# M3. Transport Layer

What is the main function of the transport layer protocols? How does TCP implement the reliable transmission in the Internet?

Transport vs. network layer.

Transport layer: Logical communication between hosts.  
Network layer: Logical communication between processes.

The function of the transport layer is to create a connection between a client and a server.  
The internet and the TCP/IP network make available two distinct transport-protocols, TCP and UDP.

## UDP

Provides a connection which doesn’t ensure that packages arrive, used by e.g. YouTube and other streams.

* Receiver doesn’t know whether the data has arrived or not.
* Speed is decided by the sender without regards to lost packages

## TCP

Guaranties all packages are delivered and received

* Fixed delivery
  + Packages arrives in the order they were sent
* Flow control
  + Sender and receiver has a matching speed, if the sender is working faster than the receiver, the receiver could miss packages.
* Congestion control
  + Controls flow when overloading the connection.
  + E.g. by dividing packages into smaller segments.

### Reliable Data Transfer

Package numbers and Acknowledge numbers have to match according to the sequence they were sent. Did the sender not receive an acknowledge on whether the package was received or not, it sends it again after a timeout.



