Examination counseling

Yang wei

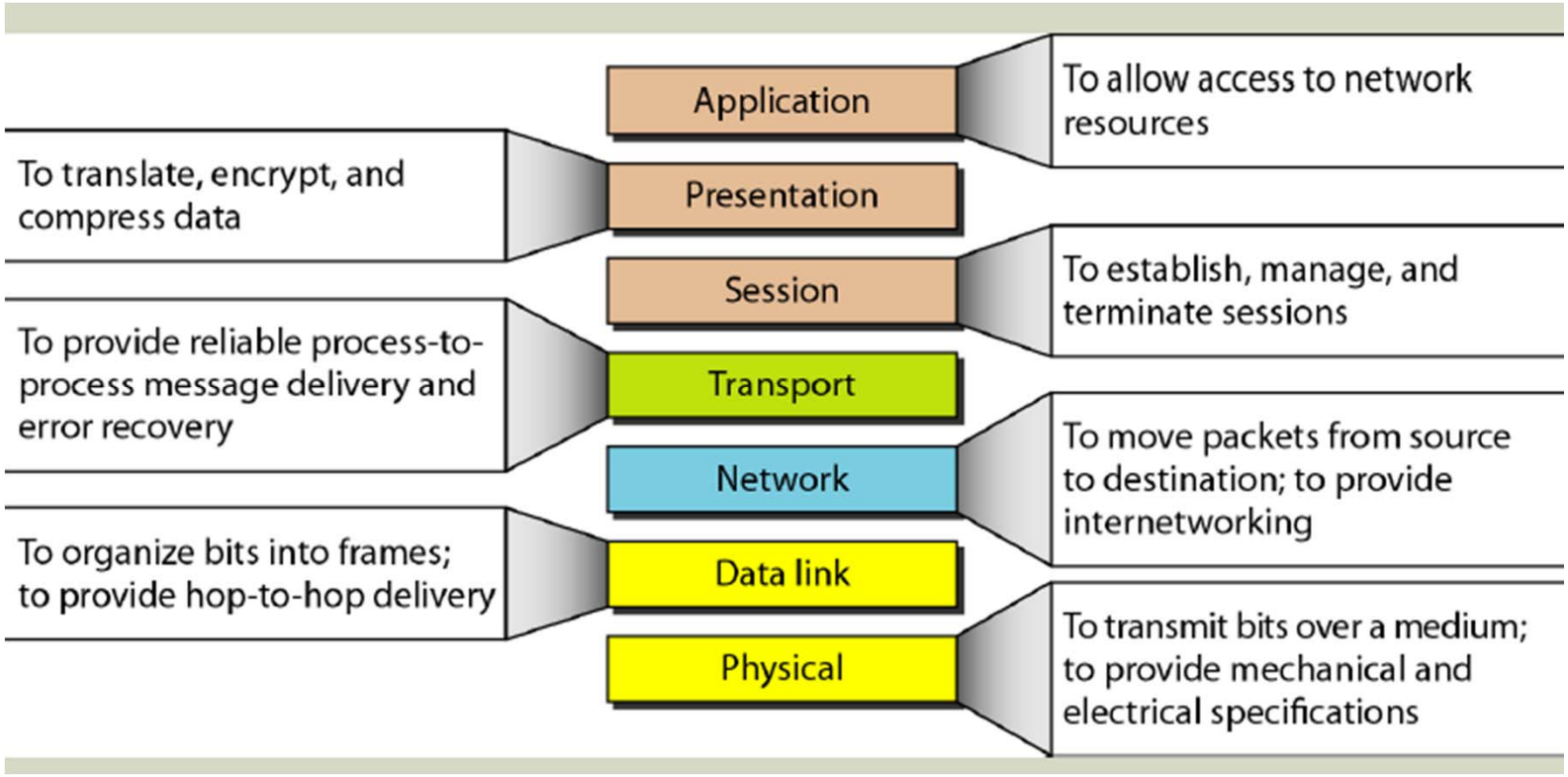
About the exam

- There are total 25 multiple choices, each choice worth 3 marks.——75marks
- There are 5 written questions .——25marks
- closed book
- time for exam

Course Name	Date	Place	Start time	End time
Computer network	第6周 星期二 5-6节 Week Six Tuesday Section 5-6	Architecture building A302	2016/10/11 13:50:00	2016/10/11 15:50:00

