

Simulator Development

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1 Topic:

Develop a network Simulator implementing entire protocol stack.

2 Working

2.1 Physical Layer Functionalities

The physical layer deals with bit-level transmission between different devices and supports electrical or mechanical interfaces connecting to the physical medium for synchronized communication. Here we initially set the MAC address and the data of each end device equals to zero. Now two cases are possible.

1. Dedicated link.

2. Star topology.

In Dedicated link, it matches the receiver's MAC address and sends the data.

In star topology it sends the data to every device and the device for which data is intended to send, receives it and others discard it.

2.2 Data link layer functionalities

Data-link layer is responsible for implementation of point-to-point flow and error control mechanism.

Here we have two things:

1. Switch-End device data transmission:- Here we have switch as main central device. First time it broadcasts and then it stores the addresses and send to desired ones.

2. Hub-Switch-Hub:- Here we have two hubs connected to a main switch. End devices are connected to both hubs. Whenever a device connected to one hub

sends data to the device connected to the same hub. Hub always broadcasts and switch first time sends the message to the other hub and afterwards discards sending the information

3 Specifications

3.1 Programming language used

Java

3.2 Compiler

java IDE Eclipse

3.3 References

<https://www.geeksforgeeks.org/computer-network-tutorials/>

<https://www.youtube.com/playlist?list=PLV8vIYTIdSnYgxRYBC7bIHaVUGFHU>

3.4 Project Guide

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