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CN

Lab Assignment - 1

Title : Design Network

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

Objectives: 1) To learn and understand the concept of LAN and test it using PING command.

2) To design a network using various network topolgies in Cisco Packet Tracer.

Theory:

1) Definition of LAN with its advantages.

→ A local area network (LAN) is a group of computers and peripheral devices that share a common communications line or wireless link to a server within a distinct geographic area.

Advantages:

- Simple and relatively inexpensive.
- Collaboration of Resources
- The association involving client and server
- Data protection
- Fast communication

2) Explanation of various network topologies.

→ i) Bus Topology: All the devices are connected by one single cable. Commonly reffered as a linear bus.

ii) Star Topology: It is a network topology in which each network component is physically connected to a central code such as a router, hub or switch.

iii) Tree topology: It is a special type of structure where many connected elements are arranged like the branches of a tree.
iv) Ring Topology: It is a type of network topology in which each device is connected to two other devices on either side via an RJ-45 cable or coaxial cable.
v) Mesh Topology: Connects all devices (nodes) to each other for redundancy and fault tolerance.

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

FAQ's

Ans 1) Ping is a software application, utility, or a tool that is used to test and diagnose connectivity related issues on a network. It allows network administrators to test whether a remote device is reachable or whether the network connection for a local device is properly configured and installed.
eg: To check a network connection to host canopus and specify the number of echo requests to send enter ping -c5 canopus.

Ans 2) LAN:
1) Often owned by private organizations
2) Speed is quiet high.
3) Has low congestion as compared to WAN.
4) Fault tolerance of LAN is higher than WAN.

MAN:

1) Ownership can be private or public
2) Speed is average.
3) Has higher congestion than LAN
4) Fault tolerance of MAN is lower than LAN

WAN:

1) Ownership can be private or public
2) Speed is lower than that of LAN.
3) WAN has higher congestion than both MAN and LAN.
4) Fault tolerance of WAN is lower than both LAN and MAN.

good
A+
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