Go back N | Sliding Window Protocol

Sliding Window Protocol-

Before you go through this article, make sure that you have gone through the previous article on **Sliding Window Protocol**.
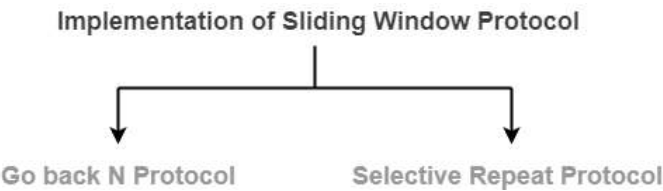
The two well known implementations of sliding window protocol are-

1. Go back N Protocol
2. Selective Repeat Protocol

In this article, we will discuss about Go back N protocol.

Go back N Protocol-

Go back N protocol is an implementation of a sliding window protocol.

The features and working of this protocol are explained in the following points-

Point-01:

In Go back N, sender window size is N and receiver window size is always 1.

In Go back N,

- Sender window size = N. Example in Go back 10, sender window size will be 10.
- Receiver window size is always 1 for any value of N.

Point-02:

> Go back N uses cumulative acknowledgements.

In Go back N,

- Receiver maintains an acknowledgement timer.
- Each time the receiver receives a new frame, it starts a new acknowledgement timer.
- After the timer expires, receiver sends the cumulative acknowledgement for all the frames that are unacknowledged at that moment.

NOTE-

- A new acknowledgement timer does not start after the expiry of old acknowledgement timer.
- It starts after a new frame is received.

Point-03:

> Go back N may use independent acknowledgements too.

- The above point does not mean that Go back N can not use independent acknowledgements.
- Go back N may use independent acknowledgements too if required.
- The kind of acknowledgement used depends on the expiry of acknowledgement timer.

Example-

- Consider after the expiry of acknowledgement timer, there is only one frame left to be acknowledged.
- Then, Go back N sends the independent acknowledgement for that frame.

Point-04:

> Go back N does not accept the corrupted frames and silently discards them.

In Go back N,

- If receiver receives a frame that is corrupted, then it silently discards that frame.
- The correct frame is retransmitted by the sender after the time out timer expires.
- Silently discarding a frame means-

  "Simply rejecting the frame and not taking any action"

(like not sending a NACK to the sender to send the correct frame)

Point-05:

> Go back N does not accept out of order frames and silently discards them.

In Go back N,

- If receiver receives a frame whose sequence number is not what the receiver expects, then it silently discards that frame.
- All the following frames are also discarded.
- This is because receiver window size is 1 and therefore receiver can not accept out of order frames.

Point-06:

> Go back N leads to retransmission of entire window if for any frame, no ACK is received by the sender.

In Go back N,

- Receiver silently discards the frame if it founds the frame to be either corrupted or out of order.
- It does not send any acknowledgement for such frame.
- It silently discards the following frames too.

Thus,

- If for any particular frame, sender does not receive any acknowledgement, then it understands that along with that frame, all the following frames must also have been discarded by the receiver.
- So, sender has to retransmit all the following frames too along with that particular frame.
- Thus, it leads to the retransmission of entire window.
- That is why, the protocol has been named as "**Go back N**".

Point-07:

> Go back N leads to retransmission of lost frames after expiry of time out timer.

In Go back N,

- Consider a frame being sent to the receiver is lost on the way.
- Then, it is retransmitted only after time out timer expires for that frame at sender's side.

Efficiency of Go back N-

Efficiency of any flow control protocol is given by-

Efficiency = Sender Window Size in Protocol / (1 + 2a)

In Go back N protocol, sender window size = N.

Thus,

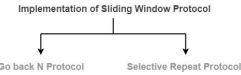| |
|---|
| Efficiency of Go back N = N / (1 + 2a) |

To gain better understanding about Go back N ARQ,

Watch this Video Lecture

Next Article- Practice Problems On Go Back N Protocol

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Summary		
Implementation of Sliding Window Protocol	**Article Name**	Go back N	Sliding Window Protocol
Go back N Protocol Selective Repeat Protocol	**Description**	Go back N is an implementation of Sliding Window Protocol. In Go back N Protocol, sender window size = N and receiver window size is always 1. The features of Go back N protocol are mentioned.
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