



MÓDULO: SISTEMAS INFORMÁTICOS		CURSO: 1º DAM
UD03 – Conexión en rede dos Sistemas Informáticos	DATA:	SINATURA:
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APELLIDOS: TORRES RODRIGUEZ		

NORMAS DO EXAME

- ✓ Lea estas normas antes de comezalo exame.
- ✓ Poña os seus apelidos, nome data
- ✓ Os exercicios realizaránse íntegramente no packet tracer.
- ✓ Cada exercicio vale 2 puntos con excepción do 4 que vale 4 puntos.
- ✓ Ó rematalo exame entregaránse este documento en formato PDF, na actividade do Aula Virtual, contendo as capturas e anotacións que consideredes necesarias, de xeito que o traballo quede ben explicado. Débese incluír tamén o arquivo de packet tracer de cada un dos exercicios, renomeado como 2020-SI-UD03PT-nomeusuario-Exer01 ata o Exer03 comprimidos nun zip. Por exemplo, o usuario *pcosta* deberá entregar os seguintes arquivos:
 - 2020-SI-UD03PT-*pcosta*.pdf
 - 2020-SI-UD03PT-*pcosta*-Exer.zip contendo
 - 2020-SI-UD03PT-*pcosta*-Exer01.pkt
 - 2020-SI-UD03PT-*pcosta*-Exer02.pkt
 - 2020-SI-UD03PT-*pcosta*-Exer03.pkt
- ✓ As capturas de resposta deberían incluír cando menos:
 - Esquema completo da solución
 - Configuracións de cliente para cada rede implicada
 - Todas as configuracións feitas nos server, de haber un
 - Configuración da electrónica de rede, de ser necesaria
 - Probas de conectividade entre os equipos da rede
- ✓ Se un alumno é sorprendido durante o exame copiando ou similar, a súa nota será suspenso, así como a dos compañeiros implicados. Ademais tomaránse as medidas oportunas.

EXAME TIPO

A

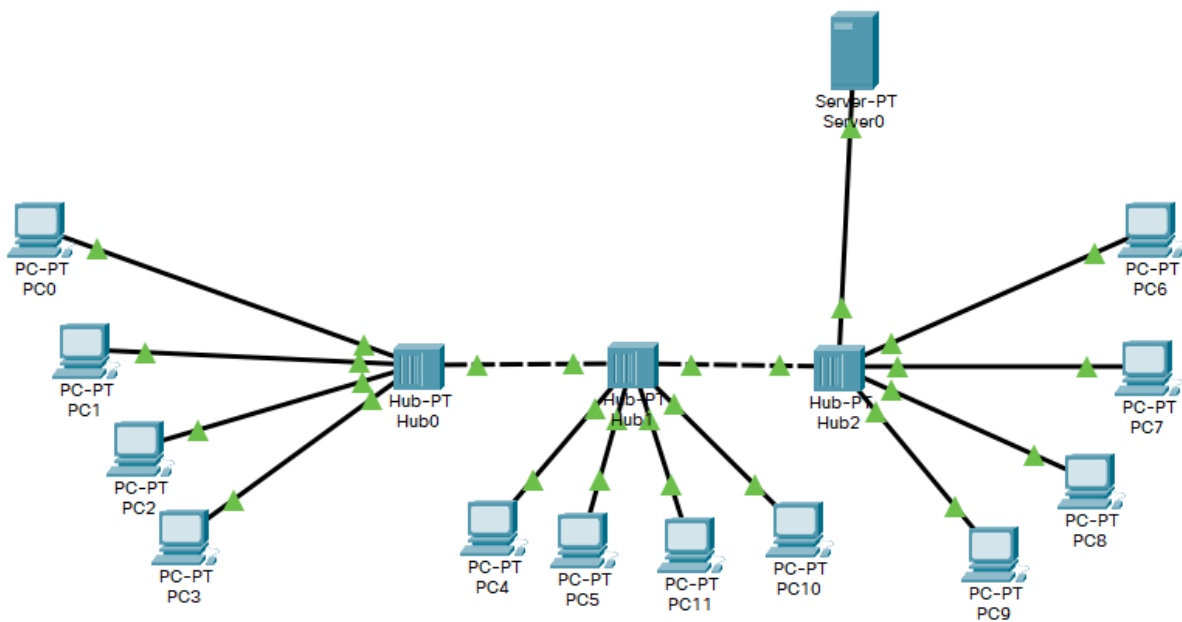
NOTA EXAME

NOTAS POR EJERCICIO

1	2	3

1. Deseña unha rede, no rango 193.108.0.x/24, con 12 equipos de xeito que teñan conexión entre todos eles, usando só hubs básicos de seis bocas. As Ips debense asignar de xeito automático. Explica as posibles dificultades atopadas así como as súas solucións.

