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[Cisco Packet Tracer Architettura server]

EPICODE - CYBERSECURITY CLASS [W2D4 Pratica]

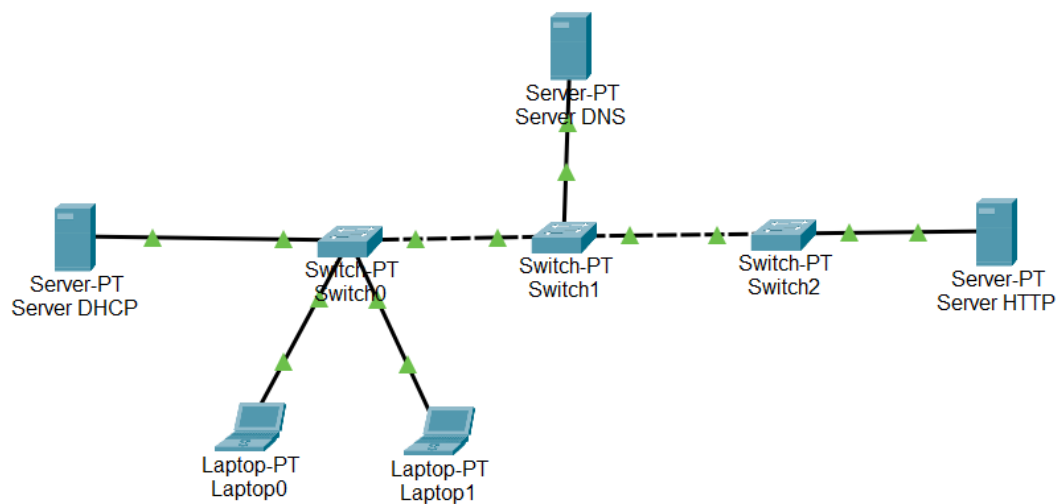
4 novembre 2023





L'esercizio consiste nella creazione e configurazione di una rete di calcolatori su Cisco Packet Tracer che includa almeno due client (come due laptop), un server DHCP, un server DNS e un server HTTP.

La rete tipo è configurata secondo lo schema raffigurato nell'immagine di sotto:



CONFIGURAZIONE SERVER HTTP

- Ho impostato l'indirizzo IP statico del server in 192.168.1.80;
- Su "services", ho attivato il servizio HTTP e HTTPS senza modificare altre impostazioni.

Server HTTP

Physical Config Services **Desktop** Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.80

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::2D0:BAFF:FE72:9A4E

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top



Server HTTP

Physical Config **Services** Desktop Programming Attributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

HTTP

HTTP

☒ On ☐ Off

HTTPS

☒ On ☐ Off

File Manager

	File Name	Edit	Delete
1	copyrights.html	(edit)	(delete)
2	cscoptlogo177x111.jpg		(delete)
3	helloworld.html	(edit)	(delete)
4	image.html	(edit)	(delete)
5	index.html	(edit)	(delete)

New File

Import

☐ Top

CONFIGURAZIONE SERVER DNS

- Ho impostato l'indirizzo IP statico del server in 192.168.1.100;
- Su "services", ho attivato il servizio DNS e ho impostato un "A Record" associando il nome "epicode.internal" all'indirizzo IP del Server HTTP presente nella rete (in questo caso ho impostato 192.168.1.80, vedi sezione ("Server HTTP").

Server DNS

Physical Config Services **Desktop** Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.168.1.100

Subnet Mask: 255.255.255.0

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::204:9AFF:FE83:A007

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

☐ Top

Cattura e annota



Server DNS

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS**
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

DNS

DNS Service ☒ On ☐ Off

Resource Records

Name Type **ARecord** ▾

Address

Add

Save

Remove

No.	Name	Type	Detail
0	epicode.internal	A Record	192.168.1.80

DNS Cache

☐ Top

CONFIGURAZIONE SERVER DHCP

- Ho impostato un indirizzo IP statico (in questo caso 192.168.1.2) specificando nella configurazione anche l'IP del server DNS presente nella rete (in questo caso ho impostato 192.168.1.100, vedi sezione “Server DNS”);

