# Network Models

# THE OSI MODEL

*Established in 1947, the International Standards Organization (ISO) is a multinational body dedicated to worldwide agreement on international standards. An ISO standard that covers all aspects of network communications is the Open Systems Interconnection (OSI) model. It was first introduced in the late 1970s.*

**Topics discussed in this section:**

**Layered Architecture**
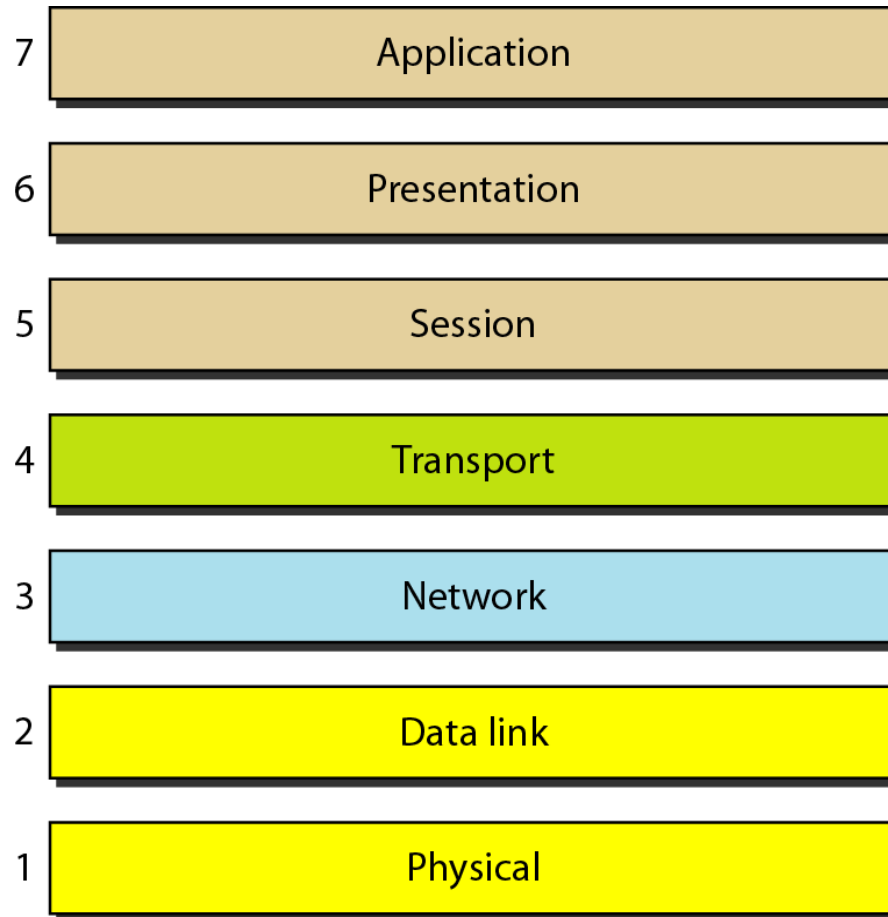**Peer-to-Peer Processes**
**Encapsulation**
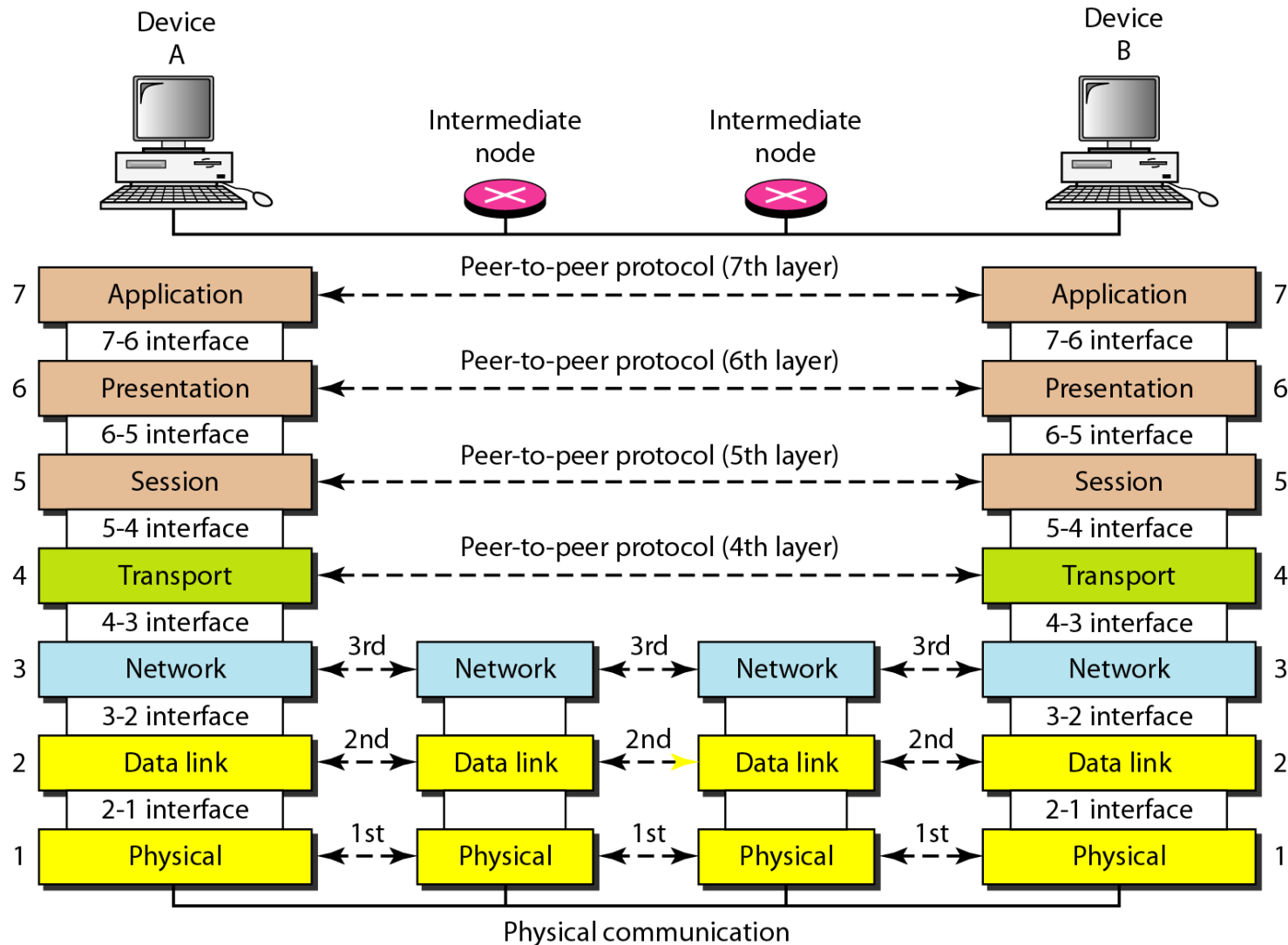
**Note**