ESQUEMA





SERVIDOR DHCP

Server0

Physical **Config** Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Global Settings

Display Name: Server0

Gateway/DNS IPv4

☐ DHCP

☒ Static

Default Gateway: 193.108.0.101

DNS Server:

Gateway/DNS IPv6

☐ Automatic

☒ Static

Default Gateway:

DNS Server:

Server0

Physical **Config** Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

FastEthernet0

Port Status: ☒ On

Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex: ☒ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address: 0060.5CAC.0AB4

IP Configuration

☐ DHCP

☒ Static

IPv4 Address: 193.108.0.100

Subnet Mask: 255.255.255.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address:

Link Local Address: FE80::260:5CFF:FEAC:AB4



Server0

Physical Config **Services** Desktop Programming Attributes

SERVICES

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

DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 193.108.0.101

DNS Server: 0.0.0.0

Start IP Address: 193 108 0 0

Subnet Mask: 255 255 255 0

Maximum Number of Users: 20

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	193.108...	0.0.0.0	193.108...	255.255...	20	0.0.0.0	0.0.0.0

HOST

PC0

Physical **Config** Desktop Programming Attributes

GLOBAL

- Settings
- Algorithm Settings
- INTERFACE**
- FastEthernet0
- Bluetooth

FastEthernet0

Port Status: ☒ On

Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex: ☒ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address: 00E0.F9BE.77A2

IP Configuration

☒ DHCP ☐ Static

IPv4 Address: 193.108.0.1

Subnet Mask: 255.255.255.0









IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address:

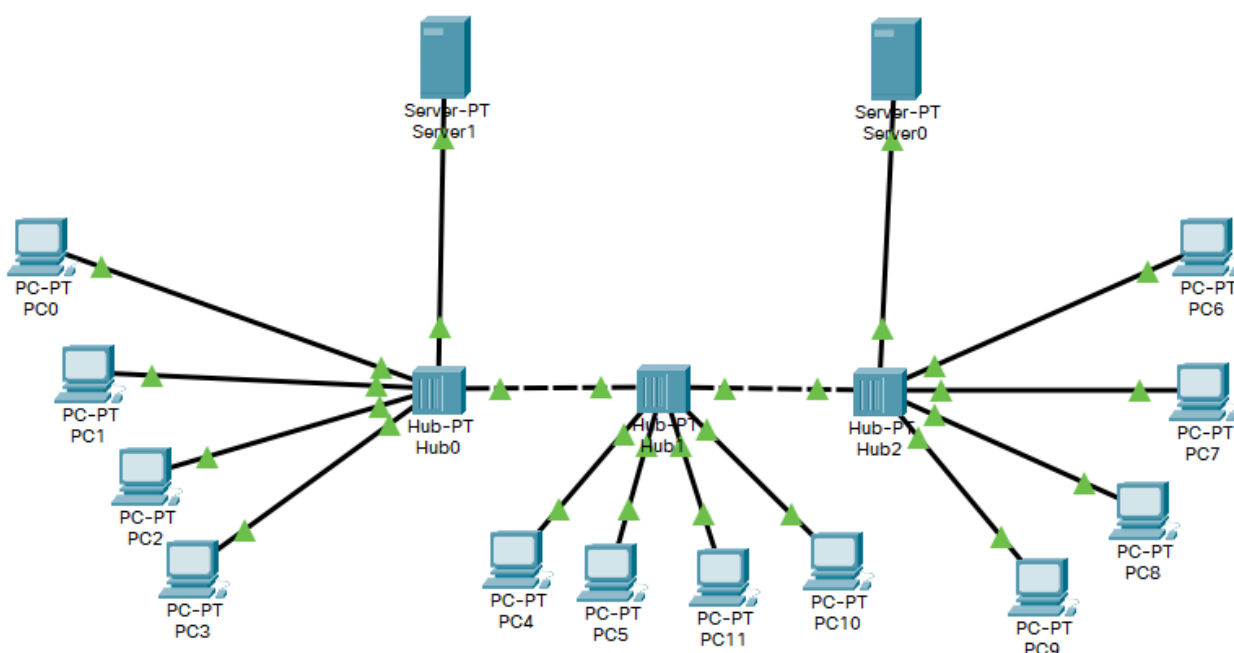
Link Local Address: FE80::2E0:F9FF:FE77A2