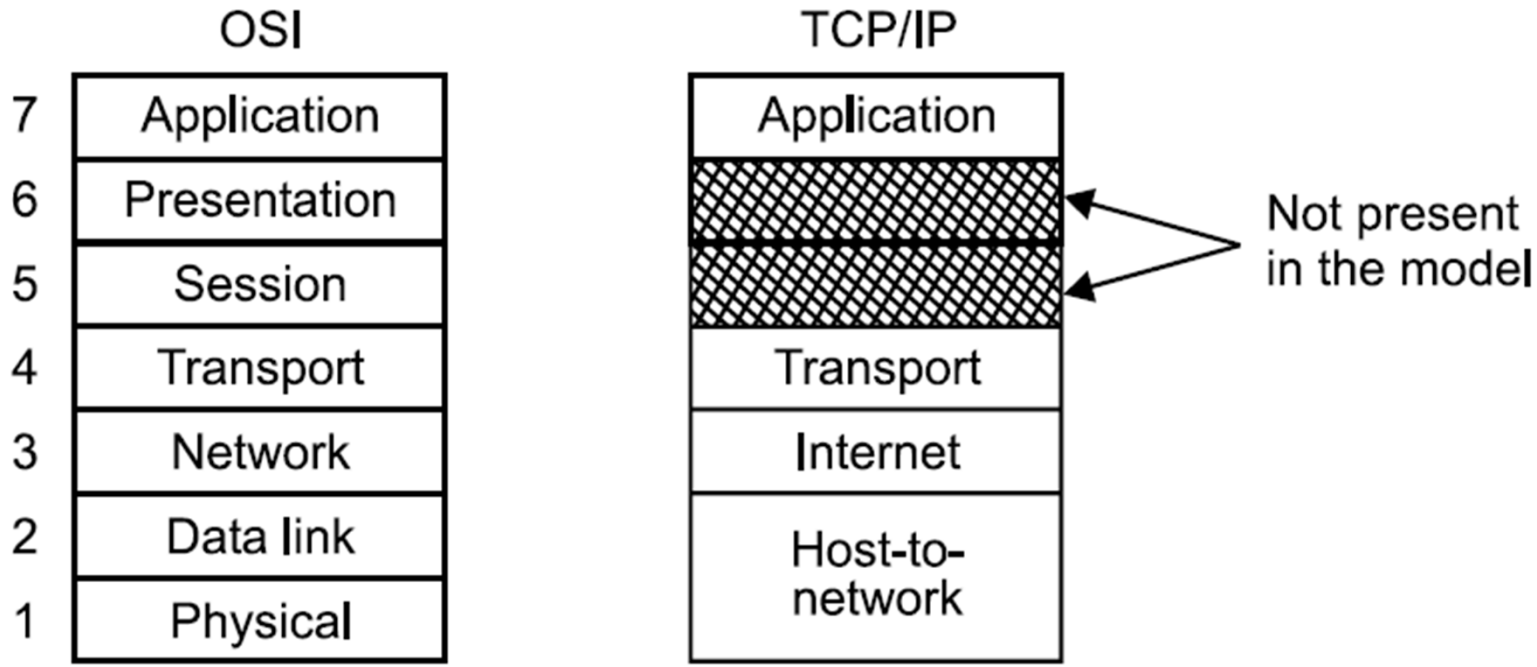
NETWORK MODELS

- THE OSI MODEL
  - ***Open Systems Interconnection model***



NETWORK MODELS

- TCP/IP MODEL

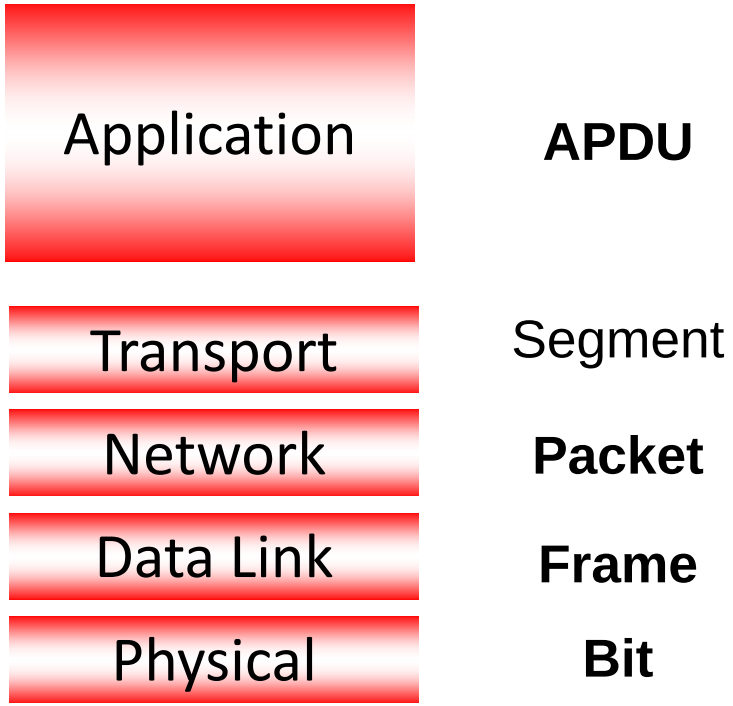


NETWORK MODELS

- **A Comparison of the OSI and TCP/IP**
  - The OSI model has seven layers and the TCP/IP has four layers. Both have network, transport and application layers, but the other layers are different.
  - The OSI model originally clearly distinguishes between service, interface, and protocol.
  - The TCP/IP model did not originally clearly distinguish between service, interface and protocol.
  - The protocols in the OSI model are better hidden than in the TCP/IP model and can be replaced relatively easily as the technology changes.

