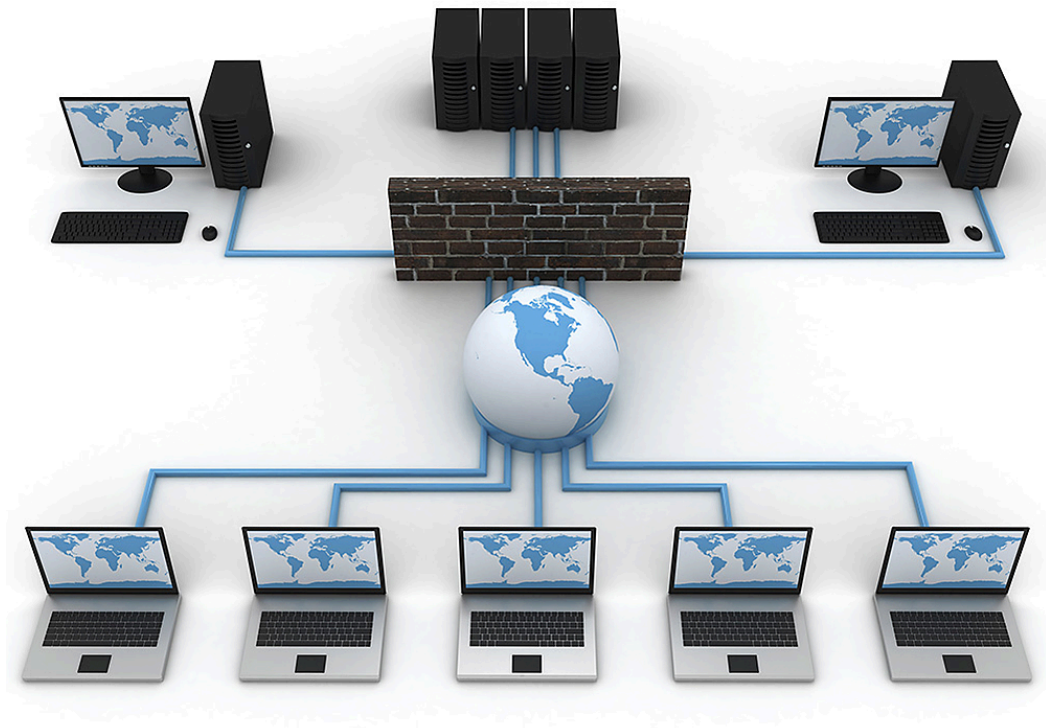


# Xarxes i protocols

## Pràctica 2

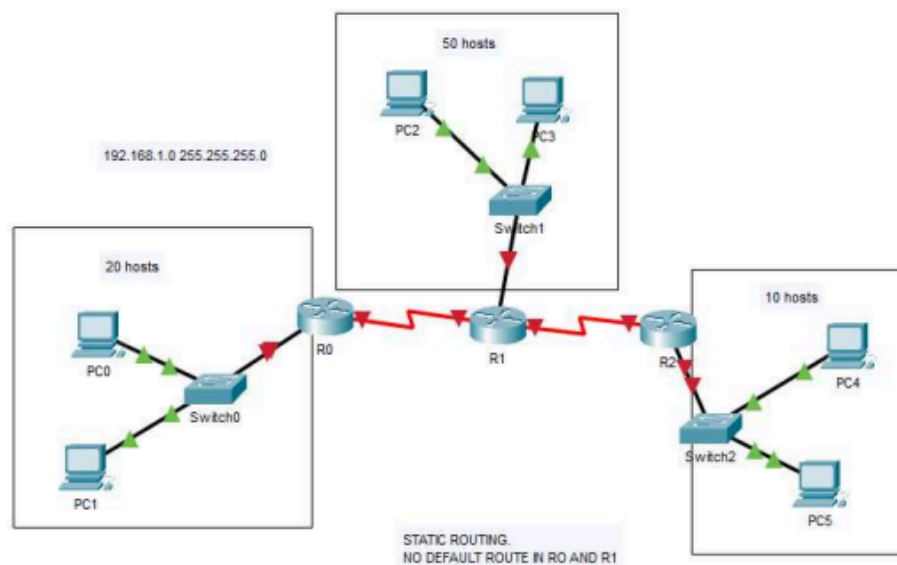


Efrén Cayuela Villatoro

Alex Barroso Corchero

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Creeu l'adreçament adequat per a la topologia. L'adreça de xarxa és: 192.168.1.0 255.255.255.0



