SNS COLLEGE OF TECHNOLOGY

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COURSE NAME : 19CSB301 COMPUTER NETWORKS

III YEAR/ V SEMESTER

UNIT – II DATA LINK LAYER AND MEDIA ACCESS

Topic: Flow control, Media Access Control

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Flow Control

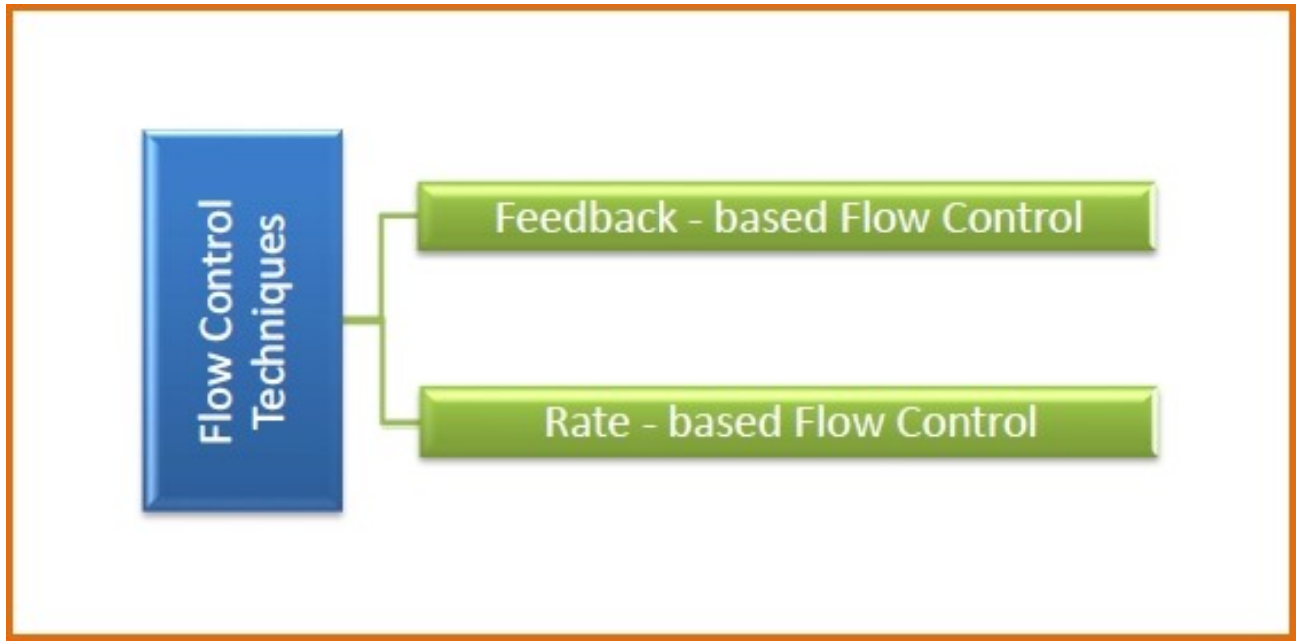
- ✓ *Flow control is a technique that allows two stations working at different speeds to communicate with each other.*
- ✓ *It is a set of measures taken to regulate the amount of data that a sender sends so that a fast sender does not overwhelm a slow receiver.*

Flow control refers to a set of procedures used to restrict the amount of data that the sender can send before waiting for acknowledgment.

