

UDP: User Datagram Protocol

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Agenda

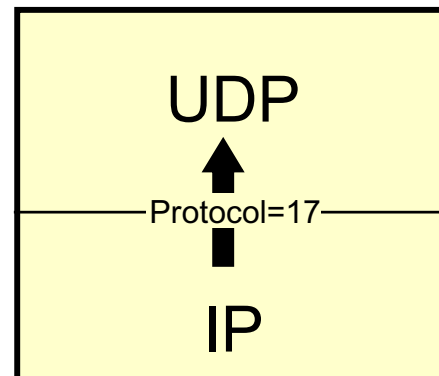
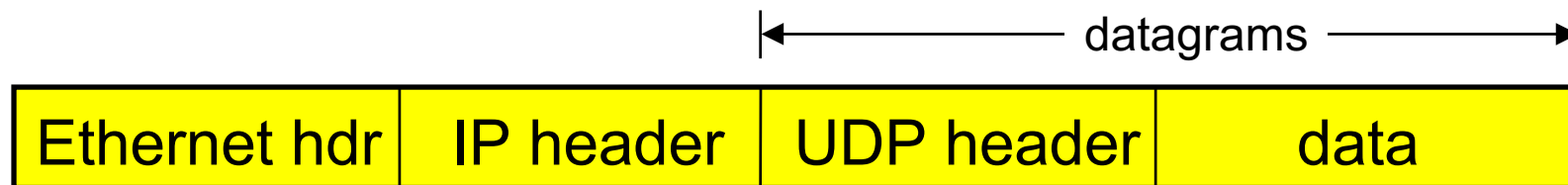
- **Services provided by UDP**
- **UDP frame format**

UDP: User Datagram Protocol

- **RFC 768**
- **connectionless protocol (no connection establishment)**
- **provide unreliable service**
- **use socket as TCP**

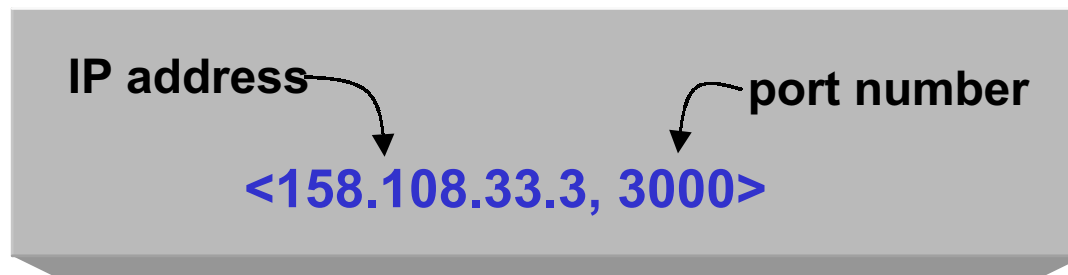
UDP encapsulation

- with Ethernet frame



Sockets

- **socket** : a pair of the IP address and the port number



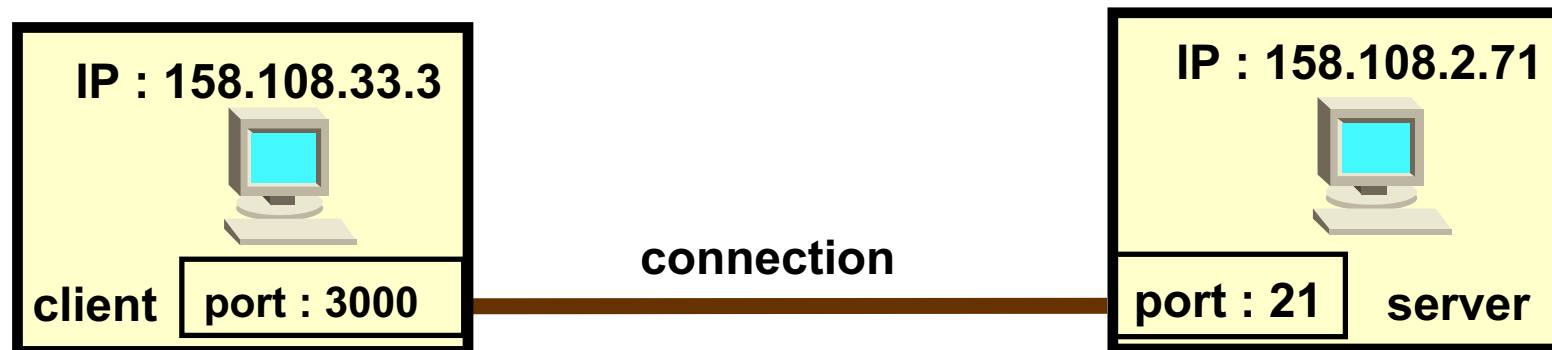
IP address is unique to a node, the port is unique on a node



