NETWORKED GAME

Vuong Ba Thinh
Department of CS –CSE Faculty - HCMUT

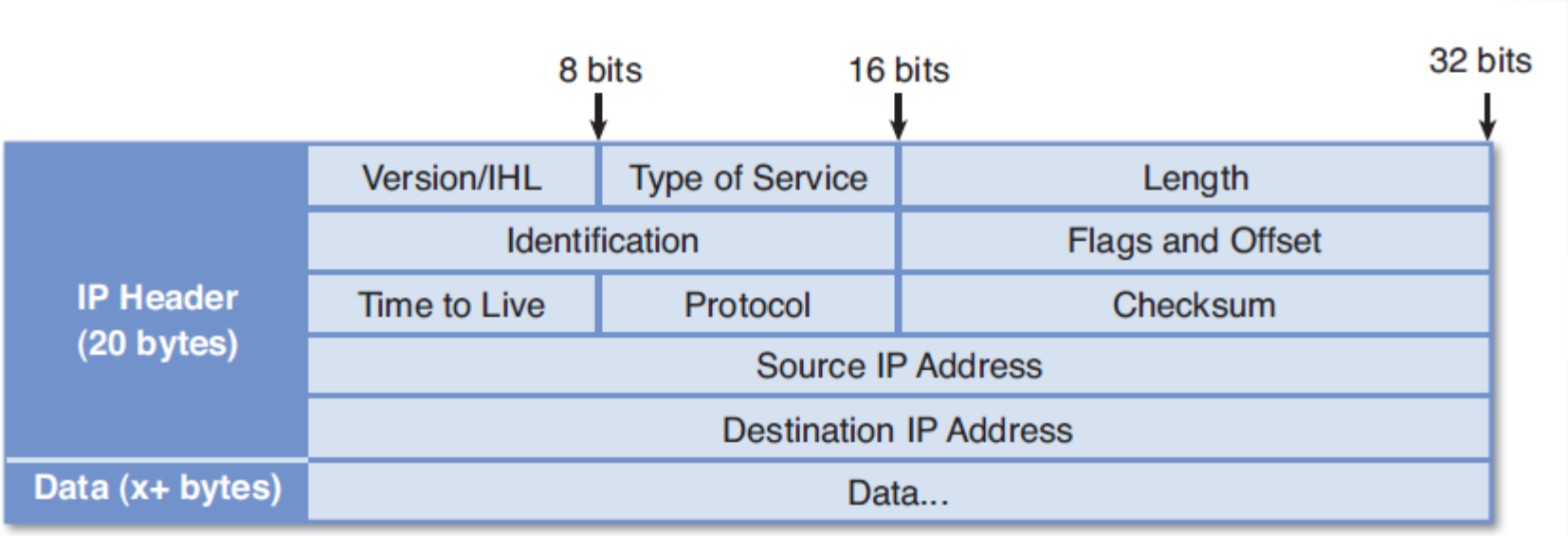
Outline

- Protocols
- Topology
- Cheating

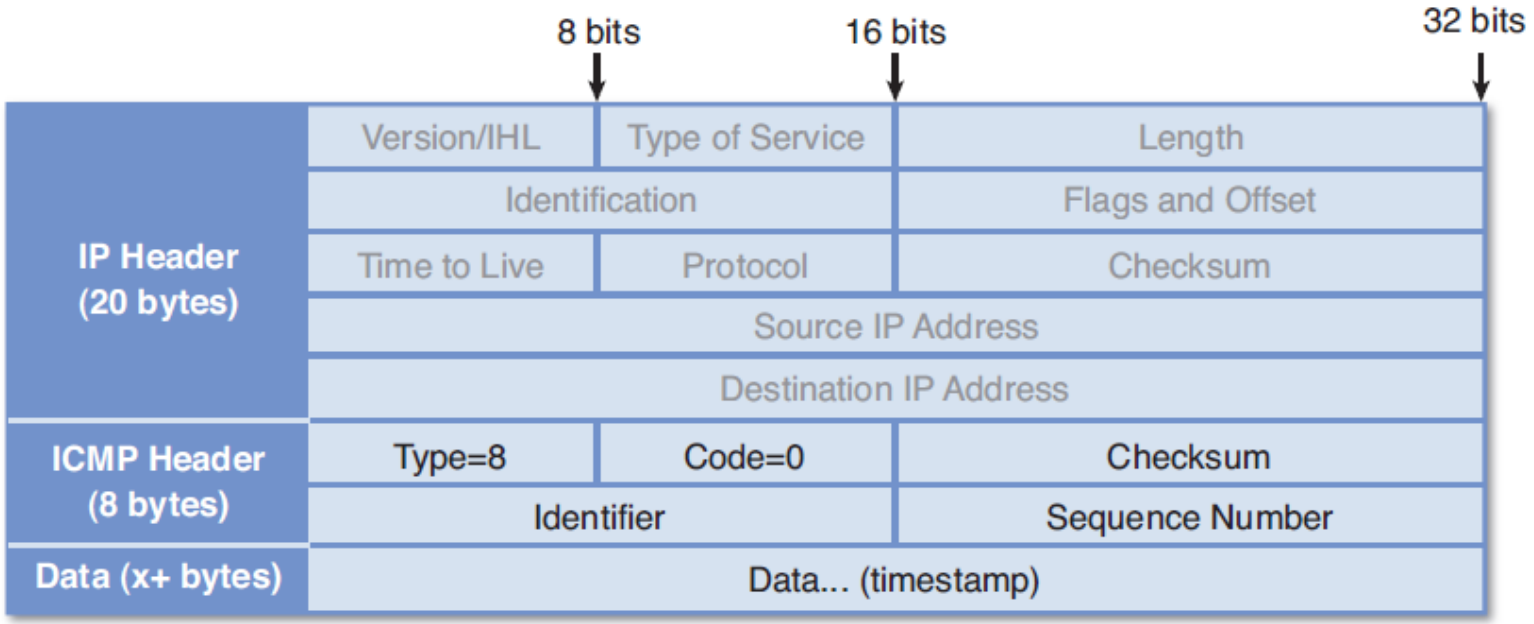
Protocol

- IP
- ICMP
- TCP
- UDP

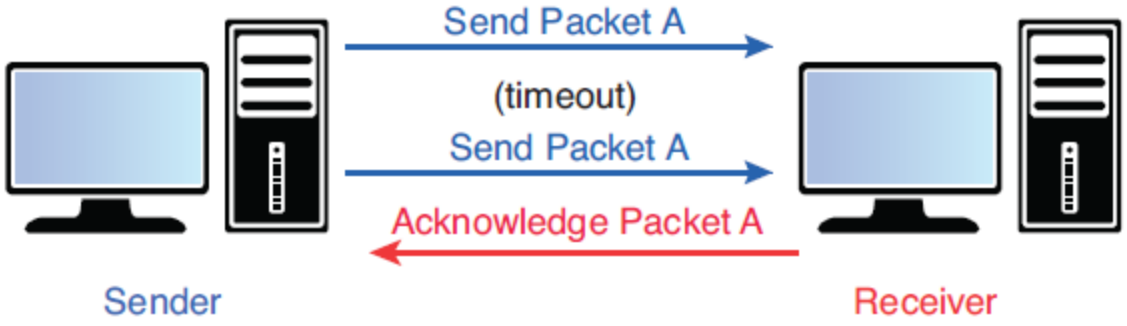
