BackBone

- **Configuration des interfaces**

```
interface FastEthernet0/0
 ip address 201.201.201.42 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 201.201.201.46 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet1/0
 ip address 201.201.201.50 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet2/0
 ip address 201.201.201.54 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet3/0
 ip address 200.0.0.1 255.255.255.252
 ip nat outside
 ip virtual-reassembly
 duplex auto
 speed auto
!
interface FastEthernet4/0
 ip address 201.201.201.58 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
```

- **Configuration du OSPF**

```
router ospf 1
 router-id 6.6.6.6
 log-adjacency-changes
 network 201.201.201.40 0.0.0.3 area 0
 network 201.201.201.44 0.0.0.3 area 0
 network 201.201.201.48 0.0.0.3 area 0
 network 201.201.201.52 0.0.0.3 area 0
 network 201.201.201.56 0.0.0.3 area 0
!
```

- **Configuration du Tunnel :**

```
interface Tunnel1
 ip address 172.16.5.1 255.255.255.252
 tunnel source FastEthernet3/0
 tunnel destination 200.0.0.2
```

- **Configuration des interfaces du collab :**

```
interface FastEthernet0/0
 ip address 201.201.201.10 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 201.201.201.37 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet1/0
 ip address 201.201.201.22 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet2/0
 ip address 201.201.201.30 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet3/0
 ip address 200.0.0.17 255.255.255.252
 ip nat outside
 ip virtual-reassembly
 speed 100
 full-duplex
 crypto map CMAP-collab
!
interface FastEthernet4/0
 ip address 201.201.201.53 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
```

- **Configuration du OSPF collaboration :**

```
router ospf 1
 router-id 4.4.4.4
 log-adjacency-changes
 redistribute static subnets
 network 172.16.1.0 0.0.0.3 area 0
 network 201.201.201.8 0.0.0.3 area 0
 network 201.201.201.20 0.0.0.3 area 0
 network 201.201.201.28 0.0.0.3 area 0
 network 201.201.201.36 0.0.0.3 area 0
 network 201.201.201.52 0.0.0.3 area 0
```

- **Configuration du route par defaut et route static du collaboration :**

```
ip route 0.0.0.0 0.0.0.0 192.168.137.1
ip route 10.10.42.0 255.255.255.0 Tunnel0
```

- **Configuration du tunnel collaboration :**

```
interface Tunnel2
 ip address 172.16.1.1 255.255.255.252
 ip ospf network point-to-point
 tunnel source FastEthernet3/0
 tunnel destination 200.0.0.18
```

- **Configuration du VPN collaboration :**

```
interface Tunnel2
 ip address 172.16.1.1 255.255.255.252
 ip ospf network point-to-point
 tunnel source FastEthernet3/0
 tunnel destination 200.0.0.18
```

- **Ping routeur collaboration :**

```
RZ-4#ping
*Mar  1 00:14:24.623: %CDP-4-DUPLEX_MISMATCH: duplex mismatch discovered on FastEthernet0/0 (not full d
uplex), with B-R FastEthernet2/0 (full duplex).10.10.42.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.10.42.1, timeout is 2 seconds:
!!!!!
```

- **Trafic du VPN collaboration :**

```
ip access-list extended ACL-VPN-coll
 permit gre host 200.0.0.17 host 200.0.0.18
```

- **Configuration des Interfaces du Base de Donnée :**

```
interface FastEthernet0/0
 ip address 201.201.201.6 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 201.201.201.33 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet1/0
 ip address 201.201.201.18 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet2/0
 ip address 201.201.201.29 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet3/0
 ip address 200.0.0.9 255.255.255.252
 ip nat outside
 ip virtual-reassembly
 speed 100
 full-duplex
 crypto map CMAP-BACKBONE
!
interface FastEthernet4/0
 ip address 201.201.201.49 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
```

- **Configuration du OSPF base de donnée :**

```
router ospf 1
 router-id 3.3.3.3
 log-adjacency-changes
 redistribute static subnets
 network 172.16.0.0 0.0.0.3 area 0
 network 201.201.201.4 0.0.0.3 area 0
 network 201.201.201.16 0.0.0.3 area 0
 network 201.201.201.28 0.0.0.3 area 0
 network 201.201.201.32 0.0.0.3 area 0
 network 201.201.201.48 0.0.0.3 area 0
```

- **Configuration du route par defaut et route static de la base de donnée :**

```
ip route 0.0.0.0 0.0.0.0 192.168.137.1
ip route 10.10.40.0 255.255.254.0 Tunnel1
```

- **Configuration du tunnel de la base de donnée :**

```
interface Tunnel1
 ip address 172.16.0.1 255.255.255.252
 ip ospf network point-to-point
 tunnel source FastEthernet3/0
 tunnel destination 200.0.0.10
```

- **Activation du PAT de la base de donnée :**

```
ip nat inside source list 100 interface FastEthernet3/0 overload
```

- **Configuration du VPN de la base donnée :**

```
crypto isakmp policy 10
 encr aes
 authentication pre-share
 group 2
crypto isakmp key MySecretKey123 address 200.0.0.10
!
!
crypto ipsec transform-set TS-GRE esp-aes esp-sha-hmac
 mode transport
!
crypto map CMAP-BACKBONE 10 ipsec-isakmp
 set peer 200.0.0.10
 set transform-set TS-GRE
 match address ACL-VPN-BACKBONE
```

- **Configuration des ACL de la base de donnée :**

```
access-list 100 permit ip 10.10.40.0 0.0.1.255 any
access-list 100 deny   ip 172.16.0.0 0.0.255.255 any
access-list 100 deny   ip any 201.201.201.0 0.0.0.255
access-list 100 deny   ip any 200.0.0.0 0.0.0.255
!
```

