Chapter 2-Network Model

Figure 2.1 *Tasks involved in sending a letter*

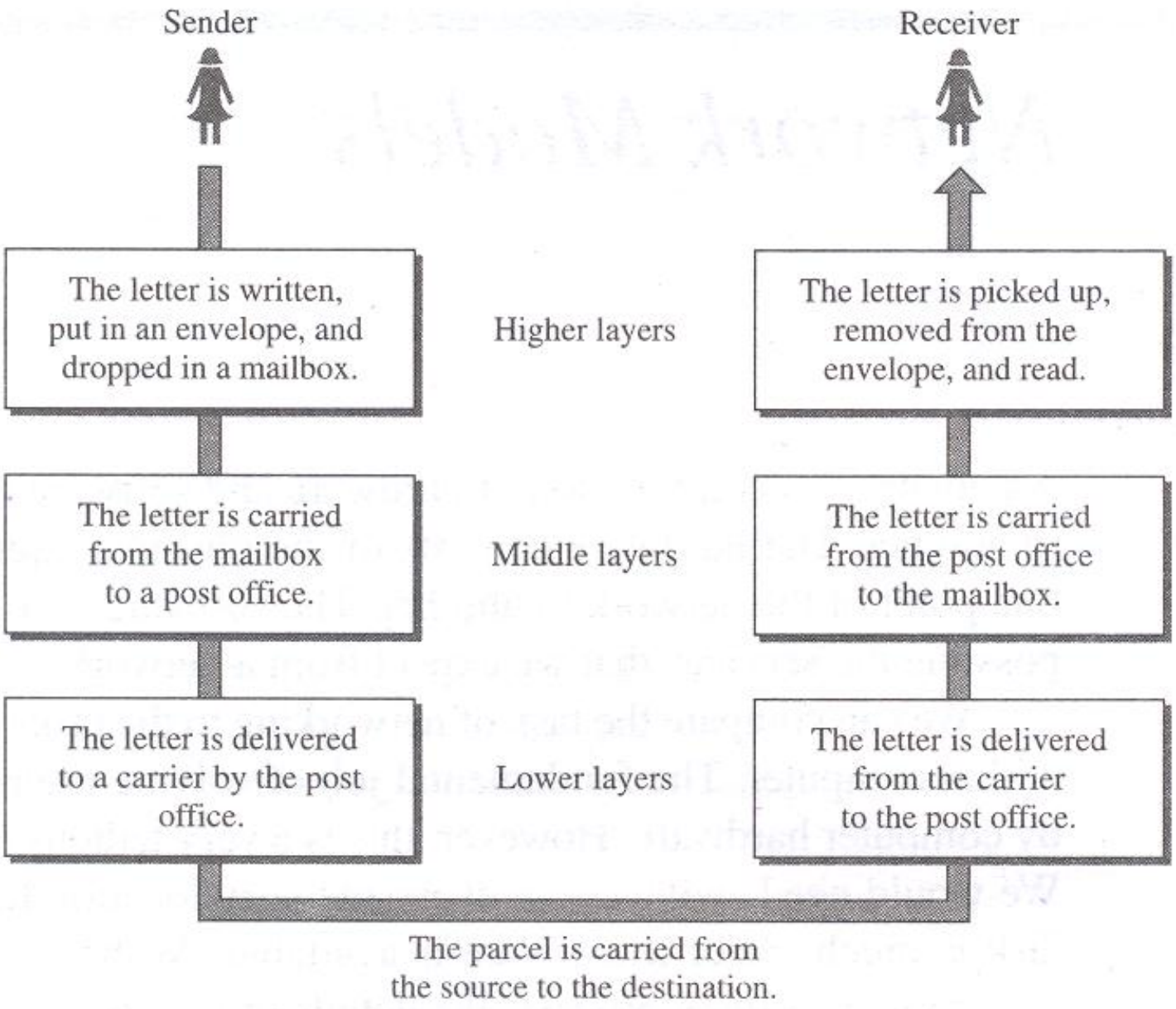
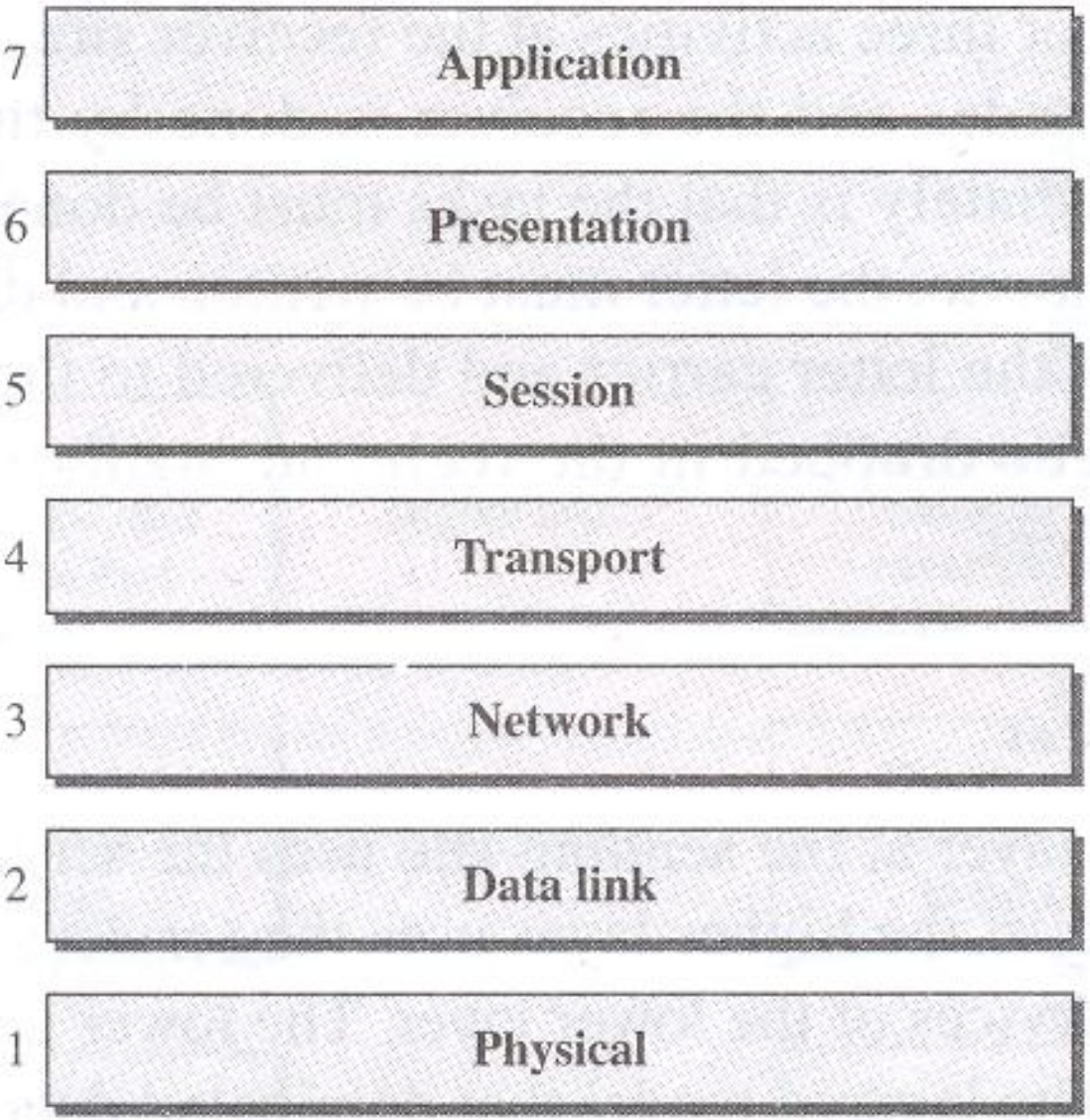


Figure 2.2 *Seven layers of the OSI model*

ISO=International Organization of Standardization.

OSI=Open System interconnection.

ISO is the organization and OSI is the model



The communication is governed by an agreed-upon series of rules and conventions called protocols. On the other hand, protocols can be called the languages of communication.

The processes on each machine that communicate at a given layer are called Peer-to-Peer processes. Communication between machines is therefore a peer-to-peer process using the protocols appropriate to a given layer.

Physical, Data link, Network layers are called network supported layers. They deal with the physical aspects of moving data from one device to another.

Session , Presentation and Application layers are called user support layers. They allow interoperability among unrelated software systems.

Transport layer links the two subgroups and ensures that what the lower layers have transmitted is in a form that the upper layers can use.

