Department of Computer Science and Engineering

Islamic University of Technology (IUT)

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Laboratory Report

CSE 4412: Data Communication and Networking Lab

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Section: B

Semester: 4th

Academic Year: 2022-2023

Date of Submission: 22/03/24

Title: Configuring Switch Port Security and Switch Port Analyzer (SPAN) in Cisco Devices

Objective:

1. Describe the concept of Switch Port Security
2. Explain importance of Switch Port Security in securing an organization
3. Configure Switch Port Security in CISCO devices
4. Use Switch Port Security feature to achieve varying degrees of protection
5. Describe the concept of port mirroring
6. Implement port mirroring using Cisco Switch Port Analyzer (SPAN)
7. Explain use cases of SPAN in real-life

Devices/ software Used:

1. Cisco Packet Tracer

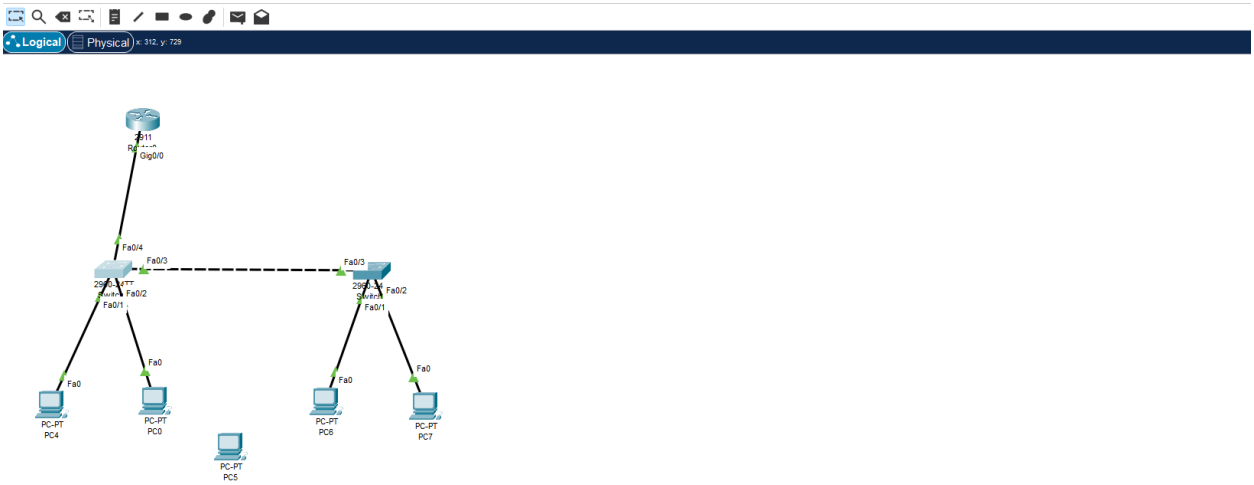
Theory:

Port Mirroring:
It mirrors traffic from one port to another port. The packets from one port are copied and sent to another port, where a packet analyzer is connected. This packet analyzer can be a purpose-built hardware or it can be an application like Wireshark or an Intrusion Detection System (IDS) running on a host device. Technically, these are Ethernet frames which will be mirrored.

Local SPAN:
When traffic on a switch port is mirrored to another port on that switch, then it's Local SPAN.

Diagram of the experiment(s):

(Provide screenshot of the final network topology. Make sure to label the network components.)



Working Procedure:

(Explain in brief how you completed the tasks. Provide necessary screenshots of used commands for each task.)

1) Implemented the vlans:

3.1 Creating Vlan

1. To create a Vlan with Vlan ID 10:
   switch(config)# vlan 10
2. To assign name to vlan:
   Switch(config-vlan)# name [Vlan_name]

3.2 Configure Access Link

1. Select the interface:
   Switch(config)# interface Fast-Ethernet 0/1
2. configure the interface as an access link:
   Switch(config-if)# switchport mode access
3. Select the vlan to have access to the access link:
   Switch(config-if)# switchport access vlan 10
4. No shutdown:
   Switch(config-if)# no shutdown

3.3 Configure Trunk Link

1. Select the interface:
   Switch(config)# interface Fast-Ethernet 0/4
2. configure the interface as a trunk link:
   Switch(config-if)# switchport mode trunk
3. Specify the list of VLANs specified on the trunk port:
   Switch(config-if)# switchport trunk allowed vlan all
4. No shutdown:
   Switch(config-if)# no shutdown

2) Implemented Inter-Vlan Communication

4.1 Using Router

1. Keep The Router Running:
   Router(config)# int g0/0
   Router(config-if)# no shutdown
2. Assign virtual VLAN to the router interface:
   Router(config)# int g0/0.10
   Router(config-subif)#encapsulation dot1q 10
   Router(config-subif)# IP address 192.168.10.1 255.255.255.0
3. **Don't Forget to implement trunk link**
4. **Don't Forget the default gateway**

3) Configured switch port security

S1(config)# interface range f0/1 – 2
S1(config-if-range)# switchport port-security maximum 1
S1(config-if-range)# switchport port-security mac-address sticky
S1(config-if-range)# switchport port-security violation restrict

```
Switch#
Switch#sho
Switch#show po
Switch#show port-security
Secure Port MaxSecureAddr CurrentAddr SecurityViolation Security Action
               (Count)       (Count)        (Count)
-------------------------------------------------------------------
        Fa0/1        1          1                0          Protect
        Fa0/2        1          1                2         Restrict
-------------------------------------------------------------------
Switch#
```

4) **Configured Span**
S1(config)# monitor session 1 source interface f0/2
S1(config)# monitor session 1 destination interface f0/1

```
Switch#show monitor
Session 1
---------
Type                   : Local Session
Description            : -
Source Ports           :
    Both               : Fa0/2
Destination Ports      : Fa0/1
    Encapsulation      : Native
          Ingress      : Disabled


Switch#
```

Observation:

Challenges (if any):