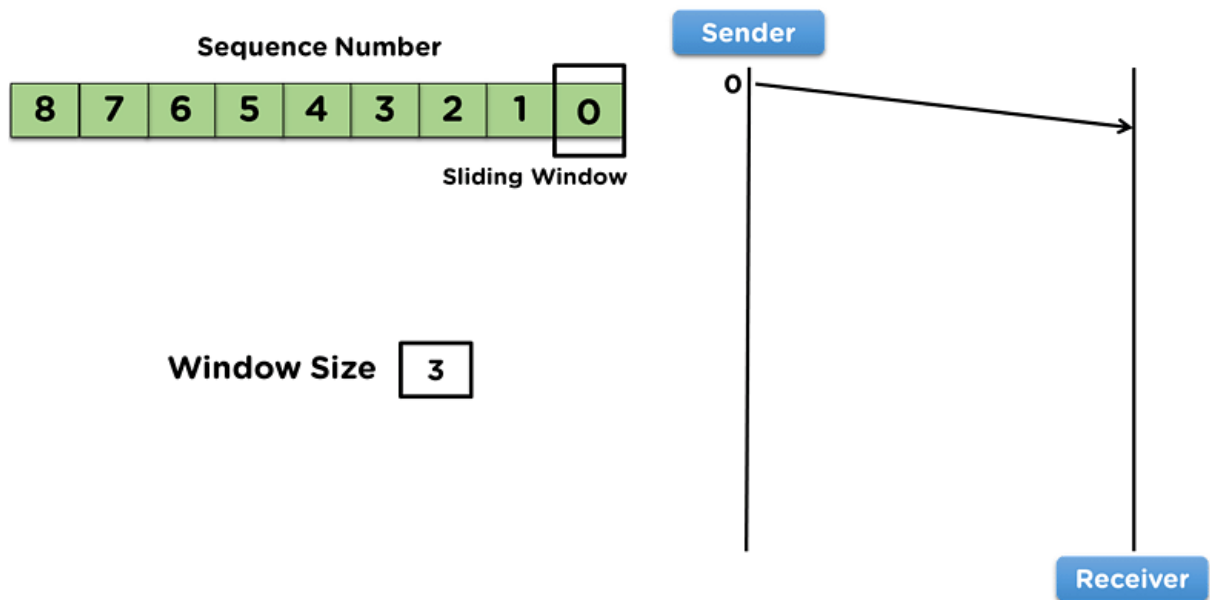


Sliding Window Protocol



The sliding window protocol is a method designed in the network model that allows data exchange more efficiently and within the scope of clearly defined steps in the channel.

In the sliding window protocol, some of the most important features that are applied in a network model are as mentioned:

- This protocol allows sharing multiple data frames from the sender before receiving any acknowledgment from the receiver side.
- The data frames shared in the channel are defined by the window size mentioned in the network model, which defines the maximum number of frames that can be transmitted at a time from the sender to the receiver side before expecting any acknowledgment.
- Each of the frames in the network model is assigned a sequence number to increase the transmission efficiency.

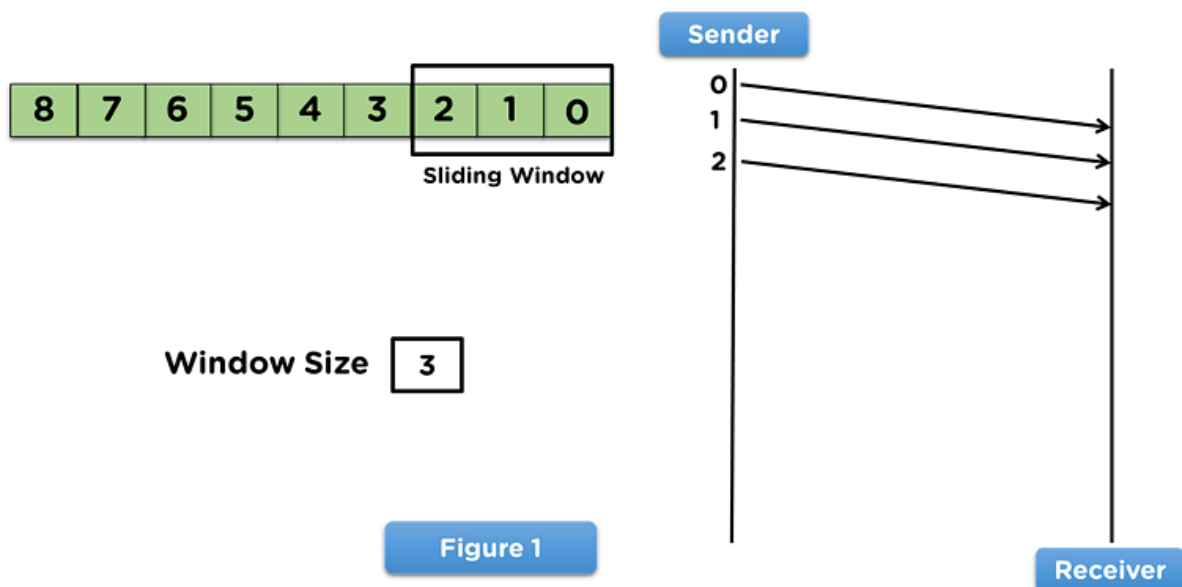
- The data frames shared from the sender to the receiver side are enclosed within a virtual sliding window, which represents that these are awaiting acknowledgment from the receiver side.