The screenshot shows the 'Server DHCP' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is expanded, showing the following settings:

Configuration Section	Option	Value
IP Configuration	<input checked="" type="radio"/> Static	
	IPv4 Address	192.168.1.2
	Subnet Mask	255.255.255.0
	Default Gateway	0.0.0.0
	DNS Server	192.168.1.100
IPv6 Configuration	<input checked="" type="radio"/> Static	
	IPv6 Address	
	Link Local Address	FE80::203:E4FF:FE93:67B0
	Default Gateway	
	DNS Server	
802.1X	<input type="checkbox"/> Use 802.1X Security	
	Authentication	MD5
	Username	
	Password	

At the bottom left of the window, there is a 'Top' button.

- Su "services" ho attivato il servizio DHCP e ho creato un nuovo pool di IP chiamato in questo caso "Pool1" seguendo la configurazione illustrata nell'immagine che segue:

The screenshot shows the 'Server DHCP' configuration window. The 'Services' tab is selected, and the DHCP service is turned 'On'. The configuration for 'Pool1' is shown with the following details:

- Interface: FastEthernet0
- Service: On
- Pool Name: Pool1
- Default Gateway: 0.0.0.0
- DNS Server: 192.168.1.100
- Start IP Address: 192.168.1.0
- Subnet Mask: 255.255.255.0
- Maximum Number of Users: 256
- TFTP Server: 0.0.0.0
- WLC Address: 0.0.0.0

Below the configuration fields is a table listing the configured IP pools:

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
Pool1	0.0.0.0	192.168.1.100	192.168.1.0	255.255.255.0	256	0.0.0.0	0.0.0.0
serverPool	0.0.0.0	0.0.0.0	192.168.1.0	255.255.255.0	512	0.0.0.0	0.0.0.0

ASSEGNAZIONE IP CLIENT

Dopo aver eseguito i passaggi precedenti, è possibile riscontrare la corretta assegnazione automatica degli indirizzi IP ai due Laptop client facenti parte delle rete di calcolatori.

The screenshot shows the 'Laptop0' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is expanded, showing the 'FastEthernet0' interface. The 'IP Configuration' section has two radio buttons: 'DHCP' (selected) and 'Static'. The 'IPv6 Configuration' section has two radio buttons: 'Automatic' and 'Static' (selected). The '802.1X' section has a checkbox for 'Use 802.1X Security' which is unchecked, and a dropdown for 'Authentication' set to 'MD5'. The 'Username' and 'Password' fields are empty.

Field	Value
Interface	FastEthernet0
IP Configuration	<input checked="" type="radio"/> DHCP <input type="radio"/> Static
IPv4 Address	192.168.1.1
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
DNS Server	192.168.1.100
IPv6 Configuration	<input type="radio"/> Automatic <input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::2E0:8FFF:FE8C:7931
Default Gateway	
DNS Server	
802.1X	<input type="checkbox"/> Use 802.1X Security
Authentication	MD5
Username	
Password	



