NETWORK MODELS

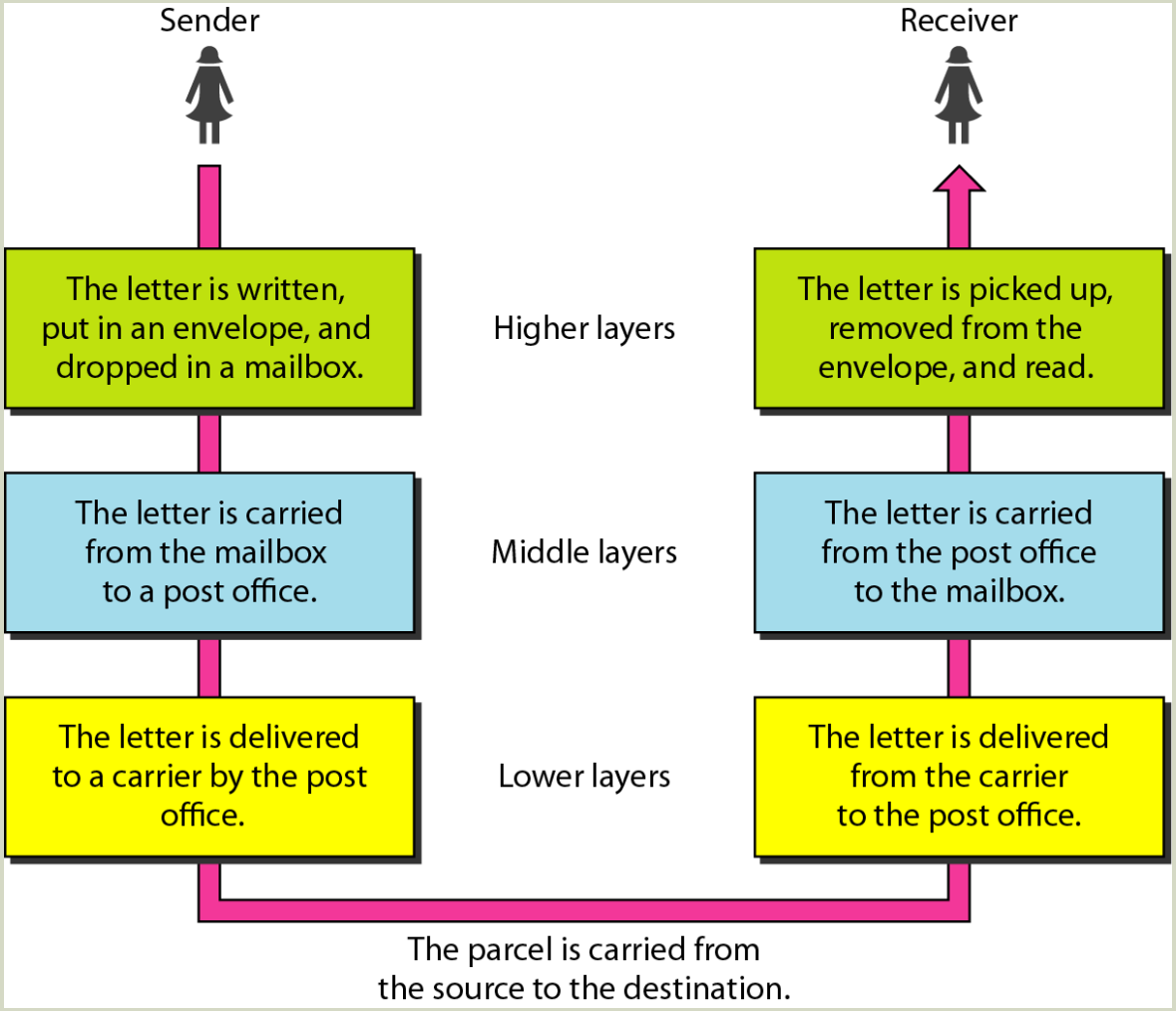
NETWORKING LAYERS

We use the concept of layers in our daily life. As an example, let us consider two friends who communicate through postal mail. The process of sending a letter to a friend would be complex if there were no services available from the post office.

Topics discussed in this section:

Sender, Receiver, and Carrier
Hierarchy

TASKS INVOLVED IN SENDING A LETTER



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.

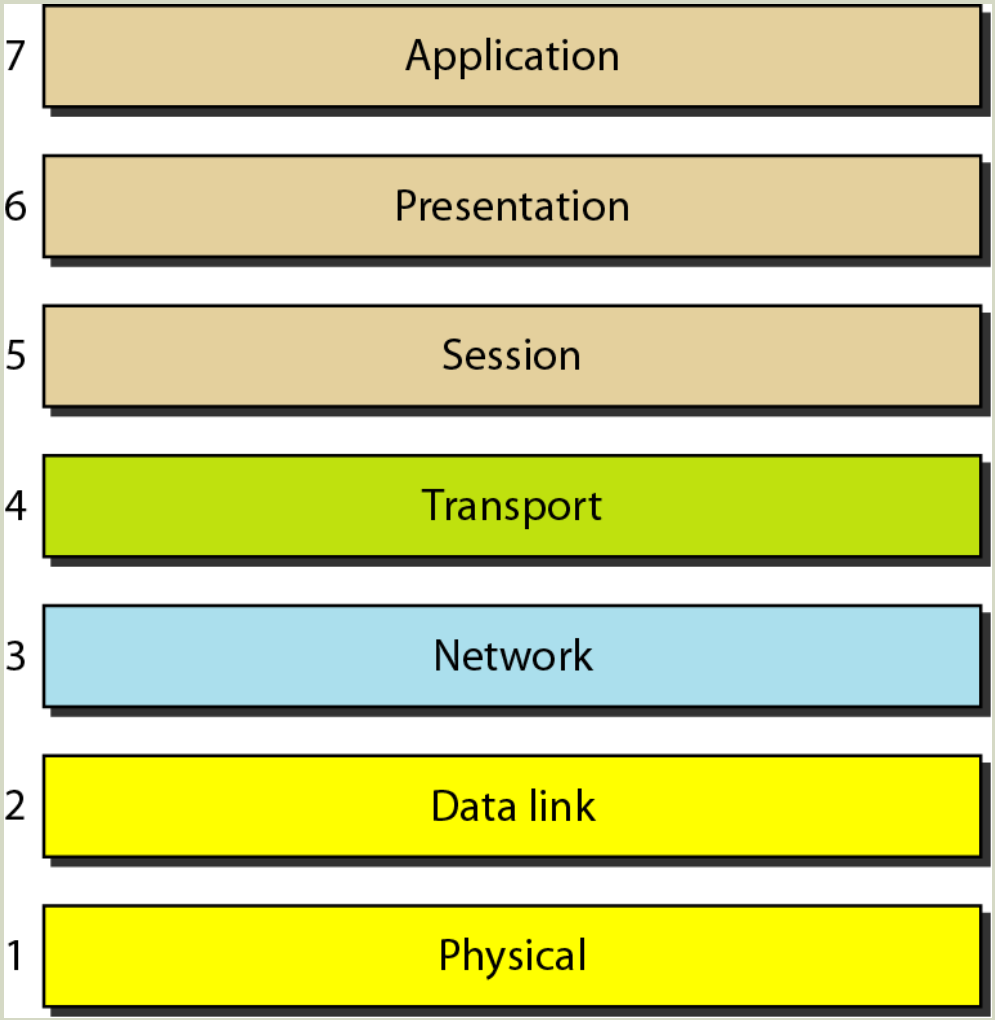
Topics discussed in this section:

Layered Architecture
Peer-to-Peer Processes
Encapsulation

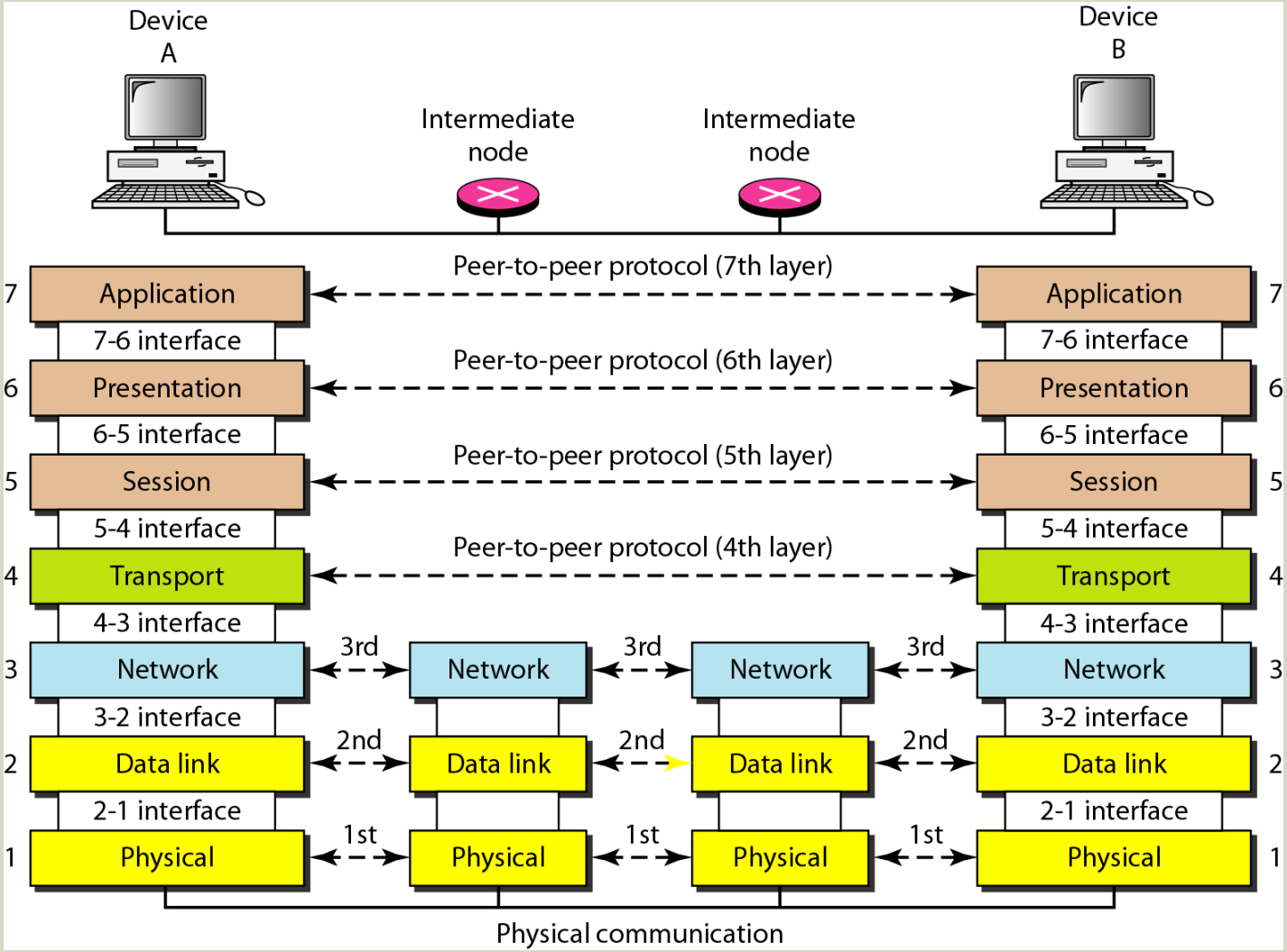
NOTE

ISO is the organization.
OSI is the model.