192.168.1.0—255.255.255.0

LAN1→50 hosts ----->192.168.1.0/26

LAN2→20 hosts ----->192.168.1.64/27

LAN3→10 hosts ----->192.168.1.96/28

pp1→2 ----->192.168.1.112/30

pp2→2 ----->192.168.1.116/30

### Subnetting 1

192.168.1.00|000000

00

01

10

11

192.168.1.0→ LAN1

192.168.1.64

192.168.1.128

192.168.1.192

### Subnetting 2

192.168.1.01|0|00000

0

1

192.168.1.64→LAN2

192.168.1.96

### Subnetting 3

192.168.1.011|0|0000

0

1

192.168.1.96 → LAN3

192.168.1.112

#### **Subnetting 4**

192.168.1.0111|00|00

00

01

10

11

192.168.1.112 → pp1

192.168.1.116 → pp2

192.168.1.120

192.168.1.124

LAN1 (50 hosts – Switch1 → R1):

**PC2:** 192.168.1.10/26

**PC3:** 192.168.1.11/26

**R1:** 192.168.1.1/26

LAN2 (20 hosts – Switch0 → R0):

**PC0:** 192.168.1.70/27

**PC1:** 192.168.1.71/27

**R0:** 192.168.1.65/27

LAN3 (10 hosts – Switch2 → R2):

**PC4:** 192.168.1.100/28

**PC5:** 192.168.1.101/28

**R2:** 192.168.1.97/28

Enllaços punt a punt:

R0–R1:

**R0:** 192.168.1.113/30

**R1:** 192.168.1.114/30

R1–R2:

**R1:** 192.168.1.117/30

**R2:** 192.168.1.118/30

## Màquina virtual

- **PC1:** 192.168.12.2 → connectat a **router1:** 192.168.12.1
- **PC2:** 192.168.23.2 → connectat a **router2:** 192.168.23.1
- **PC3:** 192.168.34.2 → connectat a **router3:** 192.168.34.1

enllaços entre routers:

- **router1** ↔ **router2:** 10.0.12.1 ↔ 10.0.12.2
- **router1** ↔ **router3:** 10.0.13.1 ↔ 10.0.13.2
- **router2** ↔ **router3:** 10.0.23.1 ↔ 10.0.23.2

Ping per veure que funciona la xarxa a PC1.

```
ass@ass:~/labs/lab0$ sudo docker exec -it clab-topoi-PC1 /bin/bash
bash-5.1# ping 192.168.12.1
PING 192.168.12.1 (192.168.12.1) 56(84) bytes of data.
64 bytes from 192.168.12.1: icmp_seq=1 ttl=64 time=0.211 ms
64 bytes from 192.168.12.1: icmp_seq=2 ttl=64 time=0.050 ms
64 bytes from 192.168.12.1: icmp_seq=3 ttl=64 time=0.075 ms
64 bytes from 192.168.12.1: icmp_seq=4 ttl=64 time=0.060 ms
^Z
[1]+  Stopped                  ping 192.168.12.1
bash-5.1# ping192.168.23.2
bash: ping192.168.23.2: command not found
bash-5.1# ping 192.168.23.2
PING 192.168.23.2 (192.168.23.2) 56(84) bytes of data.
64 bytes from 192.168.23.2: icmp_seq=1 ttl=62 time=0.226 ms
64 bytes from 192.168.23.2: icmp_seq=2 ttl=62 time=0.100 ms
^Z
[2]+  Stopped                  ping 192.168.23.2
bash-5.1# ping 192.168.34.2
PING 192.168.34.2 (192.168.34.2) 56(84) bytes of data.
64 bytes from 192.168.34.2: icmp_seq=1 ttl=62 time=0.217 ms
64 bytes from 192.168.34.2: icmp_seq=2 ttl=62 time=0.103 ms
^Z
[3]+  Stopped                  ping 192.168.34.2
bash-5.1# █
```

