

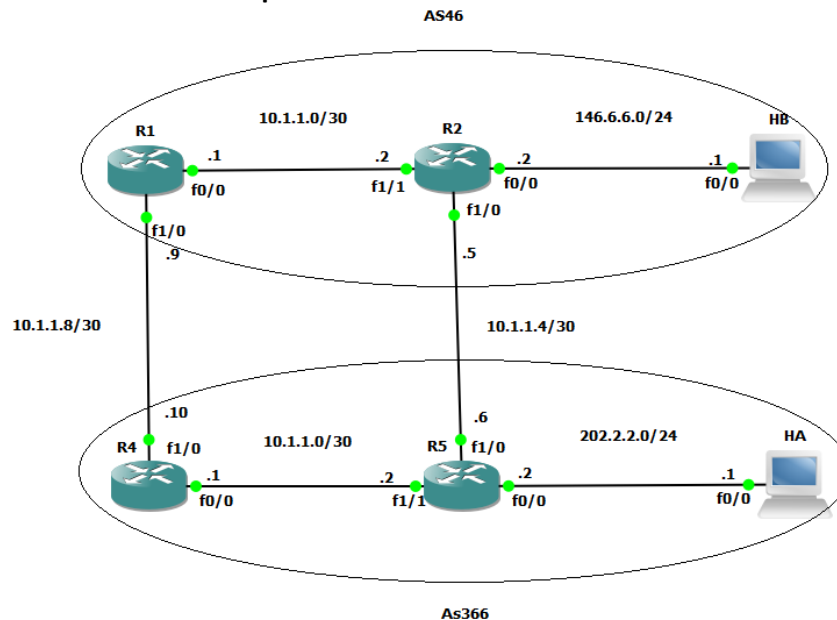
Memòria Treball de Laboratori XC2

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Laboratori 5 – BGPv4 Manipulació dels atributs

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1. Esquema de la xarxa desenvolupada



2. Relació de les línies de programació

R5	R4
interface Loopback0 ip address 10.0.112.2 255.255.255.252 interface FastEthernet0/0 ip address 202.2.2.2 255.255.255.0 interface FastEthernet1/0 ip address 10.1.1.6 255.255.255.252 interface FastEthernet1/1 ip address 10.1.1.2 255.255.255.252 router ospf 1 passive-interface FastEthernet0/0 passive-interface FastEthernet1/0 network 10.0.112.0 0.0.0.3 area 0 network 10.1.1.0 0.0.0.3 area 0 network 10.1.1.4 0.0.0.3 area 0 network 202.2.2.0 0.0.0.255 area 0 router bgp 366 bgp log-neighbor-changes network 202.2.2.0 neighbor 10.0.112.1 remote-as 366 neighbor 10.0.112.1 update-source Loopback0 neighbor 10.1.1.5 remote-as 46	interface Loopback0 ip address 10.0.112.1 255.255.255.252 interface FastEthernet0/0 ip address 10.1.1.1 255.255.255.252 interface FastEthernet1/0 ip address 10.1.1.10 255.255.255.252 router ospf 2 passive-interface FastEthernet1/0 network 10.0.112.0 0.0.0.3 area 0 network 10.1.1.0 0.0.0.3 area 0 network 10.1.1.8 0.0.0.3 area 0 router bgp 366 bgp log-neighbor-changes neighbor 10.0.112.2 remote-as 366 neighbor 10.0.112.2 update-source Loopback0 neighbor 10.1.1.9 remote-as 46

