TP7: Route statique résumée et route par défaut

Sommaire

1. Examen des routes statiques.

Routeur R1
Connexion au routeur et passage en mode privilégié :

```
Password:

R1>EN
Password:
R1#sh run
```

Consultation de la configuration actuelle du routage statique :

```
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface FastEthernet0/0
 ip address 172.16.3.1 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial0/0/0
 ip address 172.16.2.1 255.255.255.0
 clock rate 64000
!
interface Serial0/0/1
 no ip address
 clock rate 2000000
!
interface Vlan1
 no ip address
 shutdown
!
ip classless
ip route 192.168.2.0 255.255.255.0 172.16.2.2
ip route 192.168.1.0 255.255.255.0 172.16.2.2
ip route 172.16.1.0 255.255.255.0 172.16.2.2
!
ip flow-export version 9
!
```

Affichage de la table de routage :

```
R1# sh ip route
Codes: C - connected, S - static, I - IGRP, 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

     172.16.0.0/24 is subnetted, 3 subnets
S       172.16.1.0 [1/0] via 172.16.2.2
C       172.16.2.0 is directly connected, Serial0/0/0
C       172.16.3.0 is directly connected, FastEthernet0/0
S    192.168.1.0/24 [1/0] via 172.16.2.2
S    192.168.2.0/24 [1/0] via 172.16.2.2
```

Même manip pour le Routeur R2 et R3 :
R2

```
Password:

R2>en
Password:
R2#sh run
Building configuration...


!
interface FastEthernet0/0
 mac-address 0007.eca7.1511
 ip address 172.16.1.1 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 mac-address 0001.42dd.a220
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial0/0/0
 ip address 172.16.2.2 255.255.255.0
!
interface Serial0/0/1
 ip address 192.168.1.2 255.255.255.0
 clock rate 64000
!
interface Vlan1
 no ip address
 shutdown
!
ip classless
ip route 172.16.3.0 255.255.255.0 Serial0/0/0
ip route 192.168.2.0 255.255.255.0 Serial0/0/1
!
ip flow-export version 9
```

```
R2#show ip route
Codes: C - connected, S - static, I - IGRP, 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

     172.16.0.0/24 is subnetted, 3 subnets
C       172.16.1.0 is directly connected, FastEthernet0/0
C       172.16.2.0 is directly connected, Serial0/0/0
S       172.16.3.0 is directly connected, Serial0/0/0
C    192.168.1.0/24 is directly connected, Serial0/0/1
S    192.168.2.0/24 is directly connected, Serial0/0/1
```

R3

```
Password:

R3>en
Password:
R3#sh run
Building configuration...
```

```
!
interface FastEthernet0/0
 mac-address 0003.e472.7a36
 ip address 192.168.2.1 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 mac-address 0006.2a91.d285
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial0/0/0
 no ip address
 clock rate 2000000
!
interface Serial0/0/1
 ip address 192.168.1.1 255.255.255.0
!
interface Vlan1
 no ip address
 shutdown
!
ip classless
ip route 172.16.3.0 255.255.255.0 192.168.1.2
ip route 172.16.2.0 255.255.255.0 192.168.1.2
ip route 172.16.1.0 255.255.255.0 192.168.1.2
!
ip flow-export version 9
```

```
R3#show ip route
Codes: C - connected, S - static, I - IGRP, 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

     172.16.0.0/24 is subnetted, 3 subnets
S       172.16.1.0 [1/0] via 192.168.1.2
S       172.16.2.0 [1/0] via 192.168.1.2
S       172.16.3.0 [1/0] via 192.168.1.2
C    192.168.1.0/24 is directly connected, Serial0/0/1
C    192.168.2.0/24 is directly connected, FastEthernet0/0
```