Figure 2.3 *The interaction between layers in the OSI model*

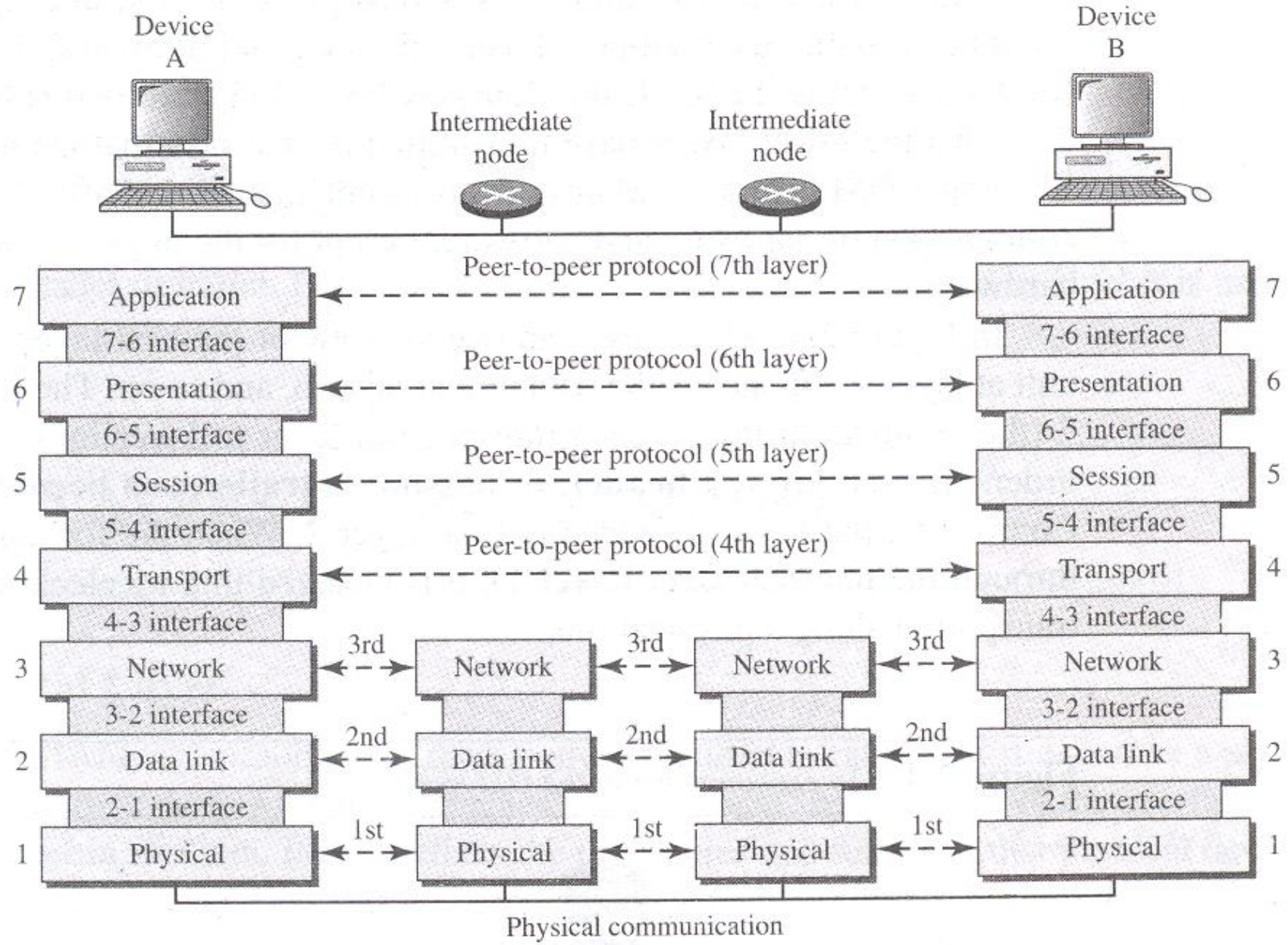


Figure 2.4 *An exchange using the OSI model*

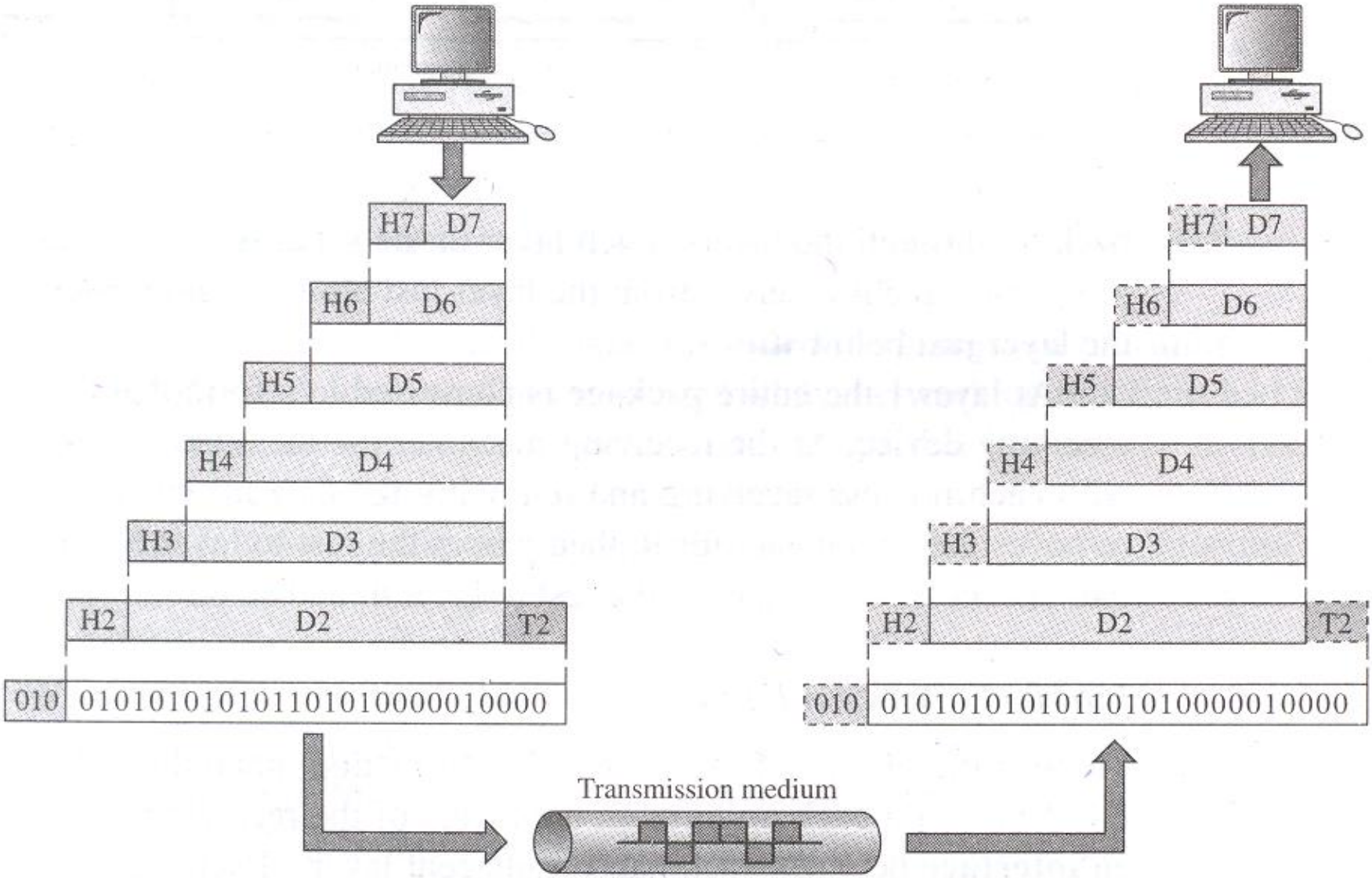
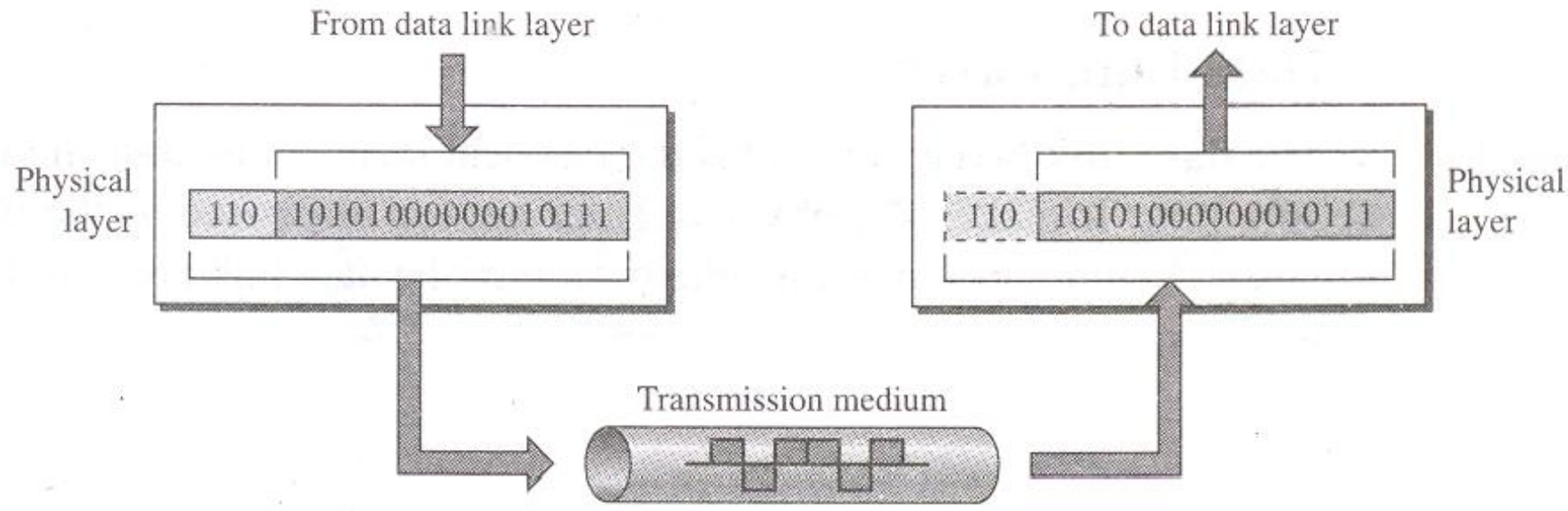
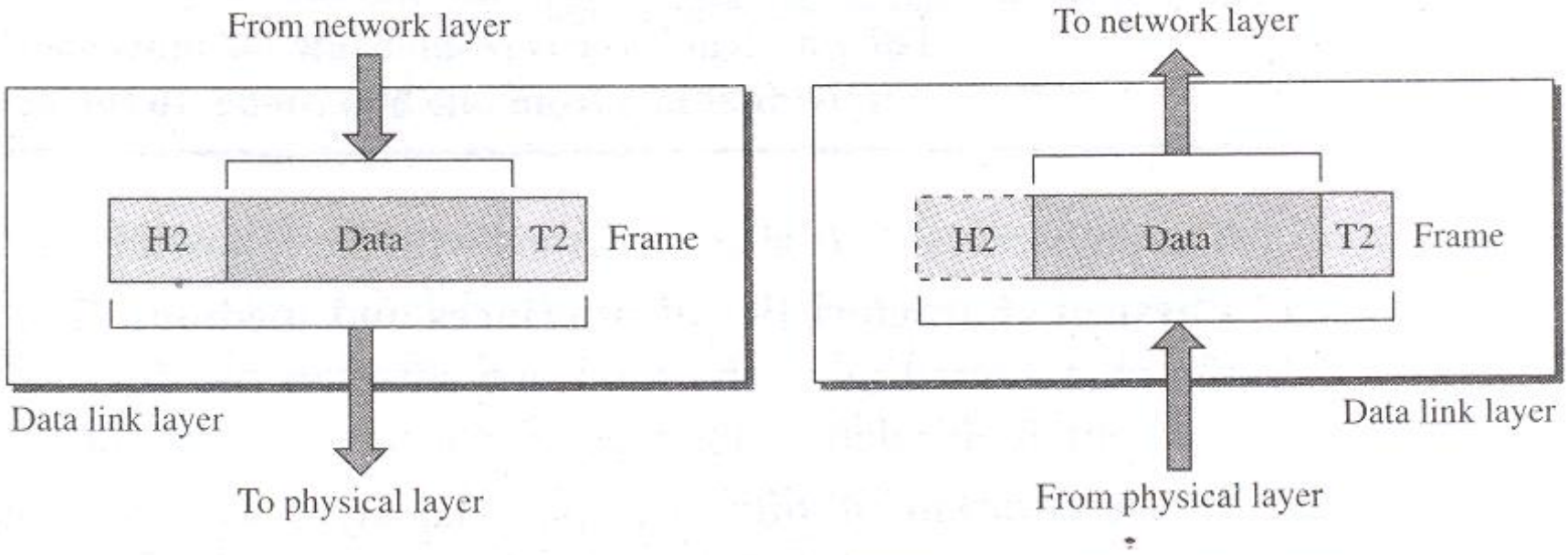


