

## ABSTRACT

Continually Growing number of user have to exchange increasing amounts of information. Local Area Networks (LANs) are commonly used as the communication infrastructure that meets the demands of users in the local environment. These network typically consist of several LAN segments connected via bridges.

In this Paper will be describe an algorithm for designing LANs with objective of minimizing the average network delay. The topology design include issues such as determination of the number of segments in the network, allocating the users to the different segments and determining the interconnection and routing among segments. The determining of the optimal LAN topology is a very complicated combinatorial optimization problem. Therefore, a heuristic algorithm that is based on genetic idea is used. Numerical examples are provided and the quality of the designs obtained by using the algorithm is compared with lower bounds on the network average delay that are developed.