R2	R1
interface Loopback0 ip address 10.0.111.2 255.255.255.252 interface FastEthernet0/0 ip address 146.6.6.2 255.255.255.0 interface FastEthernet1/0 ip address 10.1.1.5 255.255.255.252 interface FastEthernet1/1 ip address 10.1.1.2 255.255.255.252 router ospf 1 passive-interface FastEthernet0/0 passive-interface FastEthernet1/0 network 10.0.111.0 0.0.0.3 area 0 network 10.1.1.0 0.0.0.3 area 0 network 10.1.1.4 0.0.0.3 area 0 network 146.6.6.0 0.0.0.255 area 0 router bgp 46 bgp log-neighbor-changes network 146.6.6.0 mask 255.255.255.0 neighbor 10.0.111.1 remote-as 46 neighbor 10.0.111.1 update-source Loopback0 neighbor 10.1.1.6 remote-as 366 neighbor 10.1.1.6 route-map My-Map-1 in neighbor 10.1.1.6 route-map My-Map-2 out access-list 1 permit 202.2.2.0 0.0.0.255 access-list 2 permit 146.6.6.0 0.0.0.255 route-map My-Map-1 permit 10 match ip address 1 set local-preference 50 route-map My-Map-2 permit 10 match ip address 2 set metric 50	interface Loopback0 ip address 10.0.111.1 255.255.255.252 interface FastEthernet0/0 ip address 10.1.1.1 255.255.255.252 interface FastEthernet1/0 ip address 10.1.1.9 255.255.255.252 router ospf 2 passive-interface FastEthernet1/0 network 10.0.111.0 0.0.0.3 area 0 network 10.1.1.0 0.0.0.3 area 0 network 10.1.1.8 0.0.0.3 area 0 router bgp 46 bgp log-neighbor-changes neighbor 10.0.111.2 remote-as 46 neighbor 10.0.111.2 update-source Loopback0 neighbor 10.1.1.10 remote-as 366

HA	HB
interface FastEthernet0/0 ip address 202.2.2.1 255.255.255.0 ip route 0.0.0.0 0.0.0.0 202.2.2.2	interface FastEthernet0/0 ip address 146.6.6.1 255.255.255.0 ip route 0.0.0.0 0.0.0.0 146.6.6.2

3. Comentaris

Cap problema

4. Resultats

4.1 Abans del canvi d'atributs

4.1.1 Taules d'enruntament (show ip bgp / show ip route)

R2	R1
show ip bgp Network Next Hop Metric LocPrf Weight Path *> 146.6.6.0/24 0.0.0.0 0 32768 i *i 202.2.2.0 10.1.1.10 0 100 0 366 i *> 10.1.1.6 0 0 366 i show ip route 10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks C 10.0.111.0/30 is directly connected, Loopback0 O 10.0.111.1/32 [110/2] via 10.1.1.1, 00:05:41, FastEthernet1/1 L 10.0.111.2/32 is directly connected, Loopback0 C 10.1.1.0/30 is directly connected, FastEthernet1/1 L 10.1.1.2/32 is directly connected, FastEthernet1/1 C 10.1.1.4/30 is directly connected, FastEthernet1/0 L 10.1.1.5/32 is directly connected, FastEthernet1/0 O 10.1.1.8/30 [110/2] via 10.1.1.1, 00:05:51, FastEthernet1/1 146.6.0.0/16 is variably subnetted, 2 subnets, 2 masks C 146.6.6.0/24 is directly connected, FastEthernet0/0 L 146.6.6.2/32 is directly connected, FastEthernet0/0 B 202.2.2.0/24 [20/0] via 10.1.1.6, 00:05:20	show ip bgp Network Next Hop Metric LocPrf Weight Path r>i 146.6.6.0/24 10.0.111.2 0 100 0 i *i 202.2.2.0 10.1.1.6 0 100 0 366 i *> 10.1.1.10 0 366 i show ip route 10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks C 10.0.111.0/30 is directly connected, Loopback0 L 10.0.111.1/32 is directly connected, Loopback0 O 10.0.111.2/32 [110/2] via 10.1.1.2, 00:07:36, FastEthernet0/0 C 10.1.1.0/30 is directly connected, FastEthernet0/0 L 10.1.1.1/32 is directly connected, FastEthernet0/0 O 10.1.1.4/30 [110/2] via 10.1.1.2, 00:07:36, FastEthernet0/0 C 10.1.1.8/30 is directly connected, FastEthernet1/0 L 10.1.1.9/32 is directly connected, FastEthernet1/0 146.6.0.0/24 is subnetted, 1 subnets O 146.6.6.0 [110/2] via 10.1.1.2, 00:07:36, FastEthernet0/0 B 202.2.2.0/24 [20/0] via 10.1.1.10, 00:07:10