Figure 2.5 *Physical layer*



The physical layer is responsible for movements of individual bits from one hop (node) to the next.

Figure 2.6 *Data link layer*



The Data Link Layer is responsible for moving frames from one hop (node) to the next.

Figure 2.7 *Hop-to-hop delivery*

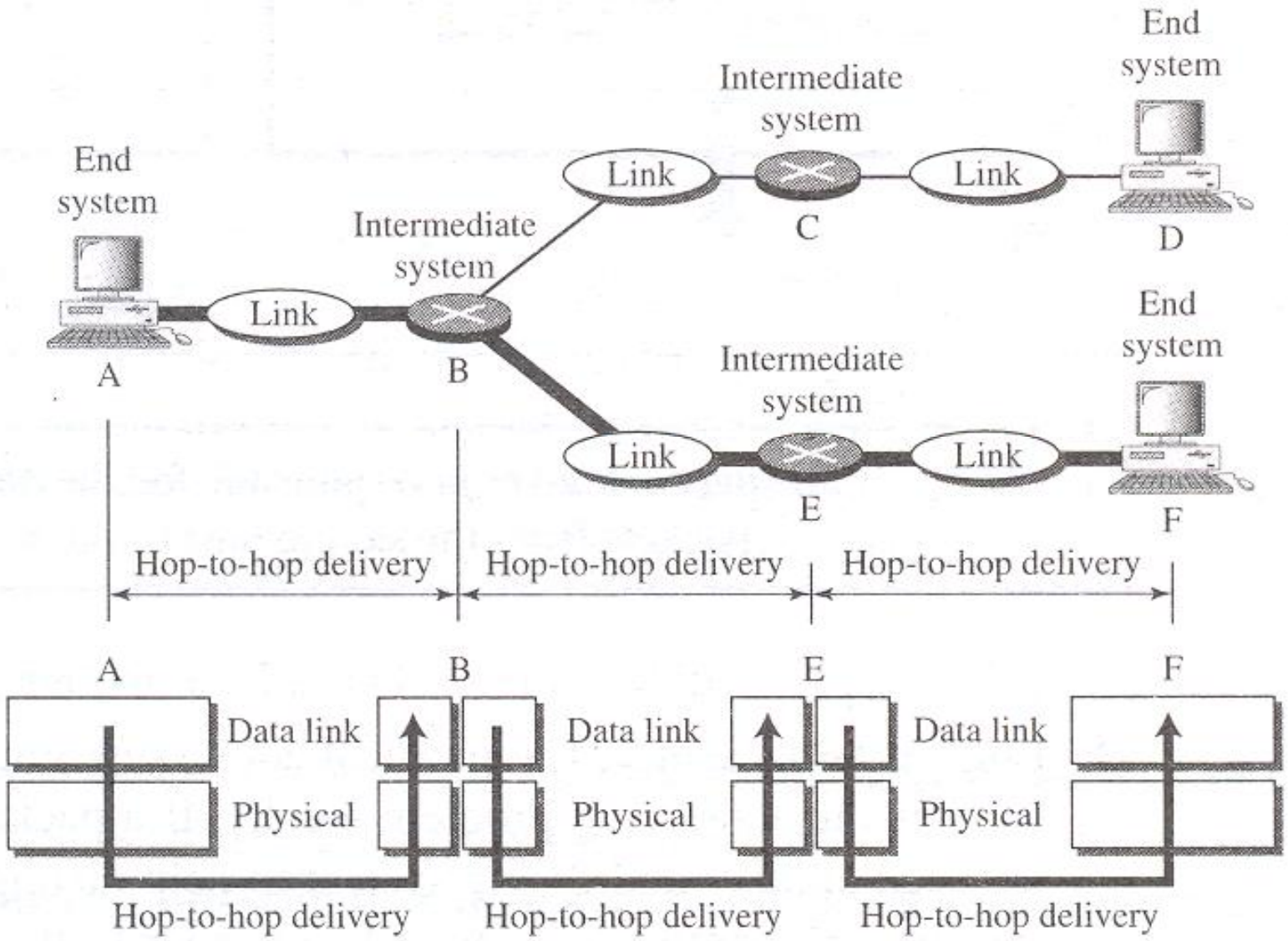
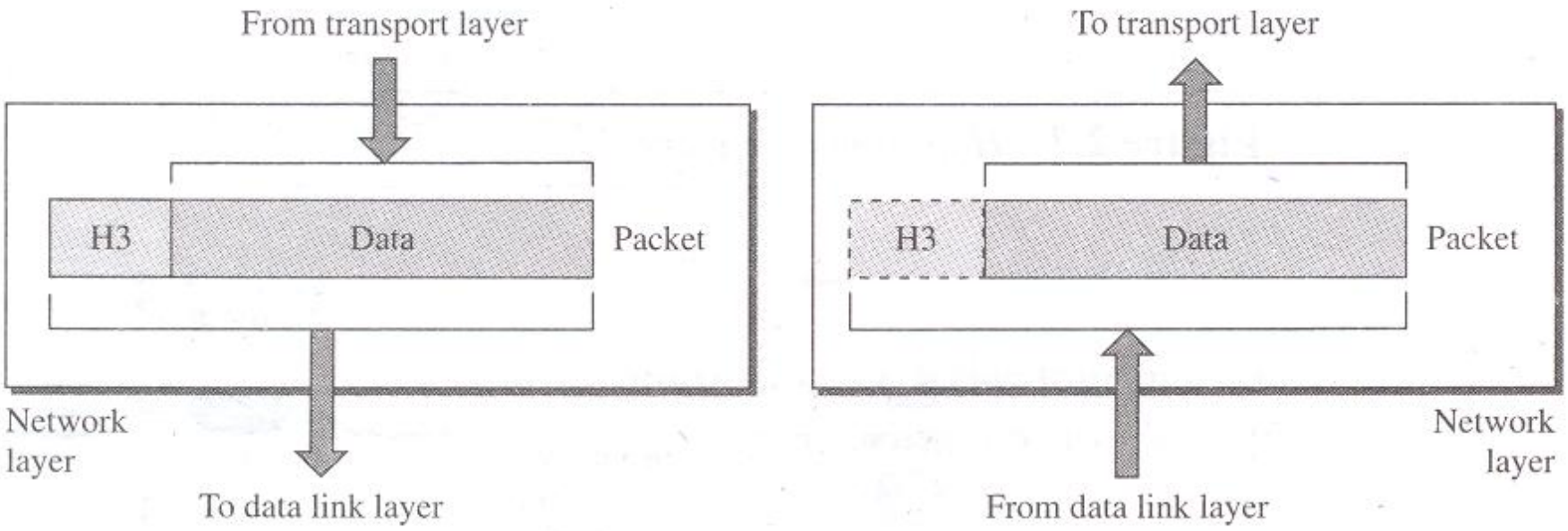


