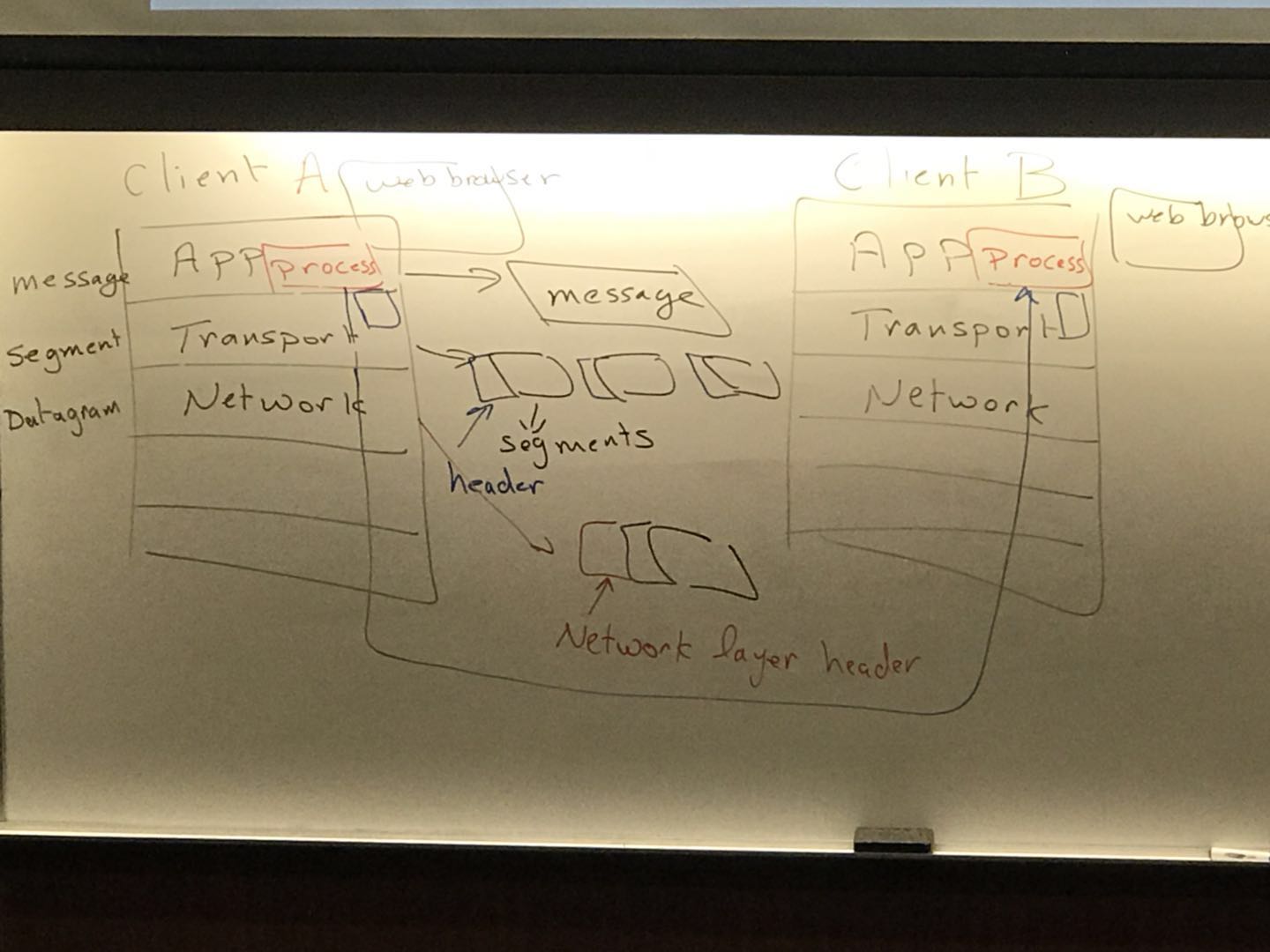
ECE358 Chapter 3

Transport services and protocols

Logical connection between processes means that as if it appears that these processes are directly connected to each other.