Laptop1

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static

IPv4 Address 192.168.1.3

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 192.168.1.100

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::2D0:97FF:FE98:3933

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

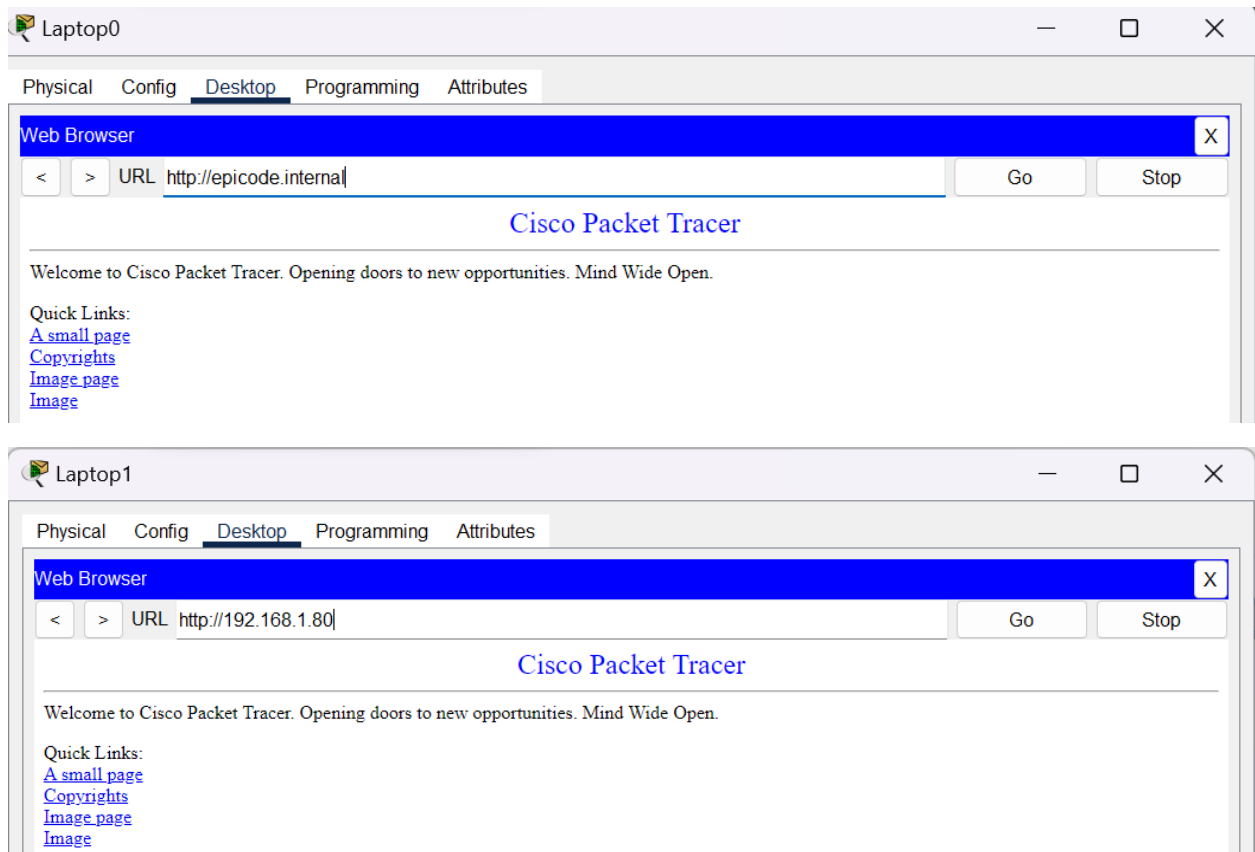
Username

Password

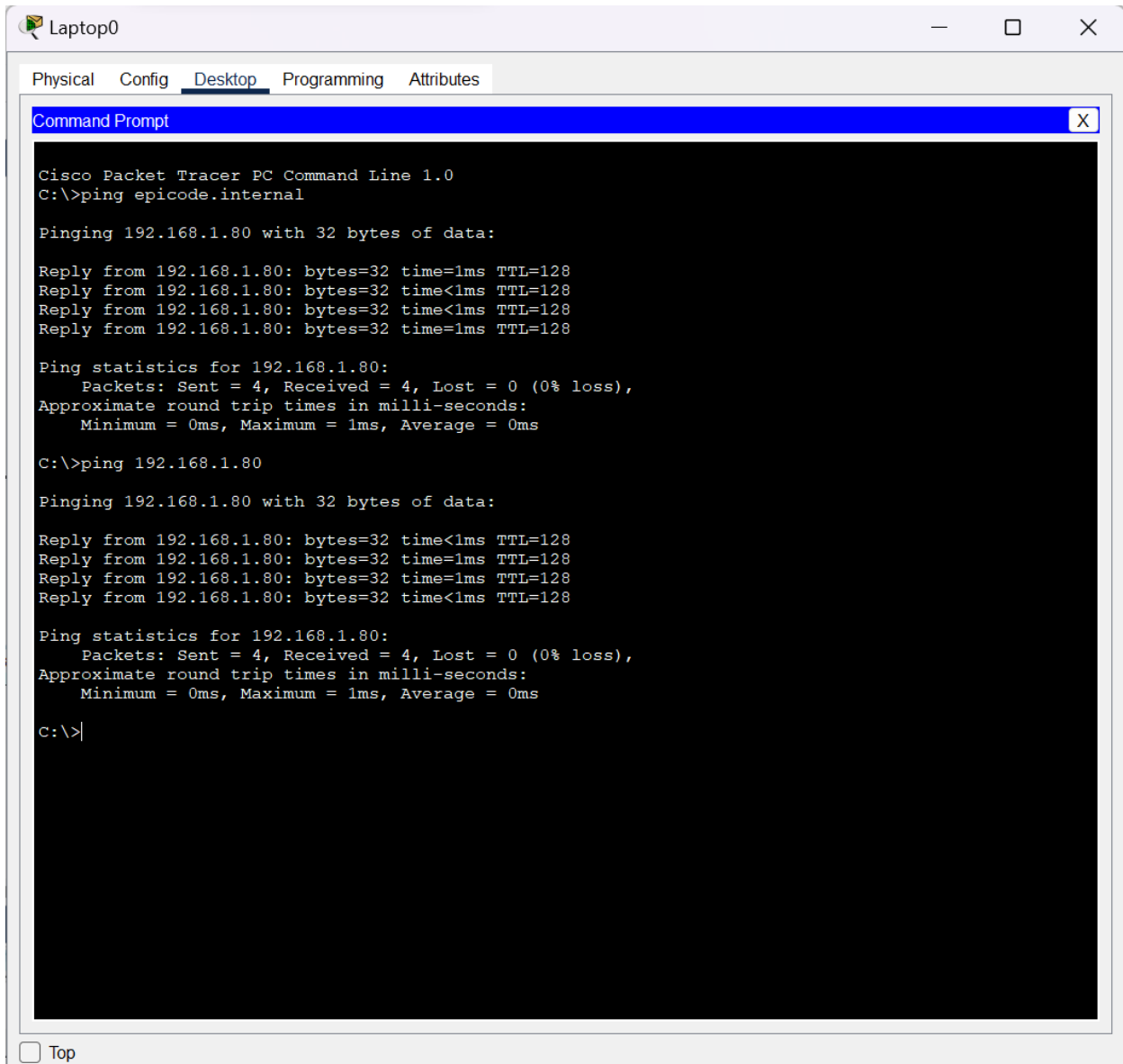
VERIFICA E CONCLUSIONE

Accedendo dal browser di uno dei Laptop client e digitando nella barra URL gli indirizzi “http://epicode.internal” e “http://192.168.1.80”, si può notare che essi risolvano positivamente la query portando allo stesso sito.

La risoluzione DNS avviene perciò con successo.



A ulteriore conferma, sia il ping di “epicode.internal” che di 192.168.1.80, va a buon fine come da seguente schermata:



```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping epicode.internal

Pinging 192.168.1.80 with 32 bytes of data:

Reply from 192.168.1.80: bytes=32 time<1ms TTL=128
Reply from 192.168.1.80: bytes=32 time<1ms TTL=128
Reply from 192.168.1.80: bytes=32 time<1ms TTL=128
Reply from 192.168.1.80: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.80:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.1.80

Pinging 192.168.1.80 with 32 bytes of data:

Reply from 192.168.1.80: bytes=32 time<1ms TTL=128
Reply from 192.168.1.80: bytes=32 time<1ms TTL=128
Reply from 192.168.1.80: bytes=32 time<1ms TTL=128
Reply from 192.168.1.80: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.80:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>|
```

☐ Top