

# Chapter 18

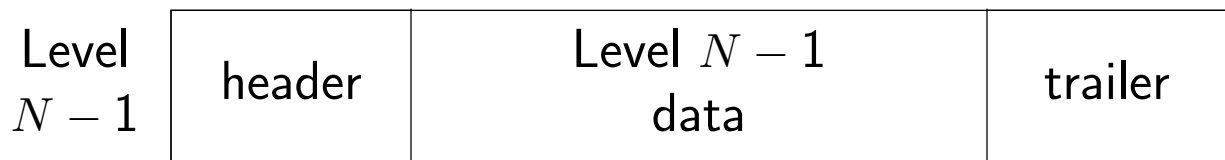
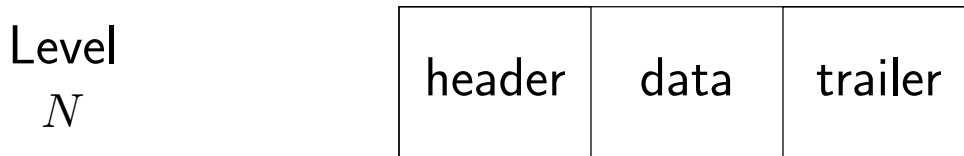
## Tunneling

### Data Packets–Theory

Protocol Data Unit:

Transferred between level  $N$  and level  $N - 1$ .

Includes headers



Send: adds headers and trailers and pass to the next level down.

Receive: remove headers and trailers and pass it to the next level up.

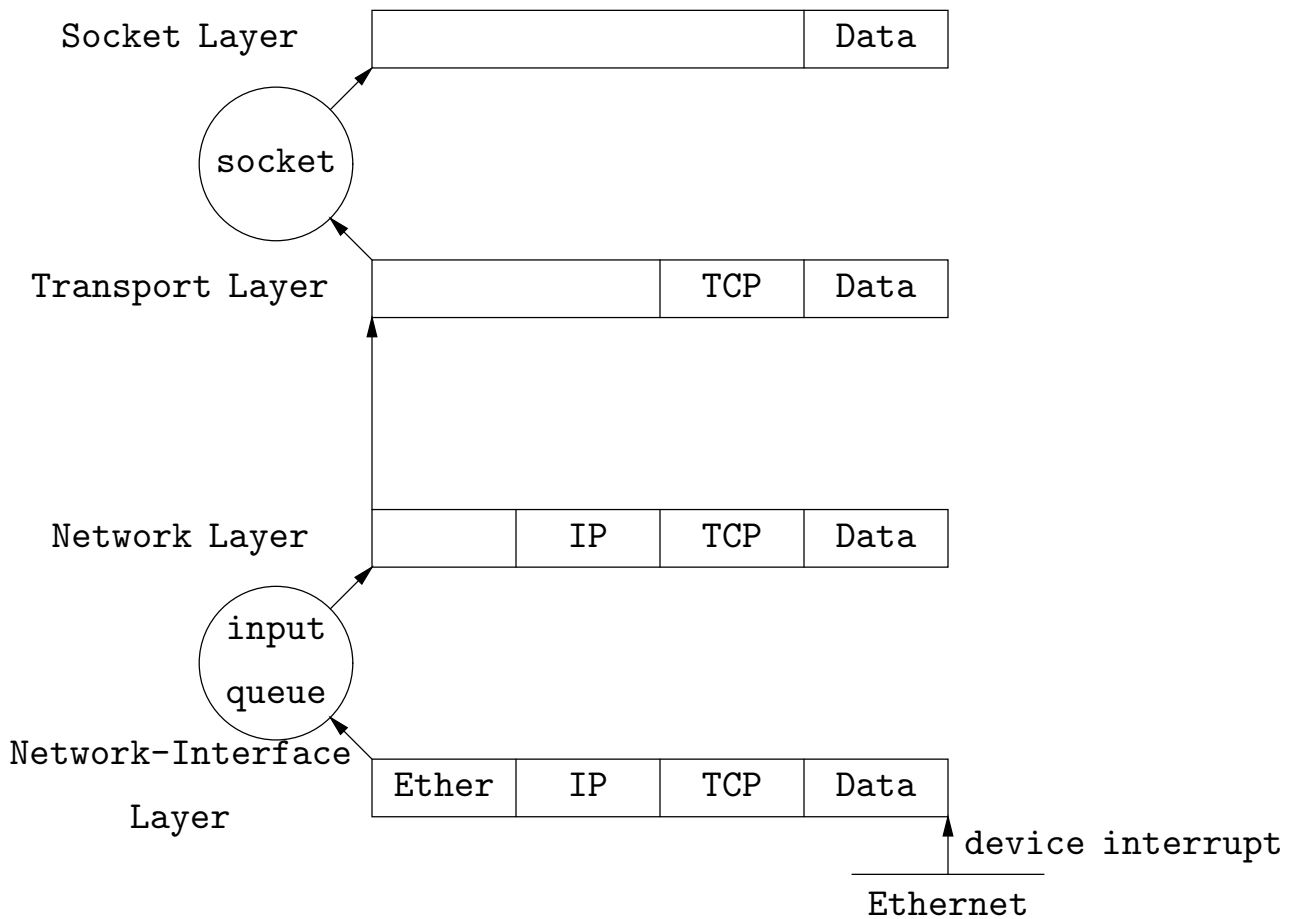
## Data Packets – Actual

Packet size at some levels may be smaller.

|               |             |           |                |
|---------------|-------------|-----------|----------------|
| header<br>N-1 | header<br>N | data<br>N | trailer<br>N-1 |
|---------------|-------------|-----------|----------------|

|               |           |              |                |
|---------------|-----------|--------------|----------------|
| header<br>N-1 | data<br>N | trailer<br>N | trailer<br>N-1 |
|---------------|-----------|--------------|----------------|

# Unix-TCP/IP Implementation



*Tunneling*: Sending one protocol using another.

Send internet using ethernet (almost).

# Tunneling Example

VPN client (CSULB) to server (CSUF)

