



# INDIAN SCHOOL MUSCAT



## CLASS XI

### INFORMATION TECHNOLOGY(802)

### Chapter - 2 : Networking and Internet

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# Some points to keep in mind.....



- Please avoid login from multiple systems.
- Kindly logout at the end of the session.
- Please turn off your mic and webcam
- If you have any doubt, write in the chat box
- If there is any technical problem, hold on – we will be back
- Since it is a lockdown situation you can use rough notebook or notepad or sheets of paper to take down notes. You may take screenshots during the course of delivery of topics.



# WLAN (Wireless LAN)



**WLAN.** Stands for "Wireless Local Area **Network.**" A **WLAN**, or **wireless LAN**, is a **network** that allows devices to connect and communicate wirelessly.

Unlike a traditional wired LAN, in which devices communicate over Ethernet cables, devices on a **WLAN** communicate via Wi-Fi (Wireless Fidelity – It describes a technology for radio wireless local area networking of devices based on the IEEE 802.11 standards).



# WLAN (Wireless LAN)





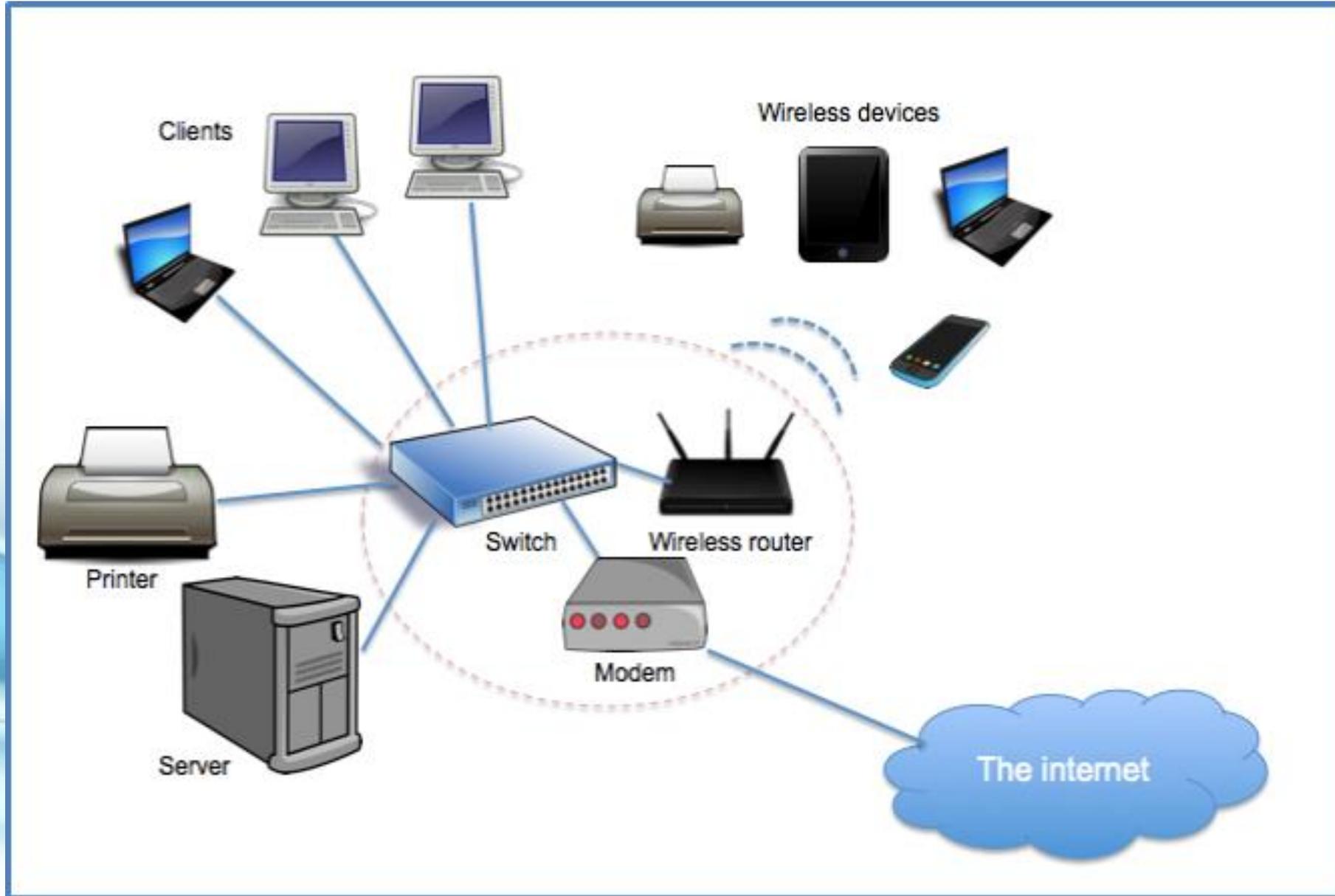
# Internet Working Devices



**MODEM:** The word "**modem**" stands for modulator-demodulator. A **modem** is typically **used** to send digital data over a phone line.

The sending **modem** modulates the data into a signal that is compatible with the phone line, and the receiving **modem** demodulates the signal back into digital data.

# MODEM continued.....





# Internet Working Devices



## **Repeater :**

With increase in distance, a signal may become weak and distorted. A repeater is used to restore the input signal to its original form, so that it can travel a larger distance.

Thus, it is placed between two cable segments. It is also known as digital regenerator which reshapes and amplifies the digital signal.