IP

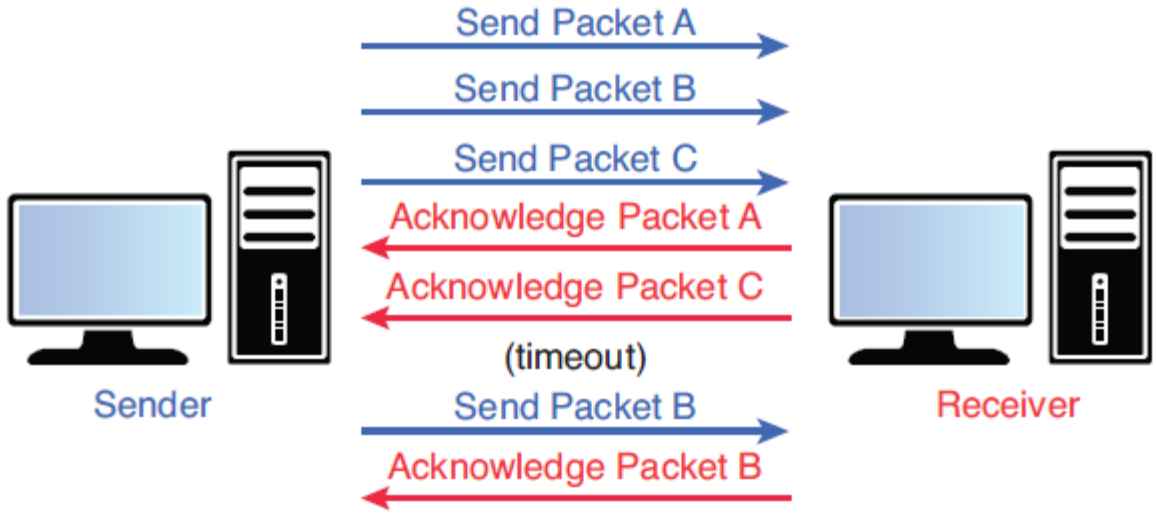

8 bits
16 bits
32 bits
IP Header
(20 bytes)
Version/IHL
Type of Service
Length
Identification
Flags and Offset
Time to Live
Protocol
Checksum
Source IP Address
Destination IP Address
Data (x+ bytes)
Data...

