

Assignment - B2

Problem Statement :-

Use network simulator ns-2 to implement

- (a) monitoring traffic for given topology.
- (b) Analysis of CSMA & ethernet protocols.
- (c) Network Routing : shortest path routing.
- (d) Analysis of congestion control (TCP, UDP).

Theory :-

- Network Traffic Monitoring :-

Network traffic monitoring is the process of reviewing, analyzing & managing network traffic for any abnormality or process that can affect network performance, availability & security. It is a network management process that uses various tools & techniques to study computer network based communication data.

- Carrier-sense Multiple Access (CSMA) :-

It is media Access Control (MAC) protocol in which a node verifies the absence of traffic before transmitting

on a shared transmitting medium such as electrical or a band of magnetic spectrum.

- A transmitter attempts to determine whether another transmission is in progress before initiating a transmission.

- Using CSMA, multiple nodes may, in turn send & receive on same medium.

- CSMA / CD -

- It is modification of pure CSMA.

- Used to improve CSMA performance by terminating transmission as soon as collision is detected ; thus shortening the time required before a retry can be attempted.

- It is the LAN access method used in ethernet.

- Network Routing :

Routing is the process of selecting a path for traffic in a network or between or across multiple networks.

AODV Routing protocol :-

- AODV (Ad-hoc on Demand Distance Vector) is loop free routing protocol for ad-hoc networks.
- At each node, AODV, maintains a routing table.
The routing table entry for a destination contains three essential fields.
 - a next hop node
 - a sequence no.
 - a hop count.

Congestion In Computer Network :-

A state occurring in network layers when message traffic is so heavy that it slows down network response time.

Effects of congestion :-

- As delay increases, performance decreases.
- If delay increases, retransmission occurs, making situation worse.
- Congestion control is network layer issue.

Network Simulator :-

A network simulator is a software that predicts the behaviour of computer network.

TCL :-

- It is tool command language
- It is powerful scripting language with programming language.

Conclusion :-

We have learnt the concepts of monitoring network traffic, CSMA protocol, network routing, and routing protocol & demonstrated using NS-2 (Network simulator).