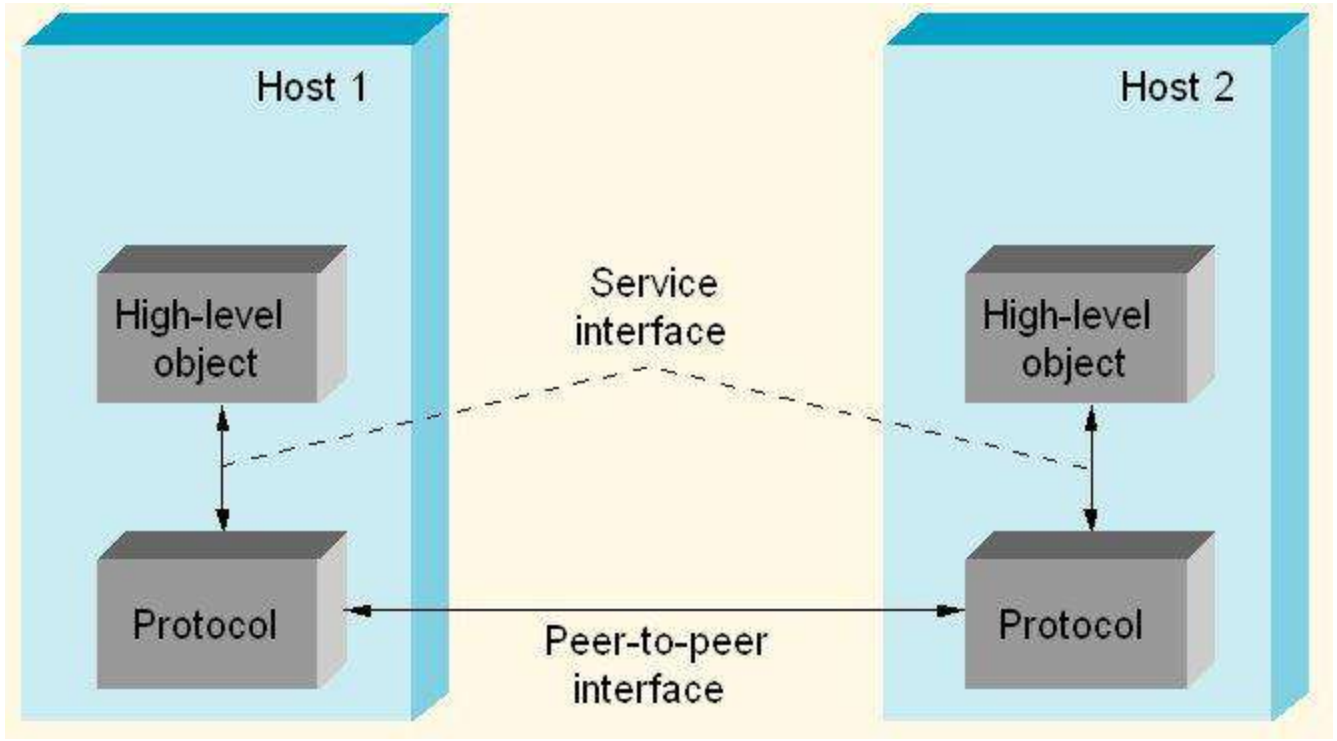
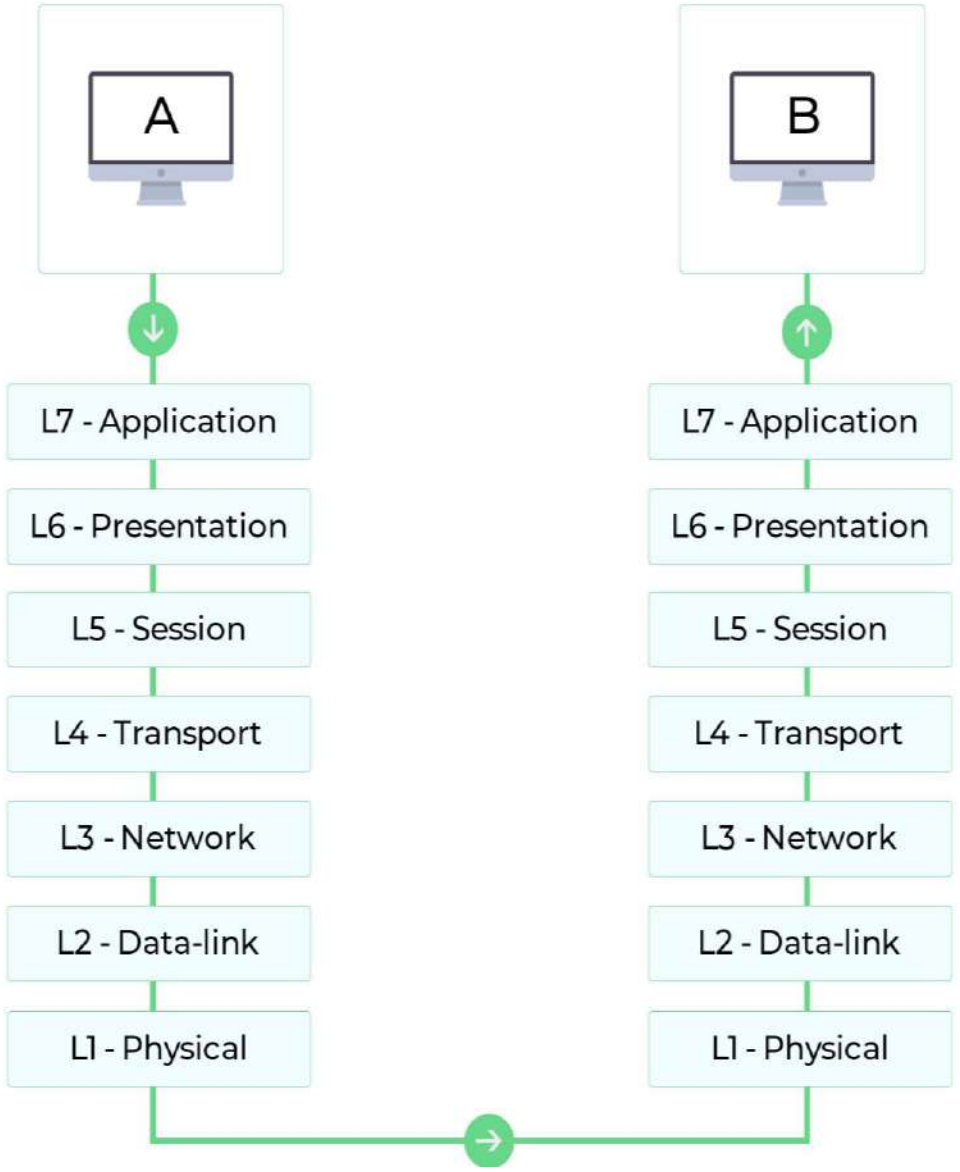
Interfaces and Services

