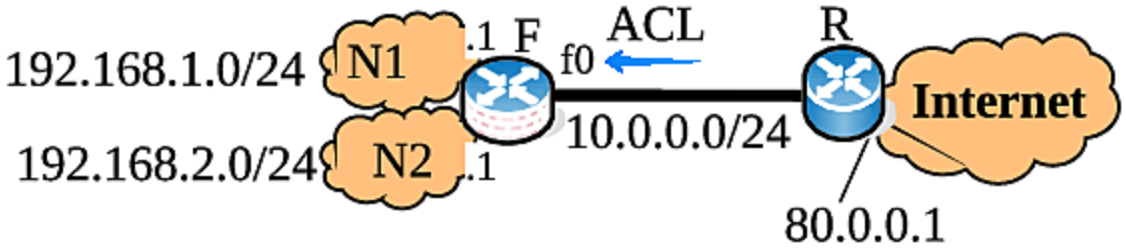
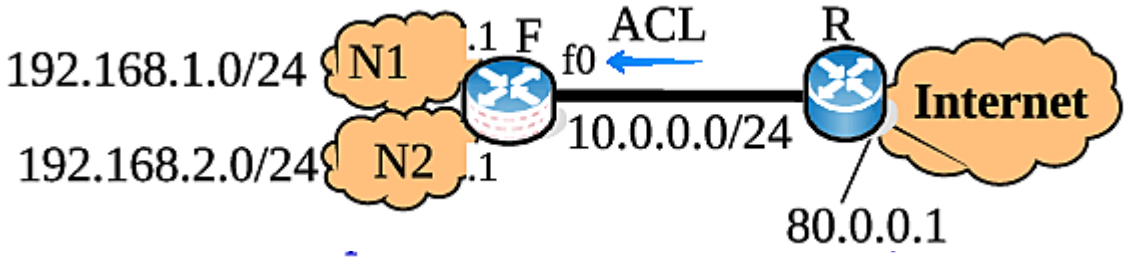
Exercise (c1-2020p)



- La figura mostra l'últim byte de les IPs de les interfícies
- R és un router DNAT i PAT amb una única IP pública 80.0.0.1
- El well known port del servidor web és 80, DNS és 53
- The figure shows the last byte of the IPs of the interfaces
- R is a DNAT and PAT router with a single public IP 80.0.0.1
- The well known port of the web server is 80, DNS is 53

Protocol	IP_src	IP_dst	Port_src	Port_dst
TCP	Any	192.168.1.0/24	≥1024	80
TCP	Any	192.168.2.0/24	80	≥1024
UDP	Any	192.168.2.0/24	53	≥1024

Exercise (c1-2020p)



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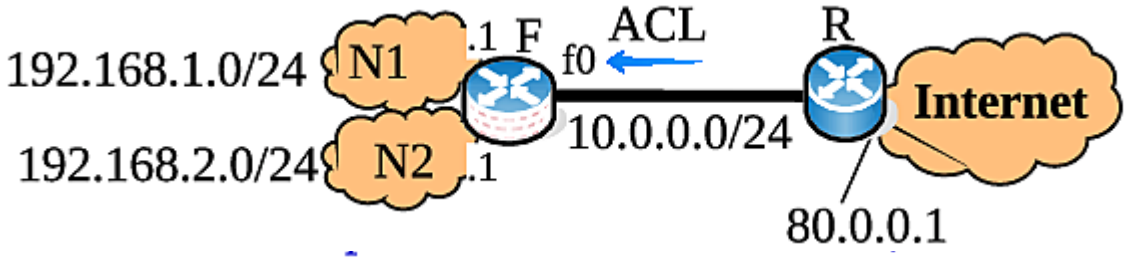
TCP	Any	192.168.1.0/24	≥1024	80
TCP	Any	192.168.2.0/24	80	≥1024
UDP	Any	192.168.2.0/24	53	≥1024

In the firewall F of the figure, the ACL shown in the table is applied to all datagrams arriving at interface f0 from R (there aren't other ACL applied to the datagrams; that is, the interface f0 to R and the other interfaces have no restrictions). If one of the table conditions is verified, the datagram is accepted, otherwise it is discarded.
Say which of the following statements is true:

A) From the Internet it is possible to access a web server on the network N1
B) From the Internet it is possible to access a web server on the network N2
C) From the network N1 it is possible to access a web server in the Internet
D) From the network N2 it is possible to access a web server in the Internet

Exercise (c1-2020p)



