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SW2

```

S2#show interface trunk

Port      Mode      Encapsulation  Status        Native vlan
Gi1/1     on        802.1q         trunking      1
Gi1/2     on        802.1q         trunking      1

Port      Vlans allowed on trunk
Gi1/1     1-4094
Gi1/2     1-4094

Port      Vlans allowed and active in management domain
Gi1/1     1,10,20
Gi1/2     1,10,20

Port      Vlans in spanning tree forwarding state and not pruned
Gi1/1     1,10,20
Gi1/2     1,10,20
S2#show vlan

VLAN Name                Status    Ports
-----
1    default              active    Gi0/2, Gi0/3, Gi1/0, Gi1/3
10   STAFF                  active    Gi2/0, Gi2/1, Gi2/2, Gi2/3
20   STUDENT                active    Gi0/0
1002 fddi-default         act/unsup
1003 token-ring-default act/unsup
1004 fddinet-default     act/unsup
1005 trnet-default       act/unsup

VLAN Type  SAID      MTU    Parent RingNo BridgeNo Stp    BrdgMode Trans1 Trans2
-----
1    enet  100001    1500   -       -       -       -     -       0       0
10   enet  100010    1500   -       -       -       -     -       0       0
20   enet  100020    1500   -       -       -       -     -       0       0
1002 fddi  101002    1500   -       -       -       -     -       0       0
1003 tr   101003    1500   -       -       -       -     -       0       0
1004 fdnet 101004    1500   -       -       -       ieee  -       0       0
1005 trnet 101005    1500   -       -       -       ibm   -       0       0

Primary Secondary Type      Ports
-----

```

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SW2

```

S2#ping 172.17.10.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.17.10.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 5/6/7 ms
S2#ping 172.17.10.3
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.17.10.3, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 5/9/11 ms

```

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a)

```
root@PC1:~# ping 172.17.10.2
PING 172.17.10.2 (172.17.10.2) 56(84) bytes of data.
From 172.17.10.21 icmp_seq=1 Destination Host Unreachable
From 172.17.10.21 icmp_seq=2 Destination Host Unreachable
From 172.17.10.21 icmp_seq=3 Destination Host Unreachable
From 172.17.10.21 icmp_seq=4 Destination Host Unreachable
From 172.17.10.21 icmp_seq=5 Destination Host Unreachable
From 172.17.10.21 icmp_seq=6 Destination Host Unreachable
^C
--- 172.17.10.2 ping statistics ---
7 packets transmitted, 0 received, +6 errors, 100% packet loss,
pipe 3
root@PC1:~# ping 172.17.10.22
PING 172.17.10.22 (172.17.10.22) 56(84) bytes of data.
From 172.17.10.21 icmp_seq=1 Destination Host Unreachable
From 172.17.10.21 icmp_seq=2 Destination Host Unreachable
From 172.17.10.21 icmp_seq=3 Destination Host Unreachable
From 172.17.10.21 icmp_seq=4 Destination Host Unreachable
From 172.17.10.21 icmp_seq=5 Destination Host Unreachable
From 172.17.10.21 icmp_seq=6 Destination Host Unreachable
```