Ping du PC 2 au PC3 et 1

```
C:\>ping 172.16.3.10

Pinging 172.16.3.10 with 32 bytes of data:

Reply from 172.16.3.10: bytes=32 time=1ms TTL=126
Reply from 172.16.3.10: bytes=32 time=5ms TTL=126
Reply from 172.16.3.10: bytes=32 time=1ms TTL=126
Reply from 172.16.3.10: bytes=32 time=5ms TTL=126

Ping statistics for 172.16.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 5ms, Average = 3ms

C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time=10ms TTL=126
Reply from 192.168.2.10: bytes=32 time=5ms TTL=126
Reply from 192.168.2.10: bytes=32 time=5ms TTL=126
Reply from 192.168.2.10: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 10ms, Average = 5ms
```

Ping du PC1 au PC2 et 3

```
C:\>ping 172.16.1.10

Pinging 172.16.1.10 with 32 bytes of data:

Reply from 172.16.1.10: bytes=32 time=7ms TTL=126
Reply from 172.16.1.10: bytes=32 time=1ms TTL=126
Reply from 172.16.1.10: bytes=32 time=4ms TTL=126
Reply from 172.16.1.10: bytes=32 time=4ms TTL=126

Ping statistics for 172.16.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 7ms, Average = 4ms

C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time=11ms TTL=125
Reply from 192.168.2.10: bytes=32 time=8ms TTL=125
Reply from 192.168.2.10: bytes=32 time=9ms TTL=125
Reply from 192.168.2.10: bytes=32 time=3ms TTL=125

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 3ms, Maximum = 11ms, Average = 7ms
```

Ping du PC3 au PC2 et 1

```
C:\>ping 172.16.1.10

Pinging 172.16.1.10 with 32 bytes of data:

Reply from 172.16.1.10: bytes=32 time=7ms TTL=126
Reply from 172.16.1.10: bytes=32 time=8ms TTL=126
Reply from 172.16.1.10: bytes=32 time=1ms TTL=126
Reply from 172.16.1.10: bytes=32 time=5ms TTL=126

Ping statistics for 172.16.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 8ms, Average = 5ms

C:\>ping 172.16.3.10

Pinging 172.16.3.10 with 32 bytes of data:

Reply from 172.16.3.10: bytes=32 time=10ms TTL=125
Reply from 172.16.3.10: bytes=32 time=8ms TTL=125
Reply from 172.16.3.10: bytes=32 time=11ms TTL=125
Reply from 172.16.3.10: bytes=32 time=8ms TTL=125

Ping statistics for 172.16.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 8ms, Maximum = 11ms, Average = 9ms
```

2. Résumé des routes statiques (routeur R3)

étape 1 :
passage en mode configuration sur le routeur 3 et utilisation des commandes suivantes :

```
Password:

R3>en
Password:
R3#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R3(config)#no ip route 172.16.1.0 255.255.255.0 192.168.1.2
R3(config)#no ip route 172.16.2.0 255.255.255.0 192.168.1.2
R3(config)#no ip route 172.16.3.0 255.255.255.0 192.168.1.2
R3(config)#ip route 172.16.0.0 255.255.252.0 192.168.1.2
```

étape 2 :
sorti du mode configuration a l'aide des touches Ctrl+z et enregistrements de la configuration avec la commande copy run start

```
R3(config)#^Z
R3#
%SYS-5-CONFIG_I: Configured from console by console

R3#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
```

étape 3 :
Consultation de la configuration a l'aide des commande sh run et show ip route :
Commandes sh run :

```
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface FastEthernet0/0
 mac-address 0003.e472.7a36
 ip address 192.168.2.1 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 mac-address 0006.2a91.d285
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial0/0/0
 no ip address
 clock rate 2000000
!
interface Serial0/0/1
 ip address 192.168.1.1 255.255.255.0
!
interface Vlan1
 no ip address
 shutdown
!
ip classless
ip route 172.16.0.0 255.255.252.0 192.168.1.2
!
ip flow-export version 9
!
```