R5	R4
show ip bgp Network Next Hop Metric LocPrf Weight Path *i 146.6.6.0/24 10.1.1.9 0 100 0 46 i *> 10.1.1.5 0 0 46 i *> 202.2.2.0 0.0.0.0 0 32768 i show ip route 10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks C 10.0.112.0/30 is directly connected, Loopback0 O 10.0.112.1/32 [110/2] via 10.1.1.1, 00:13:44, FastEthernet1/1 L 10.0.112.2/32 is directly connected, Loopback0 C 10.1.1.0/30 is directly connected, FastEthernet1/1 L 10.1.1.2/32 is directly connected, FastEthernet1/1 C 10.1.1.4/30 is directly connected, FastEthernet1/0 L 10.1.1.6/32 is directly connected, FastEthernet1/0 O 10.1.1.8/30 [110/2] via 10.1.1.1, 00:13:54, FastEthernet1/1 146.6.0.0/24 is subnetted, 1 subnets B 146.6.6.0 [20/0] via 10.1.1.5, 00:10:26 202.2.2.0/24 is variably subnetted, 2 subnets, 2 masks C 202.2.2.0/24 is directly connected, FastEthernet0/0 L 202.2.2.2/32 is directly connected, FastEthernet0/0	show ip bgp Network Next Hop Metric LocPrf Weight Path *> 146.6.6.0/24 10.1.1.9 0 100 0 46 i *i 10.1.1.5 0 100 0 46 i r>i 202.2.2.0 10.0.112.2 0 100 0 i show ip route 10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks C 10.0.112.0/30 is directly connected, Loopback0 L 10.0.112.1/32 is directly connected, Loopback0 O 10.0.112.2/32 [110/2] via 10.1.1.2, 00:13:21, FastEthernet0/0 C 10.1.1.0/30 is directly connected, FastEthernet0/0 L 10.1.1.1/32 is directly connected, FastEthernet0/0 O 10.1.1.4/30 [110/2] via 10.1.1.2, 00:13:21, FastEthernet0/0 C 10.1.1.8/30 is directly connected, FastEthernet1/0 L 10.1.1.10/32 is directly connected, FastEthernet1/0 146.6.0.0/24 is subnetted, 1 subnets B 146.6.6.0 [20/0] via 10.1.1.9, 00:09:57 O 202.2.2.0/24 [110/2] via 10.1.1.2, 00:13:21, FastEthernet0/0

4.1.2 Traceroute de HB a HA

HB#traceroute 202.2.2.1

Type escape sequence to abort.

Tracing the route to 202.2.2.1

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

1 146.6.6.2 160 msec 72 msec 36 msec

2 10.1.1.6 164 msec 140 msec 192 msec

3 202.2.2.1 268 msec 268 msec 232 msec

4.2 Després del canvi d'atributs

4.2.1 Taules d'enruntament

R2					R1				
show ip bgp					show ip bgp				
Network	Next Hop	Metric	LocPrf	Weight Path	Network	Next Hop	Metric	LocPrf	Weight Path
*> 146.6.6.0/24	0.0.0.0	0	32768	i	r>i 146.6.6.0/24	10.0.111.2	0	100	0 i
*>i 202.2.2.0	10.1.1.10	0	100	0 366 i	*> 202.2.2.0	10.1.1.10	0	366	i
*	10.1.1.6	0	50	0 366 i					
show ip route					show ip route				
10.0.111.0/30 is directly connected, Loopback0					10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks				
C	10.0.111.1/32 [110/2] via 10.1.1.1, 00:02:47, FastEthernet1/1				C	10.0.111.0/30 is directly connected, Loopback0			
L	10.0.111.2/32 is directly connected, Loopback0				L	10.0.111.1/32 is directly connected, Loopback0			
C	10.1.1.0/30 is directly connected, FastEthernet1/1				O	10.0.111.2/32 [110/2] via 10.1.1.2, 00:03:59, FastEthernet0/0			
L	10.1.1.2/32 is directly connected, FastEthernet1/1				C	10.1.1.0/30 is directly connected, FastEthernet0/0			
C	10.1.1.4/30 is directly connected, FastEthernet1/0				L	10.1.1.1/32 is directly connected, FastEthernet0/0			
L	10.1.1.5/32 is directly connected, FastEthernet1/0				O	10.1.1.4/30 [110/2] via 10.1.1.2, 00:03:59, FastEthernet0/0			
O	10.1.1.8/30 [110/2] via 10.1.1.1, 00:02:47, FastEthernet1/1				C	10.1.1.8/30 is directly connected, FastEthernet1/0			
146.6.0.0/16 is variably subnetted, 2 subnets, 2 masks					L	10.1.1.9/32 is directly connected, FastEthernet1/0			
C	146.6.6.0/24 is directly connected, FastEthernet0/0				146.6.0.0/24 is subnetted, 1 subnets				
L	146.6.6.2/32 is directly connected, FastEthernet0/0				O	146.6.6.0 [110/2] via 10.1.1.2, 00:03:59, FastEthernet0/0			
B	202.2.2.0/24 [200/0] via 10.1.1.10, 00:02:11				B	202.2.2.0/24 [20/0] via 10.1.1.10, 00:03:23			

