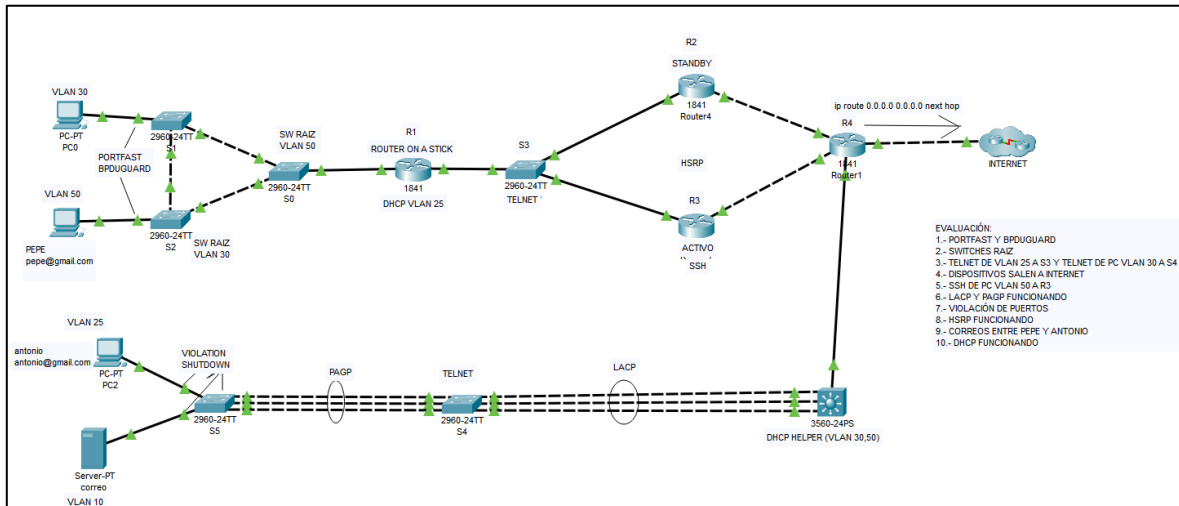


Alumno: Aguilar Maya Daniel [192.168.X.0/24 donde X = 21-29]



Aspectos para evaluar.

1. PORTFAST y BPDUGUARD

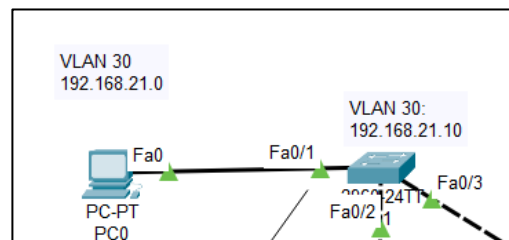
S1:

```

S1(config)#do show run
Building configuration...

Current configuration : 1324 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname S1
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id

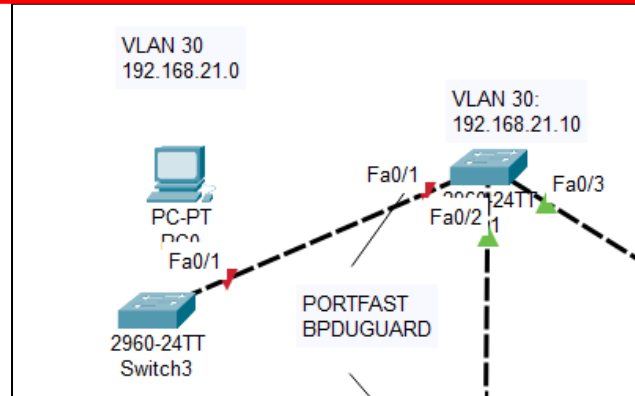
interface FastEthernet0/1
switchport access vlan 30
switchport mode access
spanning-tree portfast
spanning-tree bpduguard enable
  
```



```

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/1 (30), with Switch
%SPANTREE-2-BLOCK_BPDUGUARD: Received BPDU on port FastEthernet0/1 with BPDU Guard enabled.
Disabling port.
%PM-4-ERR_DISABLE: bpduguard error detected on 0/1, putting 0/1 in err-disable state
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down

```



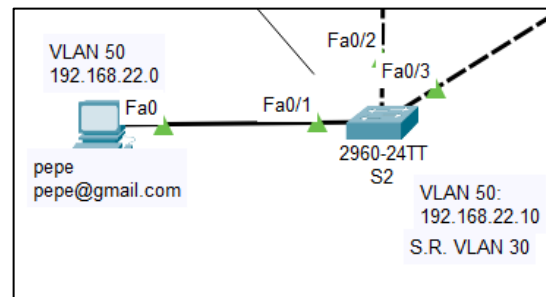
S2:

```

S2(config)#
S2(config)#do show run
Building configuration...

Current configuration : 1361 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname S2
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
spanning-tree vlan 30 priority 24576
!
interface FastEthernet0/1
 switchport access vlan 50
 switchport mode access
 spanning-tree portfast
 spanning-tree bpduguard enable

