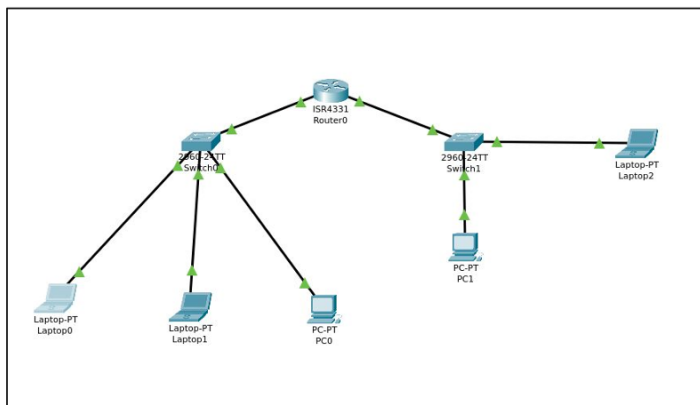


Report Pratica S1/L4

Matteo Congiu

Il laboratorio di oggi consiste nella creazione e configurazione di una rete di calcolatori con il tool Cisco Packet Tracer, come in figura. Lo scopo è capire come funzionano le comunicazioni a livello 2 e 3 del modello ISO / OSI con i rispettivi device di rete.

Architettura target:



Esercizio:

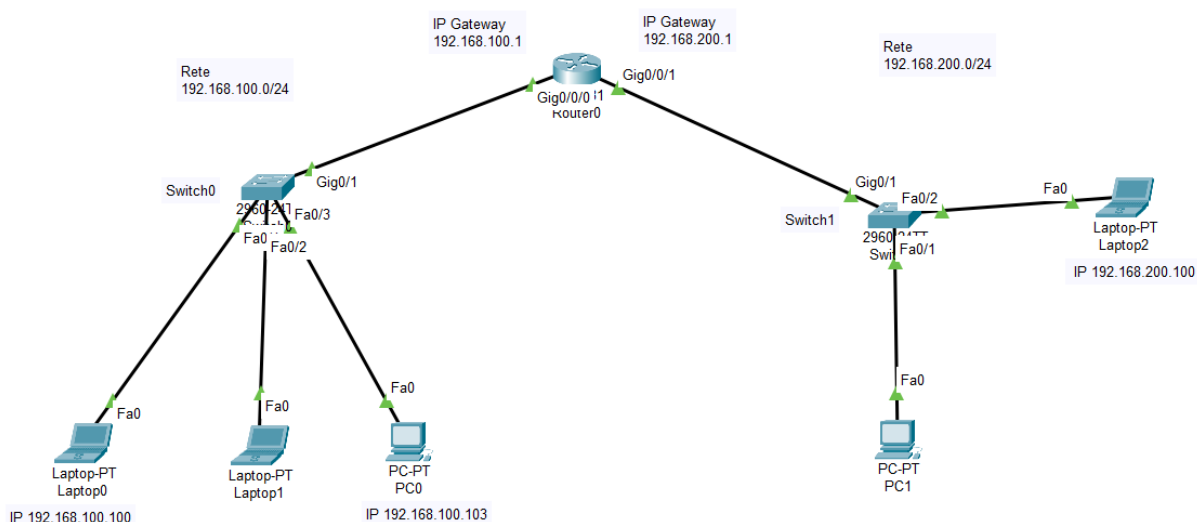
- Mettere in comunicazione il laptop-PT0 con IP 192.168.100.100 con il PC-PT-PC0 con IP 192.168.100.103
- Mettere in comunicazione il laptop-PT0 con IP 192.168.100.100 con il laptop-PT2 con IP 192.168.200.100
- Spiegare, con una relazione, cosa succede quando un dispositivo invia un pacchetto ad un altro dispositivo di un'altra rete.

Svolgimento

Per creare la rete ho utilizzato un Router ISR4331 al quale ho collegato i due switch.

Nel primo Switch (**Switch0**) ho collegato il **Laptop-PT0 con IP 192.168.200.100**, Laptop PT1, **PC-PT PC0 con IP 192.168.100.103**.

Nel secondo Switch (**Switch1**) ho collegato PC-PT PC1, **Laptop-PT2 con IP 192.168.200.100**.



