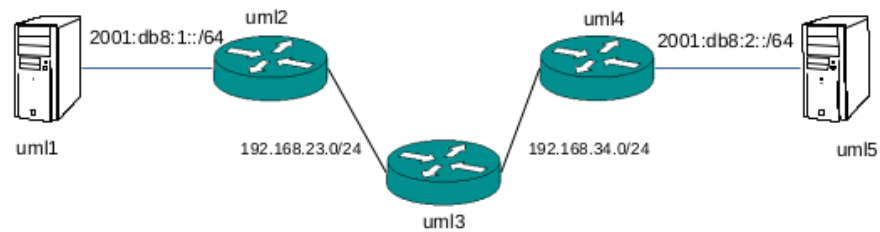


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1. Túneles 6in4

Dado el siguiente escenario:



```
# net.conf
defsw br12 uml1.0 uml2.0
defsw br23 uml2.1 uml3.0
defsw br34 uml3.1 uml4.0
defsw br23 uml4.1 uml5.0

! UML1 y UML5
configure terminal
int eth0
no shutdown
end
write

! UML2
configure terminal
int eth0
ipv6 address 2001:db8:1::1/64
ipv6 nd prefix 2001:db8:1::/64 ! Para que anuncie su prefijo a UML1
no ipv6 nd suppress-ra
quit
int eth1
ip address 192.168.23.1/24
quit
ip route 0.0.0.0/0 192.168.23.2
ipv6 forwarding
ip forwarding
```

```

end
write

! UML3
configure terminal
int eth0
ip address 192.168.23.2/24
quit
int eth1
ip address 192.168.34.2/24
quit
ip forwarding
ip route 192.168.23.0/24 192.168.34.2
ip route 192.168.34.0/24 192.168.23.2
end
write

! UML4
configure terminal
int eth0
ip address 192.168.34.1/24
quit
int eth1
ipv6 address 2001:db8:2::1/64
ipv6 nd prefix 2001:db8:2::/64 ! Para que anuncie su prefijo a UML5
no ipv6 nd suppress-ra
quit
ip route 0.0.0.0/0 192.168.34.2
ipv6 forwarding
ip forwarding
end
write

# UML2 (bash)
ip tunnel add tunnel1 mode sit remote 192.168.34.1
ip link set dev tunnel1 up mtu 1400
ip route add 2001:db8:2::/64 dev tunnel1

# UML4 (bash)
ip tunnel add tunnel2 mode sit remote 192.168.23.1
ip link set dev tunnel2 up mtu 1400
ip route add 2001:db8:1::/64 dev tunnel2

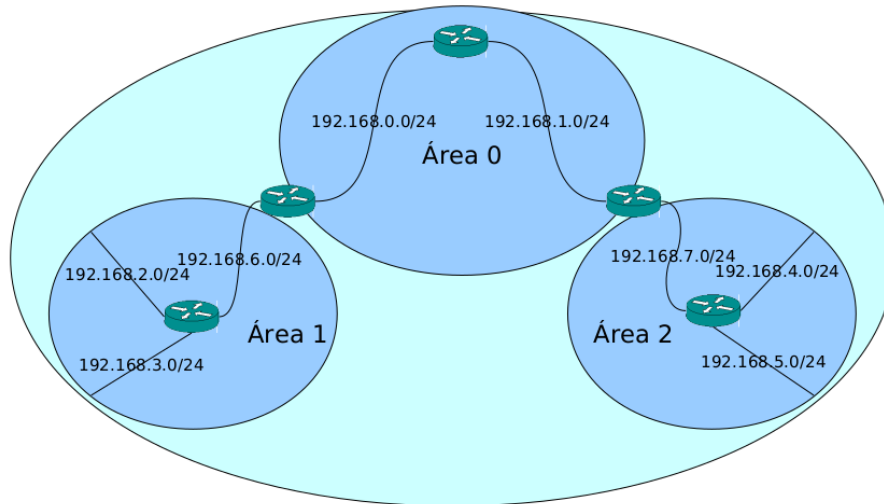
# TEST
# probar desde vtysh en UML1 y UML2 que se anunció correctamente el prefijo
show ipv6 route