ISO is the organization.
OSI is the model.

# Seven layers of the OSI model

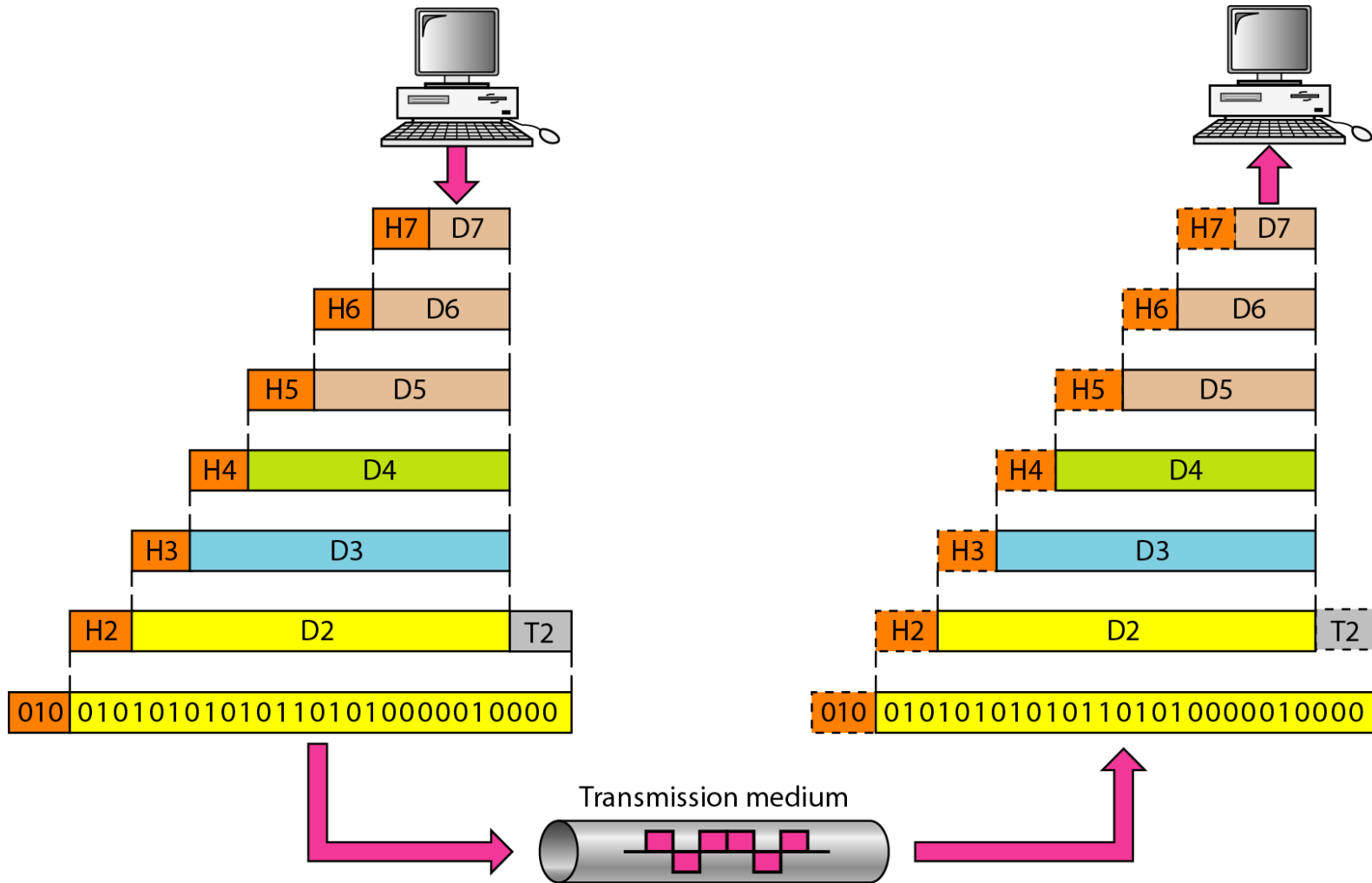| | |
|---|---|
| 7 | Application |
| 6 | Presentation |
| 5 | Session |
| 4 | Transport |
| 3 | Network |
| 2 | Data link |
| 1 | Physical |

# *The interaction between layers in the OSI model*

# An exchange using the OSI model

# LAYERS IN THE OSI MODEL

*In this section we briefly describe the functions of each layer in the OSI model.*