- The function of each layer in computer networking architecture is to provide services (i,e., setting up connection, delivering information) to the layer above it.



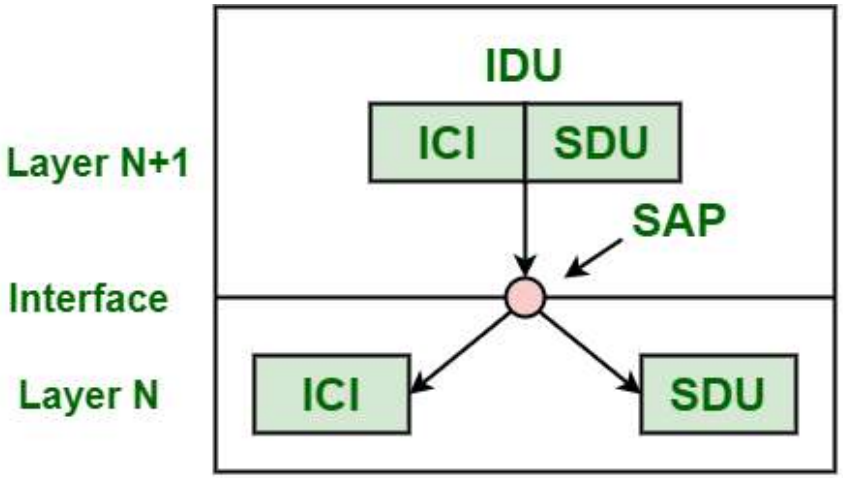
Interfaces and Services

- The active elements in each layer are often called entities. An entity can be a software entity (such as a process), or a hardware entity (such as an intelligent I/O chip).
- **The entities in layer n implement a service used by layer n+1.** In this case layer n called the service provider and layer n+1 is called the service user.
- Layer n may use the services of layer n-1 in order to provide its service.



Interfaces and Services

- **Services are available at SAPs (Service Access Points).** The layer n SAPs are the places where layer n+1 can access the services offered. Each SAP has an address that uniquely identifies it.
- At a typical interface, the layer n+1 entity passes an IDU (Interface Data Unit) to the layer n entity through the SAP.
- **An IDU consist of two parts namely SDU (Service Data Unit) and ICI (Interface Control Information).**
- **The SDU is the information passes across the network** to the peer entity and then up to layer n+1 (in peer).
- **The control information is needed to help the lower layer so its job** (e.g., the number of bytes in the SDU) but is not part of the data itself.



