



CentOS



CentOS 6.5 minimal

Requisiti per l'installazione:

- RAM 1GB (512MB)
- HD 5 GB (3GB)

Dopo l'installazione:

- RAM 256 MB (128)
- HD 800MB





ifconfig

```
lo          Link encap:Local Loopback
            inet addr:127.0.0.1  Mask:255.0.0.0
            inet6 addr: ::1/128 Scope:Host
            UP LOOPBACK RUNNING  MTU:16436  Metric:1
            RX packets:156 errors:0 dropped:0 overruns:0 frame:0
            TX packets:156 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:0
            RX bytes:9255 (9.0 Kb)  TX bytes:9255 (9.0 Kb)
```

Fornisce le informazioni per tutti I dispositivi trovati

ifconfig -s

Iface	MTU	Met	RX-OK	RX-ERR	RX-DRP	RX-OVR	TX-OK	TX-ERR	TX-DRP	TX-OVR	Flg
eth0	1500	0	147224	0	0	0	53587	0	0	0	BMRU
lo	16436	0	156	0	0	0	156	0	0	0	LRU



ifconfig -a

```
eth0      Link encap:Ethernet  HWaddr 00:0C:29:BB:5C:41
          inet addr:192.168.0.19  Bcast:192.168.0.255  Mask:255.255.255.0
          BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:147390 errors:0 dropped:0 overruns:0 frame:0
          TX packets:53649 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:114447623 (109.1 Mb)  TX bytes:4998487 (4.7 Mb)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:156 errors:0 dropped:0 overruns:0 frame:0
          TX packets:156 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:9255 (9.0 Kb)  TX bytes:9255 (9.0 Kb)
```





ifconfig eth0 up

```
eth0      Link encap:Ethernet  HWaddr 00:0C:29:BB:5C:41
          inet addr:192.168.0.19  Bcast:192.168.0.255  Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:febb:5c41/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:147397 errors:0 dropped:0 overruns:0 frame:0
          TX packets:53686 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:114448480 (109.1 Mb)  TX bytes:5006209 (4.7 Mb)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:156 errors:0 dropped:0 overruns:0 frame:0
          TX packets:156 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:9255 (9.0 Kb)  TX bytes:9255 (9.0 Kb)
```





```
ifconfig eth0 up
```

```
ifconfig eth0 down
```

```
ifconfig eth0 1.1.1.1/17
```

```
ifconfig eth0 1.1.1.1 netmask 255.255.128.0
```





Consistent Network Device Naming

Consistent Network Device Naming is a convention for naming Ethernet adapters in Linux, that replace the old standard ethX which caused problems on multihomed machines because the network interface controllers (NICs) would get named based on the order in which they were found by the kernel as it booted. Added new interfaces could cause the previously added ones to change names

- **em[1-N]** for on-board (embedded) NICs (# matches chassis labels)
- **p<slot_number>p<port_number>** for cards in PCI slots, ports starting at 1 (not zero)
- NPAR and SR-IOV devices add a suffix of **_<vf>**, from 0..N depending on the number of Partitions or Virtual Functions exposed on each port
- Other Linux conventions, such as **.<vlan>** and **:<alias>** suffixes remain unchanged and are still applicable



service command - list running services

```
service --status-all
```

Print the status of any service (ex. httpd):

```
service httpd status
```

```
service httpd start
```

```
service httpd stop
```

```
service httpd restart
```

```
service network restart
```





List all known services:

```
chkconfig -list
```

List service and their open ports

```
netstat -tulpn
```

Turn on / off service

```
chkconfig httpd off
```

```
chkconfig ntpd on
```





Configurazione di una interfaccia
`/etc/sysconfig/network-script/ifcfg-ethx`

`DEVICE=ethx`

`BOOTPROTO=none`

`NM_CONTROLLED=yes`

`NETMASK=255.255.255.0`

`IPADDR=1.1.1.1`

`GATEWAY=1.1.1.254`





Abilitazione IP forwarding

/etc/sysctl.conf

```
net.ipv4.conf.ip_forward = 1
```

```
sysctl -p
```

```
echo "1" > /proc/sys/net/ipv4/ip_forward
```





Centos 6 minimal

```
#route
```

```
Kernel IP routing table
```

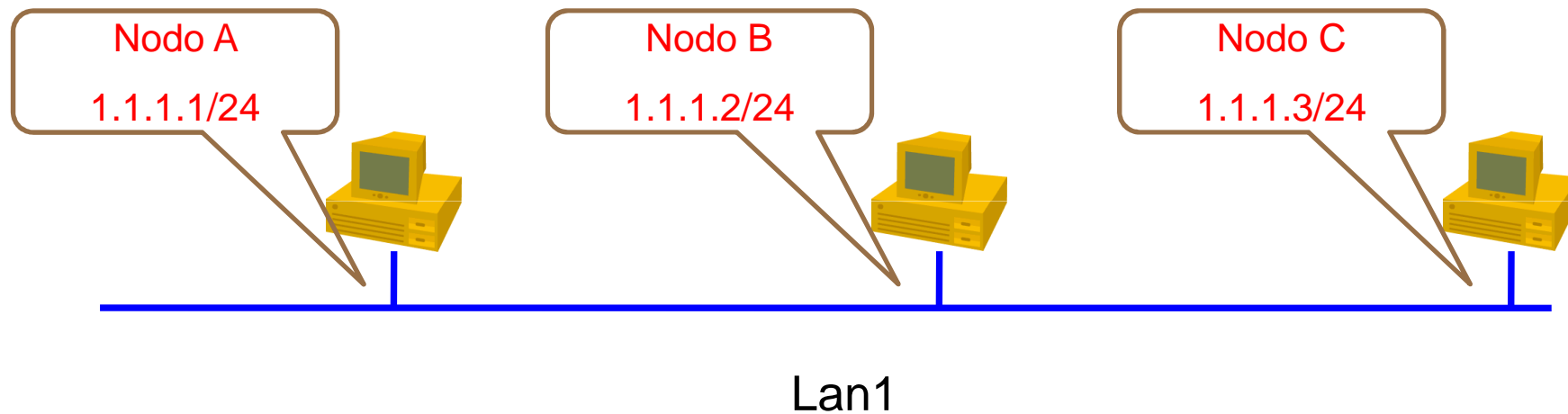
Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
loopback	*	255.0.0.0	U	0	0	0	lo
link-local	*	255.255.0.0	U	0	0	0	eth0
192.168.0.0	*	255.255.255.0	U	0	0	0	eth0
default	192.168.0.1	0.0.0.0	UG	0	0	0	eth0





IP address 1.1.1.1

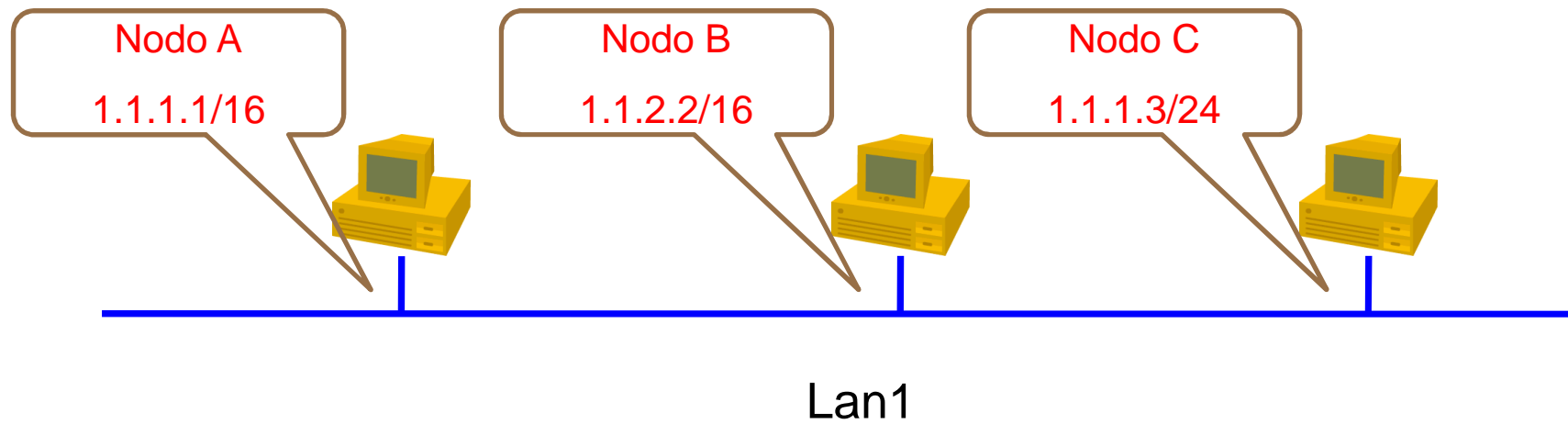
Netmask 255.255.255.0

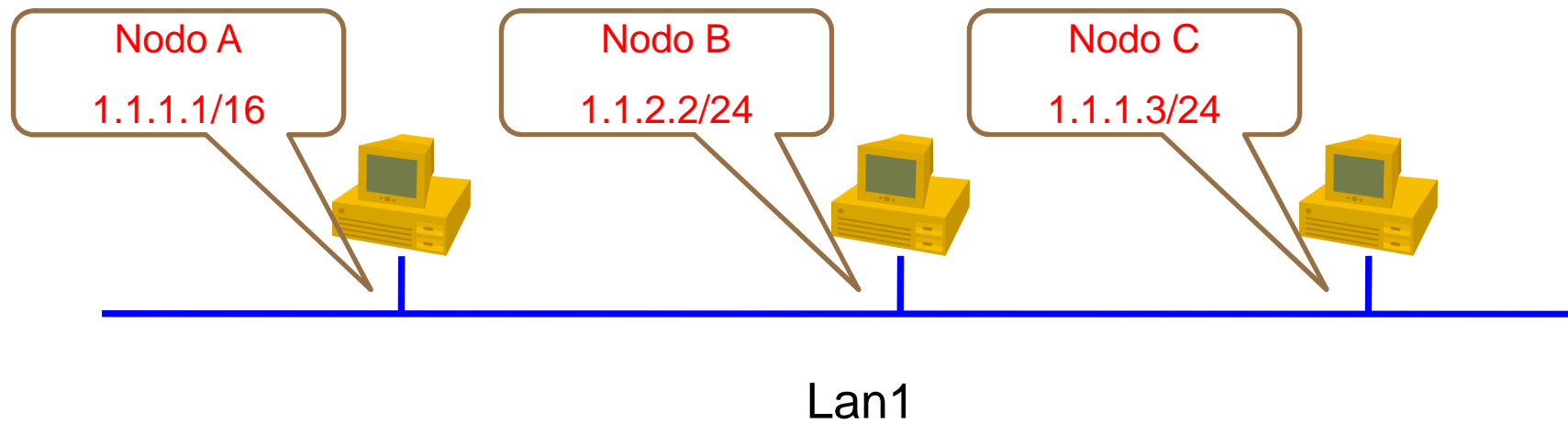


```
#route
```

```
Kernel IP routing table
```

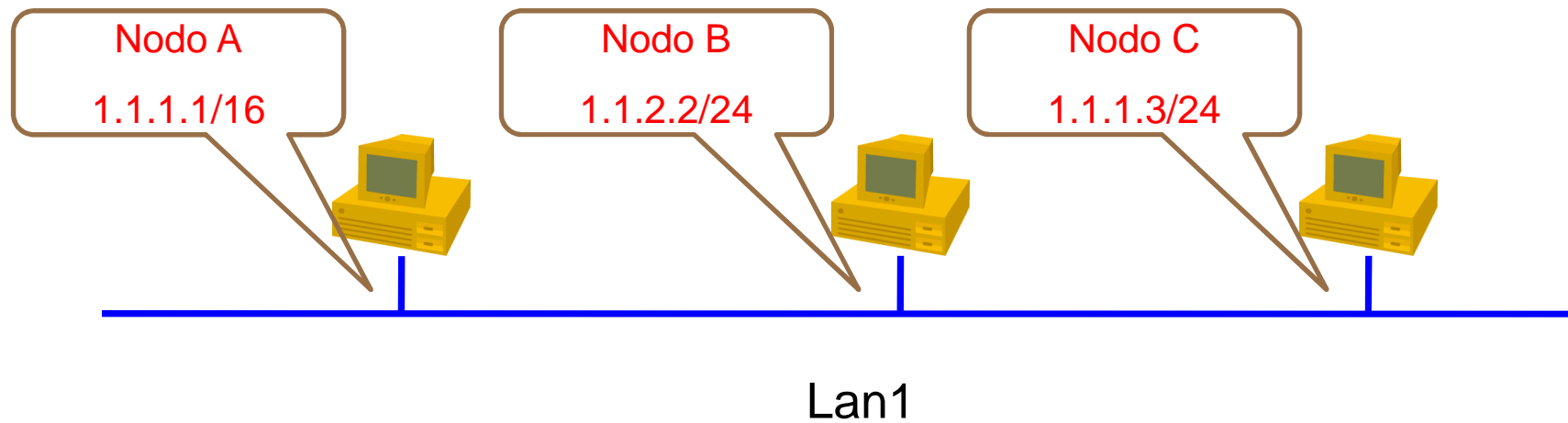
Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
1.1.1.0	*	255.255.255.0	U	0	0	0	eth0







```
ifconfig eth0 promisc
```