In questo caso abbiamo 2 reti:

-**192.168.100.0/24** con IP Gateway **192.168.100.1**, Host **PT0 192.168.100.100** e **PC0 192.168.100.103**;

-**192.168.200.0/24** con IP Gateway **192.168.200.1**, Host **PT2 192.168.200.100**.

Ho proceduto configurando le interfacce **GigabitEthernet0/0/0** e **GigabitEthernet0/0/1** del Router assegnando gli indirizzi IP Gateway.

GigabitEthernet0/0/0

The screenshot shows the configuration window for Router0, specifically for the GigabitEthernet0/0/0 interface. The window has tabs for Physical, Config, CLI, and Attributes, with 'Config' selected. On the left, a sidebar lists configuration categories: GLOBAL (Settings, Algorithm Settings), ROUTING (Static, RIP), SWITCHING (VLAN Database), and INTERFACE (GigabitEthernet0/0/0, GigabitEthernet0/0/1, GigabitEthernet0/0/2). The main area displays the configuration for GigabitEthernet0/0/0. The Port Status is 'On'. Bandwidth is set to 1000 Mbps. Duplex is set to Full Duplex. The MAC Address is 0060.4706.4601. The IP Configuration section shows the IPv4 Address as 192.168.100.1 and the Subnet Mask as 255.255.255.0. The Tx Ring Limit is set to 10.

GigabitEthernet0/0/0	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex
MAC Address	0060.4706.4601
IP Configuration	
IPv4 Address	192.168.100.1
Subnet Mask	255.255.255.0
Tx Ring Limit	10

GigabitEthernet0/0/1

The screenshot shows the configuration window for Router0, specifically for the GigabitEthernet0/0/1 interface. The window has tabs for Physical, Config, CLI, and Attributes, with 'Config' selected. On the left, a sidebar lists configuration categories: GLOBAL (Settings, Algorithm Settings), ROUTING (Static, RIP), SWITCHING (VLAN Database), and INTERFACE (GigabitEthernet0/0/0, GigabitEthernet0/0/1, GigabitEthernet0/0/2). The main area displays the configuration for GigabitEthernet0/0/1. The Port Status is 'On'. Bandwidth is set to 1000 Mbps. Duplex is set to Full Duplex. The MAC Address is 0060.4706.4602. The IP Configuration section shows the IPv4 Address as 192.168.200.1 and the Subnet Mask as 255.255.255.0. The Tx Ring Limit is set to 10.

GigabitEthernet0/0/1	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex
MAC Address	0060.4706.4602
IP Configuration	
IPv4 Address	192.168.200.1
Subnet Mask	255.255.255.0
Tx Ring Limit	10

Successivamente ho configurato gli indirizzi IP degli Host interessati (Ipv4, Subnet Mask e Default Gateway).