```



```

-----
%LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

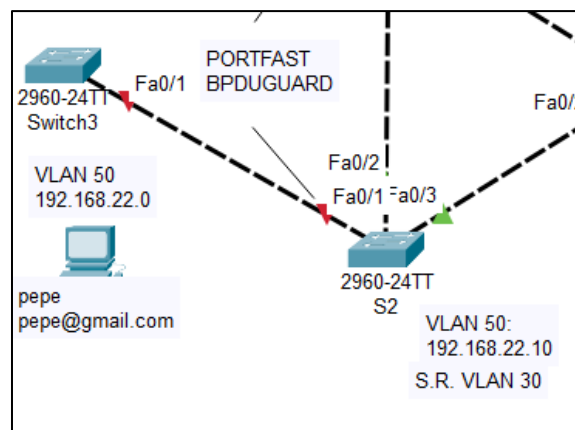
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/1 (50), with Switch
FastEthernet0/1 (1).
%SPANTREE-2-BLOCK_BPDUGUARD: Received BPDU on port FastEthernet0/1 with BPDU Guard enabled.
Disabling port.

%PM-4-ERR_DISABLE: bpduguard error detected on 0/1, putting 0/1 in err-disable state

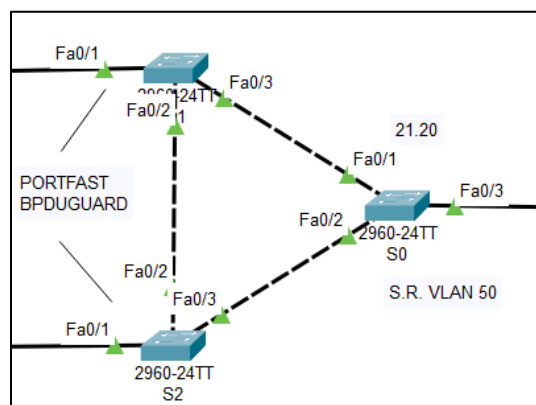
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down

```

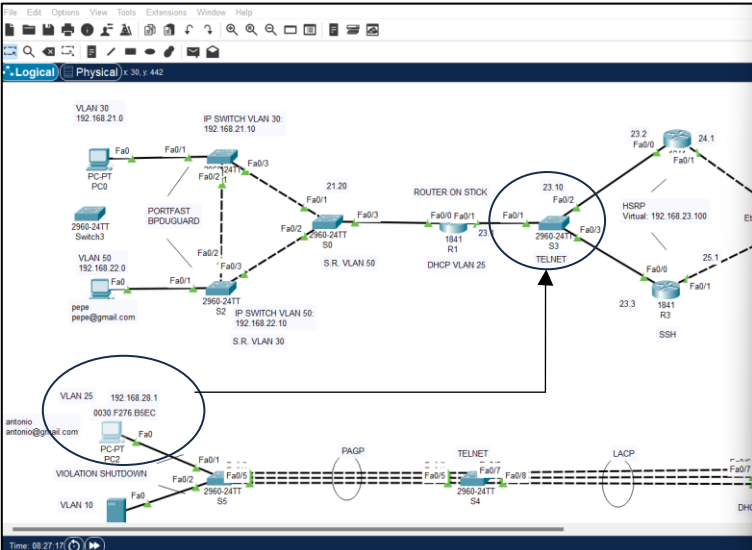


2. SWITCHES RAIZ



<pre> VLAN0030 Spanning tree enabled protocol ieee Root ID Priority 24606 Address 0009.7C7E.0ECA This bridge is the root Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Bridge ID Priority 24606 (priority 24576 sys-id-ext 30) Address 0009.7C7E.0ECA Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Aging Time 20 Interface Role Sts Cost Prio.Nbr Type ----- Fa0/3 Desg FWD 19 128.3 P2p Fa0/2 Desg FWD 19 128.2 P2p VLAN0050 Spanning tree enabled protocol ieee Root ID Priority 24626 Address 0060.7048.5B58 Cost 19 Port 3(FastEthernet0/3) Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Bridge ID Priority 32818 (priority 32768 sys-id-ext 50) Address 0009.7C7E.0ECA Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Aging Time 20 Interface Role Sts Cost Prio.Nbr Type ----- Fa0/3 Root FWD 19 128.3 P2p Fa0/2 Altn BLK 19 128.2 P2p Fa0/1 Desg FWD 19 128.1 P2p </pre> <p>S2#</p>	<pre> VLAN0030 Spanning tree enabled protocol ieee Root ID Priority 24606 Address 0009.7C7E.0ECA Cost 19 Port 2(FastEthernet0/2) Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Bridge ID Priority 32798 (priority 32768 sys-id-ext 30) Address 0060.7048.5B58 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Aging Time 20 Interface Role Sts Cost Prio.Nbr Type ----- Fa0/2 Root FWD 19 128.2 P2p Fa0/1 Altn BLK 19 128.1 P2p Fa0/3 Desg FWD 19 128.3 P2p VLAN0050 Spanning tree enabled protocol ieee Root ID Priority 24626 Address 0060.7048.5B58 This bridge is the root Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Bridge ID Priority 24626 (priority 24576 sys-id-ext 50) Address 0060.7048.5B58 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Aging Time 20 Interface Role Sts Cost Prio.Nbr Type ----- Fa0/2 Desg FWD 19 128.2 P2p Fa0/1 Desg FWD 19 128.1 P2p Fa0/3 Desg FWD 19 128.3 P2p </pre> <p>S3#</p>
--	--

