

# Hand in problems 2

## Internet–Techniques and Applications (EITF25)

November 22–December 2, 2012

The deadline for handing in the problems is Monday 2/12 at the lecture.

The problems should be handed in as paper copies either directly to Kaan 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.

- (a) Show by an example where two bits are used for sequence numbering and  $T_p \gg T_t$  that a small window will result in large idle slots on the channel even though there are no errors.
  - (b) For the same system as in (a), 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.
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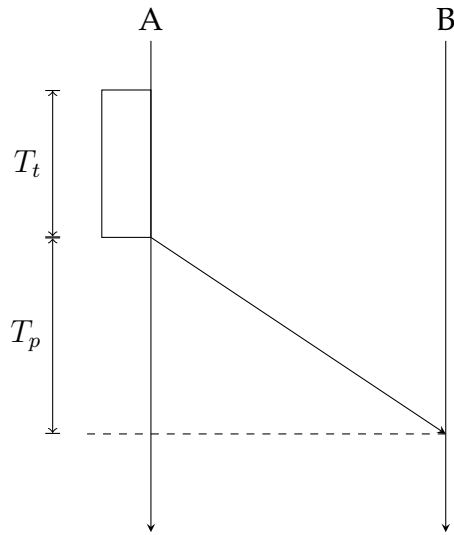


Figure 1.1: Timing in a Go-back-n system

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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

- (a) What sub-net mask should you use in the setup?
  - (b) What is the network ID and the host ID?
  - (c) 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?
  - (d) How many nodes (computers, printers, etc) can there be in the network?
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