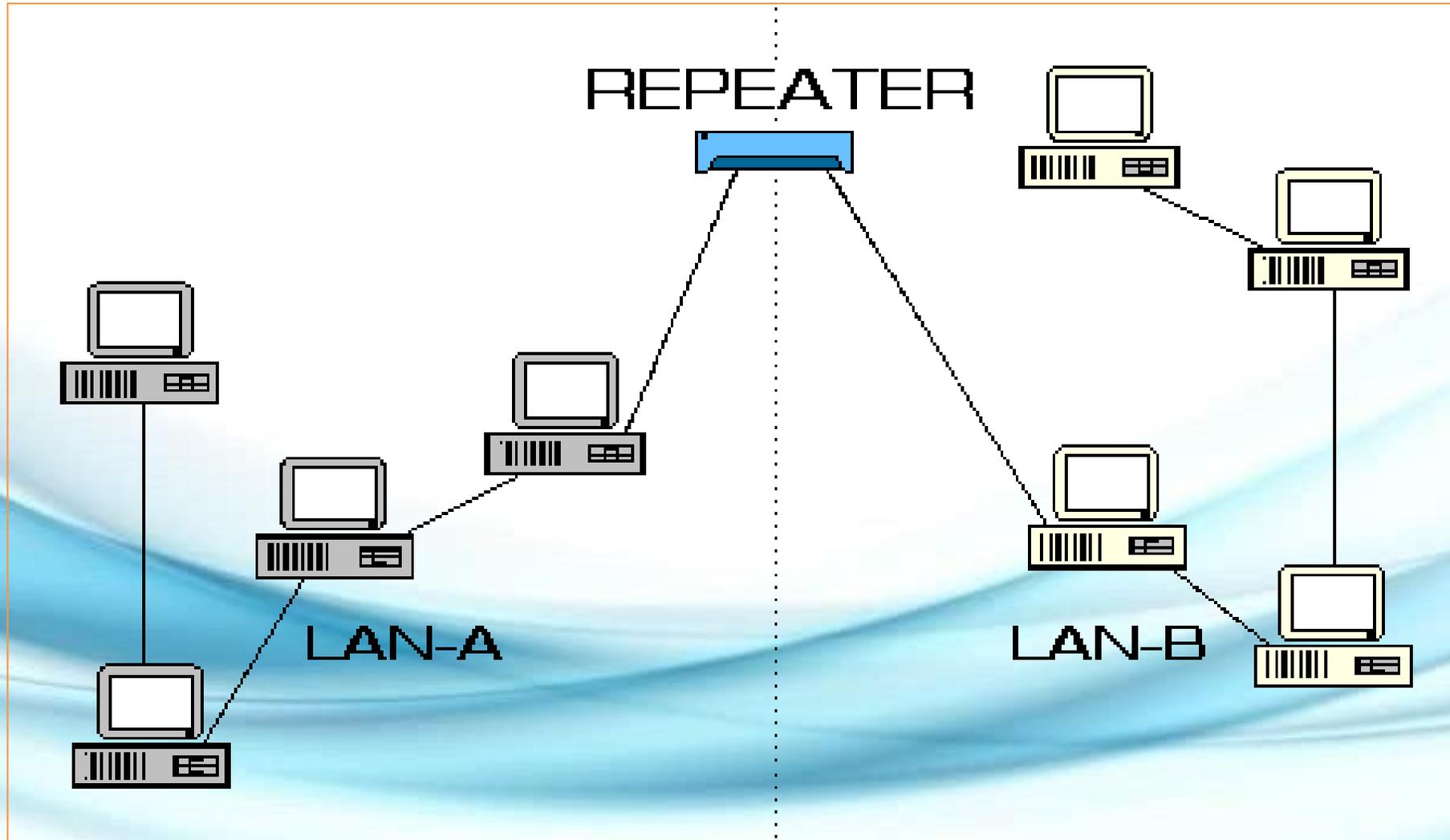


# Repeater





# Repeater in a network





# Hub



Unlike a repeater which connects two cables, a hub connects several lines, also called, cable segments. A hub comprises several input/output (I/O) ports, each of which connects to a single cable. Data arriving on an incoming line is output to all lines except the line on which the hub receives the data.