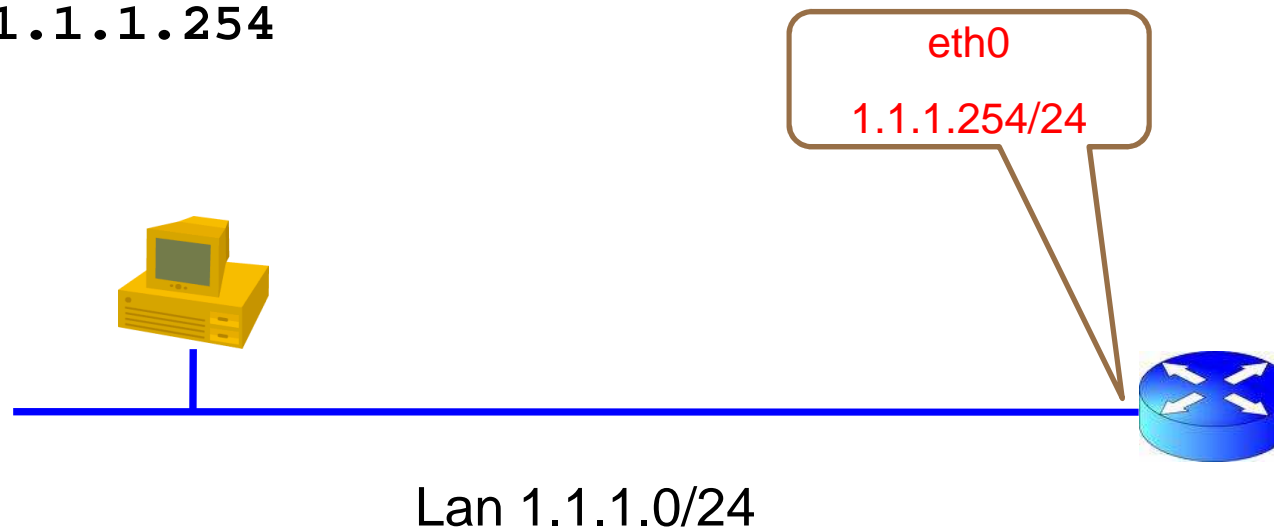


eth0

IP address 1.1.1.1

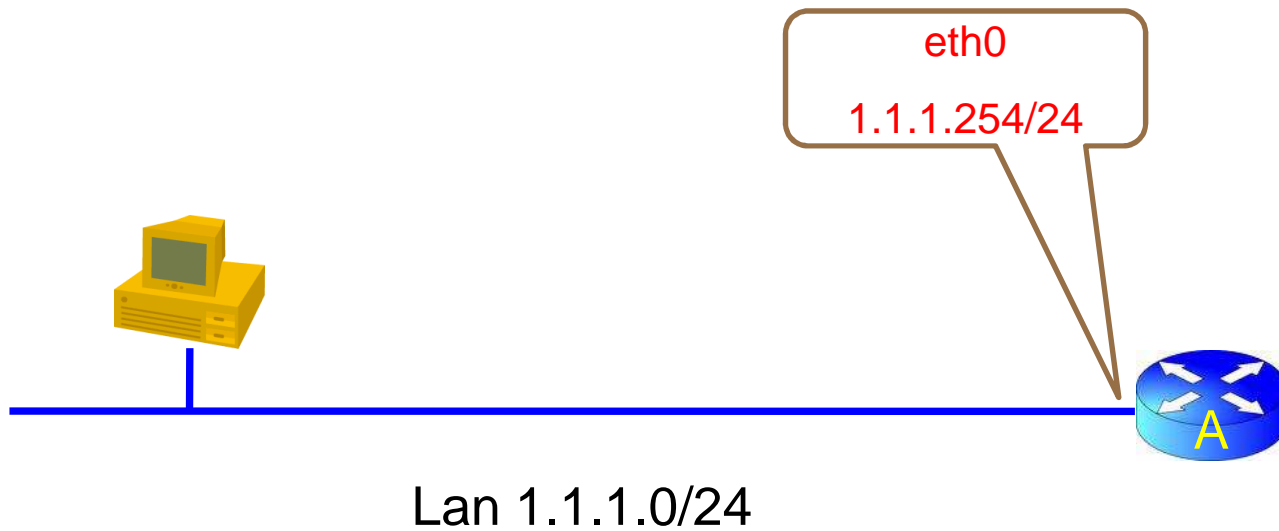
Netmask 255.255.255.0

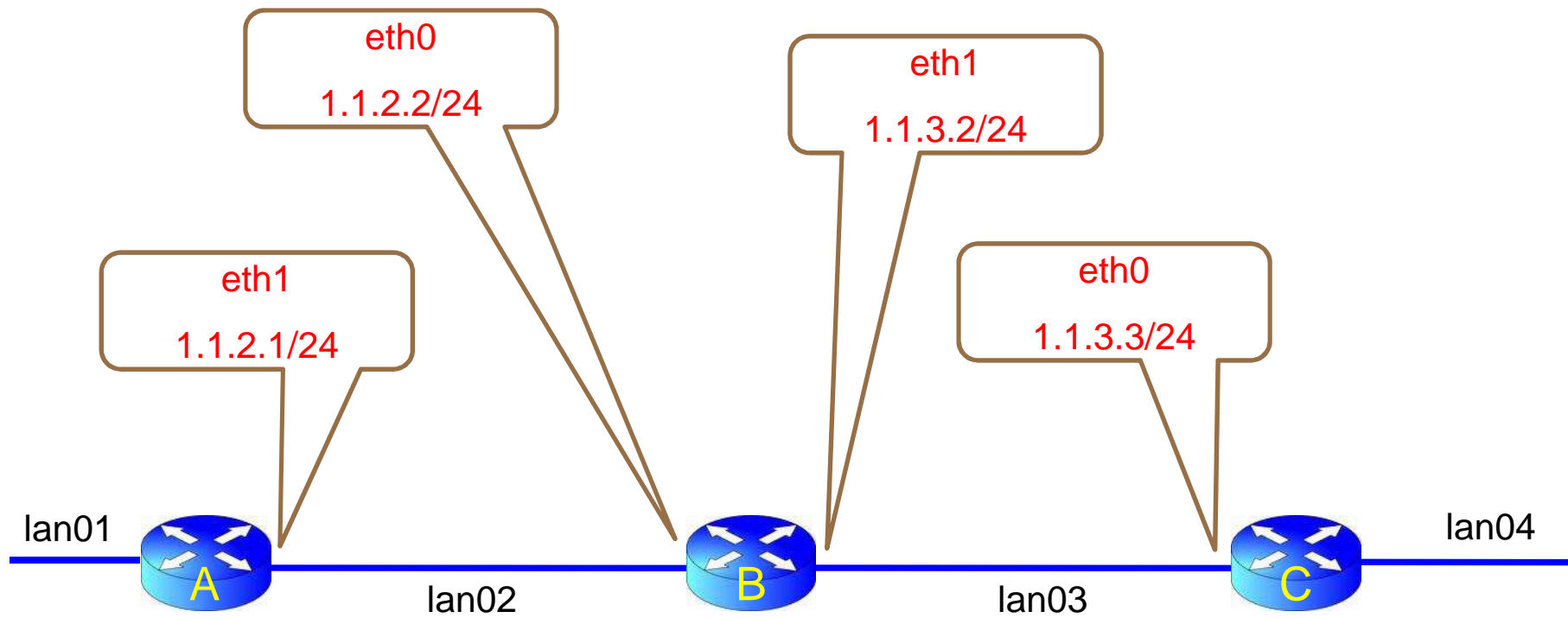
Gateway 1.1.1.254

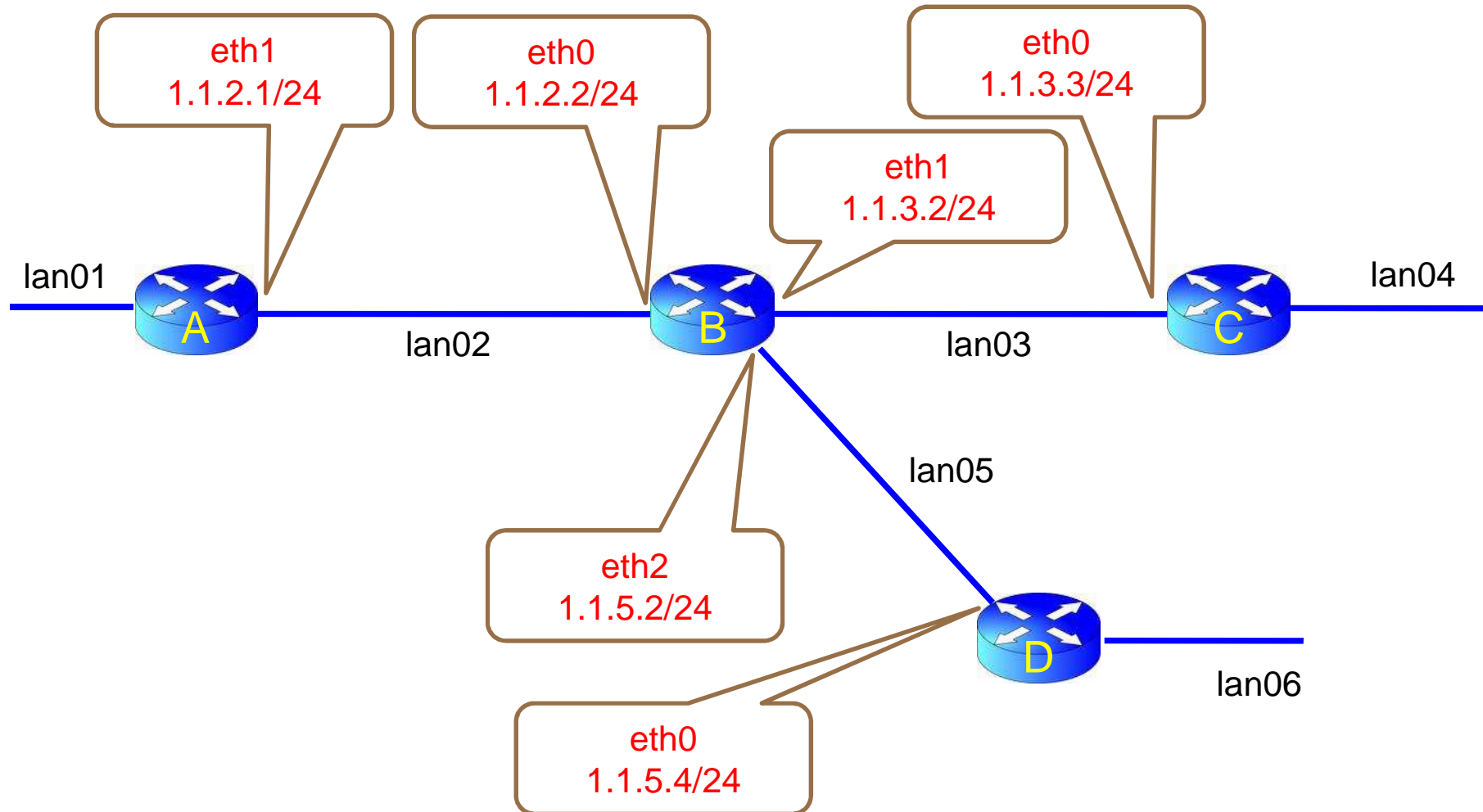


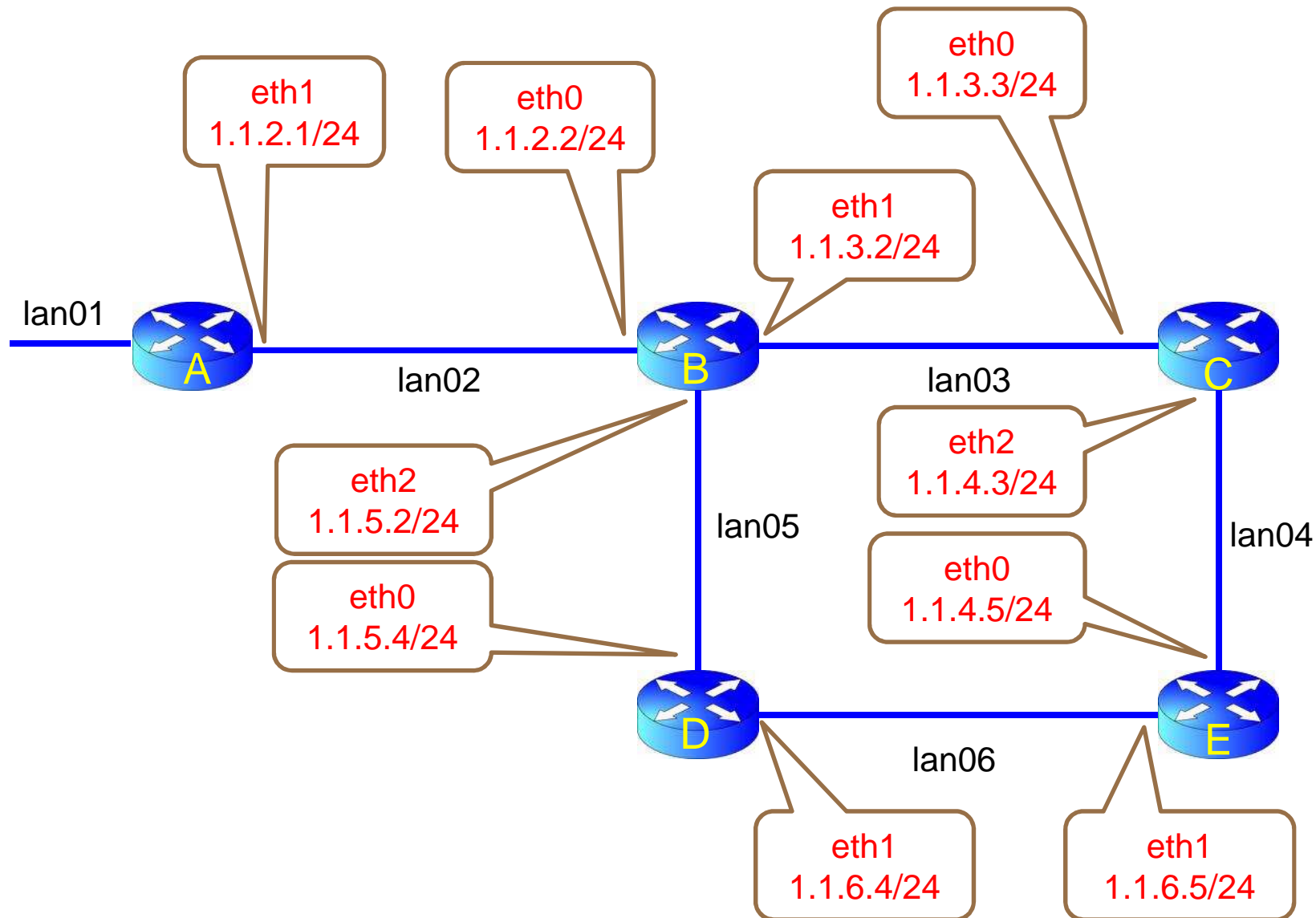


```
ifconfig eth0 1.1.1.1 netmask 255.255.255.0  
route add default gw 1.1.1.254  
route add -net x.x.x.0/n gw g.g.g.g
```



