SNS College of Technology

Department of Information Technology

19CSB302-COMPUTER NETWORKS

UNIT-4 TRANSPORT LAYER
TCP

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Introduction

TCP(transmission control protocol) and UDP(User Datagram protocol)works in transport layer of OSI model and are used for data transfer.
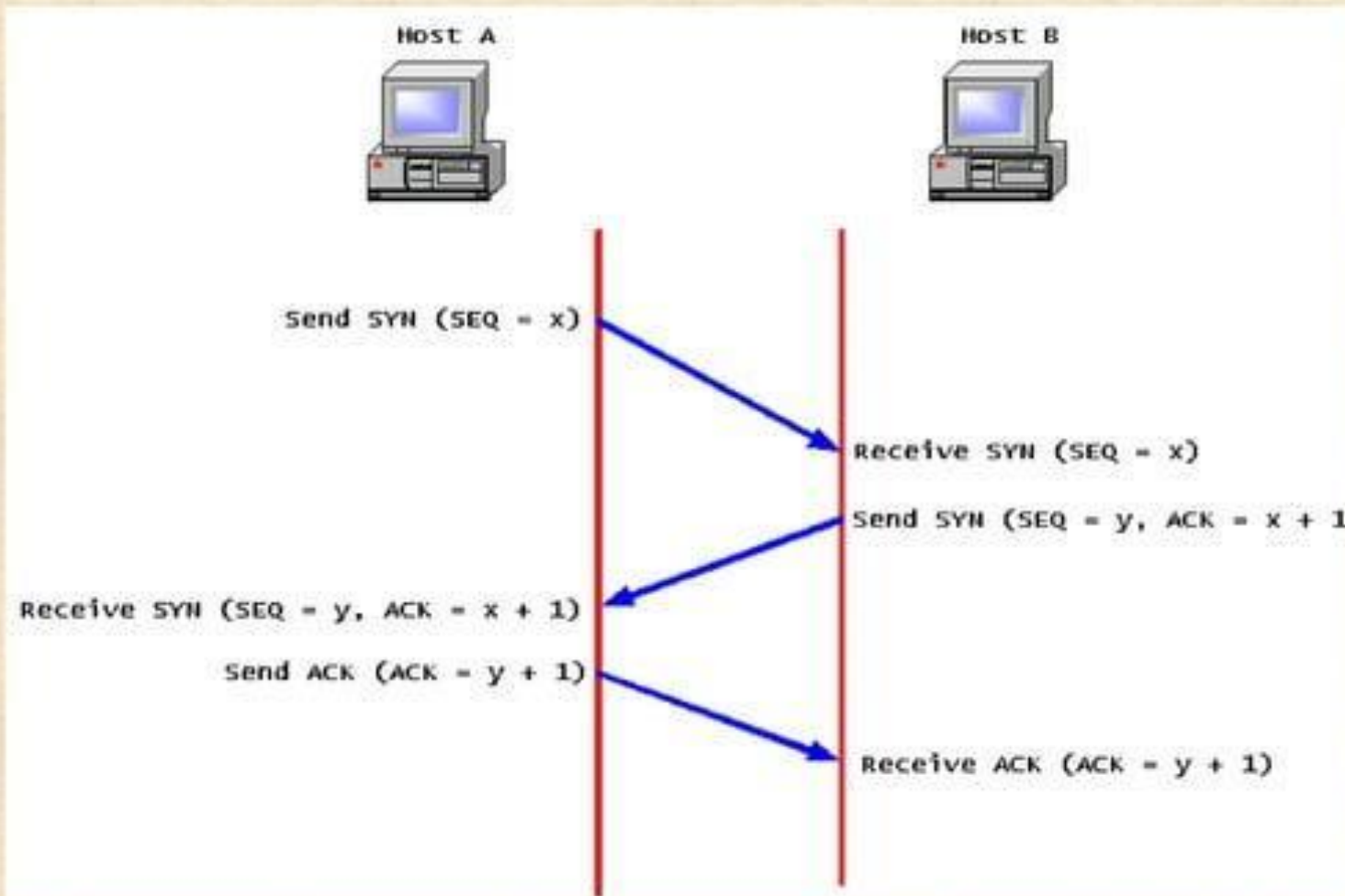
TCP

-> It a connection-oriented protocol, which means a connection is established before transferring data.