# HUB





# Hub





# Bridge



A bridge is a multiport device used for connecting two or more local area networks (LAN), possibly operating at different speeds.

Thus, a bridge may be used to produce bigger LAN by combining smaller LANs. A bridge enables devices on one LAN segment to communicate with the devices on another LAN segment.



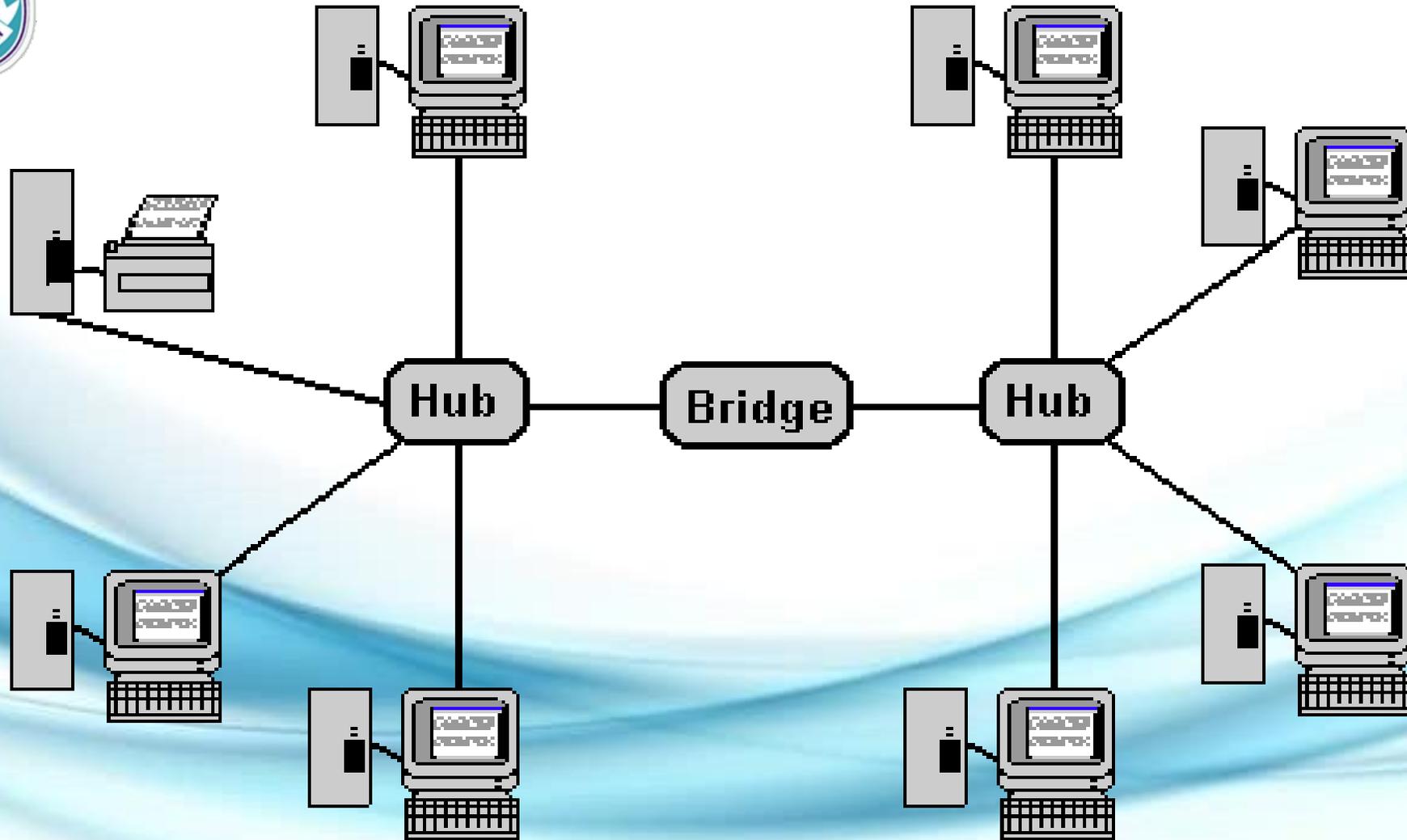
## Bridge continued.....



