Universidad de San Carlos de Guatemala

Facultad de Ingeniería

Escuela de Ciencias y Sistemas

Laboratorio Redes de Computadoras 2

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Manual Técnico
Práctica 1

Integrantes

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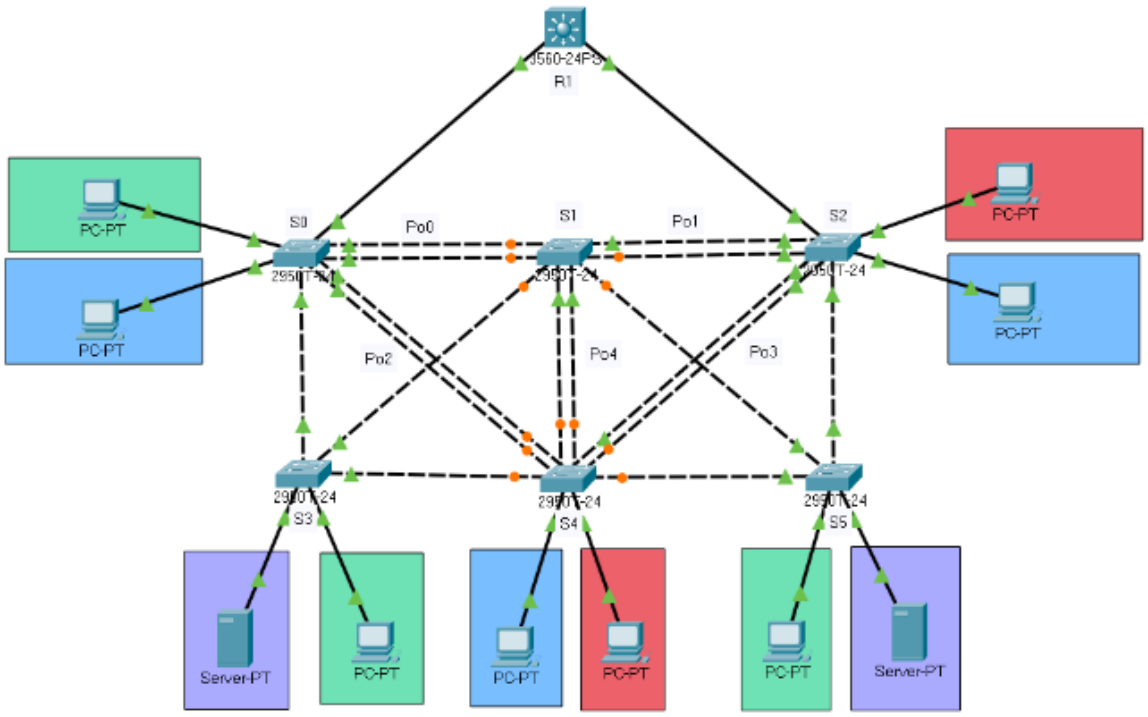
Introducción

El presente manual técnico tiene como objetivo presentar todos los detalles técnicos que fueron necesarios para la realización de la práctica, tales como:

- ✓ La topología
- ✓ Configuración de cada dispositivo
- ✓ Asignación y configuración de IP's
- ✓ Configuración de VLANS
- ✓ Configuración de puertos

Topología:



