Transmission Control Protocol

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Introduction to TCP

- A reliable, connection-oriented transport protocol
- protocol for data transmission in communication network such as internet
- provides a reliable stream delivery and connection service to applications
- corresponds to the transport layer of TCP/IP suite

- Used in World Wide Web (WWW),E-mail, File Transfer Protocol, Secure Shell, peer-to-peer file sharing, and some streaming media applications.

Features

- Reliable protocol
- Connection-oriented
- provides error-checking and recovery mechanism
- end-to-end communication.
- provides flow control and quality of service.
- operates in Client/Server point-to-point mode
- provides full duplex server

TCP header

TCP Header

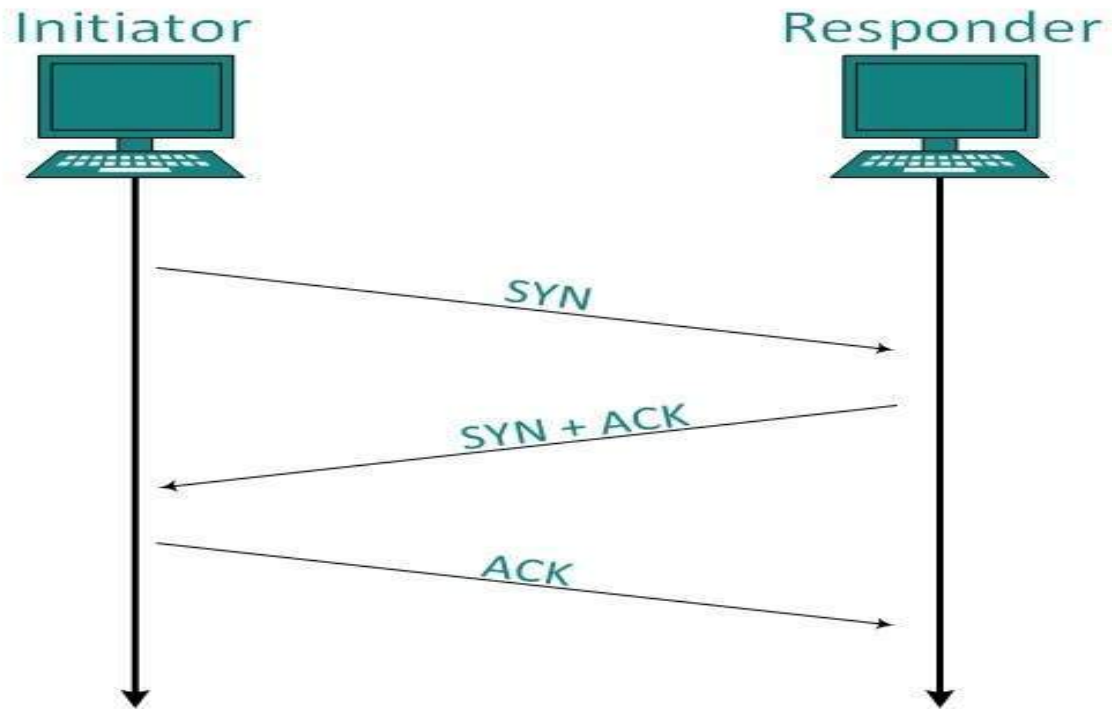
Offsets Octet		0								1								2								3							
Octet	Bit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0	Source port																Destination port														
4	32	Sequence number																														
8	64	Acknowledgment number (if ACK set)																														
12	96	Data offset				Reserved 0 0 0				NS	CWR	ECE	URG	ACK	PSH	RST	SYN	FIN	Window Size													
16	128	Checksum																Urgent pointer (if URG set)														
20 ...	160 ...	Options (if Data Offset > 5, padded at the end with "0" bytes if necessary) ...																														

Connection Management

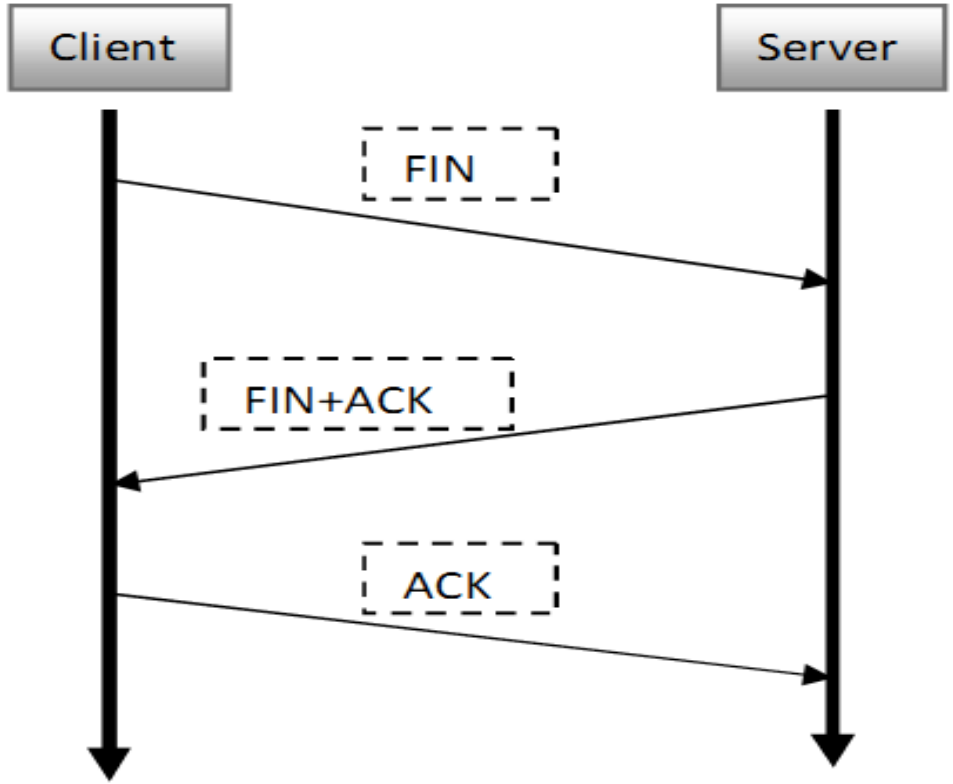
- works in Server/Client model
- client initiates the connection

and the server either accepts or rejects it

- Three-way handshaking is used for
- connection management



Connection termination



References

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