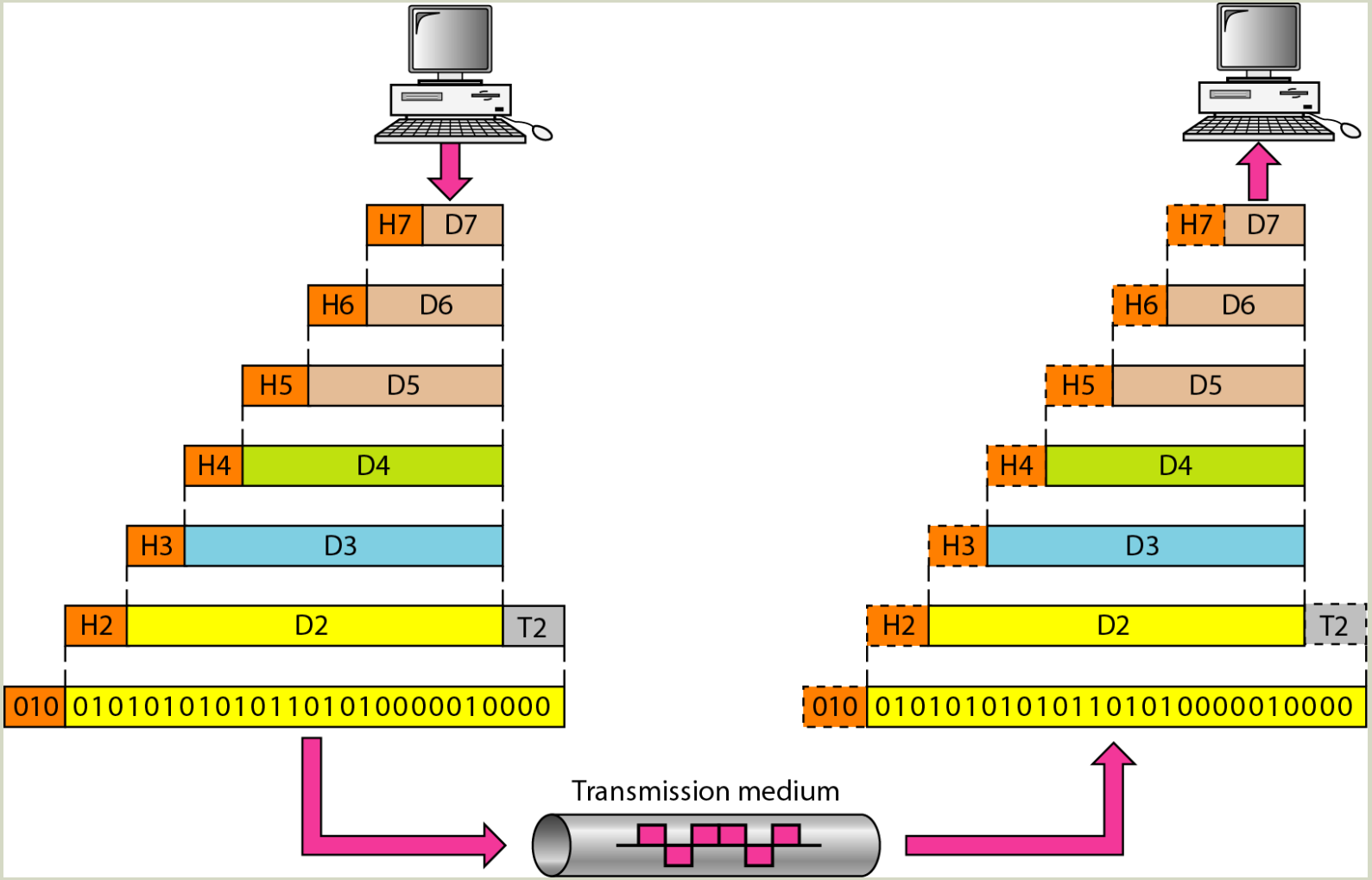
SEVEN LAYERS OF THE OSI MODEL



THE INTERACTION BETWEEN LAYERS IN THE OSI MODEL



AN EXCHANGE USING THE OSI MODEL



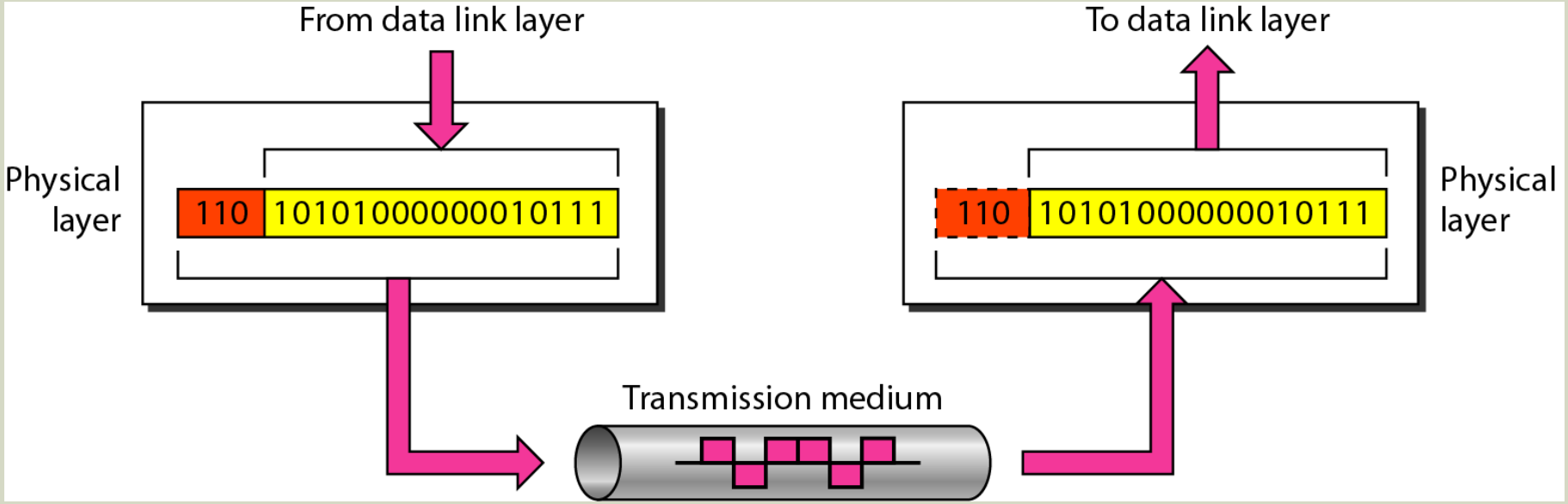