-> Connection should be maintained until the application programs at each end have finished exchanging messages.

-> Used for confidential data transfer

3-Way Handshaking

Pros OF TCP

- It guarantees three things –

  -> Your data reaches its destination,

  -> It reaches there in time.

  -> It reaches there without duplication.

- In TCP, since all the work is done by the operating system, so you just need to sit back and watch the show
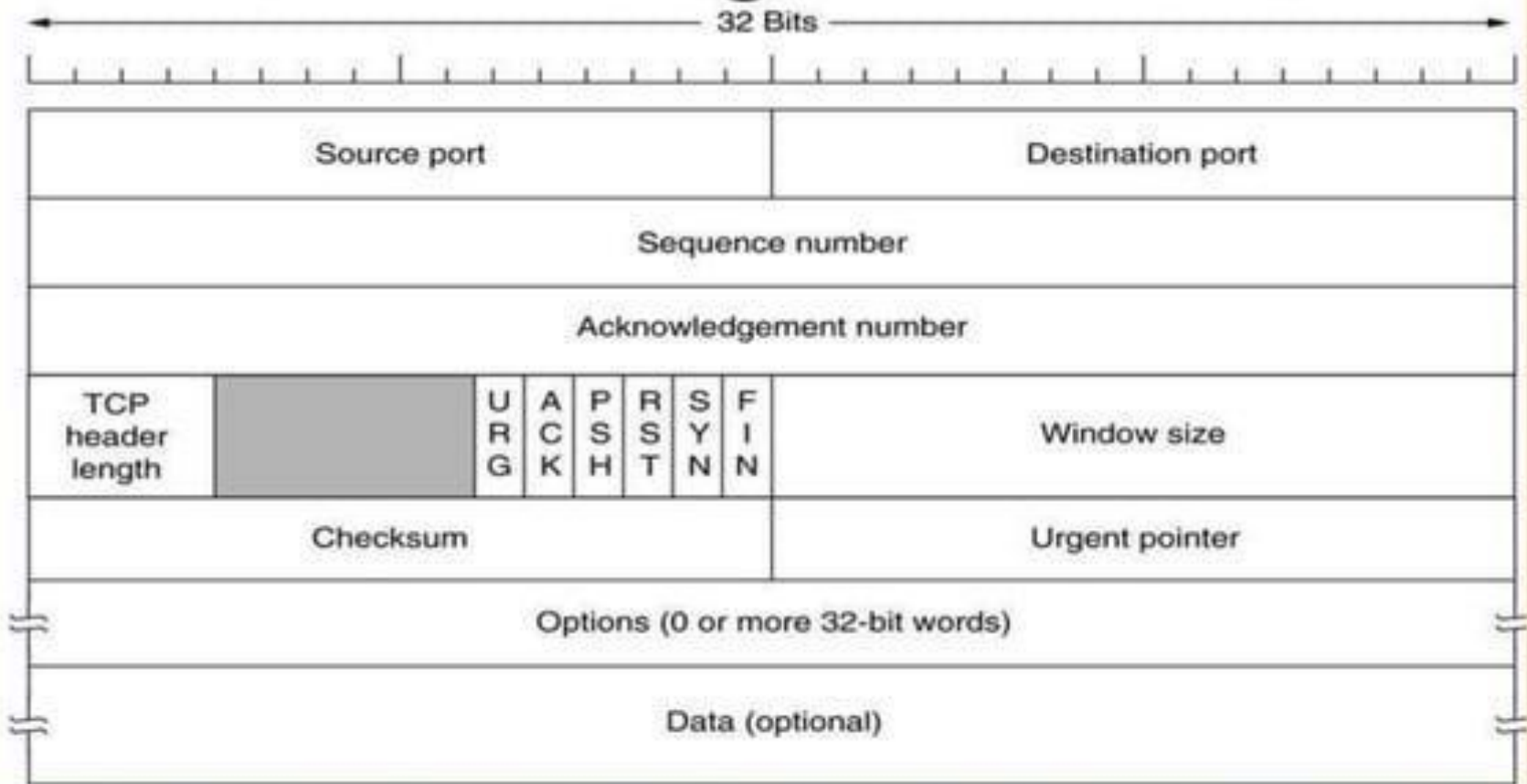
Cons OF TCP

- If there are bugs in your OS, then you will face many problems like problems in surfing and downloading contents from the net.