Working of the Sliding Window Protocol

The working of the sliding window protocol can be divided into two steps sender steps, and the receiver steps and also some important values are needed in a network model for smooth transmission of the data frames are:

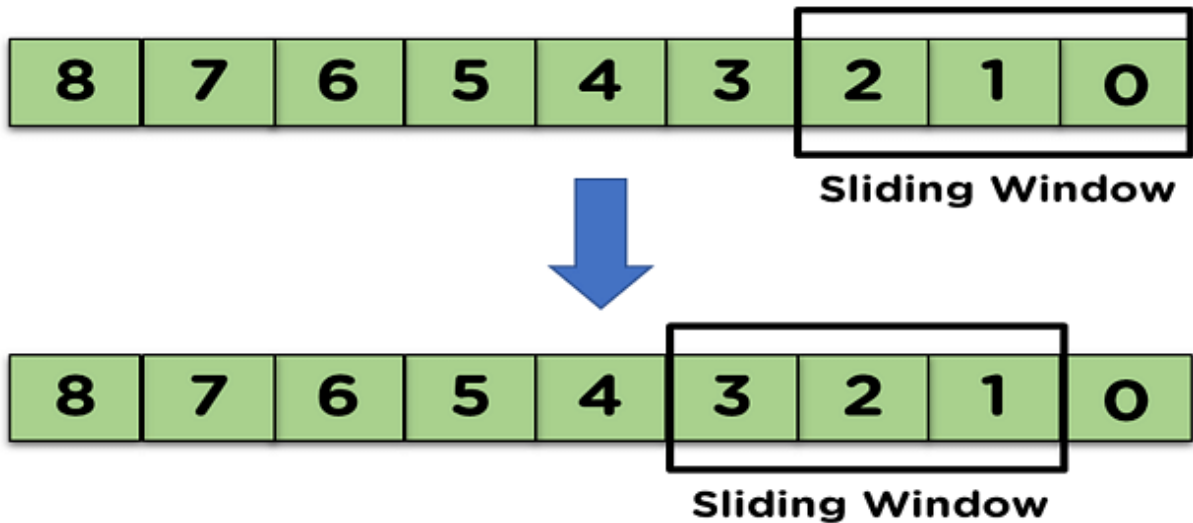
- Sender and the receiver side
- Window Size
- The total data frames to be transmitted
- Proper sequencing of the frames

Steps for the Sender Side



- To begin with, the sender side will share data frames with the receiver side per the window size assigned to the model.

- The sliding window will appear on the frames transmitted over to the receiver side.
- Then the sender will wait for an acknowledgment from the receiver side for the shared frames, as mentioned in figure1.



- When the receiver transmits the acknowledgment of the first transmitted frame, the sliding window will shift from the acknowledged frame.

Now, let's move on to the steps involved on the receiver side.

Steps for the Receiver Side

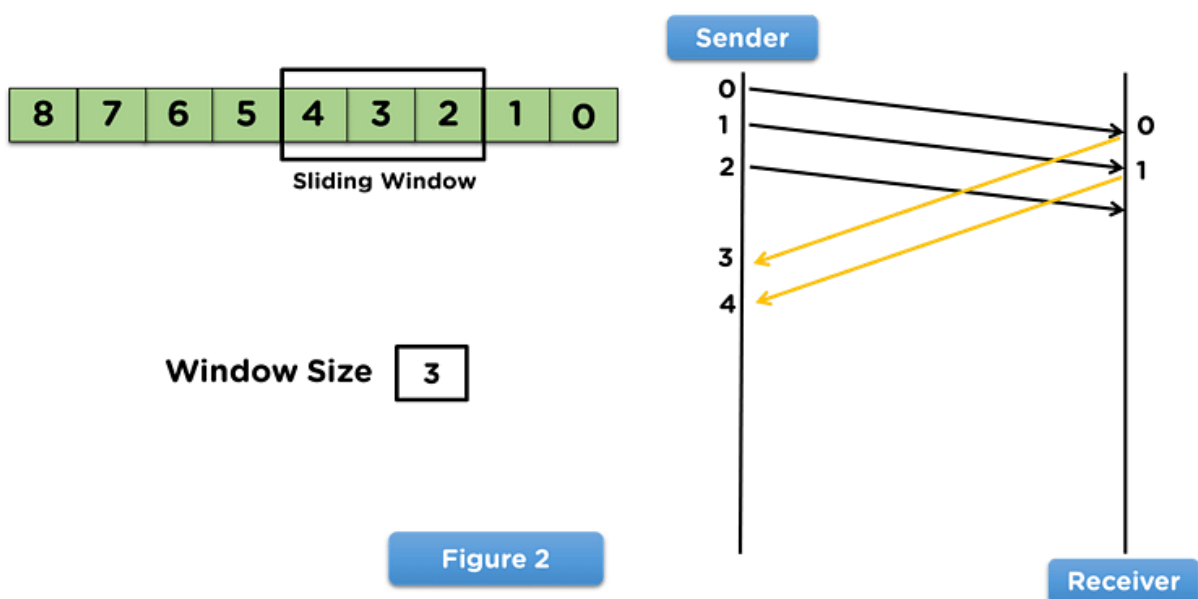


Figure 2

- On receiving the data frames from the sender side, the receiver will use the frames in the network model.
- After the receiver uses the frame, it will transmit the acknowledgement to the sender side for that data frame.
- Then, the receiver side will receive the next data frame from the sender side, as mentioned in figure2.

This process continues until all the frames are transmitted from the sender side to the receiver side, and the receiver side transmits the acknowledgment of all the received frames.

Advantages and Disadvantages of Sliding Window Protocol

Advantages

- In this protocol, a sender can share multiple frames and then wait for the acknowledgment.
- This protocol has much better efficiency in comparison, with low time delay.
- This protocol requires sorting for increased efficiency and applies full-duplex transmission.

Disadvantages

- In case the sender does not receive acknowledgement from the receiver side, the network model becomes inefficient.
- Loss and wastage of bandwidth due to sharing multiple frames simultaneously.