.8944
FastEthernet1/0    Up      10.59.30.1/30       <not set>           0009.7CAD.72AD
Serial2/0          Up      10.59.10.1/30       <not set>           <not set>
Serial3/0          Up      10.59.20.1/30       <not set>           <not set>
FastEthernet4/0    Down    <not set>           <not set>           0001.961A.6577
FastEthernet5/0    Down    <not set>           <not set>           0005.5E64.1234
Loopback0          Up      1.1.1.1/32          <not set>           0060.3EBE.8C42

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > R1
```

DHCP

Configuré sur le routeur R1

```
ip dhcp excluded-address 192.168.10.254
ip dhcp excluded-address 192.168.20.254
!
ip dhcp pool administration
 network 192.168.20.0 255.255.255.0
 default-router 192.168.20.254
 dns-server 192.168.10.1
ip dhcp pool serveur
 network 192.168.10.0 255.255.255.0
 default-router 192.168.10.254
 dns-server 192.168.10.1
```

Les adresses exclues correspondent aux adresses du Switch0 et du Switch1. En effet, ce sont les gateway et doivent donc avoir un adresse fixe et non une adresse attribuée automatiquement comme les autres appareils.

```
Pool administration :
 Utilization mark (high/low)    : 100 / 0
 Subnet size (first/next)       : 0 / 0
 Total addresses                : 254
 Leased addresses               : 2
 Excluded addresses             : 2
 Pending event                  : none

 1 subnet is currently in the pool
 Current index          IP address range                    Leased/Excluded/Total
 192.168.20.1              192.168.20.1    - 192.168.20.254   2    / 2     / 254

Pool serveur :
 Utilization mark (high/low)    : 100 / 0
 Subnet size (first/next)       : 0 / 0
 Total addresses                : 254
 Leased addresses               : 4
 Excluded addresses             : 2
 Pending event                  : none

 1 subnet is currently in the pool
 Current index          IP address range                    Leased/Excluded/Total
 192.168.10.1              192.168.10.1    - 192.168.10.254   4    / 2     / 254
```

Sous-interfaces

Configurées sur l'interface Fa0/0 du routeur R1

```
interface FastEthernet0/0
 ip address 192.168.0.254 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/0.10
 encapsulation dot1Q 10
 ip address 192.168.10.254 255.255.255.0
!
interface FastEthernet0/0.20
 encapsulation dot1Q 20
 ip address 192.168.20.254 255.255.255.0
!
```

OSPF

Configuré sur le routeur R1

```
router ospf 100
 log-adjacency-changes
 passive-interface FastEthernet0/0
 network 192.168.10.0 0.0.0.255 area 0
 network 192.168.20.0 0.0.0.255 area 0
 network 10.59.10.0 0.0.0.3 area 0
 network 10.59.20.0 0.0.0.3 area 0
 network 10.59.30.0 0.0.0.3 area 0
```

```
Router>show ip ospf interface fastEthernet 1/0

FastEthernet1/0 is up, line protocol is up
  Internet address is 10.59.30.1/30, Area 0
  Process ID 100, Router ID 1.1.1.1, Network Type BROADCAST, Cost: 1
  Transmit Delay is 1 sec, State BDR, Priority 1
  Designated Router (ID) 10.59.30.2, Interface address 10.59.30.2
  Backup Designated Router (ID) 1.1.1.1, Interface address 10.59.30.1
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:02
  Index 4/4, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 1, Adjacent neighbor count is 1
    Adjacent with neighbor 10.59.30.2  (Designated Router)
  Suppress hello for 0 neighbor(s)
```

Commandes :
interface fa1/0
ip ospf 100 area 0

router ospf 100
router-id 1.1.1.1
network 192.168.10.0 0.0.0.3 area 0

VLAN

Configurés sur le switch MS-1

```
interface FastEthernet0/1
 switchport mode trunk
!
interface FastEthernet0/2
 switchport access vlan 20
 switchport mode trunk
!
interface FastEthernet0/3
 switchport access vlan 10
 switchport mode trunk

