Experimental report

Experiment name: Experiment 3.2.1: Configure static MAC address table entries

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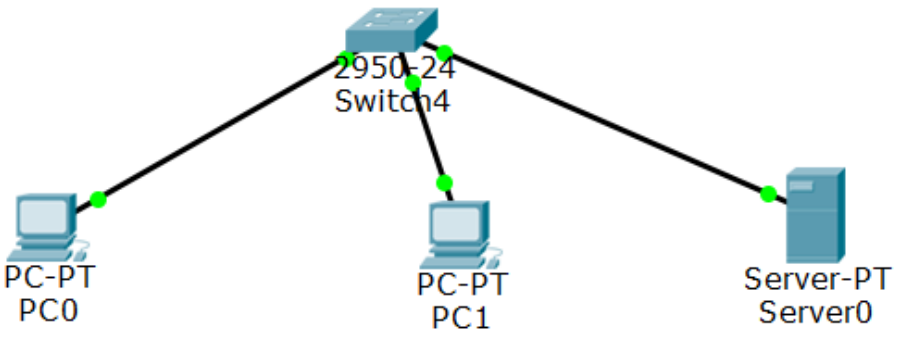
1. Topology

Topology made with Cisco Packet Tracer (simulations are also conducted through this program)



2. PC-1 successfully pings PC-2

```
PC>ping 170.0.0.2

Pinging 170.0.0.2 with 32 bytes of data:

Reply from 170.0.0.2: bytes=32 time=1ms TTL=128
Reply from 170.0.0.2: bytes=32 time=0ms TTL=128
Reply from 170.0.0.2: bytes=32 time=1ms TTL=128
Reply from 170.0.0.2: bytes=32 time=0ms TTL=128

Ping statistics for 170.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0%
loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>
```

3. Server successfully pings PC-1

```
Packet Tracer SERVER Command Line 1.0
SERVER>ping 170.0.0.1

Pinging 170.0.0.1 with 32 bytes of data:

Reply from 170.0.0.1: bytes=32 time=1ms TTL=128
Reply from 170.0.0.1: bytes=32 time=1ms TTL=128
Reply from 170.0.0.1: bytes=32 time=0ms TTL=128
Reply from 170.0.0.1: bytes=32 time=1ms TTL=128

Ping statistics for 170.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

SERVER>
```

4. Mac-address table

```
Switch#sh mac-address-table
          Mac Address Table
-------------------------------------------

Vlan    Mac Address       Type        Ports
----    -----------       --------    -----

   1    00d0.58d2.5b36    DYNAMIC     Fa0/3
   1    00d0.ba60.416e    DYNAMIC     Fa0/1
Switch#
```

5. Switch learned 2 Mac-addresses, PC-1 connected to the port Fa0/1 and Server connected to the port Fa0/3.
6. The switch is learning the source MAC address. This is indicated by the MAC addresses listed under the "Mac Address" column. These MAC addresses are associated with the devices connected to the switch ports listed under the "Ports" column. Therefore, the switch is learning source MAC addresses.
7. Configuring Static Mac-address table

```
Switch(config)#mac address-table static 0050.0F20.2E94 vlan 1 interface Fa0/2
Switch(config)#mac address-table static 00d0.58d2.5b36 vlan 1 interface Fa0/3
Switch(config)#mac address-table static 00d0.ba60.416e vlan 1 interface Fa0/1
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#sh mac-address-table
          Mac Address Table
-------------------------------------------

Vlan    Mac Address       Type        Ports
----    -----------       --------    -----

   1    0050.0f20.2e94    STATIC      Fa0/2
   1    00d0.58d2.5b36    STATIC      Fa0/3
   1    00d0.ba60.416e    STATIC      Fa0/1
```

8. PC-1 successfully pings PC-2

```
PC>ping 170.0.0.2

Pinging 170.0.0.2 with 32 bytes of data:

Reply from 170.0.0.2: bytes=32 time=0ms TTL=128
Reply from 170.0.0.2: bytes=32 time=1ms TTL=128
Reply from 170.0.0.2: bytes=32 time=7ms TTL=128
Reply from 170.0.0.2: bytes=32 time=0ms TTL=128

Ping statistics for 170.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0%
loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 7ms, Average = 2ms
```

