

# Distributed Systems – TD2 : Communication protocols

Bogdan.Pasca@ens-lyon.fr

25 September 2009

## The Balanced Sliding-window Protocol

### Reminder of the algorithm

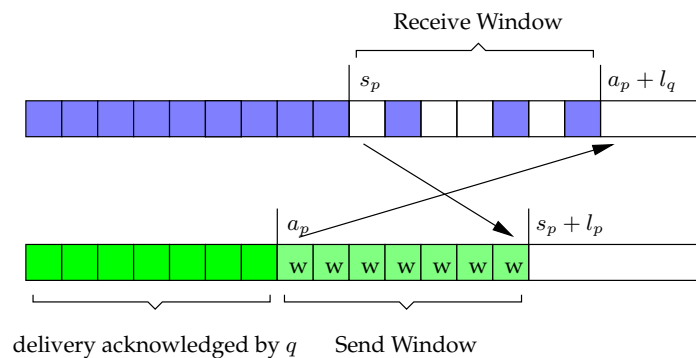
```

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

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] == undef then begin
            out_p[i] := w;
            a_p := max( a_p, i-l_q+1);
            s_p := min{ j | out_p[j] = undef};
        end
        else
            /* ignore due to retransmission */
        end
    end

L_p : { [pack,w, i ] in Q_p }
    begin Q_p = Q_p \ [pack, w, i] end
  
```



Implement the balanced sliding-window protocol using MPI.