Switch>show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    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

10   serveur                          active
20   administration                   active
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
```

VLAN10 :

```
interface FastEthernet0/1
 switchport mode trunk
!
interface FastEthernet0/2
 switchport access vlan 10
 switchport mode access
!
interface FastEthernet0/3
 switchport access vlan 10
 switchport mode access
!
interface FastEthernet0/4
 switchport access vlan 10
 switchport mode access
!
interface FastEthernet0/5
 switchport access vlan 10
 switchport mode access
```

L'interface fa0/1 correspond à l'interface reliée au switch et les autres sont les interfaces reliées aux serveurs.

VLAN20 :

```
interface FastEthernet0/1
 switchport mode trunk
!
interface FastEthernet0/2
 switchport access vlan 20
 switchport mode access
!
interface FastEthernet0/3
 switchport access vlan 20
 switchport mode access
```

VTP

Configuré sur les switch

```
Switch>show vtp status
VTP Version capable             : 1 to 2
VTP version running             : 1
VTP Domain Name                 : SYSINFO
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 0060.70B4.0900
Configuration last modified by 0.0.0.0 at 3-1-93 00:02:08
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        : 7
Configuration Revision          : 4
MD5 digest                      : 0xFC 0xFB 0x76 0x99 0x11 0xD4 0xDC 0x53
                                  0x44 0x14 0xBC 0xDB 0xBE 0x68 0xFC 0xA3
```

Commandes :
vtp domain SYSINFO
vtp mode server (Switch1) ou *vtp mode client* (Switch0)
Sur le switch client :
interface fa0/0

switchport mode access
switchport access vlan 20

Serveurs

DNS

Mail

Site 1

Site 1 (bâtiment stock/logistique) — VLAN60 : logistique — VLAN30 : VOIP — VLAN40 : impression
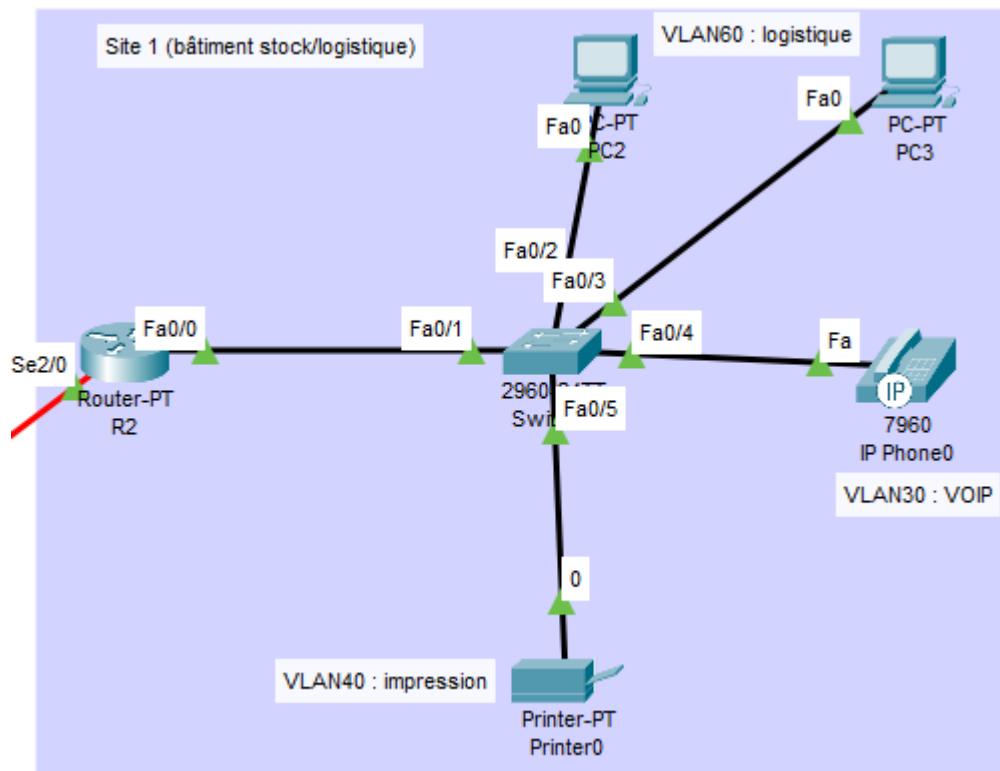
Configuration du routeur R2

