

## Computer Networks 1

### Lab 1

## Network Devices

Student Name: .....

Student No.:.....

### **I. Objectives:**

- Get to know basic network devices
- Understand functions of network devices
- Able to connect different network devices together to form a simple network

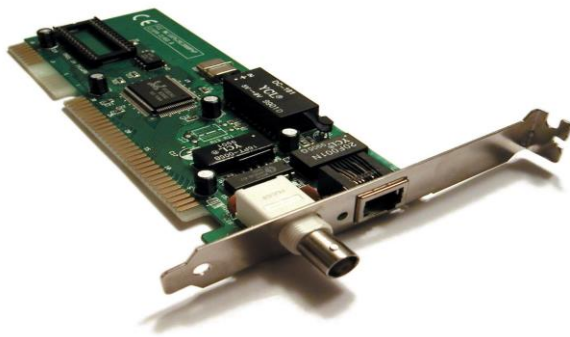
### **II. Content**

#### **1. Get to know network devices:**

- ✓ Network Interface Card (NIC)
- ✓ Cables
- ✓ Hub
- ✓ Switches
- ✓ Routers
- ✓ Access Points
- ✓ Modems

#### **2. Understanding functions of network devices**

##### **a. Network Interface Card (NIC)**



NIC functions: .....

Code of NIC processors: .....

Check NIC of a computer, what is its MAC address? .....

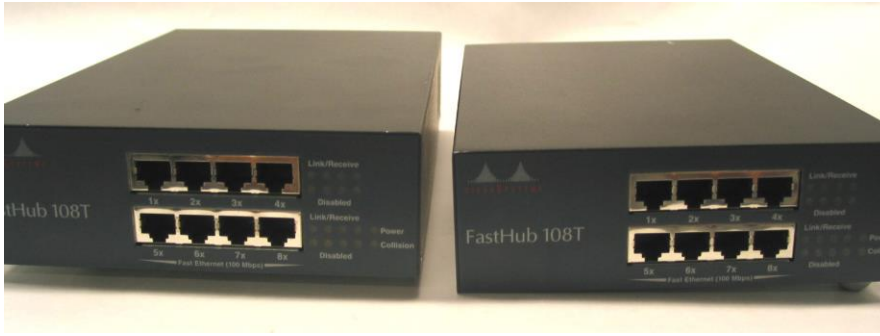


Cable to connect NIC to a network:

Type: \_\_\_\_\_

Standard: \_\_\_\_\_

## **b. Hubs**



Roles of hub in a network:

Main characteristics:

Weaknesses of hub:

Hub ports:

## **c. Switches**



Roles of switches in a network:

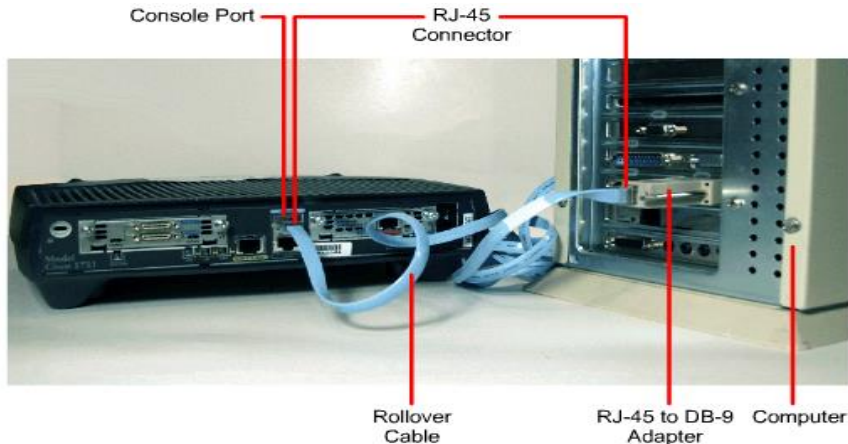
Main characteristics of switches:

Differences between hubs and switches:

Weaknesses of switches:

Switch ports:

#### d. Routers



Roles of routers in a network:

Main characteristics of routers:

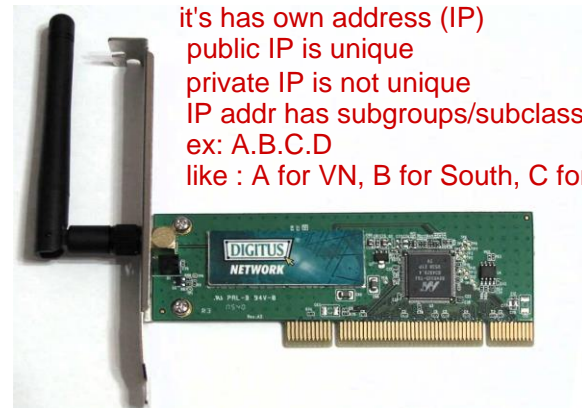
Differences between routers and switches:

Router ports:

access points is like a switch  
but wireless

#### d. Access Points

in radio transmission environment



MAC - switch - Layer 2 : Data link layer  
IP - router - Layer 3: Network layer

MAC address is unique and  
not subgroups/subclass

so what happen when the distance is so far ?  
mapping address

-> so solution is router

it's has own address (IP)

public IP is unique

private IP is not unique

IP addr has subgroups/subclass

ex: A.B.C.D

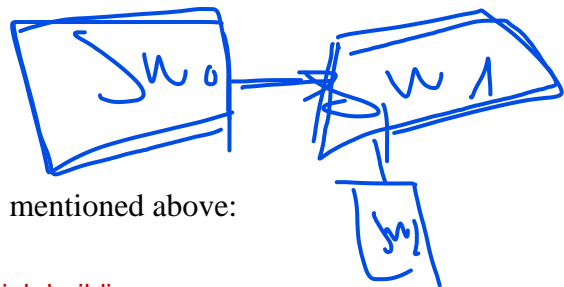
like : A for VN, B for South, C for HCM, D for BK

Roles of access points:

Main characteristics of access points:

Access point's interfaces:

Compare access point and other networking devices mentioned above:



like a high building

we have

switch like a floor (local network)

people in same floor can communicate each other

elevator is a router, can allow people can communicate with  
people in another floor or not

router is smarter than switch

switch dont know the picture of whole system

router can learn when the old way is can't be use

switch is not



the back office is the router, she have information  
(she can learn and change the way)

the shipper is switch, he only know the area, that  
he received (no he not)

### e. Modem



Differentiate:

- Dial-up modem
- ADSL Modem
- Cable Modem

the device change the signal (light to electrol) ... light cable

For each type of modem describe its roles and characteristics:

### 3. Connecting network devices:

Identify the type of network cable can be used for below network connections:

- a) Computer and hub \_\_\_\_\_
- b) Computer and switch \_\_\_\_\_
- c) Computer and router \_\_\_\_\_
- d) Computer hub and hub \_\_\_\_\_
- e) Hub and switch \_\_\_\_\_
- f) Hub and router \_\_\_\_\_
- g) Switch and switch \_\_\_\_\_
- h) Switch and router \_\_\_\_\_
- k) Router and router \_\_\_\_\_