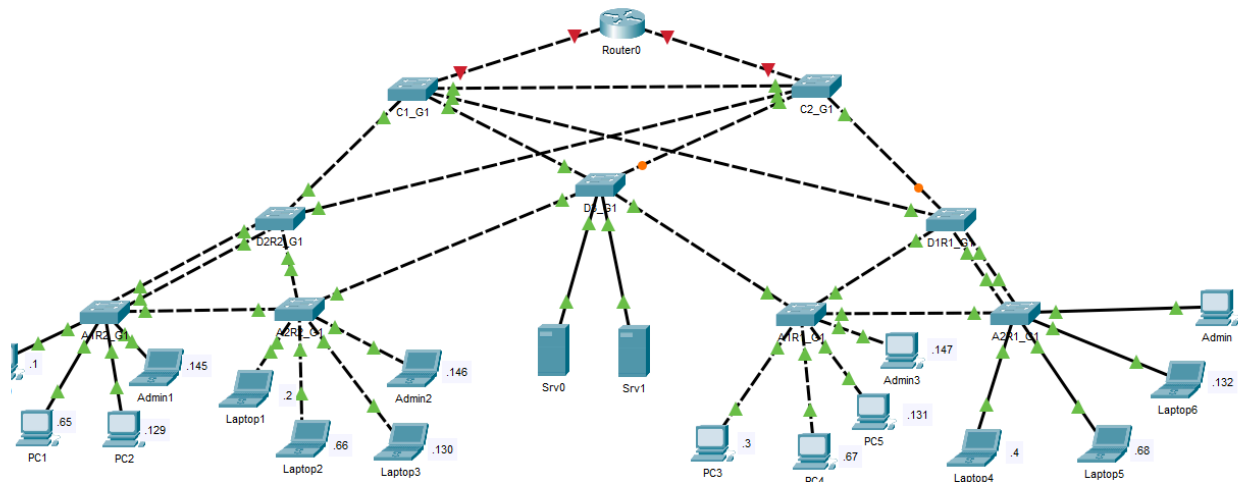



Experience 2 - VTP, STP and Inter-VLAN Routing



Topology map

Name	Management	Interface	Connect to - on int.	
C1_G1	SVI Number: 99	Gi0/1	R1	Gi0/0
	IP Add: 192.168.1.152/28	Gi0/2	C2_G1	Gi0/2
	Def. GW: -	Fa0/22	D3_G1	Fa0/24
	Telnet/SSH: SSH	Fa0/23	D1R1_G1	Fa0/23
		Fa0/24	D2R2_G1	Fa0/24

 exp2_p1_topologyMap

Part 1 - VTP

Passaggi per la configurazione degli switch utilizzando il protocollo VTP:

- impostazione della versione VTP 2,
- interfacce degli switch configurate come trunk link,
- D3_G1 e C2_G1, ovvero gli switch aggiunti e non ancora configurati, impostata vlan nativa e le vlan consentite sui trunk link ed la SVI,
- tutti gli switch impostati in modalità VTP trasparente in modo da azzerare il revision number,
- D2R2_G1 impostato in modalità server e definito il domain name "*lab.exp2*"; successivamente impostato anche il D1R1_G1 in modalità VTP server,
- impostazione in modalità VTP client per i restanti switches configurati precedentemente in modalità VTP transparent.

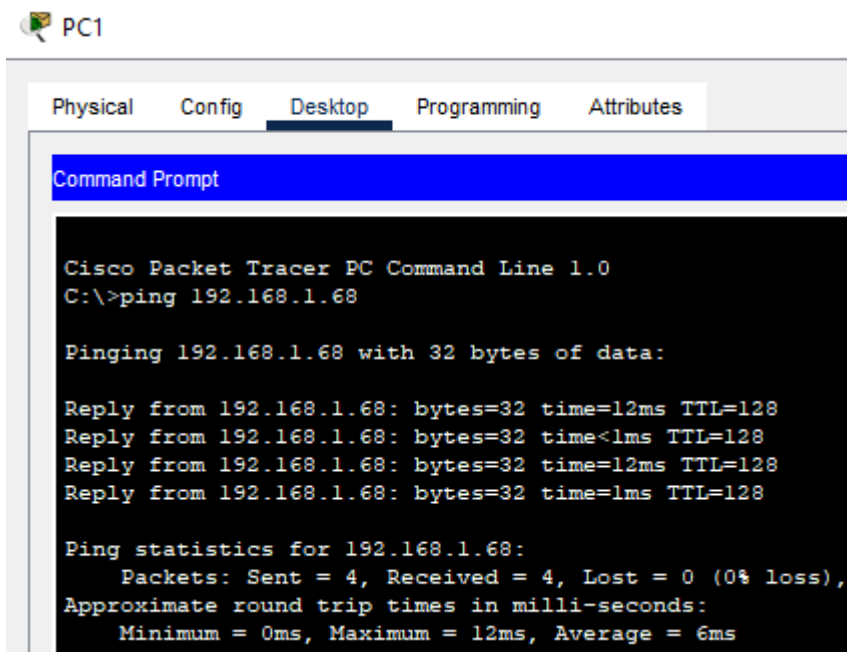
Il quadro generale quindi risulta essere il seguente:

Device Name	VTP Mode	Trunk link int.
C1_G1	Client	Gi0/1, Gi0/2, Fa0/22 - Fa0/24
C2_G1	Client	Gi0/1, Gi0/2, Fa0/22 - Fa0/24
D2R2_G1	Server	Fa0/20 - Fa0/24
D1R1_G1	Server	Fa0/20 - Fa0/24
D3_G1	Client	Fa0/21 - Fa0/24
A1R2_G1	Client	Fa0/22 - Fa0/24
A2R2_G1	Client	Fa0/22 - Fa0/24
A1R1_G1	Client	Fa0/22 - Fa0/24
A2R1_G1	Client	Fa0/22 - Fa0/24

*Ie vlan consentite sui trunk sono: vlan 10,20,30,99; vlan nativa: 200.

Test connettività

Le seguenti immagini mostrano il risultato del comando ping tra *PC1* - 192.168.1.65 e *Laptop5* - 192.168.1.68 e la verifica di sincronizzazione del database delle vlan(come esempio è stato preso in considerazione lo switch C2_G1):



```
PC1
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.68

Pinging 192.168.1.68 with 32 bytes of data:

Reply from 192.168.1.68: bytes=32 time=12ms TTL=128
Reply from 192.168.1.68: bytes=32 time<1ms TTL=128
Reply from 192.168.1.68: bytes=32 time=12ms TTL=128
Reply from 192.168.1.68: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.68:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 12ms, Average = 6ms
```

```
C2_G1#sh vlan brief
```

VLAN	Name	Status	Ports
1	default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6, Fa0/7, Fa0/8 Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/14, Fa0/15, Fa0/16 Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Gig0/1
10	Student	active	
20	Faculty	active	
30	Guest	active	
99	Mgmt	active	
200	Native	active	
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

Aggiunta e connessione Server

Name	Management	Interface	Connect to - on int.	
D3_G1	SVI Number: 99	Gi0/1	Srv0	Fa0
	IP Add: 192.168.1.150/28	Gi0/2	Srv1	Fa0
	Def. GW: -	Fa0/21	A1R1_G1	Fa0/24
	Telnet/SSH: SSH	Fa0/22	A2R2_G1	Fa0/24
		Fa0/23	C2_G1	Fa0/22
		Fa0/24	C1_G1	Fa0/22

VLAN	NETWORK	NETMASK	FIRST ADDRESS	LAST ADDRESS	BCAST ADDRESS
Vlan 10 (Student)	192.168.1.0/26	255.255.255.192	192.168.1.1	192.168.1.62	192.168.1.63
Vlan 20 (Faculty)	192.168.1.64/26	255.255.255.192	192.168.1.65	192.168.1.126	192.168.1.127
Vlan 30 (Guest)	192.168.1.128/28	255.255.255.240	192.168.1.129	192.168.1.142	192.168.1.143
Vlan 99 (Mgmt)	192.168.1.144/28	255.255.255.240	192.168.1.145	192.168.1.158	192.168.1.159
Vlan 100	192.168.1.160/29	255.255.255.248	192.168.1.161	192.168.1.166	192.168.1.167

- Srv0: 192.168.1.161 - 255.255.255.248 - gi0/1
- Srv1: 192.168.1.162 - 255.255.255.248 - gi0/2

A seguito della connessione dei server allo switch D3_G1, sono state eseguite le seguenti operazioni:

- impostazione modalità VTP trasparente sugli switch D3_G1, C1_G1 e C2_G1,
- creata la VLAN 100 su tutti gli switch e configurazione di quest'ultima sui link trunk,
- impostazione modalità *access* delle porte gi0/1-2 appartenenti allo switch D3_G1,
- ping tra C1_G1-C2_G1 e PC0-PC3 mostrato di seguito:

```
C1_G1(config-if)#do ping 192.168.1.151
```