LAYERS IN THE OSI MODEL

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

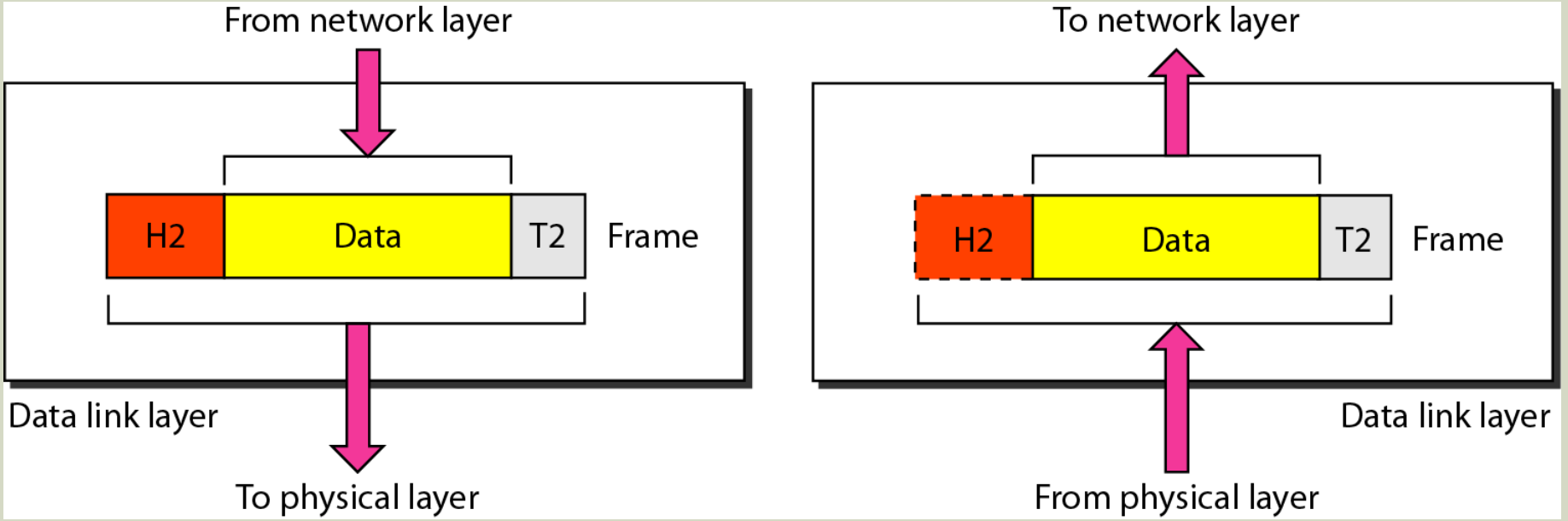
PHYSICAL LAYER



NOTE

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