*Topics discussed in this section:*
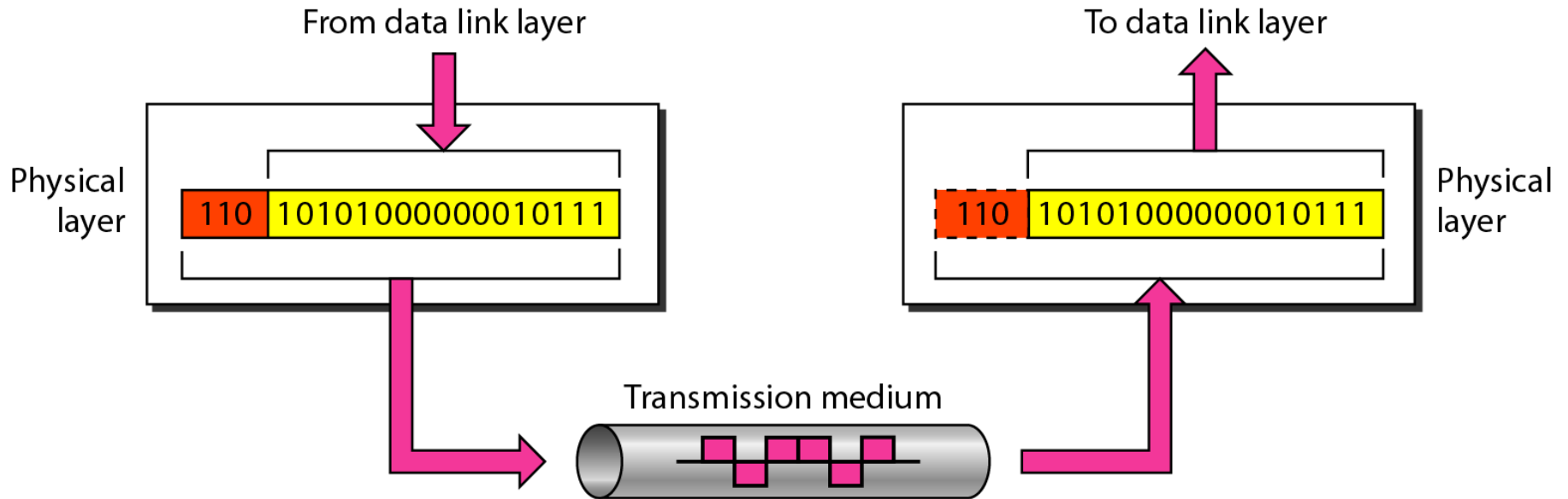
Physical Layer
Data Link Layer
Network Layer
Transport Layer
Session Layer
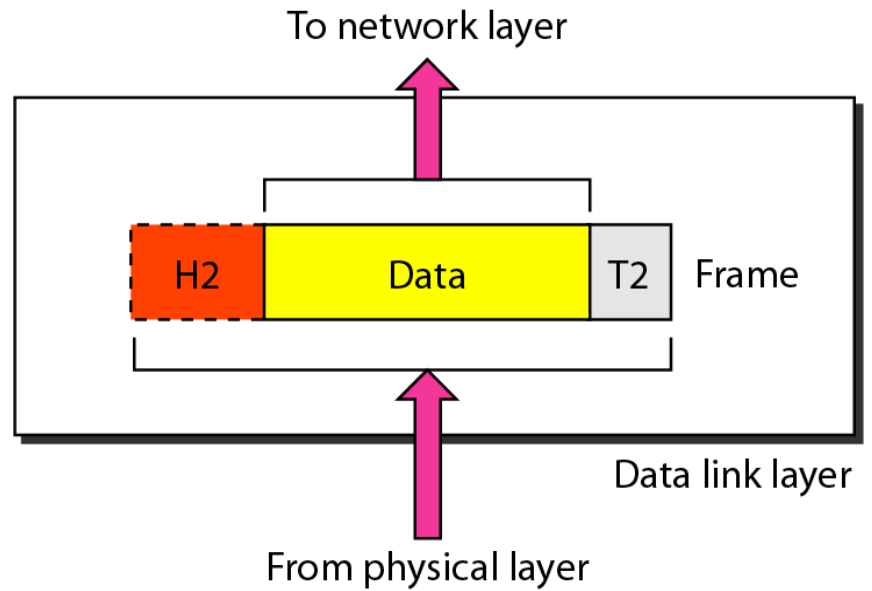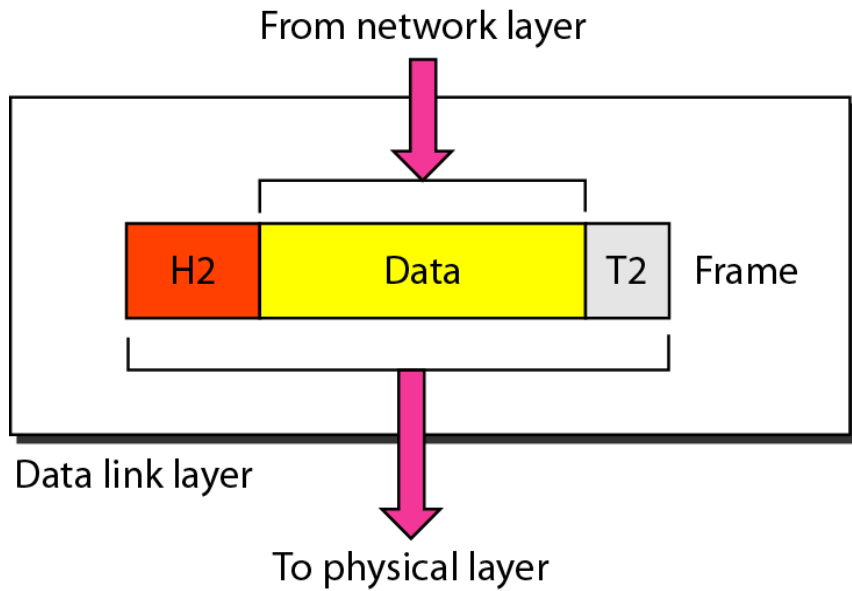Presentation Layer
Application Layer