Approaches for Flow Control

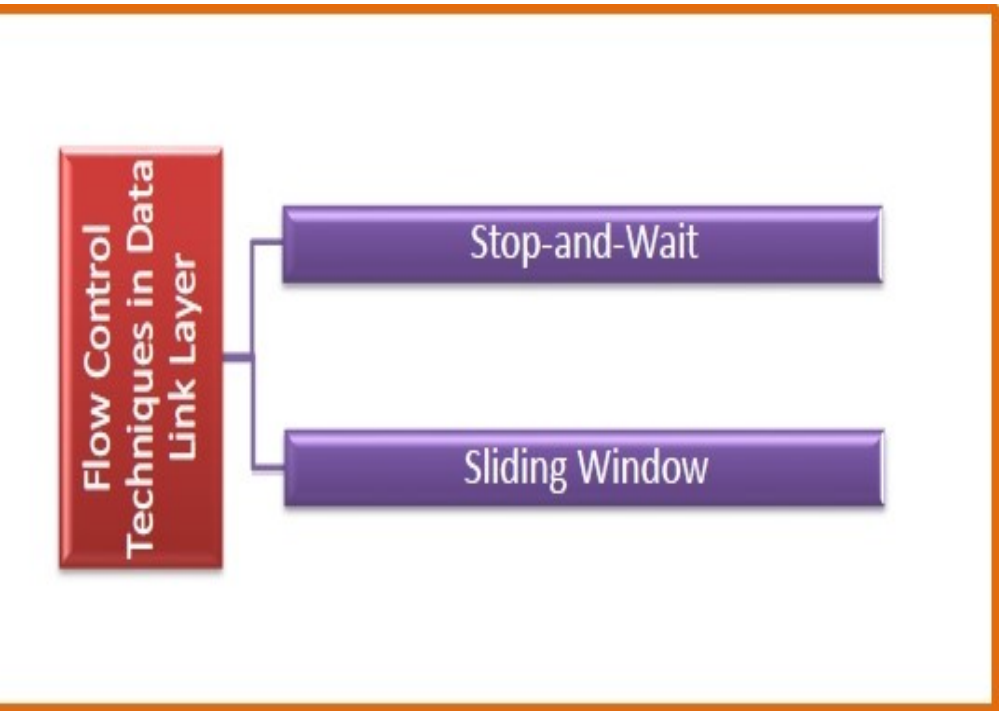
- ***Feedback based Flow Control*** - *In these protocols, the sender sends frames after it has received acknowledgments from the user. This is used in the data link layer.*

- ***Rate based Flow Control*** - *These protocols have built in mechanisms to restrict the rate of transmission of data without requiring acknowledgment from the receiver. This is used in the network layer and the transport layer.*



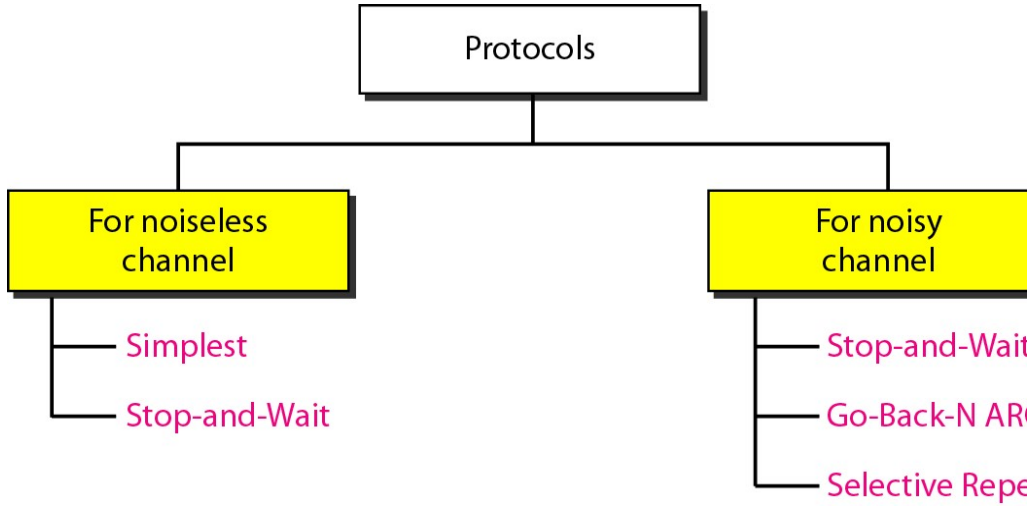
Flow Control Techniques in Data Link Layer