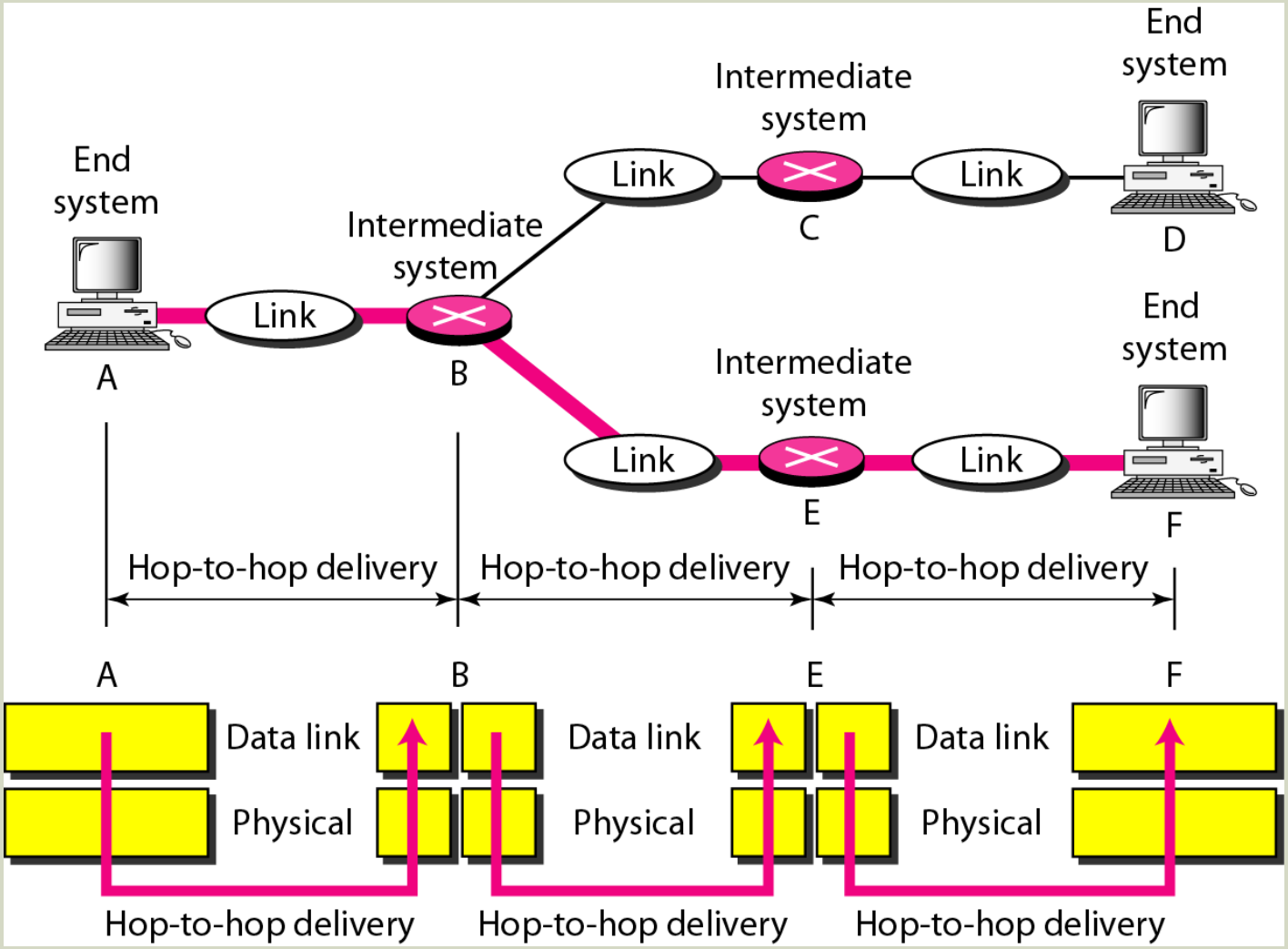
DATA LINK LAYER



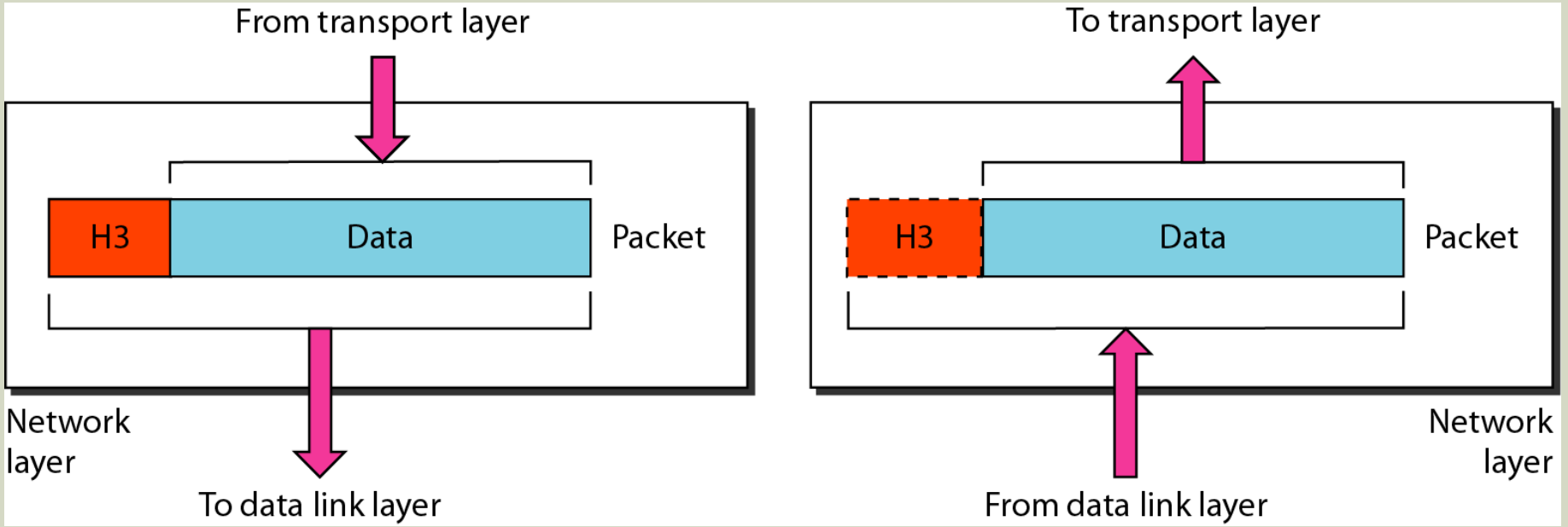
NOTE

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.