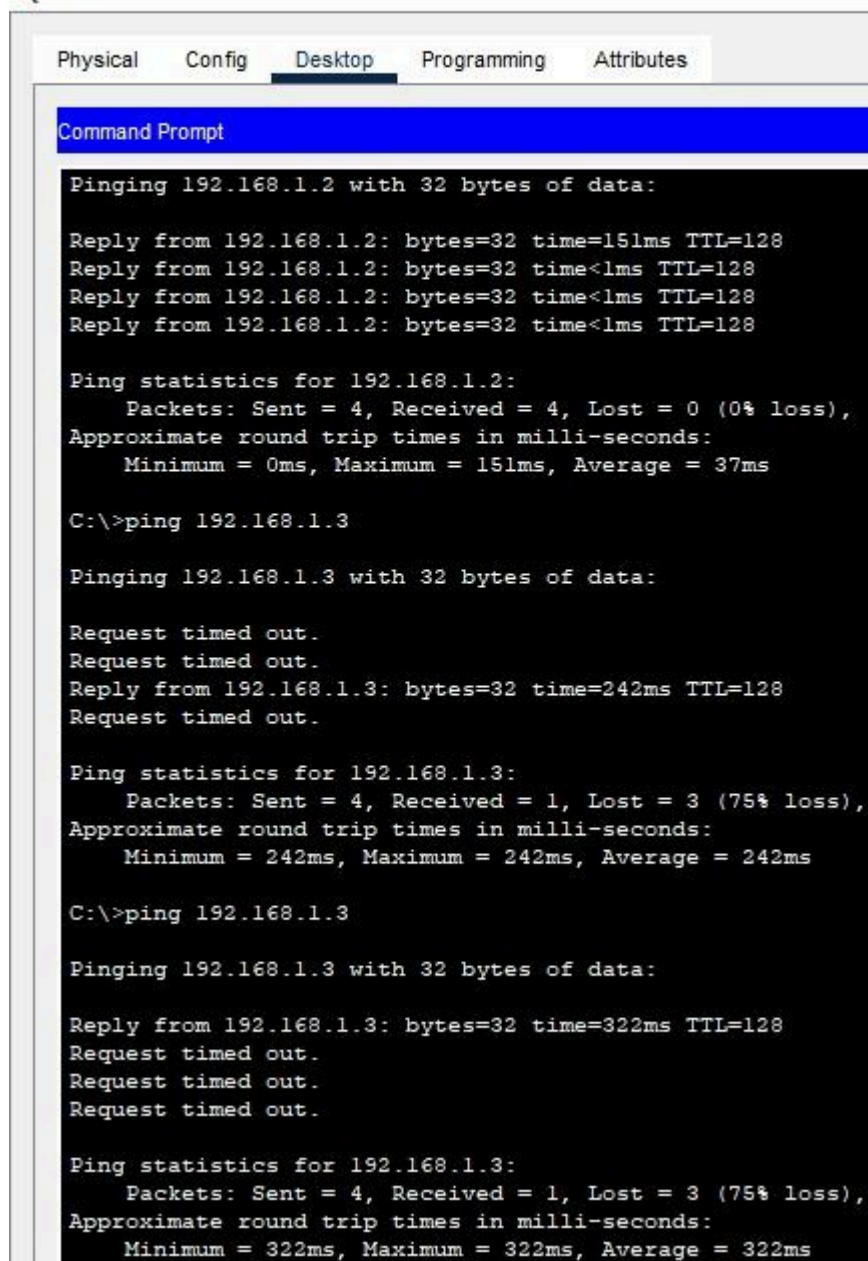
```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 192.168.1.151, timeout is 2 seconds:
```

```
..!...
```

```
Success rate is 20 percent (1/5), round-trip min/avg/max = 233/233/233 ms
```

 PC0



The screenshot shows a PC desktop with a taskbar at the bottom. The 'Desktop' tab is selected in the top navigation bar. A 'Command Prompt' window is open, displaying the results of two ping commands. The first command is 'ping 192.168.1.2', which shows four successful replies with 32 bytes of data, times less than 1ms, and TTL=128. The statistics for 192.168.1.2 show 4 packets sent, 4 received, 0 lost (0% loss), and an average round trip time of 37ms. The second command is 'ping 192.168.1.3', which shows three 'Request timed out' messages and one successful reply with 32 bytes of data, time=242ms, and TTL=128. The statistics for 192.168.1.3 show 4 packets sent, 1 received, 3 lost (75% loss), and an average round trip time of 242ms. The third command is another 'ping 192.168.1.3', which shows three 'Request timed out' messages and one successful reply with 32 bytes of data, time=322ms, and TTL=128. The statistics for 192.168.1.3 show 4 packets sent, 1 received, 3 lost (75% loss), and an average round trip time of 322ms.

```
Physical Config Desktop Programming Attributes

Command Prompt

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 151ms, Average = 37ms

C:\>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Request timed out.
Request timed out.
Reply from 192.168.1.3: bytes=32 time=242ms TTL=128
Request timed out.

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 1, Lost = 3 (75% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 242ms, Maximum = 242ms, Average = 242ms

C:\>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time=322ms TTL=128
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 1, Lost = 3 (75% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 322ms, Maximum = 322ms, Average = 322ms
```

Le immagini indicano una frequenza elevata di perdita di pacchetti; per la risoluzione è stato effettuato:

- creazione VLAN 100 sullo switch D2R2_G1 in quanto il revision number di tutti gli switch al momento della prova è uguale a zero:
 - se $\text{rev.\# D2R2_G1} < \text{rev.\# D3_G1} \rightarrow$ l'informazione della VLAN 100 avrebbe raggiunto tutti i dispositivi anche se in modalità *client*,
- modifica da VTP transparent a VTP client di D3_G1, C1_G1 e C2_G1.