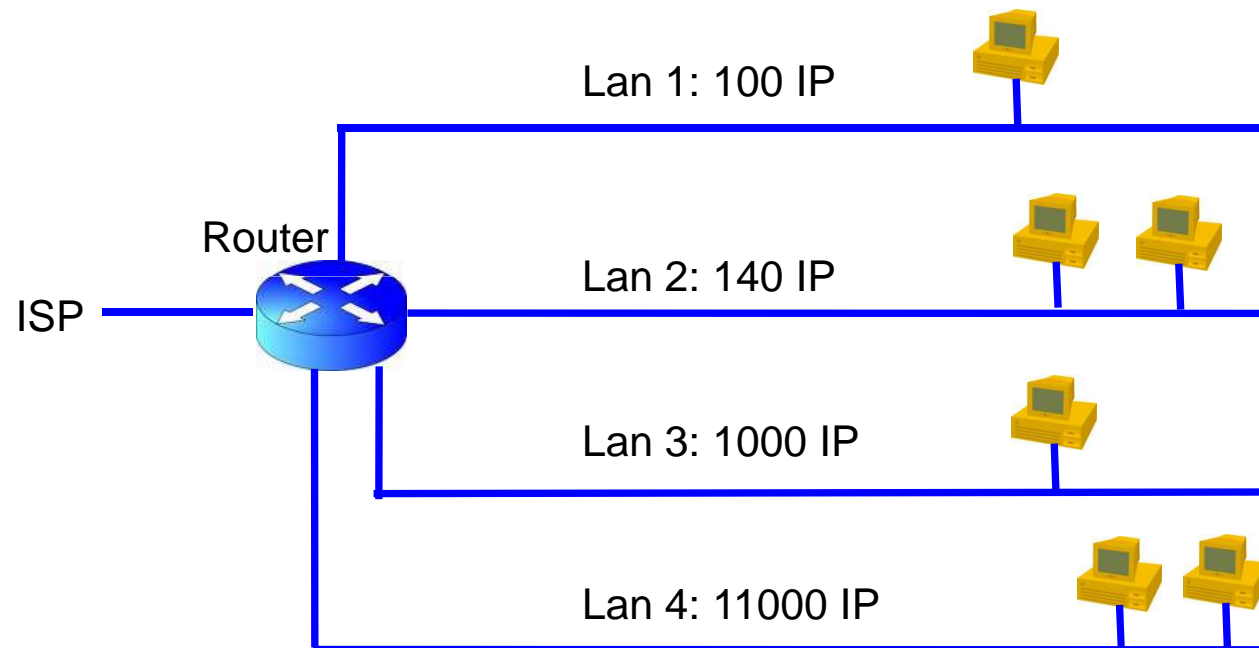








IP: 145.67.0.0/16

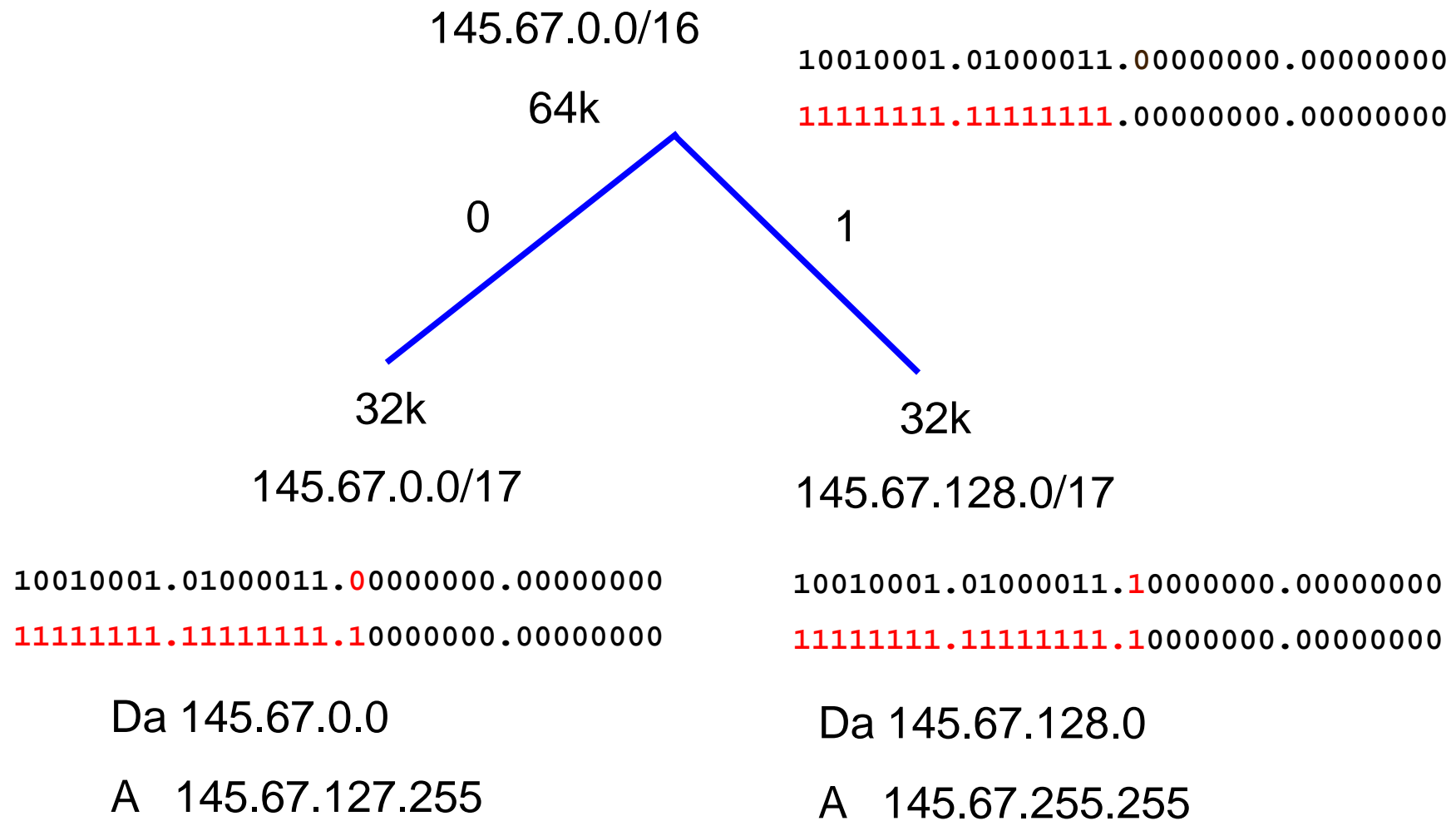


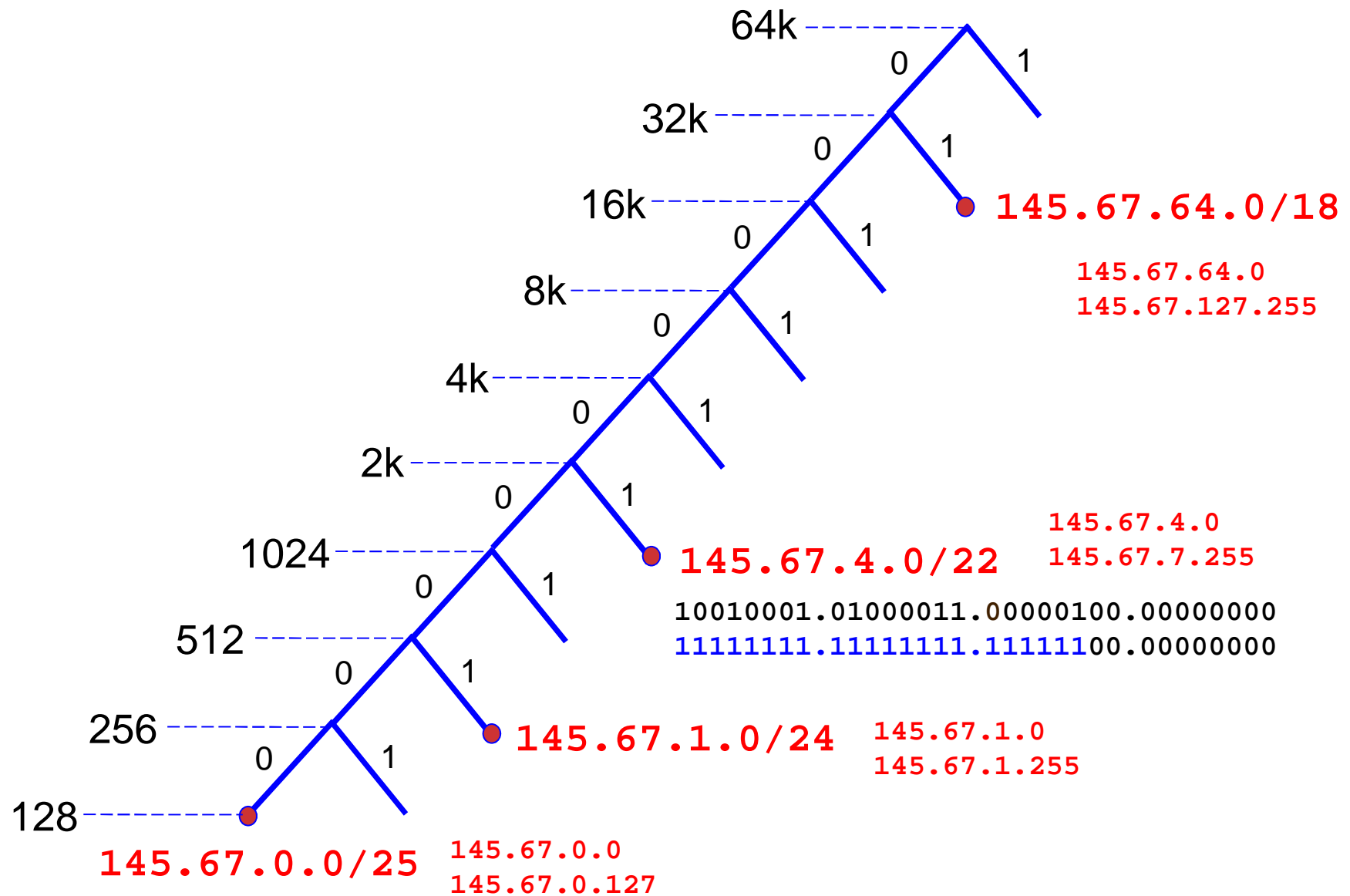


145.67.0.0/16

145.67.0.0 = 10010001.01000011.00000000.00000000

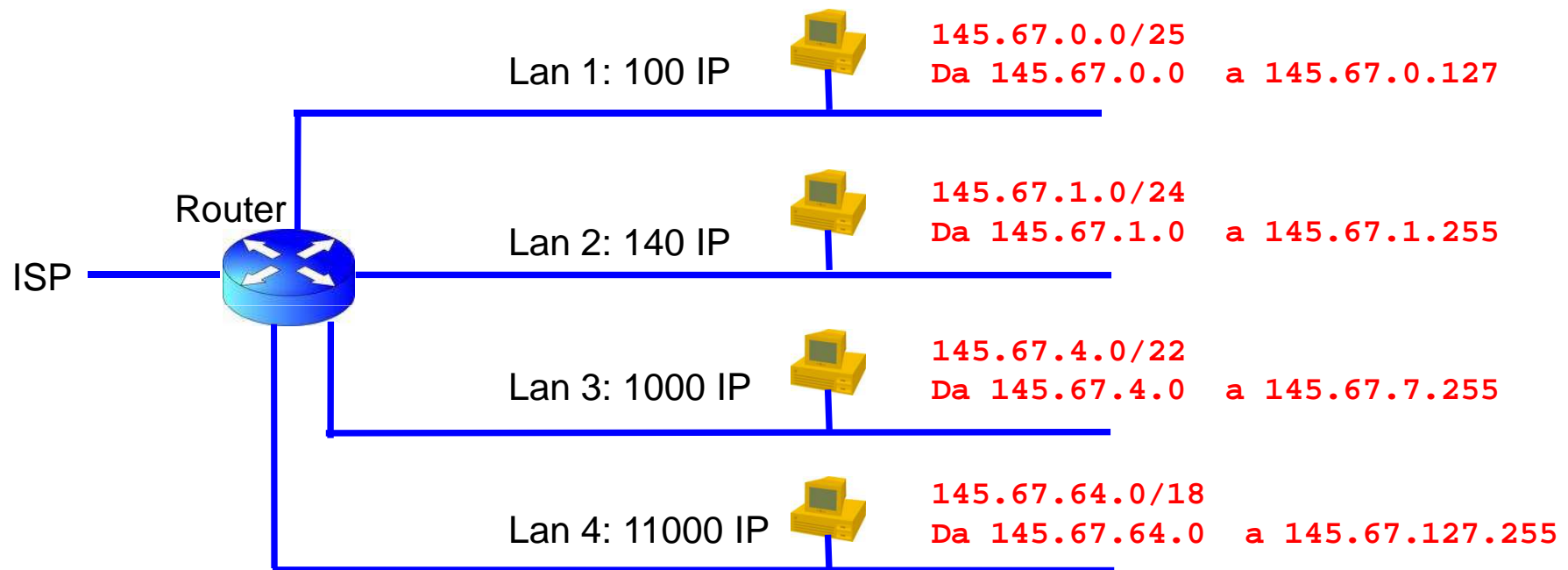
255.255.0.0 = 11111111.11111111.00000000.00000000