7

# *Physical layer*



From data link layer

To data link layer

Physical layer

110 | 10101000000010111

Physical layer

110 | 10101000000010111

Transmission medium

**Note**

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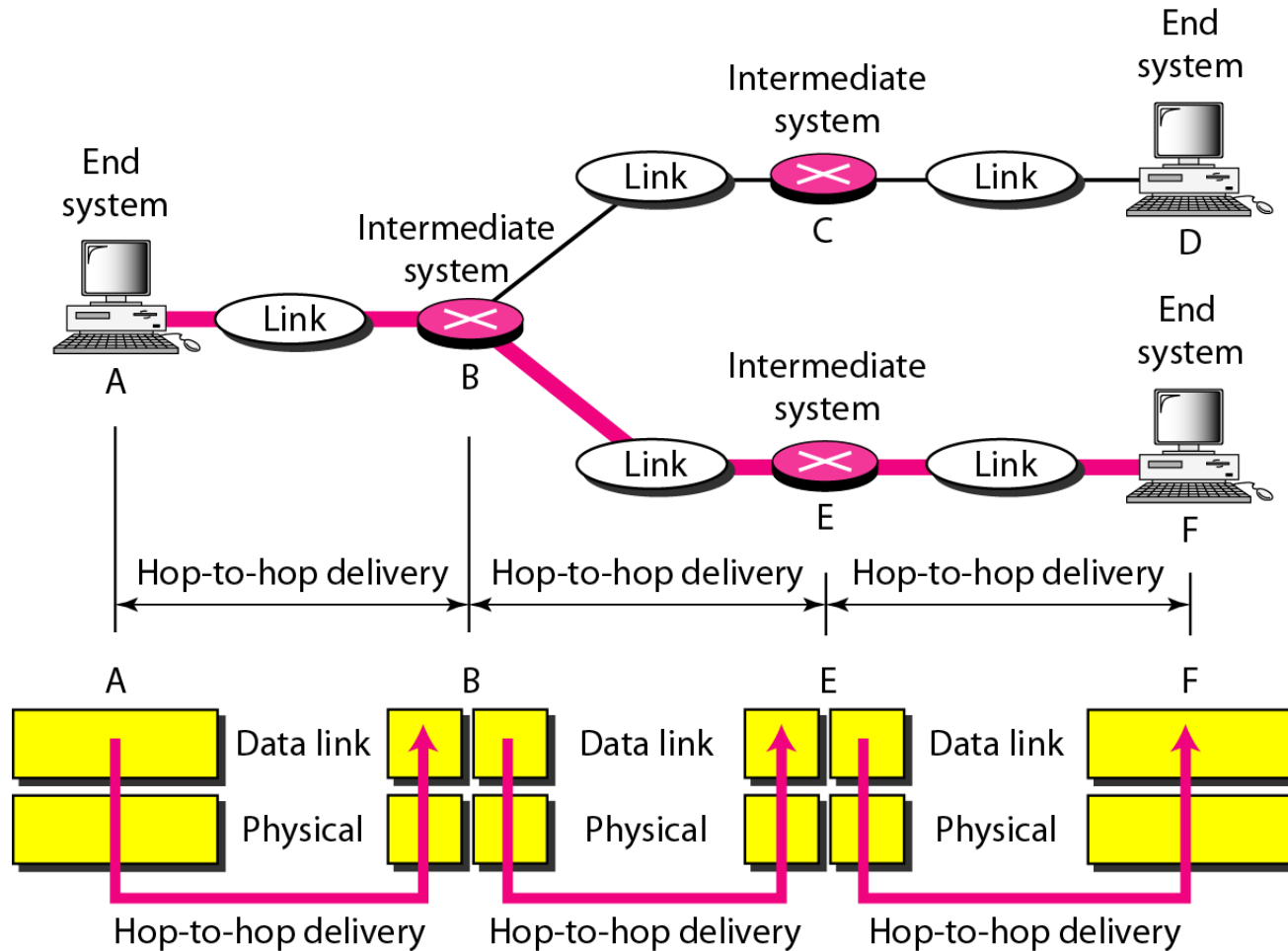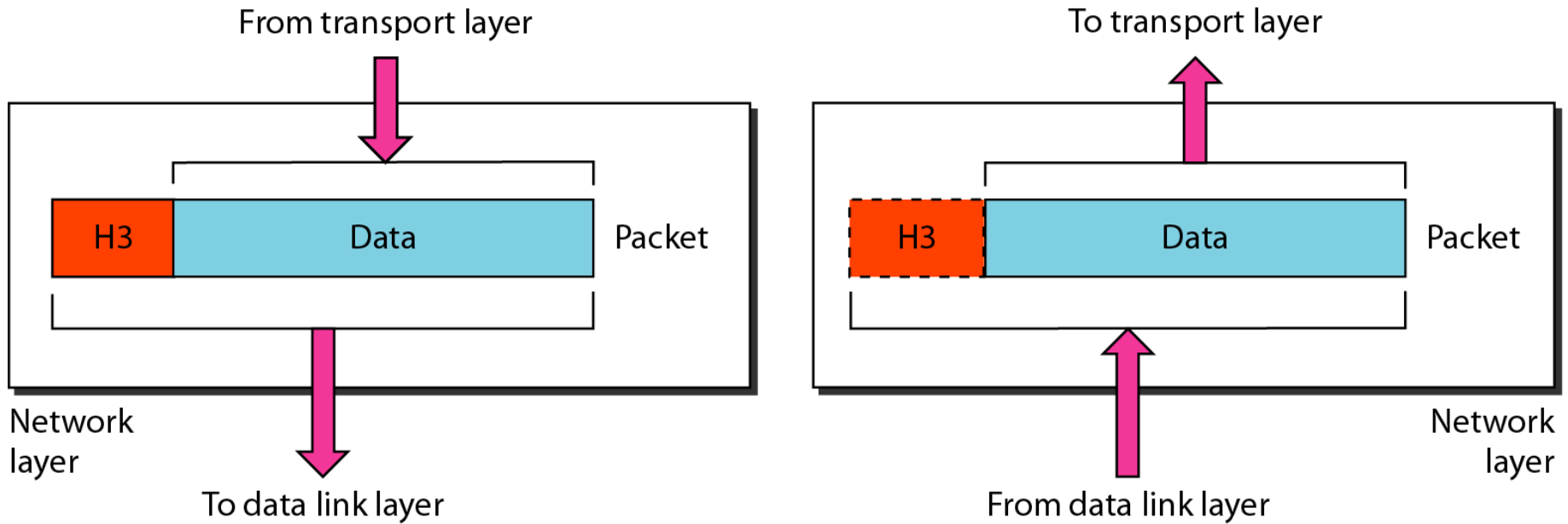
# *Data link layer*

