Computer Networks Group

University of Göttingen, Germany

Homework #3

(Solutions on November 26th, 2020)

What entities does the transport layer connect in contrast to the network layer?

Why is multiplexing and demultiplexing used at the transport layer and how does the concept of ports relate to this?

Please compare TCP and UDP in terms of the services they offer to the application layer.

For which kinds of applications would you prefer UDP over TCP.

Assume a UDP transport has received a datagram which consists of the following 16-bit words and the given checksum. Please verify the checksum.

1010 1010 1010 1010	(1st 16 bit word)
1011 1011 1011 1011	(2nd 16 bit word)
1100 1100 1100 1100	(3rd 16 bit word)
1110 1100 1100 1100	(received checksum)

Assume you want to reliably transfer data over a channel with bit errors but no loss. An error detection mechanisms is already implemented. Which simple mechanism can you use to recover from errors? What flaw does this simple mechanism have?

Assume you want reliably transfer data over a channel with bit errors and loss. What additional mechanism do you need to introduce. Give an example of how this mechanism can recover from the loss of a packet.