Assignment 10.

Title :

Network Simulation for topology

Problem Statement :

Use network simulation NS2 to implement traffic monitoring for the given topology.

Objectives :

1) Understand the various topology in networking.
2) Learn about network simulation and visualize topologies.

Requirements :

NAM (Network Animator).
NS2 (Network Simulator)
Ubuntu.
Gedit.

Theory :

Simulation is the process of learning by doing. Network simulation is one of type of simulation which is used to simulate the networks such as in MANETS. It provides simulation for routing & multicast protocols for both wired & wireless networks. NS is licensed for use of GNU and is popularly known as NS2. It is an object oriented discrete event driven simulator written in c++ & tcl.

Topology :

The arrangement of a networking which comprises of nodes & connecting lines via sender and receiver is referred as networking topology.
Mesh topology : every device is connected to another device via particular channel.

Advantages of this topology:
It is robust
Fault is diagnosed easily.
Provides security & privacy.

Disadvantages
Installation and configuration is difficult
Cost of cables are high as bulk wiring is required
Cost of maintenance is high.

Star Topology:
In star topology, all the device are connected to a single hub through a cable. This hub is the central node & all other nodes are connected to the central node. The hub can be passive

Advantages of topology:
1) If N devices are connected to each other in star topology, the the number of cables to connect them is N. So, it is easy to setup.
2) Each device require only 1 port ie. to connect to the hub.

Bus Topology:
Bus topology is a network type in which every computer & network device is connected to single cable. It transmits the data from one end to another able. It transmits data from one end to another in single direction. No bi-directional feature is in topology.

Ring Topology:
It forms a ring connecting devices with its exactly two neighbouring devices.
A number of repeaters are used for ring topology with a large number of node, because if someone wants to send some data to the last node in the node in the ring topology with 100 nodes then data will have to pass through 99 nodes to reach 100th node.

Conclusion:

Learnt about various topologies and NS2 tool and visualizing topology and tcl.

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