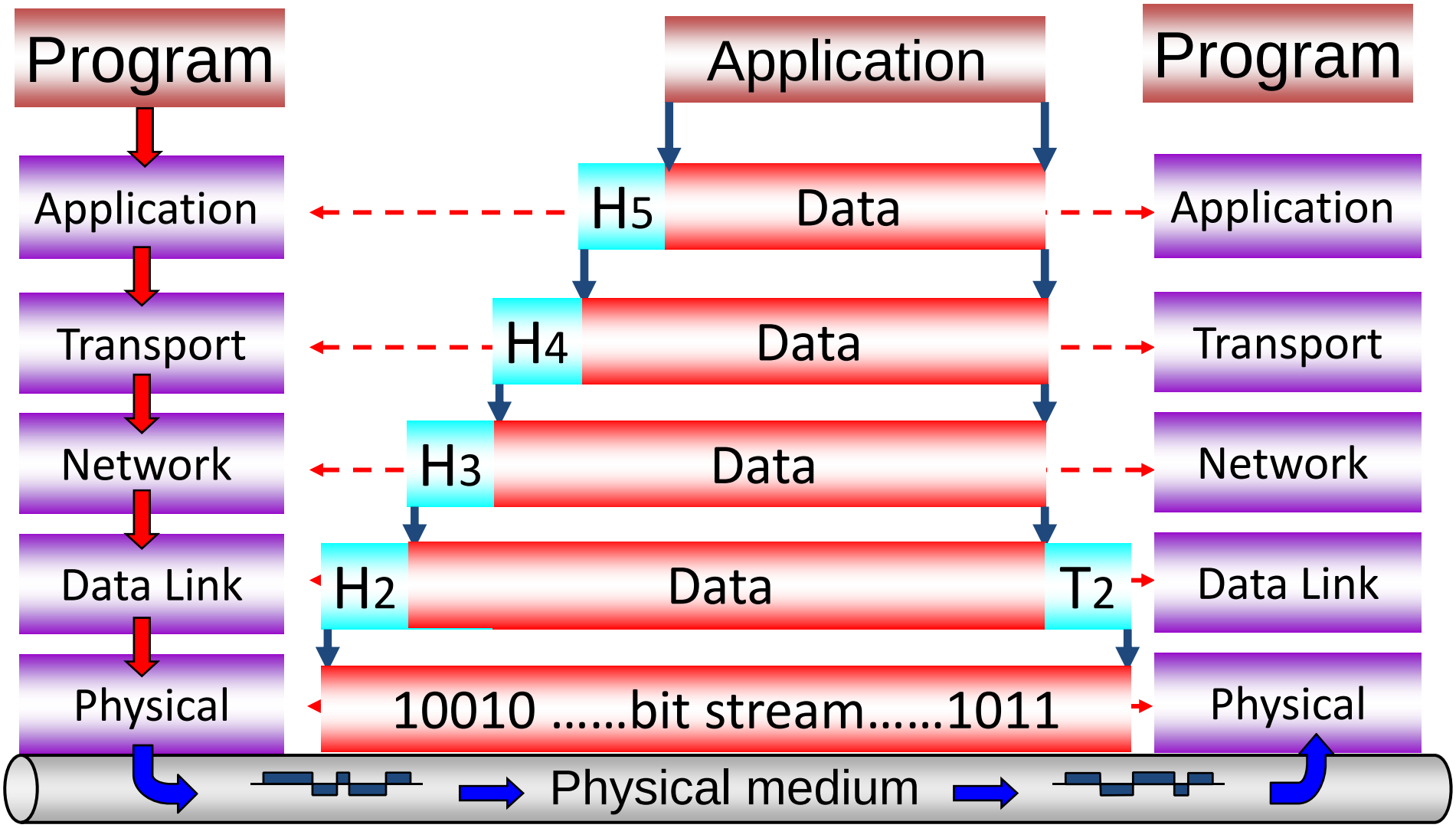
NETWORK MODELS

- **Five layered network**
- **PDU Protocol data unit**



NETWORK MODELS

- **The order of encapsulation and decapsulation**



The physical layer

- Guided Transmission media
  - coaxial cable
  - twisted pair cable
  - optical fiber
- Wireless transmission media
  - radio waves
  - Microwaves
  - infrared