Configuraciones realizadas:

```
--------------------R1--------------------
########## VTP ##########
vtp mode server
vtp version 2
vtp domain GRUPO2
vtp password grupo2
```

```
########## TRUNK ##########
int range f0/1-#
switchport trunk allowed vlan 1,2,12,22,32,42,99,999,1002-1005
```

```
########## VLANS ##########
vlan 12
name Ventas
vlan 22
name Distribucion
vlan 32
name Administracion
vlan 42
name Servidores
vlan 99
name Management&Native
vlan 999
name BlackHole
```

```
########## INTERVLAN ##########
int vlan 12
ip address 192.168.88.1 255.255.255.224
no shutdown
exit

int vlan 22
ip address 192.168.88.33 255.255.255.224
no shutdown
exit

int vlan 32
ip address 192.168.88.65 255.255.255.224
no shutdown
exit

int vlan 42
ip address 192.168.88.97 255.255.255.224
no shutdown
exit

ip routing
```

```
########## SEGURIDAD ##########
#- en rango de interfaces no utilizada, tambien puede hacerse al inicio, ya
que despues tendran que configurarse
los demas puertos -#

int range f0/3-24
switchport mode access
switchport access vlan 999

int range g0/1-2
switchport mode access
switchport access vlan 999

////////// VLAN NATIVA //////////
int range f0/1-2
switchport trunk native vlan 99
```

```
-------------------- S0 --------------------
########## VTP ##########
vtp mode client
vtp version 2
vtp domain GRUPO2
vtp password grupo2

########## TRUNK ##########
int range f0/1-4
switchport mode trunk
switchport trunk allowed vlan 1002-1005,16,26,36,46,99,999

int range f0/6-7
switchport mode trunk
switchport trunk allowed vlan 1002-1005,16,26,36,46,99,999
```

```
########## ACCESS ##########
int f0/8
switchport mode access
switchport access vlan 16

int f0/5
switchport mode access
switchport access vlan 26
```

```
########## SEGURIDAD ##########
////////// interfaces no utilizadas //////////
int range f0/9-24
switchport mode access
switchport access vlan 999

int range g0/1-2
switchport mode access
switchport access vlan 999

////////// VLAN NATIVA //////////
int range f0/1-4
switchport trunk native vlan 99

int range f0/6-7
switchport trunk native vlan 99

////////// PORT SECURITY //////////
int f0/8
switchport port-security
switchport port-security mac-address sticky
switchport port-security maximum 5
switchport port-security violation protect

int f0/5
switchport port-security
switchport port-security mac-address sticky
switchport port-security maximum 1
switchport port-security violation shutdown
```

```
-------------------- S1 --------------------
########## VTP ##########
vtp mode client
vtp version 2
vtp domain g24
vtp password g24
```

```
########## TRUNK ##########
int range f0/1-8
switchport mode trunk
switchport trunk allowed vlan 1002-1005,16,26,36,46,99,999
```

```
########## SEGURIDAD ##########
////////// interfaces no utilizadas //////////
int range f0/9-24
switchport mode access
switchport access vlan 999

int range g0/1-2
switchport mode access
switchport access vlan 999

////////// VLAN NATIVA //////////
int range f0/1-8
switchport trunk native vlan 99
```

```
-------------------- S2 --------------------
########## VTP ##########
vtp mode client
vtp version 2
vtp domain GRUPO2
vtp password grupo2
```

```
########## TRUNK ##########
int range f0/1-4
switchport mode trunk
switchport trunk allowed vlan 1,2,12,22,32,42,99,999,1002-1005

int range f0/7-8
switchport mode trunk
switchport trunk allowed vlan 1,2,12,22,32,42,99,999,1002-1005
```

```
########## ACCESS ##########
int f0/5
switchport mode access
switchport access vlan 32

int f0/6
switchport mode access
switchport access vlan 22
```

```
########## SEGURIDAD ##########
////////// interfaces no utilizadas //////////
int range f0/9-24
switchport mode access
switchport access vlan 999

int range g0/1-2
switchport mode access
switchport access vlan 999
```

```
////////// VLAN NATIVA //////////
int range f0/1-4
switchport trunk native vlan 99

int range f0/7-8
switchport trunk native vlan 99
```

```
////////// PORT SECURITY //////////

int f0/5
switchport port-security
switchport port-security mac-address #mac address number#
switchport port-security maximum 1
switchport port-security violation shutdown



int f0/6
switchport port-security
switchport port-security mac-address sticky
switchport port-security maximum 1
switchport port-security violation shutdown
```

```
-------------------- S3 --------------------
########## VTP ##########
vtp mode client
vtp version 2
vtp domain GRUPO2
vtp password grupo2
```

```
########## TRUNK ##########
int range f0/1
switchport mode trunk
switchport trunk allowed vlan 1,2,12,22,32,42,99,999,1002-1005

int range f0/3
switchport mode trunk
switchport trunk allowed vlan 1,2,12,22,32,42,99,999,1002-1005

int range f0/6
switchport mode trunk
switchport trunk allowed vlan 1,2,12,22,32,42,99,999,1002-1005
```

```
########## ACCESS ##########
int f0/2
switchport mode access
switchport access vlan 42

int f0/4
switchport mode access
switchport access vlan 12
```

```
########## SEGURIDAD ##########
////////// interfaces no utilizadas //////////
int f0/5
switchport mode access
switchport access vlan 999

int range f0/7-24
switchport mode access
switchport access vlan 999

int range g0/1-2
switchport mode access
switchport access vlan 999
```

```
////////// VLAN NATIVA //////////
int f0/1
switchport trunk native vlan 99

int f0/3
switchport trunk native vlan 99

int f0/6
switchport trunk native vlan 99
```

```
////////// PORT SECURITY //////////
int f0/4
switchport port-security
switchport port-security mac-address sticky
switchport port-security maximum 5
switchport port-security violation protect
```

```
-------------------- S4 --------------------
########## VTP ##########
vtp mode client
vtp version 2
vtp domain GRUPO2
vtp password grupo2

########## TRUNK ##########
int range f0/1-8
switchport mode trunk
switchport trunk allowed vlan 1,2,12,22,32,42,99,999,1002-1005

########## ACCESS ##########
int f0/9
switchport mode access
switchport access vlan 22

int f0/10
switchport mode access
switchport access vlan 32
```

```
########## SEGURIDAD ##########
////////// interfaces no utilizadas //////////
int range f0/11-24
switchport mode access
switchport access vlan 999

int range g0/1-2
switchport mode access
switchport access vlan 999
```

```
////////// VLAN NATIVA //////////
int range f0/1-8
switchport trunk native vlan 99

////////// PORT SECURITY //////////
int f0/9
switchport port-security
switchport port-security mac-address sticky
switchport port-security maximum 1
switchport port-security violation shutdown

int f0/10
switchport port-security
switchport port-security mac-address #mac address number#
switchport port-security maximum 1
switchport port-security violation shutdown
```

```
-------------------- S5 --------------------
########## VTP ##########
vtp mode client
vtp version 2
vtp domain GRUPO2
vtp password grupo2

########## TRUNK ##########
int range f0/1
switchport mode trunk
switchport trunk allowed vlan 1,2,12,22,32,42,99,999,1002-1005

int range f0/3
switchport mode trunk
switchport trunk allowed vlan 1,2,12,22,32,42,99,999,1002-1005

int range f0/8
switchport mode trunk
switchport trunk allowed vlan 1,2,12,22,32,42,99,999,1002-1005
```

```
########## ACCESS ##########
int f0/2
switchport mode access
switchport access vlan 12

int f0/4
switchport mode access
switchport access vlan 42


########## SEGURIDAD ##########
////////// interfaces no utilizadas //////////
int range f0/5-7
switchport mode access
switchport access vlan 999

int range f0/9-24
switchport mode access
switchport access vlan 999

int range g0/1-2
switchport mode access
switchport access vlan 999
```

```
////////// VLAN NATIVA //////////
int f0/1
switchport trunk native vlan 99

int f0/3
switchport trunk native vlan 99

int f0/8
switchport trunk native vlan 99

////////// PORT SECURITY //////////
int f0/2
switchport port-security
switchport port-security mac-address sticky
switchport port-security maximum 5
switchport port-security violation protect
```

```
-------------------- PORT CHANNEL --------------------
########## S0-S1 ##########
int range f0/2-3
channel-protocol pagp
channel-group 1 mode auto


int range f0/2-3
channel-protocol lacp
channel-group 1 mode active

int range f0/2-3
channel-protocol lacp
channel-group 1 mode passive

########## S1-S2 ##########
int range f0/7-8
channel-protocol pagp
channel-group 2 mode auto


int range f0/7-8
channel-protocol lacp
channel-group 2 mode active

int range f0/7-8
channel-protocol lacp
channel-group 2 mode passive
```

```
########## S0-S4 ##########
int range f0/6-7
channel-protocol pagp
channel-group 3 mode auto


int range f0/6-7
channel-protocol lacp
channel-group 3 mode active

int range f0/6-7
channel-protocol lacp
channel-group 3 mode passive
```

```
########## S2-S4 ##########
int range f0/1-2
channel-protocol pagp
channel-group 4 mode auto


int range f0/1-2
channel-protocol lacp
channel-group 4 mode active

int range f0/1-2
channel-protocol lacp
channel-group 4 mode passive
```

```
########## S1-S4 ##########
int range f0/4-5
channel-protocol pagp
channel-group 5 mode auto


int range f0/4-5
channel-protocol lacp
channel-group 5 mode active


int range f0/4-5
channel-protocol lacp
channel-group 5 mode passive

spanning-tree mode pvst
spanning-tree mode rapid-pvst
```

```


----DESACTIVAR DTP----
switchport nonegotiate
```

