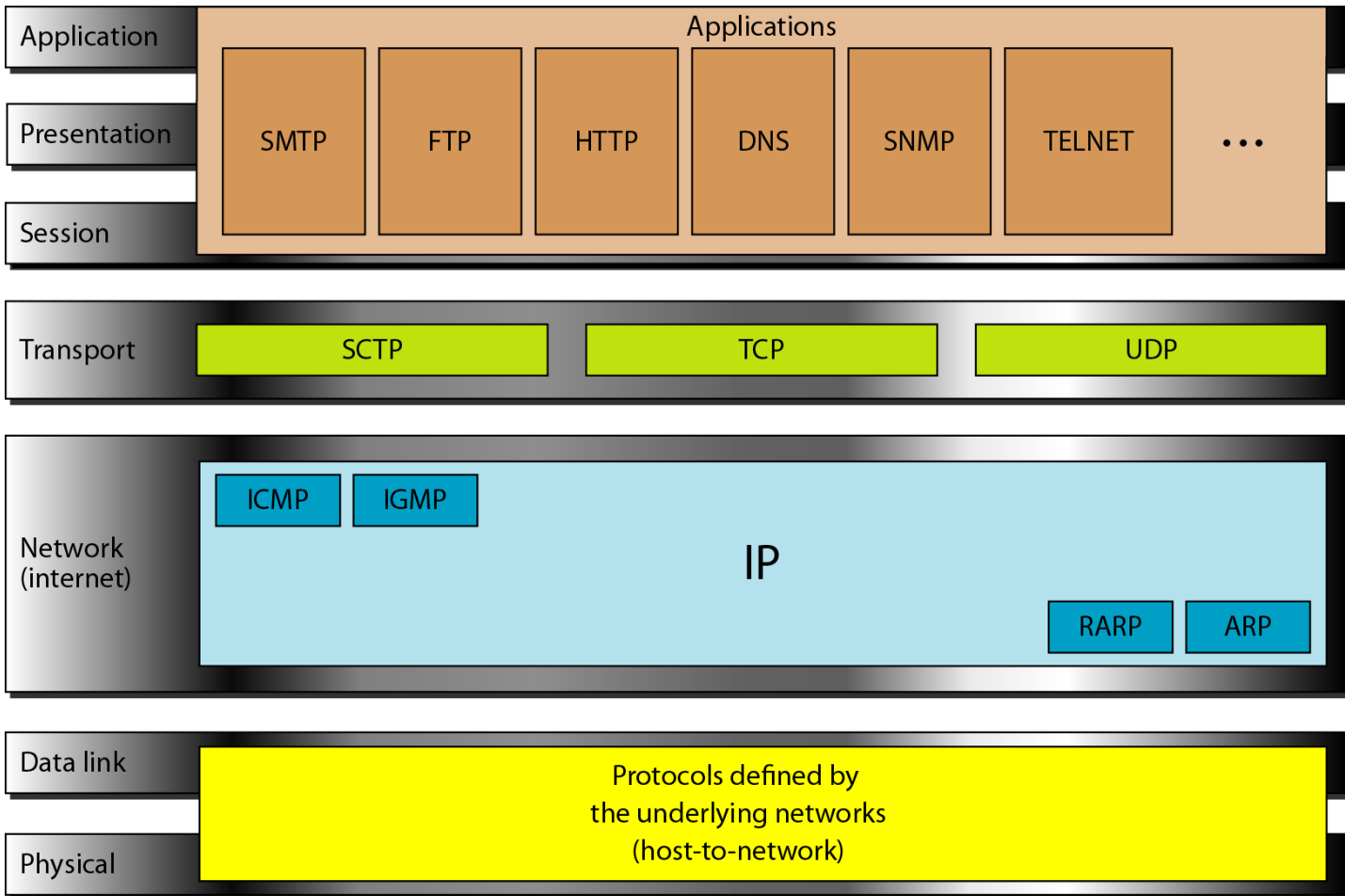


Introduction to TCP/IP Model

TCP/IP PROTOCOL SUITE

- *The layers in the **TCP/IP protocol suite** do not exactly match those in the OSI model. The original TCP/IP protocol suite was defined as having four layers: **host-to-network**, **internet**, **transport**, and **application**. However, when TCP/IP is compared to OSI, we can say that the TCP/IP protocol suite is made of five layers: **physical**, **data link**, **network**, **transport**, and **application**.*

