

Computer Network

Types of Computer Network

MAN (Metropolitan Area Network)

A interconnects users with computer resources in a geographic area or region- larger than that covered by even a large LAN but smaller than the area covered by a WAN, The term is applied to the interconnection of networks in a city into a single larger network (which may then also offer efficient connection to a WAN). It is also used to interconnect several LANs by bridging them with backbone lines.

There are three important features which discriminate MANs from LANs or WANs:

1. The network size falls intermediate between LANs and WANs. A MAN typically covers an area between 5 and 50 km diameter. Many MANs cover an area the size of a city, although in some cases MANs may be as small as a group of buildings or as large as New Delhi.
2. A MAN (like a WAN) is generally not owned by a single organization. The MAN, its communications links and equipment are generally owned by either a consortium of users or by a single network provider who sells the service to the users. This level of service provided to each user must, therefore, be negotiated with the MAN operator, and some performance guarantees are normally specified.
3. A MAN often acts as a high-speed network to allow sharing of regional resources (similar to a large LAN). It is also frequently used to provide a shared connection to other networks using a link to a WAN.
4. MAN is a network that is utilized across multiple buildings. A MAN is much larger than the standard LAN but is not as large as a WAN. It is commonly used in school campuses, large universities and large companies with multiple buildings.

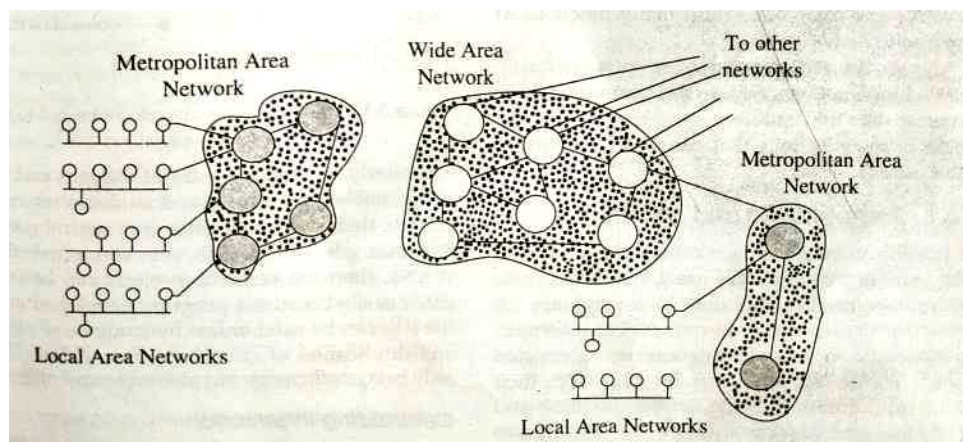


Figure: Use of MANs to provide regional networks which share the cost of access to a WAN

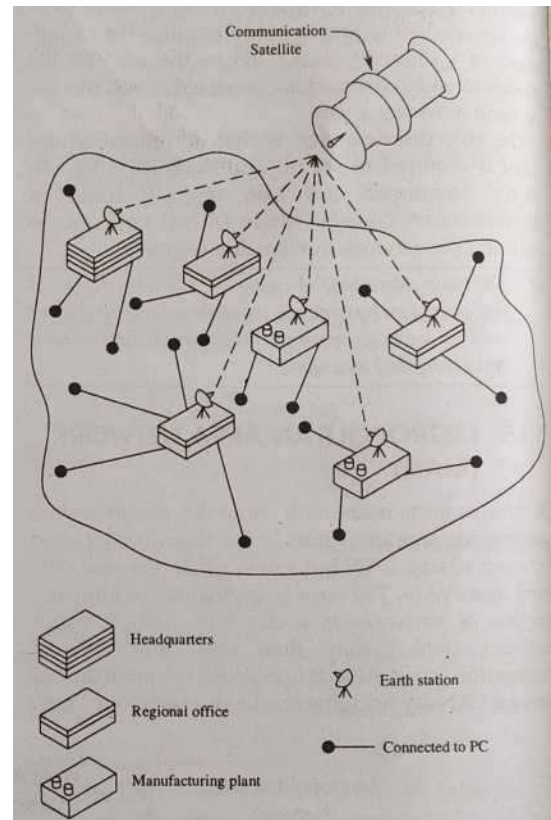
WAN (Wide Area Network)

WAN is a digital communication system which interconnects different sites, computer installations and user terminals. It may also enable LANs to communicate with each other. This type of network may be developed to operate nationwide or worldwide. The transmission media used in WANs are normally public systems, such as telephone lines, microwave links and satellite links.

WAN is used to interconnect LANs which may be located across the globe. WANs combine the continuous error detection and correction techniques included in synchronous communications with robust network problem determination and data routing to form powerful *backbones* that ensure high-quality, reliable service for end users. These networks allow multiple users to access a variety of host computers simultaneously through the same physical medium, while separating each user's session so that no user is aware of another on the network. WANs also operate at speeds much higher than the 19,200 bps limit of normal voice-grade telephone lines.

WAN is a large company network that might use to connect regional computers. In this example, different centres, such as manufacturing, distribution and accounting, are all connected to national headquarters and therefore to each other for communication purposes. Most WANs are complex and serve many users and many functions as compared to LANs.

WANs are typically created using specially conditioned telephone lines, microwave communications or satellite data transmission.



Types of WANs

Two particularly important types of WANs are:

- (a) Hierarchical networks
- (b) Distributed data-processing networks

Exercise:

- 1: What is MAN?
- 2: What are the advantages of MAN?
- 3: What is WAN?
- 4: What are the advantages of WAN?