b) O PC não encontra os destinos do ping porque estes não estão na sua vlan

1040	483.685907	ee:49:69:68:1f:e0	Broadcast	ARP	64	Who has 172.17.10.2? Tell 172.17.10.21
1041	484.682472	ee:49:69:68:1f:e0	Broadcast	ARP	64	Who has 172.17.10.2? Tell 172.17.10.21
1042	485.251643	0c:aa:96:2a:a7:05	PVST+	STP	68	RST. Root = 32768/1/0c:aa:96:2a:a7:00 Cost = 0 Port = 0x8006
1043	485.256738	0c:aa:96:2a:a7:05	Spanning-tree-(for...	STP	60	RST. Root = 32768/1/0c:aa:96:2a:a7:00 Cost = 0 Port = 0x8006
1044	485.284388	0c:aa:96:2a:a7:05	PVST+	STP	68	RST. Root = 32768/10/0c:aa:96:2a:a7:00 Cost = 0 Port = 0x8006
1045	485.296721	0c:aa:96:2a:a7:05	PVST+	STP	68	RST. Root = 32768/20/0c:aa:96:2a:a7:00 Cost = 0 Port = 0x8006
1046	485.683188	ee:49:69:68:1f:e0	Broadcast	ARP	64	Who has 172.17.10.2? Tell 172.17.10.21
1047	486.231103	ee:49:69:68:1f:e0	Broadcast	ARP	64	Who has 172.17.10.2? Tell 172.17.10.21
1048	487.227028	ee:49:69:68:1f:e0	Broadcast	ARP	64	Who has 172.17.10.2? Tell 172.17.10.21
1049	487.342522	0c:aa:96:2a:a7:05	PVST+	STP	68	RST. Root = 32768/1/0c:aa:96:2a:a7:00 Cost = 0 Port = 0x8006
1050	487.347667	0c:aa:96:2a:a7:05	Spanning-tree-(for...	STP	60	RST. Root = 32768/1/0c:aa:96:2a:a7:00 Cost = 0 Port = 0x8006
1051	487.376761	0c:aa:96:2a:a7:05	PVST+	STP	68	RST. Root = 32768/10/0c:aa:96:2a:a7:00 Cost = 0 Port = 0x8006
1052	487.389157	0c:aa:96:2a:a7:05	PVST+	STP	68	RST. Root = 32768/20/0c:aa:96:2a:a7:00 Cost = 0 Port = 0x8006
1053	488.228550	ee:49:69:68:1f:e0	Broadcast	ARP	64	Who has 172.17.10.2? Tell 172.17.10.21
1054	489.238546	ee:49:69:68:1f:e0	Broadcast	ARP	64	Who has 172.17.10.2? Tell 172.17.10.21

c)

```
root@PC1:~# ping 172.17.10.23
PING 172.17.10.23 (172.17.10.23) 56(84) bytes of data.
64 bytes from 172.17.10.23: icmp_seq=1 ttl=64 time=30.0 ms
64 bytes from 172.17.10.23: icmp_seq=2 ttl=64 time=15.5 ms
64 bytes from 172.17.10.23: icmp_seq=3 ttl=64 time=9.64 ms
64 bytes from 172.17.10.23: icmp_seq=4 ttl=64 time=19.0 ms
64 bytes from 172.17.10.23: icmp_seq=5 ttl=64 time=12.4 ms
```

d) O PC consegue executar o ping porque estão na mesma vlan

Link S1 ->S2

37	18.004920	172.17.10.21	172.17.10.23	ICMP	102	Echo (ping) request id=0x0044, seq=1/256, ttl=64 (reply in 38)
38	18.008134	172.17.10.23	172.17.10.21	ICMP	102	Echo (ping) reply id=0x0044, seq=1/256, ttl=64 (request in 37)
39	18.566315	0c:aa:96:38:85:06	CDP/VTP/DTP/PagP/U...	CDP	434	Device ID: S2 Port ID: GigabitEthernet1/2
40	18.972364	0c:aa:96:2a:a7:06	PVST+	STP	68	RST. Root = 32768/1/0c:aa:96:2a:a7:00 Cost = 0 Port = 0x8007
41	18.982113	0c:aa:96:2a:a7:06	Spanning-tree-(for...	STP	60	RST. Root = 32768/1/0c:aa:96:2a:a7:00 Cost = 0 Port = 0x8007
42	19.006024	172.17.10.21	172.17.10.23	ICMP	102	Echo (ping) request id=0x0044, seq=2/512, ttl=64 (reply in 43)
43	19.009802	172.17.10.23	172.17.10.21	ICMP	102	Echo (ping) reply id=0x0044, seq=2/512, ttl=64 (request in 42)