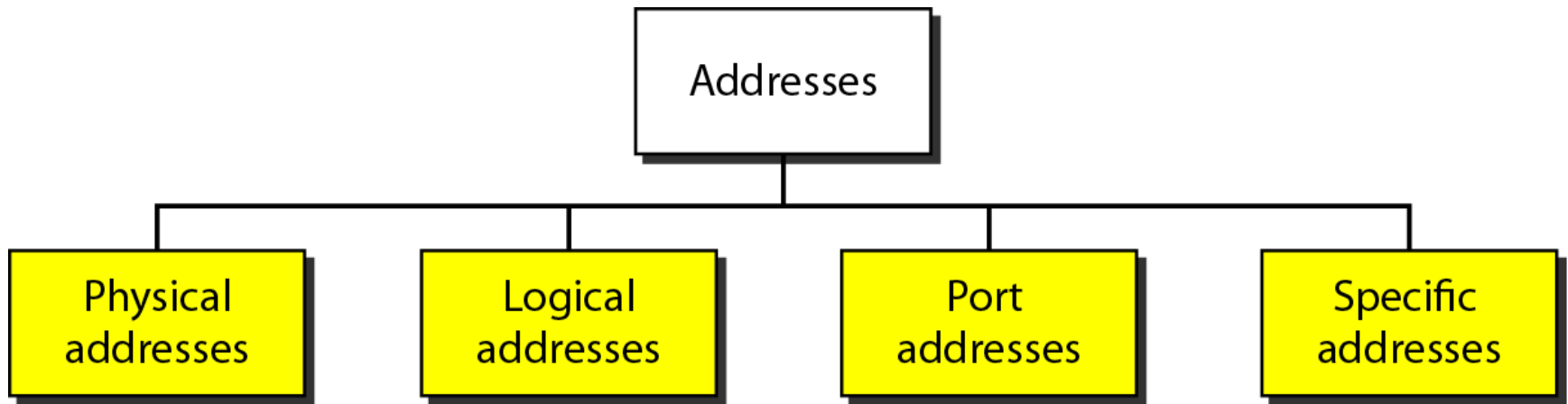
TCP/IP and OSI model



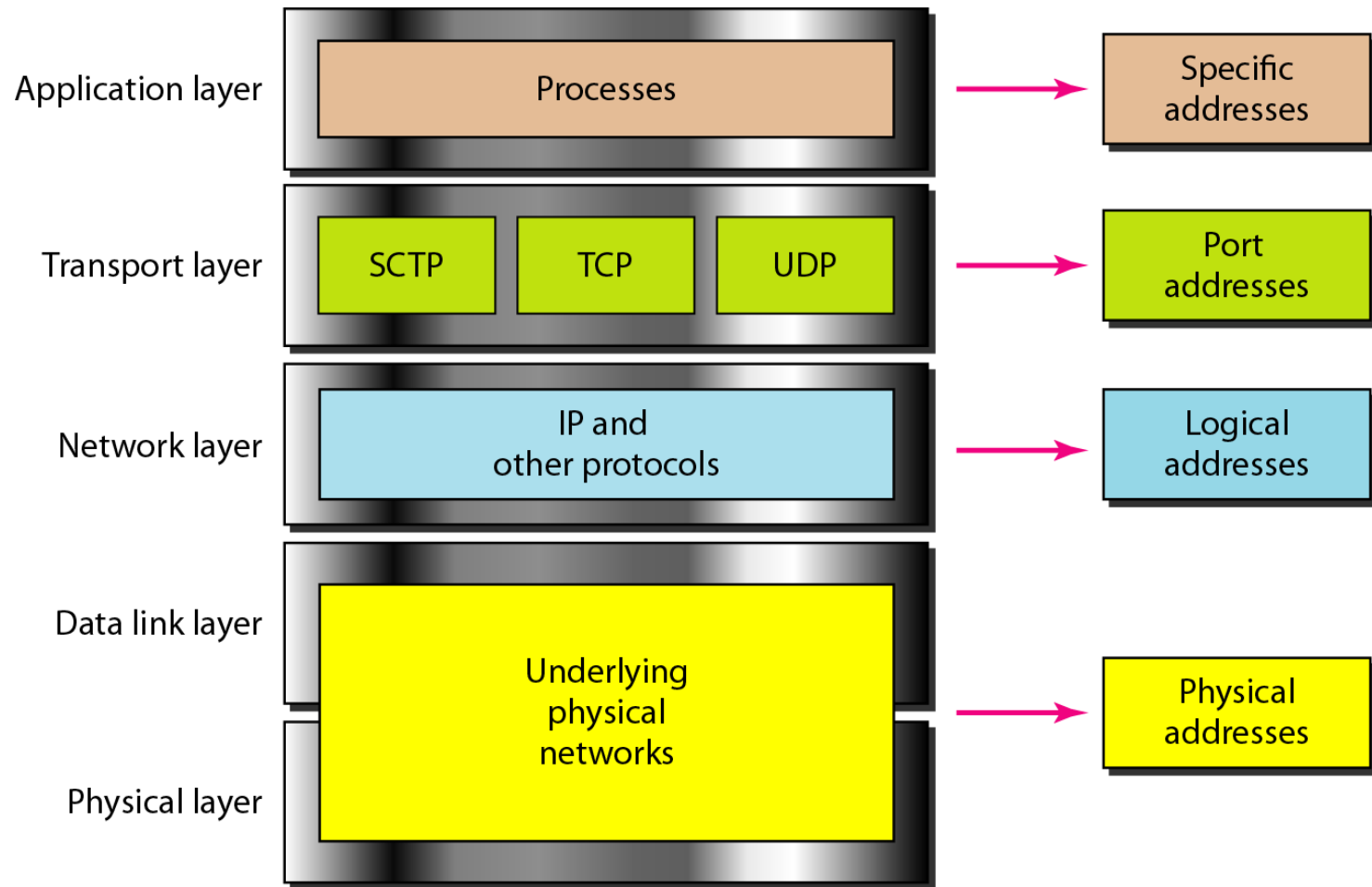
ADDRESSING

- *Four levels of addresses are used in an internet employing the TCP/IP protocols:*
 1. Physical Addresses
 2. Logical Addresses
 3. Port Addresses
 4. Specific Addresses

