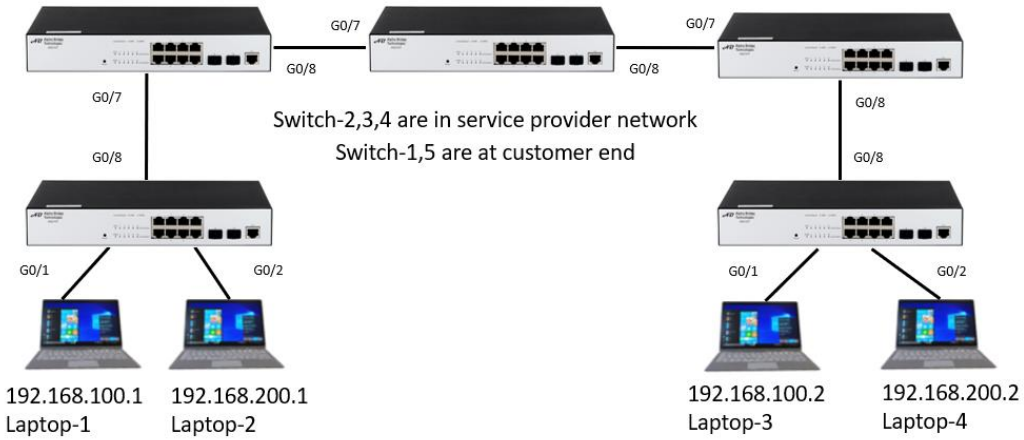
Alpha Bridge® Technologies

1. Q-in-Q

Test Case	Q-in-Q (IEEE 802.1Q Tunneling)
Test Procedure	1. Access the Switch command line. 2. Connect the setup as show below. 3. Configure all the switches using below commands. 4. Check the mac address table in all the switches • Customer tag = vlan 111,222 • Service tag = vlan 254 

Configuration	**Configuration**:
	
	Switch_1:
	
	`Switch_1>enable`
	`Switch_1#config`
	`Switch_1_config#vlan 111,222,254`
	`Switch_1_config#int vlan 111`
	`Switch_1_config_v111#ip address 192.168.100.111 255.255.255.0`
	`Switch_1_config_v111#exit`
	`Switch_1_config#int vlan 222`
	`Switch_1_config_v222# ip address 192.168.200.111 255.255.255.0`
	`Switch_1_config_v222#exit`
	`Switch_1_config#int g0/8`
	`Switch_1_config_g0/8# switchport mode trunk`
	`Switch_1_config_g0/8# switchport trunk vlan-allowed 111,222`
	`Switch_1_config_g0/8#exit`
	`Switch_1_config#interface g0/1`
	`Switch_1_config_g0/1#switchport mode access`
	`Switch_1_config_g0/1# switchport pvid 111`
	`Switch_1_config_g0/1#exit`
	`Switch_1_config#interface g0/2`
	`Switch_1_config_g0/2# switchport mode access`
	`Switch_1_config_g0/2# switchport pvid 222`
	`Switch_1_config_g0/2#exit`
	`Switch_1_config#`

Switch_2:

```
Switch_2_config#vlan 111,222,254
Switch_2_config#int g0/7
Switch_2_config_g0/7# switchport mode dot1q-tunnel-uplink
Switch_2_config_g0/7# switchport mode access
Switch_2_config_g0/7# switchport pvid 254
Switch_2_config_g0/7#exit
Switch_2_config#int g0/8
Switch_2_config_g0/8# switchport mode dot1q-tunnel-uplink
Switch_2_config_g0/8# switchport trunk vlan-allowed 254
Switch_2_config_g0/8#exit
Switch_2_config#enable dot1q-tunnel
Switch_2_config#
```

For Switch_3:

```
Switch_3_config#vlan 111,222,254
Switch_3_config#int range g0/7-8
Switch_3_config_int# switchport mode trunk
Switch_3_config_int# switchport trunk vlan-allowed 254
Switch_3_config_int#exit
Switch_3_config#
```

For Switch_4:

```
Switch_4_config#
Switch_4_config#vlan 111,222,254
Switch_4_config#int g0/7
Switch_4_config_g0/7# switchport mode dot1q-tunnel-uplink
Switch_4_config_g0/7# switchport trunk vlan-allowed 254
Switch_4_config_g0/7#exit
Switch_4_config#int g0/8
Switch_4_config_g0/8# switchport mode dot1q-tunnel-uplink
Switch_4_config_g0/8# switchport mode access
Switch_4_config_g0/8# switchport pvid 254
Switch_4_config_g0/8#exit
Switch_4_config#enable dot1q-tunnel
Switch_4_config#
```