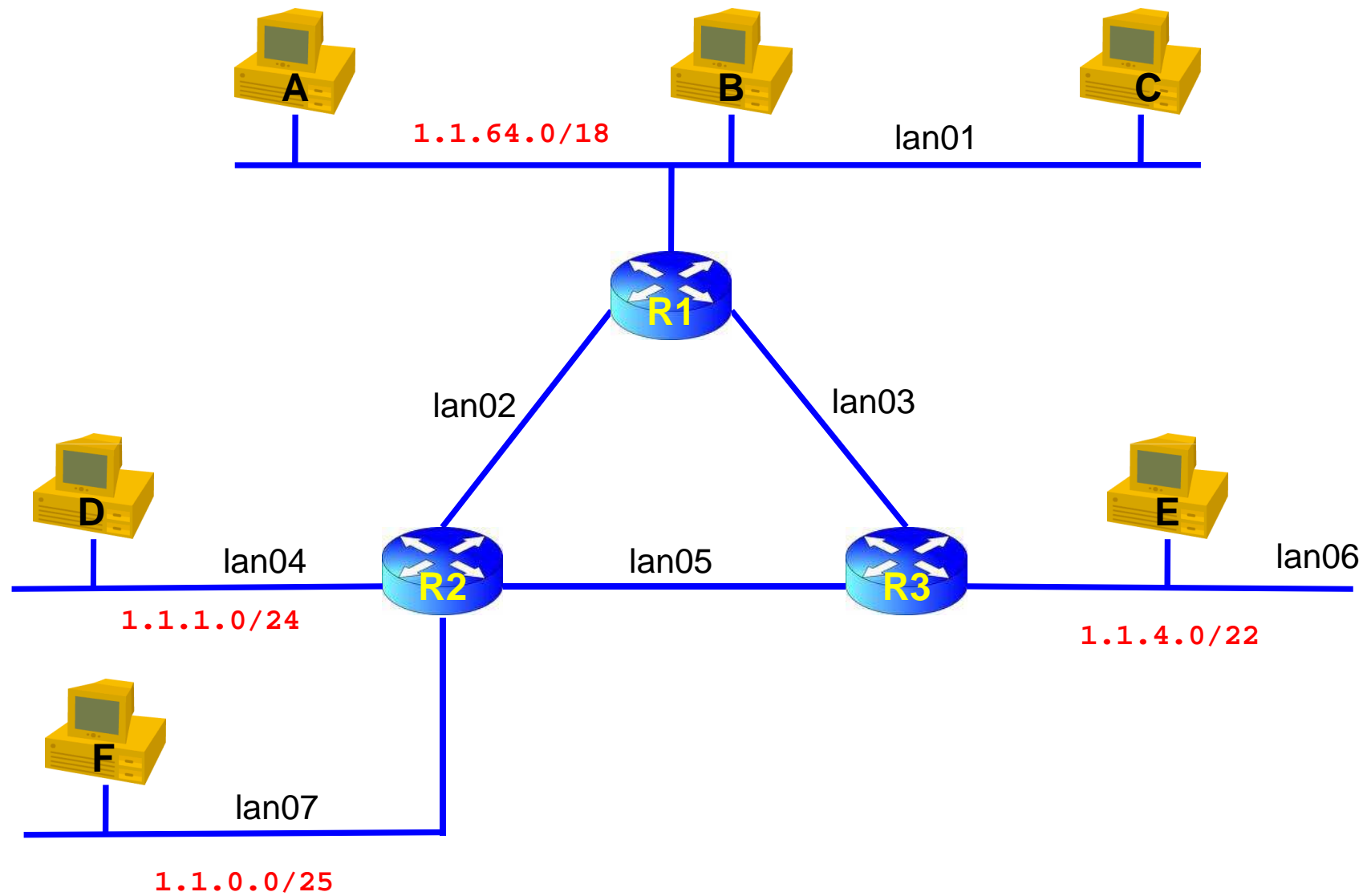


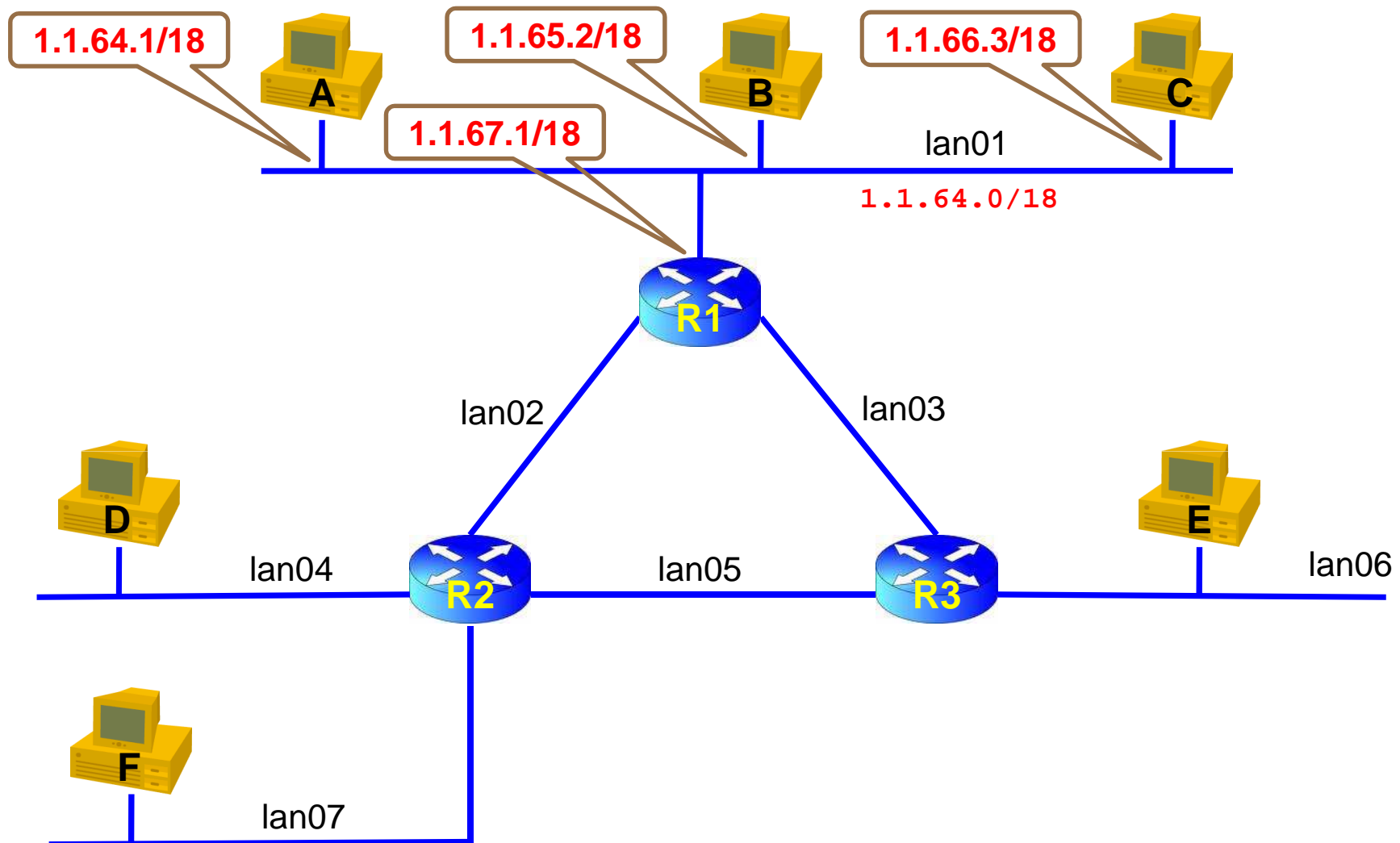


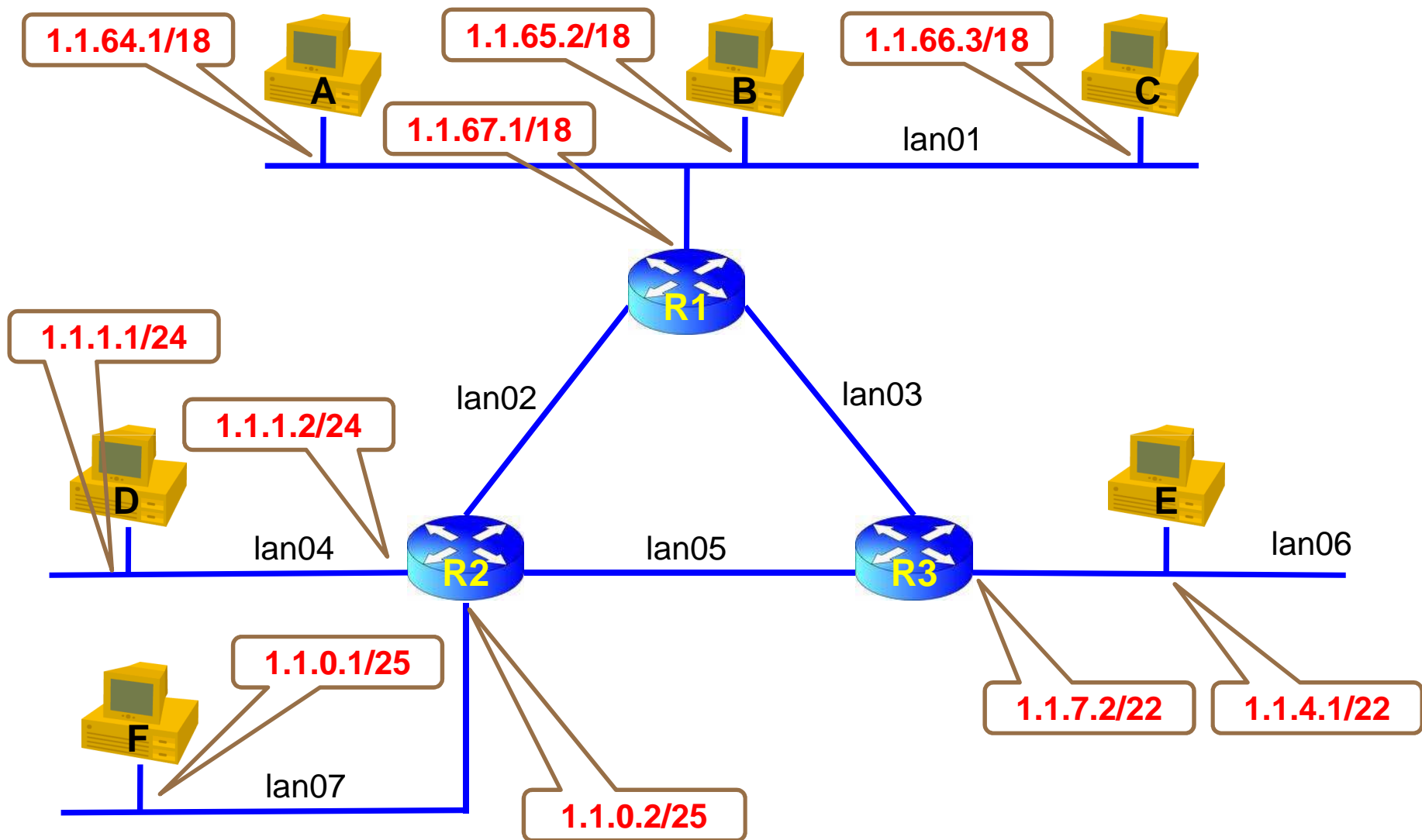


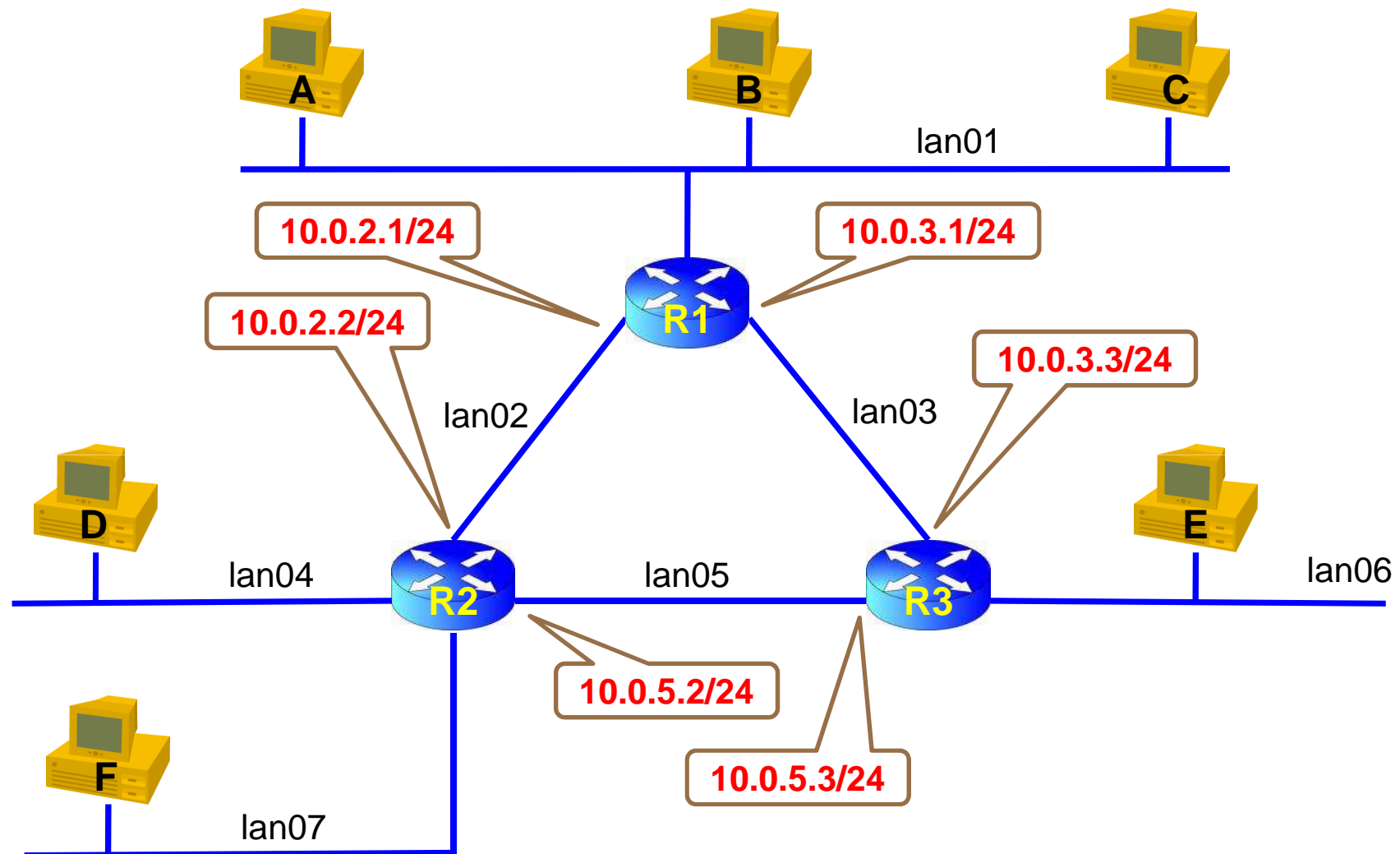
IP: 145.67.0.0/16

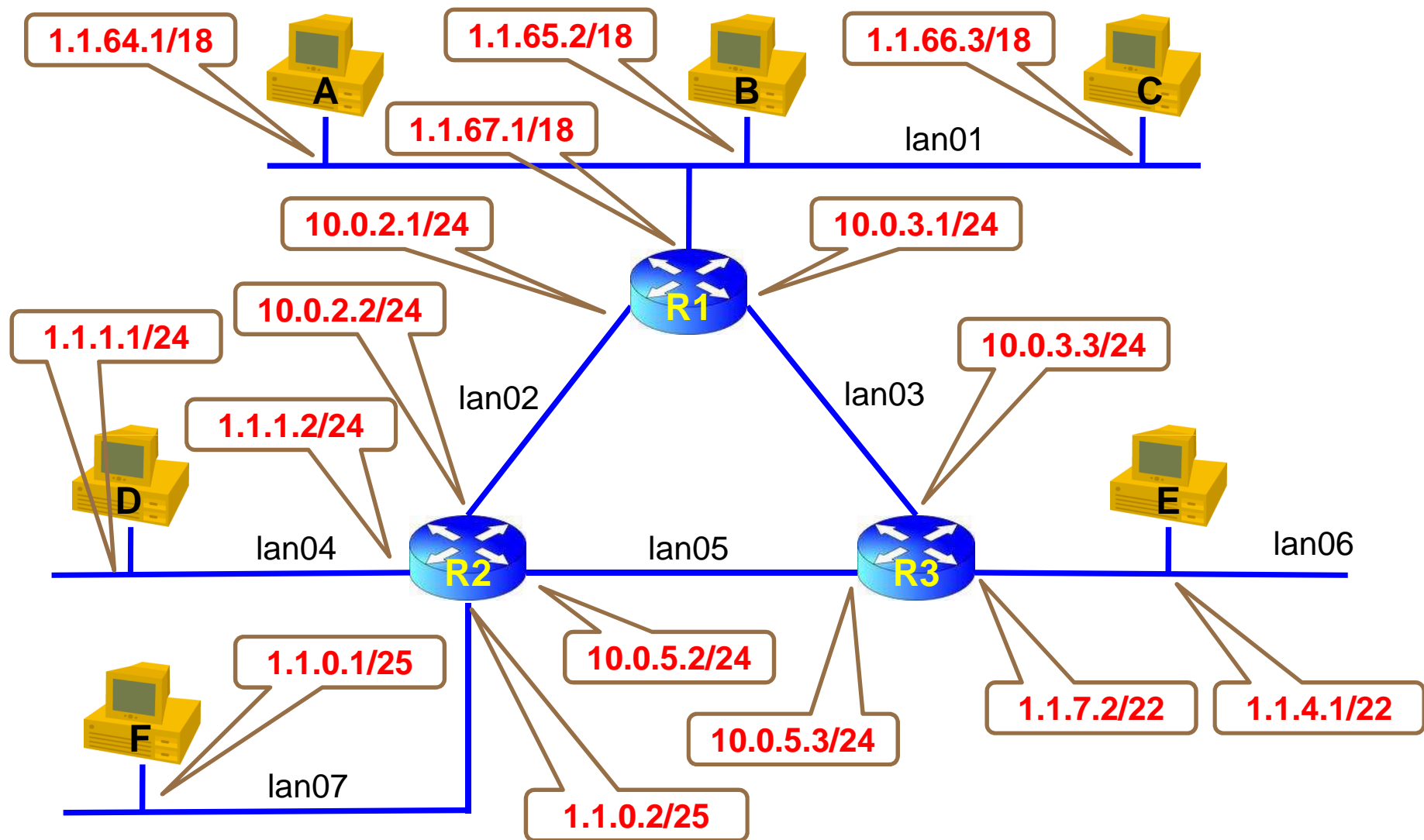


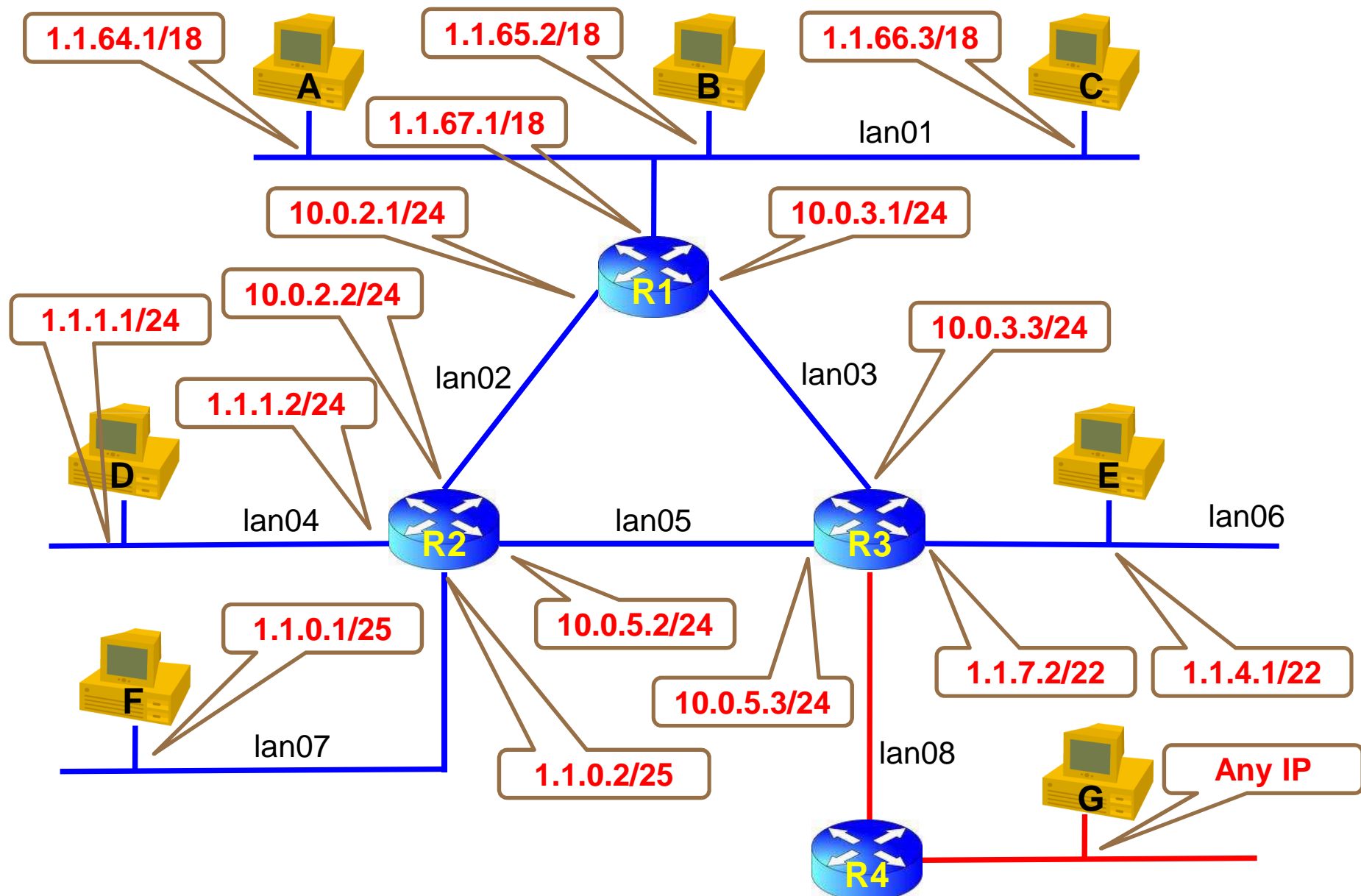


