Assignment - 10

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Title: Traffic monitor for given topology using NS2.

Problem Statement:
Use Network Simulator 2 to implement
- traffic monitoring for the given topology
- analysis of CSMA/A and ethernet protocols
- network routing : shortest path routing - AODV
- analysis of congestion control

Objectives:
- To learn and implement ethernet, CSMA and routing protocols using NS2.
- To analyze congestion control in TCP and UDP.

Outcomes:
- To be able to monitor traffic for the given topology, file transfers, etc.
- To be ~~given~~ able to find out shortest route for transferring files.

Requirements:
NS2.

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Theory:

- NS2 is an open source event driver simulator designed specifically for research in computer organization H/W.

- It is discrete event simulator for networking research. It provides substantial to bunch of protocols like TCP, FTP, UDP & HTTP.

Steps for monitoring traffic in a given topology:

1. Create simulator object
   - open name trace file
   - define finish procedure
   - close trace file
   - execute name of trace file
   - execute create 4 nodes, link between them.
   - create TCP sink agent & attach it to the node
   - create CBR traffic sources and attach to TCP schedule, event for CBR research agents.
   - call finish procedure
   - run the simulation.

CSMA: To minimise chances of collision and increase performance, CSMA was developed to increase performance.

AODV: The AD-HOC on demand vector protocol is both on demand of a table driver protocol. The packet size in AODV is uniform unlike DSR. Unlike DSDV, there is no need for system-wise broadcast due to local changes

Congestion Control Mechanism: To perform congestion control, we need 2 basic protocols:

- Drop Deletion:

AISC reciever to unacknowledge script of packets. If a packet ~~set~~ sent is not acknowledge fast enough, the packet is assumed to be stopped.

- Rate Control:

If packet are not dropped ie. no congestion and hence increase the rate by certain amount. Congestion control is essentially required transmission for fare rate with high result utilization and is implemented in HLW layer.

Conclusion:

Thus NS2 is used to the given protocol statements, which was successfully implemented.