- **Trafic du VPN de la base de donnée :**

```
ip access-list extended ACL-VPN-BACKBONE
 permit gre host 200.0.0.9 host 200.0.0.10
```

- **Ping du routeur de la base de donnée :**

```
RZ-3#ping 10.10.40.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.10.40.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/67/120 ms
```

- **Configuration des interfaces IT :**

```
interface FastEthernet1/0
 ip address 201.201.201.17 255.255.255.252
 ip nat inside
 ip virtual-reassembly
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet2/0
 ip address 201.201.201.21 255.255.255.252
 ip nat inside
 ip virtual-reassembly
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet3/0
 ip address 200.0.0.13 255.255.255.252
 ip nat outside
 ip virtual-reassembly
 duplex auto
 speed auto
 crypto map SITE-TO-SITE-VPN
!
interface FastEthernet4/0
 ip address 201.201.201.45 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
```

- **Configuration du OSPF IT :**

```
router ospf 1
 router-id 2.2.2.2
 log-adjacency-changes
 redistribute static subnets
 network 172.16.2.0 0.0.0.3 area 0
 network 201.201.201.0 0.0.0.3 area 0
 network 201.201.201.16 0.0.0.3 area 0
 network 201.201.201.20 0.0.0.3 area 0
 network 201.201.201.24 0.0.0.3 area 0
 network 201.201.201.44 0.0.0.3 area 0
```

- **Configuration du route par defaut et route static IT :**

```
ip route 0.0.0.0 0.0.0.0 192.168.137.1
ip route 10.10.32.0 255.255.248.0 Tunnel4
```

- **Configuration du tunnel IT :**

```
interface Tunnel4
 ip address 172.16.2.1 255.255.255.252
 tunnel source FastEthernet3/0
 tunnel destination 200.0.0.14
```

- **Activation du PAT :**

```
ip nat inside source list 100 interface FastEthernet3/0 overload
```

- **Configuration du VPN IT :**

```
crypto isakmp policy 10
 encr aes 256
 authentication pre-share
 group 2
crypto isakmp key MySecretKey123 address 200.0.0.14
!
!
crypto ipsec transform-set TS-GRE esp-aes esp-sha-hmac
 mode transport
crypto ipsec transform-set IT-TRANSFORM esp-aes 256 esp-sha-hmac
!
crypto map SITE-TO-SITE-VPN 10 ipsec-isakmp
 ! Incomplete
 set peer 200.0.0.14
 set transform-set IT-TRANSFORM
 match address 110
!
```

- **Configuration des ACL :**

```
access-list 100 permit ip 201.201.201.0 0.0.0.255 any
access-list 100 permit ip 10.10.0.0 0.1.255.255 any
access-list 100 deny   ip any 172.16.0.0 0.0.255.255
access-list 100 deny   ip any 200.0.0.0 0.0.0.255
```

- **Ping routeur IT :**

```
RZ-2#ping 10.10.32.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.10.32.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/64/164 ms
```

- **Ping VPC IT :**

```
RZ-2#ping 10.10.32.10

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.10.32.10, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 48/80/108 ms
RZ-2#
```

- **Trafic du VPN IT :**

```
!
ip access-list extended ACL-VPN-IT
 permit gre host 200.0.0.13 host 200.0.0.14
!
```

- **Configuration des interfaces WEB :**

```
interface FastEthernet0/0
 ip address 201.201.201.14 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 201.201.201.26 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet1/0
 ip address 201.201.201.34 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet2/0
 ip address 201.201.201.38 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
!
interface FastEthernet3/0
 ip address 200.0.0.5 255.255.255.252
 ip nat outside
 ip virtual-reassembly
 speed 100
 full-duplex
 crypto map CMAP-WEB
!
interface FastEthernet4/0
 ip address 201.201.201.57 255.255.255.252
 ip ospf network point-to-point
 duplex auto
 speed auto
```

- **Configuration du OSPF WEB :**

```
router ospf 1
 router-id 5.5.5.5
 log-adjacency-changes
 network 172.16.3.0 0.0.0.3 area 0
 network 201.201.201.12 0.0.0.3 area 0
 network 201.201.201.24 0.0.0.3 area 0
 network 201.201.201.32 0.0.0.3 area 0
 network 201.201.201.36 0.0.0.3 area 0
 network 201.201.201.56 0.0.0.3 area 0
```

- **Configuration du route par defaut et route static WEB :**

```
ip route 0.0.0.0 0.0.0.0 192.168.137.1
ip route 10.10.0.0 255.255.224.0 Tunnel0
```

- **Configuration du Tunnel WEB :**

```
interface Tunnel1
 ip address 172.16.3.1 255.255.255.252
 tunnel source FastEthernet3/0
 tunnel destination 200.0.0.6
```

- **Activation du PAT WEB :**

```
ip nat inside source list 100 interface FastEthernet3/0 overload
```

- **Configuration du VPN WEB :**

```
crypto isakmp policy 10
 encr aes
 authentication pre-share
 group 2
crypto isakmp key MySecretKey123 address 200.0.0.6
!
!
crypto ipsec transform-set TS-GRE esp-aes esp-sha-hmac
 mode transport
!
crypto map CMAP-WEB 10 ipsec-isakmp
 set peer 200.0.0.6
 set transform-set TS-GRE
 match address ACL-VPN-BACKBONE
```

- **Trafic du VPN WEB :**

```
!
ip access-list extended ACL-VPN-BACKBONE
 permit gre host 200.0.0.5 host 200.0.0.6
```