```
Device Name: R2
Device Model: Router-PT
Hostname: Router

Port                Link    IP Address        IPv6 Address                              MAC Address
FastEthernet0/0     Up      192.168.0.253/24  <not set>                                 00E0.F941.0B83
FastEthernet0/0.30  Up      192.168.30.254/24 <not set>                                 00E0.F941.0B83
FastEthernet0/0.40  Up      192.168.40.254/24 <not set>                                 00E0.F941.0B83
FastEthernet0/0.60  Up      192.168.60.254/24 <not set>                                 00E0.F941.0B83
FastEthernet1/0     Down    <not set>         <not set>                                 000C.CFEE.4C36
Serial2/0           Up      10.59.10.2/30     <not set>                                 <not set>
Serial3/0           Down    <not set>         <not set>                                 <not set>
FastEthernet4/0     Down    <not set>         <not set>                                 000A.4189.2A16
FastEthernet5/0     Down    <not set>         <not set>                                 0000.0C54.CB79
Loopback0           Up      2.2.2.2/32        <not set>                                 00E0.A362.A87A
Loopback1           Up      <not set>         <not set>                                 0090.0C6A.58B0

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > R2
```

DHCP

```
ip dhcp excluded-address 192.168.30.254
ip dhcp excluded-address 192.168.40.254
ip dhcp excluded-address 192.168.60.254
!
ip dhcp pool logistique
 network 192.168.60.0 255.255.255.0
 default-router 192.168.60.254
 dns-server 192.168.10.1
ip dhcp pool voip
 network 192.168.30.0 255.255.255.0
 default-router 192.168.30.254
 dns-server 192.168.10.1
ip dhcp pool impression
 network 192.168.40.0 255.255.255.0
 default-router 192.168.40.254
 dns-server 192.168.10.1
Pool logistique :
 Utilization mark (high/low)    : 100 / 0
 Subnet size (first/next)       : 0 / 0
 Total addresses                : 254
 Leased addresses               : 2
 Excluded addresses             : 3
 Pending event                  : none

 1 subnet is currently in the pool
 Current index         IP address range                    Leased/Excluded/Total
 192.168.60.1          192.168.60.1    - 192.168.60.254    2    / 3    / 254

Pool voip :
 Utilization mark (high/low)    : 100 / 0
 Subnet size (first/next)       : 0 / 0
 Total addresses                : 254
 Leased addresses               : 0
 Excluded addresses             : 3
 Pending event                  : none

 1 subnet is currently in the pool
 Current index         IP address range                    Leased/Excluded/Total
 192.168.30.1          192.168.30.1    - 192.168.30.254    0    / 3    / 254

Pool impression :
 Utilization mark (high/low)    : 100 / 0
 Subnet size (first/next)       : 0 / 0
 Total addresses                : 254
 Leased addresses               : 1
 Excluded addresses             : 3
 Pending event                  : none

 1 subnet is currently in the pool
 Current index         IP address range                    Leased/Excluded/Total
 192.168.40.1          192.168.40.1    - 192.168.40.254    1    / 3    / 254
```

Sous-interfaces

```
interface FastEthernet0/0
 ip address 192.168.0.253 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/0.30
 encapsulation dot1Q 30
 ip address 192.168.30.254 255.255.255.0
!
interface FastEthernet0/0.40
 encapsulation dot1Q 40
 ip address 192.168.40.254 255.255.255.0
!
interface FastEthernet0/0.60
 encapsulation dot1Q 60
 ip address 192.168.60.254 255.255.255.0

