

# Different lan technologies

[Technology](#), [Computer](#)



## 1. AIM

To learn about different lan technologies and to design a network based on these lan technologies and to simulate these networks by a simulation tool know as opnet and by putting different loads on these networks and to study the performance of these networks.

## 2. Overview

Local area networks (LAN) are a group of devices which communicate with each other in a small geographical area like within a room or within a building. There are different topologies in LAN which are designed according to usage, cost, amount of traffic flow. The different topologies are star topology, bus topology (Ethernet), ring topology, FDDI.

The main aim of this project is to design network and compare different lan topologies and to simulate these networks by putting different network loads and to analyse how these networks behave to the different traffic loads and by running the simulation for a long time. Analyse the results and then to decide which topology is the best.

This project has been suggested by Dr Diane Gan.

This project meets the guidelines of the Masters project and the requirements of the programme that i am studying and as i will be able to design an network and simulate it using opnet and to vary the traffic load and to analyse the result of the simulation and to decide which network topology is the best and efficient.

After completion of the project i would be in a situation to tell about different parameters of the network like delays, packet inter arrival time, link utilisation, packet loss.

### 3. Objectives

Literature review of different LAN topologies

To design different LAN topologies

Simulate different LAN topologies by varying the traffic loads say about 20%, 40%, 70%, 80%

Analyse the quality of service (QOS) when an particular load is applied.

To compare and analyse the results based on these simulations

To decide which topology would be the best, looking at the results of the simulations and to suggest which topology would be better.

How the objectives will be achieved

Research on different networking books and different publications like IEEE, ACM etc.

To learn to use opnet.

Using opnet to design different LAN networks.

To simulate these networks with different traffic loads like database traffic, ftp traffic, email traffic, web surfing, voip, video streaming, printing.

To collect and put the result of these simulations on spreadsheet and to analyze the results.

To check the results like loads at servers, packets loss, packets delivery time, utilization of the links.

To plot the results on graph

To decide which network topology is the best based on the results.

#### 4. Resources

To complete this project i would require

Opnet Modeler

A computer with high configuration so that i could store the network models and the simulations.

#### 6. Initial References

Computer networks- Andrew S. Tanenbaum Pearson education international, 2003

Network simulations with OPNET by Xinjie Chang, Winter Simulation

Conference, Proceedings of the 31st conference on Winter simulation:

Simulation—a bridge to the future, Phoenix, Arizona, United States 1999