**Note**

The data link layer is responsible for moving
frames from one hop (node) to the next.
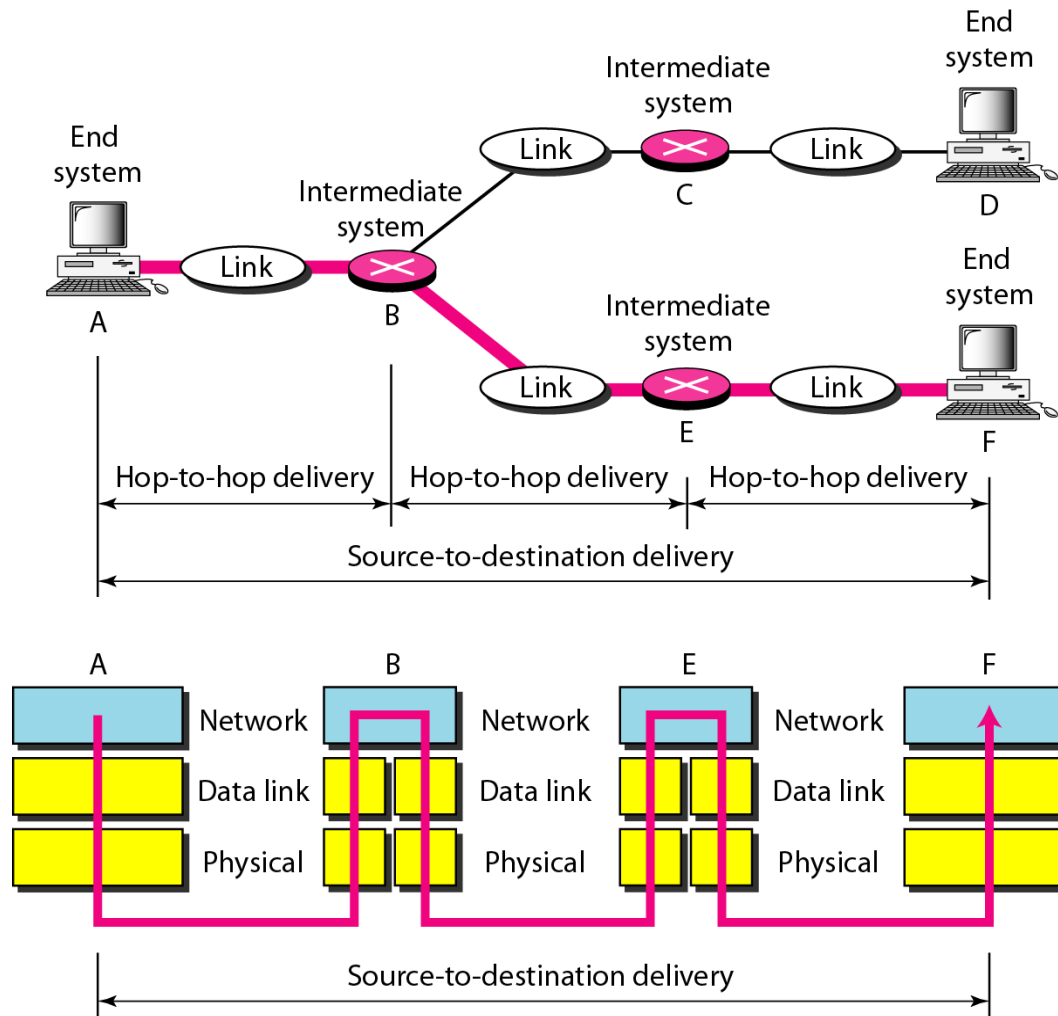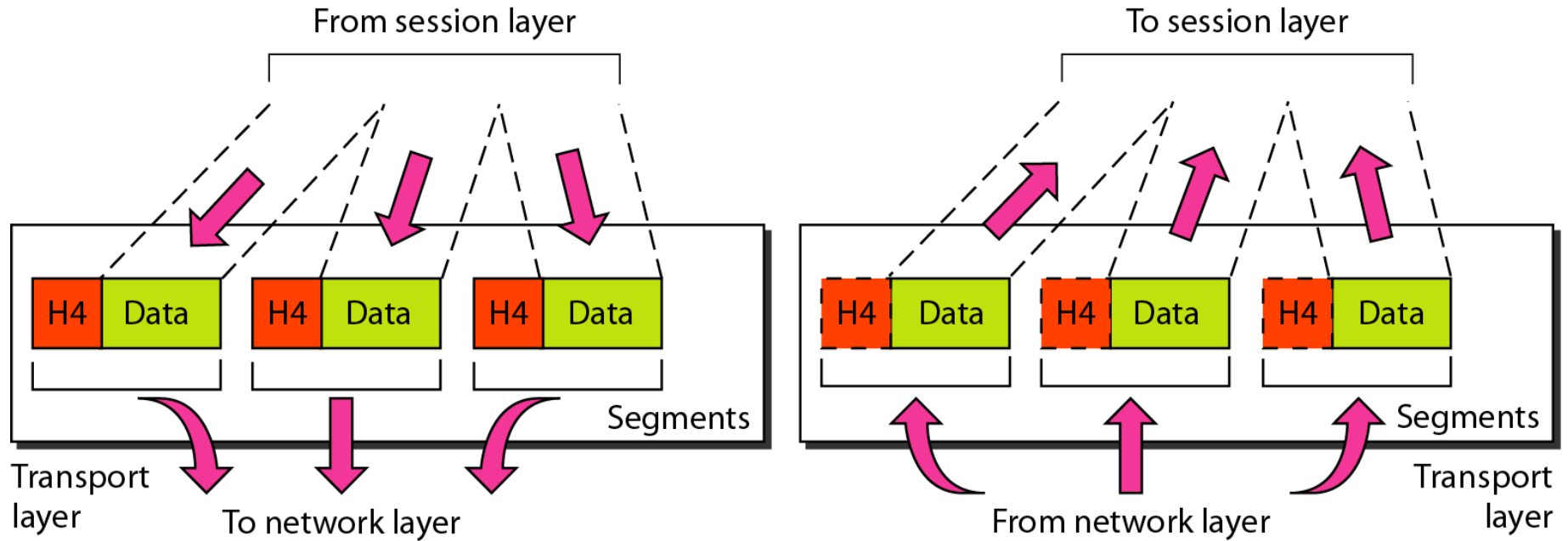
# Hop-to-hop delivery