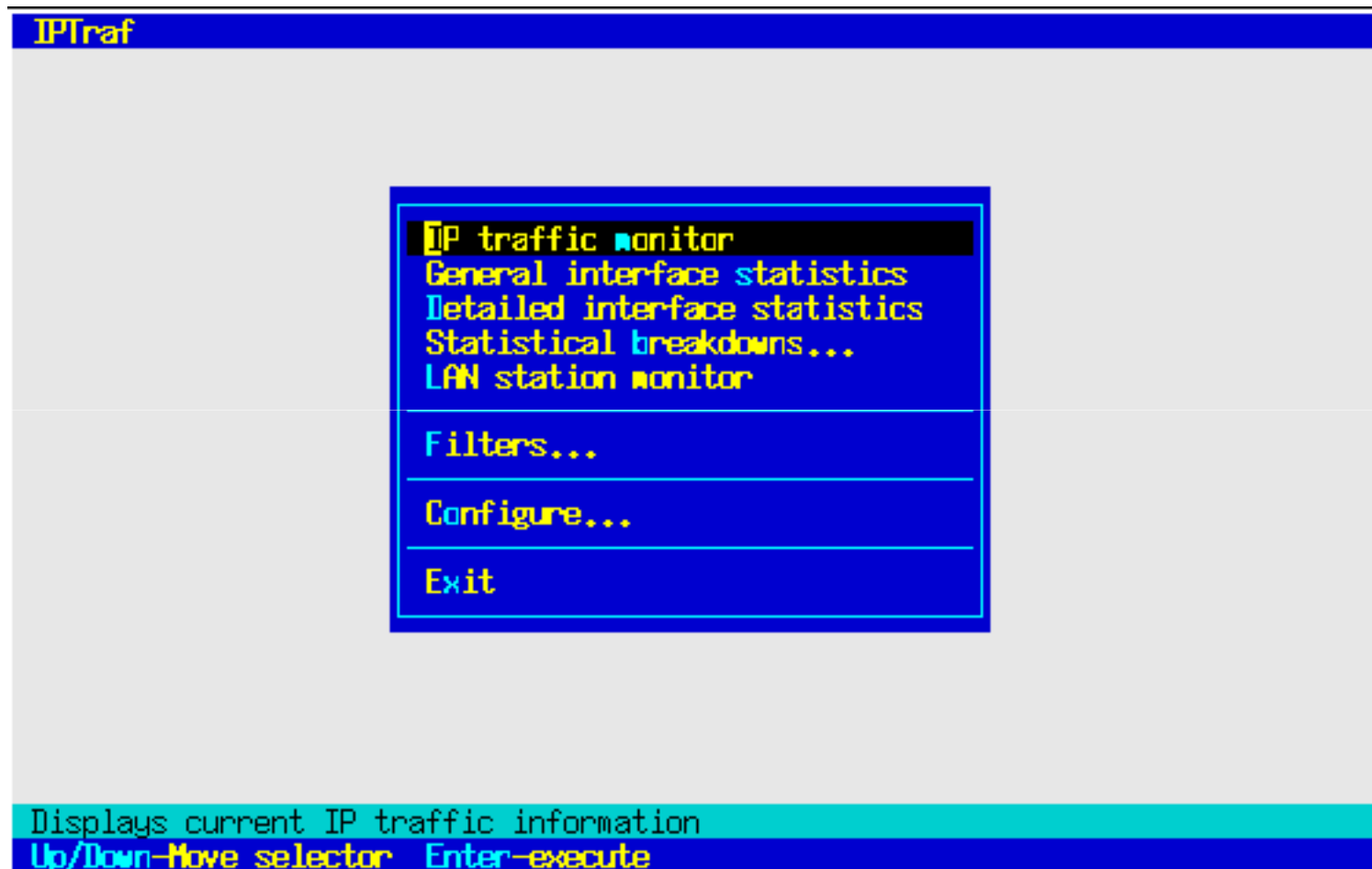


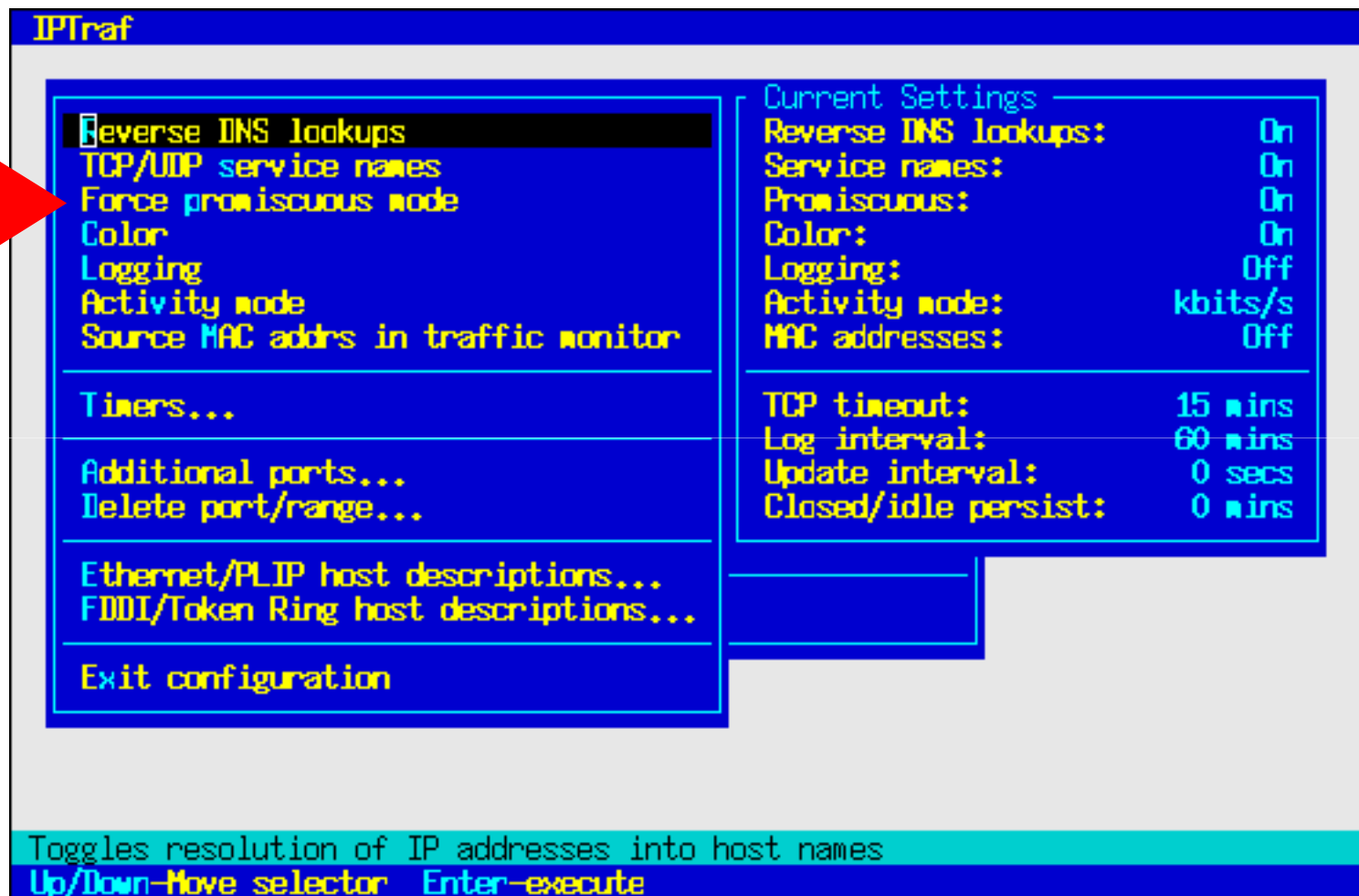














IPtraf

IP traffic monitor	
General interface statistics	
Det	
Sta	TCP...
LAN	UDP...
	Other IP...
	ARP
	RARP
Con	Non-IP
Exi	Exit menu

Filter Status	
No TCP filter applied	
All UDP visible	
No misc IP filter applied	
ARP not visible	
RARP visible	
Non-IP not visible	

Filters affect the IP traffic monitor, interface statistics, and TCP/UDP protocol breakdown. The packet size breakdown and LAN monitor are unaffected.