Figure 2.8 *Network layer*



The network layer is responsible for the delivery of individual packets from the source host to the destination host.

e 2.9 *Source-to-destination delivery*

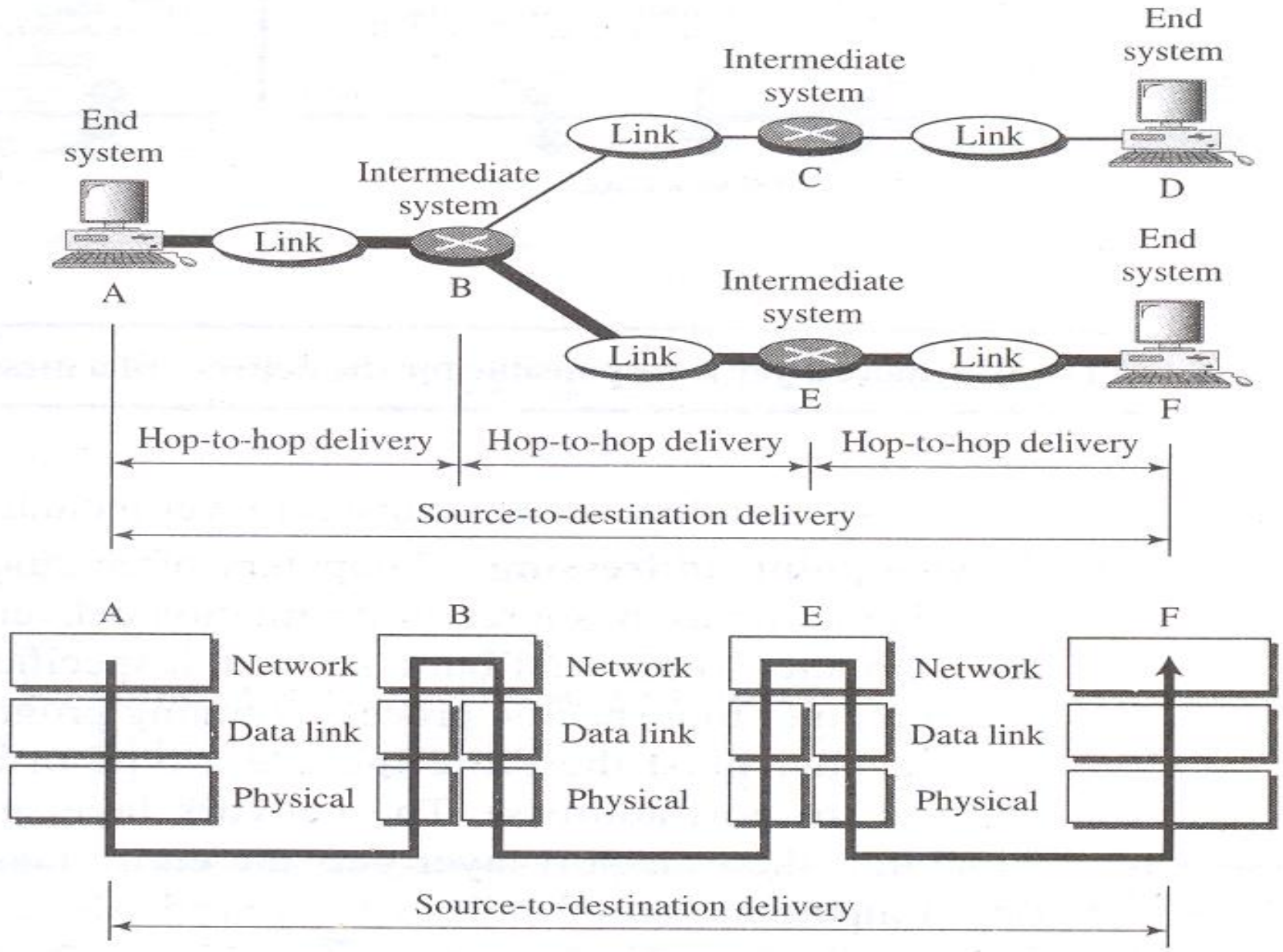
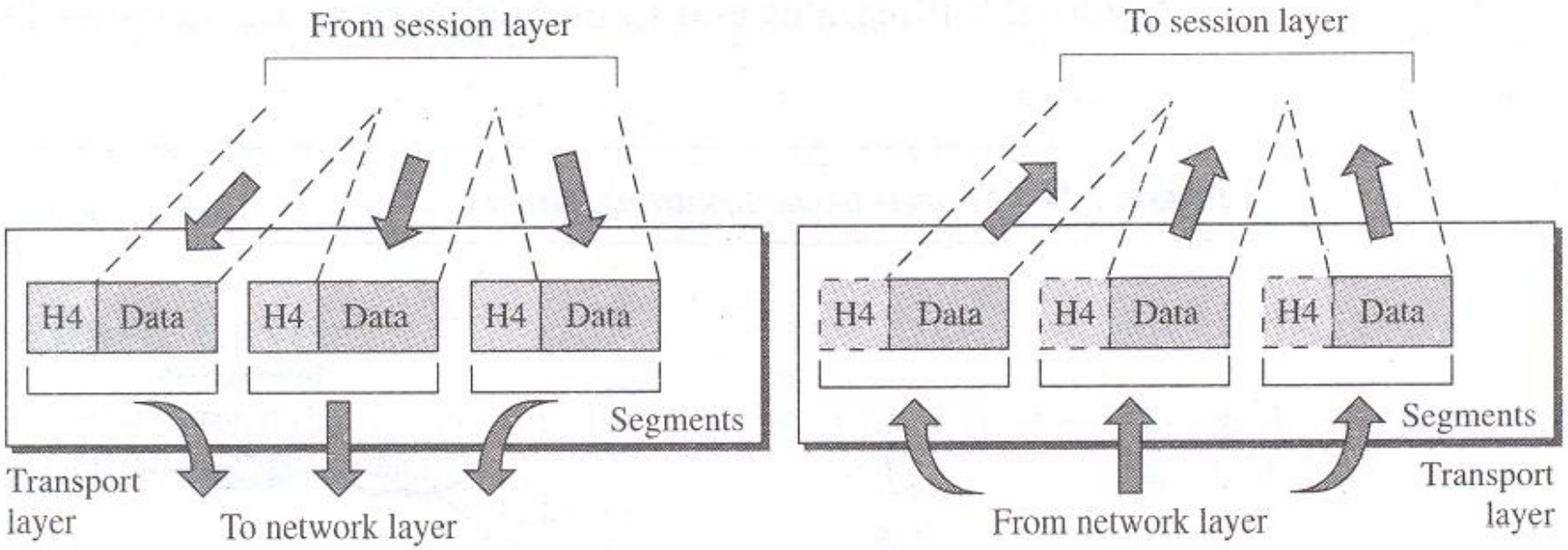


Figure 2.10 *Transport layer*



The transport layer is responsible for the delivery of a message from one process to another.

Figure 2.11 illustrates process-to-process delivery by the transport layer.