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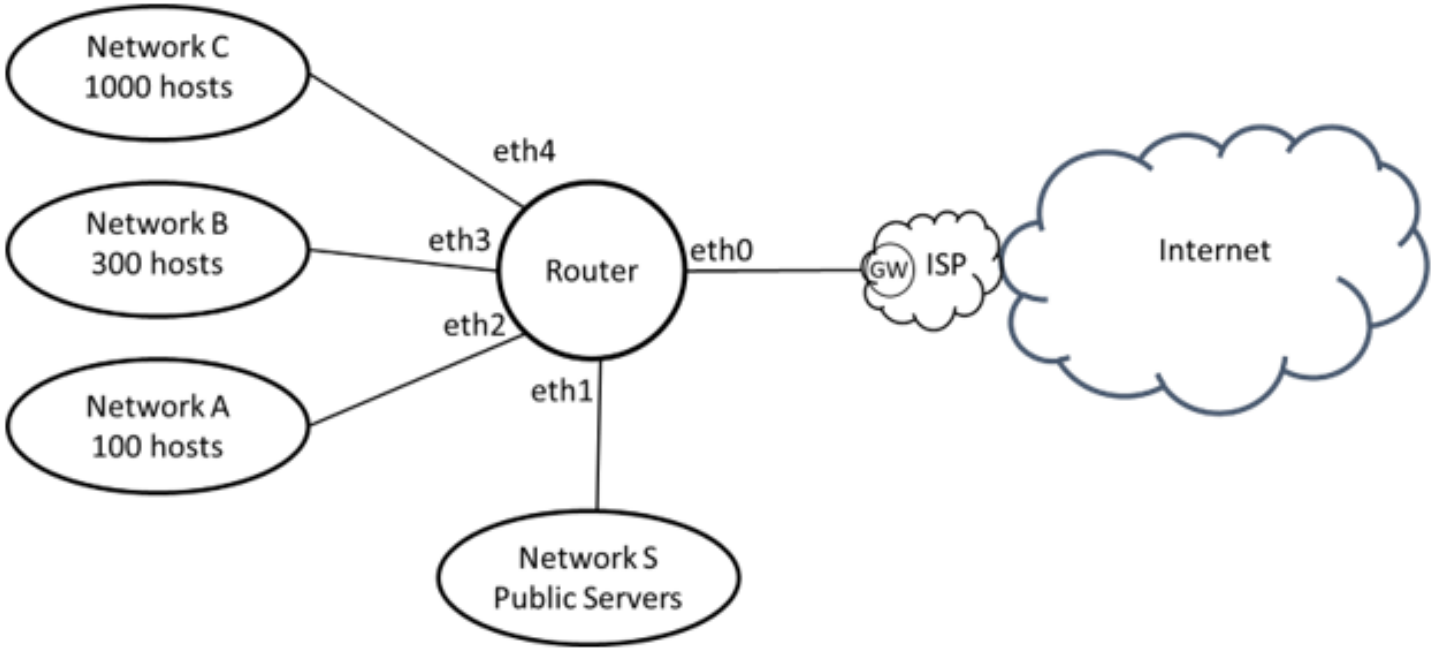
Exercise (ef2020p)



Rule	Iface	In/Out	IP src	src port	IP dst	dst port	Protocol	Action
1	eth0	in	any	<1024	A,B,C	>=1024	TCP	Accept
2	eth0	out	A,B,C	>=1024	any	<1024	TCP	Accept
3	eth0	in	any		any		ICMP	Accept
4	eth0	out	any		any		ICMP	Accept
5	eth2	out	B,C		any		ICMP	Deny
	eth0	any	any	any	any	any	any	Deny

Exercise (ef2020p)
Check the correct sentences for the ACL table.

A) Rules 1 and 2 allow access to servers in networks A, B and C

B) Rule 2 allows clients in A, B and C to send to external servers (in the Internet)

C) Rule 2 allows clients in networks A, B and C to send to both external and internal (S) servers

D) Rule 2 allows clients in networks A, B and C to receive datagrams from external servers (in the Internet)

E) Rules 3 and 4 are incomplete and they are not executed

F) ICMP messages to and from external devices are allowed for all devices in A, B, C and S

G) Response ICMP messages are allowed for all the devices except for servers in network S

H) Any communication between networks A and C is blocked

Exercise (ef2020p)
Check the correct sentences for the ACL table.