Transmission Control Protocol

Up/Down-Move selector Enter-execute



```
IPtraf
TCP Connections (Source Host:Port) ————— Packets — Bytes Flags Iface
61.9.80.40:3812 > 757 34822 --A- eth0
61.9.4.185:http > 1001 1501198 -PA- eth0
61.9.80.38:1624 > 528 24864 --A- eth0
CPE3439373939323531.cpe.net.cabl:1214 > 832 1245048 --A- eth0
boh141zoy4111.bc.hsia.telus.net:1214 > 1139 1704236 --A- eth0
61.9.80.38:1334 > 652 30790 --A- eth0
64.94.89.245:http > 533 760216 -PA- eth0
61.9.82.125:62620 > 346 18567 --A- eth0
61.9.82.125:63612 > 277 13146 --A- eth0
128.167.58.181:http > 467 700500 --A- eth0
61.9.82.122:64399 > 231 11070 --A- eth0
h24-80-94-122.vn.shawcable.net:1214 > 332 496592 -PA- eth0
TCP: 6276 entries ————— Active

ARP request for 61.9.108.253 (46 bytes) from 00d0b7b7ea8d to 00000c4340a0 on
ARP reply from 61.9.108.253 (46 bytes) from 00000c4340a0 to 00d0b7b7ea8d on
ICMP echo req (84 bytes) from riker.mozcom.com to w4.dcx.yahoo.com on eth0
ICMP echo rply (84 bytes) from w4.dcx.yahoo.com to riker.mozcom.com on eth0
Non-IP (0x4) (46 bytes) from 00d0bacceb43 to 0180c2000000 on eth0
Non-IP (0x4) (46 bytes) from 00d0bacceb44 to 0180c2000000 on eth0
Bottom ————— Elapsed time: 0:03
Pkts captured (all interfaces): 208029 | TCP flow rate: 148.40 kbits/s
Up/Dn/PgUp/PgDn-scroll M-more TCP info W-chg actu win S-sort TCP X-exit
```



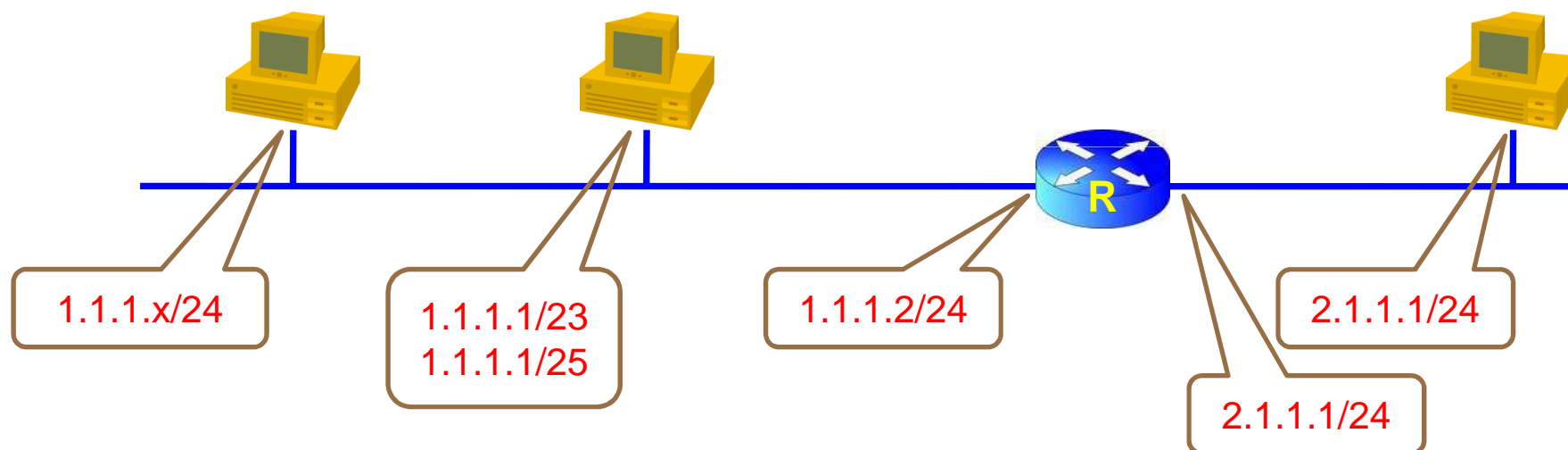
IPtraf

PktsIn	IP In	BytesIn	InRate	PktsOut	IP Out	BytesOut	OutRate
Ethernet HW addr: 0050dac010e9 on eth0							
90	90	6401	0.0	128	127	8530	0.0
Ethernet HW addr: 0030f212f000 on eth0							
133	133	8958	0.0	163	141	15589	2.0
Ethernet HW addr: 01005e000005 on eth0							
75	75	11482	2.4	0	0	0	0.0
Ethernet HW addr: 00d0baccceb47 on eth0							
0	0	0	0.0	18	0	1152	0.2
Ethernet HW addr: 0180c2000000 on eth0							
18	0	1152	0.2	0	0	0	0.0
Ethernet HW addr: 00000c4340a0 on eth0							
0	0	0	0.0	26	26	3724	0.6
Ethernet HW addr: 006097b77e2e on eth0							
0	0	0	0.0	2	0	120	0.0
Ethernet HW addr: ffffffff on eth0							
47	4	3672	0.4	0	0	0	0.0
Ethernet HW addr: 0050733f6b21 on eth0							
0	0	0	0.0	4	0	240	0.0
Ethernet HW addr: 003094152f01 on eth0							
0	0	0	0.0	15	15	2786	0.2

16 entries — Elapsed time: 0:00 — InRate and OutRate are in kbits/sec —
Up/Down/PgUp/PgDn-scroll window S-sort X-exit

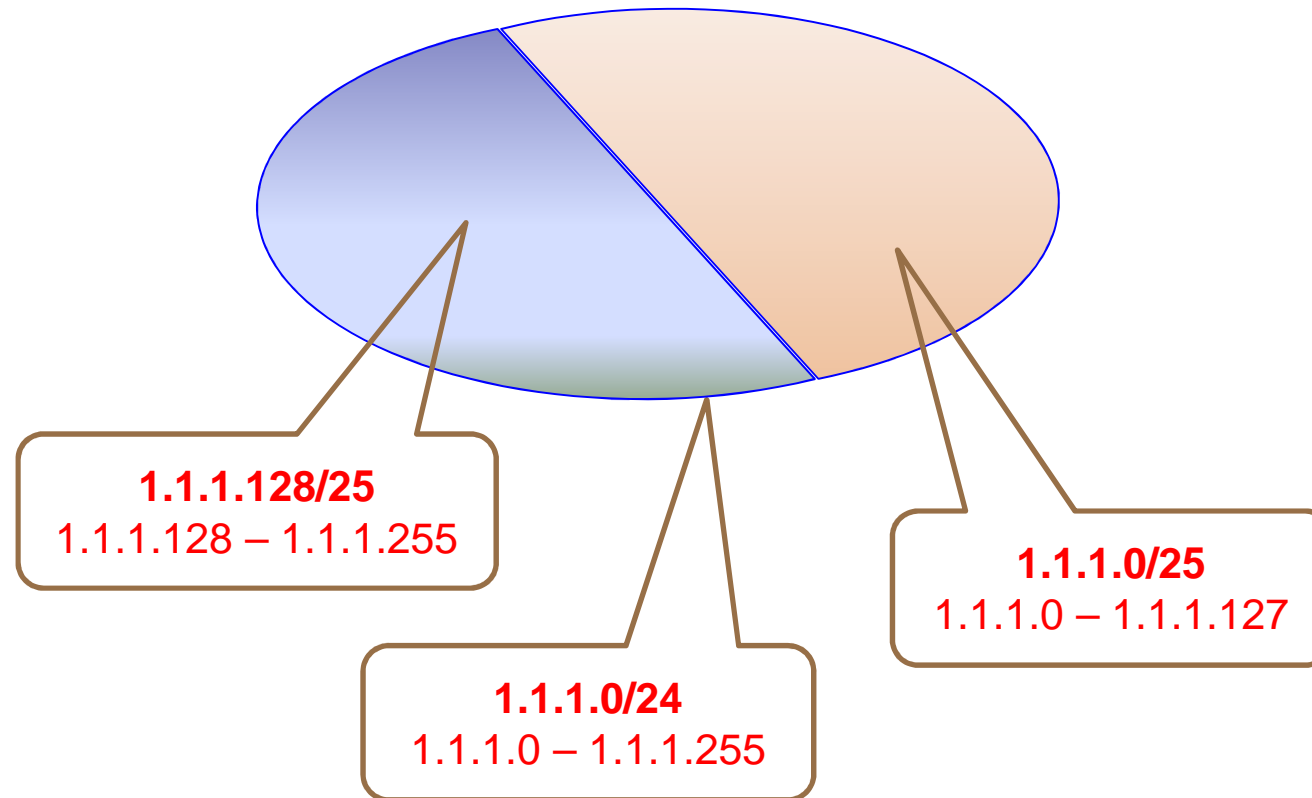


Un nodo in una lan ha la maschera di rete sbagliata. Descrivere cosa può succedere nei vari scenari possibili.



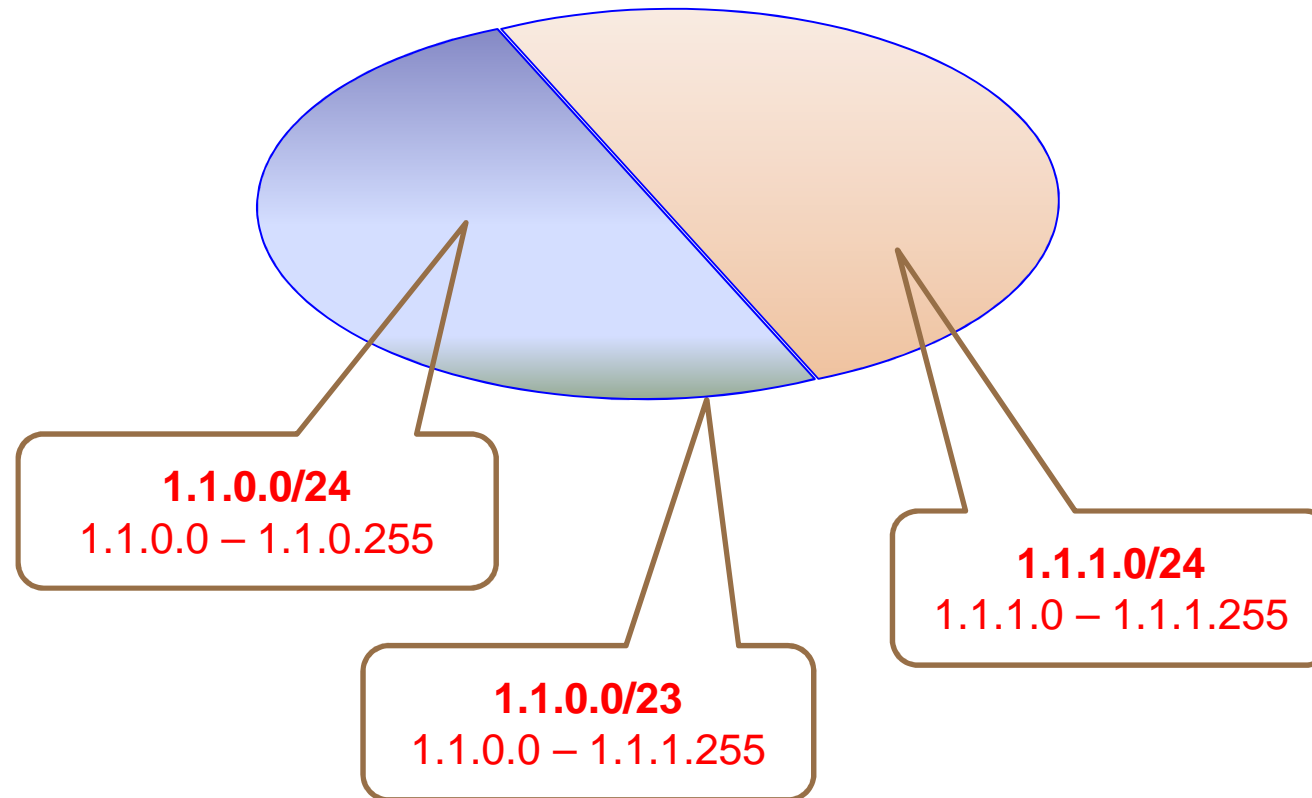


Maschera più grande (24 -> 25)





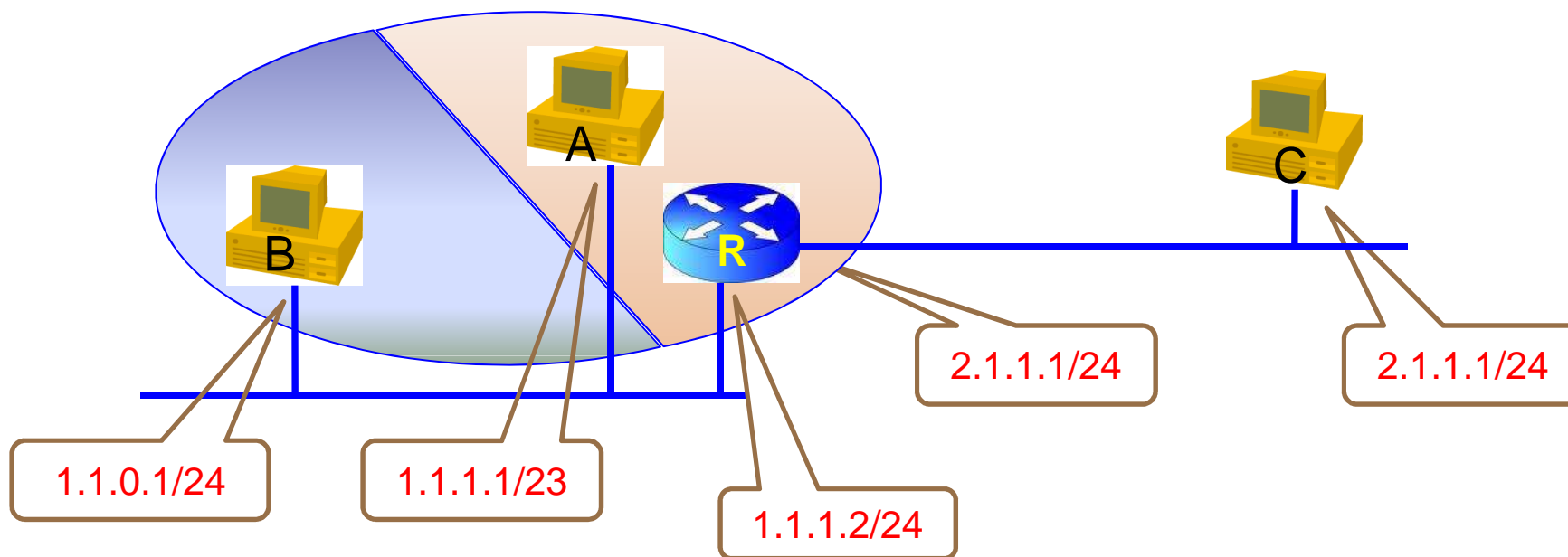
Maschera più piccola (24 -> 23)