3. TELNET DE VLAN 25 A S3 Y TELNET DE PC VLAN 30 A S4



```

Physical Config Desktop Programming Attributes
Command Prompt
C:\>
C:\>
C:\>ipconfig /all

FastEthernet0 Connection (default port)
. . . . .
Connection-specific DNS Suffix . :
Physical Address. . . . . : 0030.F276.B9EC
Link-local IPv6 Address . . . . . : FE80::230:F276:B9EC
IPv6 Address. . . . . :
IPv4 Address. . . . . : 192.168.23.1
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :

DHCP Servers. . . . . : 192.168.23.1
DHCPv6 IAID. . . . . :
DHCPv6 Client GUID. . . . . : 00-01-00-01-24-B1-71-32-00-30-F2-76-B9-EC
DNS Servers. . . . . : 192.168.24.1

Bluetooth Connection:
Connection-specific DNS Suffix . :
Physical Address. . . . . : 0050.0C0C.E43A
Link-local IPv6 Address. . . . . :
IPv6 Address. . . . . :
IPv4 Address. . . . . : 0.0.0.0
Subnet Mask . . . . . : 0.0.0.0
Default Gateway . . . . . :

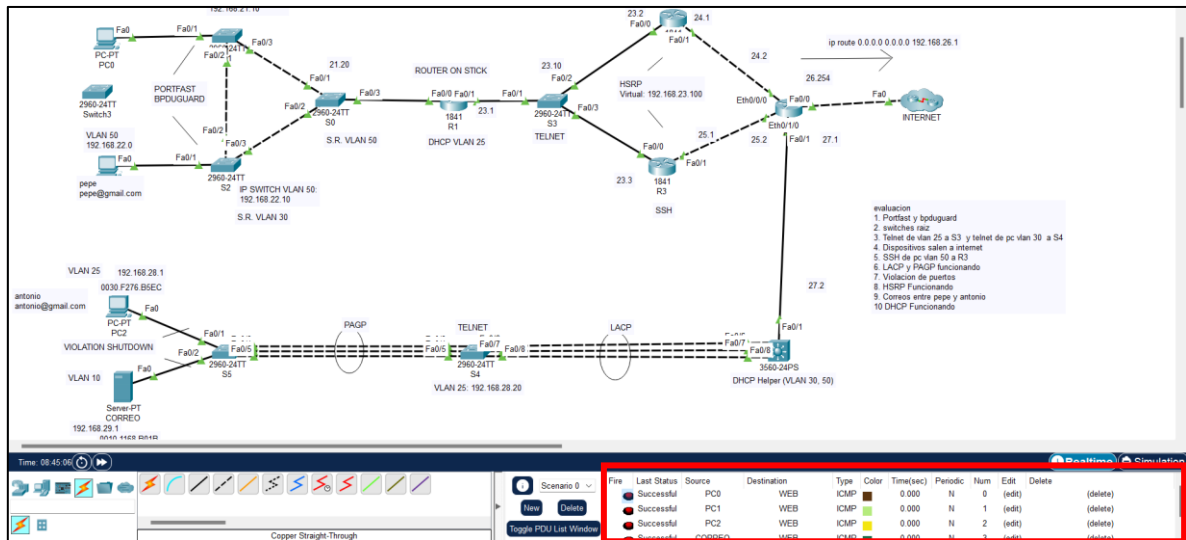
DHCP Servers. . . . . : 0.0.0.0
DHCPv6 IAID. . . . . :
DHCPv6 Client GUID. . . . . : 00-01-00-01-24-B1-71-32-00-30-F2-76-B9-EC
DNS Servers. . . . . : 192.168.24.1

C:\>telnet 192.168.23.10
Trying 192.168.23.10 ...Open

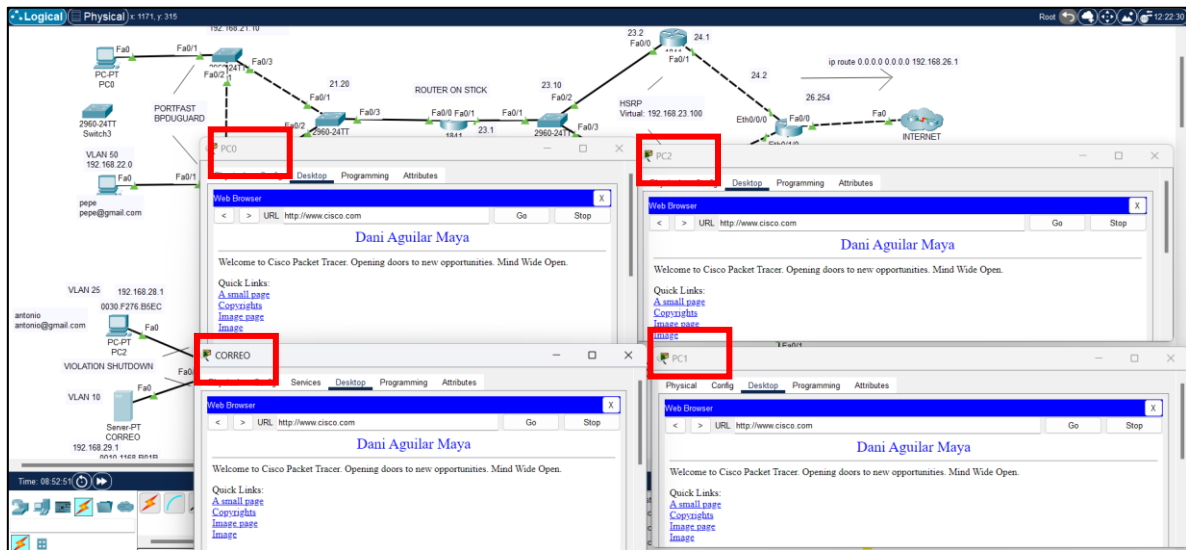
User Access Verification
Username: S3
Password:
S3>
S3#conf

