M. Sc.-Inf. Dimitri Scheftelowitsch
M. Sc.-Math. Alexander Frank

Winter term 2016/17

Computer Networks and Distributed Systems
Exercise Sheet 2

Publication: October 24,   **Discussion:** October 31—November 4, **submission not mandatory**

Quiz questions

1. *Frequency multiplexing* allows theoretically simultaneous transmissions by an unlimited number of users. Why is this not feasible in practice?

2. A. Nonymous sends one of his unicorns, laden with 600 Blu-Ray discs, to his sister. The unicorns are fast and cover the 1000 km long path in eight hours. Is this a better option than using a 100 MBit connection?

Exercise 2.1 Packet switching and circuit switching:

(a) Compare packet switching and circuit switching in networks. What are the advantages and disadvantages of the two strategies for different applications?

(b) Packet switching can be further divided into connectionless and connection-oriented services.
    (1) What are the differences?
    (2) Can circuit switching networks be distinguished in the same way?

Exercise 2.2

Compare the ISO/OSI reference model and the Bluetooth protocol stack[1][2]. What are the main differences? Can you identify possible reasons for the differences?

Exercise 2.3

Consider the TCP/IP protocol stack. Give examples for protocols for each of the layers as well as the services that are being provided by these protocols.

[1]A diagram can be found at http://www.rfwireless-world.com/Tutorials/Bluetooth-protocol-stack.html
[2]Full specification: https://www.bluetooth.com/specifications/adopted-specifications