Figure 2.11 *Reliable process-to-process delivery of a message*

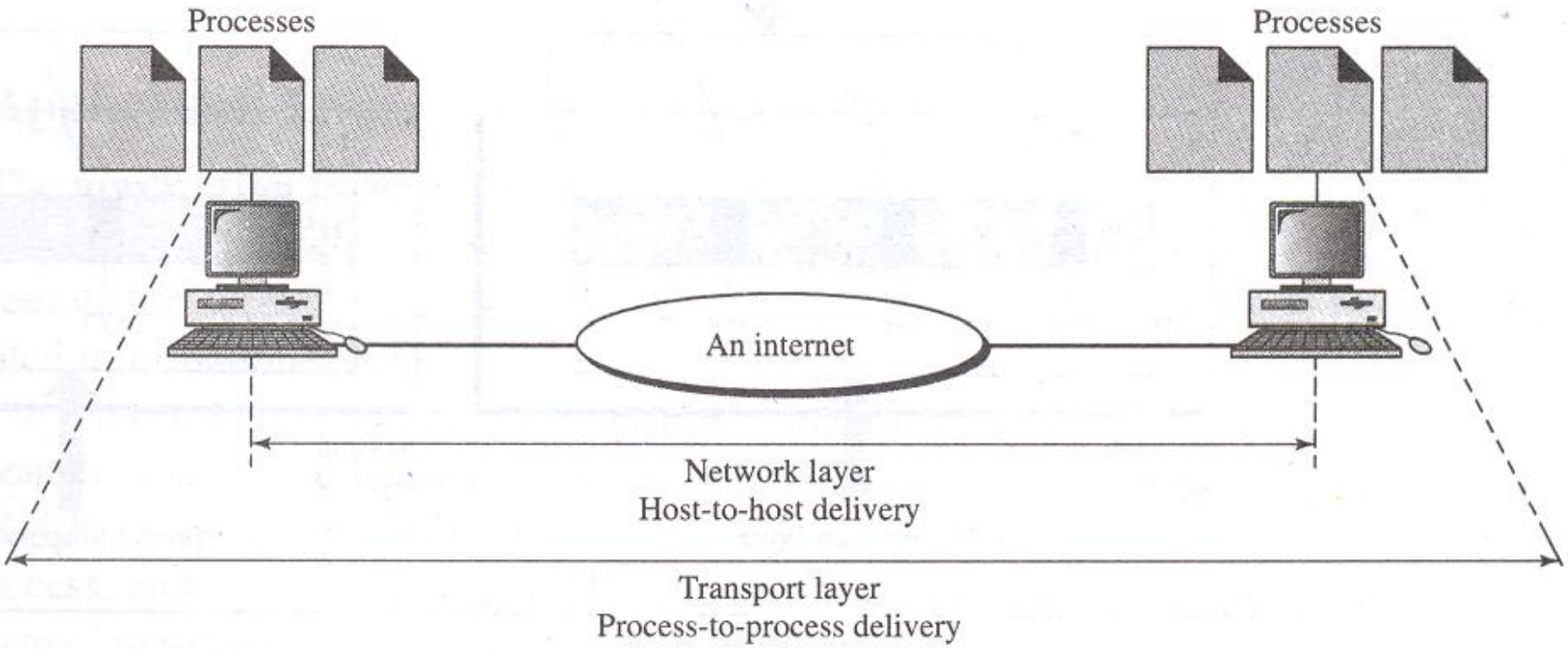
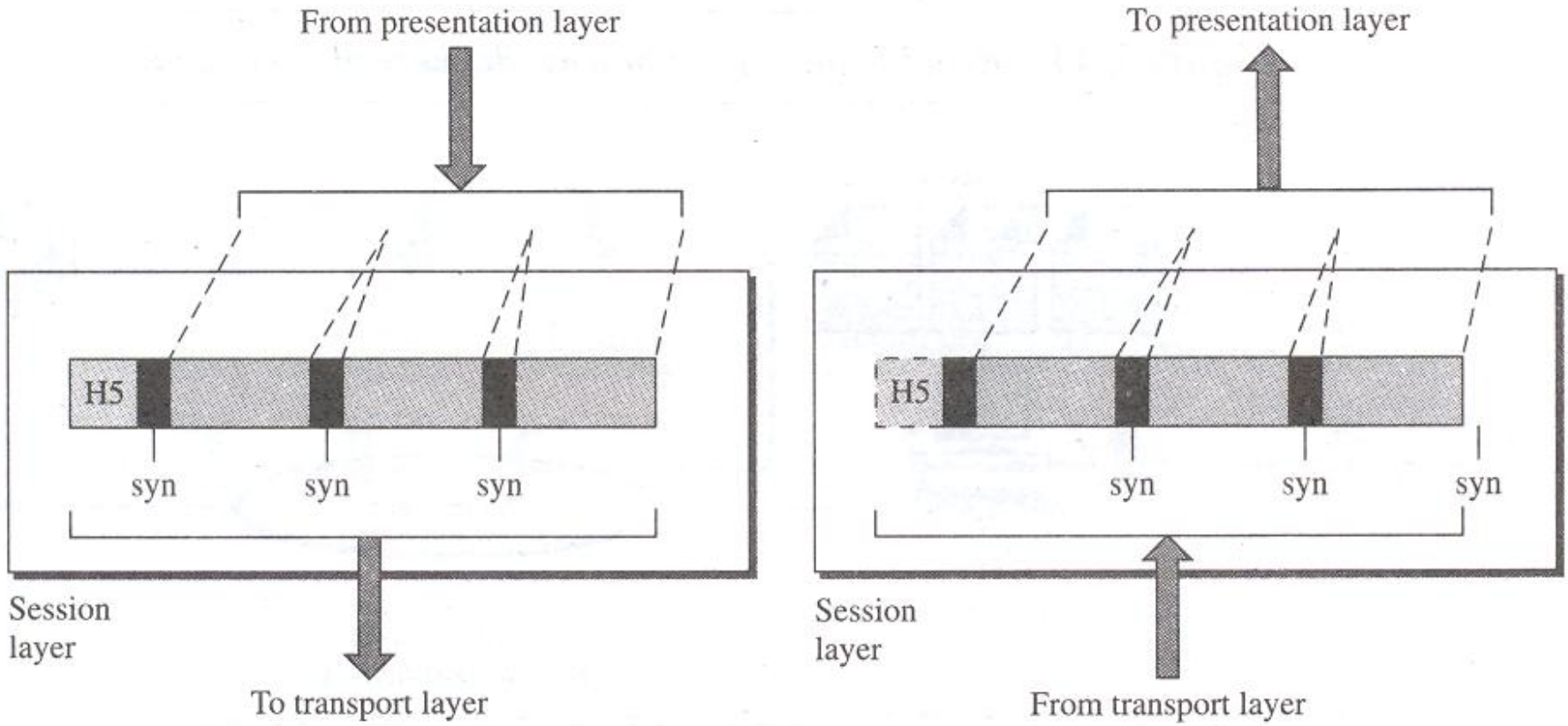
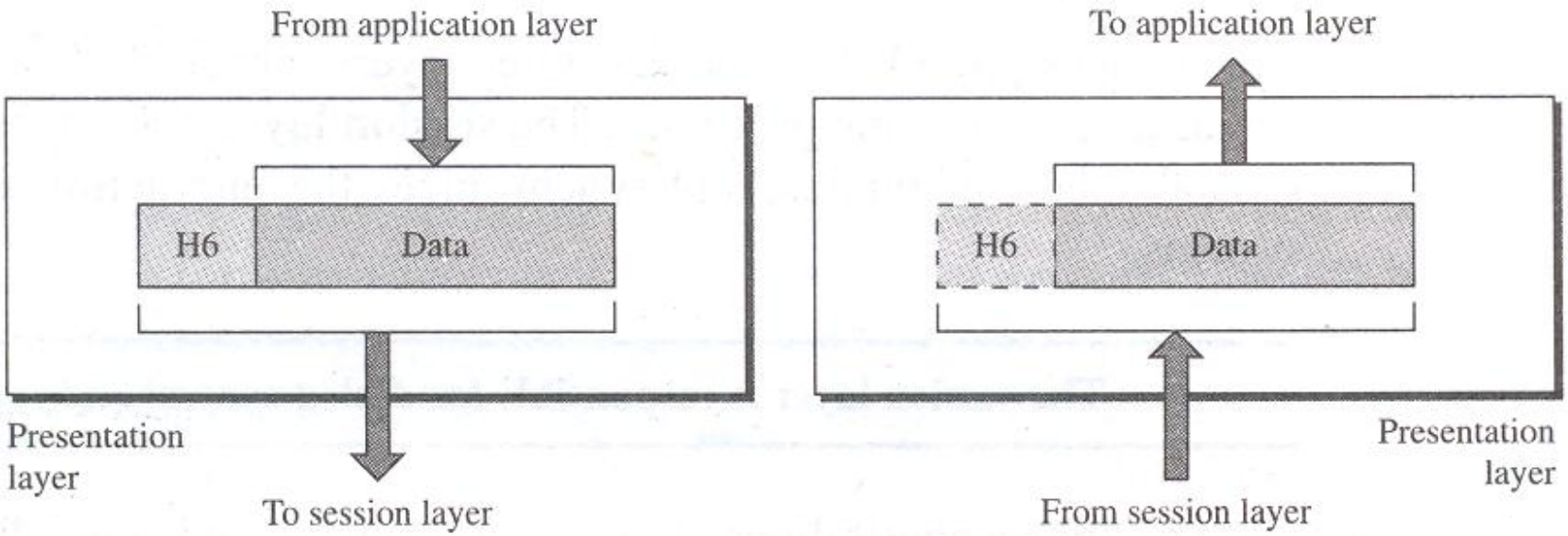


