

OSI Model (Continued)

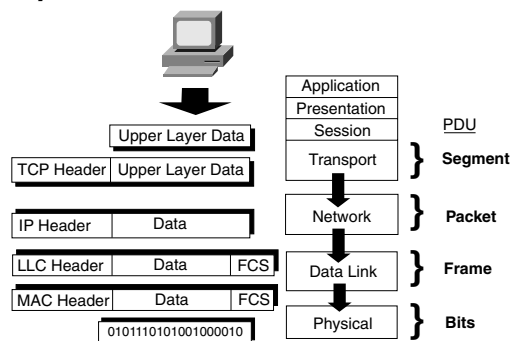
Transport	Provides reliable or unreliable delivery and some error correction	TCP UDP SPX
Network	Provides logical addressing used by routers	IP IPX
Data link	Creates frames from bits of data Uses MAC addresses to access endpoints Provides error detection but no correction	802.3 802.2 HDLC
Physical	Specifies voltage, wire speed, and pinout cables	EIA/TIA V.35

Protocol data units (PDUs) are used to communicate between layers.

Encapsulation is the method of adding headers and trailers as data moves down the stack. The receiving device strips the header, which contains directions for that layer (de-encapsulation).

OSI Model Summary

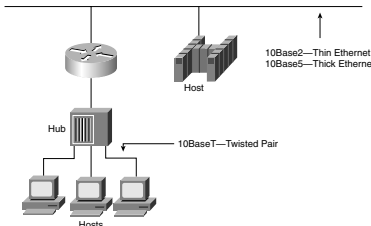
- The OSI model provides a standardized way to create and implement network standards and schemes.
- The OSI model allows plug-and-play applications, simplified building blocks, and modularized development.
- The OSI model has seven layers. Mnemonics are useful for



remembering the layers and their functions (such as Pick Don's Nose Then Spit Potatoes Afterward).

- Encapsulation is the process of adding layer-specific instructions (for the receiving device) as headers and trailers.
- De-encapsulation is the reverse process of encapsulation.

Lower (Data Link) Layers



Physical layer functions are as follows:

- Media type
- Connector type
- Signaling type

The physical layer specifies

- Voltage levels
- Data rates
- Maximum transmission rates and distances
- Physical connectors and pinouts

Type	Name	Distance	Carrier
10Base2	Thinnet	Up to 185 meters	Coaxial
10Base5	Thicknet	500 meters	Coaxial
10BaseT	Ethernet signals	100 meters	Twisted pair

Collision/Broadcast Domains

All stations on an Ethernet segment are connected to the same segment. Therefore, all signals are received by all devices. When devices send signals at the same time, a collision occurs. A scheme is needed to detect and compensate for collisions.

- Collision domain**—A group of devices connected to the same physical medium so that if two devices access the medium at the same time, a collision results. This is a Layer 1 domain.
- Broadcast domain**—A group of devices on the network that receive one another's broadcast messages. This is a Layer 2 domain.