```

Telnet VLAN 25 a S3

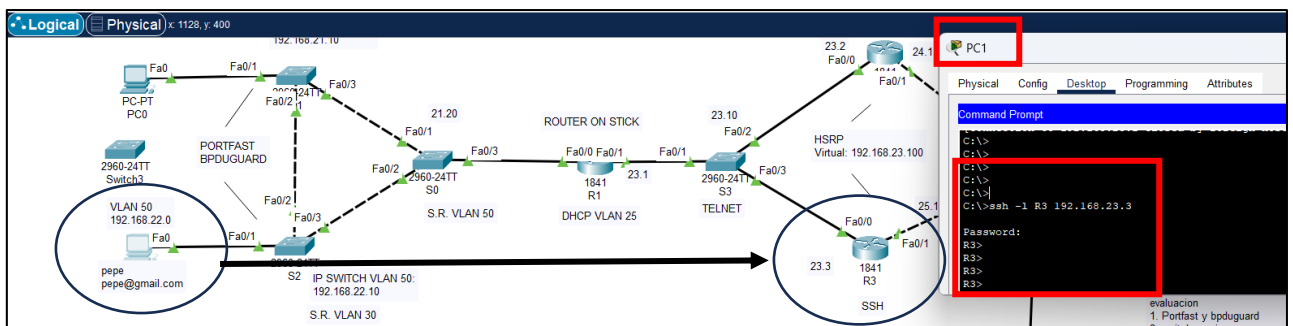


Ping a internet



Acceso a internet (Servidor web)

5. SSH DE PC VLAN 50 A R3



6. LACP y PAGP FUNCIONANDO

```
S4#show interfaces port-channel 1
```

```
Port-channel1 is up, line protocol is up (connected)
Hardware is EtherChannel, address is 0009.7c4b.c52c (bia 0009.7c4b.c52c)
MTU 1500 bytes, BW 300000 Kbit, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 300Mb/s
input flow-control is off, output flow-control is off
Members in this channel: Fa0/3 ,Fa0/4 ,Fa0/5 ,
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    956 packets input, 193351 bytes, 0 no buffer
    Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    0 watchdog, 0 multicast, 0 pause input
    0 input packets with dribble condition detected
    2357 packets output, 263570 bytes, 0 underruns
    0 output errors, 0 collisions, 10 interface resets
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
    0 output buffer failures, 0 output buffers swapped out
```

```
S4#show interfaces port-channel 2
```

```
Port-channel2 is up, line protocol is up (connected)
Hardware is EtherChannel, address is 0002.168e.20b1 (bia 0002.168e.20b1)
MTU 1500 bytes, BW 300000 Kbit, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Half-duplex, 300Mb/s
input flow-control is off, output flow-control is off
Members in this channel: Fa0/6 ,Fa0/7 ,Fa0/8 ,
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    956 packets input, 193351 bytes, 0 no buffer
    Received 956 broadcasts, 0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    0 watchdog, 0 multicast, 0 pause input
    0 input packets with dribble condition detected
    2357 packets output, 263570 bytes, 0 underruns
    0 output errors, 0 collisions, 10 interface resets
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
    0 output buffer failures, 0 output buffers swapped out
```