ICMP

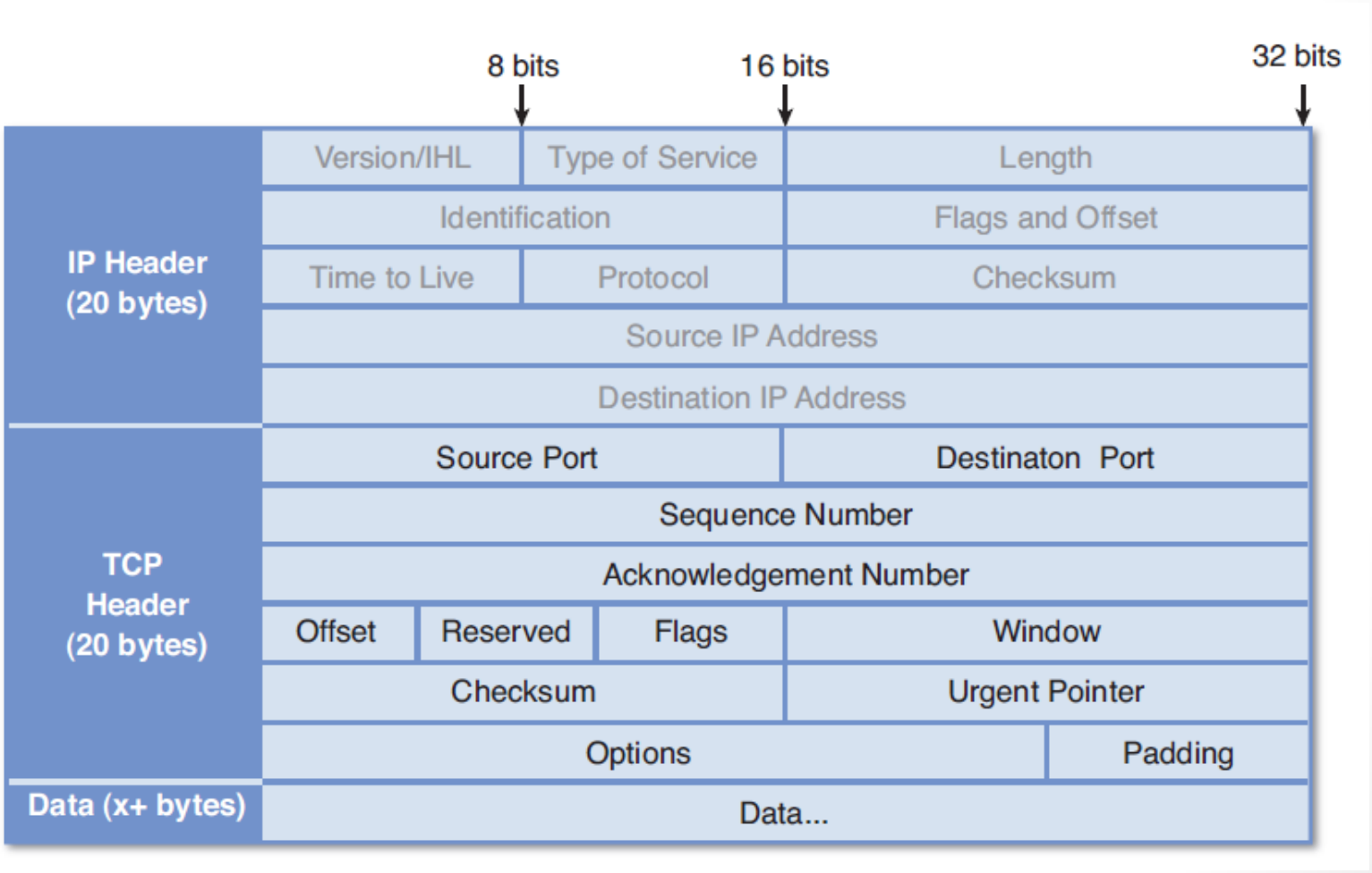

8 bits
16 bits
32 bits
IP Header (20 bytes)
Version/IHL
Type of Service
Length
Identification
Flags and Offset
Time to Live
Protocol
Checksum
Source IP Address
Destination IP Address
ICMP Header (8 bytes)
Type=8
Code=0
Checksum
Identifier
Sequence Number
Data (x+ bytes)
Data... (timestamp)

