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Memòria Treball de Laboratori XC2

Tardor 2020-2021

Laboratori 3 – Multiprotocol Label Switching (MPLS)

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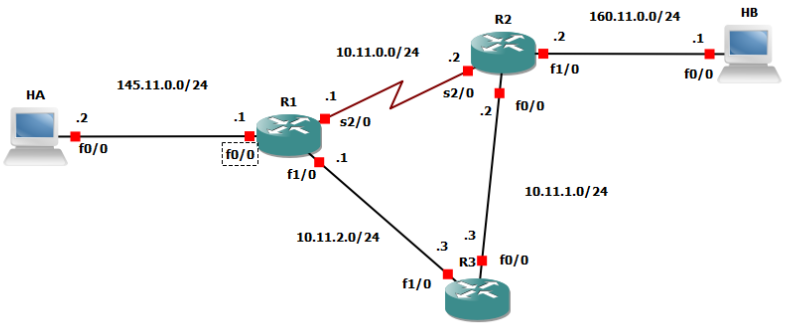
1. Esquema de la xarxa desenvolupada



2. Relació de les línies de programació

R1	
lp cef	mpls traffic-eng tunnels
!	mpls ip
interface Loopback0	ip rsvp bandwidth 1000
ip address 1.11.1.1 255.255.255.255	!
!	interface Serial2/0
interface Tunnel1	ip address 10.11.0.1 255.255.255.0
ip unnumbered Loopback0	mpls traffic-eng tunnels
tunnel mode mpls traffic-eng	mpls ip
tunnel destination 1.11.1.2	serial restart-delay 0
tunnel mpls traffic-eng autoroute announce	clock rate 56000
tunnel mpls traffic-eng priority 7 7	ip rsvp bandwidth 100
tunnel mpls traffic-eng bandwidth 50	!
no routing dynamic	router ospf 1
!	passive-interface FastEthernet0/0
interface FastEthernet0/0	network 10.11.0.0 0.0.0.255 area 0
ip address 145.11.0.1 255.255.255.0	network 10.11.2.0 0.0.0.255 area 0
duplex half	network 145.11.0.0 0.0.0.255 area 0
mpls ip	!
!	router ospf 10
interface FastEthernet1/0	mpls traffic-eng router-id Loopback0
ip address 10.11.2.1 255.255.255.0	mpls traffic-eng area 0
duplex auto	!
speed auto	ip forward-protocol nd

R2

```
Ip cef
!
interface Loopback0
 ip address 1.11.1.2 255.255.255.255
!
interface FastEthernet0/0
 ip address 10.11.1.2 255.255.255.0
 duplex half
 mpls traffic-eng tunnels
 mpls ip
 ip rsvp bandwidth 1000
!
interface FastEthernet1/0
 ip address 160.11.0.2 255.255.255.0
 duplex auto
 speed auto
 mpls ip
!
interface Serial2/0
 ip address 10.11.0.2 255.255.255.0
 mpls traffic-eng tunnels
 mpls ip
 serial restart-delay 0
 ip rsvp bandwidth 100
!
router ospf 2
 passive-interface FastEthernet1/0
 network 10.11.0.0 0.0.0.255 area 0
 network 10.11.1.0 0.0.0.255 area 0
 network 160.11.0.0 0.0.0.255 area 0
!
router ospf 10
 mpls traffic-eng router-id Loopback0
 mpls traffic-eng area 0
!
ip forward-protocol nd
```

R3

```
interface Loopback0
 ip address 1.11.1.3 255.255.255.255
!
interface FastEthernet0/0
 ip address 10.11.1.3 255.255.255.0
 duplex half
 mpls traffic-eng tunnels
 mpls ip
 ip rsvp bandwidth 1000
!
interface FastEthernet1/0
 ip address 10.11.2.3 255.255.255.0
 duplex auto
 speed auto
 mpls traffic-eng tunnels
 mpls ip
 ip rsvp bandwidth 1000
!
router ospf 3
 network 10.11.1.0 0.0.0.255 area 0
 network 10.11.2.0 0.0.0.255 area 0
!
router ospf 10
 mpls traffic-eng router-id Loopback0
 mpls traffic-eng area 0
!
```