Figure 2.12 *Session layer*



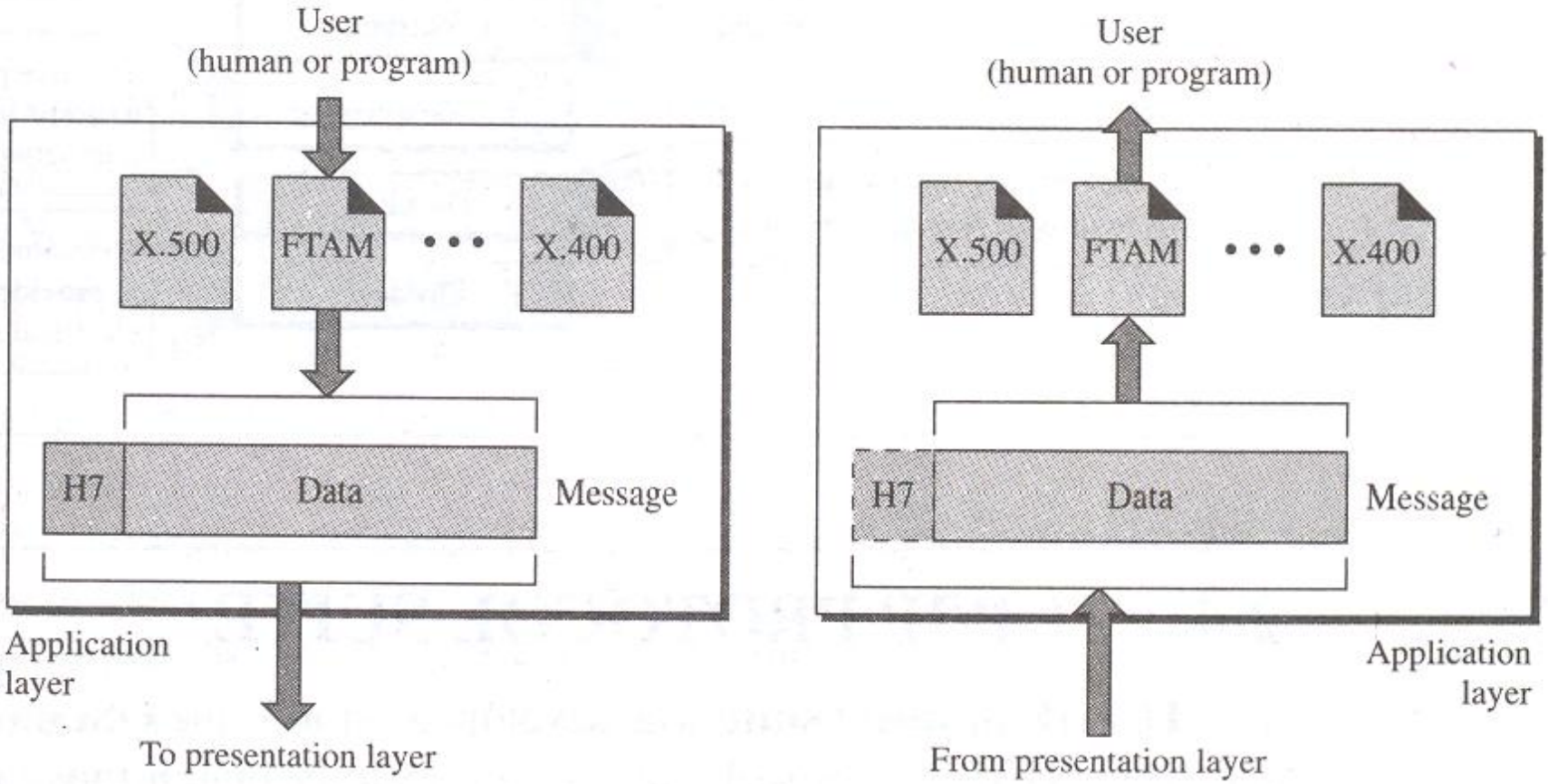
The Session layer is responsible for dialog control and synchronization.

Figure 2.13 *Presentation layer*



The presentation layer is responsible for translation, compression, and encryption.

Figure 2.14 *Application layer*



The application layer is responsible for providing services to the user.