Unlike hubs, they are intelligent devices which exercise discretion while forwarding data to the outgoing line leading to destination.



# Bridge continued....





# Switch



Unlike bridges which connect two or more LAN segments, switches are used to connect individual nodes in the network with each other.

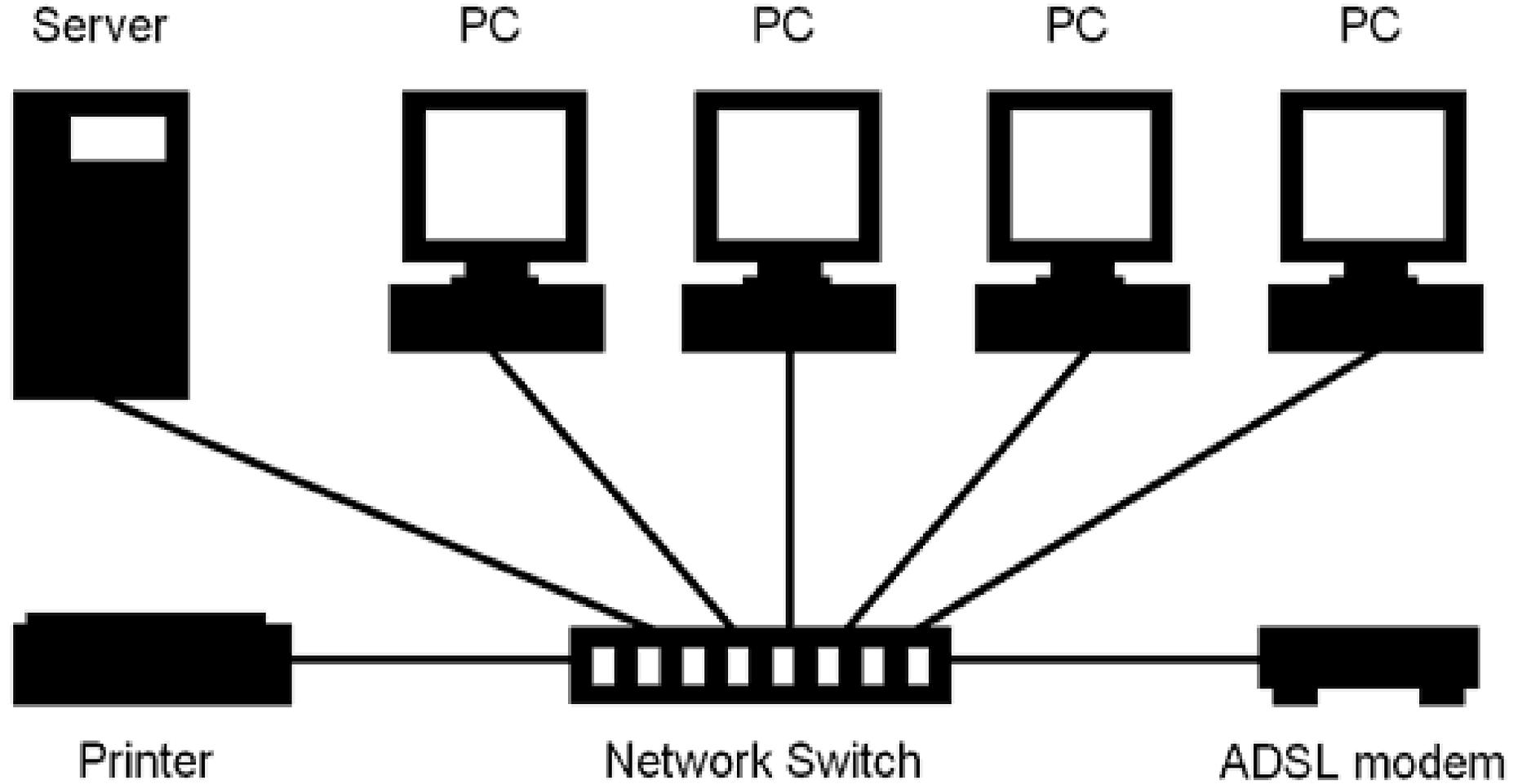
Each node within network is connected to a unique port in the switch.

