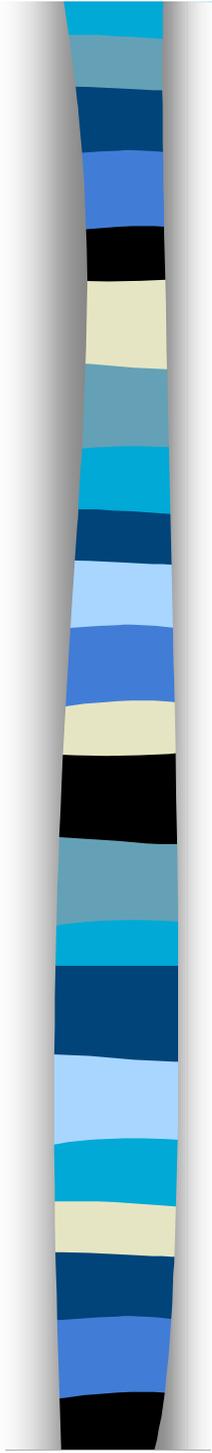


Esercitazioni 2

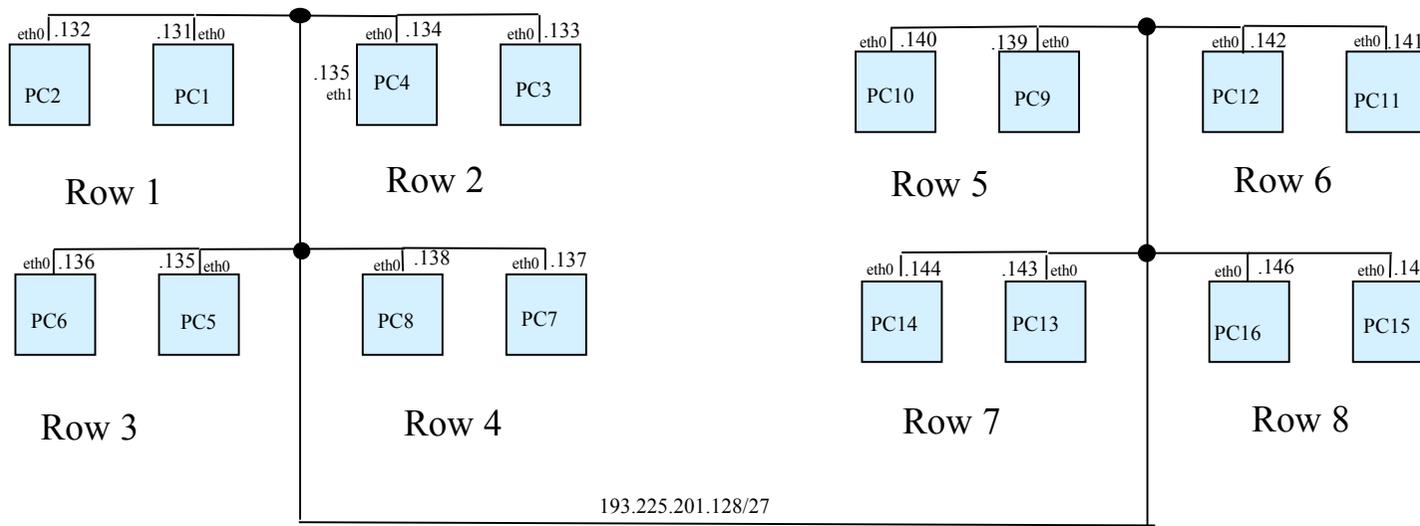
Domande di laboratorio

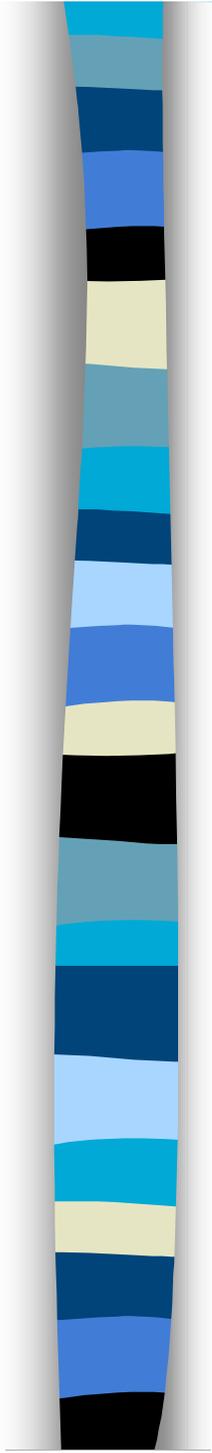


Una rete d'esempio: Indirizzi

- Host IP address
 - 193.225.201.130-146
- Network address
 - 193.225.201.128/27
- Netmask – 32 addresses
 - 255.255.255.x
- Broadcast address
 - 193.225.201.x
- Gateway
 - 193.225.201.129

Schema della rete





Configurazione - Esercizio 1

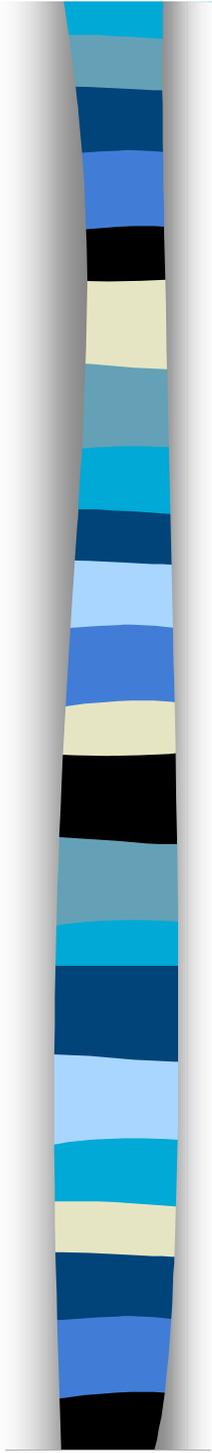
■ Configurate TCP/IP

– Pannello Controllo -> Rete -> TCP/IP (Ethernet)

- Indirizzo IP
- Netmask
- Gateway
- DNS

■ Dal prompt dei comandi:

- ping <ip-address>
- tracert <ip-address>



Esercizio 2 - configurazione

■ Sotto Linux: configurazione Interfaccia Ethernet

```
# ifconfig eth0 <IP address> netmask <netmask>  
broadcast <broadcast>
```

– Vedi: man ifconfig

- For Linux < 2.2

- route add -net <network> netmask <netmask>

– Controllo:

- # ifconfig - controllo interfaccia

- # netstat -nr - vedere tabella d'instradamento

Qual'e' l'interfaccia attiva?

```
Macintosh:~ edamiani$ ifconfig
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
    inet6 fe80::1%lo0 prefixlen 64 scopeid 0x1
    inet 127.0.0.1 netmask 0xff000000
    inet6 ::1 prefixlen 128
