

# UDP: User Datagram Protocol [RFC 768]

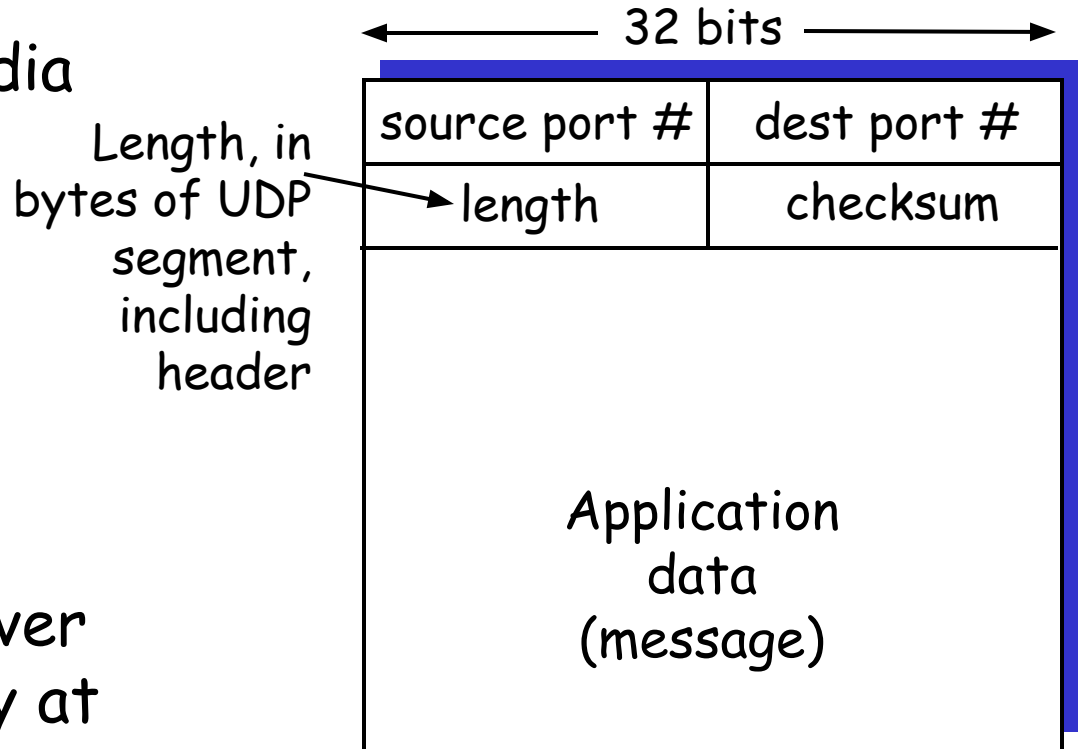
- ❖ “no frills,” “bare bones” Internet transport protocol
- ❖ “best effort” service, UDP segments may be:
  - lost
  - delivered out of order to app
- ❖ *connectionless*:
  - no handshaking between UDP sender, receiver
  - each UDP segment handled independently of others

## Why is there a UDP?

- ❖ no connection establishment (which can add delay)
- ❖ simple: no connection state at sender, receiver
- ❖ small segment header
- ❖ no congestion control: UDP can blast away as fast as desired

# UDP: more

- ❖ often used for streaming multimedia apps
  - loss tolerant
  - rate sensitive
- ❖ other UDP uses
  - DNS
  - SNMP
- ❖ reliable transfer over UDP: add reliability at application layer
  - application-specific error recovery!



UDP segment format