

LAB Assignment-1

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Title:- Design Network (Use: Packet Tracer/GNS)

Aim:- Design Network : Design a simple network (LAN) with different topologies & test it using PING utility.

Objectives:-

1. To learn & understand the concept of LAN & test it using PING command.
2. To design a network using various topologies in cisco Packet Tracer.

Theory:-

1) Definition of LAN with its advantages -

→ A local area network (LAN) is a collection of devices connected together in one physical location, such as a building, office or home. A lan can be small or large, ranging from a home network with one user to an enterprise network with thousands of users & devices in an office or school.

Advantages:-

- 1) Hardware & software can be shared.
- 2) Does not cost too much.
- 3) Private ownership
- 4) Separate component.

2] Explanation of various network topologies.

→ 1) Mesh topology:-

Every device is connected to another device via a particular channel. In mesh Topology, the protocols used are ARP, DHCP, etc.

2) Star Topology:-

In star topology, all the devices are connected to a single hub through a cable. This hub is the central node & all other nodes are connected to central node.

3) Bus Topology:-

Bus topology is a network type in which every computer & network device is connected to a single cable. It transmits the data from one end to another in a single direction.

4) Ring Topology:-

It forms a ring connecting devices with exactly two neighbouring devices. ~~with exactly two~~ A number of repeaters are used for Ring topology with a large number of nodes, because if someone wants to send data to the last node in the ring topology.

• Student's Observations:-

Thus we have designed a simple network (LAN) with different topologies & tested it using PING topology.

★ FAQs

1] Explain the use Ping utility. Command with an example.

→ The ping command sends one datagram per second & prints one line of output for every response received. The ping command calculates round trip time & packet loss statistics & displays a brief summary on completion. The ping command completes when the program times out or on receipt of a SIGINT signal.
eg) To check a network connection to host canopus & specify the number of echo requests to send enter ping-cs canopus

2] Compare various types of LAN, WAN & MAN.

→ LAN.

1) LAN is a network that usually connects a small group of computers in a given geographical area.

2) LAN is acronym for local area network.

3) LAN is private, hospitals, homes, schools, offices, etc may own it.

→ MAN:

1) MAN is acronym for metropolitan Area network.

2) MAN is comparatively wider network that covers large regions - like towns, cities etc.

3) MAN is both private or public.

→ WAN

1) WAN is acronym for Wide Area Network.

2) WAN network spans to an even larger locality, it

has capacity to connect various count countries together
3) WAN is both private or public.