Per confermare il corretto funzionamento della rete, è stato eseguito nuovamente un test di connettività tramite il comando ping, che ha avuto esito positivo.

Aggiunta VLAN 50

VLAN	NETWOR K	NETMASK	FIRST ADDRESS	LAST ADDRESS	BCAST ADDRESS
Vlan 10 (Student)	192.168.1.0/26	255.255.255.192	192.168.1.1	192.168.1.62	192.168.1.63
Vlan 20 (Faculty)	192.168.1.64/26	255.255.255.192	192.168.1.65	192.168.1.126	192.168.1.127
Vlan 30 (Guest)	192.168.1.128/28	255.255.255.240	192.168.1.129	192.168.1.142	192.168.1.143
Vlan 99 (Mgmt)	192.168.1.144/28	255.255.255.240	192.168.1.145	192.168.1.158	192.168.1.159
Vlan 100	192.168.1.160/29	255.255.255.248	192.168.1.161	192.168.1.166	192.168.1.167
Vlan 50	192.168.1.168/29	255.255.255.248	192.168.1.169	192.168.1.174	192.168.1.175

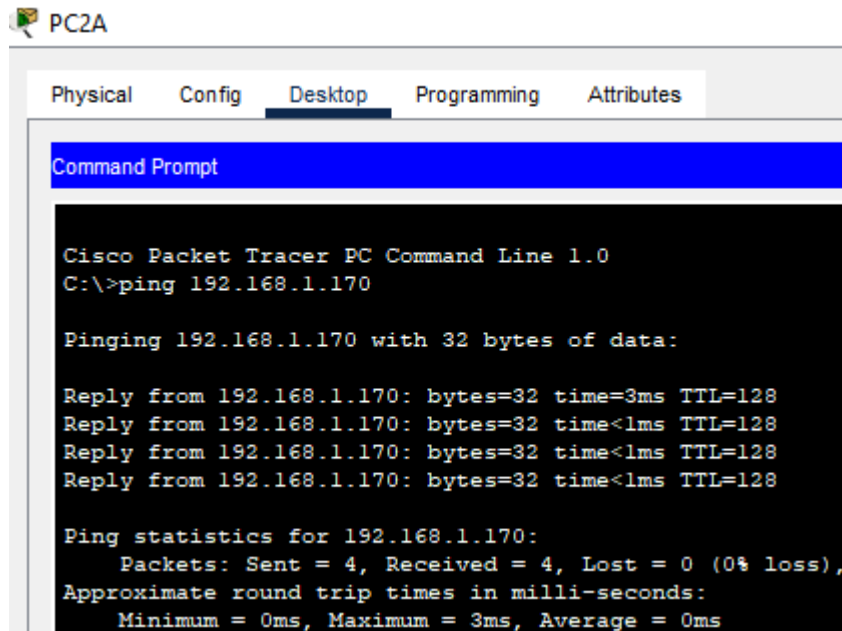
- PC2A: 192.168.1.169 - 255.255.255.248 - connesso a A1R2_G1 (fa0/19) su fa0
- Laptop7: 192.168.1.170 - 255.255.255.248 - connesso a A2R1_G1 (fa0/19) su fa0

La procedura per aggiungere la VLAN 50 è la seguente:

- aggiungere VLAN50 su D2R2_G1, oppure su D1R1_G1, in modo da inoltrare l'informazione su tutti gli altri switch (se D3_G1, C1_G1 e C2_G1 fossero rimasti in modalità trasparente sarebbe stato necessario aggiungere su di essi la vlan manualmente),
- inserire la VLAN 50 sui link trunk:
 - switchport trunk allowed vlan add 50,**
- configurare le porte connesse a PC2A e Laptop7 tramite i comandi:

- A1R2_G1 (conf-if) # **switchport mode access**
 - A1R2_G1 (conf-if) # **switchport access vlan 50**
- *configurazioni effettuate su A1R2_G1 e A2R1_G1

Esito positivo ping tra PC2A e Laptop7:



The screenshot shows the 'Desktop' tab of PC2A in Cisco Packet Tracer. A Command Prompt window is open, displaying the following text:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.170

Pinging 192.168.1.170 with 32 bytes of data:

Reply from 192.168.1.170: bytes=32 time=3ms TTL=128
Reply from 192.168.1.170: bytes=32 time<1ms TTL=128
Reply from 192.168.1.170: bytes=32 time<1ms TTL=128
Reply from 192.168.1.170: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.170:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 3ms, Average = 0ms
```

Procedura rimozione VLAN 50 utilizzando i comandi come riportato di seguito:

- **no switchport access vlan 50** su switch A1R2_G1 e A2R1_G1,
- **no vlan 50** su switch D2R2_G1,
- **switchport trunk allowed vlan remove 50** ← su tutti gli switch.

Part 2 - STP

SWITCH	MAC ADD
C1_G1	00:0C:CF:1E:2B:AB
C2_G1	00:04:9A:2B:19:3D
D2R2_G1	00:60:5C:D7:B9:5B
D3_G1	00:02:16:17:06:10
D1R1_G1	00:07:EC:D8:D1:33
A1R2G1	00:01:64:89:3C:18
A2R2_G1	00:02:16:A7:84:D0
A1R1_G1	00:05:5E:85:E6:9D
A2R1_G1	00:90:2B:45:B1:2A

Dopo aver dato il seguente comando su C1_G1:

C1_G1# show spanning-tree

si ottiene che il *Root Bridge* per le VLAN 10,20,30,99,200 è lo switch A1R2_G1 avente indirizzo MAC 00:01:64:89:3C:18

<pre> C1_G1#sh sp VLAN0010 Spanning tree enabled protocol ieee Root ID Priority 32778 Address 0001.6489.3C18 Cost 38 Port 24(FastEthernet0/24) Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Bridge ID Priority 32778 (priority 32768 sys-id-ext 10) Address 000C.CF1E.2BAB Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Aging Time 20 Interface Role Sts Cost Prio.Nbr Type ----- Gi0/2 Altn BLK 4 128.26 P2p Fa0/23 Desg FWD 19 128.23 P2p Fa0/24 Root FWD 19 128.24 P2p Fa0/22 Altn BLK 19 128.22 P2p </pre>				
<pre> VLAN0020 Spanning tree enabled protocol ieee Root ID Priority 32788 Address 0001.6489.3C18 Cost 38 Port 24(FastEthernet0/24) Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Bridge ID Priority 32788 (priority 32768 sys-id-ext 20) Address 000C.CF1E.2BAB Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Aging Time 20 Interface Role Sts Cost Prio.Nbr Type ----- Gi0/2 Altn BLK 4 128.26 P2p Fa0/23 Desg FWD 19 128.23 P2p Fa0/24 Root FWD 19 128.24 P2p Fa0/22 Altn BLK 19 128.22 P2p </pre>				
<pre> A1R2_G1#sh sp vlan 10,20,30,99,100 VLAN0010 Spanning tree enabled protocol ieee Root ID Priority 32778 Address 0001.6489.3C18 Cost 38 Port 24(FastEthernet0/24) Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Bridge ID Priority 32778 (priority 32768 sys-id-ext 10) Address 0001.6489.3C18 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Aging Time 20 Interface Role Sts Cost Prio.Nbr Type ----- Fa0/1 Desg FWD 19 128.1 P2p Fa0/24 Desg FWD 19 128.24 P2p Fa0/23 Desg FWD 19 128.23 P2p Fa0/22 Desg FWD 19 128.22 P2p </pre>				