Router>show ip interface brief
Interface              IP-Address      OK? Method Status                 Protocol
FastEthernet0/0        192.168.0.253   YES manual up                     up
FastEthernet0/0.30     192.168.30.254  YES manual up                     up
FastEthernet0/0.40     192.168.40.254  YES manual up                     up
FastEthernet0/0.60     192.168.60.254  YES manual up                     up
FastEthernet1/0        unassigned      YES unset  administratively down down
Serial2/0              10.59.10.2      YES manual up                     up
Serial3/0              unassigned      YES unset  administratively down down
FastEthernet4/0        unassigned      YES unset  administratively down down
FastEthernet5/0        unassigned      YES unset  administratively down down
Loopback0              2.2.2.2         YES manual up                     up
Loopback1              unassigned      YES unset  up                     up
```

OSPF

```
interface Loopback1
 no ip address
 ip ospf 100 area 1

router ospf 100
 router-id 10.59.10.2
 log-adjacency-changes
 passive-interface FastEthernet0/0
 network 192.168.30.0 0.0.0.255 area 1
 network 192.168.40.0 0.0.0.255 area 1
 network 192.168.60.0 0.0.0.255 area 1
 network 10.59.10.0 0.0.0.3 area 1
```

```
Router>show ip ospf interface serial 2/0

Serial2/0 is up, line protocol is up
  Internet address is 10.59.10.2/30, Area 0
  Process ID 100, Router ID 10.59.10.2, Network Type POINT-TO-POINT, Cost: 64
  Transmit Delay is 1 sec, State POINT-TO-POINT,
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:01
  Index 2/2, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 1 , Adjacent neighbor count is 1
    Adjacent with neighbor 1.1.1.1
  Suppress hello for 0 neighbor(s)
Serial2/0 is up, line protocol is up
  Internet address is 10.59.10.2/30, Area 1
  Process ID 100, Router ID 10.59.10.2, Network Type POINT-TO-POINT, Cost: 64
  Transmit Delay is 1 sec, State POINT-TO-POINT,
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:01
  Index 7/7, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Suppress hello for 0 neighbor(s)
```
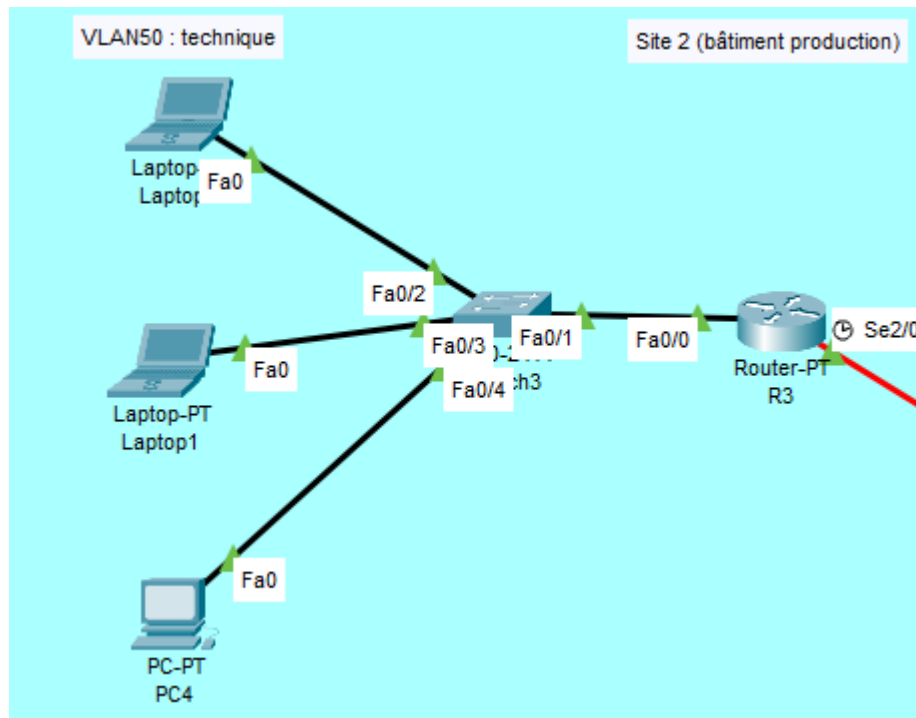
VLAN

