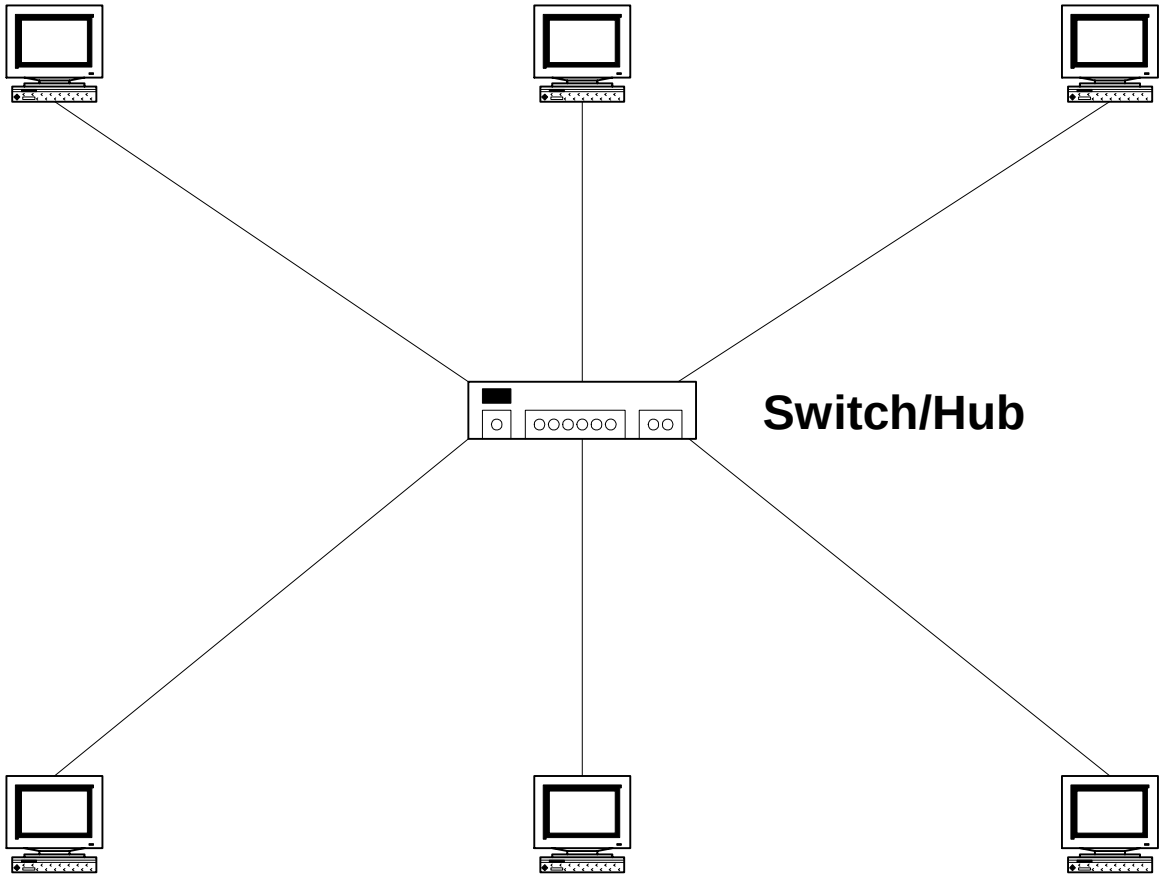
# Basic Star Topology



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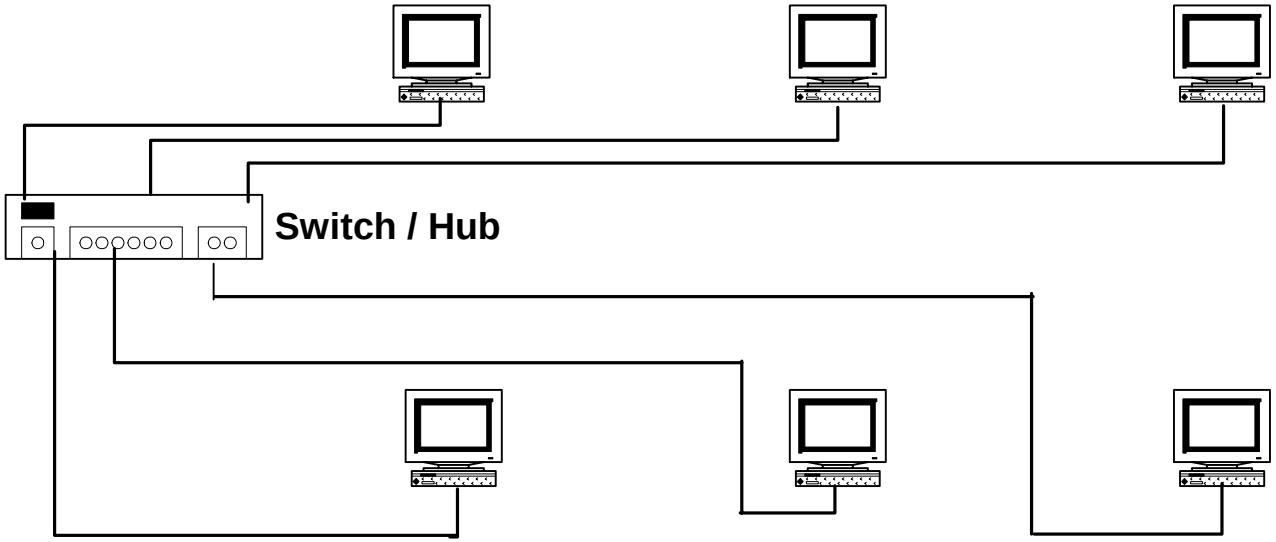
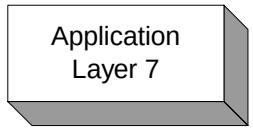
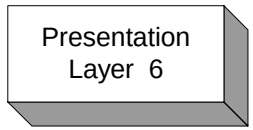


# The OSI Model

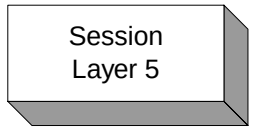
**Application Layer:** This layer controls how the operating system and its applications interact with the network. Software here includes Windows Client for Microsoft Networks, the Windows Client for Novell Networks, or Novell's Client32 software. It also controls how the operating system and applications interact with those clients.



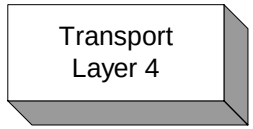

**Presentation Layer:** Takes the data from the lower-level layers and transforms it to be presented to the system (as opposed to presenting the data to the user which is outside the OSI model). Functions here include data compression and decompression, as well as data encryption and decryption.



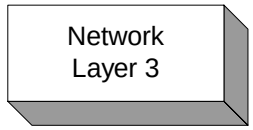

**Session Layer:** Defines the connection from a user to a network server, or from a peer on a network to another peer. These virtual connections are referred to as *sessions*. They include negotiation between the clients and hosts on matters of flow control, transaction processing, transfer of user information, and authentication to the network.



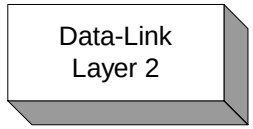