- TCP cannot be used for broadcast and multicast connections.

- It is slower in functioning than UDP

The TCP Segment Header

32 Bits

Source port		Destination port
Sequence number		
Acknowledgement number		

TCP header length		U R G	A C K	P S H	R S T	S Y N	F I N	Window size

Checksum		Urgent pointer

Options (0 or more 32-bit words)

Data (optional)

UDP

- UDP is not connection-oriented, So no connection needed to transfer data.

- Mostly suitable for applications that needs fast and efficient transmission

- Used in Video conferencing, Streaming and Voice call.
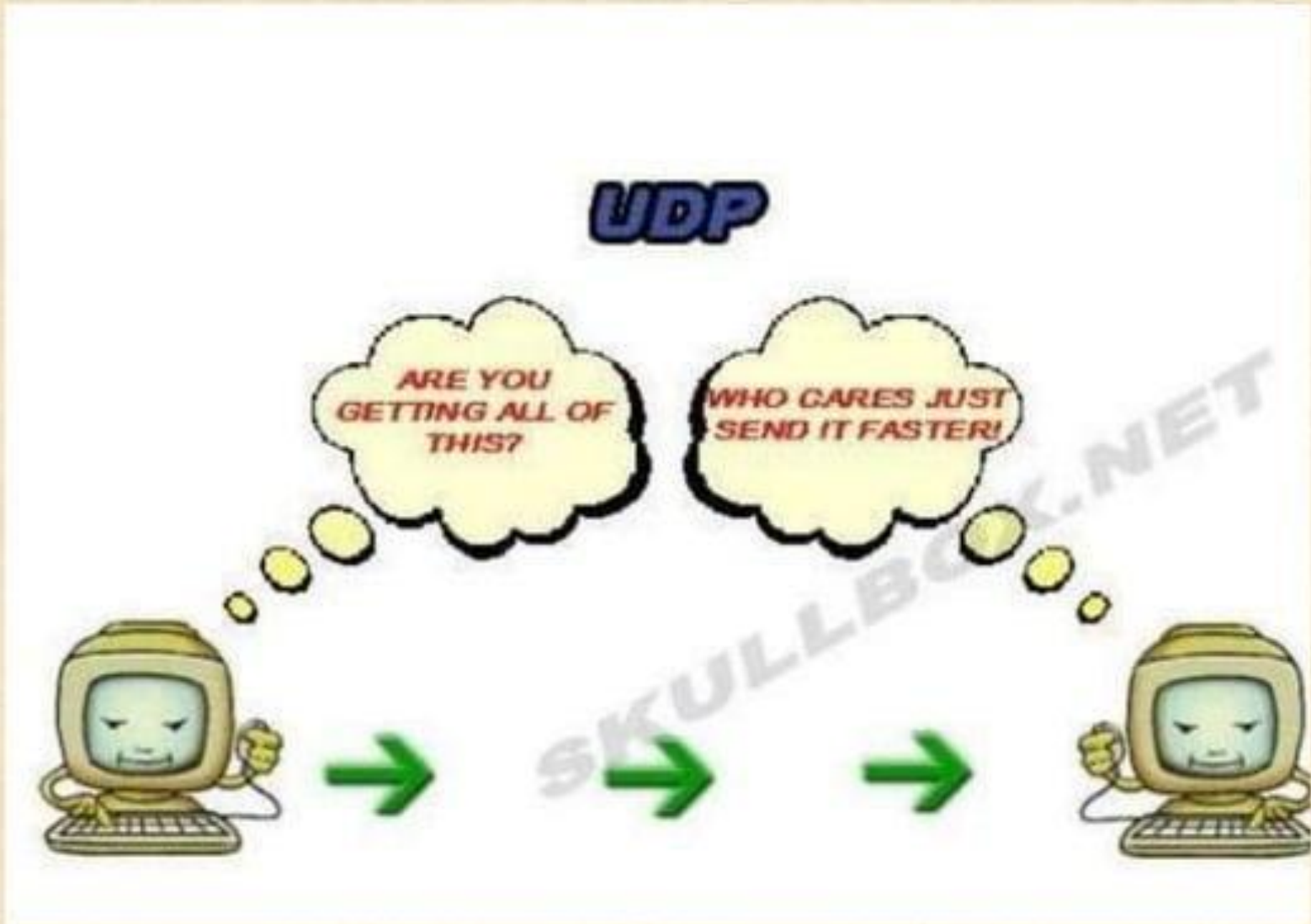
Pros of UDP

- Multiple messages can be sent as packets in chunks.