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SW2

```
S2#show spanning-tree vlan 1

VLAN0001
  Spanning tree enabled protocol rstp
  Root ID    Priority    32769
             Address    0caa.962a.a700
             Cost        4
             Port        7 (GigabitEthernet1/2)
             Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec

  Bridge ID   Priority    32769 (priority 32768 sys-id-ext 1)
             Address    0caa.9638.8500
             Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec
             Aging Time   300 sec

Interface    Role Sts Cost    Prio.Nbr Type
-----
Gi0/2        Desg FWD 4      128.3   Shr
Gi0/3        Desg FWD 4      128.4   Shr
Gi1/0        Desg FWD 4      128.5   Shr
Gi1/1        Desg FWD 4      128.6   Shr
Gi1/2        Root FWD 4      128.7   Shr
Gi1/3        Desg FWD 4      128.8   Shr
Gi2/0        Desg FWD 4      128.9   Shr
```

```
S2#show spanning-tree vlan 10

VLAN0010
  Spanning tree enabled protocol rstp
  Root ID    Priority    32778
             Address    0caa.962a.a700
             Cost        4
             Port        7 (GigabitEthernet1/2)
             Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec

  Bridge ID   Priority    32778 (priority 32768 sys-id-ext 10)
             Address    0caa.9638.8500
             Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec
             Aging Time   300 sec

Interface    Role Sts Cost    Prio.Nbr Type
-----
Gi0/0        Desg FWD 4      128.1   Shr
Gi1/1        Desg FWD 4      128.6   Shr
Gi1/2        Root FWD 4      128.7   Shr

S2#show spanning-tree vlan 20

VLAN0020
  Spanning tree enabled protocol rstp
  Root ID    Priority    32788
             Address    0caa.962a.a700
             Cost        4
             Port        7 (GigabitEthernet1/2)
             Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec

  Bridge ID   Priority    32788 (priority 32768 sys-id-ext 20)
             Address    0caa.9638.8500
             Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec
             Aging Time   300 sec

Interface    Role Sts Cost    Prio.Nbr Type
-----
Gi0/1        Desg FWD 4      128.2   Shr
Gi1/1        Desg FWD 4      128.6   Shr
Gi1/2        Root FWD 4      128.7   Shr
```

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A mac address-table está vazia em todos devido ao tempo de timeout que limpa as tabelas após um certo tempo sem haver transmissões

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```
root@PC1:~# ping 172.17.10.1
PING 172.17.10.1 (172.17.10.1) 56(84) bytes of data.
64 bytes from 172.17.10.1: icmp_seq=1 ttl=255 time=9.53 ms
64 bytes from 172.17.10.1: icmp_seq=2 ttl=255 time=3.80 ms
64 bytes from 172.17.10.1: icmp_seq=3 ttl=255 time=5.27 ms
^C
--- 172.17.10.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 3.804/6.205/9.537/2.432 ms
root@PC1:~# ping 172.17.10.2
PING 172.17.10.2 (172.17.10.2) 56(84) bytes of data.
64 bytes from 172.17.10.2: icmp_seq=1 ttl=255 time=49.6 ms
64 bytes from 172.17.10.2: icmp_seq=2 ttl=255 time=10.2 ms
64 bytes from 172.17.10.2: icmp_seq=3 ttl=255 time=31.3 ms
^C
--- 172.17.10.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2002ms
rtt min/avg/max/mdev = 10.284/30.441/49.696/16.103 ms
root@PC1:~# ping 172.17.10.3
PING 172.17.10.3 (172.17.10.3) 56(84) bytes of data.
64 bytes from 172.17.10.3: icmp_seq=1 ttl=255 time=65.5 ms
64 bytes from 172.17.10.3: icmp_seq=2 ttl=255 time=11.8 ms
64 bytes from 172.17.10.3: icmp_seq=3 ttl=255 time=13.1 ms
^C
--- 172.17.10.3 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 11.837/30.177/65.555/25.021 ms
root@PC1:~#
```

Como os switch estão na vlan1 ao colocar o pc1 nesta mesma lan eles ficam em sincronia e isso possibilita a execução do ping entre pc1 e todos os SW da rede