

IT TECHNOLOGY NETWORKING

Assignment 5, The Switch and STP

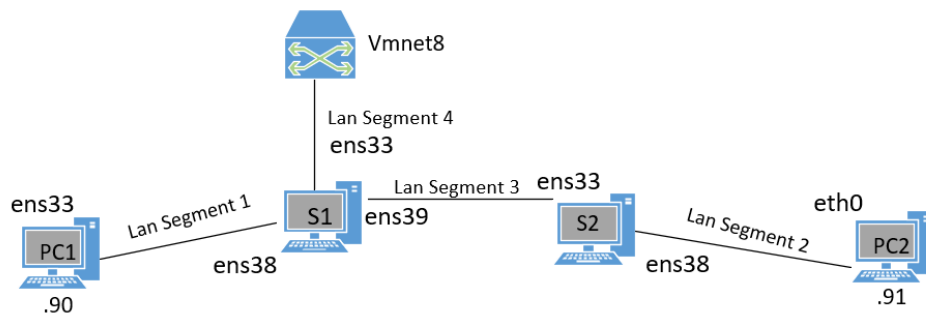


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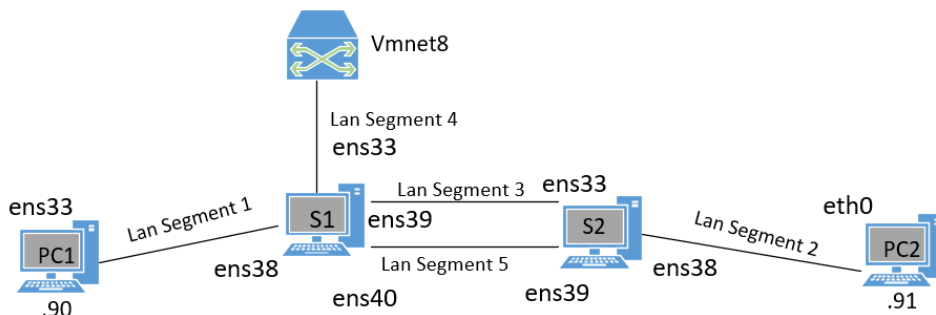
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The SPANNING TREE PROTOCOL (STP) is a network protocol that build a loop-free network setup. It is used to prevent bridge loops.



Here we have a diagram with a loop free network setup, with Switch 1 connected to the network through VMnet8.

Now we are going to create a loop between the two Switches.



And switch off the bridge STP with the command “sudo nano /etc/network/interfaces”

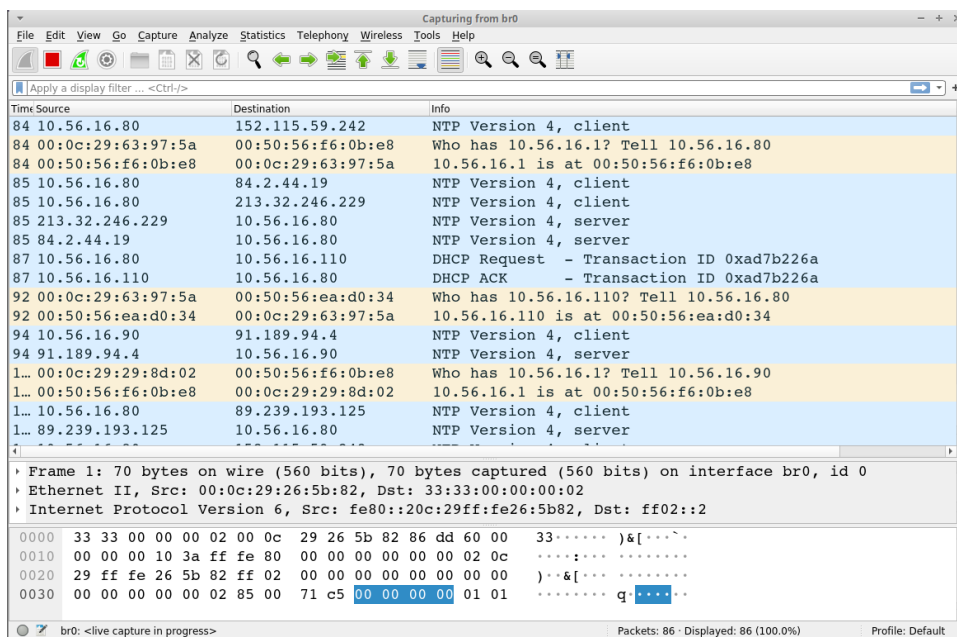
```
Terminal - bogdan7978@ubuntu: ~
File Edit View Terminal Tabs Help
bogdan7978@ubuntu:~$ sudo nano /etc/network/interfaces
```

```
Terminal - bogdan7978@ubuntu: ~
GNU nano 4.8 /etc/network/interfaces
# interfaces(5) file used by ifup(8) and ifdown(8)
auto lo
iface lo inet loopback

auto br0
iface br0 inet manual
    bridge_ports ens33 ens38 ens39
    bridge_stp off

[ Read 8 lines ]
^G Get Help  ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos
^X Exit      ^R Read File ^\ Replace  ^U Paste Text ^T To Spell ^_ Go To Line
```

