Distributed Systems
TP n°3 - Sliding window

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All documents are available on my website: `http://hadriencroubois.com/#Teaching`

Reminder

The sliding window concept is used in many protocols to keep tracked of delivered messages. It is for exemple used as part of the TCP protocol.

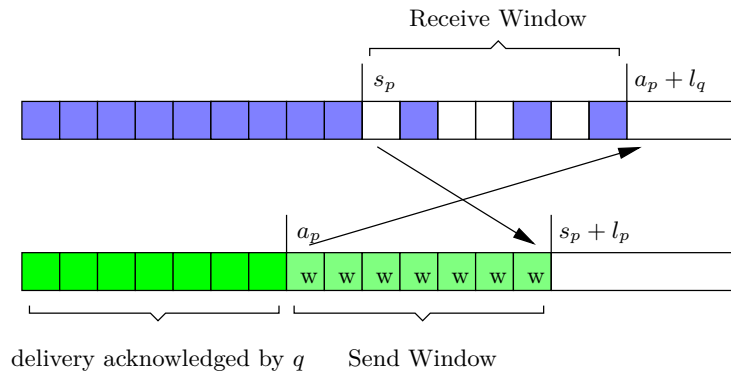

Figure 1: Sliding window

Pseudocode

A pseudo code for the description of this protocol could be the following:

```
var s_p, a_p : integer          init 0, 0;
    in_p      : array of word   /* data to be sent */
    out_p     : array of word   init udef, udef, ...;

S_p: { a_p <= i < s_p + l_p }
     begin send (pack, in_p[i], i ) to q end

R_p: { [pack, w, i] in Q_p}
     begin receive [pack, w, i]
          if out_p[i] == udef then begin
               out_p[i] := w;
               a_p := max( a_p, i-l_q+1);
               s_p := min{ j | out_p[j] = udef};
          end
          else
               /* ignore due to retransmission */
     end
L_p : { [pack,w, i ] in Q_p }
     begin Q_p = Q_p \ [pack, w, i] end
```

Assignment

Question 1

    a) Implement the sliding window algorithm between two processes.

    b) Check the correctness of your implementation by transferring 100 integers between the 2 processes. For example process A could send the first 100 decimals of π to process B while process B send the first 100 decimals of φ.

    c) Simulate packet lost and check how your algorithm react to that. Try with different packet loss rate.