Tabla de información de las subredes resultantes

DIRECCIÓN IP:
192.168.82.0 /24
255.255.255.0
Subdividir otra red

SUBREDES VLSM

Número de subredes: 6
Número total de hosts: 150

#	Hosts	Subred	Máscara	Primer Host	Último Host	Broadcast
1	30	192.168.82.0 /27	255.255.255.224	192.168.82.1	192.168.82.30	192.168.82.31
2	30	192.168.82.32 /27	255.255.255.224	192.168.82.33	192.168.82.62	192.168.82.63
3	30	192.168.82.64 /27	255.255.255.224	192.168.82.65	192.168.82.94	192.168.82.95
4	30	192.168.82.96 /27	255.255.255.224	192.168.82.97	192.168.82.126	192.168.82.127
5	30	192.168.82.128 /27	255.255.255.224	192.168.82.129	192.168.82.158	192.168.82.159
6	30	192.168.82.160 /27	255.255.255.224	192.168.82.161	192.168.82.190	192.168.82.191

Número direcciones proporcionadas pora la IP	254
Número de Hosts solicitados	150
Número de Hosts encontrados	180
Porcentaje de direcciones utilizadas	59%
Número direcciones proporcionadas pora la IP	254
Número de Hosts solicitados	150
Número de Hosts encontrados	180
Porcentaje de direcciones utilizadas	59%
Porcentaje de direcciones encontradas	71%

Enlace a repositorio GitHub:

https://github.com/RojasCJP/Practica1_Redes2