asically flow control is done at this layer is iven as



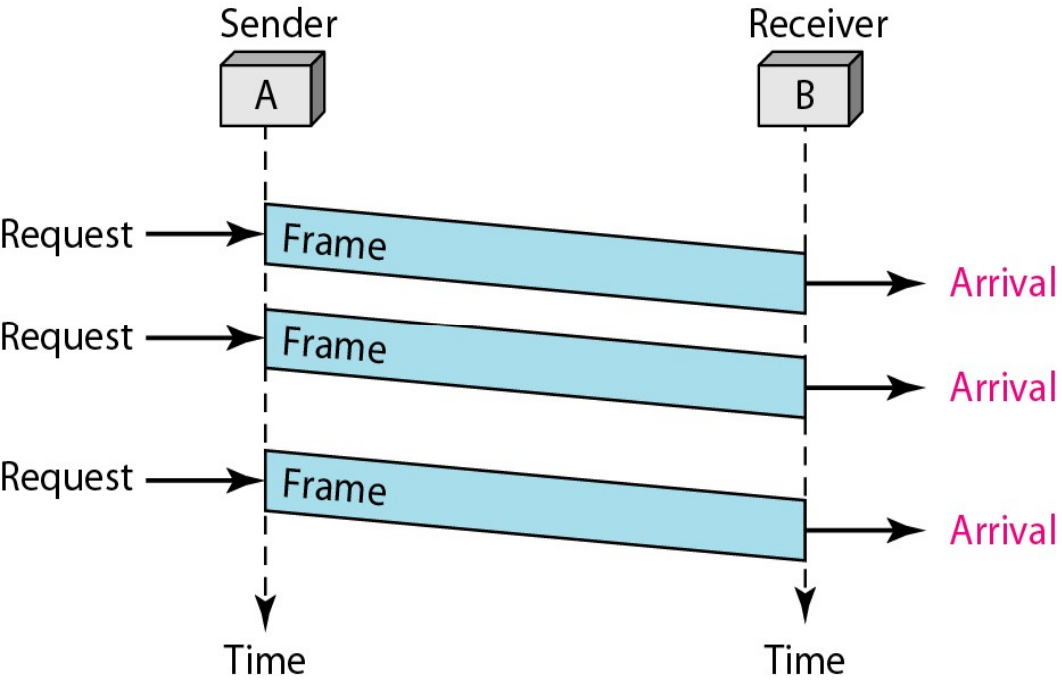
Data link layer can combine framing, flow control, and er control to achieve the delivery of data from one node to a in a reliable manner.

