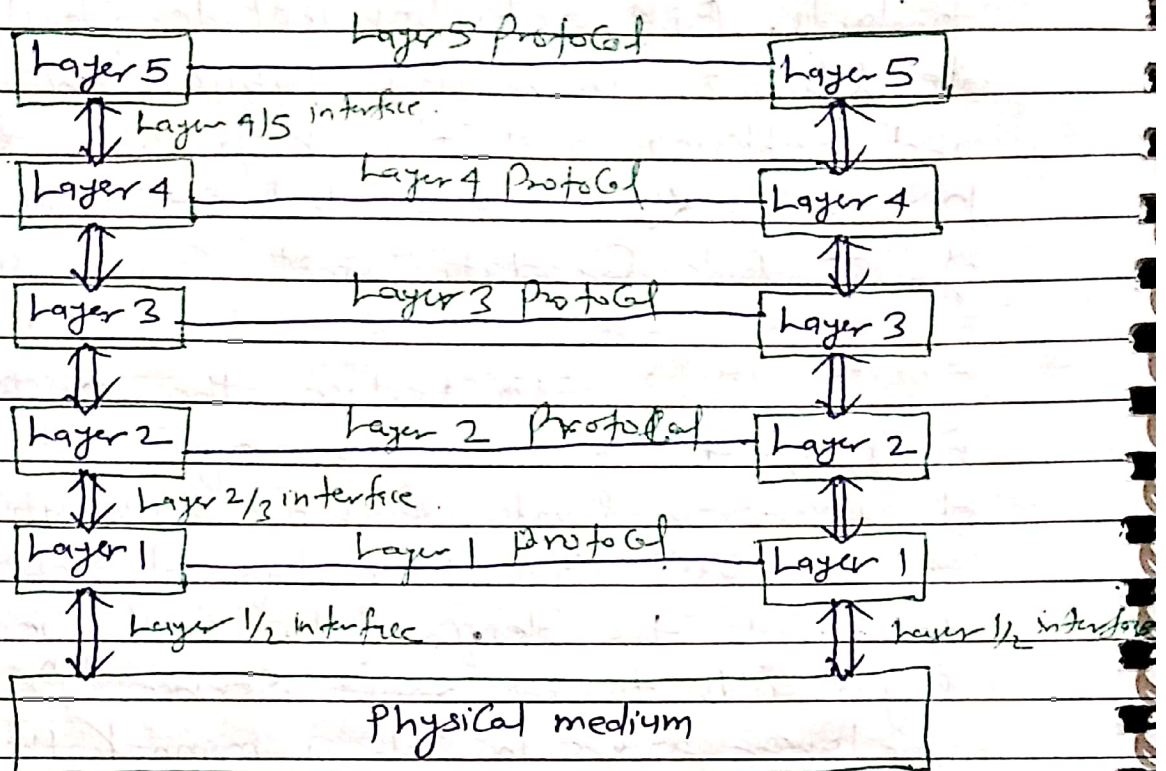


* Layered Tasks: To reduce the design Complexity most of the networks are organized as a series of layers or levels, each one build upon one below it. The basic idea of a layered architecture is to divide the design into small pieces. Each layer adds to the ~~series~~ Services provided by the lower layers in such a manner that the highest layer is provided a full set of services to manage Communications and run the application. The benefits of the layered models are modularity and clear interfaces, i.e. open architecture and Compatibility b/n the different providers' Components. A basic Principle is to ensure independence of layers by defining Services provided by each layer to the next higher layer without affecting other layers. The basic elements of a layered model are Services, protocols and interfaces. A Service is a set of action that a layer offers to another (higher) layer. Protocol is a set of rules that a layer uses to exchange information with a peer entity. These rules concern both the Content and the order of the messages used. Between the layers Service interfaces are defined. The message from one layer to another are sent through those interfaces.



Layered architecture

In a n -layer architecture, layer n on one machine carries on conversation with the layer n on other machine. The rules and conventions used in this conversation are collectively known as the layer- n protocol. Basically, a protocol is an agreement b/w the communicating parties on how communication is to proceed. Five layer architecture is shown in above figure; the entities comprising the corresponding layer on different machine are called peers. In other words, it is the peer that communicate using protocols. In reality, no data is transferred from layer n of one machine to layer n of another machine. Instead, each layer passes data and control information to the layer immediately

below it, until the lowest layer is reached. Below layer-1 is the physical layer through which actual communication occurs.

With layered architectures, communication b/w two corresponding layers requires a unit of data called a protocol data unit (PDU). A PDU can be a header added at the beginning of a message or a trailer appended to the end of a message. Data flows downwards and through the layers in the source system and upwards at the destination address. As data passes from one layer into another, headers and trailers are added and removed from the PDU. This process of adding or removing PDU information is called encapsulation / decapsulation. Between each pair of adjacent layers there is an interface. The interface defines which primitives operations and services the lower layer offers to the upper layer adjacent to it. A set of layers and protocols is known as network architecture. A list of protocols used by a certain system, one protocol per layer, is called protocol stack.