On receiving the incoming data frame, it forwards it to only single line connecting to the destination node.

All the nodes connected through switch forms only one LAN.



# Switch continued....



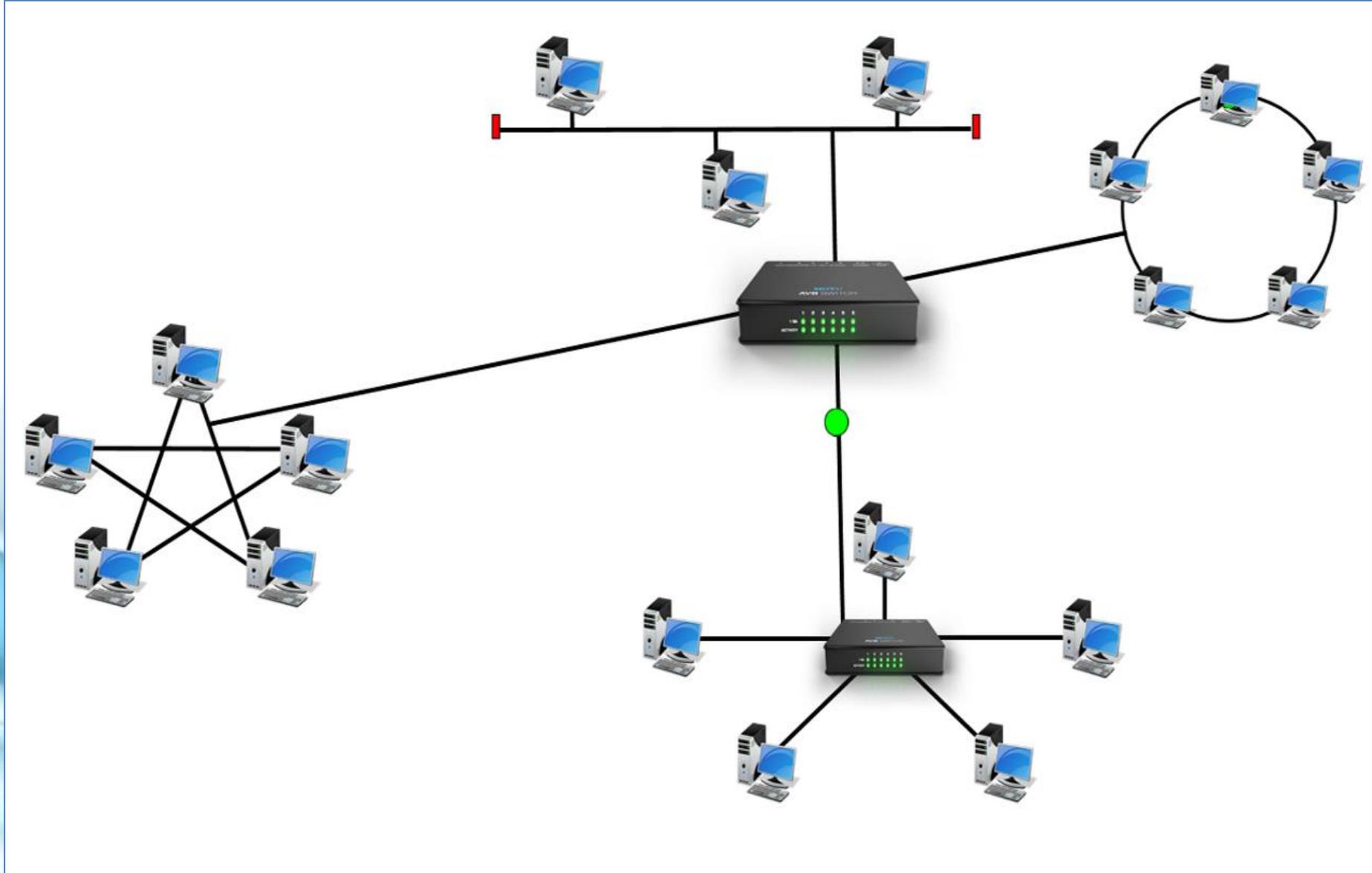


# Router

Routers are used for connecting various networks (LAN or WAN) with each other. A router transmits data from incoming network to another network.

