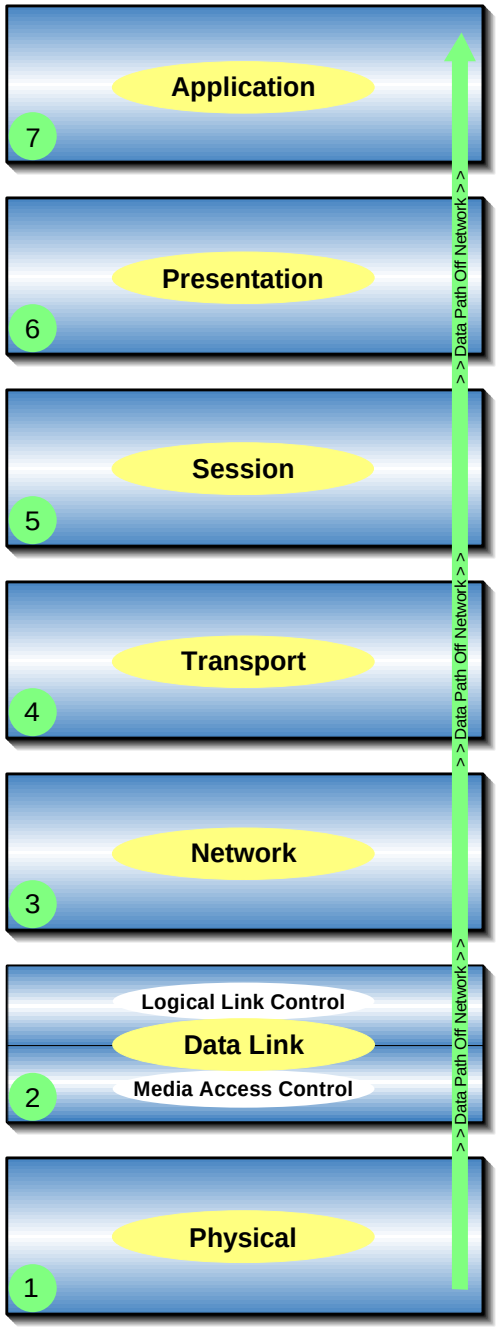
OSI Network Model

Protocols	Layers	Devices	Description
SMTP, FTP, SNMP, HTTP, TELNET, etc.	7 Application	Gateway	The **APPLICATION** layer provides the interface to the network with applications that want to gain network access for the transmission of **messages**. NOS and certain services such as FTP, HTTP, TELNET, SMTP and SNMP function at this layer.
	6 Presentation	Gateway	The **PRESENTATION** layer provides the data transfer syntax, and is where raw data is encrypted/decrypted (if used), compressed/expanded and formatted (as **packets**) to withstand transmission over a network. Incoming messages are broken down and formatted appropriately for the receiving application.
	5 Session	Gateway	The **SESSION** layer handles dialog control and manages communication "sessions" by establishing, maintaining, and syncronizing the dialog via hand-shaking (which connection-oriented devices use to establish a session), security, and the mechanics of an ongoing connection for the transmission of **packets**.
TCP, UDP, SPX, NWLink, ATP/NBP, NetBIOS/NetBEUI, etc.	4 Transport	Gateway	The **TRANSPORT** layer deals with connection-oriented network communication, matching messages to the capabilities and restrictions of the network medium. Messages are divided into **segments** for transmission and reassembled at their destination. Layer supports delivery of messages (flow control and multiplexing) as well as error detection and recovery.
IP, IPX, NWLink, NetBIOS/NetBEUI, DLC, AppleTalk, SNA, etc.	3 Network	Router \ Brouter /	The **NETWORK** layer handles addressing of data for delivery, converting network addresses into physical addresses, packages data into **datagrams**, and routes data between segments on the network and inter-network using OSPF, RIP, and NLSP protocols.
PPP, SLIP, etc.	2 Logical Link Control / Data Link / Media Access Control	Bridge, Switch	The **DATA LINK** layer is concerned with providing context to the Physical layer's bits by formatting them into **frames**, assigning a physical address, providing for error checking (but not correction) [MAC sub-layer], identifying Network layer protocols and encapsulating them, and avoiding transmission conflicts on the network [LLC sub-layer].
	1 Physical	NIC, Cable, Repeater, Hub, Concentrator, Modem and Codecs	The **PHYSICAL** layer is concerned with the physical structure of a network, connection specifications, and the electrical and electromagnetic processes that convert **bits** into signals for sending and signals to bits when receiving as well as the encoding and timing rules for data transmission.


Application
7
Presentation
6
Session
5
Transport
4
Network
3
Logical Link Control
Data Link
Media Access Control
2
Physical
1
> > Data Path Off Network > >
> > Data Path Off Network > >
> > Data Path Off Network > >