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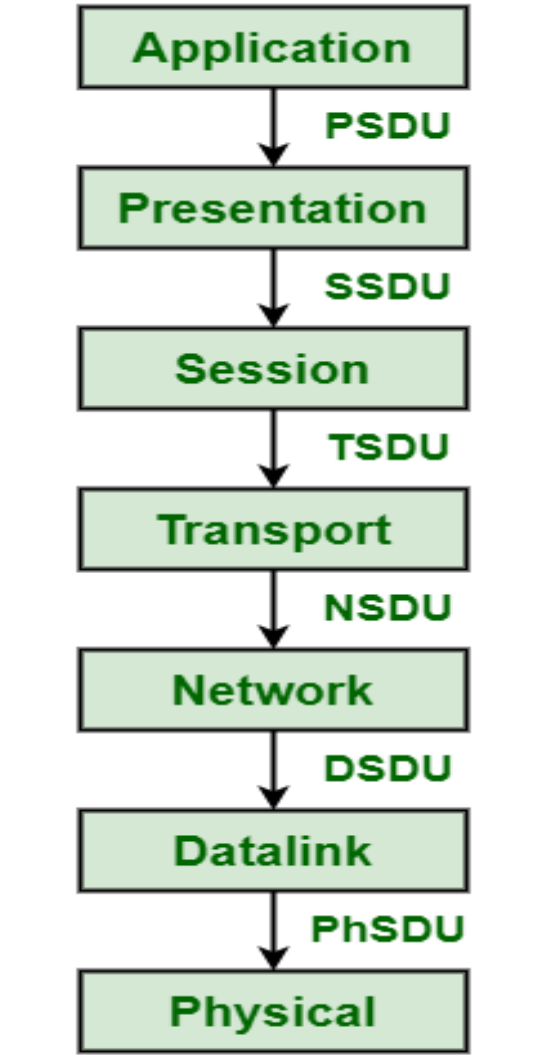
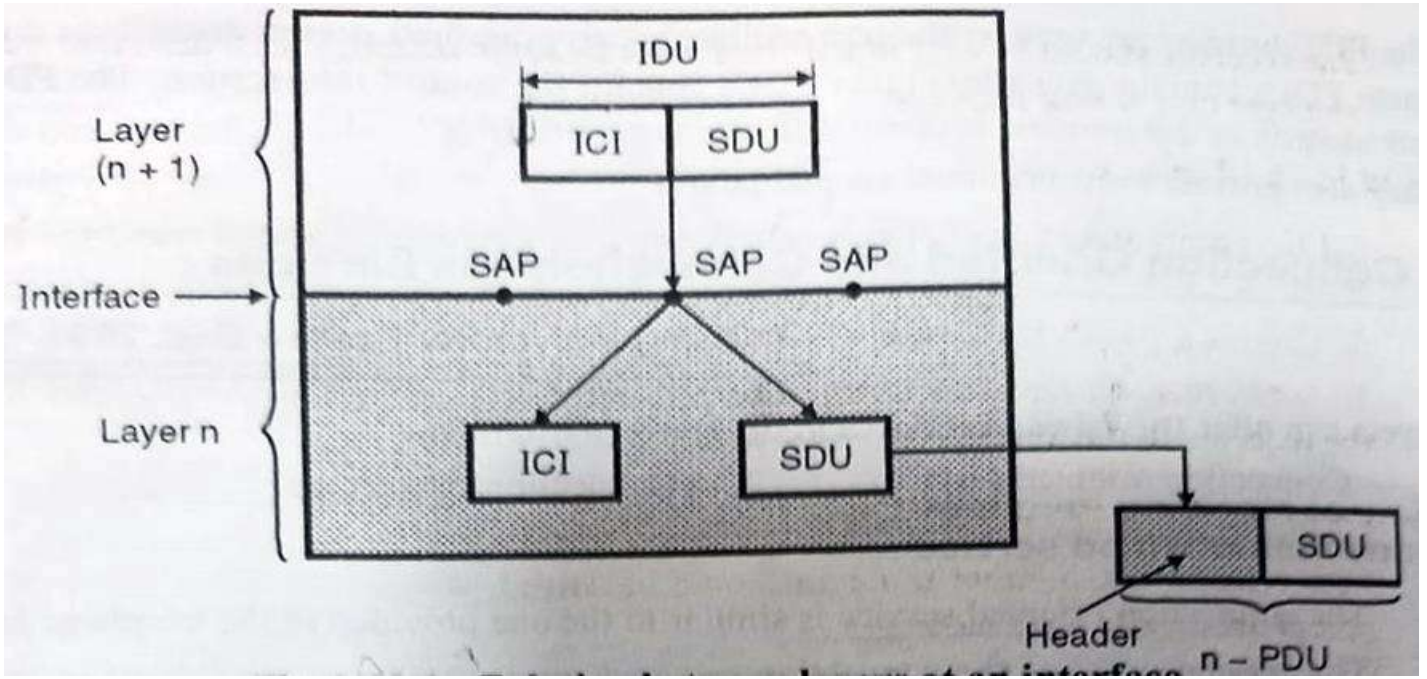


Service Data Unit

Interfaces and Services

- In order to transfer SDU, the layer N entity has to divide (or merge) it into many smaller pieces.
- Each piece is given a header and sent as a separate PDU (Protocol Data Unit) such as a packet.
- The PDU header are used by peer entities to carry out their peer protocol.
- They also provide sequence number and counts.
- When layer N+1 passes PDU to layer N, they are treated as layer N SDUs.



Interfaces and Services