In tat way protocols designed is given as

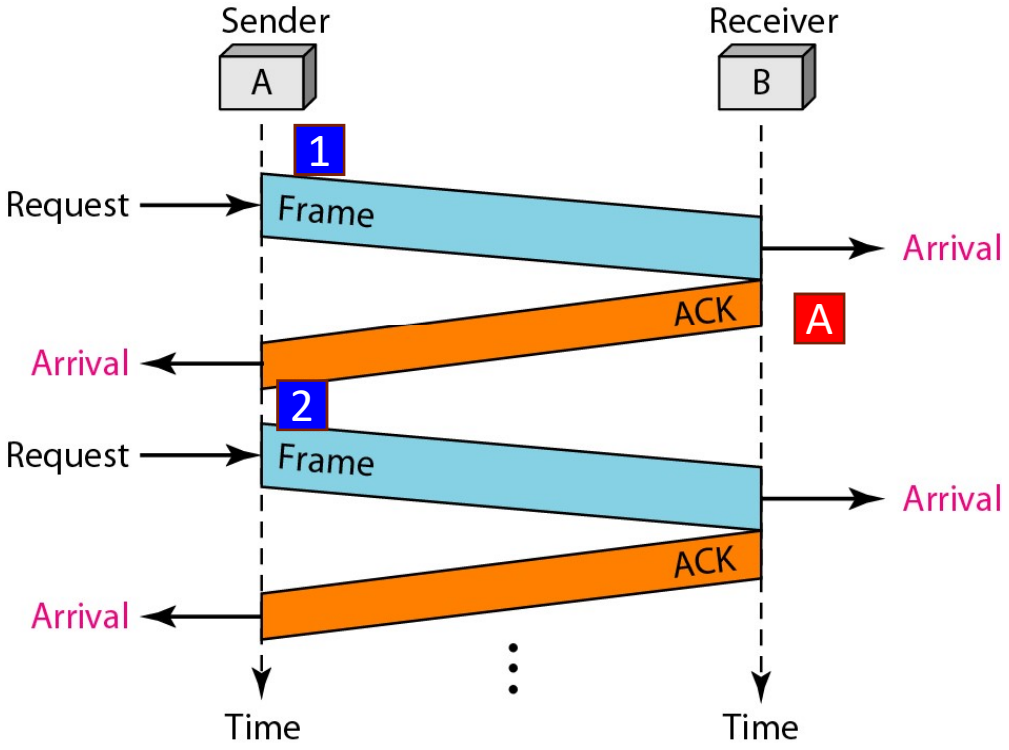


Stop and Wait Protocol

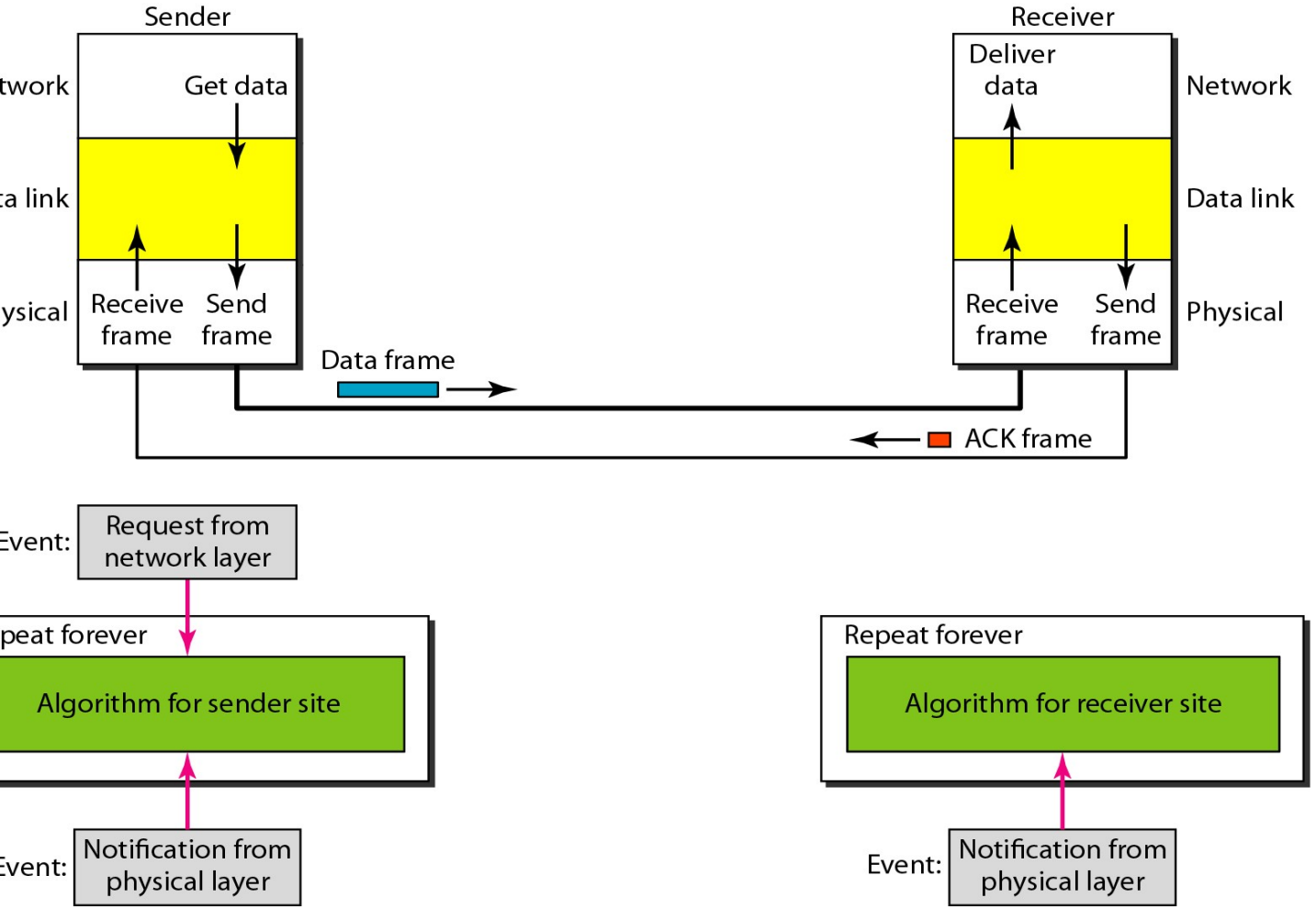
Without Flow control



With Flow control



Stop and Wait Protocol

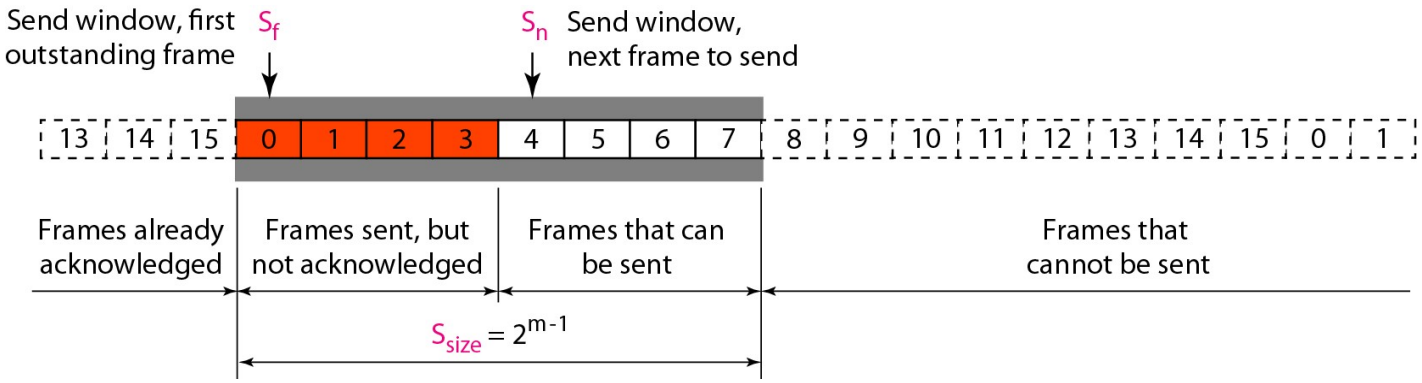


Working Principle

