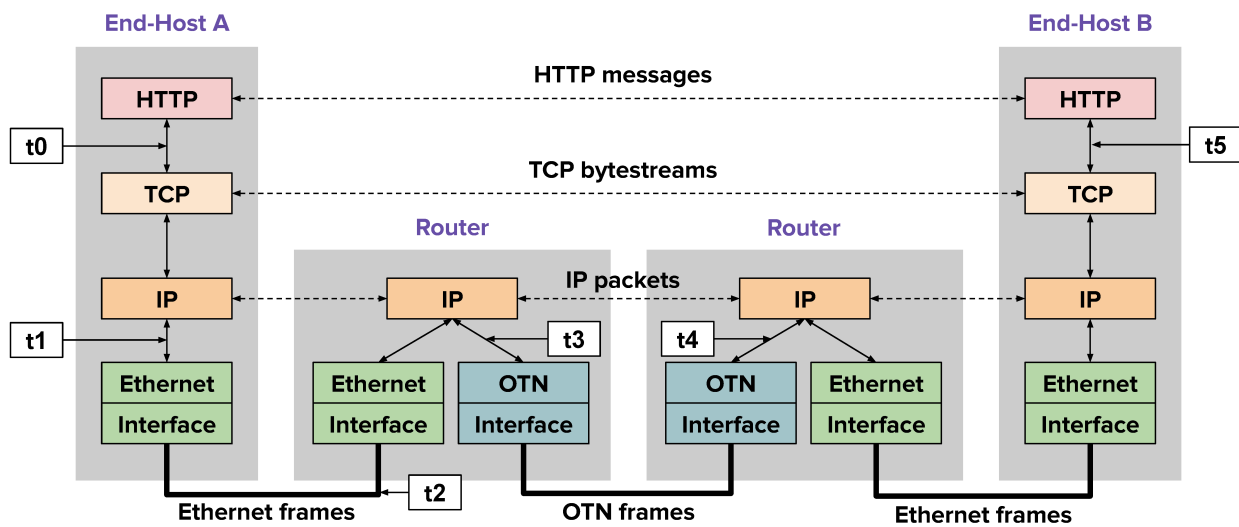


## 1 True or False

- (1) The third layer of the network stack is the transport layer.
- (2) Layering in the network stack is an example of the end-to-end principle.
- (3) We implement all the same layers in both the host and routers.
- (4) The operating system (OS) supports logical ports while a router only has physical ports.
- (5) Layers 4 and 7 are used for forwarding in switches/ routers.

## 2 Protocol Diagram

Refer to the figure below, which is similar to the one from Lecture 3. In this example, Host A sends one packet to host B at time  $t = 0$ . In this question, we explore how the packet header changes as the packet traverses different layers and protocols of the network. At each time step, fill in the empty blocks to describe which headers are attached to the payload. The packet headers are provided at time  $t = 2$  for reference.



|           |              |           |           |           |                |
|-----------|--------------|-----------|-----------|-----------|----------------|
| Time = t0 |              |           |           |           | <b>Payload</b> |
| Time = t1 |              |           |           |           | <b>Payload</b> |
| Time = t2 | <b>L1/L2</b> | <b>L3</b> | <b>L4</b> | <b>L7</b> | <b>Payload</b> |
| Time = t3 |              |           |           |           | <b>Payload</b> |
| Time = t4 |              |           |           |           | <b>Payload</b> |
| Time = t5 |              |           |           |           | <b>Payload</b> |