Communication Networks

Spring 2022
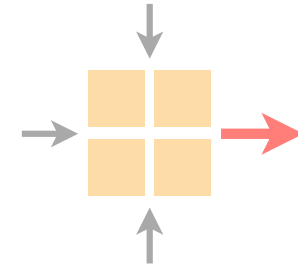
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The transport project deadline is tomorrow at midnight

Part 1   Complete a simple Go-Back-N implementation

20.05.2022   Retransmit all packets after a timeout

Part 2   Add support for Selective Repeat

27.05.2022   Fast retransmission after duplicated ACKs
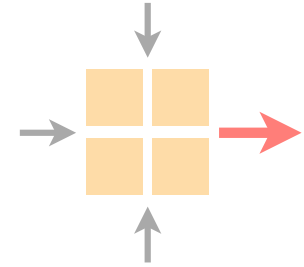

Part 3   Add support for Selective Acknowledgements (SACK)

03.06.2022   SACK contains blocks of correctly received segments

Communication Networks

Exercise 13

Overview practical assignment

Time to solve the assignment/ask questions

Working with *man* pages

To solve today's practical exercise, you need to read *man* pages

A great way to get help directly in the terminal

man („manual") pages are a fundamental part of Linux/Unix

They are continuously updated and improved

The manual is normally split into 9 sections

1 General commands (tools and utilities)

2 System calls and error numbers

3 Library functions

4 Device drivers

5 File formats

6 Games

7 Miscellaneous information

8 System maintenance and operation commands

9 Kernel internals

Reading *man* pages

You can read *man* pages using the `man` command

For example: `man dig`

In order to access the man page of a given section

Use the command: `man <section number> <page>`

For example, to read the *man* page of `dig(1)`

`man 1 dig`

Solve today's practical exercise directly on your VM

You can use the group VM from the transport project

We recommend to work in personal folders

Execute the commands on the assignment description

You only have to run them once

Task 13.1: DNS

Perform different DNS queries towards our DNS server

We have one running on a TA VM

Play with `dig` and resolve different names

Read the *man* page for more information

Do the `dig` results look as expected?

Task 13.2: HTTP

Perform a simple http request over `telnet` and `curl`

Again, have a look at the corresponding *man* pages

Write your own HTTP request

Remember that the HTTP protocol is text-based

What is the content of the HTTP page?

Task 13.2: HTTP - access via browser

Finally, you can also use your local browser to access the page

I.e., the browser is not running inside the VM

To do so you need SSH port forwarding

A very useful concept in general

Do you find the „secret" web server?

Task 13.3: TCP connection with C

Try to establish a TCP connection using C

For that you have to implement a few lines of C code

As a main feature you have to open an IP socket

A socket normally consists of an IP address and a port

Task 13.3: Test your setup

First compile and execute the `example.c` file

The file is available on the course website

The file is complete, you do not need to change it

But feel free to extend it/try different things

Task 13.3: Complete the skeleton

Finally, complete the `skeleton.c` file
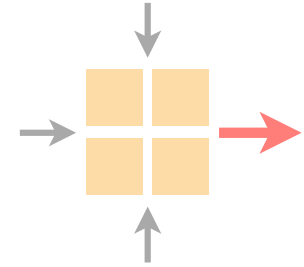
Also available on the website

The given comments should guide you

Make sure to check the corresponding *man* pages

All required libraries are already included

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