S4#sh etherchannel summary

Flags: D - down P - in port-channel
 I - stand-alone s - suspended
 H - Hot-standby (LACP only)
 R - Layer3 S - Layer2
 U - in use f - failed to allocate aggregator
 u - unsuitable for bundling
 w - waiting to be aggregated
 d - default port

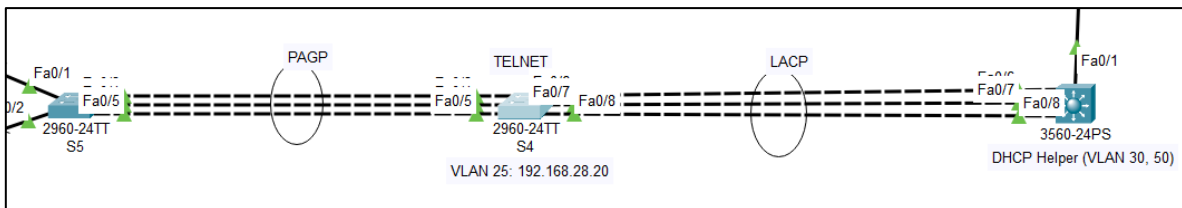
Number of channel-groups in use: 2

Number of aggregators: 2

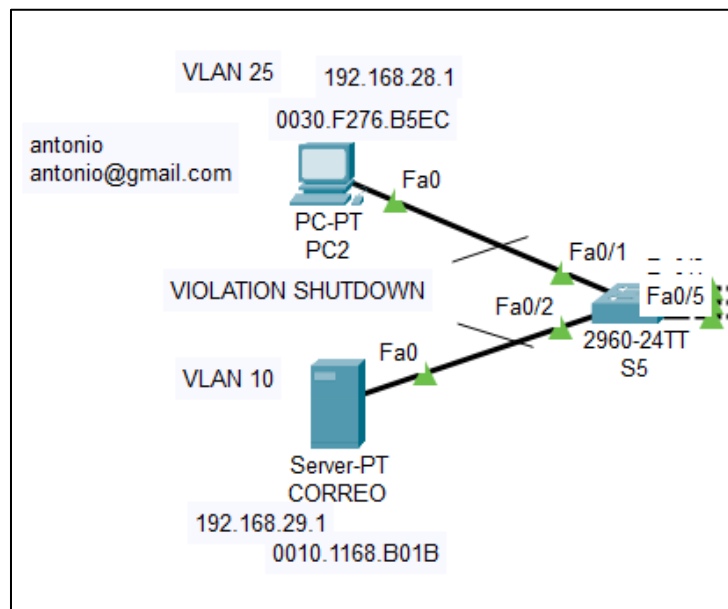
Group	Port-channel	Protocol	Ports
-------	--------------	----------	-------

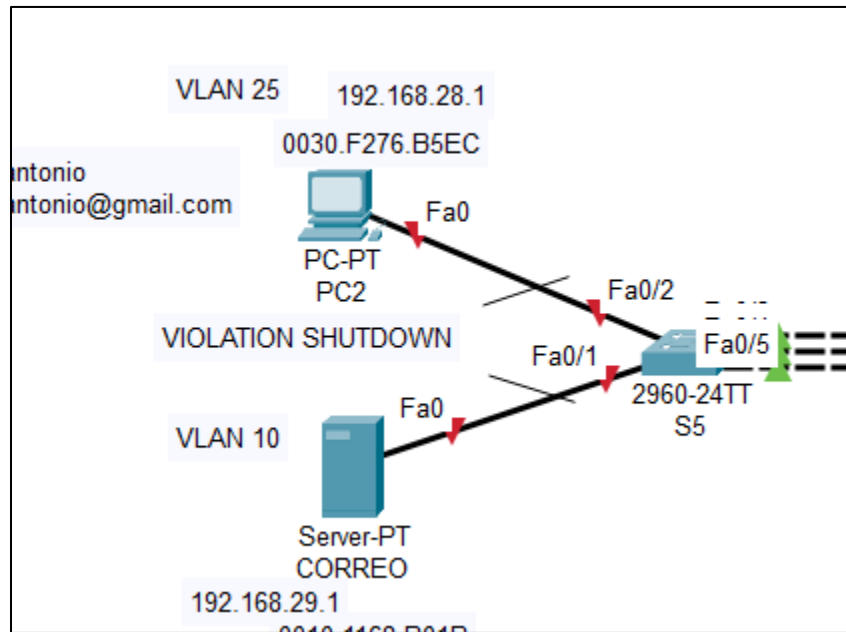
1	Po1 (SU)	PAgP	Fa0/3 (P) Fa0/4 (P) Fa0/5 (P)
2	Po2 (SU)	LACP	Fa0/6 (P) Fa0/7 (P) Fa0/8 (P)