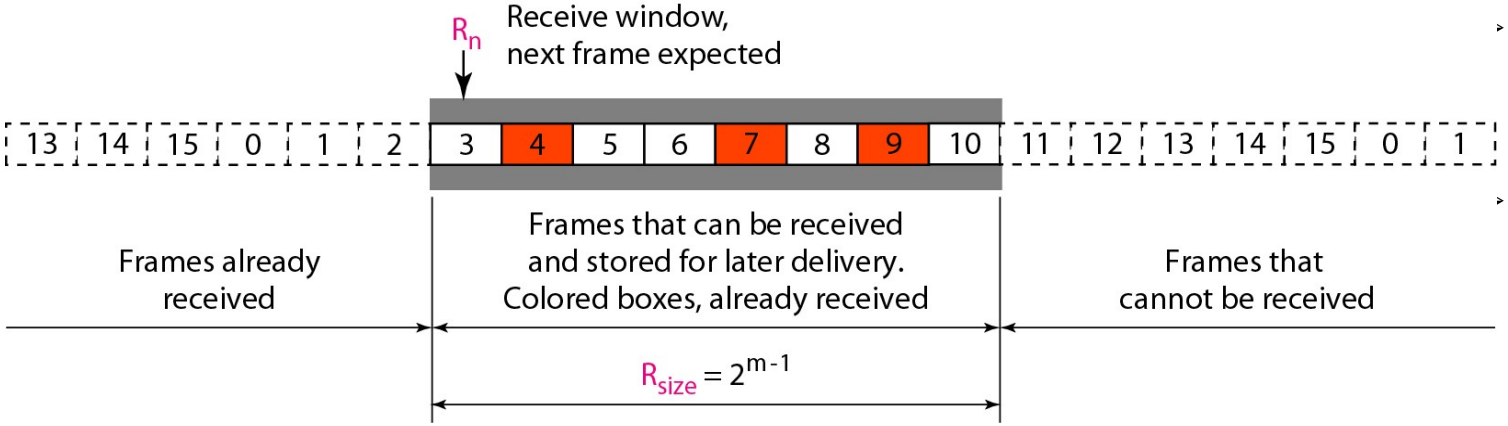
- The sender sends a frame and wa acknowledgment.
- Once the receiver receives the fra sends an acknowledgment frame to the sender.
- On receiving the acknowledgmen frame, the sender understands th receiver is ready to accept the nex frame. So it sends the next frame queue.

