FACULTY OF ENGINEERING & TECHNOLOGY

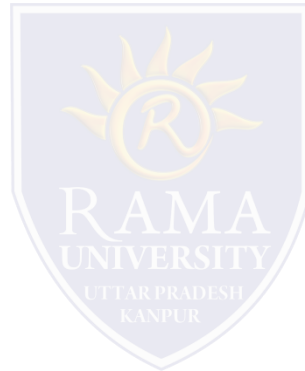**Brajesh Mishra**

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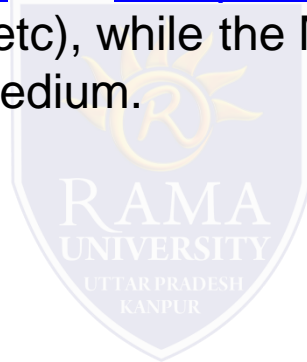
Medium access control
Functions performed in the MAC sublayer
Addressing mechanism
Channel access control mechanism

the **medium access control** (**MAC**, also called **media access control**[1]) sublayer is the layer that controls the hardware responsible for interaction with the wired, optical or wireless transmission medium. The MAC sublayer and the logical link control (LLC) sublayer together make up the data link layer. Within the data link layer, the LLC provides flow control and multiplexing for the logical link (i.e. EtherType, 802.1Q VLAN tag etc), while the MAC provides flow control and multiplexing for the transmission medium.

Frame delimiting and recognition

Addressing of destination stations (both as individual stations and as groups of stations)

Conveyance of source-station addressing information

Transparent data transfer of LLC PDUs, or of equivalent information in the Ethernet sublayer

Protection against errors, generally by means of generating and checking frame check sequences

Control of access to the physical transmission medium

Addressing mechanism

The local network addresses used in IEEE 802 networks and FDDI networks are called media access control addresses; they are based on the addressing scheme that was used in early Ethernet implementations. A MAC address is intended as a unique serial number. MAC addresses are typically assigned to network interface hardware at the time of manufacture. The most significant part of the address identifies the manufacturer, who assigns the remainder of the address, thus provide a potentially unique address. This makes it possible for frames to be delivered on a network link that interconnects hosts by some combination of repeaters, hubs, bridges and switches, but not by network layer routers. Thus, for example, when an IP packet reaches its destination (sub)network, the destination IP address (a layer 3 or network layer concept) is resolved with the Address Resolution Protocol for IPv4, or by Neighbor Discovery Protocol (IPv6) into the MAC address (a layer 2 concept) of the destination host.

Channel access control mechanism

The channel access control mechanisms provided by the MAC layer are also known as a multiple access method. This makes it possible for several stations connected to the same physical medium to share it. Examples of shared physical media are bus networks, ring networks, hub networks, wireless networks and half-duplex point-to-point links. The multiple access method may detect or avoid data packet collisions if a packet mode contention based channel access method is used, or reserve resources to establish a logical channel if a circuit-switched or channelization-based channel access method is used. The channel access control mechanism relies on a physical layer multiplex scheme.