A router maintains a routing table of various networks. Based on the destination address, the router determines to which network the incoming packet should be transmitted.

# Router continued....





# Gateway

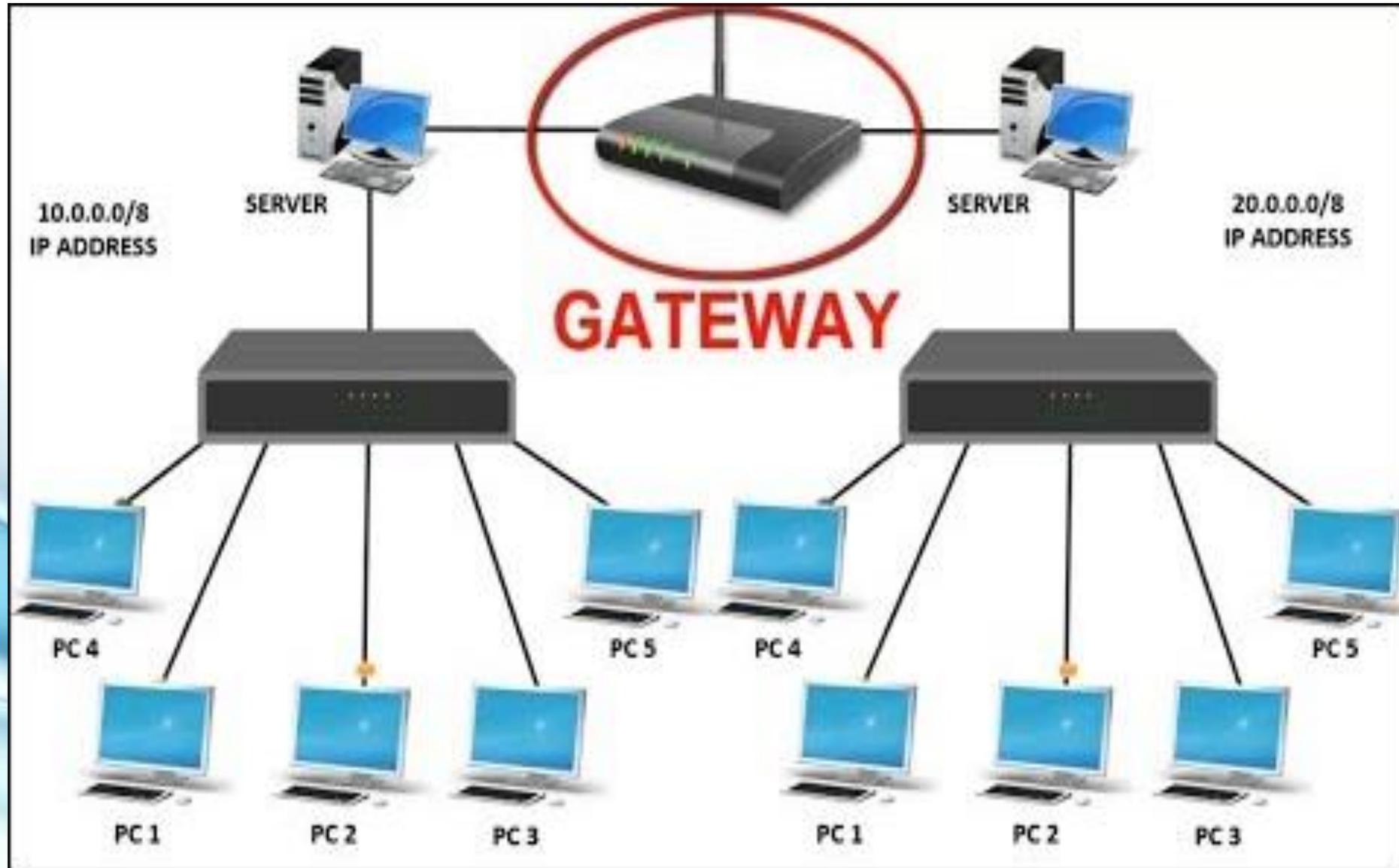


A gateway connects networks based on different protocol technologies to communicate with each other.