Laptop-PT0

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.100.100

Subnet Mask 255.255.255.0

Default Gateway 192.168.100.1

DNS Server 0.0.0.0

PC-PT-PC0

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.100.103

Subnet Mask 255.255.255.0

Default Gateway 192.168.100.1

DNS Server 0.0.0.0

Laptop-PT2

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

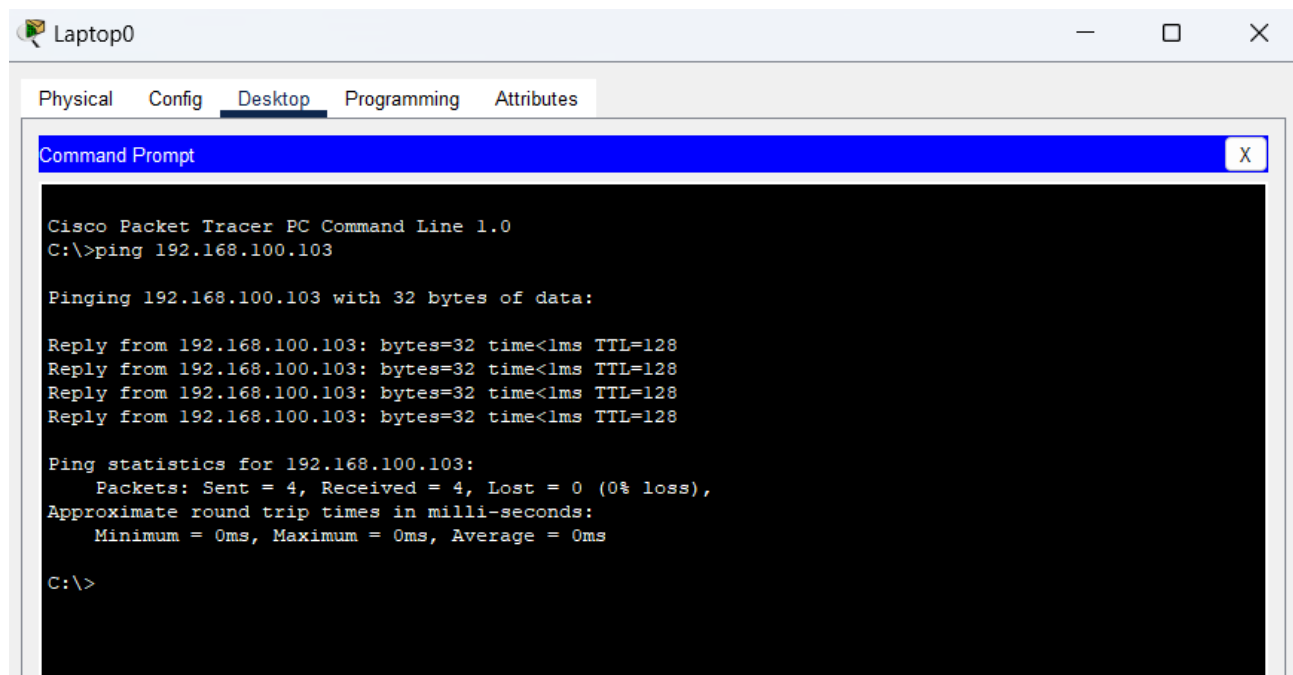
IPv4 Address 192.168.200.100

Subnet Mask 255.255.255.0

Default Gateway 192.168.200.1

DNS Server 0.0.0.0

Per verificare la comunicazione tra **PT0** e **PC0** ho inviato un **ping** tramite il **Command Prompt**.



The screenshot shows a Cisco Packet Tracer window titled 'Laptop0' with tabs for Physical, Config, Desktop, Programming, and Attributes. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The command prompt shows the execution of a ping command from PC0 to PT0 (192.168.100.103). The output indicates that all four packets were received successfully with 0% loss.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.100.103