Do this for both switches, and let's run wireshark to see the outcome.



Wireshark running on S1

Now let's switch the bridge_stp on and run wireshark

Capturing from ens33

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
2	1.984753195	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
3	4.000969335	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
4	5.983644206	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
5	7.999911594	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
6	9.985293742	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
7	11.998965810	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
8	13.985619844	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
9	16.002237191	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
10	17.985752228	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
11	20.000539435	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
12	21.983563142	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
13	24.000225702	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
14	25.986276847	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
15	28.000252132	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
16	29.983231427	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93
17	31.999701007	Vmware_93:4b:cd	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:93

Frame 1: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface ens33, id 0

- IEEE 802.3 Ethernet
- Logical-Link Control
- Spanning Tree Protocol

```

0000 01 80 c2 00 00 00 00 29 93 4b cd 00 26 42 42 ..... )-K-&BB
0010 03 00 00 00 00 00 00 00 0c 29 93 4b c3 00 00 ..... )-K...
0020 00 00 00 00 00 0c 29 93 4b c3 80 02 00 14 00 ..... )-K.....
0030 02 00 0f 00 00 00 00 00 00 00 00 .....

```

ens33: <live capture in progress> Packets: 63 · Displayed: 63 (100.0%) Profile: Default

Wireshark running on PC1

Capturing from eth0

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	Vmware_26:5b:96	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:26:5b:82 Cost = 0
2	1.303749739	Vmware_63:97:5a	Broadcast	ARP	42	Who has 10.56.16.1? Tell 10.56.16.91
3	2.019294929	Vmware_26:5b:96	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:26:5b:82 Cost = 0
4	2.318569013	Vmware_63:97:5a	Broadcast	ARP	42	Who has 10.56.16.1? Tell 10.56.16.91
5	3.334929719	Vmware_63:97:5a	Broadcast	ARP	42	Who has 10.56.16.1? Tell 10.56.16.91
6	4.000268299	Vmware_26:5b:96	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:26:5b:82 Cost = 0
7	6.020133984	Vmware_26:5b:96	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:26:5b:82 Cost = 0
8	6.309093949	Vmware_63:97:5a	Broadcast	ARP	42	Who has 10.56.16.1? Tell 10.56.16.91
9	7.333289489	Vmware_63:97:5a	Broadcast	ARP	42	Who has 10.56.16.1? Tell 10.56.16.91
10	8.000369845	Vmware_26:5b:96	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:26:5b:82 Cost = 0
11	8.357877459	Vmware_63:97:5a	Broadcast	ARP	42	Who has 10.56.16.1? Tell 10.56.16.91
12	10.028638874	Vmware_26:5b:96	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:26:5b:82 Cost = 0
13	11.314835455	Vmware_63:97:5a	Broadcast	ARP	42	Who has 10.56.16.1? Tell 10.56.16.91
14	12.024505449	Vmware_26:5b:96	Spanning-tree-(for-bridges)_00	STP	60	Conf. Root = 32768/0/00:0c:29:26:5b:82 Cost = 0
15	12.325744897	Vmware_63:97:5a	Broadcast	ARP	42	Who has 10.56.16.1? Tell 10.56.16.91

Frame 1: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface eth0

- IEEE 802.3 Ethernet
- Logical-Link Control
- Spanning Tree Protocol

```

0000 01 80 c2 00 00 00 00 29 26 5b 96 00 26 42 42 ..... )&[-&BB
0010 03 00 00 00 00 00 00 00 0c 29 26 5b 82 00 00 ..... )&[...
0020 00 00 00 00 00 0c 29 26 5b 82 00 03 00 14 00 ..... )&[.....
0030 02 00 0f 00 00 00 00 00 00 00 00 .....

```

eth0: <live capture in progress> Packets: 21 · Displayed: 21 (100.0%) Profile: Default

And on PC2.