Figure 2.15 *Summary of layers*

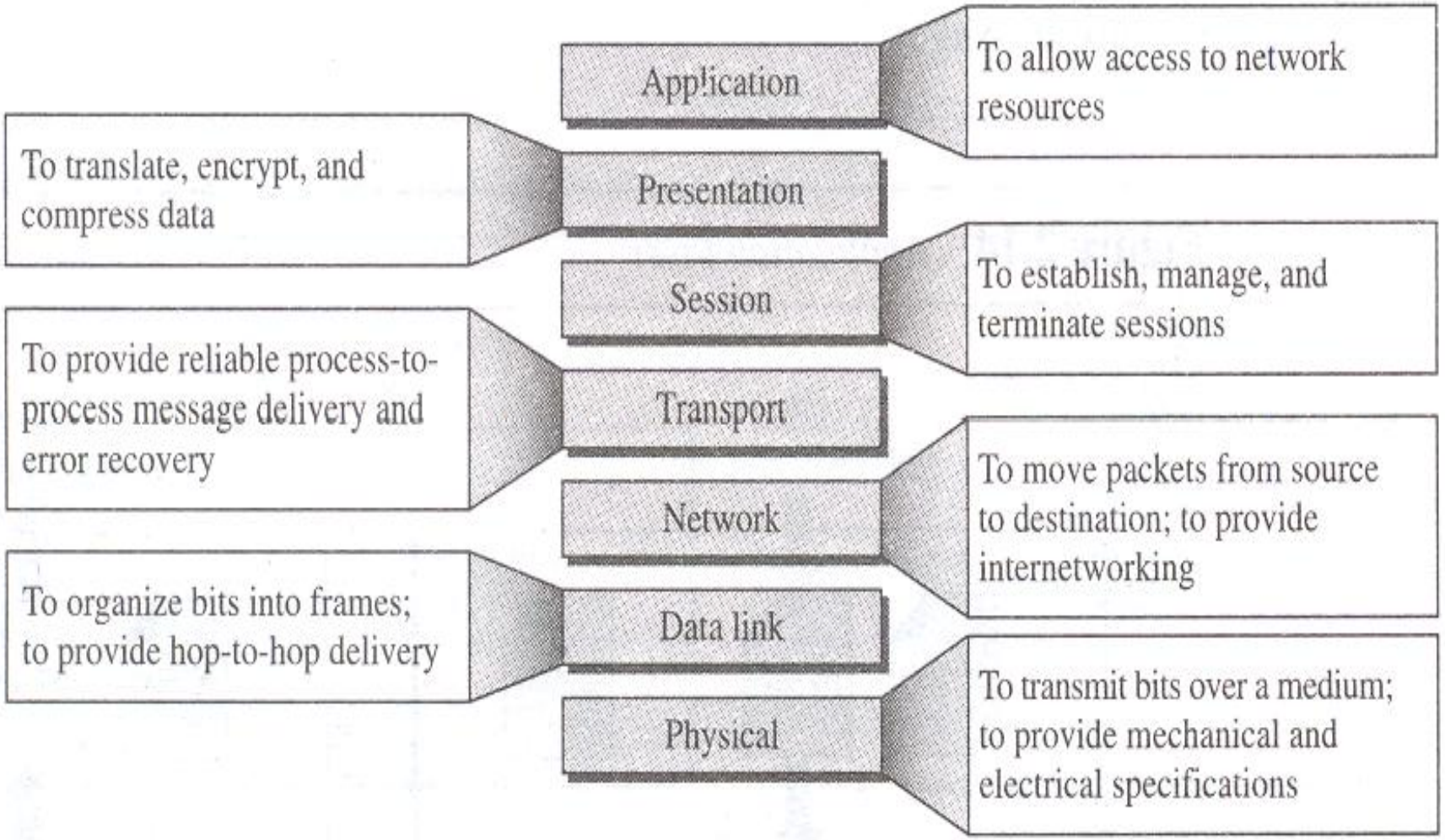


Figure 2.16 *TCP/IP and OSI model*

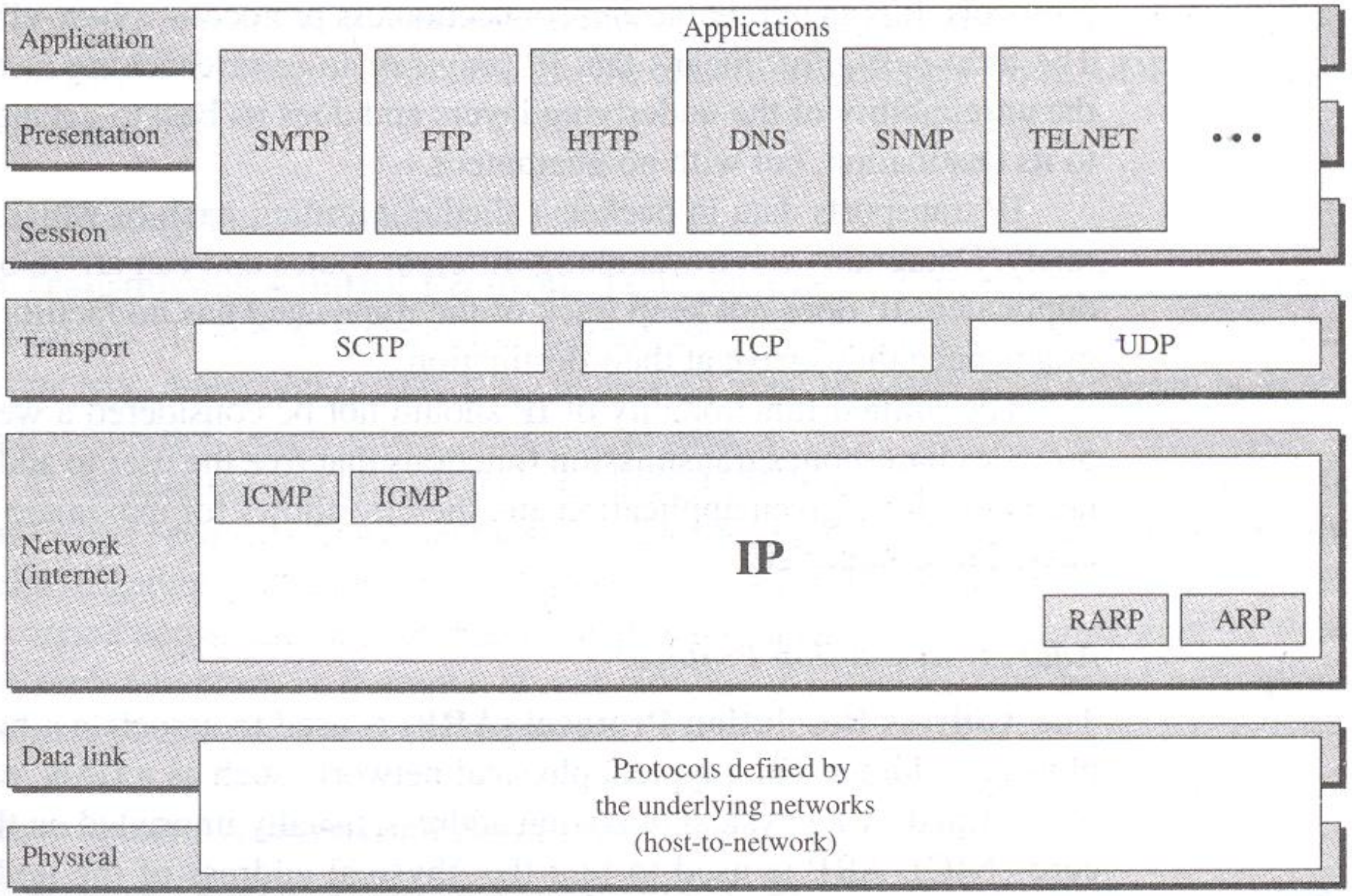


Figure 2.17 *Addresses in TCP/IP*

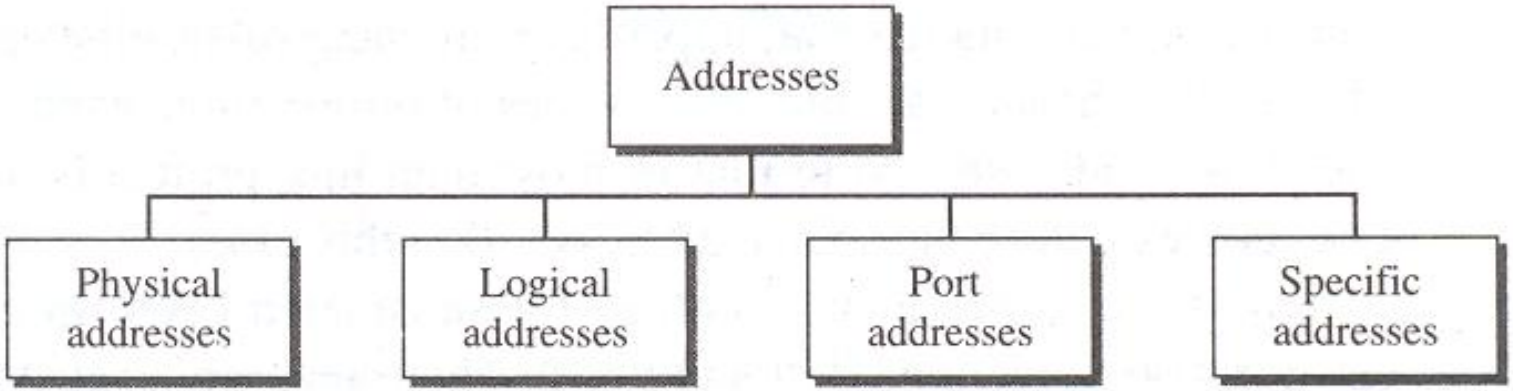


Figure 2.18 *Relationship of layers and addresses in TCP/IP*

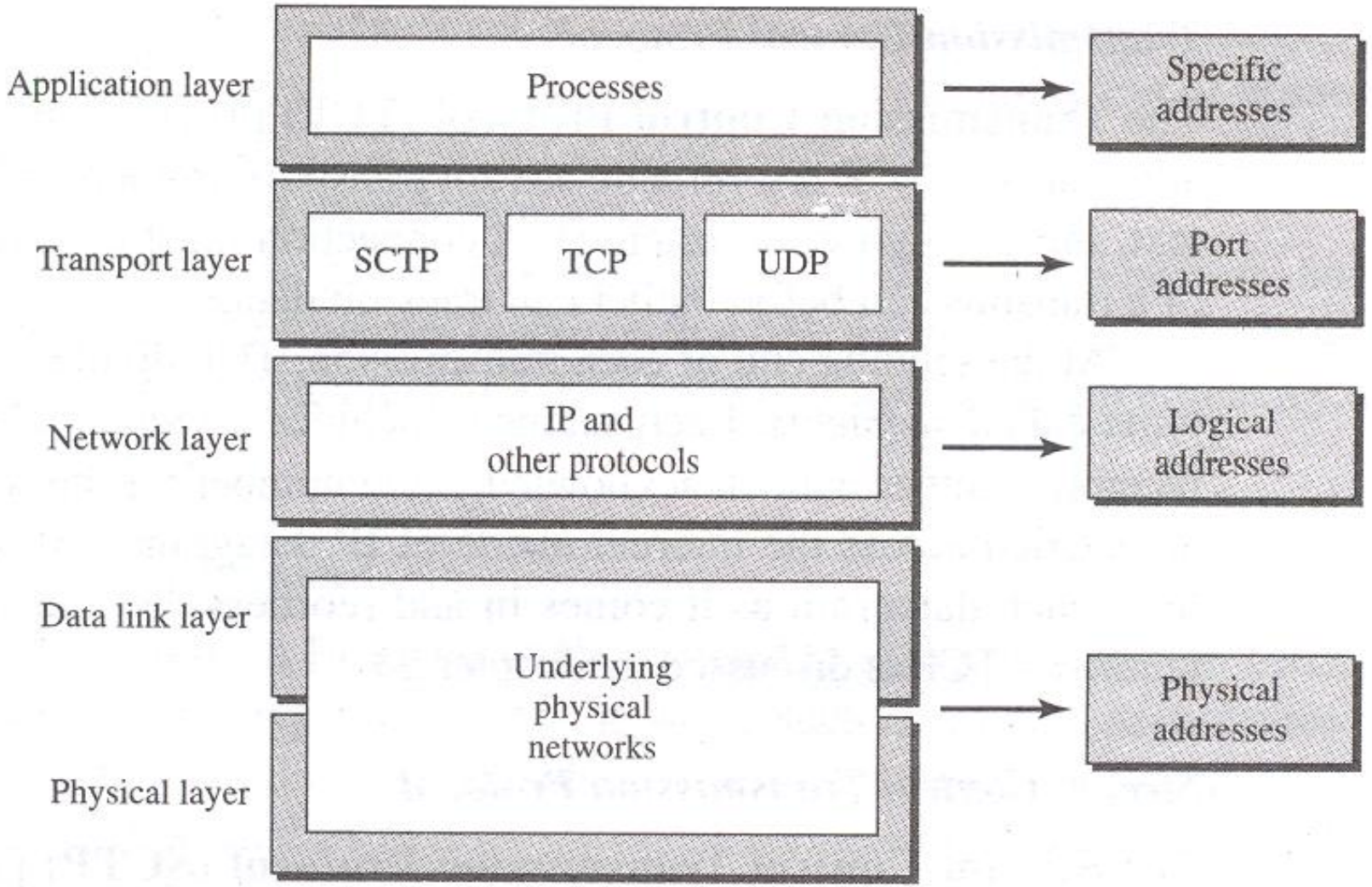
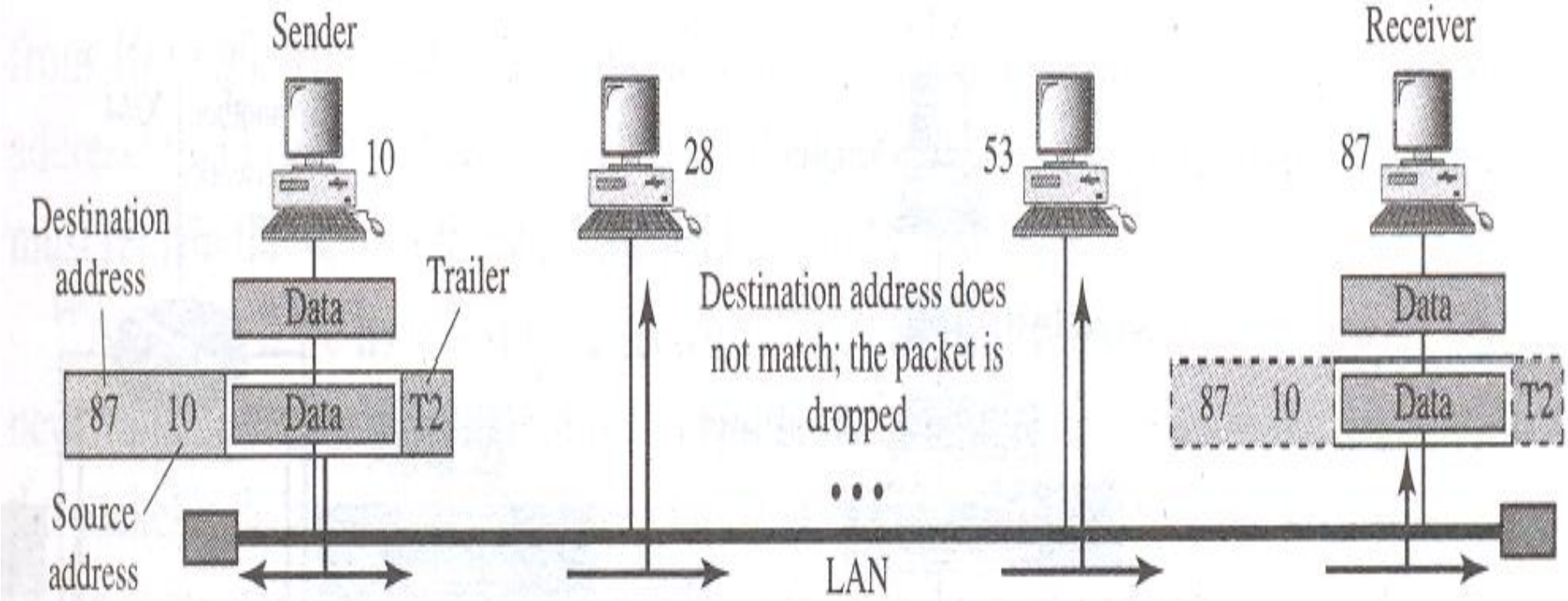


