# DIFFERENCE BETWEEN

# SWITCH-HUB-ROUTER

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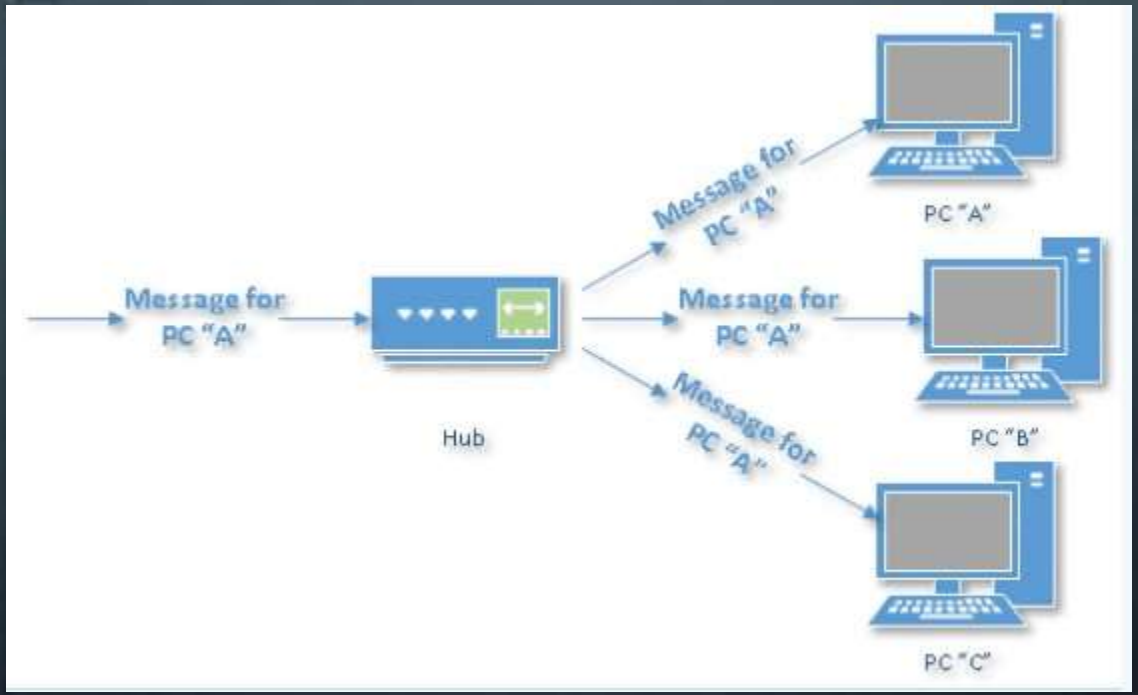
# OVERVIEW

- Hubs, switches, and routers are all devices that let you connect one or more computers to other computers. Each has two or more connectors called ports, into which you plug the cables to make the connection.
- Hubs are "dumb" devices that pass on anything received on one connection to all other connections.
- Switches are semi-intelligent devices that learn which devices are on which connection.

# ❑HUBS :

- A hub is the least expensive, least intelligent, and least complicated device. Its job is very simple: anything that comes in one port is sent out to the others. That's it.

- For Example : If a message comes for destined computer "A", that message is sent out to all the other ports, regardless of which computer "A" is.



## Advantages

- Cheaper than Switch
- Easy to setup
- Device support

## Dis-Advantages

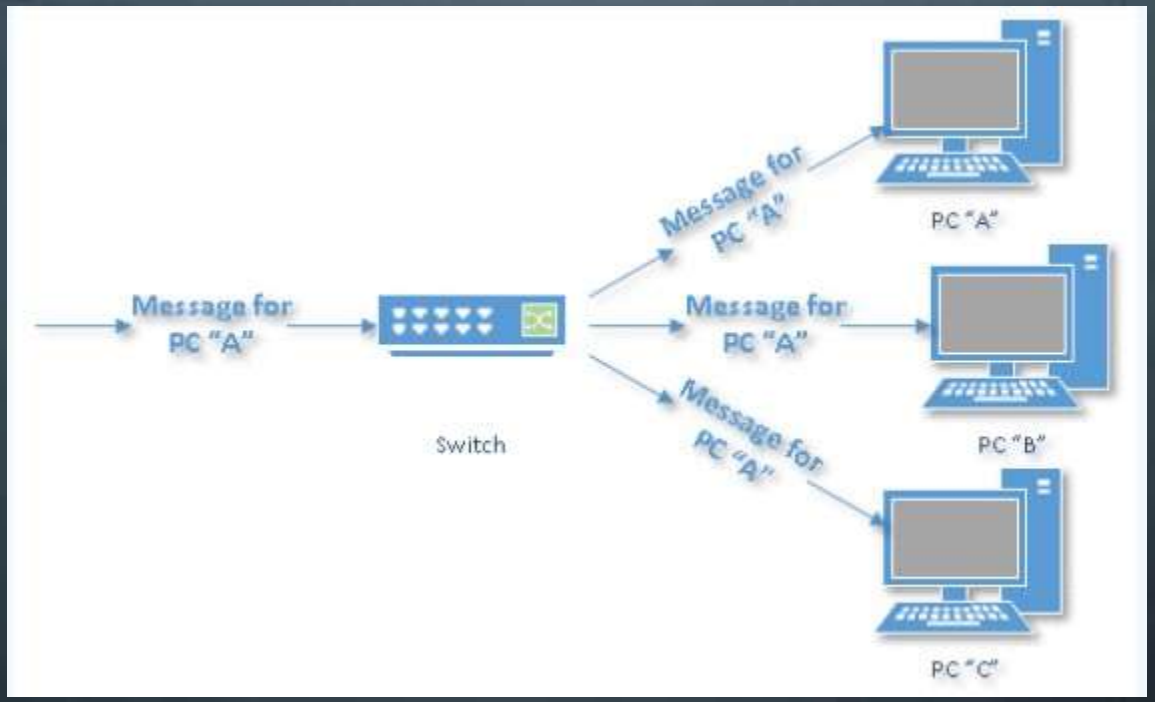
- Less Secure
- Increase burden
- Bandwidht wastage
- Issue in traffic broadcasting