<pre> VLAN0020 Spanning tree enabled protocol ieee Root ID Priority 32788 Address 0001.6489.3C18 Cost 38 Port 24(FastEthernet0/24) Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Bridge ID Priority 32788 (priority 32768 sys-id-ext 20) Address 0001.6489.3C18 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Aging Time 20 Interface Role Sts Cost Prio.Nbr Type ----- Fa0/7 Desg FWD 19 128.7 P2p Fa0/24 Desg FWD 19 128.24 P2p </pre>				

Invece per quanto riguarda la VLAN 100 si ha che il *Root Bridge* è lo switch D3_G1 avente indirizzo MAC 00:02:16:17:06:10.

Le porte bloccate e le porte root sono mostrate in tabella:

SWITCH	ROOT PORT		BLOCKED PORT	
	10,20,30,99,200	100	10,20,30,99,200	100
C1_G1	fa0/24	fa0/22	fa0/22 gi0/2	gi0/2
C2_G1	fa0/23	fa0/22	fa0/22	-
D2R2_G1	fa0/20	-	fa0/21-22	-
D3_G1	fa0/22	-	-	-
D1R1_G1	fa0/24	-	fa0/22-23	-
A1R2G1	-	-	-	-
A2R2_G1	fa0/22	-	-	-
A1R1_G1	fa0/24	-	-	-
A2R1_G1	fa0/22	-	fa0/23-24	-

La rete non sta eseguendo il bilanciamento del carico in quanto:

- c'è un unico root bridge per tutte le VLAN a meno della VLAN 100
- diversi link sono inutilizzati, ad es. considerando i due link tra *A1R2_G1* e *D2R2_G1*:
 - **fa0/23(A1R2_G1) - fa0/20(D2R2_G1)** → consente traffico utente per tutte le vlan
 - **fa0/24(A1R2_G1) - fa0/21 (D2R2_G1)** → non consente traffico utente per nessuna vlan

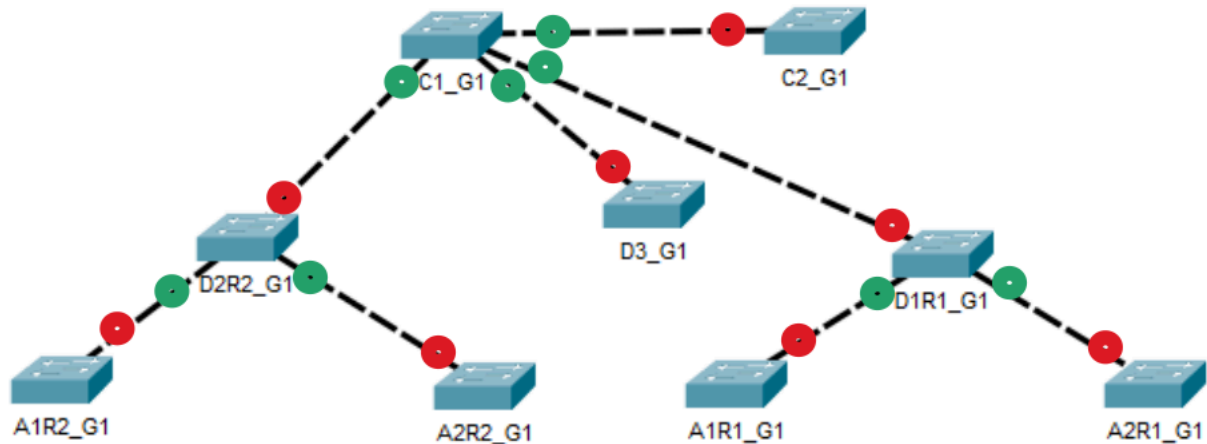
Per il cambio di configurazione dei root bridge sono stati eseguiti i seguenti comandi:

- su *C1_G1* →
 - C1_G1(config)# **spanning-tree vlan 10,30 root primary**
 - C1_G1(config)# **spanning-tree vlan 20,99 root secondary**
 - su *C2_G1* →
 - C2_G1(config)# **spanning-tree vlan 20 priority 24576**
 - C2_G1(config)# **spanning-tree vlan 99 priority 24576**
 - C2_G1(config)# **spanning-tree vlan 10 priority 28672**
 - C2_G1(config)# **spanning-tree vlan 30 priority 28672**
- * vlaore_priority = valore_iniziale - (2x4096) - vlan_id
 vlaore_priority = valore_iniziale - (1x4096) - vlan_id

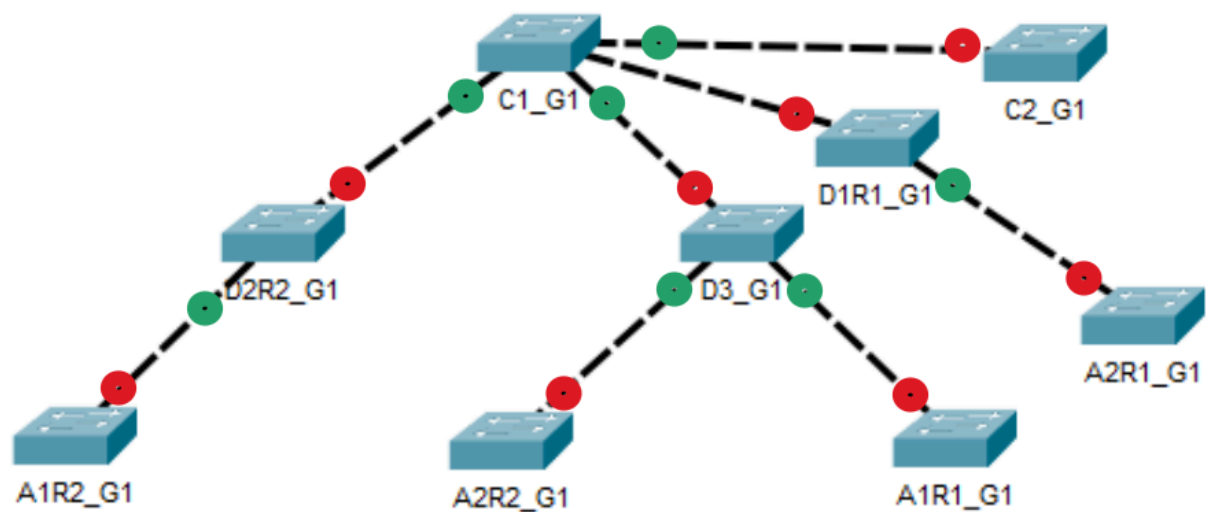
Comandi analoghi sono stati utilizzati per la configurazione dello switch *D3_G1* per quanto riguarda la VLAN 100.

Ipoteticamente la topologia ad albero della VLAN 10 potrebbe essere la seguente:

* designated port = ● , root port = ●



In realtà risulta essere:



Questo perchè si hanno delle regole per la scelta del ruolo delle porte *root*, *designated* e *non-designated*.

Considerando il caso specifico, tra *A1R2_G1* e *D2R2_G1*, il link rimasto attivo è sulle porte

fa0/23(A1R2_G1) - fa0/20(D2R2_G1)

ovvero, in questo specifico caso, la porta con il numero più basso:

*risultato del comando show spanning-tree su A1R2_G1