PRUEBAS

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC6	PC10	ICMP		0.000	N	0	(edit)	
	Successful	PC6	PC0	ICMP		0.000	N	1	(edit)	
	Successful	Server0	PC6	ICMP		0.000	N	2	(edit)	
	Successful	PC0	PC2	ICMP		0.000	N	3	(edit)	

- Partindo do resultado do exercicio 1, éngadelle á rede un novo servidor có server HTTP activado. Fai as configuracións necesarias para que se poida acceder á web aloxada nese servidor a través da URL www.serverdam.gal.

ESQUEMA





SERVIDOR WEB

Server1

Physical **Config** Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Global Settings

Display Name

Gateway/DNS IPv4

☐ DHCP

☒ Static

Default Gateway

DNS Server

Gateway/DNS IPv6

☐ Automatic

☒ Static

Default Gateway

DNS Server

Server1

Physical **Config** Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☒ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address

IP Configuration

☐ DHCP

☒ Static

IPv4 Address

Subnet Mask

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address:



Server1

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

Address

No.	Name	Type	Detail
0	www.serverdam.gal	A Record	193.108.0.200

PRUEBAS

PC0

Physical Config **Desktop** Programming Attributes

Web Browser

< > URL

Cisco Packet Tracer

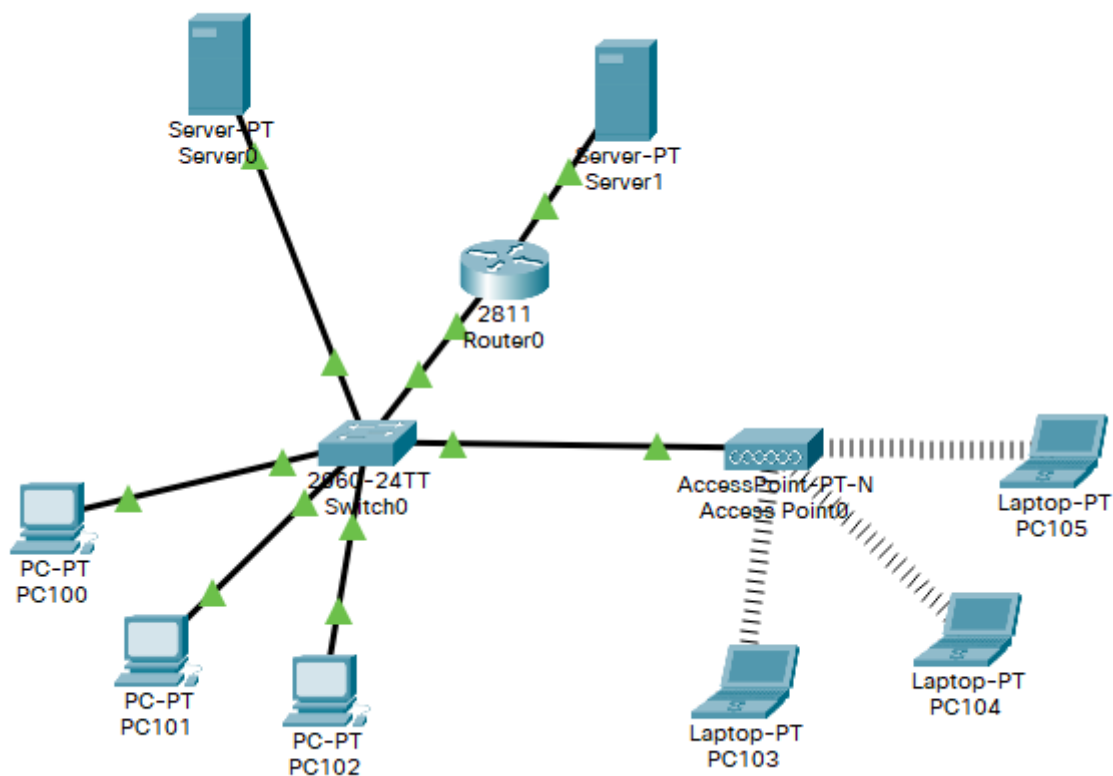
Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.