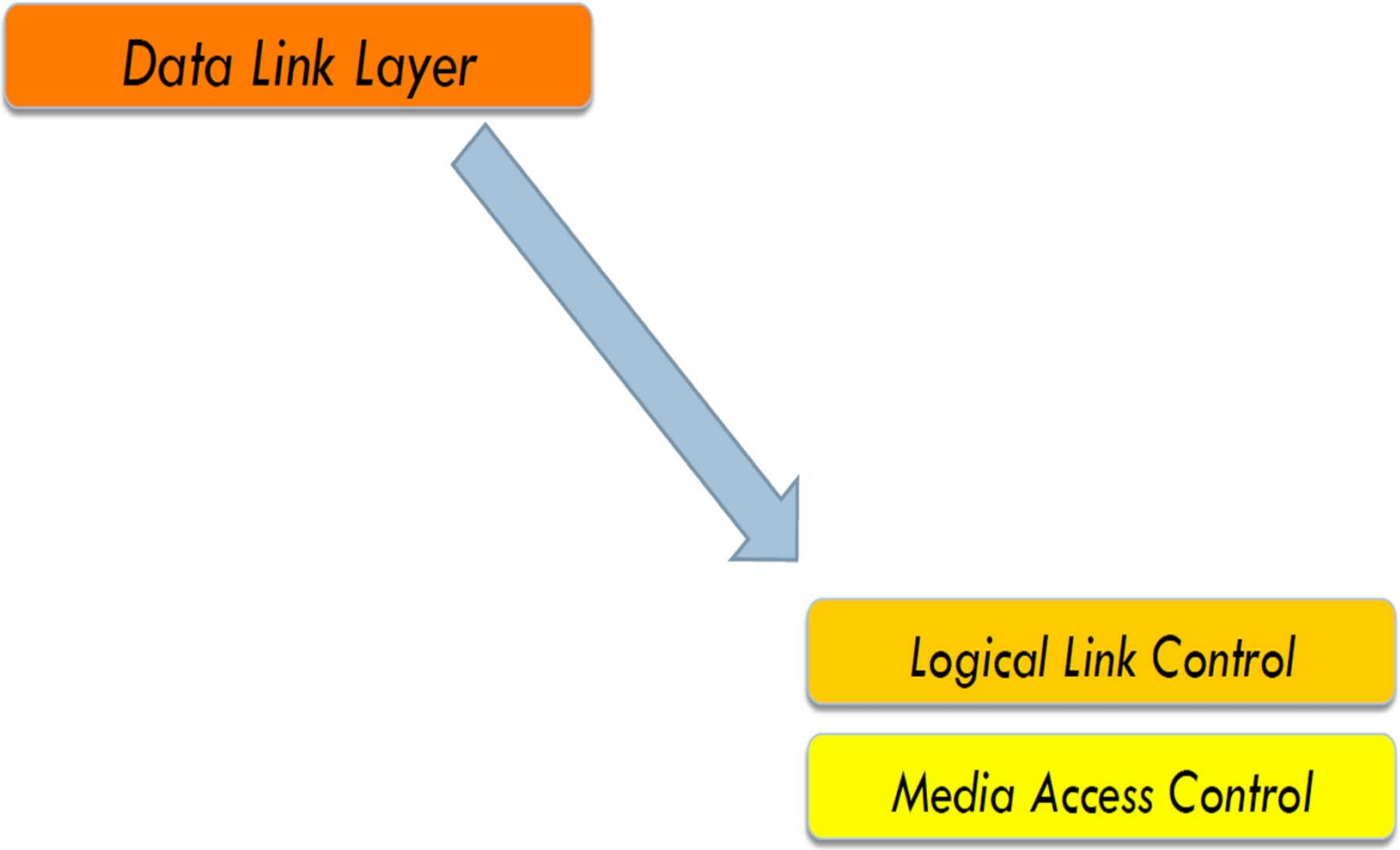
The data link layer

- Bridging Protocol
- ¤ Network Layer
- ¤ Physical Layer
- Places data (Frames) onto the Network through physical layer
- Receives data from the Network layer

The data link layer

- two types of “links”:
  - point-to-point
    - CRC(Cyclic redundancy check)
  - *broadcast (shared wire or medium)*
  - Multiple access protocols for channel access control
    - slotted ALOHA
    - ALOHA
    - CSMA, CSMA/CD, CSMA/CA

The data link layer

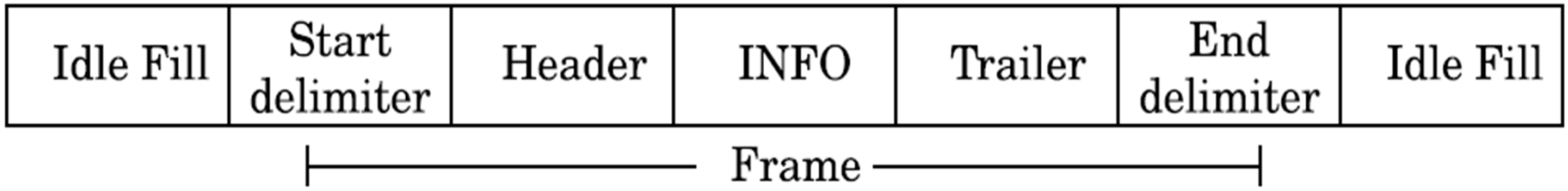


The data link layer

- LLC(Logical Link Control) sublayer
  - whose job it is to hide the differences between the different 802 variants and make them indistinguishable as far as the network layer is concerned.
- MAC(Medium Access Control) sublayer
  - determines how the channel is allocated, that is, who gets to transmit next
  - depend upon the type of medium