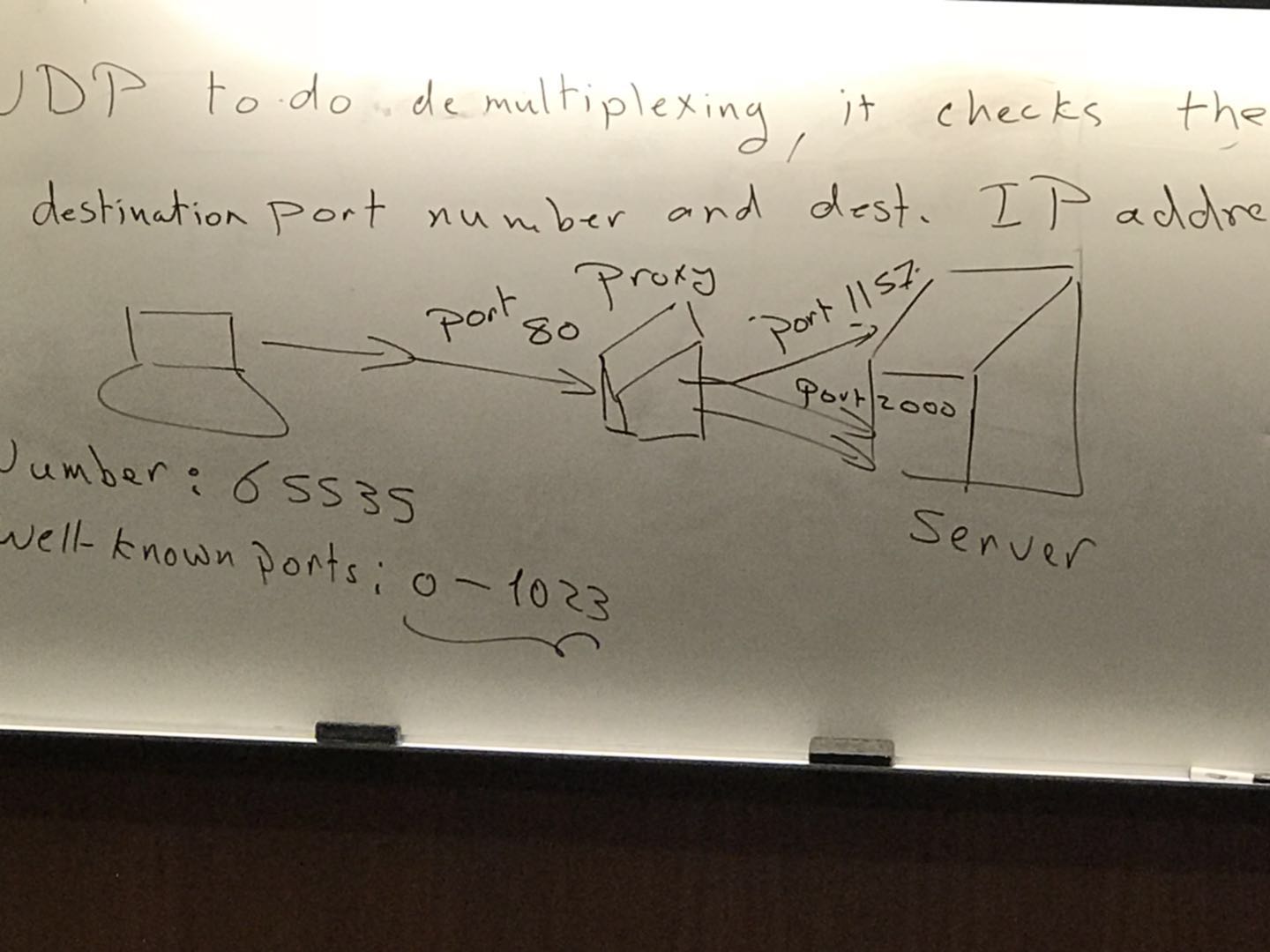
Network provide logical communications between hosts.

The network layer offer “best –effort” service where segments can be received out of order or they can get lost.

UDP -> logical connection between process. Also error check

UDP to do demultiplexing, it checks the destination port number and dest. IP address.

Number of ports: 65535.



