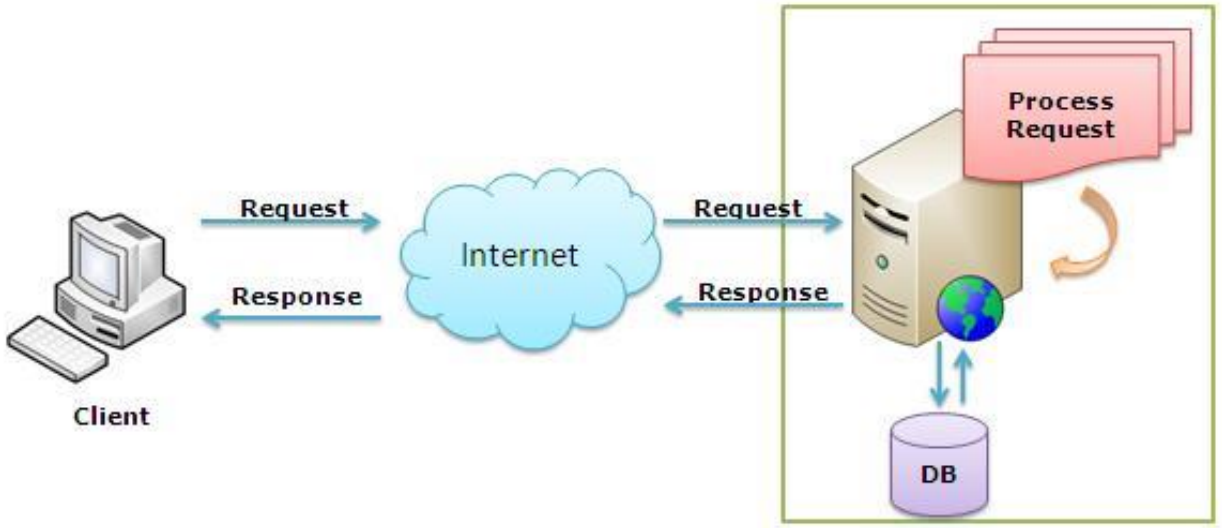
In Depth – SYN Flooding

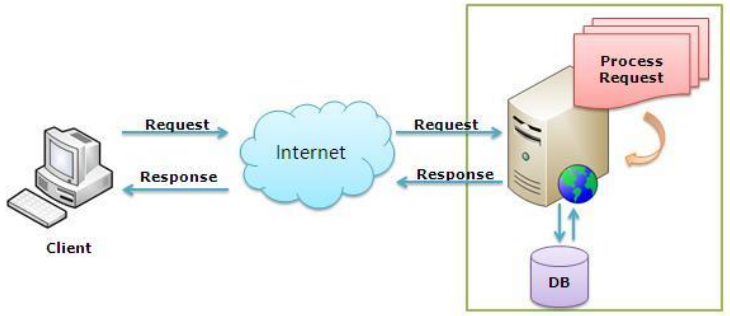
Background Knowledge

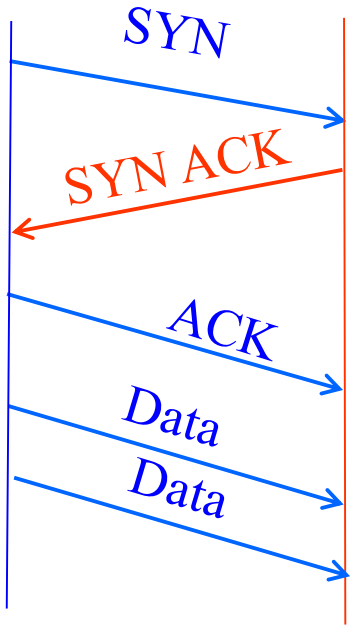


Packet: A packet is a unit of data that is routed between an origin and a destination on the Internet or any other packet-switched network.

Packets are structured in different segments (e.g. Ethernet, IP, TCP) to help decide how to route the packet through the network and to decide what action to take on the packet.

