

# Essay on bus topology

[Sociology](#), [Communication](#)



## **Introduction**

Networks play a very important role in businesses and governments.

Networking is being developed so that new techniques are making communication effective today. There are various designs that are available that companies can adopt. The design that is chosen will depend on the business requirements and the size of the company. This paper will look at the network designs that can be implemented in organizations. It will also look at the merits and demerits of each network.

This topology is characterized as a multi point medium. That all station is being attached through this hardware (a network adaptors) as a linear transmission medium. This bus topology is a full duplex that operates between different station s allowing data to be transmitted onto the bus and to receive other signal from bus. At every station a terminator is attached at the end of a bus that will absorbs every signals and discarding them from bus.

## **Merits**

Given the fact that there are no network hubs, it is regarded to be less expensive. It is good for smaller networks that do not require high speeds.

## **Demerits**

It has limitations in size and speed. This is the major demerit of the network. Another issue is that if there is some fault that is reported in some area, the whole system will have a problem. This is because there is one trunk, which is serving the whole network. Another issue is that if there is a problem in the network, the troubleshooting will be an uphill task.

## **Wireless mesh networks**

These are emerging wireless networks, which use small radio transmitters to send signals to neighborhood radio devices. These devices act as access points that make connection to each other and communicate the network connections that exist in the network. The nodes use common Wi-Fi standards to communicate with each other.

### **Merits**

It has wide coverage. This is because the radio devices communicate with each other in ranges of hundreds of meters. They therefore offer wide connectivity in the end. Another advantage is that the network is easy to set up. This is because it uses the same protocols and technology as the wireless network. In essence, the mesh network is a bigger wireless network. Another advantage is that it has its own management capability. Once it has been set up, mesh networks can manage their own load so that they avoid intruding into the networks of other devices. It has high speeds because each node acts as their own individual server.

### **Demerits**

The point-to-point modes are designed so that they do not mesh up with other networks. This topology is hard to scale to large networks.

## **Star topology**

It is a connection where each of the nodes is connected directly to the central network. The data in a star topology will go through a concentrator before going to the destined location. The concentrator/hub controls

everything that takes place in a network. The topology is common with twisted-pair cables.

### **Merits**

One of the merits that are associated with this technology is that it is easy to install. When making connections, there are no disruptions that are made to the network. Another issue is that if there is a fault, which is detected on the network, it will be easy to remove these faults.

### **Demerits**

It will need more cabling length when installing the network and the nodes will fail if the concentrator fails. The concentrators are found to be expensive and therefore the cost of the network is high.

### **Ring topology**

Characterized multipoint medium consists of asset of hardware devices (repeaters) that are joined by point-to-point links at closed loops. A repeater is a device, which receives a signal and retransmits to link without any form of buffering. The links are found to be unidirectional. Data is transmitted in one direction. The data goes round in one direction in the ring.

### **Merits**

Of all this topology, they are being connected with other devices (hubs, repeaters, switches and bridges) of which every main server computer is being shared together.

## **Demerits**

### **FDDI**

The technology makes use of fiber cabling. It is based on counter-rotating rings, which are dual. The operations of the ring are that the ring transmits data packets while the secondary ring gives a backup for the primary ring. When there is a fault in one point, the two stations will realize this break and will therefore redirect the packets to pass through the secondary ring.

### **Merits**

It has a high data rate, which goes up to 100Mbps and a wide geographic coverage, going up to 100 km. It is also immune to electromagnetic interference. It also has a high degree of reliability due to the counter-rotating technology.

### **Demerits**

It is expensive as there is the need to set two stations.

## **Ethernet networks**

### **Token ring**

In this network, the token ring maintains one data frame, which goes round the ring in the network. The frames are shared by all devices, which are connected in the network.

### **Merits**

One of the merits of the token ring is that it avoids packet collisions in the network. This is easily achieved by ensuring that stations take turns when

transmitting using the link. The host that should send the data is arrived at by making use of metaphorical Token, which goes round the link.

## **Demerit**

One disadvantage is that if there is a fault, which is found in the network, the whole network will be affected and transmission will be greatly affected.

## **Ethernet**

This is a network, which is a collection of networks, which are operating in a single building. It operates in close proximity. It has been improved so that the connections span wide geographical areas. Within this wireless network are devices used for various connections.

## **Merits**

One of the merits of Ethernet networks is that of speeds. The reason that is attributed to this is that it has short distance and equally fewer devices and hosts between these devices. Another reason is that it is easy to set up and maintain.

## **Demerits**

It provides short distance connection to devices. It is therefore not applicable when long distance connections need to be covered. This disadvantage is, however, being eradicated.

## **Wireless networks**

These are wireless networks, which provide wireless connections to mobile devices. They are gaining popularity due to the flexibility that comes with it. Wireless networks operate in wireless standards in the specification of 802.

11a, b, g, and n standards. With the emergence of smart phones and mobile devices, the use of wireless networks is getting a wide use.

## **Merits**

It comes with much flexibility, as it is possible to connect to the network with much ease. It also does not need wires and cables in order to get the connections. What one requires is to have the credentials for the network so that they are able to access the network.

## **Demerits**

Security is easy to be compromised. This is because the network can be connected to by anyone who has the connections credentials. There are strong authentication technologies that have been developed to mitigate attacks.

## **Bibliography**

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