The data link layer

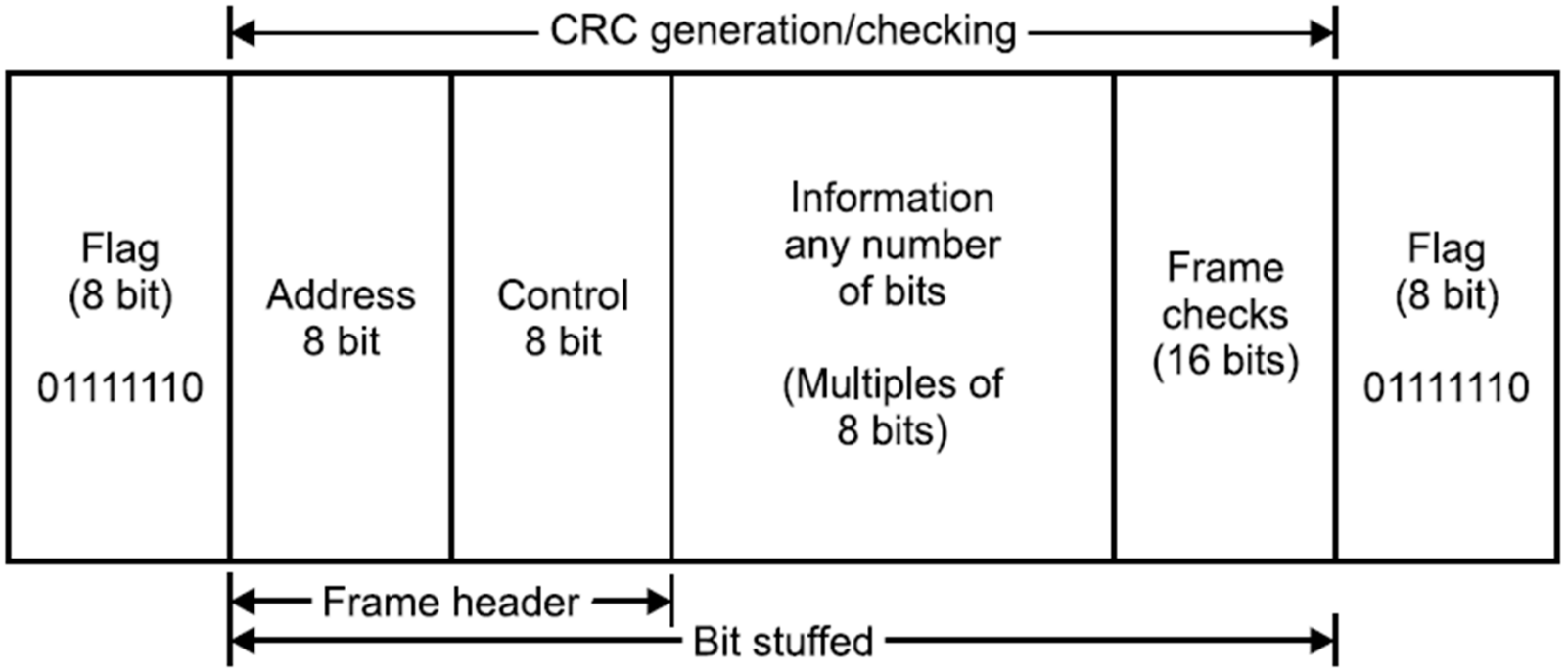
- **General format of frame**



- **Delimiter**
  - **FRAMING**
  - **Identify the start and the end of a frame**