```
interface FastEthernet0/1
 switchport mode trunk
!
interface FastEthernet0/2
 switchport access vlan 60
 switchport mode access
!
interface FastEthernet0/3
 switchport access vlan 60
 switchport mode access
!
interface FastEthernet0/4
 switchport access vlan 30
 switchport mode access
!
interface FastEthernet0/5
 switchport access vlan 40
 switchport mode access
```

```
Switch>show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    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
30   voip                             active    Fa0/4
40   impression                       active    Fa0/5
60   logistique                       active    Fa0/2, Fa0/3
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
```

Site 2

Configuration du routeur R3

```
Device Name: R3
Device Model: Router-PT
Hostname: Router

Port               Link    IP Address          IPv6 Address                        MAC Address
FastEthernet0/0    Up      192.168.0.252/24    <not set>                           000D.BDB7.9705
FastEthernet0/0.50 Up      192.168.50.254/24   <not set>                           000D.BDB7.9705
FastEthernet1/0    Down    <not set>           <not set>                           0001.C98D.9950
Serial2/0          Up      10.59.20.2/30       <not set>                           <not set>
Serial3/0          Down    <not set>           <not set>                           <not set>
FastEthernet4/0    Down    <not set>           <not set>                           0090.2B0D.547A
FastEthernet5/0    Down    <not set>           <not set>                           00E0.8F85.A856
Loopback2          Up      3.3.3.3/32          <not set>                           000A.F36C.DD15

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > R3
```

DHCP

```
ip dhcp excluded-address 192.168.50.254
!
ip dhcp pool technique
 network 192.168.50.0 255.255.255.0
 default-router 192.168.50.254
 dns-server 192.168.10.1
```

```
Router>show ip dhcp pool

Pool technique :
 Utilization mark (high/low)    : 100 / 0
 Subnet size (first/next)       : 0 / 0
 Total addresses                : 254
 Leased addresses               : 3
 Excluded addresses             : 1
 Pending event                  : none

 1 subnet is currently in the pool
 Current index         IP address range                Leased/Excluded/Total
 192.168.50.1          192.168.50.1    - 192.168.50.254   3    / 1    / 254
 -
```

Sous-interfaces

```
interface FastEthernet0/0
 ip address 192.168.0.252 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/0.50
 encapsulation dot1Q 50
 ip address 192.168.50.254 255.255.255.0

Router>show ip interface brief
Interface              IP-Address       OK? Method Status                 Protocol
FastEthernet0/0        192.168.0.252    YES manual up                     up
FastEthernet0/0.50     192.168.50.254   YES manual up                     up
FastEthernet1/0        unassigned       YES unset  administratively down  down
Serial2/0              10.59.20.2       YES manual up                     up
Serial3/0              unassigned       YES unset  administratively down  down
FastEthernet4/0        unassigned       YES unset  administratively down  down
FastEthernet5/0        unassigned       YES unset  administratively down  down
Loopback2              3.3.3.3          YES manual up                     up
```

OSPF

```
interface Loopback2
 ip address 3.3.3.3 255.255.255.255
 ip ospf 100 area 2

router ospf 100
 router-id 10.59.20.2
 log-adjacency-changes
 passive-interface FastEthernet0/0
 network 192.168.50.0 0.0.0.255 area 2
 network 10.59.20.0 0.0.0.3 area 2
```

```
Router>show ip ospf interface serial 2/0

Serial2/0 is up, line protocol is up
  Internet address is 10.59.20.2/30, Area 2
  Process ID 100, Router ID 10.59.20.2, Network Type POINT-TO-POINT, Cost: 64
  Transmit Delay is 1 sec, State POINT-TO-POINT,
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:03
  Index 3/3, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Suppress hello for 0 neighbor(s)
Serial2/0 is up, line protocol is up
  Internet address is 10.59.20.2/30, Area 0
  Process ID 100, Router ID 10.59.20.2, Network Type POINT-TO-POINT, Cost: 64
  Transmit Delay is 1 sec, State POINT-TO-POINT,
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:02
  Index 4/4, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 1 , Adjacent neighbor count is 1
    Adjacent with neighbor 1.1.1.1
  Suppress hello for 0 neighbor(s)
```

VLAN