Data coming from one network operating on one protocol is converted according to the protocol of outgoing network, and then forwarded.

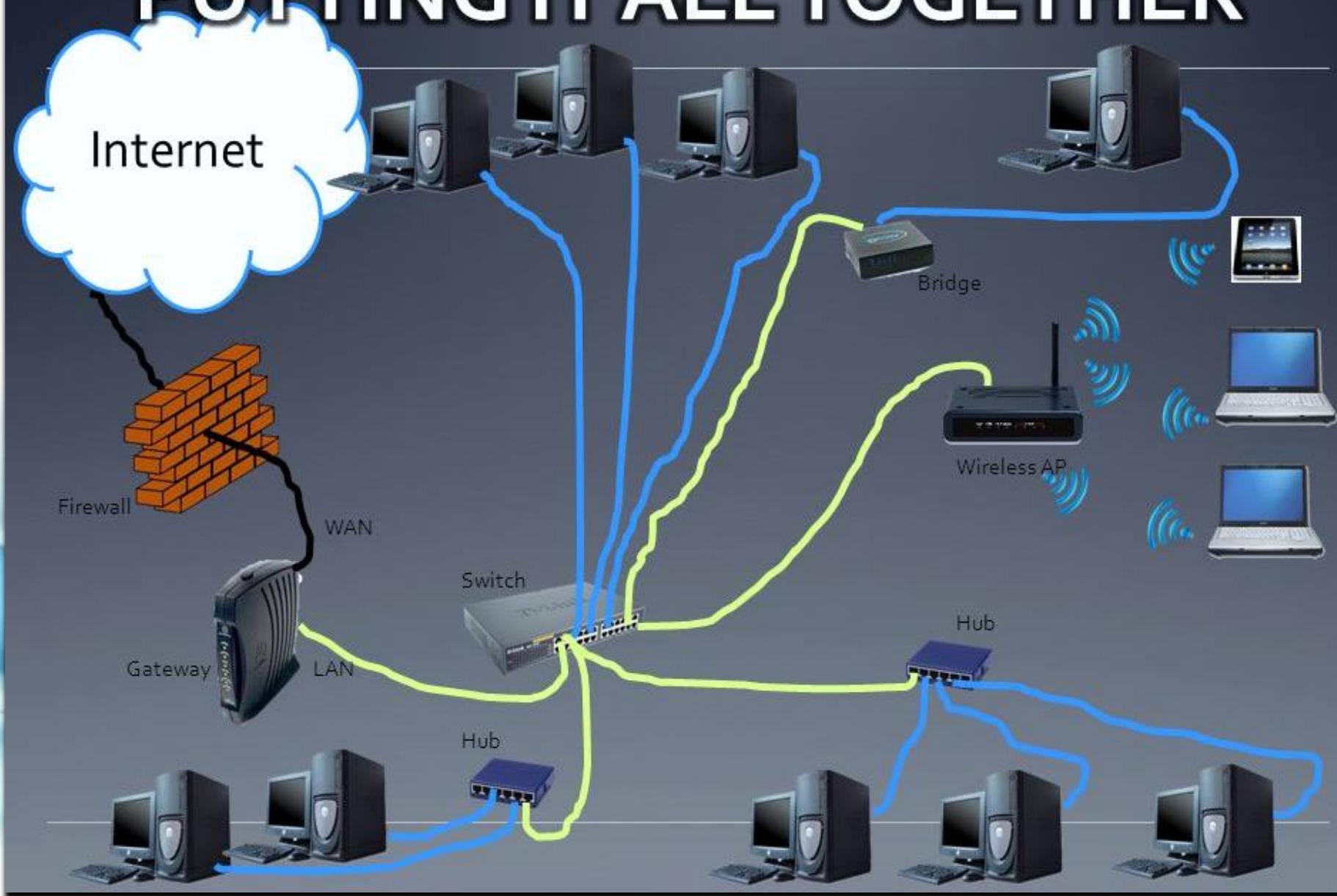
Thus a gateway may be thought of as a router equipped with software for protocol conversion.

# Gateway continued...





# PUTTING IT ALL TOGETHER





**Any Questions?**