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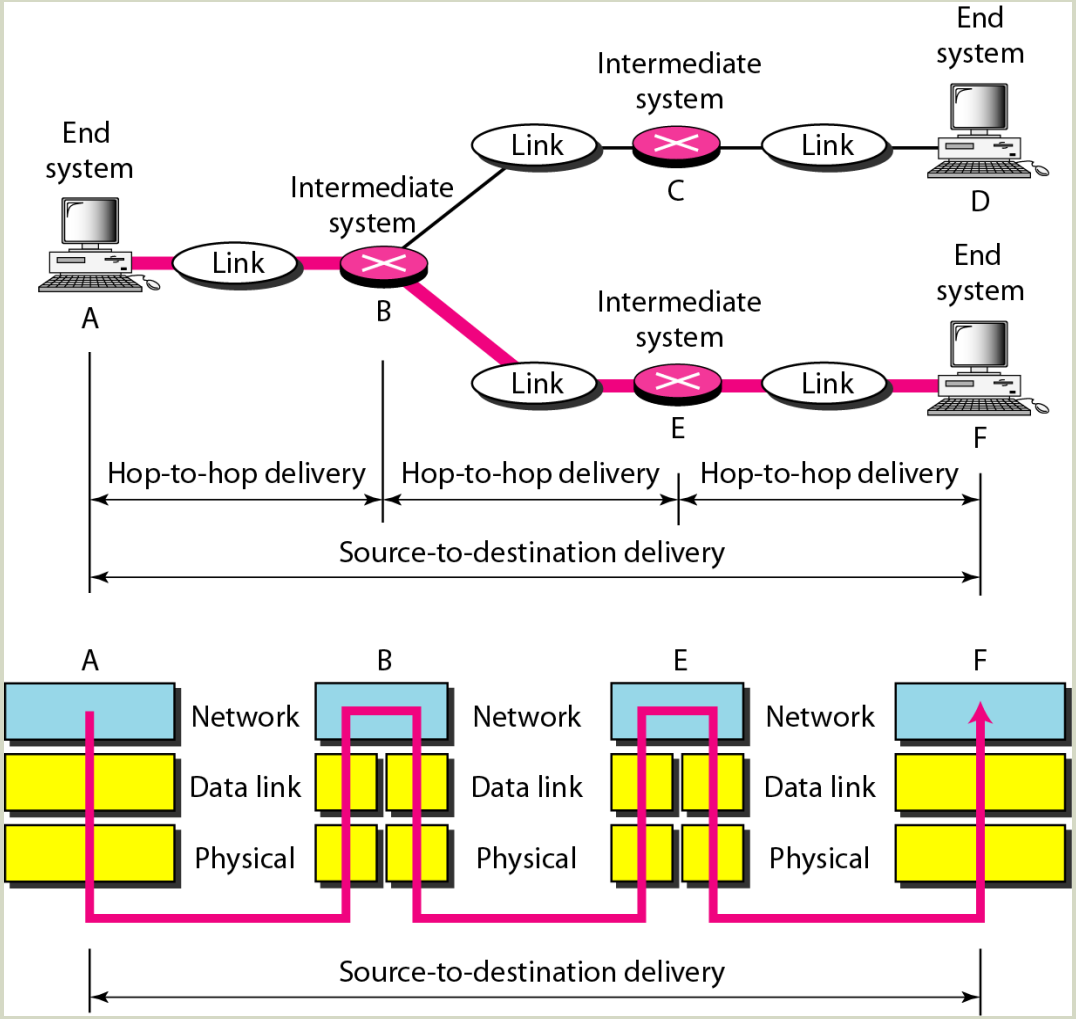
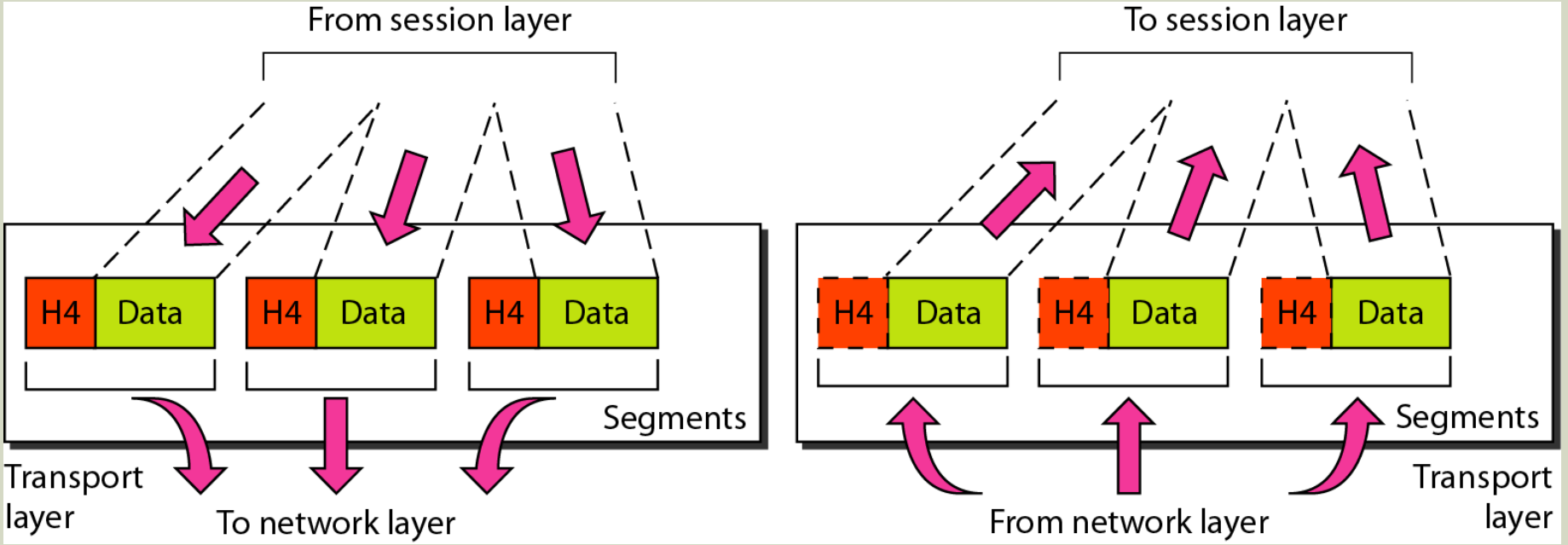
SOURCE-TO-DESTINATION DELIVERY