```

```
# TEST
# Desde UML2, probar un ping a UML4 y viceversa
ping -c 5 192.168.(34|23).1
# Desde UML1, probar un ping6 a UML5 y viceversa
ping6 -c 5 2001:db8:(1|2):ff:fe00:5f0
```

2. OSPFv2

Configurar 5 máquinas virtuales para crear el siguiente AS:



```
# net.conf
defsw br12 uml1.0 uml2.0
defsw net1 uml1.1
defsw net2 uml1.2
defsw br23 uml2.1 uml3.0
defsw br34 uml3.1 uml4.0
defsw br45 uml4.1 uml5.0
defsw net3 uml5.1
defsw net4 uml5.2

# En cuanto se inician las UML, editar el fichero /etc/quagga/daemons la línea
ospfd=no
# Por
ospfd=yes
# A continuación restart del servicio
systemctl restart quagga
# Verificar que se ospfd está corriendo
systemctl status quagga
```

```

! UML1 (zebra.conf)
conf[igure] term[inal]
int[erface] eth0
ip address 10.0.1.1/24
no shutdown
quit
int[erface] eth1
ip address 192.168.3.1/24
no shutdown
quit
int[erface] eth2
ip address 192.168.2.1/24
no shutdown
quit
ip forwarding
exit
write

```

```

! UML2 (zebra.conf)
conf[igure] term[inal]
int[erface] eth0
ip address 10.0.1.2/24
no shutdown
quit
int[erface] eth1
ip address 10.0.2.2/24
no shutdown
quit
ip forwarding
exit
write

```

```

! UML3 (zebra.conf)
conf[igure] term[inal]
int[erface] eth0
ip address 10.0.2.1/24
no shutdown
quit
int[erface] eth1
ip address 10.0.3.1/24
no shutdown
quit
ip forwarding
exit
write

```

```

! UML4 (zebra.conf)

```

```

conf[igure] term[inal]
int[erface] eth0
ip address 10.0.3.2/24
no shutdown
quit
int[erface] eth1
ip address 10.0.4.2/24
no shutdown
quit
ip forwarding
exit
write

! UML5 (zebra.conf)
conf[igure] term[inal]
int[erface] eth0
ip address 10.0.4.1/24
no shutdown
quit
int[erface] eth1
ip address 192.168.4.1/24
no shutdown
quit
int[erface] eth2
ip address 192.168.5.1/24
no shutdown
quit
ip forwarding
exit
write

! UML1 ospf.conf
conf[igure] term[inal]
router ospf
ospf router-id 0.0.0.1
network 10.0.1.0/24 area 1
network 192.168.2.0/24 area 1
network 192.168.3.0/24 area 1
area 1 stub
passive-interface eth1 ! Las redes de usuario irán siempre como passive-interface
passive-interface eth2
end
write

! UML2 ospf.conf
conf[igure] term[inal]
router ospf

```

```

ospf router-id 0.0.0.2
network 10.0.1.0/24 area 1
network 10.0.2.0/24 area 0
area 1 range 10.0.0.0/8 not-advertise ! No advierte de este area en otras areas por ser ABR
end
write

! UML3 ospf.conf
conf[igure] term[inal]
router ospf
ospf router-id 0.0.0.3
network 10.0.2.0/24 area 0
network 10.0.3.0/24 area 0

! UML4 ospf.conf
conf[igure] term[inal]
router ospf
ospf router-id 0.0.0.4
network 10.0.3.0/24 area 0
network 10.0.4.0/24 area 2
area 2 range 10.0.0.0/8 not-advertise ! No advierte de este area en otras areas por ser ABR
end
write

! UML5 ospf.conf
conf[igure] term[inal]
router ospf
ospf router-id 0.0.0.5
network 10.0.4.0/24 area 2
network 192.168.4.0/24 area 2
network 192.168.5.0/24 area 2
area 2 stub
passive-interface eth1 ! Las redes de usuario irán siempre como passive-interface
passive-interface eth2
end
write

```

Comprobar las tablas de ospf con el comando

```
show ip ospf database
```

3. OSPFv3

Configurar 5 máquinas virtuales para crear el siguiente AS:

