

# Hand in problems 2

## Internet–Techniques and Applications (EITF25)

December 2014

The second hand in contains two problems and the deadline for handing in is Wednesday 17/12. If you have a problem with this deadline please contact Stefan or William.

The problems should be handed in as paper copies either directly to Stefan or William, or in the mailbox for the course (northern staircase 3rd floor in the E-building).

The problem solutions should be clear and easy to follow. It is meant to be hand written with paper and pen, and there is no need to pretty print with computer tools like  $\text{\LaTeX}$  or Office.

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## Problem 1

Assume a Go-back-n ARQ system where the processing time in the transmitting unit is  $T_t$  and the propagation time on the transmission medium  $T_p$ , see Figure 1.1.

- Assume that two bits are used for sequence numbering and that the time out is a large number. Start the transmission with packet 0 and show the error recovery of a lost ACK from packet 2. Assume that the time out is set to a large number.
- Consider the timing diagram in Figure 1.1 and assume it applies for both transmission directions. Give an expression for the minimum number of bits to use for sequence numbering if the channel should be utilized fully?

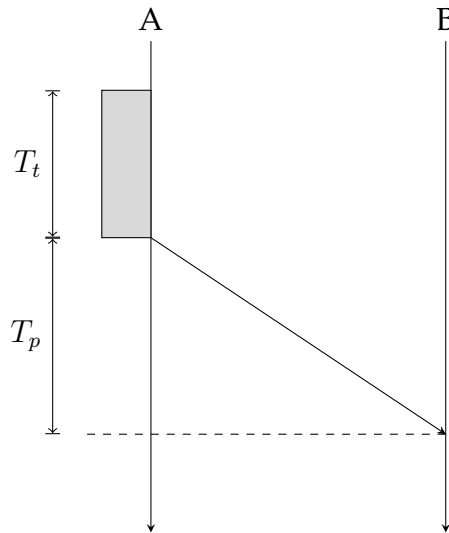


Figure 1.1: Timing in a Go-back-n system

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## Problem 2

Assume that you are to set up a computer on a local network (LAN) and that the IP address given to you is

IP address: 192.168.151.73/20

- What is the network ID and the host ID?
  - What sub-net mask should you use in the setup?
  - In a local network the host ID containing all 1s is reserved for broadcasting in the network. What is the broadcasting address in the network?
  - How many nodes (computers, printers, etc) can there be in the network?
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