

OSI Layer		PDU	Application/Example	Central Device Protocol	TCP/IP Model
Application (7) Servers as the window for users and applications to access the network services.	Host layers	Data	End user layer. Programs that opens what was sent or creates what to be sent over the network.	User applications and services. Firewalls, IDS/IPS DNS, SMTP, TELNET, SSH, SMTP, POP3, SMB, DHCP, HTTP, HTTPS, NFS, NTP, SIP	Application
			Resource sharing; Remote file access; Remote printer access; Directory services; Network management		
		Data	Syntax layer. Encryption and decryption of data (if needed). Data syntax and compression.	JPEG, ASCII, TIFF, AVI, FLASH, MIME SSL, TLS	
Character code translation; Data conversion; Data compression; Data encryption; Character set translation					
Data		Session control.	L2TP, NetBIOS, RPC, PPTP, PAP, CHAP, Named pipe		
		Session establishment, maintenance and termination. Session support. Session security, logging and etc.			
Transport (4) Segments the data and ensures that the segments are delivered error-free, in sequence, and with no losses or duplications.	Segment	Segmenting the data and flow control. Application ports.	Ports TCP, UDP, RTP, BGP ¹ , RIP ²	Transport	
		Message segmentation, Acknowledgement; Flow control; Session multiplexing; Ports;			
Network (3) Creates packets from the segments. Controls the operation of the subnet, deciding which physical path the packets take (routing).	Media layers	Packet	Packets and logical addressing. Routing.	Routers, Layer3 Switches IPv4, IPv6, ICMP, IPX, MPLS ³ , IPsec, OSPF, EIGRP	Internet
			Routing; Subnet traffic control; Fragmentation; Logical addressing		
Data Link (2) Framing the packets. Provides error-free transfer of data frames from one node to another over the Physical layer. Controls the access to the media. Depends on the physical media.		Frame	Frames and physical addressing (if needed).	Switches, Access Points HDLC, ETHERNET, PPP, SLIP, CDP, MPLS, ARP, Frame relay, X.25, 802.11 a/b/g/n, DOCSIS	Network access
			Establishes and terminates the logical link between nodes. Frame traffic control. Media access control; Physical addressing (if needed); Frame error checking;		
Physical (1) Concerned with the transmission and reception of the unstructured raw bit stream over the physical media.		Bit stream	Physical structure of the network. Cables, connectors, etc.	Hubs, NIC, Repeater, Fiber media convertor ISDN, SONET, RS-232, USB, DSL, Bluetooth, DOCSIS, V.35, 100BASE-, ITU-TTX	
			Data encoding (NRZ, Manchester, etc.); Physical medium attachment (connectors); Transmission techniques; Baseband or broadband;		

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¹ Uses TCP as transport protocol

² Uses UDP as transport protocol

³ Some might argue that MPLS does not fit in the OSI reference model. The fact that MPLS is a framework that contains enhancements to the current Layer 3 and Layer 2 technologies makes it hard to fit MPLS within one layer of the OSI model.