

# DVA218, LAB3a

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## Introduction

In this report we discuss how to implement reliable transport protocol build upon the existing UDP-protocol.

## Three-way-handshake

The three-way-handshake will be implemented with SYN and ACK messages send from client to server and back. See figure 1-2 for the state machine diagrams of the client-side and server-side of the handshake. Messages are resent after a timeout. After three unsuccessful resends the action is aborted and state machine returns to its previous state.

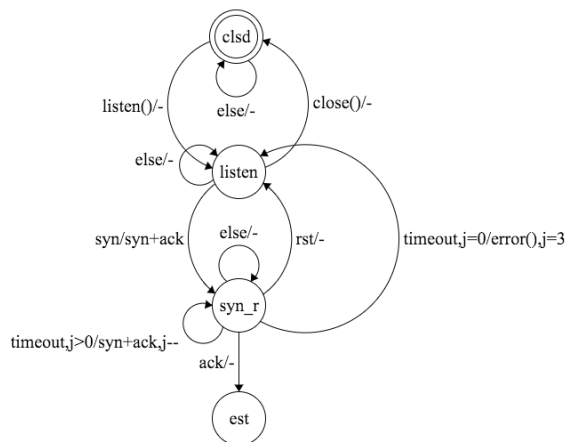


Figure 1: 3-Way-Handshake (Server)

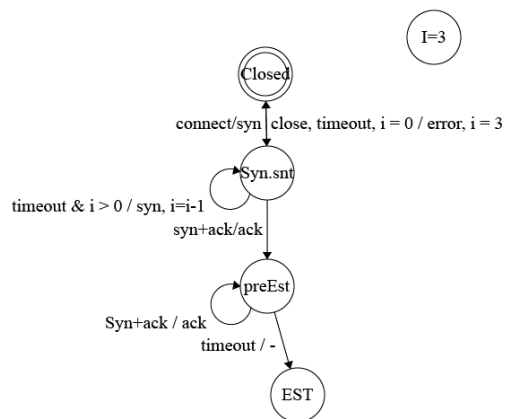


Figure 2: 3-Way-Handshake (Client)

## Sliding window

We use the Go-Back-N algorithm for the sliding window protocol. See figures ( ) for the state machines. The state machines are simplified in the respect that a infinite sequence of package sequence numbers is assumed.

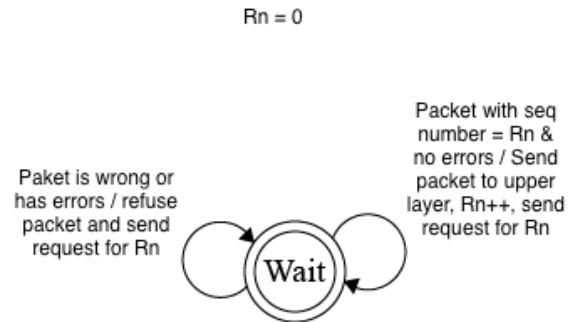


Figure 3: Sliding window (Server)

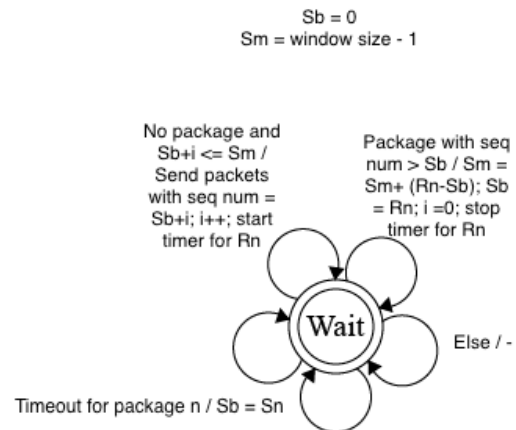


Figure 4: Sliding window (client)

## Error correction

To check for corrupted packets we will implement the 16-bit internet checksum. The entire package will be divided up into 16-bit numbers and summed and the checksum will be added as the 1-complement to the sum. If the packet contains no errors the summation will return zero on the receiver side.

## Connection teardown

The connection teardown follows a similar process as the three-way-handshake but utilizes FIN messages instead of SYN messages. See figures ( ) for the state machines.

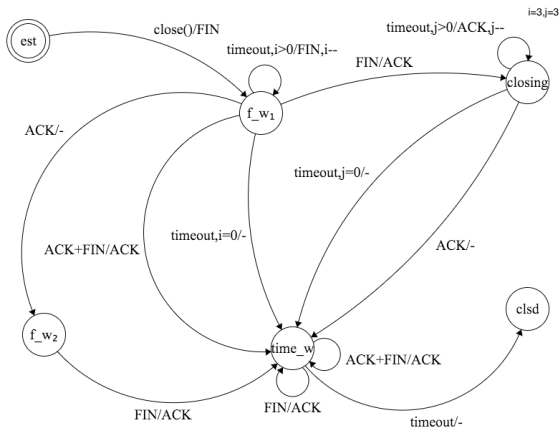


Figure 5: Connection teardown (Initiator)

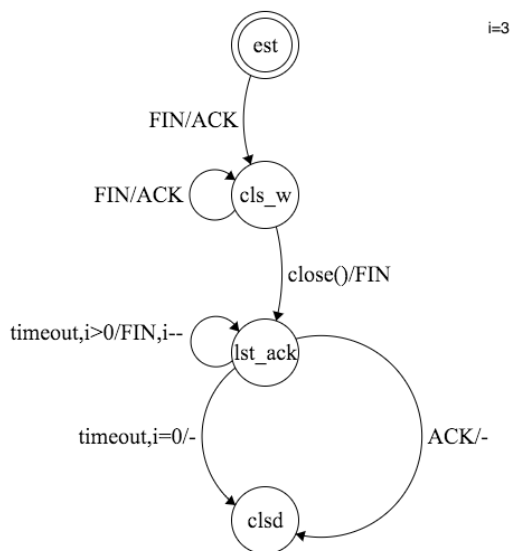


Figure 6: Connection teardown (Receiver)