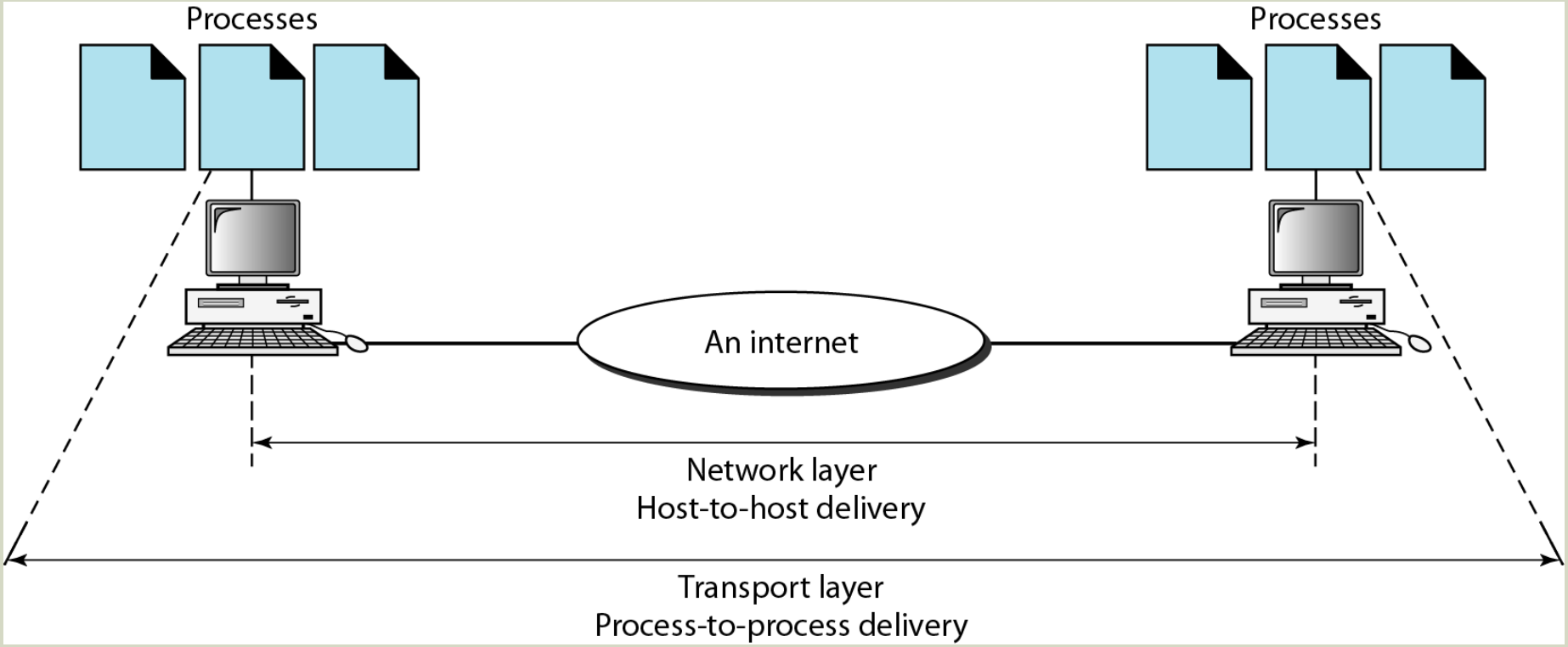
TRANSPORT LAYER



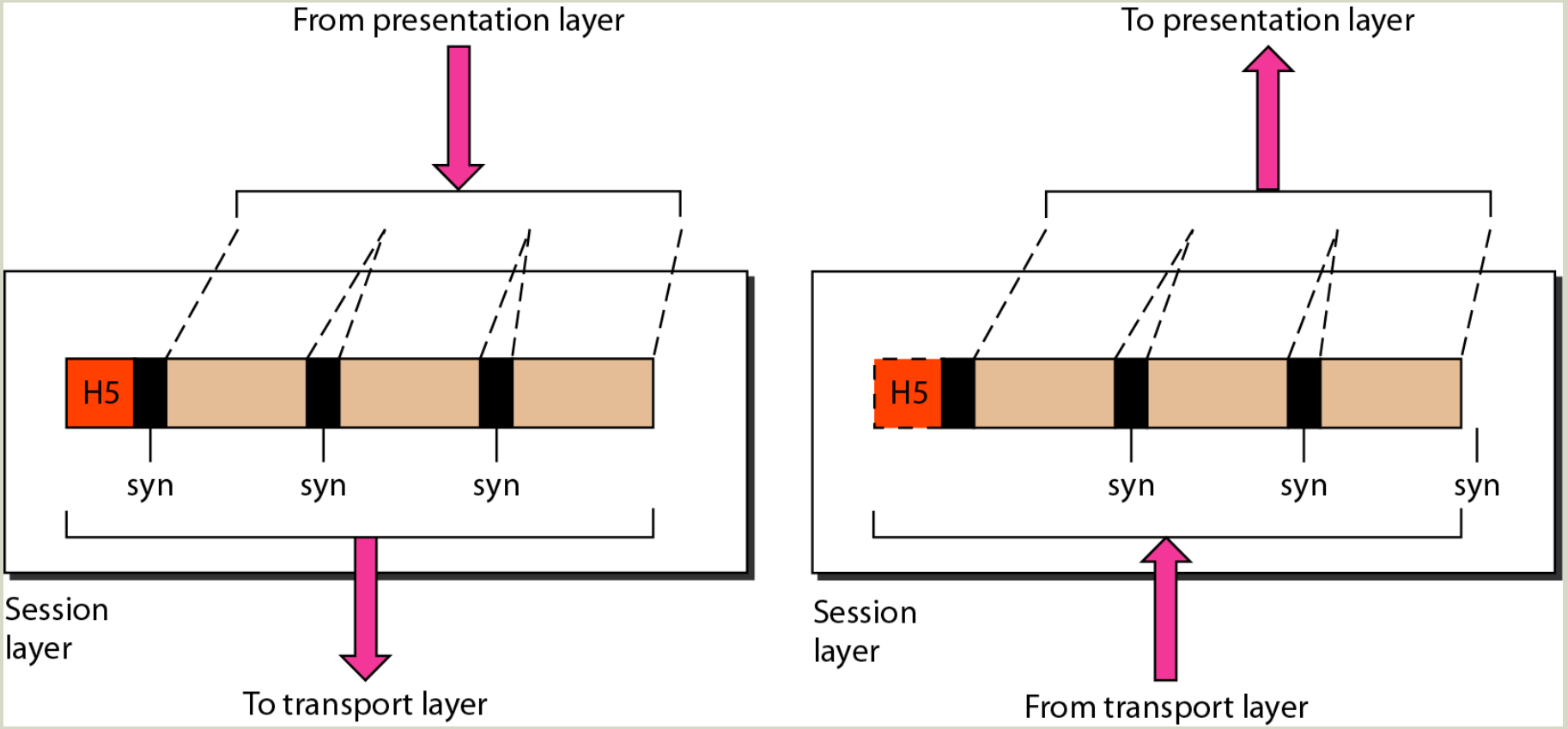
NOTE

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

RELIABLE PROCESS-TO-PROCESS DELIVERY OF A MESSAGE



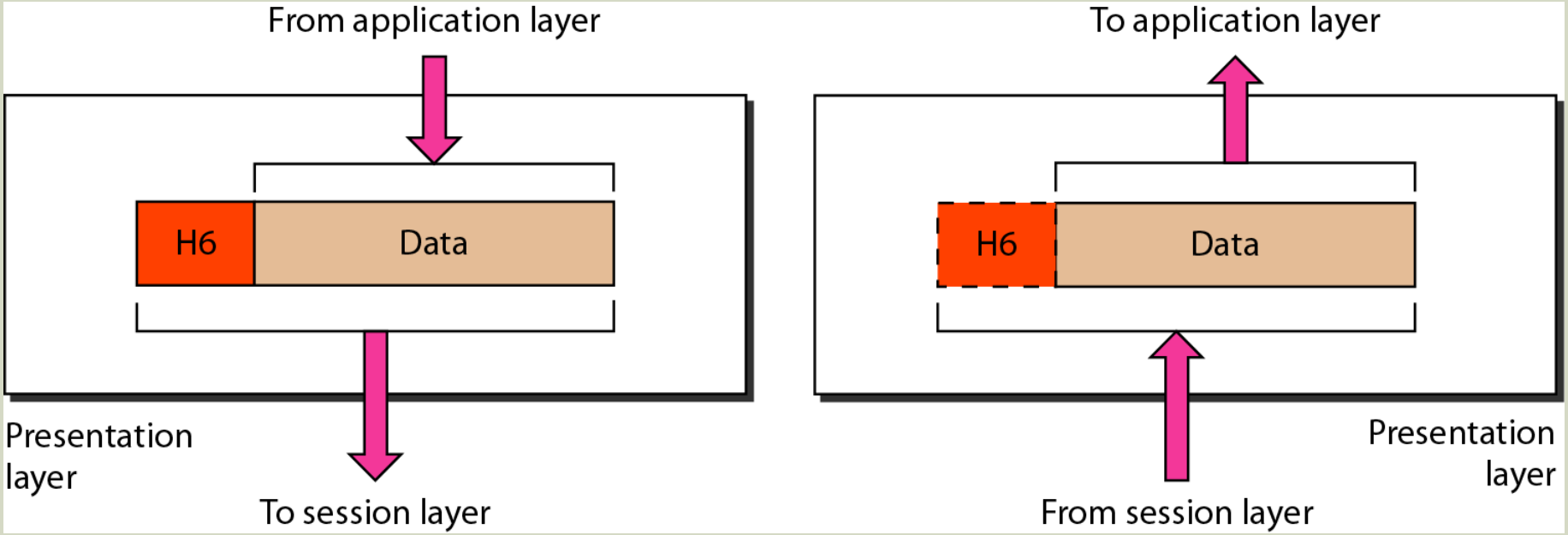
SESSION LAYER



NOTE