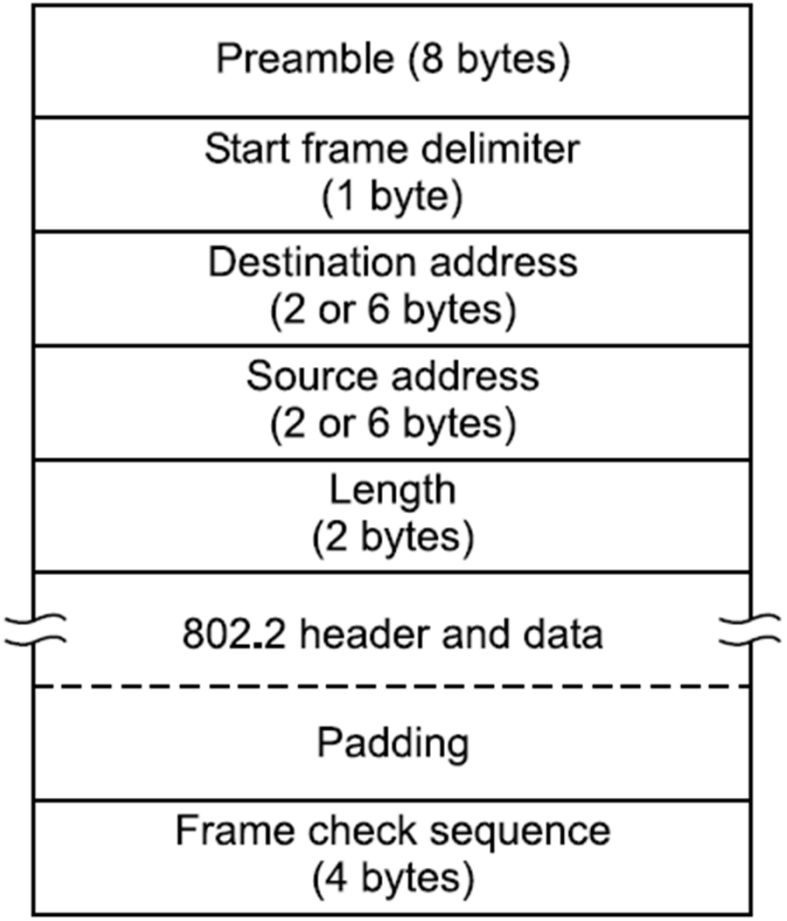
The data link layer

- **format of** HDLC **frame**



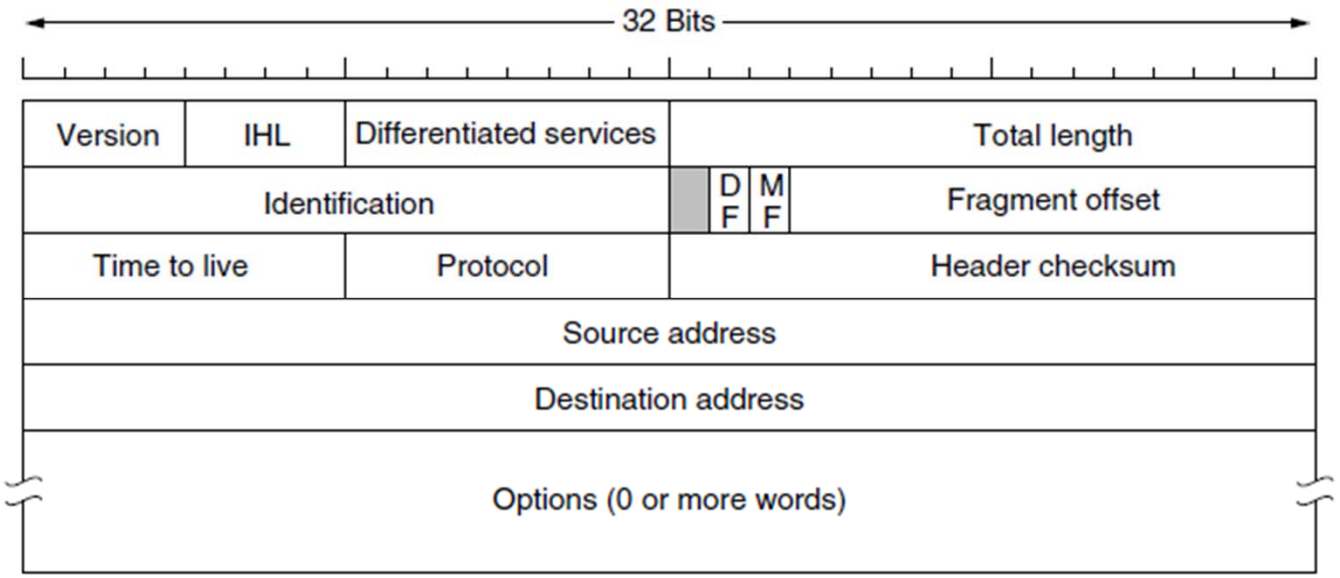
The data link layer

- Ethernet IEEE802.3
- Mac address
  - 48 bit



The network Layer

- IP protocol
  - IPV4 Header

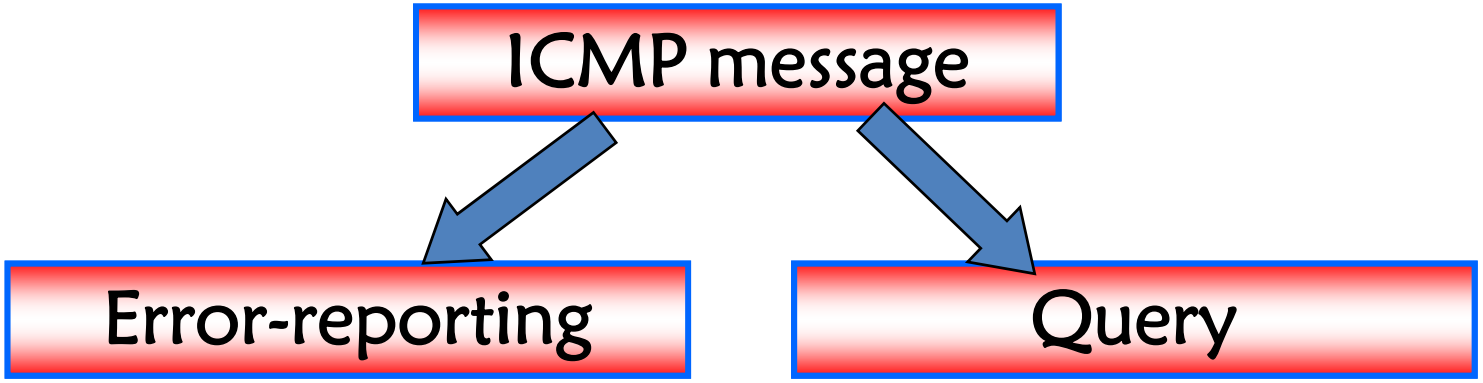


The network Layer

- The *TTL (Time to live)* field is a counter used to limit packet lifetimes
- It must be decremented on each hop
  - describe how many routers can process a packet