Addresses in TCP/IP



Relationship of layers and addresses in TCP/IP

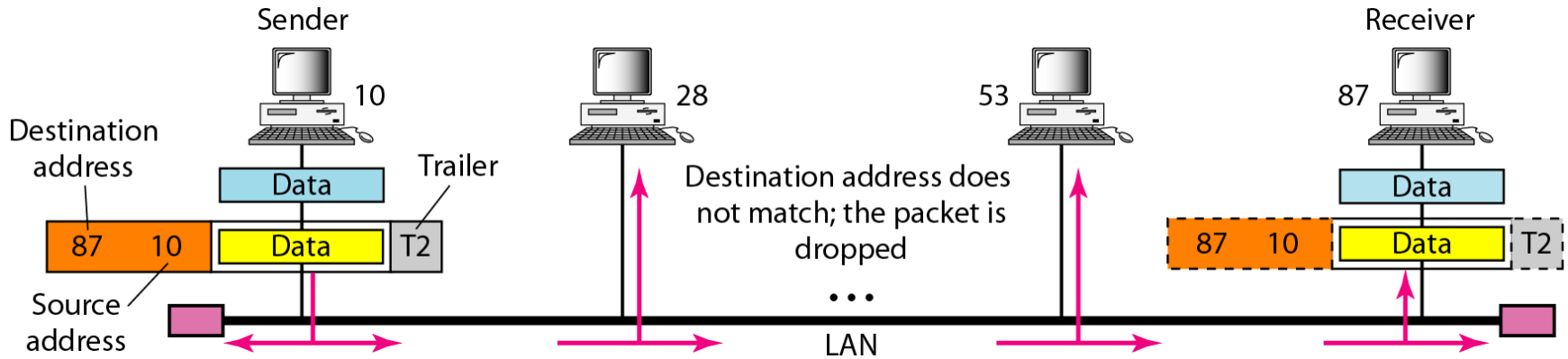


Physical addresses

- *Most local-area networks use a 48-bit (6-byte) physical address written as 12 hexadecimal digits; every byte (2 hexadecimal digits) is separated by a colon, as shown below:*

07:01:02:01:2C:4B

A 6-byte (12 hexadecimal digits) physical address.



In Figure 2.19 a node with physical address 10 sends a frame to a node with physical address 87. The two nodes are connected by a link (bus topology LAN). As the figure shows, the computer with physical address 10 is the sender, and the computer with physical address 87 is the receiver.

IP addresses

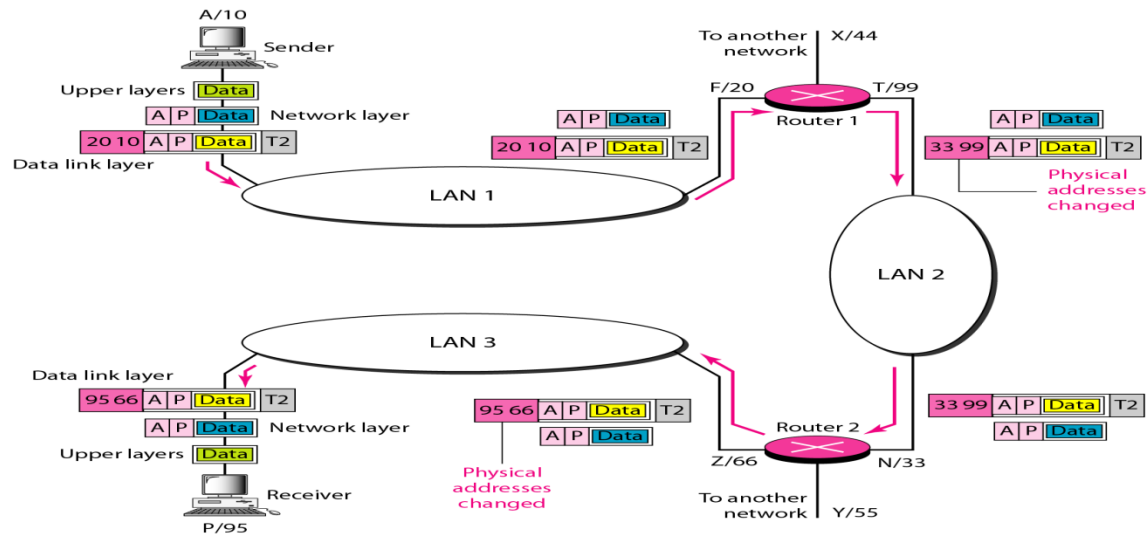


Figure shows a part of an internet with two routers connecting three LANs. Each device (computer or router) has a pair of addresses (logical and physical) for each connection. In this case, each computer is connected to only one link and therefore has only one pair of addresses. Each router, however, is connected to three networks (only two are shown in the figure). So each router has three pairs of addresses, one for each connection.