A) Rules 1 and 2 allow access to servers in networks A, B and C

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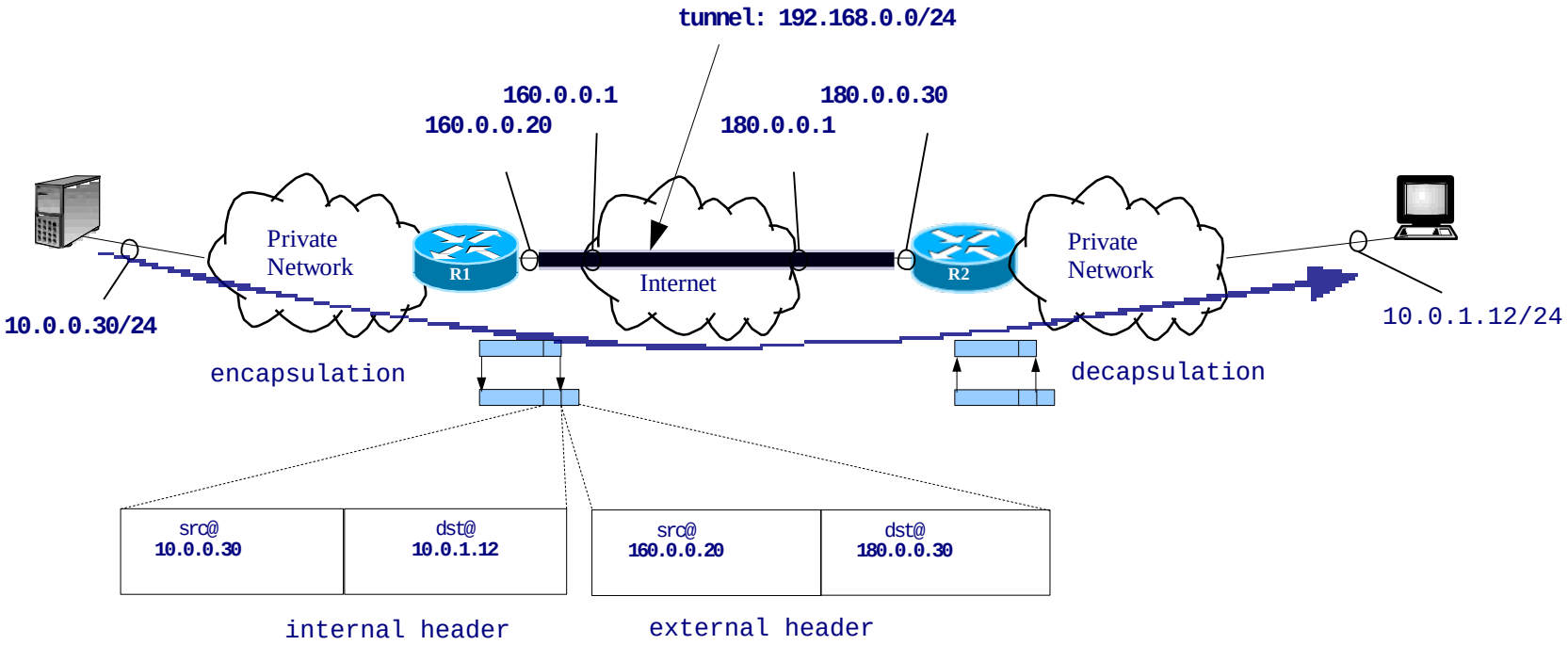
E) Rules 3 and 4 are incomplete and they are not executed

F) ICMP messages to and from external devices are allowed for all devices in A, B, C and S (rules 3 and 4)

G) Response ICMP messages are allowed for all the devices except for servers in network S

H) Any communication between networks A and C is blocked (rule 5 out only!)

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Example: creating a tunnel in linux: R1#
ip tunnel add tun0 mode gre remote 180.0.0.30 local 160.0.0.20 ttl 255
```

Tunnel configuration

Destination	Gateway	Genmask	Iface
10.0.0.0	0.0.0.0	255.255.255.0	eth0
160.0.0.1	0.0.0.0	255.255.255.255	ppp0
0.0.0.0	160.0.0.1	0.0.0.0	ppp0
192.168.0.0	0.0.0.0	255.255.255.0	tunl0
10.0.1.0	192.168.0.2	255.255.255.0	tunl0

R1 Routing Table

Destination	Gateway	Genmask	Iface
10.0.1.0	0.0.0.0	255.255.255.0	eth0
180.0.0.1	0.0.0.0	255.255.255.255	ppp0
0.0.0.0	180.0.0.1	0.0.0.0	ppp0
192.168.0.0	0.0.0.0	255.255.255.0	tunl0
10.0.0.0	192.168.0.1	255.255.255.0	tunl0

R2 Routing Table

Virtual interface for the tunnel
Static route to remote network

Exercise

What is the header and contents of the datagram going through the Internet in the following cases:

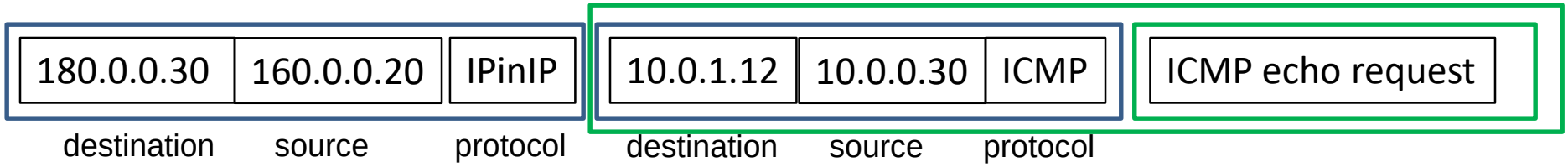
A) Host 10.0.0.30 executes the command “ping 10.0.1.12”

B) Host 10.0.0.30 executes the command “ping 80.88.123.115”

Exercise

What is the header and contents of the datagram going through the Internet in the following cases:

A) Host 10.0.0.30 executes the command “ping 10.0.1.12”



B) Host 10.0.0.30 executes the command “ping 80.88.123.115”