



# Data Transmission Using Go-Back-N Protocol

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**Abstract**— The Paper entitled “DATA TRANSMISSION USING GO-BACK-N PROTOCOL” is designed using VISUAL .NET as Front end. The software is aimed at developing a software package for transmitting the files through the LAN and also designed for file transmission with acknowledgement. In this paper the user can send the files from the server machine to client machine. The files are transferred in the form of packets, during the transmission if any packet is loss, then the whole sequence will be resend to the client machine after a time out event occurs. The receiver receives the packets, and sends the acknowledgement to the sender through the outgoing frame. The receiver also keep track the every packet id and sequence number, if any packet is miss, then it will not send the acknowledgement for the particular packet. When the timeout event occurs, it checks the status of sender acknowledgement, and it finds the packet and resends the whole sequence automatically by the sender. This auto send process will be happen at particular time duration. During that time duration the sender recollects the missed packets.

In this paper, the timeout event will be calculated as maximum of ten seconds. Then the bytes per packet can be set by the sender and the maximum bytes per packet are 1024bytes. The minimum packets per sequence are 5 packets and the maximum is calculated according to the file size by the sender machine.

**Keywords**—LAN, Piggyback mechanisms, UDP, Network

## I. INTRODUCTION

This paper “DATA TRANSMISSION USING GO-BACK-N PROTOCOL” simulates a network server, which provide reliable transmission of information to the client through an unreliable channel with frame lost and frame error. The client can transmit information and receiving information at the same time. GO-BACK-N protocol is a very important protocol in data link control flow, which is one of commonly used slide window protocols. Piggyback has been used to insert the acknowledgements in the headers of the information frames. In this paper we simulate the GO -Back-N protocol with piggyback mechanisms with random frame errors and frame lost.

It uses a technique called pipelining in which a sender continuously transmits frames for a time equal to the frame round-trip transit time. This technique does not require the sender to wait for an acknowledgment before sending the next frame. When a frame in the middle of this stream of frames is damaged or lost, the receiver simply discards all subsequent frames, sending no acknowledgments. The receiver refuses to accept any frame except the next one it must forward to the network layer. Eventually, the sender times out and resend all unacknowledged frames in order, starting with the lost or damaged frame.

It is used for reliable data transfer. The user allow to type messages that will be sent and reassembled by a receiver. The receiver is somewhat malicious; it will cause some packets to get thrown away. It will, however, keep track of all the packets it has received or sent. The sender will send a single character in a packet along with a packet id number through a User Datagram Protocol (UDP) channel. The data in the packet will therefore be three bytes long. One byte will be the sequence number of the packet; the next two will be the two bytes from the character. Acknowledgement packets will contain one byte of data indicating the packet number that is being acknowledged. The sending process continues to send a number of frames specified by a window size even after a frame loss.

The size of the sending and receiving windows must be equal, and half the maximum sequence number (assuming that sequence numbers are numbered from 0 to n-1) to avoid miscommunication in all cases of packets being dropped. The sender moves its window for every packet that is acknowledged. The receiver receives the packets send by the sender and acknowledges the sender. The receiver process keeps track of the sequence number of the earliest frame it has not received and the packets after

loss in sequence will not send, and then the whole sequence will be resend by the sender after a timeout event occurs. This paper is mainly developed to explain how data is transmitted through the network layers and how it works using Go Back N protocol.

## II. MODULE DESCRIPTION

### A. Sender

Go-Back-N protocol used for reliable data transfer. The sender sends the packet id number, sequence number and the data to receiver. The sender can also receive the acknowledgement for every packet; if any acknowledgement is not received then the whole sequence is resend to receiver. Based on the acknowledgement status the packets are transmitted. The sender keep track the acknowledgement status, Suppose the any packet is loss and then, the time event is occurring.

### B. Reciever

The receiver receives the packets, and sends the acknowledgement to the sender through the outgoing frame. The receiver also keep track the every packet id and sequence number, if any packet is miss, then it will not send the acknowledgement for the particular packet.

The receiver process keeps track of the sequence number of the next frame it expects to receive, and sends that number with every ACK it sends. If a frame from the sender does not reach the receiver, the receiver will stop acknowledging received frames. Once the sender has sent all of the frames in its window, it will detect that all of the frames since the first lost frame are outstanding, and will go back to sequence number of the last ACK it received from the receiver process and fill its window starting with that frame and continue the process over again.

### C. Time out Event

When the time event is occurs, it checks the status of sender acknowledgement, and it finds the packet and resends the whole sequence automatically by the sender. This auto send process will be happen at particular time duration during the time duration the sender recollect the missed packets.

## III. SYSTEM STUDY

### A. EXISTING SYSTEM

Protocols used before can have lot of disadvantages during file transmission. The process of using protocols is mainly used to reduce some inconvenience while sending and receiving files through network. In this system data's are transferred from one machine to another is highly not preferable for secure purpose. The main disadvantages of existing system are listed below:

#### 1. LIMITATIONS IN EXISTING SYSTEM

- Sequence arrangement is difficult
- Loss of time while arranging
- Difficulty in recognizing
- Loss of data
- Accuracy is less
- Not configured easily
- Security is less

### B. PROPOSED SYSTEM

In this paper, the protocol we are using is flexible according to the data we sent. In this paper the user can send the files from the server machine to client machine. The files are transferred in the form of packets, during the transmission if any packet is loss, then the whole sequence will be resend to the client machine after a time out event occurs.

The advantage of this protocol than the existing one is as follows

## 2. FEATURES OF THE PROPOSED SYSTEM

- Easy to handle the sequence
- Can send even large amount of data
- Reconfiguration is easy
- Reduces data loss
- Server maintenance is well formatted.
- Data security is high.
- Data accuracy is calculated through acknowledgement. Whenever packets sent, the sender receives acknowledgement immediately.

## IV. SYSTEM IMPLEMENTATION

Implementation is the stage in the paper where the theoretical design is turned into a working system. The most crucial stage is in achieving a new successful system and in giving confidence on the new system and effectively.

The first step in implanting the system is in getting the approval from the system administrator. The system implemented in LAN networks to transfer the data from one machine to another machine. The system is capable of keep track of each packet in that sequence to identify the packet loss during the transmission.

It is done with the help of Go-Back-N protocol. This is done in view of any last minute changes that will be necessary in the formats. When the system administrator is satisfied, he is asked to give approval to the new system. Finally the system is handed over the system administrator. The more complex the system being implemented, the more involved in file transferring in sequence effort required for implementation.

## V. CONCLUSION

The Software “DATA TRANSMISSION USING GO-BACK-N PROTOCOL” has been developed to satisfy all proposed requirements. The entire system enhances more accuracy and reduces lot of clerical works. The system is highly scalable, visible and user friendly. The developed system is tested to all criteria. The processes have been validated and the system was implemented. All the phases of developed were conceived using methodologies and the software executes successfully by fulfilling objectives of paper.

## *References*

- [1] Noel Jerke, “The Complete Reference Visual Basic .Net 2003” Tata McGraw-Hill Edition
- [2] Cameron Wakefield, “VB.Net and the .Net PlatForm” Tata McGraw Hill
- [3] Elias M Awad, “System Analysis and Design” Galgotia Publications.
- [4] Roger S Pressman, “Software Engineering”.
- [5] Andrew S.Tanenbaum, “Computer Networks” PEARSON Prentice Hall Fourth Editionl.