Ethernet Lan’s Essay, Research Paper

Ethernet LAN’s

Ethernet LAN’s are a cost-effective way to improve the performance of a network. At first, LAN s were added by a user as needed in an unstructured fashion. An adapter that can only transmit, or receive, one at a time, is called half-duplex. All users vie for the same bandwidth. Others stations must wait while another station is transmitting. This cause delay and communication limitations. LAN switches help to eleviate this problem by allowing for simultaneous communication between ports. Switches are different than routers because they function more simply, have a higher aggregate bandwidth, and the latency is much lower. Switches can connect shared segments or dedicated segments to any port on a switch.

Because of cost users do not want to entirely replace the current infrastructure; using switches allows for and increased bandwith with out replacing the existing cables or equipment. In today s busy and fast paced networks the demand for more powerful work stations have lead the way for the development of high-bandwidth network applications. Applications such as multimedia cannot function properly when there are long delays or a large variation in the delay. The problem is help by adding a dedicated a full bandwidth to each station.

Full duplex is a well know mode of operation in wide area telecommunication networks. With the recent development of LAN switching technology it is now practical to consider switching and FDX operations at increased speeds. In a full duplex operation, the paths to transmit and receive can be used simultaneously on a point to point link. There are no collisions, which simplifies the protocol.

With a full duplex operation there is no need to replace the existing wiring in a 10BASE-T network. A full duplex operation the same two-wire scheme used as is 10BASED-T. Since there is no longer a need to detect collisions, it can simultaneously use one pair for transmission and another pair for reception. In theory, a full duplex operation can provide twice the bandwidth as a half-duplex operation, allowing for 10Mbps capacity in each direction. Full duplex operations are also helpful when connecting switches to each other, If there is a server on both side of the link, traffic is more symmetrical.

Moving to switched, full duplex operations can help meet the user’s bandwidth demands with still saving the infrastructure investment. To prevent bottlenecking in a network, the LAN hub is replaces with a full duplex capable switch. This subdivides the previous shared LAN segment into multiple networks with fewer stations per network. This allows the server to have more available bandwidth to the entire network. At the same time, peer-to-peer connections between stations can be accomplished directly through the switch without using the server to provide the routing function. Another advantage is that another client can read from and write to anther server attached to another switch point. This increases the aggregated bandwidth available to users. Another options that users have when switch Ethernet is inadequate for an application is shared, fast Ethernet LANs. A shared, fast Ethernet LAN runs on 100 Mbps. It can be used to attach high-speed clients and servers. To set up this type network, users need 100-Mbps Ethernet adapters, repeaters, and hubs. As the number of LANs grows, users find that bridges, routers, and switches are becoming bottlenecked. This problem can be solved with switched fast Ethernet switches.