# *Network layer*

**Note**

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

# *Source-to-destination delivery*

# *Transport layer*

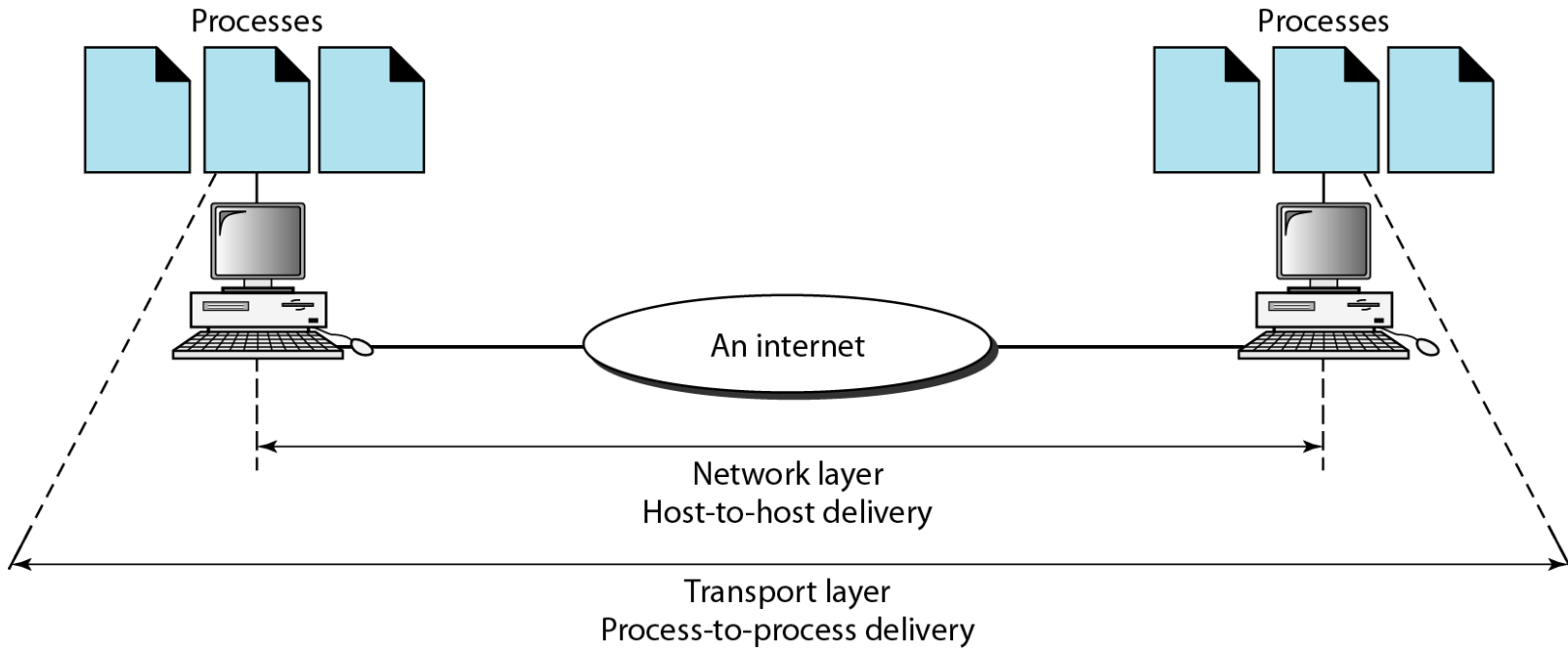**_Note_**

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