gif0: flags=8010<POINTOPOINT,MULTICAST> mtu 1280
stf0: flags=0<> mtu 1280
en0: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    ether 00:11:24:73:d9:b6
    media: autoselect (none) status: inactive
    supported media: none autoselect 10baseT/UTP <half-duplex> 10baseT/UTP <full-
duplex> 10baseT/UTP <full-duplex,flow-control> 10baseT/UTP <full-duplex,hw-
loopback> 100baseTX <half-duplex> 100baseTX <full-duplex> 100baseTX <full-
duplex,flow-control> 100baseTX <full-duplex,hw-loopback> 1000baseT <full-
duplex> 1000baseT <full-duplex,flow-control> 1000baseT <full-duplex,hw-
loopback>
fw0: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 4078
    lladdr 00:11:24:ff:fe:73:d9:b6
    media: autoselect <full-duplex> status: inactive
    supported media: autoselect <full-duplex>
en1: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    inet6 fe80::211:24ff:fe8e:7d4a%en1 prefixlen 64 scopeid 0x6
    inet 192.168.2.2 netmask 0xfffff00 broadcast 192.168.2.255
    ether 00:11:24:8e:7d:4a
    media: autoselect status: active
    supported media: autoselect
tap0: flags=8842<BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    ether 74:61:70:00:00:00
    closed
tun0: flags=8850<POINTOPOINT,RUNNING,SIMPLEX,MULTICAST> mtu 1500
```