S4#



7. VIOLACION DE PUERTOS





```
Switch#show port-security interface fa 0/2
Port Security          : Enabled
Port Status            : Secure-shutdown
Violation Mode         : Shutdown
Aging Time             : 0 mins
Aging Type             : Absolute
SecureStatic Address Aging : Disabled
Maximum MAC Addresses  : 1
Total MAC Addresses    : 1
Configured MAC Addresses : 1
Sticky MAC Addresses   : 0
Last Source Address:Vlan : 0030.F276.B5EC:10
Security Violation Count : 1
```

```
Security Violation Count : 0
Switch#show port-security interface fa 0/1
Port Security          : Enabled
Port Status            : Secure-shutdown
Violation Mode         : Shutdown
Aging Time             : 0 mins
Aging Type             : Absolute
SecureStatic Address Aging : Disabled
Maximum MAC Addresses  : 1
Total MAC Addresses    : 1
Configured MAC Addresses : 1
Sticky MAC Addresses   : 0
Last Source Address:Vlan : 0010.1168.B01B:25
Security Violation Count : 1
```

```
%LINK-S-CHANGED: Interface FastEthernet0/2, changed state to administratively down
```

```
%LINEPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to down
```

```
Switch#
```

```
%LINK-S-CHANGED: Interface FastEthernet0/1, changed state to administratively down
```

```
%LINEPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
```

8. HSRP Funcionando

```
R2#show standby
FastEthernet0/0 - Group 1
State is Standby
6 state changes, last state change 00:00:40
Virtual IP address is 192.168.23.100
Active virtual MAC address is 0000.0C07.AC01
Local virtual MAC address is 0000.0C07.AC01 (vl default)
Hello time 3 sec, hold time 10 sec
Next hello sent in 0.783 secs
Preemption disabled
Active router is 192.168.23.3
Standby router is local
Priority 100 (default 100)
Group name is hsrp-Fa0/0-1 (default)
```

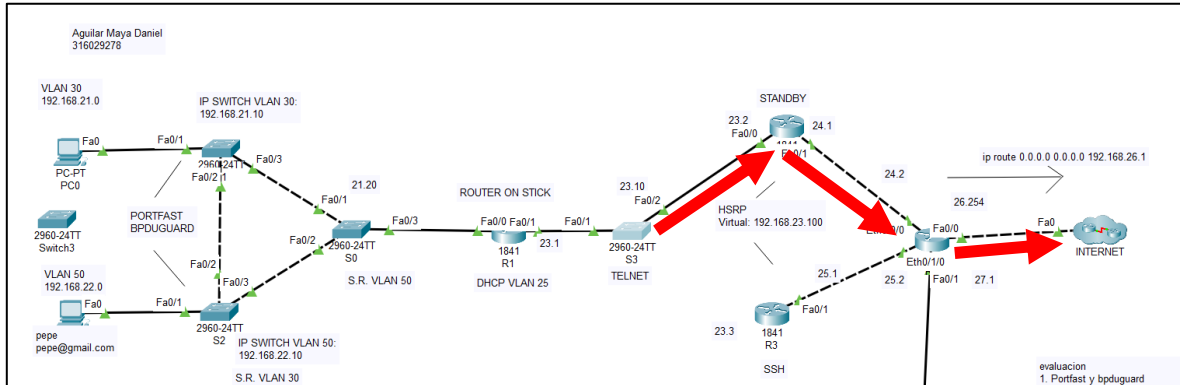
```
R3#show standby
FastEthernet0/0 - Group 1
State is Active
6 state changes, last state change 00:00:27
Virtual IP address is 192.168.23.100
Active virtual MAC address is 0000.0C07.AC01
Local virtual MAC address is 0000.0C07.AC01 (vl default)
Hello time 3 sec, hold time 10 sec
Next hello sent in 2.641 secs
Preemption enabled
Active router is local
Standby router is 192.168.23.2
Priority 200 (configured 200)
Group name is hsrp-Fa0/0-1 (default)
R3#
```

222



```
%HSRP-6-STATECHANGE: FastEthernet0/0 Grp 1 state Speak -> Standby
%HSRP-6-STATECHANGE: FastEthernet0/0 Grp 1 state Standby -> Active
```

