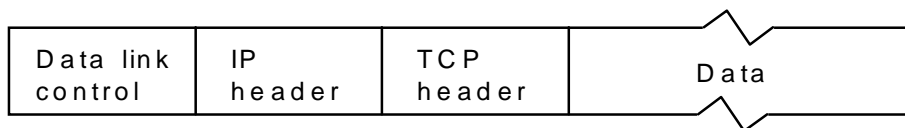
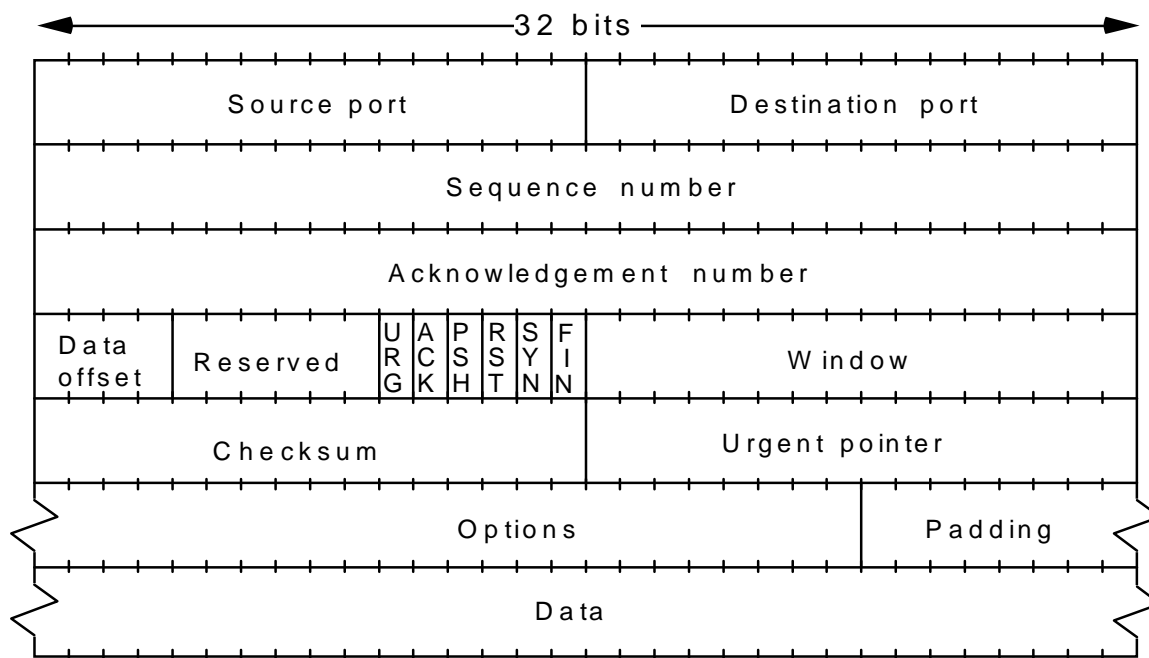


IP Requirements for Internet hosts



IP field	Description
Version	Indicates the format of the IP header (usually set to 4)
IHL	Internet header length measured in 32-bit words
Type of service	The quality of service requested (precedence, delay, throughput, reliability)
Total length	Length of the IP datagram in octets
Identification	IP datagram number
DF, MF	Flags that control fragmentation
Fragment offset	Position of fragment relative to original datagram
Time to live	Maximum time datagram can remain on the internetwork
Protocol	Code for upper-layer protocol using IP
Header checksum	Checksum across the header to protect against errors
Source address and destination address	IP address of source and destination
Options	IP options (security, source routing, internet timestamp)



TCP field	Meaning
Source port and destination port	Uniquely identifies the source and destination processes
Sequence number	A 32-bit number used to identify every octet that has been transmitted
Acknowledgment number	The octet number in the data stream that has been received successfully
Data offset	Size of TCP header in 32-bit words
URG, ACK, PSH, RST, SYN, FIN	Flags that control the behavior of the TCP packet
Window	Used to implement flow control
Checksum	Used to verify data in TCP header
Urgent pointer	Location of urgent message
Options	Used to specify maximum size of TCP segment

• Before sending a datagram, hosts perform an adjacency test

- Adjacency test is performed on every packet
- Using Subnet Mask, the Source NETID is compared to destination NETID
- If source and destination NETID values are equal, route locally
 - Otherwise, indirect delivery is required
 - Routing table must be consulted to determine next step
- To extract source NETID, perform a bitwise AND of source IP address with subnet mask
- To extract destination NETID, perform a bitwise AND of destination IP address with subnet mask