```
interface FastEthernet0/1
 switchport mode trunk
!
interface FastEthernet0/2
 switchport access vlan 50
 switchport mode access
!
interface FastEthernet0/3
 switchport access vlan 50
 switchport mode access
!
interface FastEthernet0/4
 switchport access vlan 50
 switchport mode access



Switch>show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    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
50   technique                        active    Fa0/2, Fa0/3, Fa0/4
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
```

Extérieur

Configuration du routeur R4

NAT

```
interface FastEthernet0/0
 ip address 10.59.30.2 255.255.255.252
 ip ospf 100 area 0
 ip nat inside
 duplex auto
 speed auto
!
interface FastEthernet1/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial2/0
 ip address 192.168.0.251 255.255.255.0
 ip nat outside

ip nat pool internet 209.165.200.226 209.165.200.227 netmask 255.255.255.0
ip nat inside source list 1 pool internet
ip classless
!
ip flow-export version 9
!
!
access-list 1 permit 192.168.0.0 0.0.255.255
```

OSPF

```
router ospf 100
 router-id 10.59.30.2
 log-adjacency-changes


Router#show ip ospf interface fastEthernet 0/0

FastEthernet0/0 is up, line protocol is up
  Internet address is 10.59.30.2/30, Area 0
  Process ID 100, Router ID 10.59.30.2, Network Type BROADCAST, Cost: 1
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 10.59.30.2, Interface address 10.59.30.2
  Backup Designated Router (ID) 1.1.1.1, Interface address 10.59.30.1
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:04
  Index 1/1, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 1, Adjacent neighbor count is 1
    Adjacent with neighbor 1.1.1.1  (Backup Designated Router)
  Suppress hello for 0 neighbor(s)
```

Vérifications d'accomplissement de phase

```
Router>ping 192.168.10.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.10.1, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/1 ms

Router>ping 192.168.10.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.10.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/2/11 ms

Router>ping 192.168.10.3

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.10.3, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/1/3 ms

Router>ping 192.168.10.4

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.10.4, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms
```

```
C:\>ping 192.168.10.3

Pinging 192.168.10.3 with 32 bytes of data:

Reply from 192.168.10.3: bytes=32 time=11ms TTL=126
Reply from 192.168.10.3: bytes=32 time=12ms TTL=126
Reply from 192.168.10.3: bytes=32 time=1ms TTL=126
Reply from 192.168.10.3: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.10.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 12ms, Average = 6ms
```

```
C:\>ping 192.168.50.1

Pinging 192.168.50.1 with 32 bytes of data:

Request timed out.
Reply from 192.168.50.1: bytes=32 time=13ms TTL=125
Reply from 192.168.50.1: bytes=32 time=13ms TTL=125
Reply from 192.168.50.1: bytes=32 time=13ms TTL=125

Ping statistics for 192.168.50.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 13ms, Maximum = 13ms, Average = 13ms
```

Problèmes rencontrés

- Déploiement de routeurs ISR4331 mais en commençant les branchements pour le site 2, je me suis rendue compte que le routeur R1 ne possédait pas assez de ports. Ne pouvant ajouter de cartes d'extension au routeur, j'ai dû les remplacer par des router-PT et donc recommencer les configurations.
- Les adresses des serveurs changent à chaque redémarrage. Ainsi, lorsque je les ai configurés, le serveur DNS avait l'adresse 198.162.10.1, le serveur web 198.162.10.2, le serveur mail 198.162.10.3 et le serveur de fichiers 198.162.10.4.
- Le téléphone dans la VLAN30 ne récupère pas d'adresse par DHCP.

Remarques

L'onglet "Scénario" a été utilisé pour noter ma progression pendant la réalisation du projet et n'est pas très clair, j'ai tout de même décidé de laisser les scénarios dans le rendu final.