Ping a PC2:

```
ass@ass:~/labs/lab0$ sudo docker exec -it clab-topo1-PC2 /bin/bash
bash-5.1# ping 192.168.23.1
PING 192.168.23.1 (192.168.23.1) 56(84) bytes of data:
64 bytes from 192.168.23.1: icmp_seq=1 ttl=64 time=0.075 ms
64 bytes from 192.168.23.1: icmp_seq=2 ttl=64 time=0.074 ms
64 bytes from 192.168.23.1: icmp_seq=3 ttl=64 time=0.038 ms
^Z
[1]+  Stopped                  ping 192.168.23.1
```

IP route PC1:

```
bash-5.1# ip route
default via 192.168.12.1 dev eth1
172.20.20.0/24 dev eth0 proto kernel scope link src 172.20.20.2
192.168.12.0/24 dev eth1 proto kernel scope link src 192.168.12.2
```

IP route PC2:

```
bash-5.1# ip route
default via 192.168.23.1 dev eth1
172.20.20.0/24 dev eth0 proto kernel scope link src 172.20.20.3
192.168.23.0/24 dev eth1 proto kernel scope link src 192.168.23.2
bash-5.1#
```

IP route PC3:

```
ass@ass:~/labs/lab0$ sudo docker exec -it clab-topo1-PC3 /bin/bash
bash-5.1# ip route
default via 192.168.34.1 dev eth1
172.20.20.0/24 dev eth0 proto kernel scope link src 172.20.20.4
192.168.34.0/24 dev eth1 proto kernel scope link src 192.168.34.2
bash-5.1#
```

IP route router 1:

```
router1:~# ip route
default via 172.20.20.1 dev eth0
10.0.12.0/24 dev eth1 proto kernel scope link src 10.0.12.0
10.0.12.0/24 dev eth2 proto kernel scope link src 10.0.12.1
10.0.13.0/24 dev eth2 proto kernel scope link src 10.0.13.1
172.20.20.0/24 dev eth0 proto kernel scope link src 172.20.20.101
192.168.12.0/24 dev eth3 proto kernel scope link src 192.168.12.1
192.168.23.0/24 via 10.0.12.2 dev eth1
192.168.34.0/24 via 10.0.13.2 dev eth2
```

IP route router 2:

```
router2:~# ip route
default via 172.20.20.1 dev eth0
10.0.12.0/24 dev eth1 proto kernel scope link src 10.0.12.2
10.0.23.0/24 dev eth2 proto kernel scope link src 10.0.23.1
172.20.20.0/24 dev eth0 proto kernel scope link src 172.20.20.102
192.168.12.0/24 via 10.0.12.1 dev eth1
192.168.23.0/24 dev eth3 proto kernel scope link src 192.168.23.1
192.168.34.0/24 via 10.0.23.2 dev eth2
```

IP route router 3:

```
router3:~# ip route
default via 172.20.20.1 dev eth0
10.0.13.0/24 dev eth1 proto kernel scope link src 10.0.13.2
10.0.23.0/24 dev eth2 proto kernel scope link src 10.0.23.2
172.20.20.0/24 dev eth0 proto kernel scope link src 172.20.20.103
192.168.12.0/24 via 10.0.13.1 dev eth1
192.168.23.0/24 via 10.0.23.1 dev eth2
192.168.34.0/24 dev eth3 proto kernel scope link src 192.168.34.1
```

archiu yml