Sliding Window Protocol

Sender Window



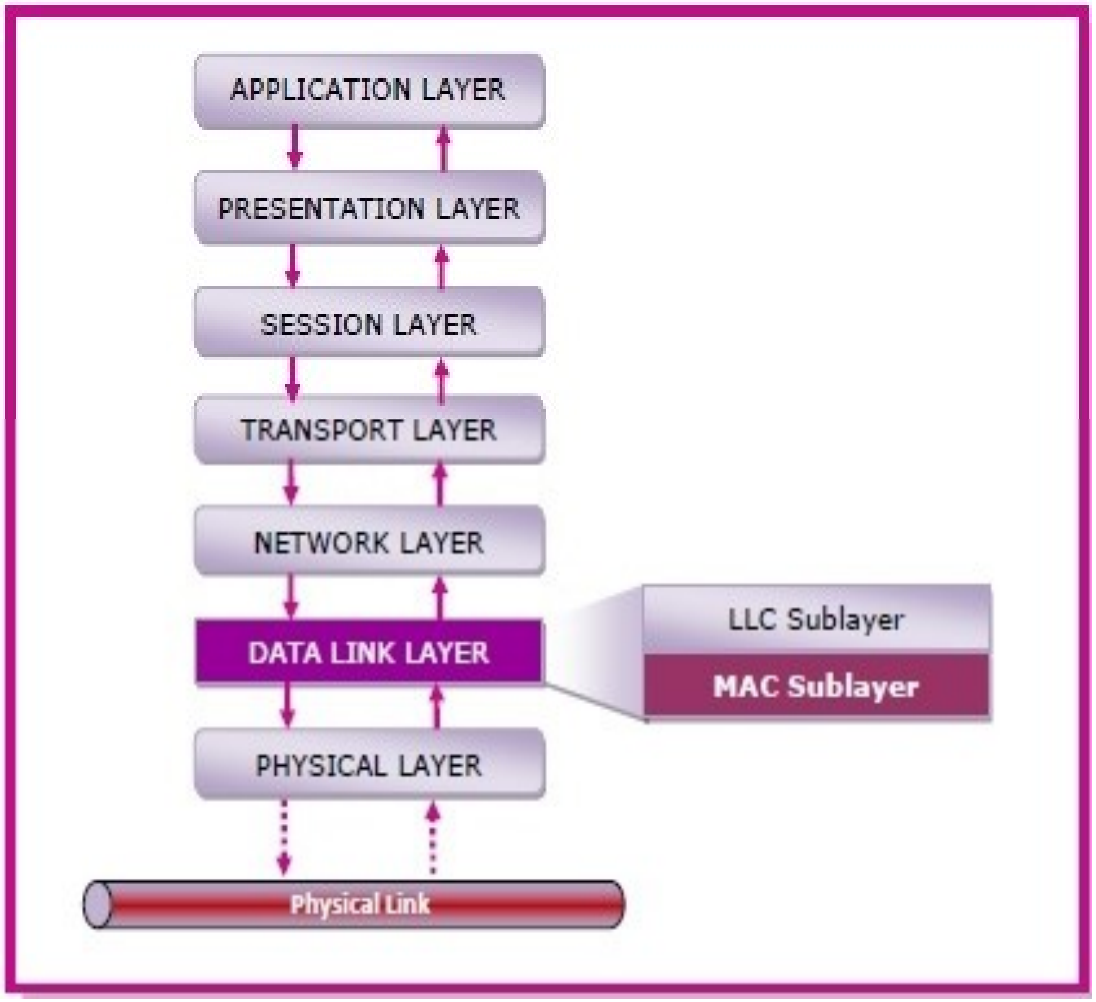
Receiver Window



Working Principle -

- Both the sender and the receiver ha finite sized buffers called **windows**
- The sender and the receiver agrees upon the number of frames to be se based upon the buffer size.
- The sender sends multiple frames i sequence, without waiting for acknowledgment.
- When its sending window is filled, i waits for acknowledgment. O
- n receiving acknowledgment, it advances the window and transmit next frames, according to the numb of acknowledgments received

Medium Access Control (MAC)



The data link layer is the second lowest layer and It is divided into two sublayers

The Logical Link Control (LLC) sublayer

The Medium Access Control (MAC) sublayer

It is responsible for flow control and multiplexing for transmission medium

It controls the transmission of data packets via remotely shared channels

It sends data over the network interface card

Medium Access Control – MAC Address

Unique identifier allotted to a Network Interface Controller (NIC) of a device.

It is used as a **network address** for data transmission within a network segment like Ethernet, Wi-Fi, and Bluetooth.

MAC address is assigned to a network adapter at the time of manufacturing.

It is **hardwired or hard-coded** in the network interface card (NIC).

A MAC address comprises of six groups of two hexadecimal digits, separated by hyphens, colons, or no separators.

An example of a MAC address is **00:0A:89:5B:F0:11**

Assessment

Feedback based Flow Control and *Rate based Flow Control* are used in Which OSI Layer?

Media Access Control address is a _____ identifier

DLL is divided into two sublayers, What are they?

Whether MAC located in OSI Layer?

References

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Thank
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