Quick Links:

- [A small page](#)
- [Copyrights](#)
- [Image page](#)
- [Image](#)

3. Deseña, dende cero, unha rede con 6 equipos no rango 212.13.13.100 – 105. Os tres primeiros conectados por cable e os restantes sen fíos. Estes equipos deben poder conectar cun servidor web na IP 172.30.30.30 a través da URL www.examedam1.gal e deben poder comunicarse entre eles usando os nomes PC100 ata PC105
- As IPs deberánse asignar de xeito automático
 - o funcionamento da rede debe ser o máis eficiente posible.
 - A seguridade sen fíos debe ser o máis sólida posible.
 - Explica o porque da elección da electrónica de rede.

ESQUEMA





SERVIDOR DHCP

Server0

Physical **Config** Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Global Settings

Display Name

Gateway/DNS IPv4

☐ DHCP

☒ Static

Default Gateway

DNS Server

Gateway/DNS IPv6

☐ Automatic

☒ Static

Default Gateway

DNS Server

Server0

Physical **Config** Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address

IP Configuration

☐ DHCP

☒ Static

IPv4 Address

Subnet Mask

IPv6 Configuration

☐ Automatic

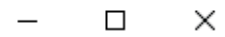
☒ Static

IPv6 Address

Link Local Address:



Server0



Physical Config **Services** Desktop Programming Attributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

DHCP

Interface **FastEthernet0** Service ☒ On ☐ Off

Pool Name

Default Gateway

DNS Server

Start IP Address :

Subnet Mask:

Maximum Number of Users :

TFTP Server:

WLC Address:

Add

Save

Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	212.13....	172.30....	212.13....	255.255...	6	0.0.0.0	0.0.0.0

SERVIDOR WEB

Server1



Physical **Config** Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Global Settings

Display Name

Gateway/DNS IPv4

☐ DHCP

☒ Static

Default Gateway

DNS Server

Gateway/DNS IPv6

☐ Automatic

☒ Static

Default Gateway

DNS Server



Server1

Physical **Config** Services Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.C7BC.119E

IP Configuration

☐ DHCP

☒ Static

IPv4 Address 172.30.30.30

Subnet Mask 255.255.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::201:C7FF:FEBC:119E

Server1

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 www.examedam1.gal Type A Record

Address 172.30.30.30

Add Save Remove

No.	Name	Type	Detail
0	www.examedam1.gal	A Record	172.30.30.30



PUNTO DE ACCESO

Access Point0

Physical Config Attributes

GLOBAL

Settings

INTERFACE

Port 0

Port 1

Port 1

Port Status ☒ On

SSID Default

2.4 GHz Channel 1

5 GHz Channel 36

Coverage Range (meters) 250,00

Authentication

☐ Disabled ☐ WEP ☒ WPA2-PSK

WEK Key

PSK Pass Phrase 78d9Gf@2

User ID

Password

Encryption Type AES

ROUTER

Router0

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet0/0

FastEthernet0/0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0003.E410.CE01

IP Configuration

IPv4 Address 212.13.13.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands



Router0



Physical **Config** CLI Attributes

GLOBAL	FastEthernet0/1	
Settings		
Algorithm Settings		
ROUTING		
Static		
RIP		
SWITCHING		
VLAN Database		
INTERFACE		
FastEthernet0/0		
FastEthernet0/1		

Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	0003.E410.CE02
IP Configuration	
IPv4 Address	172.30.30.2
Subnet Mask	255.255.0.0
Tx Ring Limit	
	10

HOSTS

PC100



Physical **Config** Desktop Programming Attributes

GLOBAL	Global Settings	
Settings		
Algorithm Settings		
INTERFACE		
FastEthernet0		
Bluetooth		

Display Name	PC100
Interfaces	FastEthernet0
Gateway/DNS IPv4	
<input checked="" type="radio"/> DHCP	
<input type="radio"/> Static	
Default Gateway	212.13.13.1
DNS Server	172.30.30.30
Gateway/DNS IPv6	
<input type="radio"/> Automatic	
<input checked="" type="radio"/> Static	
Default Gateway	
DNS Server	