HA

```
Ip cef
!
interface FastEthernet0/0
 ip address 145.11.0.2 255.255.255.0
 duplex half
!
ip forward-protocol nd
```

HB

```
Ip cef
!
interface FastEthernet0/0
 ip address 160.11.0.1 255.255.255.0
 duplex half
!
ip forward-protocol nd
```

3. Comentaris

No se perquè però no em fa cap ping de HA a HB, i per tant no fa cap traceroute. Al principi em vaig equivocar amb la ip de HA, però vaig rectificar amb “no ip addres ...” i després vaig assignar-li la ip correcta, la 145.11.0.2

4. Resultats

4.1 Taules d’enruntament

R1	R2	R3
1.0.0.0/32 is subnetted, 1 subnets C 1.11.1.1 is directly connected, Loopback0 10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks C 10.11.0.0/24 is directly connected, Serial2/0 L 10.11.0.1/32 is directly connected, Serial2/0 O 10.11.1.0/24 [110/2] via 10.11.2.3, 00:18:17, FastEthernet1/0 C 10.11.2.0/24 is directly connected, FastEthernet1/0 L 10.11.2.1/32 is directly connected, FastEthernet1/0 145.11.0.0/16 is variably subnetted, 2 subnets, 2 masks C 145.11.0.0/24 is directly connected, FastEthernet0/0 L 145.11.0.1/32 is directly connected, FastEthernet0/0 160.11.0.0/24 is subnetted, 1 subnets O 160.11.0.0 [110/3] via 10.11.2.3, 00:18:17, FastEthernet1/0	1.0.0.0/32 is subnetted, 1 subnets C 1.11.1.2 is directly connected, Loopback0 10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks C 10.11.0.0/24 is directly connected, Serial2/0 L 10.11.0.2/32 is directly connected, Serial2/0 C 10.11.1.0/24 is directly connected, FastEthernet0/0 L 10.11.1.2/32 is directly connected, FastEthernet0/0 O 10.11.2.0/24 [110/2] via 10.11.1.3, 00:22:07, FastEthernet0/0 145.11.0.0/24 is subnetted, 1 subnets O 145.11.0.0 [110/3] via 10.11.1.3, 00:22:07, FastEthernet0/0 160.11.0.0/16 is variably subnetted, 2 subnets, 2 masks C 160.11.0.0/24 is directly connected, FastEthernet1/0 L 160.11.0.2/32 is directly connected, FastEthernet1/0	1.0.0.0/32 is subnetted, 1 subnets C 1.11.1.3 is directly connected, Loopback0 10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks O 10.11.0.0/24 [110/65] via 10.11.2.1, 00:24:22, FastEthernet1/0 [110/65] via 10.11.1.2, 00:24:22, FastEthernet0/0 C 10.11.1.0/24 is directly connected, FastEthernet0/0 L 10.11.1.3/32 is directly connected, FastEthernet0/0 C 10.11.2.0/24 is directly connected, FastEthernet1/0 L 10.11.2.3/32 is directly connected, FastEthernet1/0 145.11.0.0/24 is subnetted, 1 subnets O 145.11.0.0 [110/2] via 10.11.2.1, 00:24:22, FastEthernet1/0 160.11.0.0/24 is subnetted, 1 subnets O 160.11.0.0 [110/2] via 10.11.1.2, 00:24:22, FastEthernet0/0

4.2 Pings de Host a Host

Ping HA a HB

```
HA#ping 160.11.0.1

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 160.11.0.1, timeout is 2 seconds:

.....

Success rate is 0 percent (0/5)
```

Traceroute HA a HB

```
HA#traceroute 160.11.0.1

Type escape sequence to abort.

Tracing the route to 160.11.0.1

VRF info: (vrf in name/id, vrf out name/id)

 1 * * *

 2 * * *

 3 * * *

 4 * * *

 5 * * *

 6 * * *

 7 * * *

 8 * * *

 9 * * *

10 * * *

11 * * *

12 * * *
```