



# SNS COLLEGE OF TECHNOLOGY

Coimbatore-37.

An Autonomous Institution



**COURSE CODE & NAME : 23CSB302 & COMPUTER NETWORKS**

**Topic: Types of Connections , Topologies**

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# Types of Connections , Topologies

## Peer-to-Peer printing using TCP/IP

- 1.Router
- 2.Network printer

## Network Shared printing

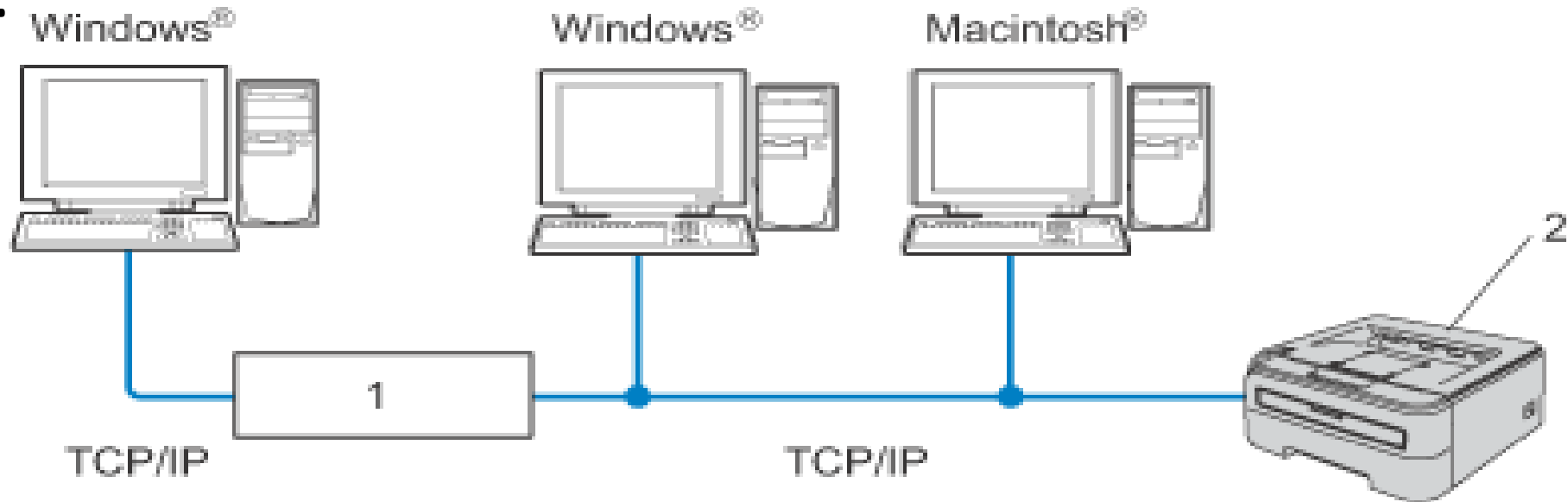
- 1.Network Shared
- 2.Also known as “Server” or  
“Print server”
- 3.Printer
- 4.TCP/IP or USB

Topologies:



# Peer-to-Peer printing using TCP/IP

- In a Peer-to-Peer environment, each computer directly sends and receives data to each device.
- There is no central server controlling file access or printer sharing.