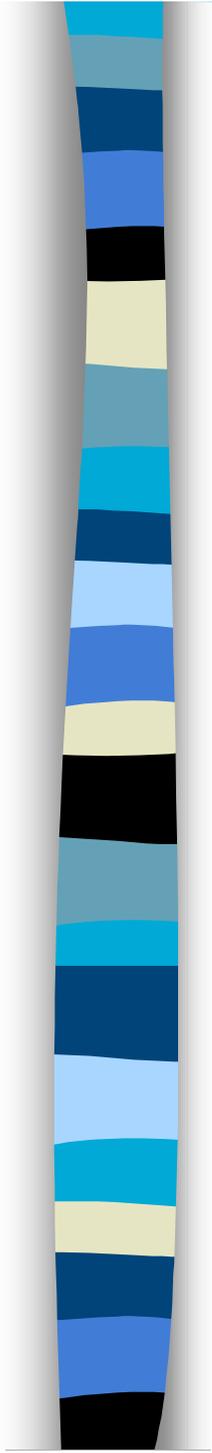
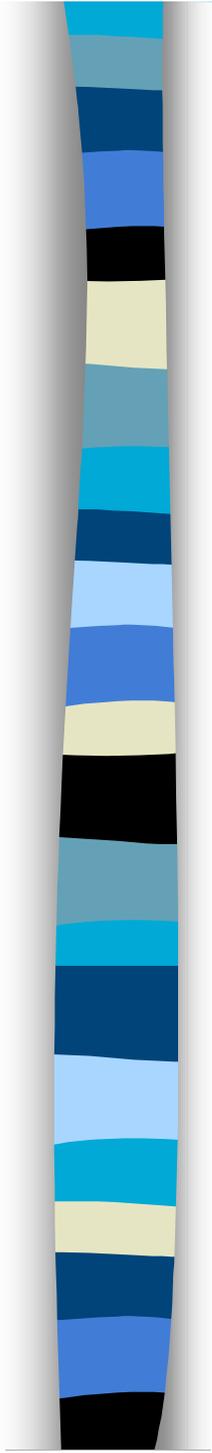


Tabella routing esempio

```
Macintosh:~ edamiani$ netstat -nr  
Routing tables
```

```
Internet:
```

Destination	Gateway	Flags	Refs	Use	Netif
default	192.168.2.1	UGSc	26	2	en1
127	127.0.0.1	UCS	0	0	lo0
127.0.0.1	127.0.0.1	UH	1	16	lo0
169.254	link#6	UCS	0	0	en1
192.168.2	link#6	UCS	2	0	en1
192.168.2.1	0:30:bd:f6:7b:e6	UHLW	27	70	en1
192.168.2.2	127.0.0.1	UHS	0	0	lo0
192.168.2.255	ff:ff:ff:ff:ff:ff	UHLWb	0	3	en1



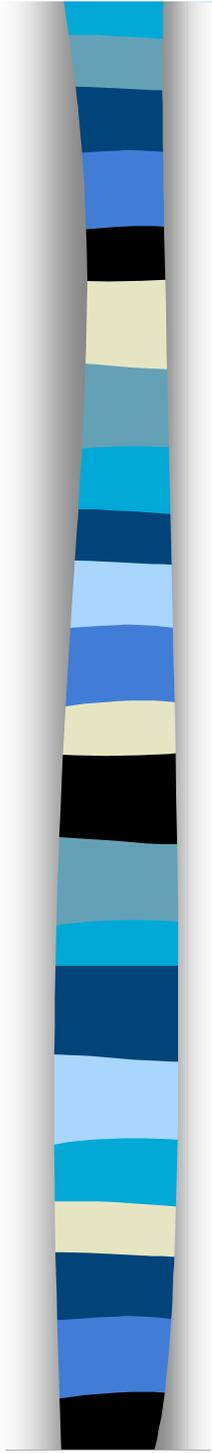
Esercizi su Ping

■ Ping – controllo stato di un host

ping <remote IP address>

– Esercizi di riscaldamento:

- Pingate Altre macchine
- Pingate Indirizzo broadcast



Ping: Esercizi

■ Es. 1

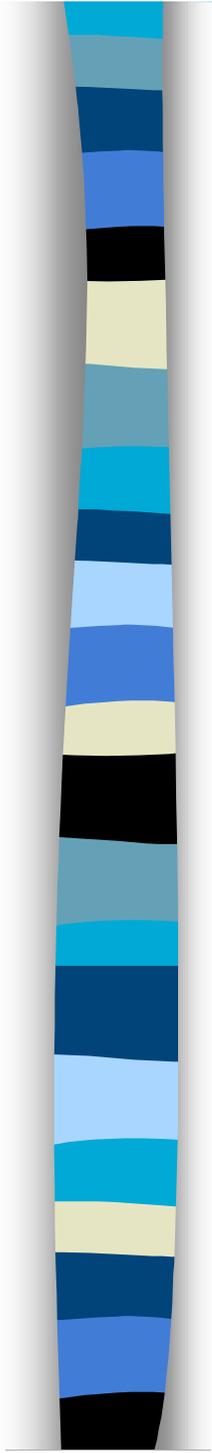
- Trovate il vostro indirizzo MAC
 - Soluzione: uso di `# ifconfig`

■ Es. 2

- Calcolare il RTT da un vicino
 - Soluzione: `# ping <IP address>`

■ Es. 3

- Mostrate la ARP cache ed elencate indirizzi MAC
 - Soluzione: `# arp -n <hostname>`



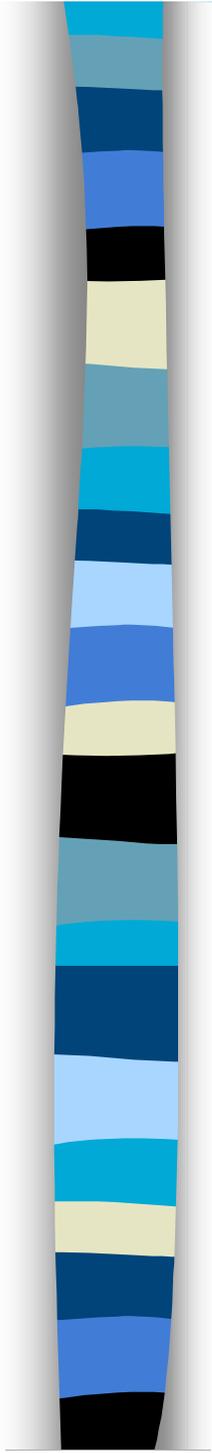
Ping - Esercizio 4

■ Esercizio

– Fare emettere frame ARP di richiesta per un certo IP, a scopi diagnostici

– Soluzione

- # arp -d <IP address> - Cancella la ARP entry esistente
- # ping <IP address> - fa richiedere traduzione



Altri esercizi sul routing

- **Esercizio 1** Aggiungete una rotta di default
 - default e' la keyword equivalente a – 0.0.0.0
 - Soluzione: route add default gw (IP address) [metric N]
- **Esercizio 2:** Controllate la rotta verso un IP:
 - Soluzione: route -n get (IP address)

```
Macintosh:~ edamiani$ route -n get 0.0.0.0
route to: default
destination: default
mask: default
gateway: 192.168.2.1
interface: en1
flags: <UP,GATEWAY,DONE,STATIC,PRCLONING>
recvpipe  sendpipe  ssthresh  rtt,msec  rttvar  hopcount  mtu  expire
          0         0         0         0         0         0       1500  0
```