For Switch_5:

```
Switch_5>enable
Switch_5#config
Switch_5_config#vlan 111,222,254
Switch_5_config#int vlan 111
Switch_5_config_v111#ip address 192.168.100.222 255.255.255.0
Switch_5_config_v111#exit
Switch_5_config#int vlan 222
Switch_5_config_v222# ip address 192.168.200.222 255.255.255.0
Switch_5_config_v222#exit
Switch_5_config#int g0/8
```

```
Switch_5_config_g0/8# switchport mode trunk
Switch_5_config_g0/8# switchport trunk vlan-allowed 111,222
Switch_5_config_g0/8#exit
Switch_5_config#int g0/1
Switch_5_config_g0/1#switchport mode access
Switch_5_config_g0/1# switchport pvid 111
Switch_5_config_g0/1#exit
Switch_5_config#int g0/2
Switch_5_config_g0/2# switchport mode access
Switch_5_config_g0/2# switchport pvid 222
Switch_5_config_g0/2#exit
Switch_5_config#
```

Test Result

- Command to verify mac address table is "show mac address-table"

Switch_1:

```
Switch-1#
Switch-1#show m
mac  mem-util  memory  mether-ring  mirror  monitor-link-group
mvc
Switch-1#show mac address-table
        Mac Address Table (Total 5)
------------------------------------------

Vlan    Mac Address       Type       Ports
----    -----------       ----       -----
1       c86b.bca0.027b    DYNAMIC    g0/8
111     000e.0987.fea9    DYNAMIC    g0/8
222     000e.0988.0fda    DYNAMIC    g0/8
111     000e.0988.0bed    DYNAMIC    g0/1
222     000e.0988.3629    DYNAMIC    g0/2
Switch-1#
```

Switch_2:

```
!
Switch_2#
Switch_2#show mac address-table
        Mac Address Table (Total 5)
------------------------------------------

Vlan    Mac Address       Type       Ports
----    -----------       ----       -----
254     000e.0987.fea9    DYNAMIC    g0/8
254     000e.0988.0fda    DYNAMIC    g0/8
254     000e.0988.0bed    DYNAMIC    g0/7
254     000e.0988.3629    DYNAMIC    g0/7
1       c86b.bca0.0131    DYNAMIC    g0/8
Switch_2#
```

Switch_3:

```
Switch_3#
Switch_3#show mac address-table
        Mac Address Table (Total 4)
------------------------------------------

Vlan    Mac Address       Type       Ports
----    -----------       ----       -----
254     000e.0987.fea9    DYNAMIC    g0/8
254     000e.0988.0fda    DYNAMIC    g0/8
254     000e.0988.0bed    DYNAMIC    g0/7
254     000e.0988.3629    DYNAMIC    g0/7
Switch_3#
```

Switch_4:

```
switch4#
switch4#
switch4#show mac address-table
        Mac Address Table (Total 4)
------------------------------------------

Vlan    Mac Address       Type        Ports
----    -----------       ----        -----
254     000e.0987.fea9    DYNAMIC     g0/8
254     000e.0988.0fda    DYNAMIC     g0/8
254     000e.0988.0bed    DYNAMIC     g0/7
1       c86b.bca0.0132    DYNAMIC     g0/7
switch4#
```

Switch_5:

```
Switch_5#
Switch_5#
Switch_5#show mac address-table
        Mac Address Table (Total 4)
------------------------------------------

Vlan    Mac Address       Type        Ports
----    -----------       ----        -----
111     000e.0987.fea9    DYNAMIC     g0/1
222     000e.0988.0fda    DYNAMIC     g0/2
111     000e.0988.0bed    DYNAMIC     g0/8
1       c86b.bca0.0169    DYNAMIC     g0/8
Switch_5#
```

From PC-1 at switch 1 we can able to ping the PC-3 connected at switch-5.

```
C:\Users\Malla.Mukesh>ping 192.168.100.2

Pinging 192.168.100.2 with 32 bytes of data:
Reply from 192.168.100.2: bytes=32 time=3ms TTL=128
Reply from 192.168.100.2: bytes=32 time=1ms TTL=128
Reply from 192.168.100.2: bytes=32 time=1ms TTL=128
Reply from 192.168.100.2: bytes=32 time=3ms TTL=128

Ping statistics for 192.168.100.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 3ms, Average = 2ms

C:\Users\Malla.Mukesh>
```

Remarks	