# ❑ SWITCHES :

- A switch does what a hub does, but more efficiently. By paying attention to the traffic that comes across it, it learns which computers are connected to which port.

- Initially, a switch knows nothing, and simply sends on incoming messages to all ports.

## For Example :




Incoming data passing through a switch

- Just by accepting that first message, however, the switch has learned something: it knows on which connection the *sender* of the message is located. Thus, when machine "A" responds to the message, the switch only needs to send that message out to the one connection.

Second incoming message passing through a switch.

## Advantages

- Secure
- Reliabe
- Reduce burden
- Fast transmission speed

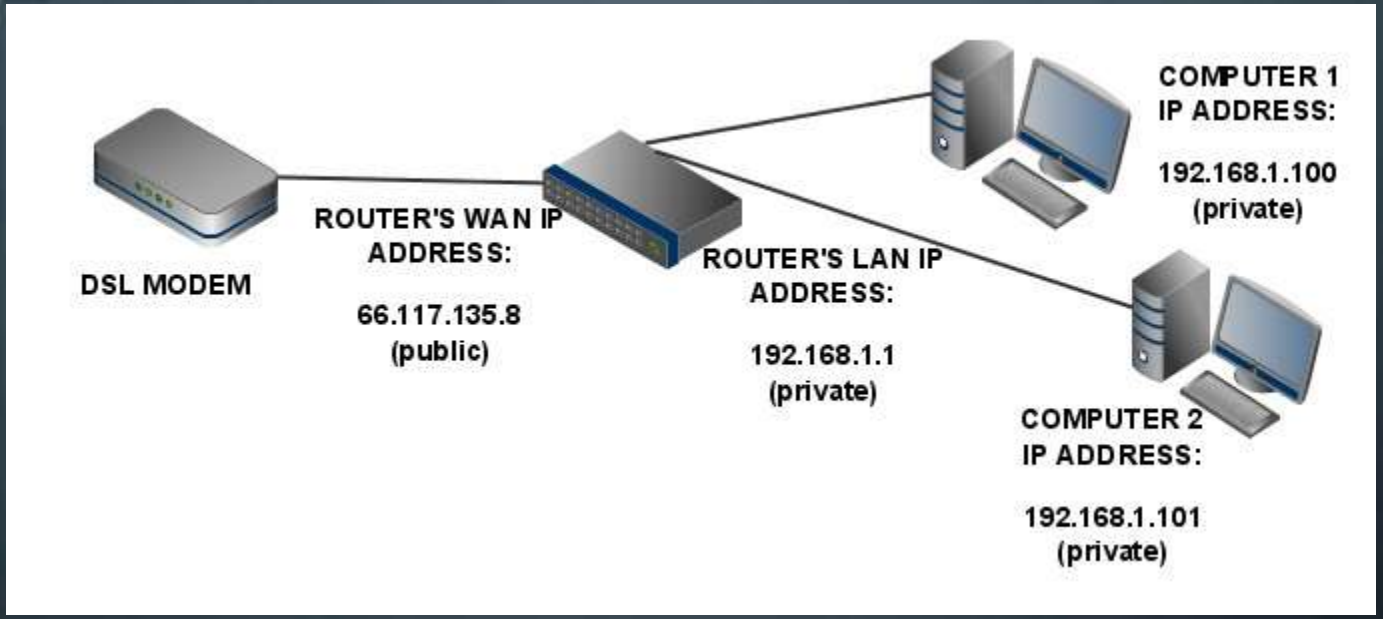
## Dis-Advantages

- Expensive
- Need a dedicated person
- Need a proper planning

# ROUTERS :

- A router is the smartest and most complicated of the three. Routers come in all shapes and sizes, from small, four-port broadband routers to large industrial-strength devices that drive the internet itself.
- One way to think of a router is as a computer that can be programmed to understand, manipulate, and act on the data it handles.
- A router operates as a switch for basic routing: it learns the location of the computers sending traffic and routes

## For Example :




IP address assignments to and through a router

- NAT — Network Address Translation- – is the way the router *translates* the IP addresses of packets that cross the internet/local network boundary.
- It also keeps track & replac the internet IP address with the local IP address for machine

# THANK YOU