Basic Introduction of Local Area Network

Nitin Garg

Student (B.Tech 6th sem) Department of Electronics and Computers Engineering
Dronacharya College of Engineering, Gurgaon-123506, India
Email: ngarg1910@gmail.com

Nitigya Grover

Student (B.Tech 6th sem) Department of Electronics and Computers Engineering
Dronacharya College of Engineering, Gurgaon-123506, India
Email: nitigyagrover01@gmail.com

Abstract

A LAN consists of a number of computer terminals linked through a server. LANs are commonly used in businesses, laboratories, and industrial settings where employees at a single location need to be linked for the purpose of sharing information. Although the exchange of electronic information usually demands expertise in LAN management, software programs designed for educational settings have simplified the process for teachers and students so that LAN-based instruction can be conducted with only a basic knowledge of computers. A number of software programs for LAN writing classes exist. A local area network is a data communication network, typically a packet communication network, limited in geographic scope.' A local area network generally provides high-bandwidth communication over inexpensive transmission media. There are two basic issues in loal area netwak design. First, how should the hadware realizing the network be organized to provide relliable high-speed communication at minimum cost.with the low cost of the raw transmission capability, care is required to keep the associated hardware cost corresponding low. Second, what protocols should be used for the operation of the network.

Keywords: Topology, ARPANET

Introduction

Local area network is composed of three basic hardware elements: a transmission medium, often twisted pair, coaxial cable, or fiber optics; a mechanism for control of transmission over the medium; and an interface to the network for the host computers or other devices-the nodes of the network-that are connected to the network. While some local area networks now in use or under construction are "stand-alone" networks, not connected to other networks, the trend is toward interconnection of local area networks with long-haul networks. Interconnection can be motivated either by economics or simply by the needs of users of the hosts of a local area network. Local area networks arose out of the continuing evolution of packet communication networks and computer hardware technology. Packet communication techniques have become well known and widely understood in the nine years since development of the ARPANET was begun.

Meanwhile, computer hardware has come down in price dramatically, giving rise to environments where, within a sin& building or a small cluster of building For example, a local area network can provide an economical means of connecting a number of hosts within a small area to one or more long-haul packet networks. One distinguishing feature of local area networks is the geographic restrictions that permit them to utilize low-cost but very high-bandwidth transmission media. That characterization can also apply to the bus structure of a computer.

Network Topology

Network topology is the pattern of interconnection used among the various nodes of the network. The most general topology is an unconstrained graph structure, with nodes connected together in an arbitrary pattern. This general structure is the one normally associated with a packet-switched network; its advantage is that the arrangement of the communication links can be based on the network traffic. This generality is a tool for optimizing the use of costly transmission media, an idea which is not germane to local area networks. Further, this generality introduces the unavoidable cost of making a routing decision at each node a message traverses. A message arriving at a node cannot be blindly transmitted out of all the other links connected to that node, for that would result in a message that multiplied at every node and propagated forever in the network. Thus each node must decide, as it receives a message, on which link it is to be forwarded, which implies a substantial computation at every node. Since this general topology is of no significant advantage in a local area

network, and does imply a degree of complexity at every node, local area network designers have identified a variety of constrained topologies with attributes particularly suited to local area networks. We shall consider three such topologies: the star, the ring, and the bus.

Refrences

[1]. D. J. Farber and K. C. Larson, "The system architecture of the distributed computer system-The communications system," presented at the Symposium on Computer Networks (Polytechnic Institute of Brooklyn, Brooklyn,N Y ,A pr. 1972).

[2]. A. G. Fraser, "On the interface between computers and data communications systems," Commun.Ass. Comput. Mach..

[3]. www.google.com