R5					R4				
show ip bgp					show ip bgp				
Network	Next Hop	Metric	LocPrf	Weight Path	Network	Next Hop	Metric	LocPrf	Weight Path
*>i 146.6.6.0/24	10.1.1.9	0	100	0 46 i	*> 146.6.6.0/24	10.1.1.9	0	46	i
*	10.1.1.5	50	0	46 i	r>i 202.2.2.0	10.0.112.2	0	100	0 i
*> 202.2.2.0	0.0.0.0	0	32768	i					
show ip route					show ip route				
10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks					10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks				
C	10.0.112.0/30 is directly connected, Loopback0				C	10.0.112.0/30 is directly connected, Loopback0			
O	10.0.112.1/32 [110/2] via 10.1.1.1, 00:04:39, FastEthernet1/1				L	10.0.112.1/32 is directly connected, Loopback0			
L	10.0.112.2/32 is directly connected, Loopback0				O	10.0.112.2/32 [110/2] via 10.1.1.2, 00:05:18, FastEthernet0/0			
C	10.1.1.0/30 is directly connected, FastEthernet1/1				C	10.1.1.0/30 is directly connected, FastEthernet0/0			
L	10.1.1.2/32 is directly connected, FastEthernet1/1				L	10.1.1.1/32 is directly connected, FastEthernet0/0			
C	10.1.1.4/30 is directly connected, FastEthernet1/0				O	10.1.1.4/30 [110/2] via 10.1.1.2, 00:05:18, FastEthernet0/0			
L	10.1.1.6/32 is directly connected, FastEthernet1/0				C	10.1.1.8/30 is directly connected, FastEthernet1/0			
O	10.1.1.8/30 [110/2] via 10.1.1.1, 00:04:39, FastEthernet1/1				L	10.1.1.10/32 is directly connected, FastEthernet1/0			
146.6.0.0/24 is subnetted, 1 subnets					146.6.0.0/24 is subnetted, 1 subnets				
B	146.6.6.0 [200/0] via 10.1.1.9, 00:04:07				B	146.6.6.0 [20/0] via 10.1.1.9, 00:04:46			
202.2.2.0/24 is variably subnetted, 2 subnets, 2 masks					O	202.2.2.0/24 [110/2] via 10.1.1.2, 00:05:18, FastEthernet0/0			
C	202.2.2.0/24 is directly connected, FastEthernet0/0								
L	202.2.2.2/32 is directly connected, FastEthernet0/0								

4.2.2 Traceroute de HB a HA

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HB#traceroute 202.2.2.1

Type escape sequence to abort.

Tracing the route to 202.2.2.1

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

 1 146.6.6.2 96 msec 72 msec 152 msec
 2 10.1.1.1 128 msec 156 msec 124 msec
 3 10.1.1.10 236 msec 184 msec 236 msec
 4 10.1.1.2 236 msec 244 msec 280 msec
 5 202.2.2.1 240 msec 360 msec 292 msec

```