Well-known ports: 0-1023 HTTP80, HTTPS443

DeMUX -> UD-> segment identified by destination, port# and dest.port#

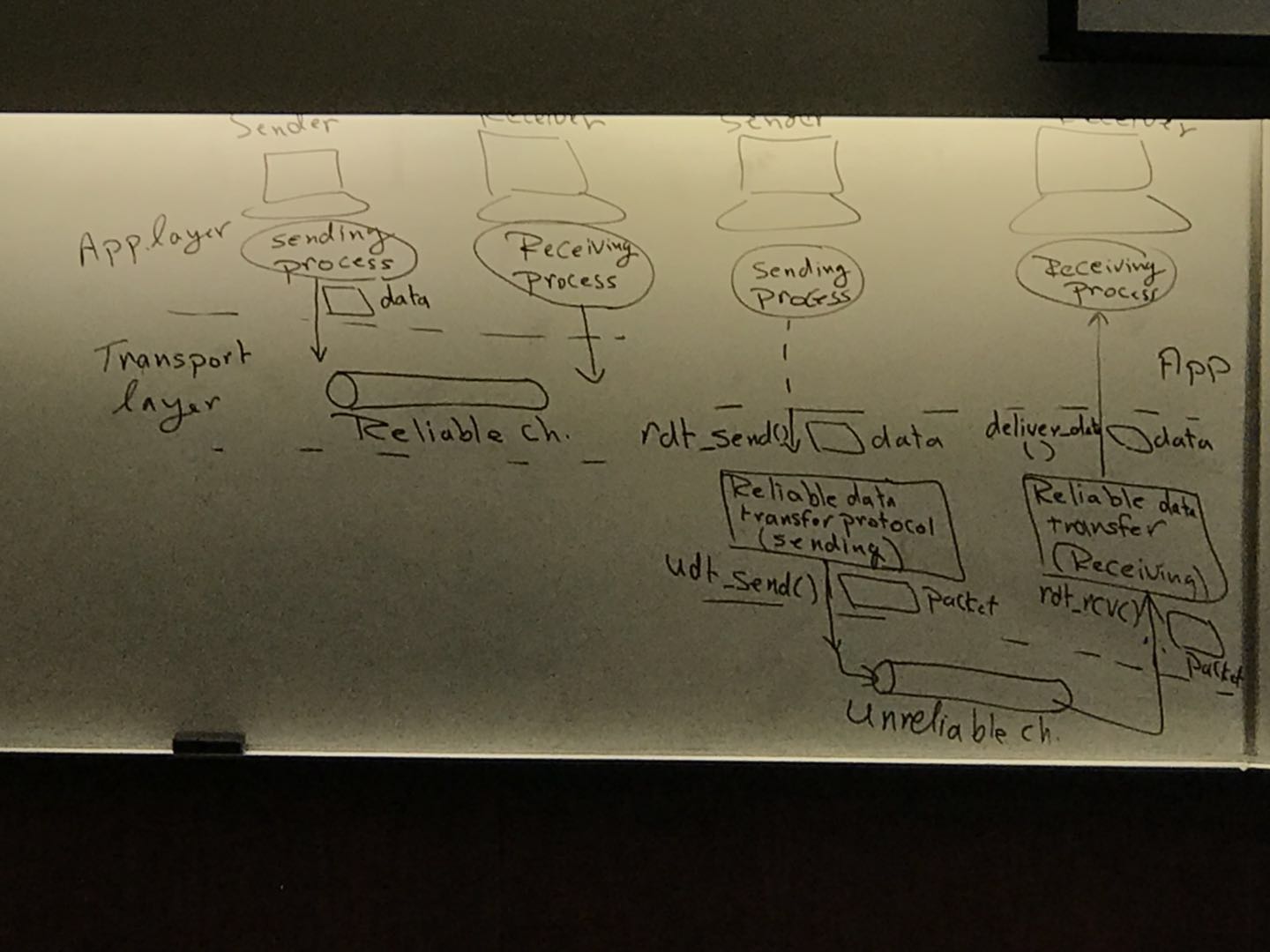
Using TCP-> segment are identified by using 1. Source IP, 2. Source prot, 3. Dest. IP 4. Dest.port

3.3 UDP:segment header

UDP header size is 8 Bytes.

TCP header size is 20 Bytes.

Principles of Reliable Data Transfer



Requirement of reliable data transfer

1. No bit errors
2. No bit loss
3. The bits will be received in the same order that they are sent with.

Assumptions

1. Packets will be received in the same order that they are sent with.
2. Packets can get lost or corrupted
3. We will consider unidirectional comm

Reliable data transfer over a perfectly reliable channel , rdt 1.0

* No bit error nor loss of data

For rdt 2.0

-we will use acknowledgements to indicated wether a packet is received correcty or no.

positive acknowledgements (ACK) packet received correctly

negative acknowledgements (NAK) packet is received with error

to implement rdt 2.0, we need to

1. Error detection
2. Feedback (using ACK,NAK)
3. Retransmission

The protocols that implement error detection, ACK/NAK, and tretransimission and called automatic repeat request(ARQ)

-protocol rdt 2.0 is one type of ARQ

-rdt 2. 0 sends a packet and waits for ACK/NAK that is why it is known as stop-and-wait protocol.

Reliable data transfer over a channel with bit errors rdt 2.1 (ACK/NAK can get corruepted as well as packets)

-add check sum to ACK/NAK to detect errors

-possible solutions-> retransmit the packet when you get corrupted ACK/NAK -> duplication problems - can be solved by using sequence numbers