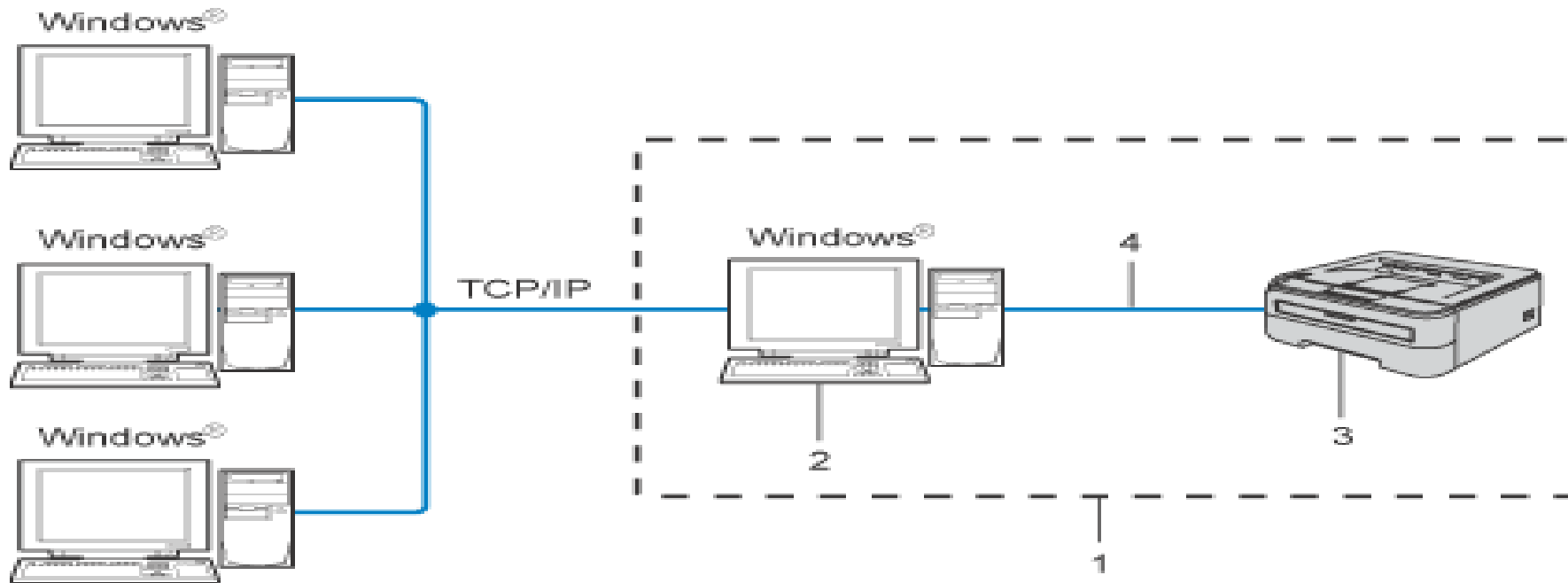
# Peer-to-Peer printing using TCP/IP

- In a smaller network of 2 or 3 computers, we recommend the Peer-to-Peer printing method as it is easier to configure than the Network Shared printing method described on the following page.
- Each computer must use the TCP/IP Protocol.
- The Brother printer needs to have an appropriate IP address configuration.
- If you are using routers, the Gateway address must be configured on the computers and the Brother printer.
- The Brother printer can also communicate with Macintosh<sup>®</sup>. (TCP/IP compatible operating systems)



# Network Shared printing

- In a Network Shared environment, each computer sends data via a centrally controlled computer.
- Its job is to control the printing of all print jobs.





# Network Shared printing

1 .Network Shared

2.Also known as “Server” or “Print server”

3.Printer

4.TCP/IP or USB

- In a larger network, we recommend a Network Shared printing environment.
- The “server” or the “print server” must use the TCP/IP print protocol.
- The Brother printer needs to have an appropriate IP address configuration unless the printer is connected via the USB interface at the server.



# Topology

<https://www.javatpoint.com/computer-network-topologies>

- Bus Topology
- Ring Topology
- Tree Topology
- Star Topology
- Mesh Topology
- Hybrid Topology.



# Bus Topology

- The bus topology is designed in such a way that all the stations are connected through a single cable known as a backbone cable.
- The most common access method of the bus topologies is **CSMA** (Carrier Sense Multiple Access).
- **CSMA**: It is a media access control used to control the data flow so that data integrity is maintained, i.e., the packets do not get lost.
- There are two alternative ways of handling the problems:
- **CSMA CD**: CSMA CD (**Collision detection**) is an access method used to detect the collision.
- Therefore, it works on "**recovery after the collision**".
- **CSMA CA**: **CSMA CA (Collision Avoidance)** is an access method used to avoid the collision by checking whether the transmission media is busy or not.
- It does not work on "recovery after the collision".





# Bus Topology

## Advantages of Bus topology

- **Low-cost cable**
- **Moderate data speeds**
- **Familiar technology**
- **Limited failure**

## Disadvantages of Bus topology

- **Extensive cabling**
- **Difficult troubleshooting**
- **Signal interference**
- **Reconfiguration difficult**
- **Attenuation**



# Ring Topology

- connected with ends , it is unidirectional ,endless loop ,clockwise direction.
- The most common access method of the ring topology is **token passing**.
  - **Token passing:** It is a network access method in which token is passed from one node to another node.
  - **Token:** It is a frame that circulates around the network.

## Working of Token passing :

- A token moves around the network, and it is passed from computer to computer until it reaches the destination.
- The sender modifies the token by putting the address along with the data.
- The data is passed from one device to another device until the destination address matches.
- Once the token received by the destination device, then it sends the acknowledgment to the sender.
- In a ring topology, a token is used as a carrier.



# Ring Topology

Advantages of Ring topology:

- **Network Management**
- **Product availability**
- **Cost**
- **Reliable**

Disadvantages of Ring topology:

- **Difficult troubleshooting:**
- **Failure**
- **Reconfiguration difficult**
- **Delay**



# Star Topology

- Star topology is an arrangement of the network in which every node is connected to the central hub, switch or a central computer.
- The central computer is known as a **server**, and the peripheral devices attached to the server are known as **clients**.
- Coaxial cable or RJ-45 cables are used to connect the computers.
- Hubs or Switches are mainly used as connection devices in a **physical star topology**.
- Star topology is the most popular topology in network implementation.



# Star Topology

## Advantages of Star topology

- **Efficient troubleshooting**
- **Network control**
- **Familiar technology.**
- **Easily expandable**
- **Cost effective**
- **High data speeds**

## Disadvantages of Star topology

- **A Central point of failure**
- **Cable**



# Star Topology

- Tree topology combines the characteristics of bus topology and star topology.

Advantages of Tree topology

**Support for broadband transmission**

**Easily expandable**

**Easily manageable**

**Error detection**

**Limited failure**

**Point-to-point wiring**

Disadvantages of Tree topology

**Difficult troubleshooting**

**High cost**

**Failure**

**Reconfiguration difficult**



# Mesh topology

Mesh topology can be formed by using the formula:

**Number of cables =  $(n*(n-1))/2$ ;**

**Mesh topology is divided into two categories:**

**Full Mesh Topology:** In a full mesh topology, each computer is connected to all the computers available in the network.

**Partial Mesh Topology:** In a partial mesh topology, not all but certain computers are connected to those computers with which they communicate frequently.

**Advantages of Mesh topology:**

**Reliable**

**Fast Communication**

**Easier Reconfiguration**

Disadvantages of Mesh topology

**Cost**

**Management**

**Efficiency**



# Hybrid Topology

- the combination of various different topologies is known as **Hybrid topology**.
- A Hybrid topology is a connection between different links and nodes to transfer the data.

## Advantages of Hybrid Topology:

- Reliable**
- Scalable**
- Flexible**
- Effective**

## Disadvantages of Hybrid topology:

- Complex design**
- Costly Hub**
- Costly infrastructure**





THANK YOU