Mensaje nuevo en R2

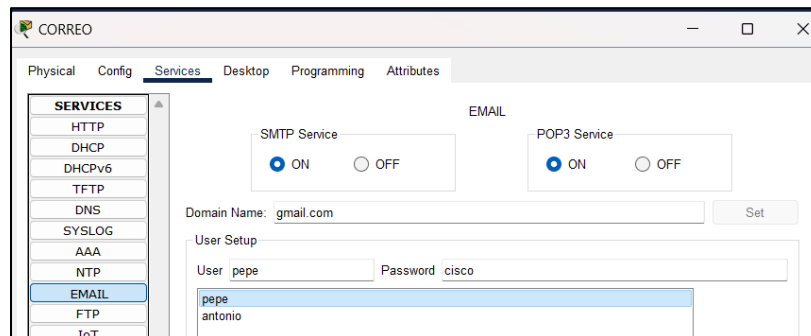


Volviendo a conectar

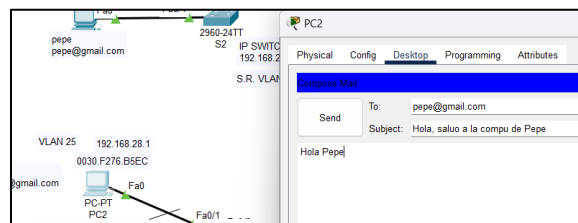
```
R3>
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%HSRP-6-STATECHANGE: FastEthernet0/0 Grp 1 state Speak -> Standby
%HSRP-6-STATECHANGE: FastEthernet0/0 Grp 1 state Standby -> Active
```

R3 vuelve a ser activo

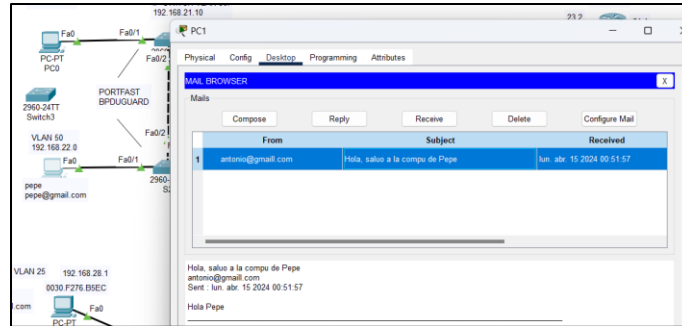
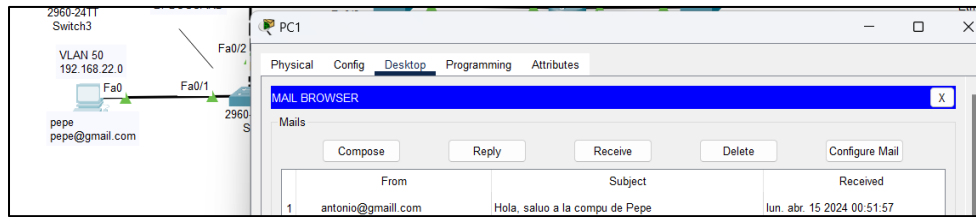
9. CORREOS ENTRE PEPE Y ANTONIO