- When it hits zero, the packet is discarded and a warning packet is sent back to the source host.

The network Layer

- ICMP
  - **Internet Control Message Protocol**
  - ICMP provides error control and network layer flow control



The network Layer

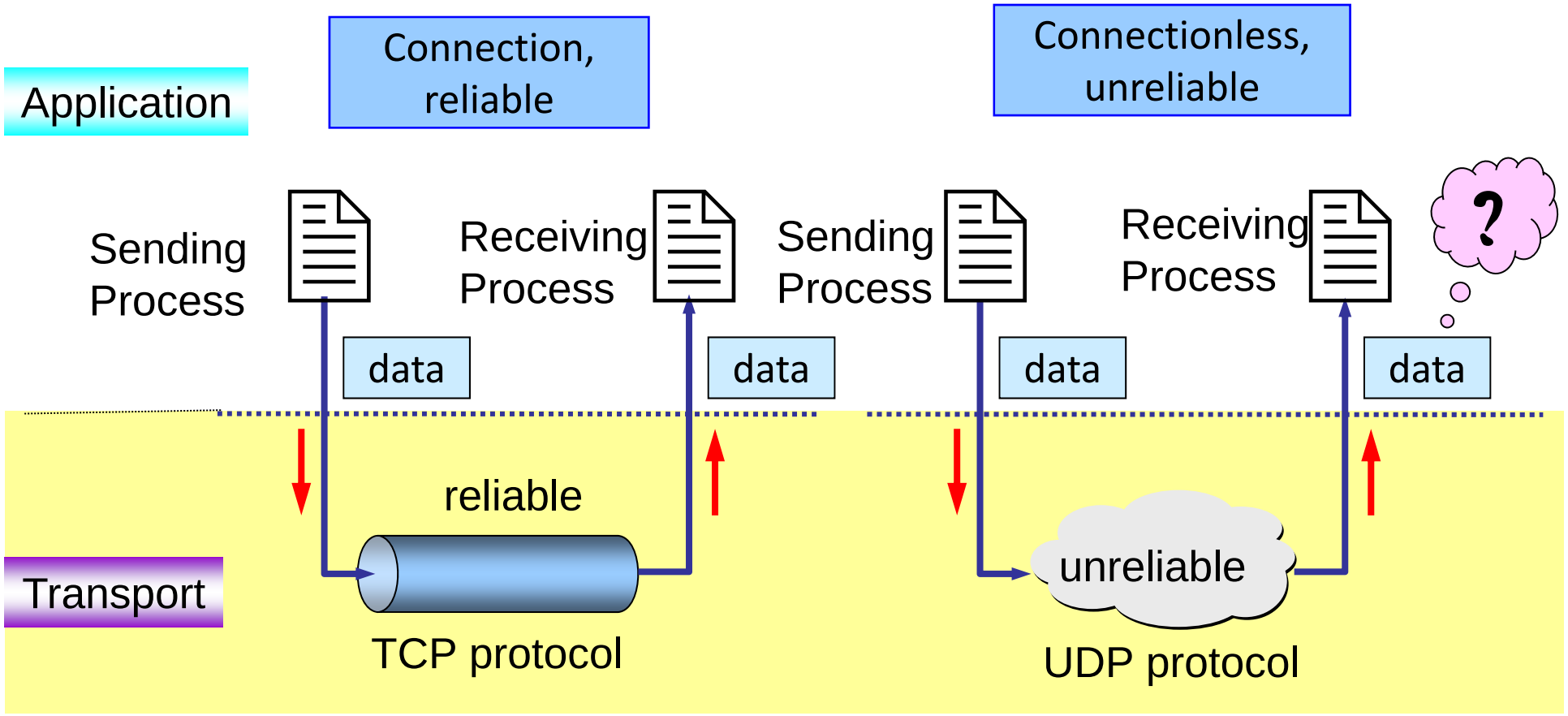
- PING
  - The well-known ping program sends an ICMP type 8 code 0 message to the specified host.
  - Test the connectivity of the network
  - Query message
    - Type 8 or 0