Maschera più piccola (24 -> 23)

Rete vista dal nodo A



1.1.1.0/24 -> raggiungibile

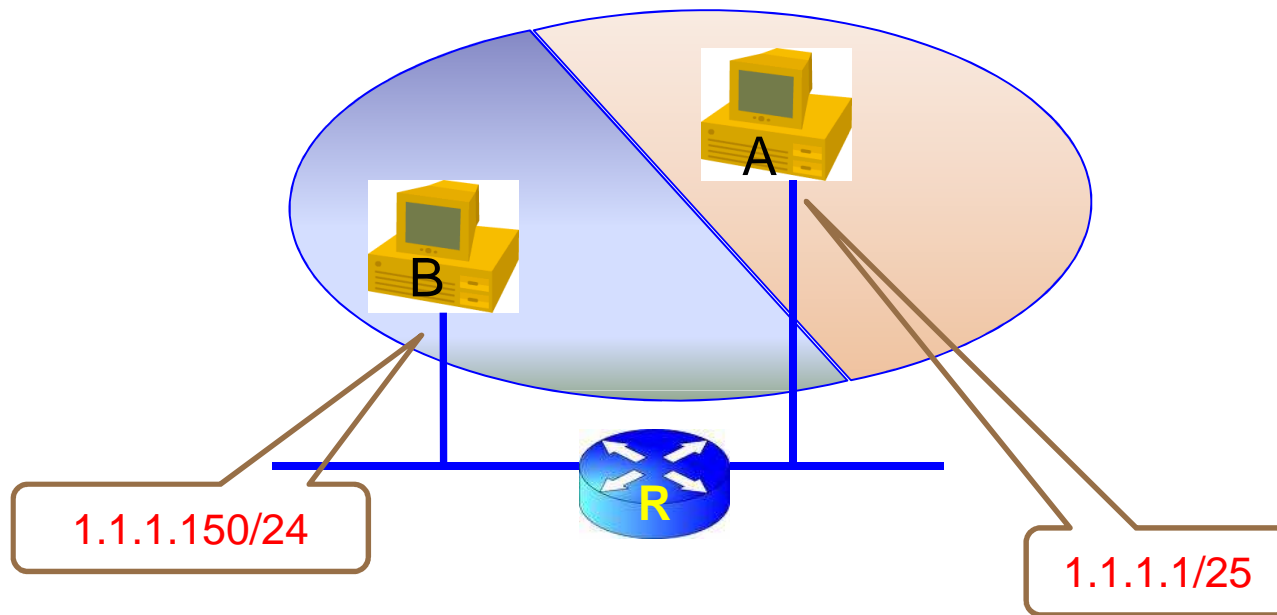
1.1.0.0/24 -> irraggiungibile

Tutto il resto -> raggiungibile



Maschera più grande (24 -> 25)

Rete vista dal nodo A



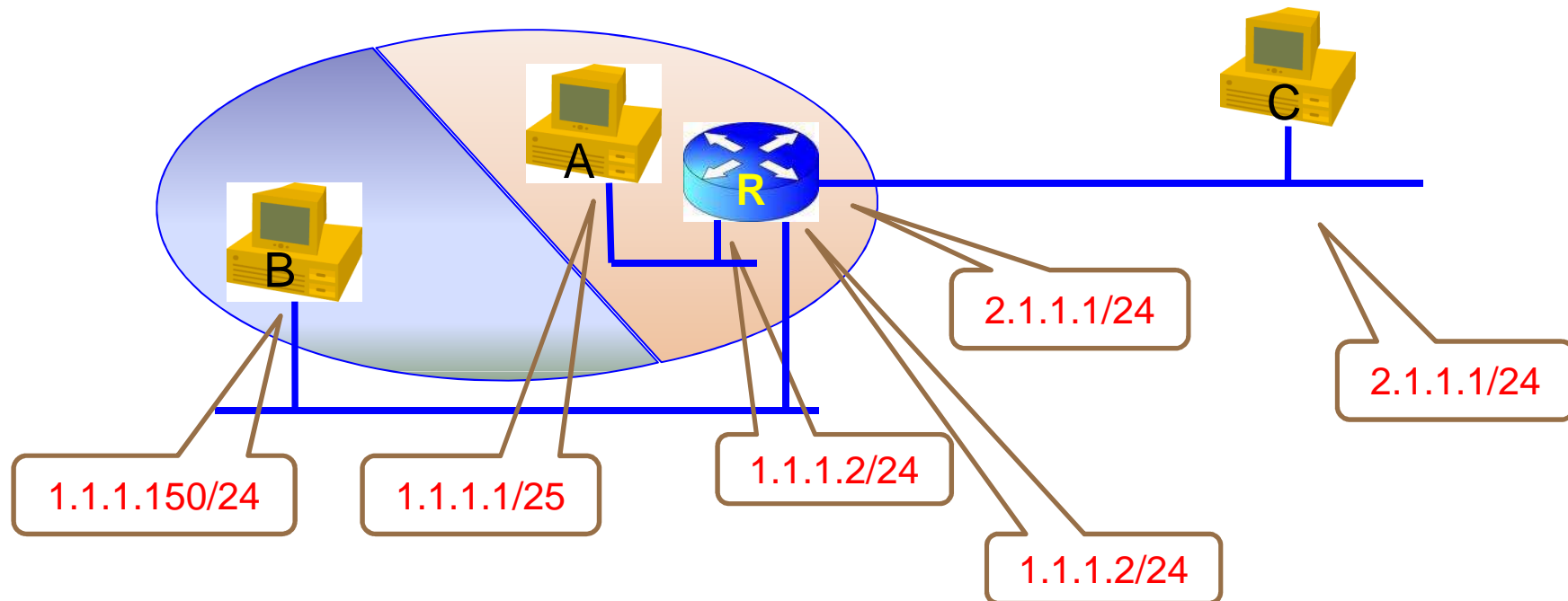
1.1.1.0/25 -> raggiungibile

A vede il router R?



Maschera più grande (24 -> 25)

Rete vista dal nodo A



1.1.1.0/25 -> raggiungibile

1.1.1.128/25 -> raggiungibile tramite il router

Tutto il resto -> raggiungibile



Maschera più grande (24 -> 25)

```
[root@LabReti ~]# ifconfig eth0
eth0      Link encap:Ethernet  HWaddr 00:0c:29:a6:28:0c
          inet addr:1.1.1.1  Bcast:1.1.1.127  Mask:255.255.255.128
          inet6 addr: fe80::20c:29ff:fea6:280c/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:137 errors:0 dropped:0 overruns:0 frame:0
          TX packets:125 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:13118 (12.8 KiB)  TX bytes:9390 (9.1 KiB)
          Interrupt:19 Base address:0x2000

[root@LabReti ~]# ping -c 2 1.1.1.150
PING 1.1.1.150 (1.1.1.150) 56(84) bytes of data.
From 1.1.1.2: icmp_seq=1 Redirect Host(New nexthop: 1.1.1.150)
64 bytes from 1.1.1.150: icmp_seq=1 ttl=64 time=1.79 ms
From 1.1.1.2: icmp_seq=2 Redirect Host(New nexthop: 1.1.1.150)
64 bytes from 1.1.1.150: icmp_seq=2 ttl=64 time=1.54 ms

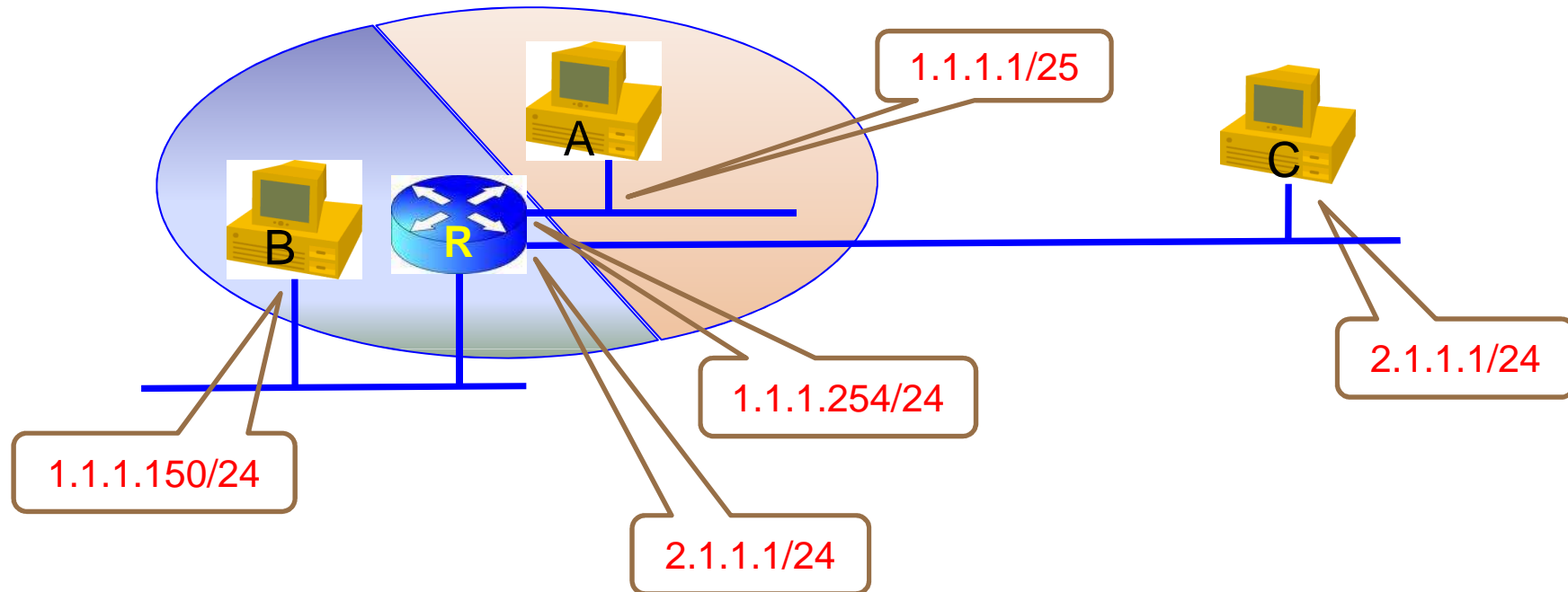
--- 1.1.1.150 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1003ms
rtt min/avg/max/mdev = 1.545/1.669/1.793/0.124 ms
[root@LabReti ~]# arp -a
? (1.1.1.150) at 00:0c:29:fc:db:97 [ether] on eth0
? (1.1.1.2) at 00:0c:29:78:ed:4d [ether] on eth0
[root@LabReti ~]# _
```

Press Ctrl+G.



Maschera più grande (24 -> 25)

Rete vista dal nodo A





Maschera più grande (24 -> 25)

```
[root@LabReti ~]# ifconfig eth0 1.1.1.1/25
[root@LabReti ~]# ifconfig eth0
eth0      Link encap:Ethernet  HWaddr 00:0C:29:A6:28:0C
          inet addr:1.1.1.1  Bcast:1.1.1.127  Mask:255.255.255.128
          inet6 addr: fe80::20c:29ff:fea6:280c/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:12 errors:0 dropped:0 overruns:0 frame:0
          TX packets:30 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:896 (896.0 b)  TX bytes:1668 (1.6 KiB)
          Interrupt:19 Base address:0x2000

[root@LabReti ~]# route add default gw 1.1.1.254
SIOCADDRT: No such process
[root@LabReti ~]# _
```

press Ctrl+G.