

Three types of major networks



Three Types of Major Networks Network of computers have become the backbone of communication and sharing information. Communication networks are generally defined based on their size and complexity. In general the three main types of networks are;

Local Area Networks (LAN): Local area network, as the name itself signifies, is limited to one particular area only. Such networks are generally privately owned networks within a single building, organization, factory and university or college campus. At times their reach is extended from about 200 meters to a few kilometers, but beyond that such networks become impractical. The connectivity is generally made possible using a copper cable or optic fiber cable (OFC). The reach is further extended somewhat when we use the optic fiber. But that results in substantial increase in costs. Therefore in organisations where the purpose of LAN is not commercial and it is merely for information sharing, OFC is not a viable option. LANs are generally used to connect personal computers and sharing resources like printers. Generally LAN can work on speeds ranging from 10 Mbps to 100 Mbps, with modern networks even working at somewhat higher speeds. The interconnections could be in Bus, Ring, Star or Tree topologies. Bus and Ring are the generally used ones'. The arbitration mechanism for resolving disputes is called Ethernet or IEEE 802. 3.

Metropolitan Area Networks (MAN): Such networks are called " metropolitan networks" because they are usually used for areas like metro-cities. It is a bigger version of LAN and normally uses similar technology. The coverage area of LAN could extend upto 10 kms. An organisation having couple of offices within a city can make use of MAN for interconnecting all such offices. MAN are also compatible with local networks. A Metro area network is also

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interconnected with one or two cables without any switching elements.

Normally, this type of network is made a high speed network using optical fibre cable connections. Couple of LANs can be interconnected with the help of a MAN. The main reason for placing MAN into a separate category is that a standard has been adopted for them. This standard is called Distributed Queue Dual Bus (DQQB). DQQB is made up of two unidirectional buses (cables) to which all the computers are connected (fig 2). This standard is also known as IEEE 802. 6. The key feature of MAN is that it allows ‘broadcasting’ i. e. one person/ node can messages for all the person/ nodes in the network simultaneously. This is possible because of the design of DQQB.

Wide Area Networks (WAN): Such networks are spread over a large geographical area, like an entire country or a continent ranging upto 1000 kilometers. Such networks are the result of a meeting point for computer science and telecoms. Within local reach the connectivity is through cables, beyond that the telecom provider of the country or region provides the link through transmission lines, telephone lines, or microwave links etc. WANs contain numerous cables or telephones lines each one connecting a pair of routers. Router is a device that functions like a switch of MAN. It forwards data packets along the networks. Generally two networks like LANs or MANs are connected using a router.

References:

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