TCP

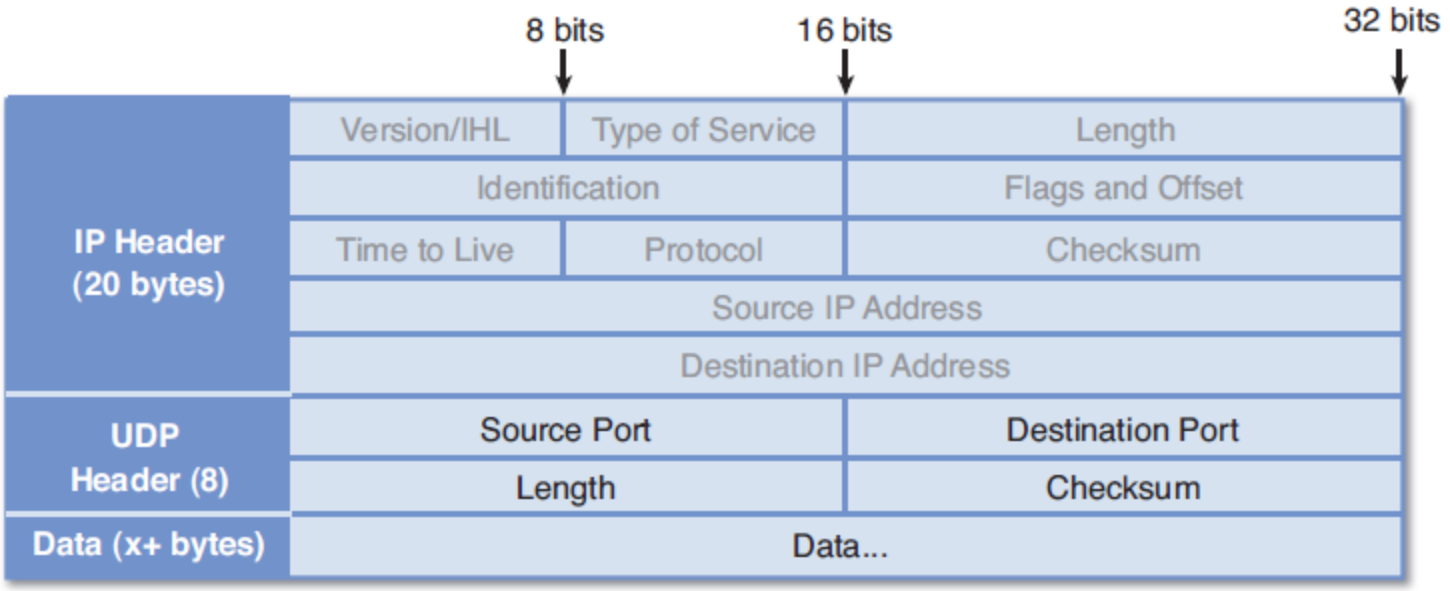

Send Packet A
(timeout)
Send Packet A
Acknowledge Packet A
Sender
Receiver


Send Packet A
Send Packet B
Send Packet C
Acknowledge Packet A
Acknowledge Packet C
(timeout)
Send Packet B
Acknowledge Packet B
Sender
Receiver

TCP (header)


8 bits
16 bits
32 bits
IP Header (20 bytes)
Version/IHL
Type of Service
Length
Identification
Flags and Offset
Time to Live
Protocol
Checksum
Source IP Address
Destination IP Address
TCP Header (20 bytes)
Source Port
Destinaton Port
Sequence Number
Acknowledgement Number
Offset
Reserved
Flags
Window
Checksum
Urgent Pointer
Options
Padding
Data (x+ bytes)
Data...