Figure 2.19 *Physical addresses*



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

A 6-byte (12 hexadecimal digits) physical address

Figure 2.20 *IP addresses*

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

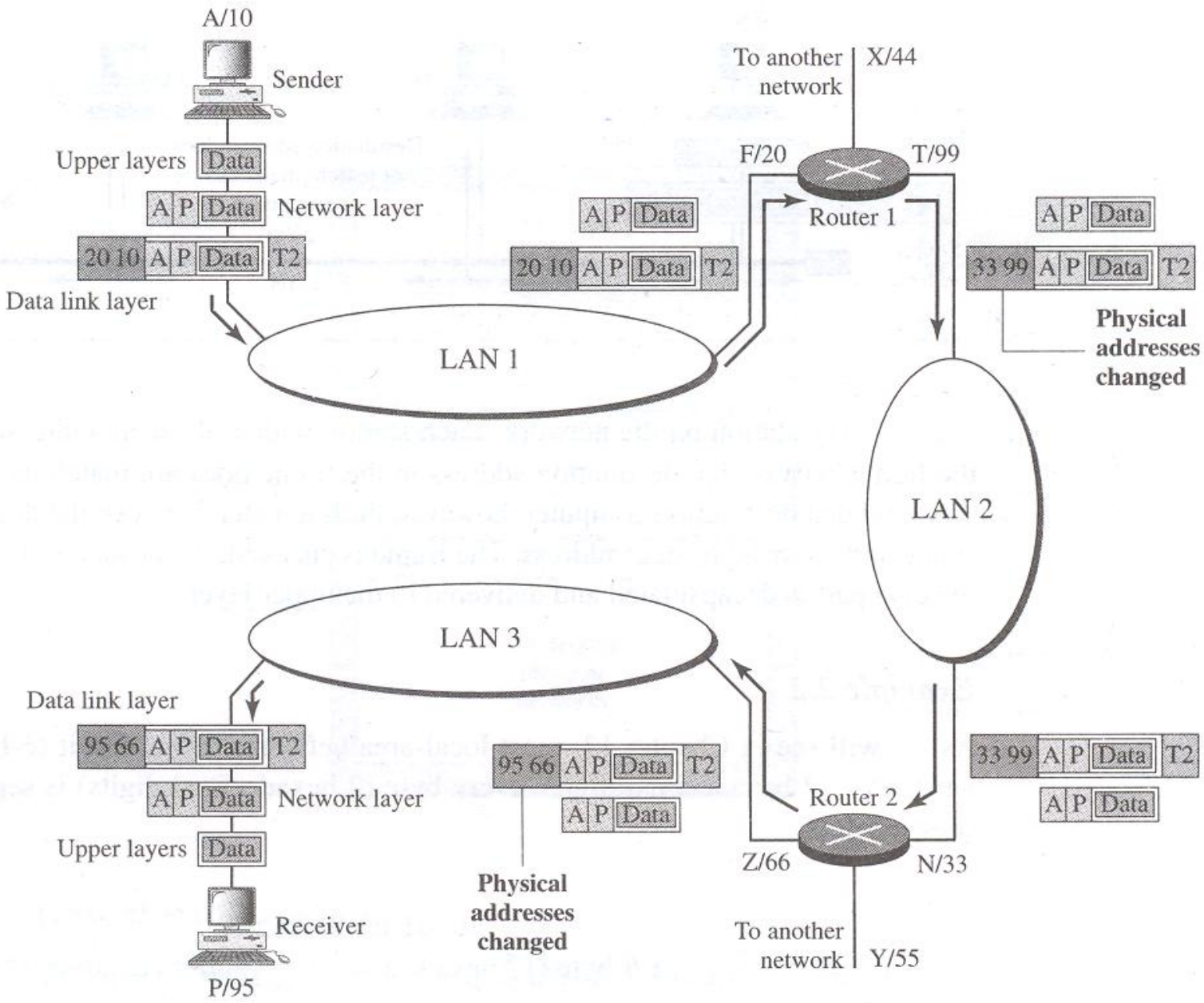
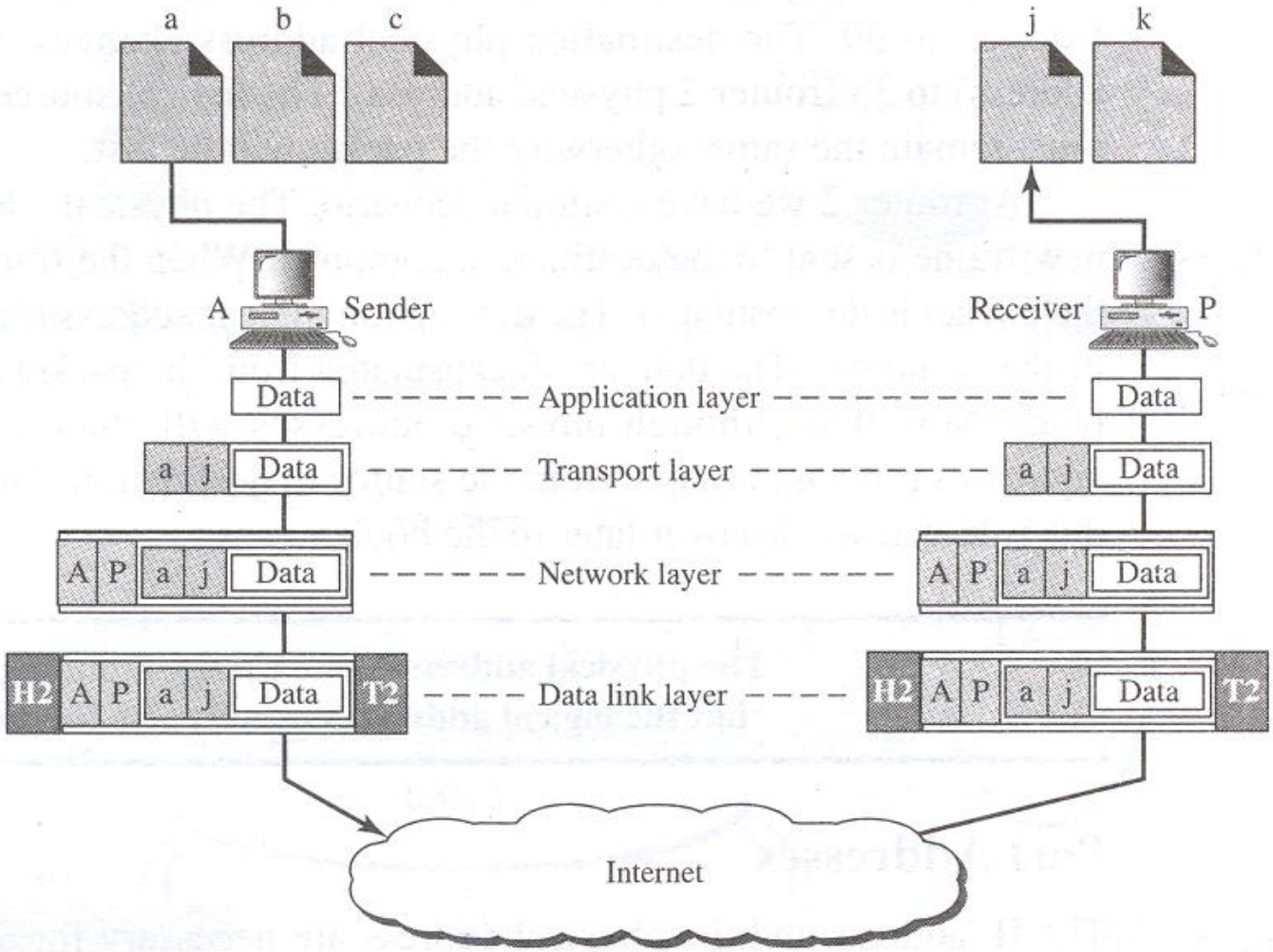


Figure 2.21 *Port addresses*



The physical addresses change from hop to hop, but the logical and port addresses usually remain the same.