Establishing a TCP connection

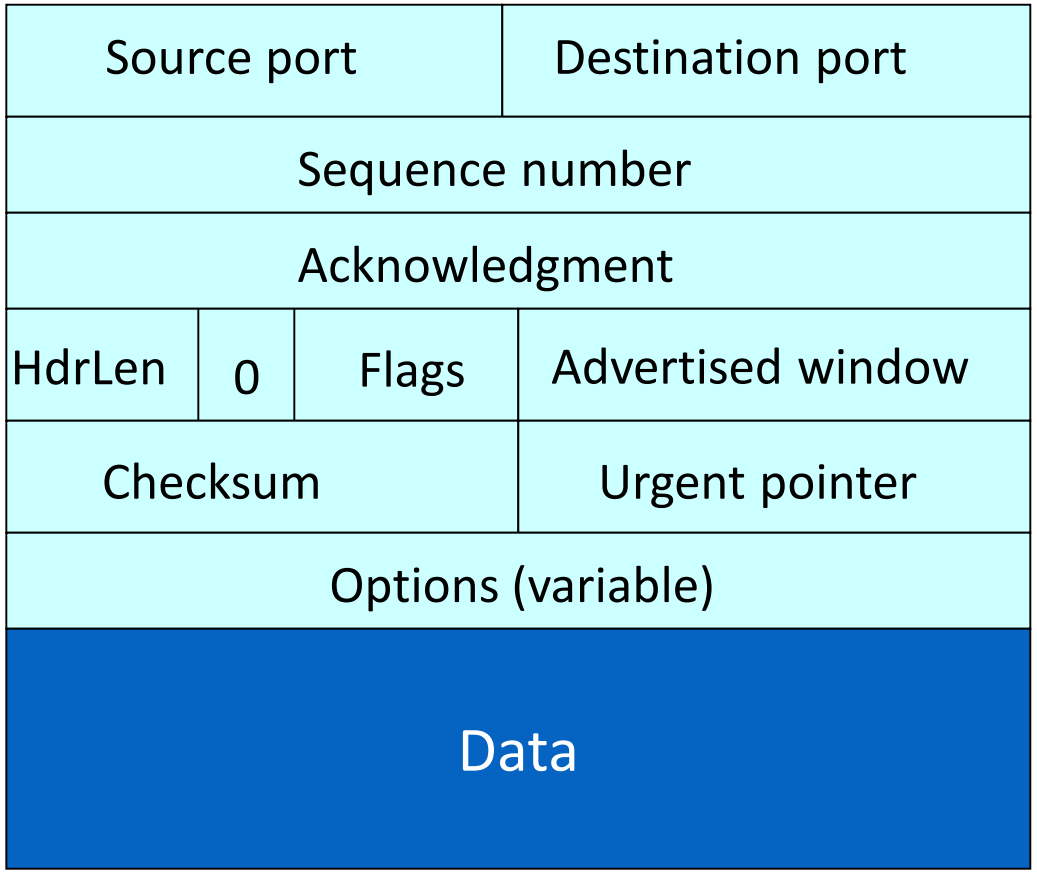




- Three-way handshake to establish a connection

TCP Header

Flags:
SYN
FIN
RST
PSH
URG
ACK



SYN Packet

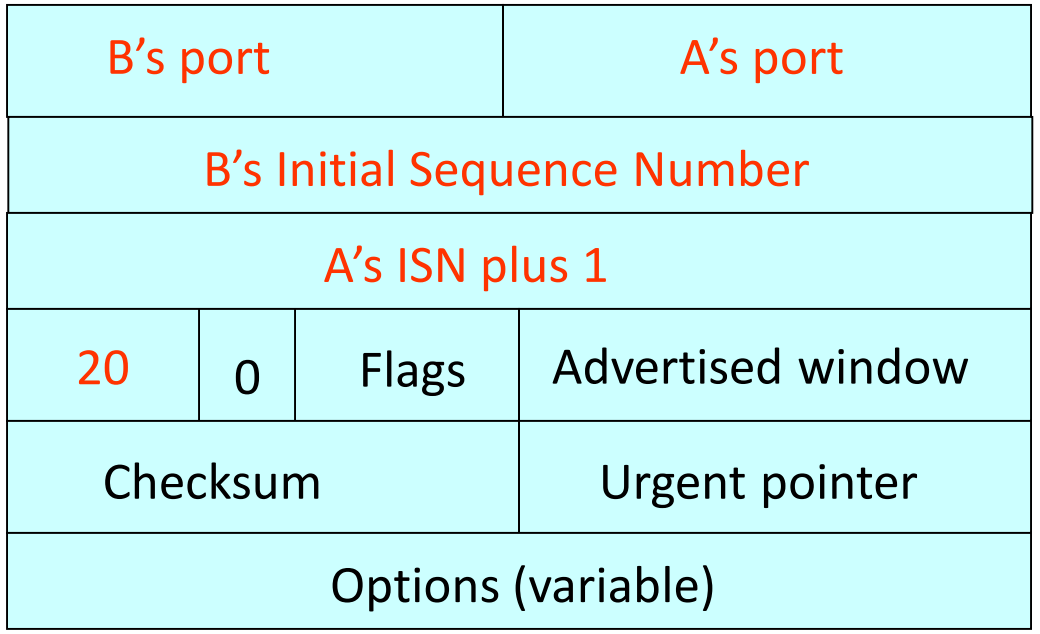
Flags:
SYN
FIN
RST
PSH
URG
ACK

A's port			B's port
A's Initial Sequence Number			
Acknowledgment			
20	0	Flags	Advertised window
Checksum			Urgent pointer
Options (variable)			

Client tells web server it wants to open a connection…

SYN-ACK Packet

Flags: SYN
FIN
RST
PSH
URG
ACK



Web server tells client it accepts, and is ready to hear the next byte…

… upon receiving this packet, client can start sending data

ACK Packet

Flags:
SYN
FIN
RST
PSH
URG
ACK

A's port			B's port
Sequence number			
B's ISN plus 1			
20	0	Flags	Advertised window
Checksum			Urgent pointer
Options (variable)			

Client tells web server it is okay to start sending

… upon receiving this packet, web server can start sending data

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