Commandes show ip route :

```
R3#show ip route
Codes: C - connected, S - static, I - IGRP, 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

     172.16.0.0/22 is subnetted, 1 subnets
S       172.16.0.0 [1/0] via 192.168.1.2
C    192.168.1.0/24 is directly connected, Serial0/0/1
C    192.168.2.0/24 is directly connected, FastEthernet0/0
```

étapes 4 :

vérification de la connectivité, ping des deux autre PC a partir du PC3 :

```
C:\>ping 172.16.1.10

Pinging 172.16.1.10 with 32 bytes of data:

Reply from 172.16.1.10: bytes=32 time=9ms TTL=126
Reply from 172.16.1.10: bytes=32 time=5ms TTL=126
Reply from 172.16.1.10: bytes=32 time=5ms TTL=126
Reply from 172.16.1.10: bytes=32 time=5ms TTL=126

Ping statistics for 172.16.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 5ms, Maximum = 9ms, Average = 6ms

C:\>ping 172.16.3.10

Pinging 172.16.3.10 with 32 bytes of data:

Reply from 172.16.3.10: bytes=32 time=12ms TTL=125
Reply from 172.16.3.10: bytes=32 time=8ms TTL=125
Reply from 172.16.3.10: bytes=32 time=11ms TTL=125
Reply from 172.16.3.10: bytes=32 time=2ms TTL=125

Ping statistics for 172.16.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 12ms, Average = 8ms
```

3. Configuration d’un réseau d’extrémité (routeur R1).

Étape 1 : remplacement des routes statiques existantes par une route par défaut et passage en mode configuration globale sur R1

```
Password:

R1>en
Password:
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#no ip route 172.16.1.0 255.255.255.0 172.16.2.2
R1(config)#no ip route 192.168.1.0 255.255.255.0 172.16.2.2
R1(config)#no ip route 192.168.2.0 255.255.255.0 172.16.2.2
R1(config)#ip route 0.0.0.0 0.0.0.0 172.16.2.2
```

étape 2 : enregistrement des configurations mises à jour a l’aide des commandes Ctrl+Z et copy run start

```
R1(config)#^Z
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
R1#
```

étape 3 : consultation de la configuration a l’aide des commandes show running-config et show ip route

show running-config :

```
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface FastEthernet0/0
 ip address 172.16.3.1 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial0/0/0
 ip address 172.16.2.1 255.255.255.0
 clock rate 64000
!
interface Serial0/0/1
 no ip address
 clock rate 2000000
!
interface Vlan1
 no ip address
 shutdown
!
ip classless
ip route 0.0.0.0 0.0.0.0 172.16.2.2
!
ip flow-export version 9
!
```

show ip route :

```
R1#show ip route
Codes: C - connected, S - static, I - IGRP, 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 172.16.2.2 to network 0.0.0.0

     172.16.0.0/24 is subnetted, 2 subnets
C       172.16.2.0 is directly connected, Serial0/0/0
C       172.16.3.0 is directly connected, FastEthernet0/0
S*   0.0.0.0/0 [1/0] via 172.16.2.2
```

étape 4 : vérification de la connectivité, ping des deux autres ordinateurs a l'aide du PC1

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 172.16.1.10

Pinging 172.16.1.10 with 32 bytes of data:

Reply from 172.16.1.10: bytes=32 time=11ms TTL=126
Reply from 172.16.1.10: bytes=32 time=7ms TTL=126
Reply from 172.16.1.10: bytes=32 time=7ms TTL=126
Reply from 172.16.1.10: bytes=32 time=6ms TTL=126

Ping statistics for 172.16.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 6ms, Maximum = 11ms, Average = 7ms

C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time=10ms TTL=125
Reply from 192.168.2.10: bytes=32 time=11ms TTL=125
Reply from 192.168.2.10: bytes=32 time=2ms TTL=125
Reply from 192.168.2.10: bytes=32 time=9ms TTL=125

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 11ms, Average = 8ms
```