

A

Seminar report

On

LAN WAN MAN

Submitted in partial fulfillment of the requirement for the award of degree
of CSE

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SUBMITTED BY:

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Preface

I have made this report file on the topic **LAN WAN MAN**; I have tried my best to elucidate all the relevant detail to the topic to be included in the report. While in the beginning I have tried to give a general view about this topic.

My efforts and wholehearted co-corporation of each and everyone has ended on a successful note. I express my sincere gratitude towho assisting me throughout the preparation of this topic. I thank him for providing me the reinforcement, confidence and most importantly the track for the topic whenever I needed it.

Introduction

There are so many different types of computer networks in existence; it can be hard to understand the differences between them, particularly the ones with very similar-sounding names. This lesson explains the structures and functions of some of the most popular computer networks.

Types of Networks

There are several different types of computer networks. Computer networks can be characterized by their size as well as their purpose.

The size of a network can be expressed by the geographic area they occupy and the number of computers that are part of the network. Networks can cover anything from a handful of devices within a single room to millions of devices spread across the entire globe.

Some of the different networks based on size are:

- Personal area network, or PAN
- Local area network, or LAN
- Metropolitan area network, or MAN
- Wide area network, or WAN

In terms of purpose, many networks can be considered general purpose, which means they are used for everything from sending files to a printer to accessing the Internet. Some types of networks, however, serve a very particular purpose. Some of the different networks based on their main purpose are:

- Storage area network, or SAN
- Enterprise private network, or EPN
- Virtual private network, or VPN

Let's look at each of these in a bit more detail.

Local Area Network (LAN)

What is LAN?

A local area network (LAN) supplies networking capability to a group of computers in close proximity to each other, like in an office building, school, or home. LANs are usually built to enable the sharing of resources and services like files, printers, games, applications, email, or internet access.

Multiple local networks may stand alone, disconnected from any other network, or might connect to other LANs or a WAN (like the internet).

Traditional home networks are individual LANs but it is possible to have multiple LANs within a home, like if a guest network is set up.

Technologies Used to Build a LAN

Modern local area networks predominantly use either Wi-Fi or Ethernet to connect their devices together.

A traditional Wi-Fi LAN operates one or more wireless access points that devices within signal range connect to. These access points in turn manage network traffic flowing to and from the local devices and can also interface the local network with outside networks. On a home LAN, wireless broadband routers perform the functions of an access point.

A traditional Ethernet LAN consists of one or more hubs, switches, or traditional routers that individual devices connect to through Ethernet cables.

Both Wi-Fi and Ethernet also allow devices to connect to each other directly (e.g. peer to peer or ad hoc connections) rather than through a central device, although the functionality of these networks is limited.

Though Ethernet and Wi-Fi are usually used in most businesses and homes, due both to the low cost and speed requirement, a LAN may be setup with fiber if enough reason can be found.

Internet Protocol (IP) is by far the predominant choice of network protocol used on LANs. All popular network operating systems have built-in support for the required TCP/IP technology.

How Big Is a LAN?

A local network can contain anywhere from one or two devices up to many thousands. Some devices like servers and printers stay permanently associated with the LAN while mobile devices like laptop computers and phones may join and leave the network at various times.

Both the technologies used to build a LAN and also its purpose determine its physical size. Wi-Fi local networks, for example, tend to be sized according to the coverage area of individual access points, whereas Ethernet networks tend to span the distances that individual Ethernet cables can cover.

In both cases, though, LANs can be extended to cover much larger distances if needed by aggregating together multiple access points or switches.

Note: Other types of area networks may be larger than LANs, like MANs and CANs.

Benefits of a Local Area Network

There are plenty of advantages to LANs. The most obvious one, like mentioned above, is that software (plus licenses), files, and hardware can be shared with all the devices that connect to the LAN. This not only makes things easier but it also reduces the cost of having to buy multiples.

For example, a business can avoid having to buy a printer for each employee and computer by setting up a LAN to share the printer over the whole network, which lets more than just one person print to it, fax things, scan documents, etc.

Since sharing is a major role of a local area network, it's clear that this type of network means faster communication. Not only can files and other data be shared much quicker if they stay within the local network instead of reaching the internet first, but point-to-point communication can be setup for quicker communication.

Also on this note, sharing resources on a network means there's central administrative control, which means it's easier to make changes, monitor, update, troubleshoot, and maintain those resources.

LAN Topologies

A computer network topology is the underlying communication structure for components of a LAN.

Those who design network technologies consider topologies, and understanding them gives some additional insight into how networks work. However, the average user of a computer network does not need to know much about them.

Bus, ring, and star topologies are the three basic forms that are known by most networking-literate people.

Advantages of LAN

Few advantages of LAN are mentioned below:

- Resource sharing
- E-mail
- Security
- Security
- Cost
- Speed

Disadvantages of LAN

Disadvantages of LAN are mentioned below:

- Cables may break
- File server may break
- Needs administrative time
- Expensive to install

Metropolitan Area Network (MAN)

A metropolitan space network (MAN) could be a network that interconnects users with pc resources in an exceedingly geographic space or region larger than that lined by even an oversized local area network (LAN) however smaller than the realm lined by a wide area network (WAN). The term is applied to the interconnection of networks in an exceedingly town into one larger network (which might then conjointly provide economical affiliation to a large space network). it's conjointly accustomed mean the interconnection of many native space networks by bridging them with backbone lines. The latter usage is additionally generally mentioned as a field network.

Examples of metropolitan area networks of varied sizes are found within the metropolitan areas of London, England; Lodz, Poland; and Geneva, Switzerland. massive universities conjointly typically use the term to explain their networks. A recent trend is that the installation of wireless MANs.

Wide Area Network (WAN)

A wide area network (WAN) may be a telecommunications network or network that extends over an outsized geographical distance. Wide area networks are typically established with hired telecommunication circuits. Business, education and government entities use wide area networks to relay information to employees, students, clients, buyers, and suppliers from numerous locations across the planet.

In essence, this mode of telecommunication permits a business to effectively perform its daily performs no matter location. the net is also thought of a WAN. Related terms for alternative kinds of networks are personal area networks (PANs), local area networks (LANs), campus area networks (CANs), or metropolitan area networks (MANs) that are sometimes restricted to an area, building, field or specific metropolitan area respectively.

List of WAN Types:

- SD- WAN
- X.25
- SONET
- Leased line
- ISDN
- Frame Relay
- DSL
- Dial-up
- Cable modem
- ATM

Conclusion

LAN is a private network used in small offices or homes usually within 1km range with high speed transfer data rate and fulltime service connectivity in low cost. WAN covers a large geographical area for example, a country or a continent.

Its data transfer data is usually low as compared to LAN, but it is compatible with a variety of access lines and has an advanced security. MAN covers an area bigger than LAN within a city or town and serves as an ISP for larger LAN. It uses optical fibers or wireless infrastructure to link the LANs therefore, providing high speed regional resource sharing.

REFERENCES

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