



Con i 2 allegati sotto dimostro, tramite i ping tramite prompt, che il laptop 0 pinga sia il pc0 che il laptop 2:

```

Command Prompt

Request timed out.
Request timed out.

Ping statistics for 192.168.200.100:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.100.103

Pinging 192.168.100.103 with 32 bytes of data:

Reply from 192.168.100.103: bytes=32 time<1ms TTL=128
Reply from 192.168.100.103: bytes=32 time<1ms TTL=128
Reply from 192.168.100.103: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.100.103:
    Packets: Sent = 3, Received = 3, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

Control-C
^C
C:\>ping 192.168.200.100

Pinging 192.168.200.100 with 32 bytes of data:

Reply from 192.168.200.100: bytes=32 time<1ms TTL=127
Reply from 192.168.200.100: bytes=32 time<1ms TTL=127
Reply from 192.168.200.100: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.200.100:
    Packets: Sent = 3, Received = 3, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

Control-C
^C
C:\>
  
```

Mediante le 4 immagini che posterò ora invece, dimostrerò come un pacchetto dati inviato da laptop 0 a laptop 2 arrivi a destinazione(dimostrato anche dal fatto che i laptop pingano fra loro) e come cambiano source ma c e destination ed ip source e destination durante l'invio dei dati:

At Device: Switch0
Source: Laptop0
Destination: Laptop2

In Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer 2: Ethernet II Header 000D.BD3D.312C >> 0002.4AD0.AC01
Layer 1: Port FastEthernet0/2

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer 2: Ethernet II Header 000D.BD3D.312C >> 0002.4AD0.AC01
Layer 1: Port(s): FastEthernet0/1

1. FastEthernet0/2 receives the frame.

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At Device: Router0
Source: Laptop0
Destination: Laptop2

In Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 192.168.100.100, Dest. IP: 192.168.200.100 ICMP Message Type: 8
Layer 2: Ethernet II Header 000D.BD3D. 312C >> 0002.4AD0.AC01
Layer 1: Port GigabitEthernet0/0

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 192.168.100.100, Dest. IP: 192.168.200.100 ICMP Message Type: 8
Layer 2: Ethernet II Header 0002.4AD0.AC02 >> 0001.641B.6026
Layer 1: Port(s): GigabitEthernet0/1

1. GigabitEthernet0/0 receives the frame.

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At Device: Switch1
Source: Laptop0
Destination: Laptop2

In Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer 2: Ethernet II Header 0002.4AD0.AC02 >> 0001.641B.6026
Layer 1: Port FastEthernet0/1

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer3
Layer 2: Ethernet II Header 0002.4AD0.AC02 >> 0001.641B.6026
Layer 1: Port(s): FastEthernet0/3

1. FastEthernet0/1 receives the frame.

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At Device: Laptop2
Source: Laptop0
Destination: Laptop2

In Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 192.168.100.100, Dest. IP: 192.168.200.100 ICMP Message Type: 8
Layer 2: Ethernet II Header 0002.4AD0.AC02 >> 0001.641B.6026
Layer 1: Port FastEthernet0

Out Layers

Layer7
Layer6
Layer5
Layer4
Layer 3: IP Header Src. IP: 192.168.200.100, Dest. IP: 192.168.100.100 ICMP Message Type: 0
Layer 2: Ethernet II Header 0001.641B. 6026 >> 0002.4AD0.AC02
Layer 1: Port(s): FastEthernet0

1. FastEthernet0 receives the frame.

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PDU Information at Device: Switch1

OSI Model Inbound PDU Details Outbound PDU Details

At Device: Switch1
Source: Laptop0
Destination: Laptop2

In Layers	Out Layers
Layer7	Layer7
Layer6	Layer6
Layer5	Layer5
Layer4	Layer4
Layer3	Layer3
Layer 2: Ethernet II Header 0001.641B.6026 >> 0002.4AD0.AC02	Layer 2: Ethernet II Header 0001.641B.6026 >> 0002.4AD0.AC02
Layer 1: Port FastEthernet0/3	Layer 1: Port(s): FastEthernet0/1

1. FastEthernet0/3 receives the frame.

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Come si può vedere, si analizza il comportamento di un pacchetto dati nel layer data e layer rete.

Il laptop 0 invia il pacchetto che viene accolto dallo switch (livello data) che gli ingloba l'indirizzo mac del laptop 0 nel pacchetto dati: 000D.BD3D.312 e del laptop 2 ricevente: 0002.4AD0.AC01

Poi il pacchetto dati arriverà al router (livello rete) dove verrà assegnato l'ip del laptop0: 192.168.100.100 e l'ip del laptop 2 ricevente: 192.160.200.100.

Facendo partire un pacchetto da laptop 2 a laptop 0 si invertiranno source mac e destination mac e source ip e destination ip (più precisamente si invertiranno perché il pacchetto partirà dal laptop 2 anziché dal laptop 0 e quindi si invertiranno ricevente e mandante)