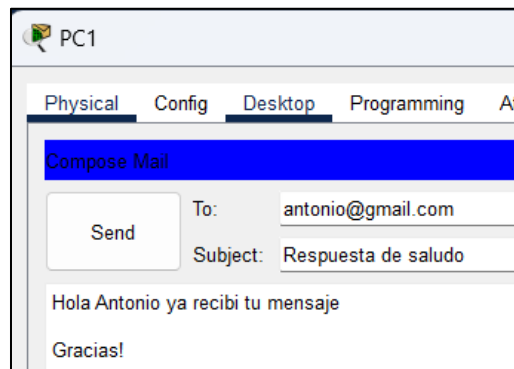
Usuarios creados



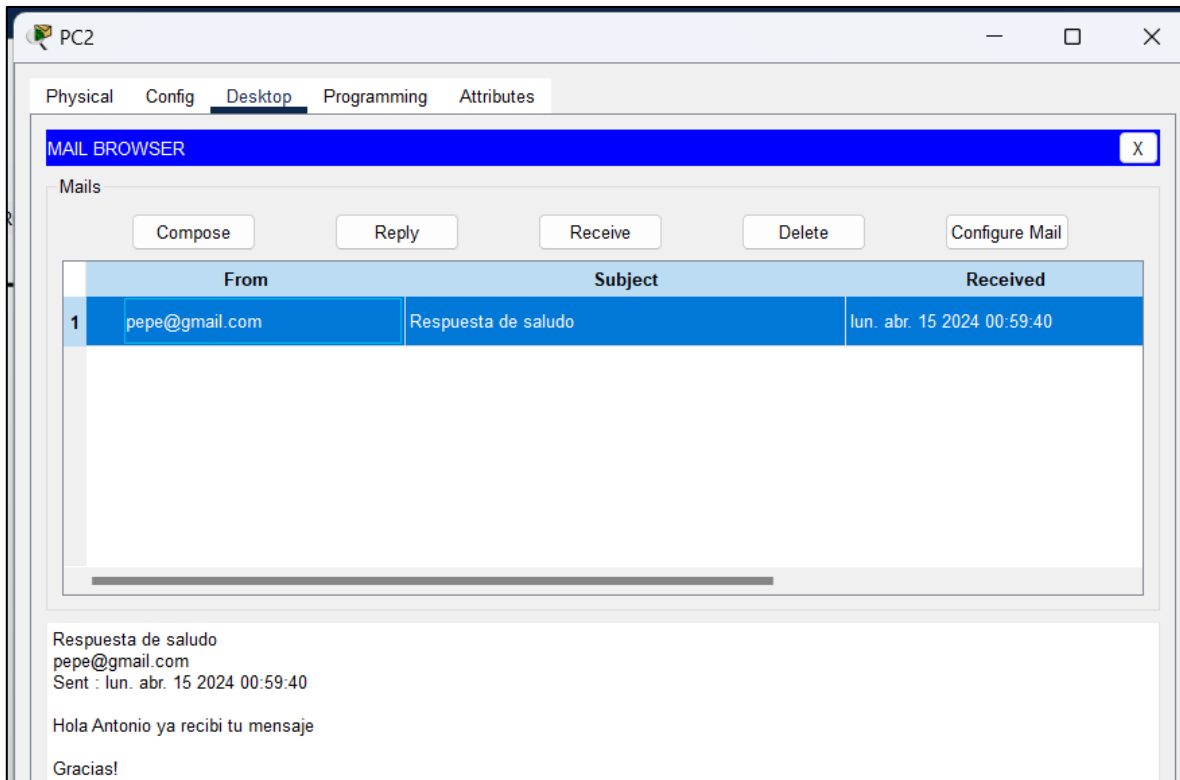
Mensaje Antonio a Pepe



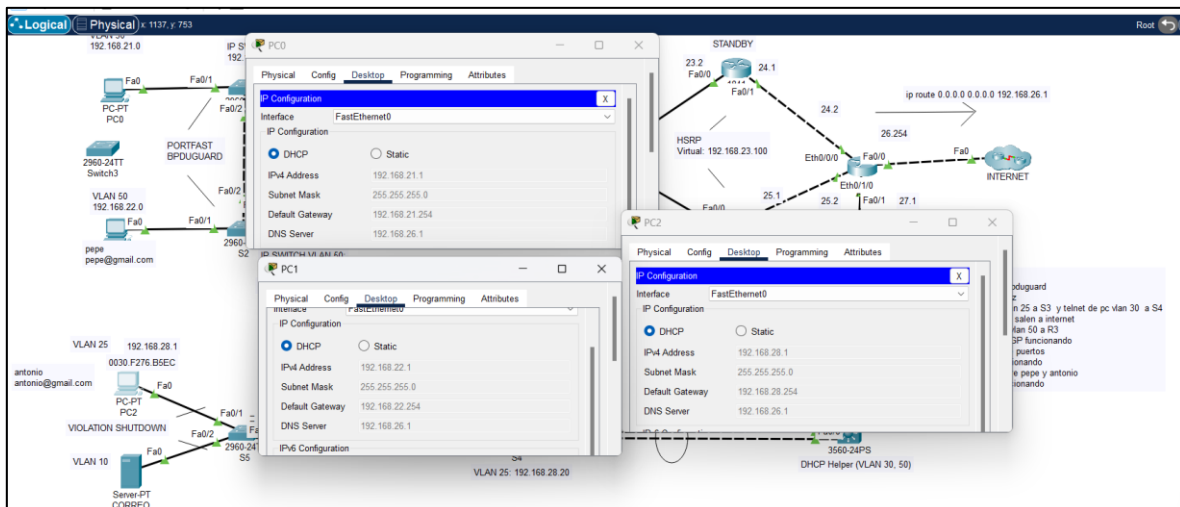
Mensaje recibido en PC de Pepe



Mensaje Pepe a Antonio



10. DHCP FUNCIONANDO



DCHP

```

hostname R1
!
!
!
!
!
ip dhcp pool vlan_25
network 192.168.28.0 255.255.255.0
default-router 192.168.28.254
dns-server 192.168.26.1

```

R1 configurado para dar IP a VLAN 25

```

interface Vlan25
mac-address 0007.ecc5.4102
ip address 192.168.28.254 255.255.255.0
ip helper-address 192.168.23.1

```

Helper-address en Switch multicapa

```

ip dhcp pool vlan_30
network 192.168.21.0 255.255.255.0
default-router 192.168.21.254
dns-server 192.168.26.1
ip dhcp pool vlan_50
network 192.168.22.0 255.255.255.0
default-router 192.168.22.254
dns-server 192.168.26.1

```

Switch multicapa para dar IP a VLAN 30 y 50

```

interface FastEthernet0/0.30
encapsulation dot1Q 30
ip address 192.168.21.254 255.255.255.0
ip helper-address 192.168.27.2
!
interface FastEthernet0/0.50
encapsulation dot1Q 50
ip address 192.168.22.254 255.255.255.0
ip helper-address 192.168.27.2

```

Helper-address en Router