INSTITUTO POLITÉCNICO NACIONAL

ESCUELA SUPERIOR DE CÓMPUTO

ADMINISTRACIÓN DE SERVICIOS EN RED

ENRUTAMIENTO MÚLTIPLE

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4CM11

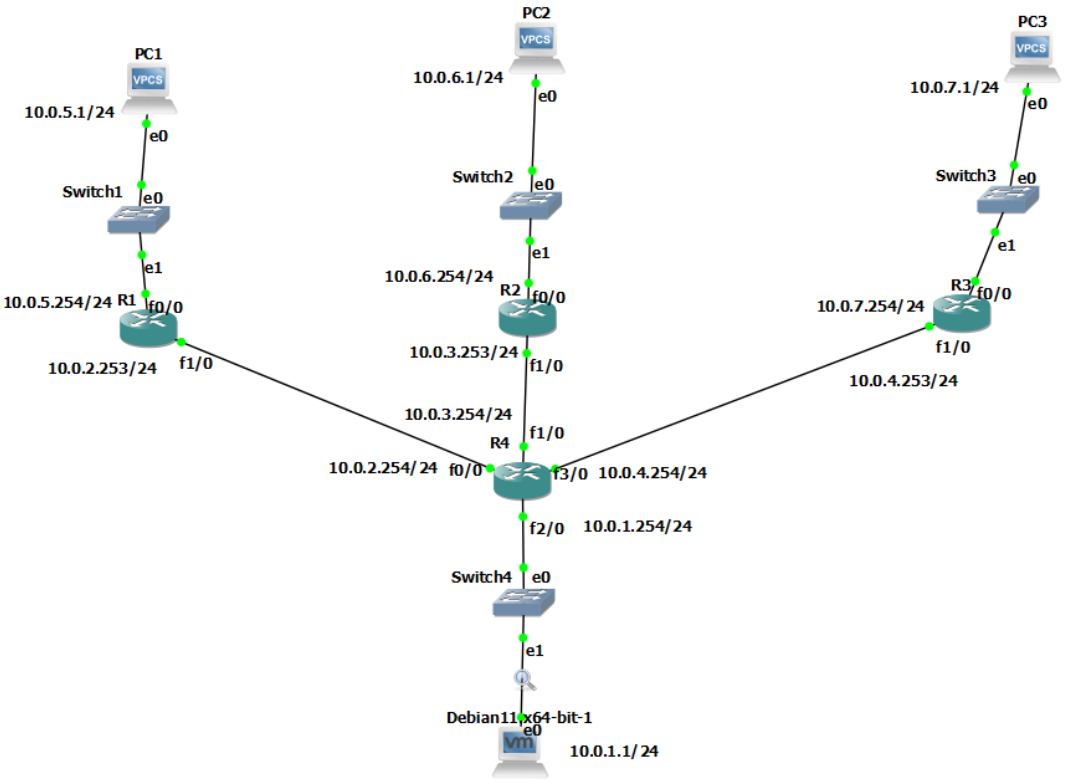

Figura 1. Topología de la red.

```
(my-env) marty@debian:~/Documents/Admin_redes/EnrutamientoMultiple$ python server.py
 * Running on http://0.0.0.0:5000/
 * Restarting with reloader
127.0.0.1 - - [07/Nov/2022 23:56:41] "DELETE /enrutamientos/todos HTTP/1.1" 200 -
127.0.0.1 - - [07/Nov/2022 23:57:13] "GET /enrutamientos/todos HTTP/1.1" 200 -
127.0.0.1 - - [07/Nov/2022 23:57:38] "DELETE /enrutamientos/todos HTTP/1.1" 200 -
127.0.0.1 - - [07/Nov/2022 23:57:55] "GET /enrutamientos/todos HTTP/1.1" 200 -
127.0.0.1 - - [08/Nov/2022 00:11:00] "DELETE /enrutamientos/todos HTTP/1.1" 200 -
127.0.0.1 - - [08/Nov/2022 00:14:05] "GET /enrutamientos/todos HTTP/1.1" 200 -
```

Figura 2. Servidor en Flask funcionando.

```
marty@debian:~/Documents/Admin_redes/EnrutamientoMultiple$ ping -c 4 10.0.6.1
PING 10.0.6.1 (10.0.6.1) 56(84) bytes of data.
From 10.0.1.254 icmp_seq=1 Destination Host Unreachable
From 10.0.1.254 icmp_seq=2 Destination Host Unreachable
From 10.0.1.254 icmp_seq=3 Destination Host Unreachable
From 10.0.1.254 icmp_seq=4 Destination Host Unreachable

--- 10.0.6.1 ping statistics ---
4 packets transmitted, 0 received, +4 errors, 100% packet loss, time 3007ms

marty@debian:~/Documents/Admin_redes/EnrutamientoMultiple$ curl 127.0.0.1:5000/enrutamientos/todos
{
  "Correcto": "Protocolos de enrutamiento levantados"
marty@debian:~/Documents/Admin_redes/EnrutamientoMultiple$ ping -c 4 10.0.6.1
PING 10.0.6.1 (10.0.6.1) 56(84) bytes of data.
64 bytes from 10.0.6.1: icmp_seq=1 ttl=62 time=3111 ms
64 bytes from 10.0.6.1: icmp_seq=2 ttl=62 time=2098 ms
64 bytes from 10.0.6.1: icmp_seq=3 ttl=62 time=1075 ms
64 bytes from 10.0.6.1: icmp_seq=4 ttl=62 time=66.6 ms

--- 10.0.6.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3061ms
rtt min/avg/max/mdev = 66.609/1587.569/3111.140/1135.596 ms, pipe 4
```

Figura 3. Prueba de funcionamiento del programa

```
     10.0.0.0/24 is subnetted, 4 subnets
C       10.0.2.0 is directly connected, FastEthernet0/0
C       10.0.3.0 is directly connected, FastEthernet1/0
C       10.0.1.0 is directly connected, FastEthernet2/0
C       10.0.4.0 is directly connected, FastEthernet3/0
Router4(config-router)#
*Nov  7 23:42:23.030: %SYS-5-CONFIG_I: Configured from console by admin on vty0 (10.0.1.1)
*Nov  7 23:42:23.202: %OSPF-5-ADJCHG: Process 1, Nbr 10.0.7.254 on FastEthernet3/0 from LOADING to FULL, Loading Done
*Nov  7 23:42:23.586: %SYS-5-CONFIG_I: Configured from console by admin on vty1 (10.0.1.1)
Router4(config-router)#
*Nov  7 23:42:24.182: %SYS-5-CONFIG_I: Configured from console by admin on vty0 (10.0.1.1)
Router4(config-router)#do show ip route
Codes: C - connected, S - static, 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
       i - IS-IS, su - IS-IS summary, 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

     10.0.0.0/24 is subnetted, 7 subnets
C       10.0.2.0 is directly connected, FastEthernet0/0
C       10.0.3.0 is directly connected, FastEthernet1/0
C       10.0.1.0 is directly connected, FastEthernet2/0
R       10.0.6.0 [120/1] via 10.0.3.253, 00:00:14, FastEthernet1/0
O       10.0.7.0 [110/2] via 10.0.4.253, 00:03:59, FastEthernet3/0
C       10.0.4.0 is directly connected, FastEthernet3/0
S       10.0.5.0 [1/0] via 10.0.2.253
```

Figura 5. Tabla de enrutamiento del router 4 antes y después de ejecutar el programa.