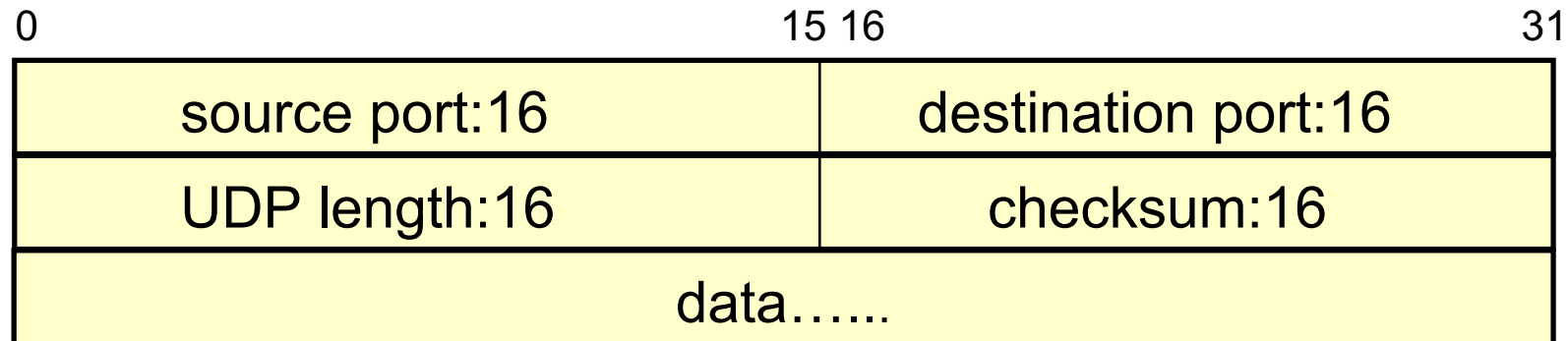
the socket gives a unique identification of
an application layer services

Socket address

- A connections identified by the socket address at its to ends
 - client socket: 158.108.33.3,3000; 158.108.2.71,21
 - server socket: 158.108.2.71,21; 158.108.33.3,3000;

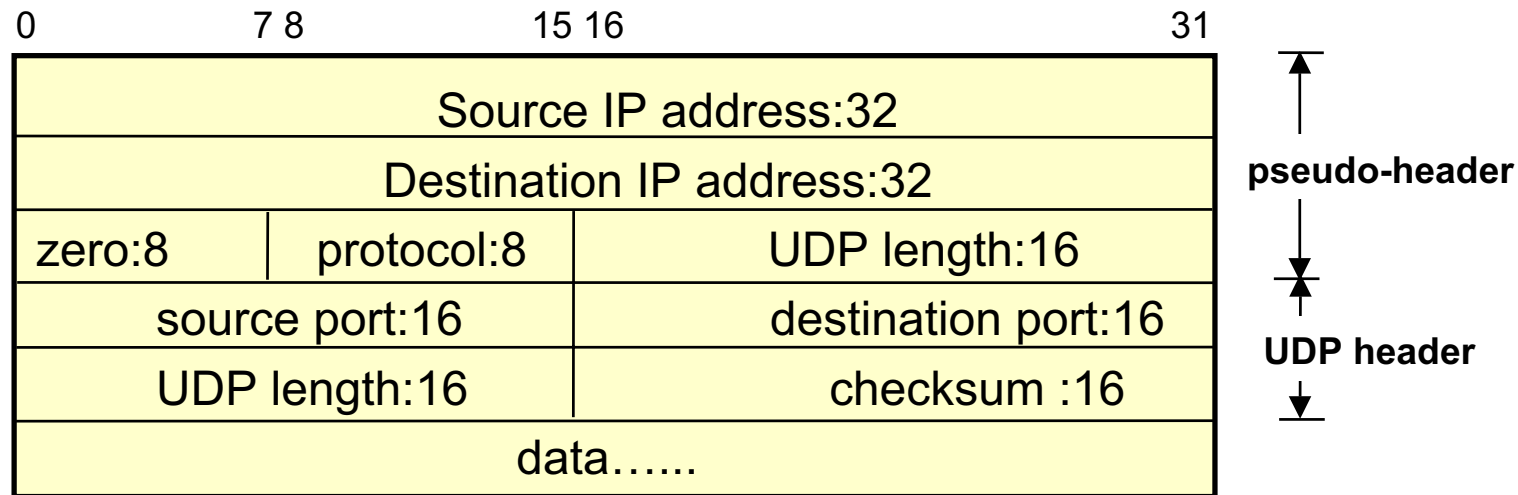


UDP format



- **source and destination port:16,16** - identify applications at ends of the connection
- **length: 16** - length of datagram including header and data
- **checksum: 16** - one's complement of header and data including *pseudo header*

UDP pseudo header



- include destination for double checking that destination is correct
- if datagrams be an odd number of bytes, UDP appends a pad byte of 0, just for computation
- 0 indicates no checksum (checksum disable)
- if computed checksum is 0, it stores as all one bits (65535)

UDP for Applications

- TFTP
- DNS
- RPC, NFS
- SNMP