```
VLAN0010
Spanning tree enabled protocol ieee
Root ID    Priority    24586
           Address    000C.CF1E.2BAB
           Cost       38
           Port       23(FastEthernet0/23)
           Hello Time 2 sec  Max Age 20 sec  Forward D

Bridge ID   Priority    32778 (priority 32768 sys-id-ex
           Address    0001.6489.3C18
           Hello Time 2 sec  Max Age 20 sec  Forward D
           Aging Time 20

Interface          Role Sts Cost          Prio.Nbr Type
-----
Fa0/1              Desg FWD 19           128.1    P2p
Fa0/24             Altn BLK 19           128.24   P2p
Fa0/22             Desg FWD 19           128.22   P2p
Fa0/23             Root FWD 19           128.23   P2p
```

In maniera analoga è possibile estendere lo stesso ragionamento e procedimento per le rimanenti vlan.

Nel momento in cui un link viene aggiunto o rimosso il tempo di convergenza è stato di circa 33 secondi.

Nel caso in cui C1_G1 venga spento, dato che è stato configurato il backup su C2_G1, si avrà che quest'ultimo diventerà il root bridge per tutte le vlan e inoltre si otterrà una nuova struttura ad albero, parziale o completa, delle VLAN 10 e 30.

Connettendo un host ad una porta vlan inutilizzata il protocollo STP ricalcolerà solamente per la specifica vlan con un tempo di finalizzazione di circa 30 secondi.

Tramite i comandi

```
*per impostare le porte in forwarding state evitando di inserire le porte access nella configurazione STP
(config)#int range fa0/1-18
(config-if)#spanning-tree portfast
(config-if)#spanning-tree bpduguard enable
```

sono state configurate le porte in modalità access di tutti gli switch.

Part 3 - Inter-VLAN Routing

Configurazioni di base R1:

- R1(config)#**hostname** R1
- R1(config)#**banner motd** *\$Authorized Access Only!*\$
- R1(config)#**ip domain-name** labtlc.com
- R1(config)#**crypto key generate rsa** (1024 bit)
- R1(config)#**username** admin **secret** ccna
- R1(config)#**line vty** 0 15
- R1(config-line)#**transport input** ssh
- R1(config-line)#**login** local
- R1(config)#**ip ssh version** 2

Configurazioni router-on-stick:

- R1(config)#**int** g0/0.10
- R1(config-subif)#**encapsulation dot1Q** 10
- R1(config-subif)#**ip add** 192.168.1.62 255.255.255.192
- R1(config-subif)#**int** gi0/0.30
- R1(config-subif)#**encapsulation dot1Q** 30
- R1(config-subif)#**ip add** 192.168.1.142 255.255.255.240

- R1(config-subif)#**int** gi0/1.20
- R1(config-subif)#**encapsulation dot1Q** 20
- R1(config-subif)#**ip add** 192.168.1.126 255.255.255.192
- R1(config-subif)#**int** gi0/1.99
- R1(config-subif)#**encapsulation dot1Q** 99
- R1(config-subif)#**ip add** 192.168.1.158 255.255.255.240
- R1(config-subif)#**int** gi0/1.100
- R1(config-subif)#**encapsulation dot1Q** 100
- R1(config-subif)#**ip add** 192.168.1.166 255.255.255.248

Su tutti gli hosts è stato configurato il Default Gateway ed è stata testata la connettività tramite ping come mostrato:

```
Physical  Config  Desktop  Programming  Attributes

Command Prompt

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=60ms TTL=127
Reply from 192.168.1.1: bytes=32 time<1ms TTL=127
Reply from 192.168.1.1: bytes=32 time<1ms TTL=127
Reply from 192.168.1.1: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 60ms, Average = 15ms

C:\>ping 192.168.1.65

Pinging 192.168.1.65 with 32 bytes of data:

Reply from 192.168.1.65: bytes=32 time<1ms TTL=127
Reply from 192.168.1.65: bytes=32 time<1ms TTL=127
Reply from 192.168.1.65: bytes=32 time<1ms TTL=127
Reply from 192.168.1.65: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.1.65:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.1.129

Pinging 192.168.1.129 with 32 bytes of data:

Request timed out.
Reply from 192.168.1.129: bytes=32 time=9ms TTL=127
Reply from 192.168.1.129: bytes=32 time<1ms TTL=127
Reply from 192.168.1.129: bytes=32 time=2ms TTL=127

Ping statistics for 192.168.1.129:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 9ms, Average = 3ms

C:\>ping 192.168.1.145
```

Nello specifico è stato considerato l'host *Admin4* appartenente alla VLAN 99 con indirizzo IP 192.168.1.148; i ping sono stati effettuati verso tutte le restanti VLAN con esito positivo.

Creazione loopback e verifica connettività

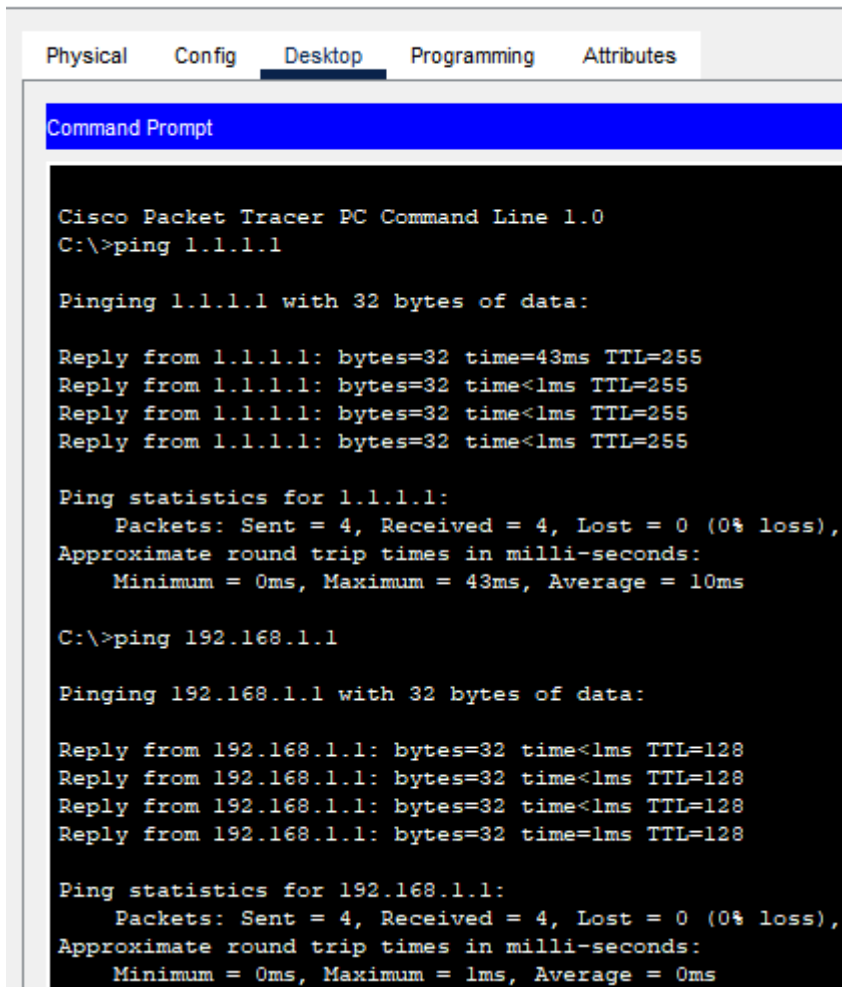
Comandi:

R1(config)#**int loopback 0**

R1(config-if)#**ip add 1.1.1.1 255.255.255.255**

Verifica connettività

PC3



The screenshot shows the 'Desktop' tab of a PC3 in Cisco Packet Tracer. A Command Prompt window is open, displaying the results of two ping commands. The first command is 'ping 1.1.1.1', which shows four successful replies with 32 bytes of data, times ranging from 0ms to 43ms, and a TTL of 255. The second command is 'ping 192.168.1.1', which also shows four successful replies with 32 bytes of data, times ranging from 0ms to 1ms, and a TTL of 128. Both tests show 0% packet loss.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 1.1.1.1

Pinging 1.1.1.1 with 32 bytes of data:

Reply from 1.1.1.1: bytes=32 time=43ms TTL=255
Reply from 1.1.1.1: bytes=32 time<1ms TTL=255
Reply from 1.1.1.1: bytes=32 time<1ms TTL=255
Reply from 1.1.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 1.1.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 43ms, Average = 10ms

C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```