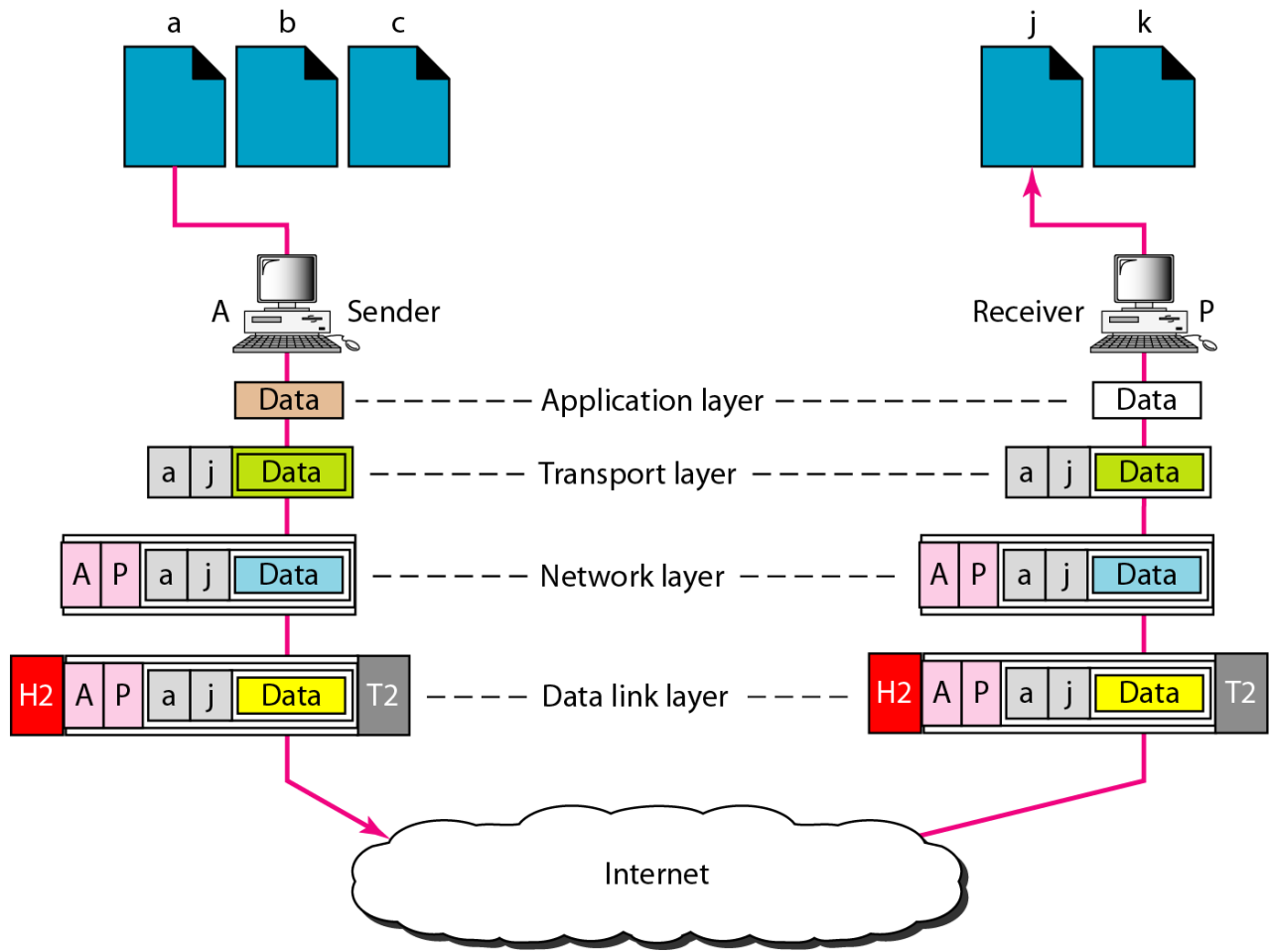
- The physical addresses will change from hop to hop, but the logical addresses usually remain the same.

Port addresses

- *A port address is a 16-bit address represented by one decimal number as shown.*

753

A 16-bit port address represented
as one single number.



- The physical addresses will change from hop to hop, but the logical addresses usually remain the same.

Text and Reference Books:

- A. S Tanenbaum, “Computer Networks, PHI
- Forouzan, “Data Communication and Networking”, TMH