PC105

Physical **Config** Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

Wireless0

Bluetooth

Wireless0

Port Status ☒ On

Bandwidth 300 Mbps

MAC Address 0001.4368.34E5

SSID Default

Authentication

☐ Disabled ☐ WEP ☒ WPA-PSK ☐ WPA ☐ 802.1X

WEP Key

PSK Pass Phrase 78d9Gf@2

User ID

Password

Method: MD5

User Name

Password

Encryption Type AES

IP Configuration

☒ DHCP ☐ Static

IPv4 Address 212.13.13.100

Subnet Mask 255.255.255.0

IPv6 Configuration

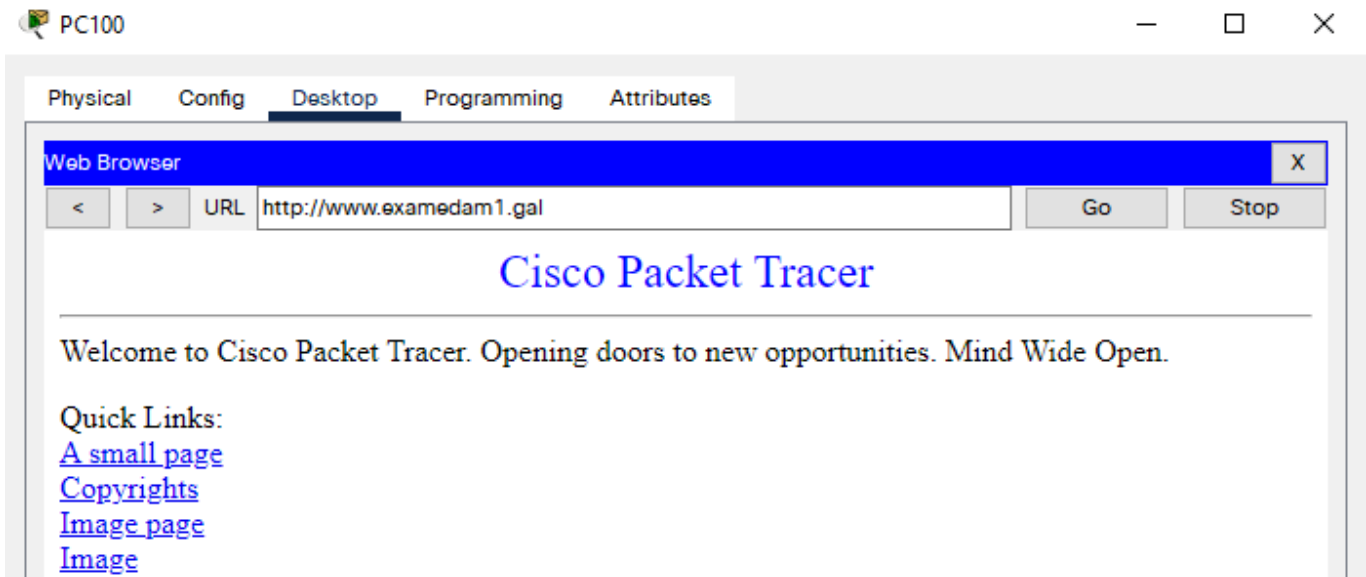
☐ Automatic ☒ Static

IPv6 Address

Link Local Address: FE80::201:43FF:FE68:34E5



PRUEBAS



Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC100	PC105	ICMP		0.000	N	0	(edit)	
	Successful	PC101	Server0	ICMP		0.000	N	1	(edit)	
	Successful	PC102	Server1	ICMP		0.000	N	2	(edit)	

EXPLICACION:

Selección de dos servidores: Siempre que es posible, es mejor tener el servidor de DHCP separado del servidor DNS para evitar que si uno se estropea se caiga todo por completo.

Router: Al tener dos servidores con redes diferentes hace falta poder comunicarse y por lo tanto se necesita un router.

Punto de acceso: Es necesario tener equipos inalámbricos, por lo tanto hace falta ponerlo.



Switch: Hace falta conectar todo, por lo tanto el switch es la forma mas comoda de hacerlo, ya que evitamos las colisionies y tiene capacidad para alojar todos los equipos necesarios para este jercicio.

Hosts: El resto de equipos son solo host que he escogido para hacer el ejercicio.



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