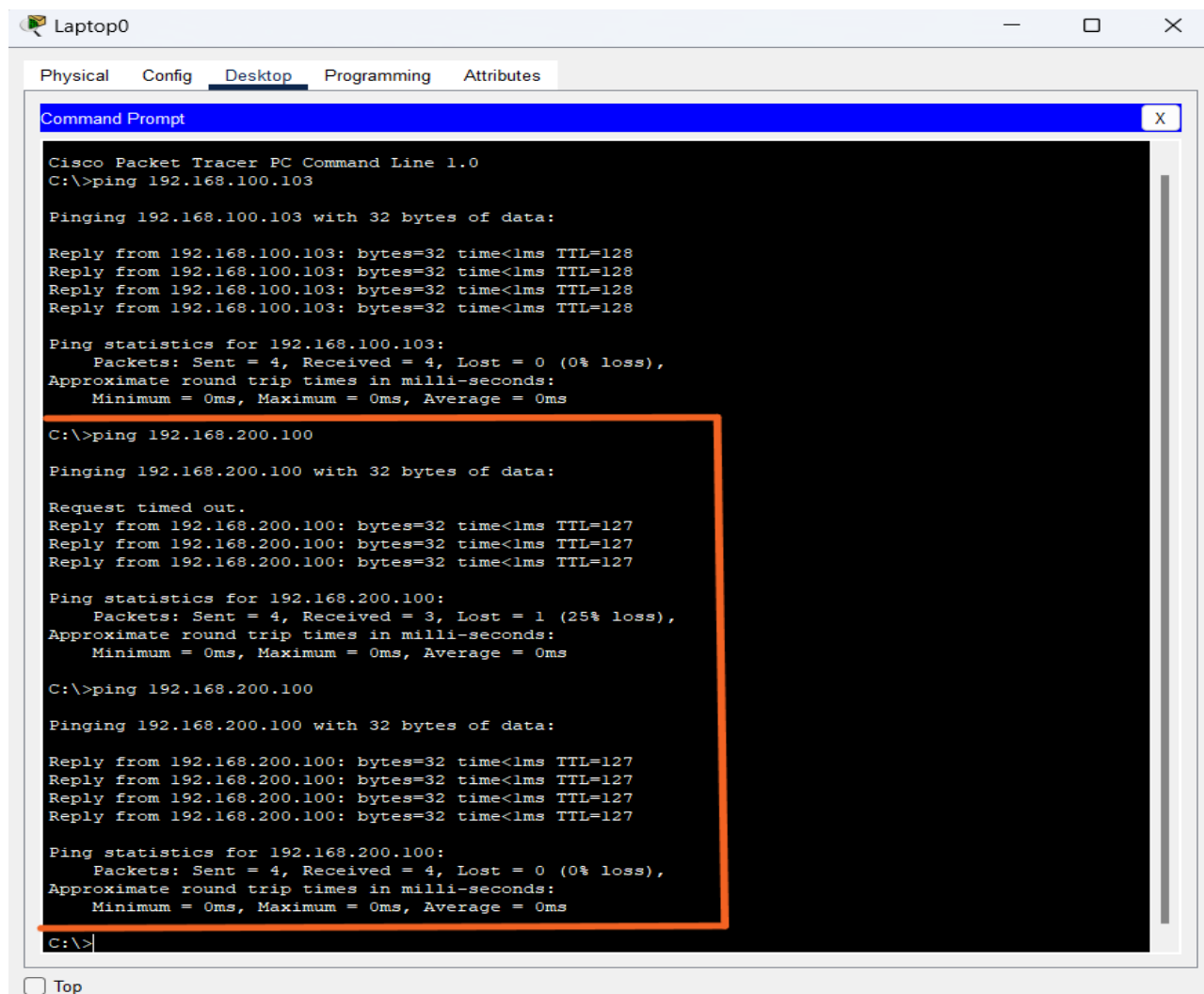
Pinging 192.168.100.103 with 32 bytes of data:

Reply from 192.168.100.103: bytes=32 time<lms TTL=128
Reply from 192.168.100.103: bytes=32 time<lms TTL=128
Reply from 192.168.100.103: bytes=32 time<lms TTL=128
Reply from 192.168.100.103: bytes=32 time<lms TTL=128

Ping statistics for 192.168.100.103:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

In seguito ho effettuato lo stesso procedimento tra **PT0** e **PT2**.



The screenshot shows the same Cisco Packet Tracer window, but now the 'Command Prompt' displays a ping command from PT0 to PT2 (192.168.200.100). The output shows that the first packet timed out, while the subsequent three were received successfully, resulting in a 25% loss.

```
Cisco Packet Tracer PC Command Line 1.0
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<lms TTL=128
Reply from 192.168.100.103: bytes=32 time<lms TTL=128
Reply from 192.168.100.103: bytes=32 time<lms TTL=128
Reply from 192.168.100.103: bytes=32 time<lms TTL=128

Ping statistics for 192.168.100.103:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.200.100

Pinging 192.168.200.100 with 32 bytes of data:

Request timed out.
Reply from 192.168.200.100: bytes=32 time<lms TTL=127
Reply from 192.168.200.100: bytes=32 time<lms TTL=127
Reply from 192.168.200.100: bytes=32 time<lms TTL=127

Ping statistics for 192.168.200.100:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

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<lms TTL=127
Reply from 192.168.200.100: bytes=32 time<lms TTL=127
Reply from 192.168.200.100: bytes=32 time<lms TTL=127
Reply from 192.168.200.100: bytes=32 time<lms TTL=127

Ping statistics for 192.168.200.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

☐ Top

In conclusione per inviare un pacchetto dall'**host** della rete **192.168.100.0** all'**host** della rete **192.168.200.0** ho dovuto opportunamente configurare le interfacce del router **GigabitEthernet0/0/0** e **GigabitEthernet0/0/1** con i rispettivi IP Gateway.