- It does not restrict you to connection based communication model.

- Much faster than TCP

Cons of UDP

- There are no guarantees with UDP. It is possible that a packet may not be delivered, or delivered twice, or not delivered in time.

- Doesn't ensure that communication has reached receiver as acknowledge is not sent.
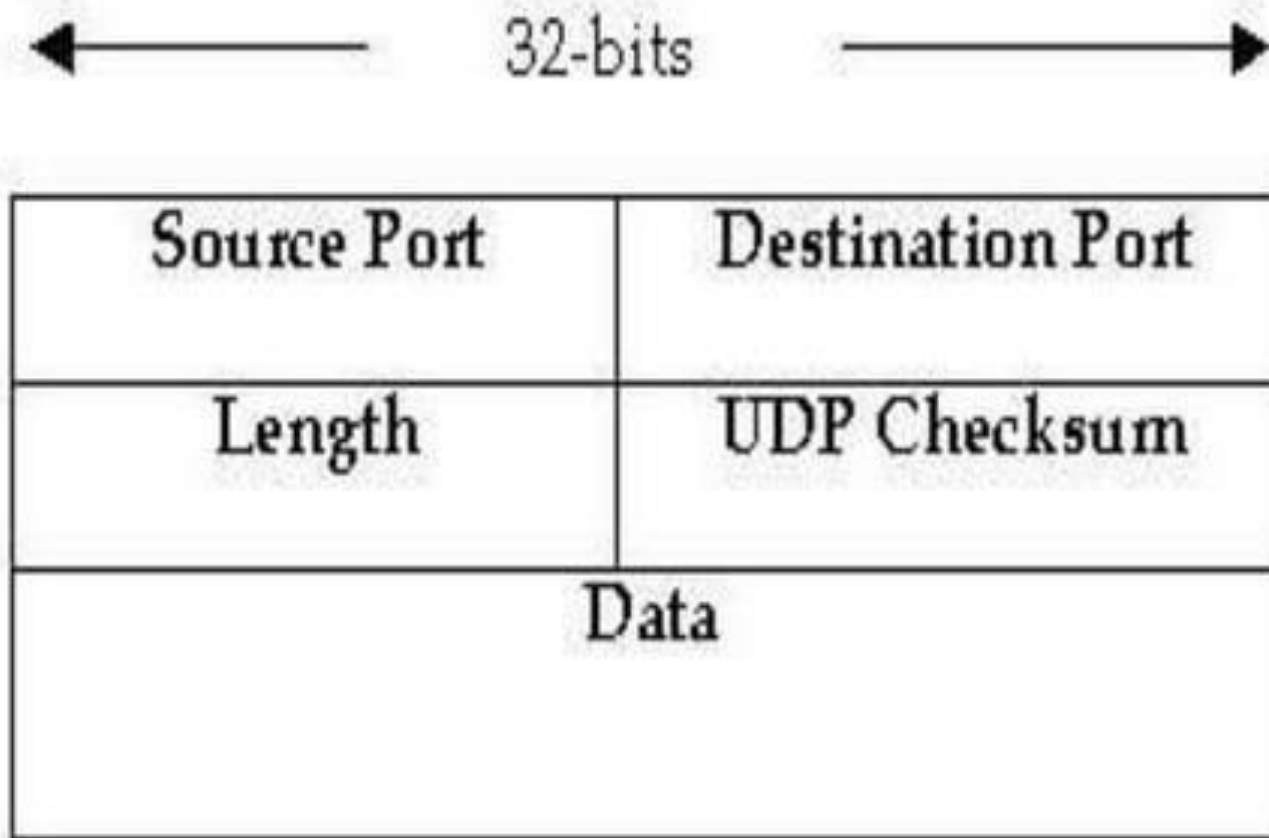
- Connectionless and unreliable

Contd...

- No way of predicting the order in which message is received.

- Cannot ensure the lost data or packet.

UDP Header

Conclusion

➢ Both TCP and UDP are protocols used for sending bits of data — known as packets.

➢ They both build on top of the Internet protocol.

➢ Either TCHP header or UDP header is sent as header while sending data.

THANK YOU
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