**Transport Layer:** Manages the flow of data from one network node to another ensuring the packets are decoded in the proper sequence and that all packets are received. Also uniquely identifies each computer or node on a network. Different networking systems implement the transport layer differently. This is the first layer where this occurs. WinNT (TCP) and Netware (SPX).

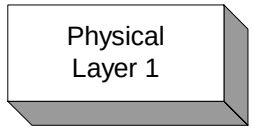



**Network Layer:** defines how data packets get from point-to-point on a network and what goes into each packet and defines different packet protocols (IP, IPX) Packets include source and destination routing information. Network Layer is the most important when the network connection passes through one or more routers. Enables various protocols may be carried over any variations of the lower layers.




**Data-Link Layer:** Defines standards that assign meaning to the bits carried by the physical layer. Establishes the protocol. Includes error detection and correction. Data elements are 'frames.' Comprised of two sub layers, Logical Link Control (LLC) for call setup and termination, and Media Access Control (MAC) for frame assembly and disassemble, error detection and correction and addressing. Drivers for the NIC perform the work done at the data-link layer.




**Physical Layer:** Defines the properties of the physical medium — a network cable. Either point-to-point or multiport. Either half or full-duplex with bits traveling either in series or parallel. Defines the cable used, voltages and timing on the cable, the physical distance, and so on. A network card (NIC) is part of the physical layer.