9. Server successfully pings PC-1

```
SERVER>ping 170.0.0.1

Pinging 170.0.0.1 with 32 bytes of data:

Reply from 170.0.0.1: bytes=32 time=1ms TTL=128
Reply from 170.0.0.1: bytes=32 time=6ms TTL=128
Reply from 170.0.0.1: bytes=32 time=0ms TTL=128
Reply from 170.0.0.1: bytes=32 time=1ms TTL=128

Ping statistics for 170.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0%
loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 6ms, Average = 2ms
```

10. Connecting PC-1 to the new port (from Fa0/1 to Fa0/4)

```
Switch#sh mac-address-table
          Mac Address Table
-------------------------------------------

Vlan    Mac Address       Type        Ports
----    -----------       --------    -----

   1    0050.0f20.2e94    STATIC      Fa0/2
   1    00d0.58d2.5b36    STATIC      Fa0/3
```

11. PC-1 successfully pings PC-2

```
PC>ping 170.0.0.2

Pinging 170.0.0.2 with 32 bytes of data:

Reply from 170.0.0.2: bytes=32 time=0ms TTL=128
Reply from 170.0.0.2: bytes=32 time=0ms TTL=128
Reply from 170.0.0.2: bytes=32 time=1ms TTL=128
Reply from 170.0.0.2: bytes=32 time=0ms TTL=128

Ping statistics for 170.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0%
loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

It happens because switch added PC-1 into Mac-address table dynamically

```
Switch#sh mac-address-table
          Mac Address Table
-------------------------------------------

Vlan    Mac Address       Type        Ports
----    -----------       --------    -----

   1    0050.0f20.2e94    STATIC      Fa0/2
   1    00d0.58d2.5b36    STATIC      Fa0/3
   1    00d0.ba60.416e    DYNAMIC     Fa0/4
```

If we want to disable learning we can type: no mac-address-table learning

But we weren't asked to do that

12. PC-1 successfully pings Server

```
PC>ping 170.0.0.3

Pinging 170.0.0.3 with 32 bytes of data:

Reply from 170.0.0.3: bytes=32 time=0ms TTL=128
Reply from 170.0.0.3: bytes=32 time=0ms TTL=128
Reply from 170.0.0.3: bytes=32 time=0ms TTL=128
Reply from 170.0.0.3: bytes=32 time=0ms TTL=128

Ping statistics for 170.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0%
loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

13. PC-2 successfully pings Server

```
Pinging 170.0.0.3 with 32 bytes of data:

Reply from 170.0.0.3: bytes=32 time=1ms TTL=128
Reply from 170.0.0.3: bytes=32 time=0ms TTL=128
Reply from 170.0.0.3: bytes=32 time=0ms TTL=128
Reply from 170.0.0.3: bytes=32 time=1ms TTL=128

Ping statistics for 170.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0%
loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Removing static entries

```
Switch(config)#no mac address-table static 0050.0f20.2e94 vlan 1 interface Fa0/2
Switch(config)#no mac address-table static 00d0.58d2.5b36 vlan 1 interface Fa0/3
```

14. PC-1 successfully pings PC-2

```
Pinging 170.0.0.2 with 32 bytes of data:

Reply from 170.0.0.2: bytes=32 time=1ms TTL=128
Reply from 170.0.0.2: bytes=32 time=0ms TTL=128
Reply from 170.0.0.2: bytes=32 time=1ms TTL=128
Reply from 170.0.0.2: bytes=32 time=0ms TTL=128

Ping statistics for 170.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0%
loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

15. Server successfully pings PC-1

```
SERVER>ping 170.0.0.1

Pinging 170.0.0.1 with 32 bytes of data:

Reply from 170.0.0.1: bytes=32 time=1ms TTL=128
Reply from 170.0.0.1: bytes=32 time=1ms TTL=128
Reply from 170.0.0.1: bytes=32 time=1ms TTL=128
Reply from 170.0.0.1: bytes=32 time=1ms TTL=128

Ping statistics for 170.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0%
loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 1ms, Average = 1ms
```

Final Mac-address table:

Vlan	Mac Address	Type	Ports
1	0050.0f20.2e94	DYNAMIC	Fa0/2
1	00d0.58d2.5b36	DYNAMIC	Fa0/3
1	00d0.ba60.416e	DYNAMIC	Fa0/4