# *Reliable process-to-process delivery of a message*

# *Session layer*



From presentation layer

To presentation layer

H5

syn    syn    syn

Session layer

To transport layer

H5

syn    syn    syn

Session layer

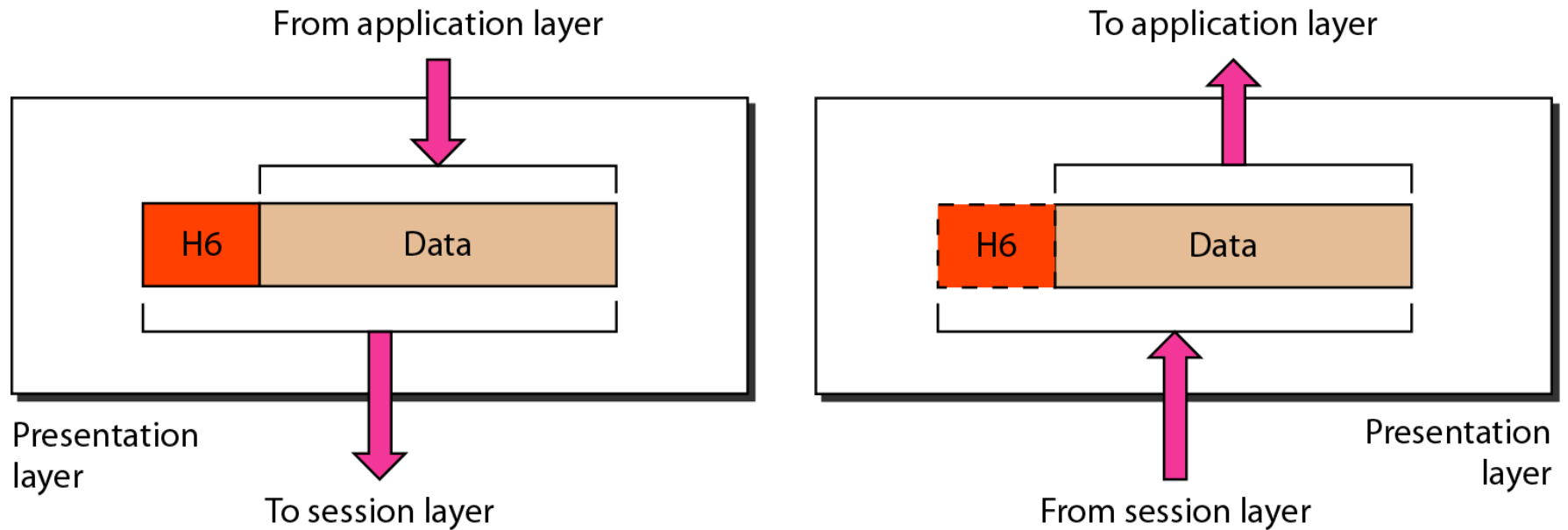From transport layer
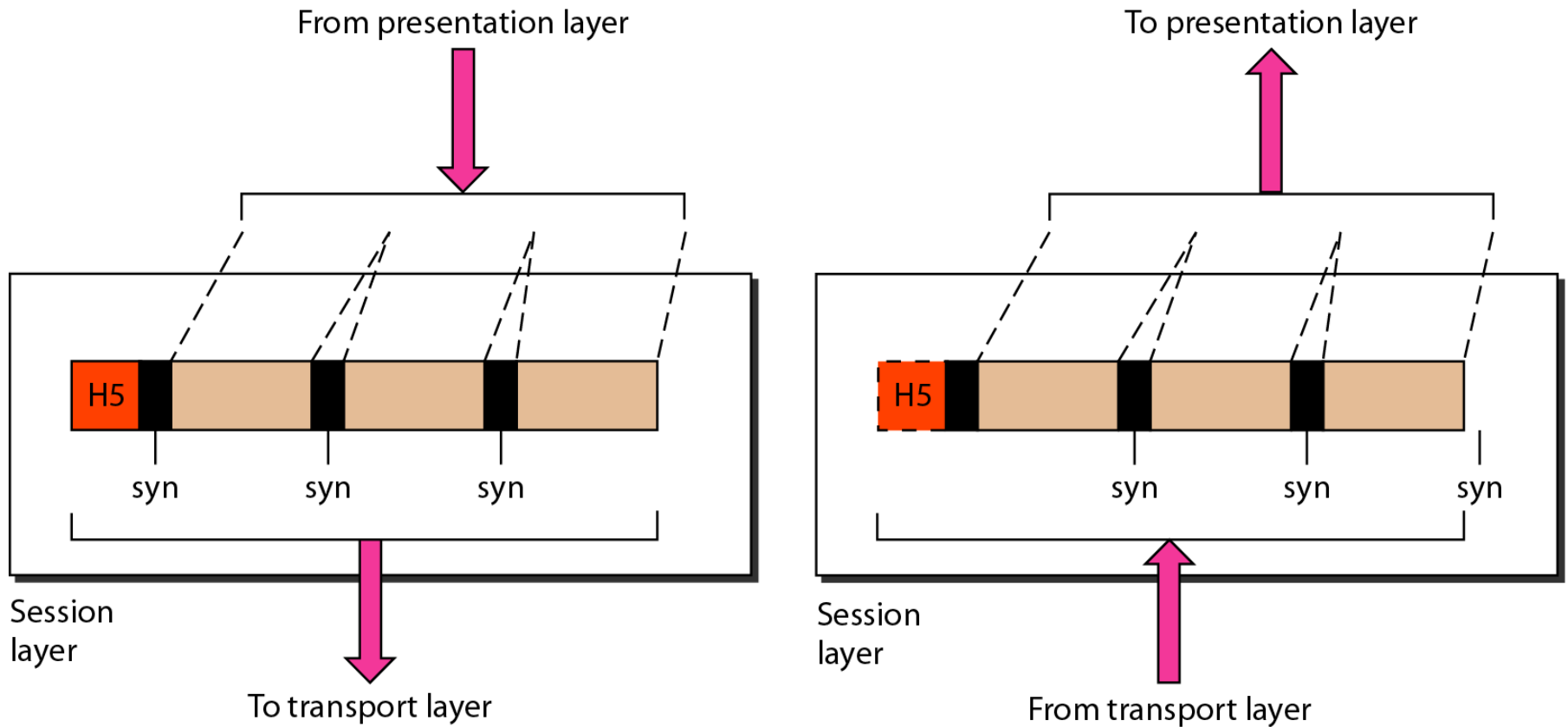
**Note**