The session layer is responsible for dialog control and synchronization.

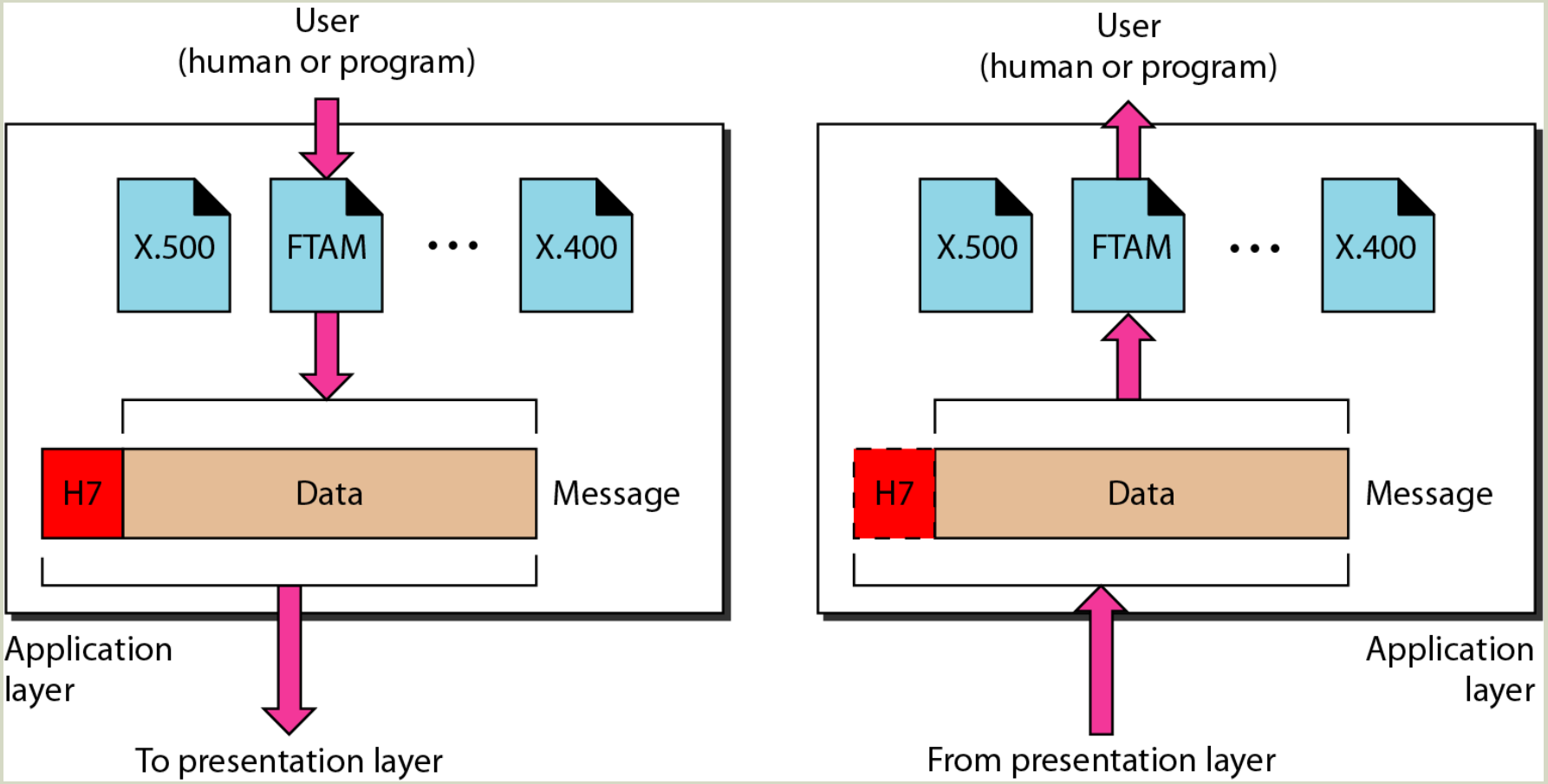
PRESENTATION LAYER



NOTE

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

APPLICATION LAYER



NOTE

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

SUMMARY OF LAYERS