The network layer

- **internetwork devices**
  - **Repeater**
  - **Bridge or switch**
  - **Router**

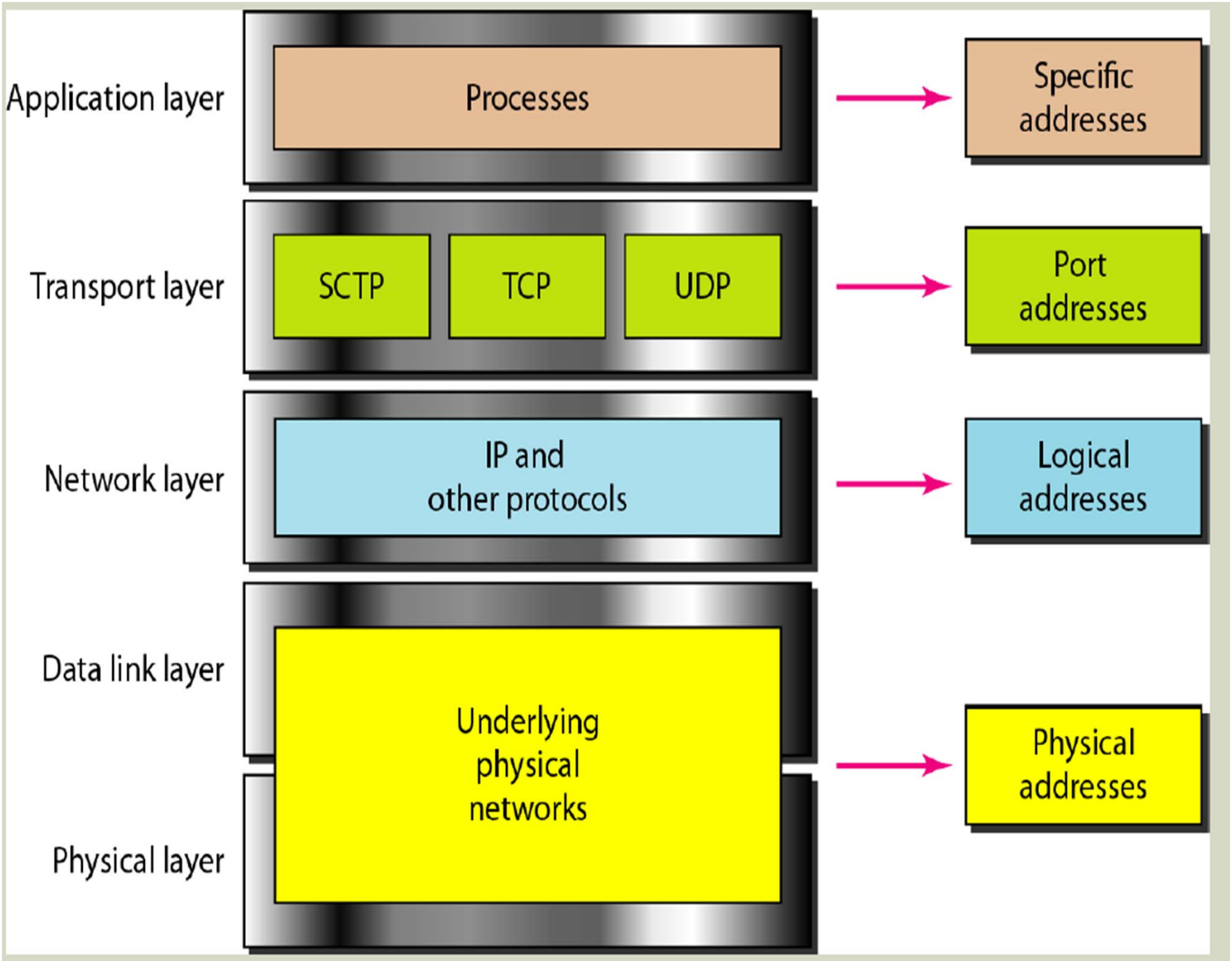
The transport layer

- TCP and UDP
- Know the differences between TCP and UDP



The application layer

- DNS
  - Domain Name System
  - Mapping a name to an address or an address to a name
- HTTP
  - HyperText Transfer protocol
  - HyperText web page


Application layer
Processes
Specific addresses
Transport layer
SCTP
TCP
UDP
Port addresses
Network layer
IP and other protocols
Logical addresses
Data link layer
Underlying physical networks
Physical addresses
Physical layer

NETWORK MODELS

- Understanding the OSI Networking Model
- Understanding the TCP/IP Model
- **A Comparison of the OSI and TCP Reference Models**
- Understanding How Data Travels Through the Layered architecture
- Know the differences between TCP and UDP
- **Packet analysis**