The session layer is responsible for dialog
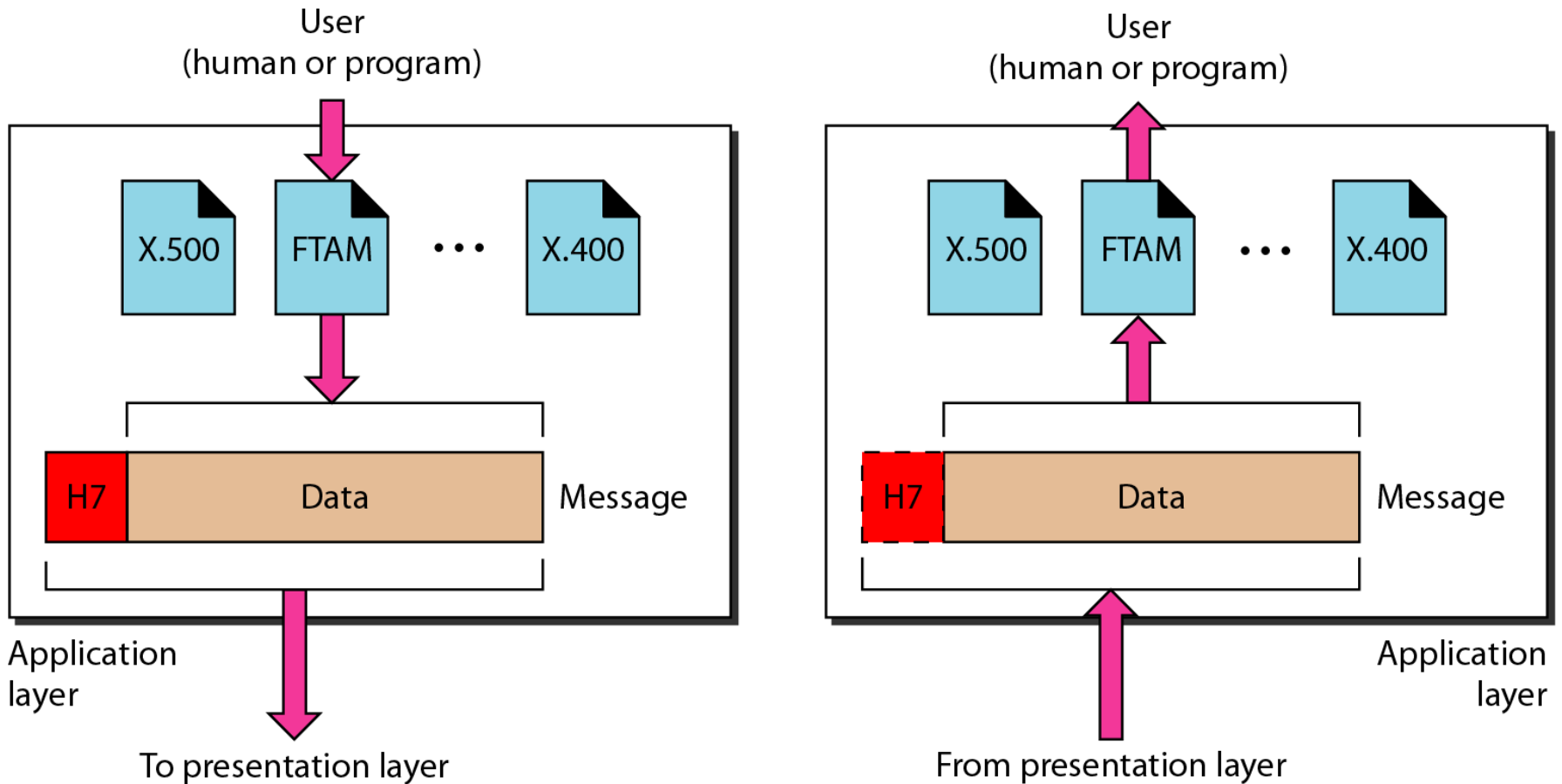control and synchronization.

# Figure 2.13 *Presentation layer*

**Note**

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

# Figure 2.14  *Application layer*

**Note**

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

# Figure 2.15 *Summary of layers*



To translate, encrypt, and compress data

Application — To allow access to network resources

Presentation

Session — To establish, manage, and terminate sessions

To provide reliable process-to-process message delivery and error recovery

Transport

Network — To move packets from source to destination; to provide internetworking

To organize bits into frames; to provide hop-to-hop delivery

Data link

Physical — To transmit bits over a medium; to provide mechanical and electrical specifications