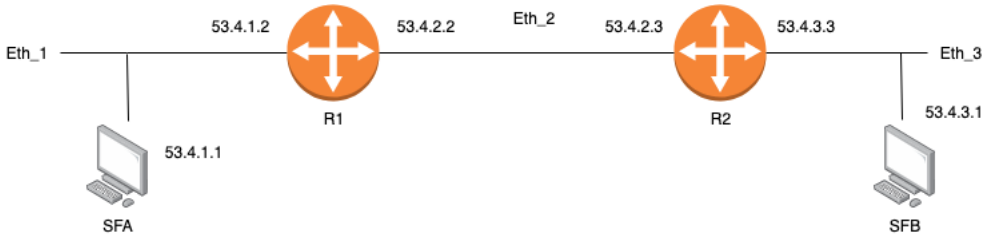
uc3m | Universidad Carlos III de Madrid	**IP and ICMP traffic analysis lab session**[1] **S06**	
Redes y Servicios de Comunicaciones		2023-2024

S06. Session preparation questions[2]

CE1: Consider the scenario in the following figure. From the end system A (SFA), which uses the Linux operating system, the following command is executed:

```
ping -c 1 53.4.3.1
```

Explain the meaning of the -c 1 parameter and indicate the sequence of ICMP packets that are transmitted on the network due to the execution of this command and indicate, for each of these packets, the ICMP message type, the source IP address, the destination IP address, and the TTL.



Use the following nomenclature to describe the messages exchanged over the network:

```
Eth_X: IP(IPorigin, IPdestination, TTL, ICMP(ICMP message type)).
```

Eth_X indicates on which Ethernet segment (Eth_1, Eth_2, or Eth_3) each frame is transmitted. It therefore represents the Ethernet header of the frame.

CE2: Consider the scenario in section CE1. From the end system B (SFB), which uses the Linux operating system, the following command is executed (as system administrator):

```
traceroute -I -q 1 53.4.1.1
```

Explain the meaning of the -I and -q 1 parameters, and indicate, using the nomenclature of section CE1, the sequence of ICMP packets that are transmitted on the network due to the execution of this command and indicate, for each of these packets, the type of ICMP message, the source IP address, the destination IP address, and the TTL.

[1] This lab session is inspired by lab sessions proposed in "J. F. Kurose, K. W. Ross; "Computer Networking, a top-down approach", 5th edition, Pearson - Addison Wesley, 2009"."

[2] Note: before answering this deliverable, you must have read the ICMP section of the book used in the subject and have read document corresponding to S06 lab session.