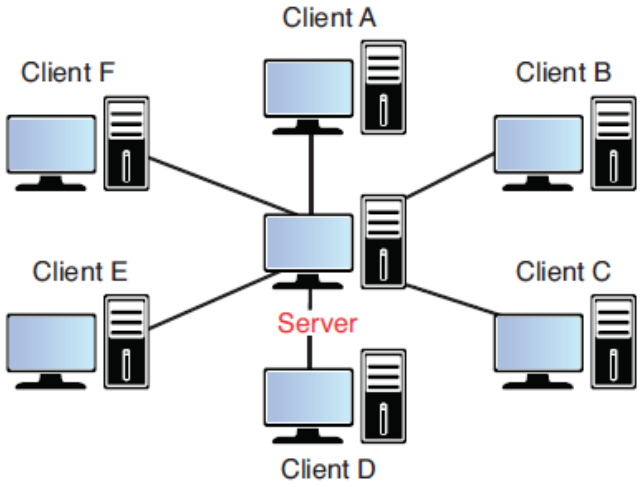
UDP


8 bits
16 bits
32 bits
IP Header (20 bytes)
Version/IHL
Type of Service
Length
Identification
Flags and Offset
Time to Live
Protocol
Checksum
Source IP Address
Destination IP Address
UDP Header (8)
Source Port
Destination Port
Length
Checksum
Data (x+ bytes)
Data...

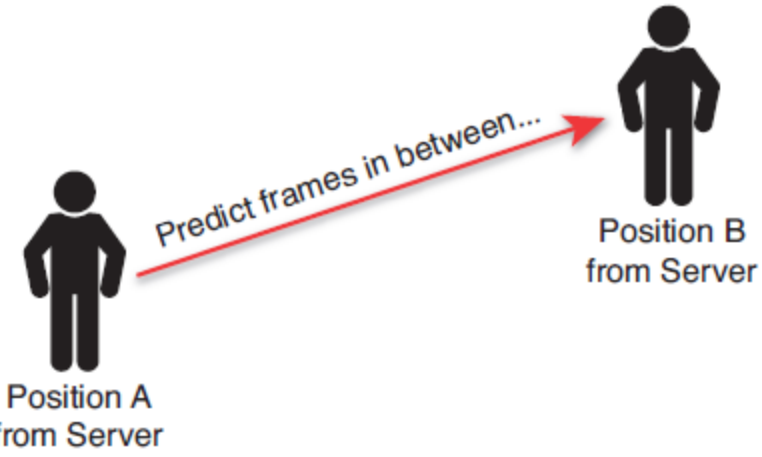
Network Topology

- Server/Client
- Peer to peer

Server/Client

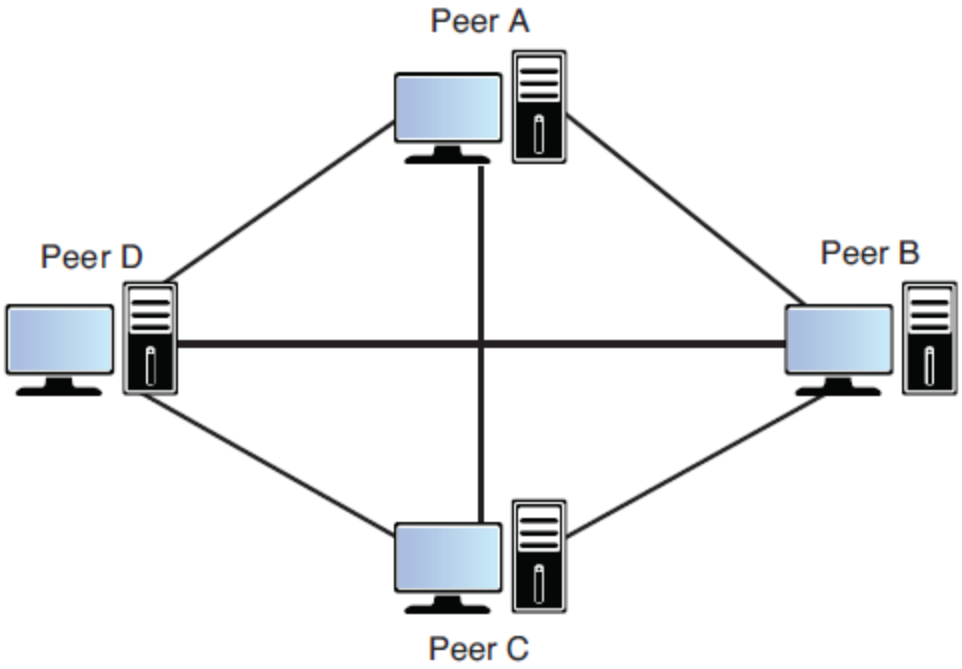


- Bandwidth
- Processing power
- Client Prediction
- Host advantage
  - Gears of war



Peer-to-Peer

- RTS
  - lockstep
- Halo



Cheating

- Information Cheat
  - Example: spy character, map
- Game State Cheat

- Man-in-the-middle attack

More References

- Page 258 in [1]