

Inter-Layer Communication

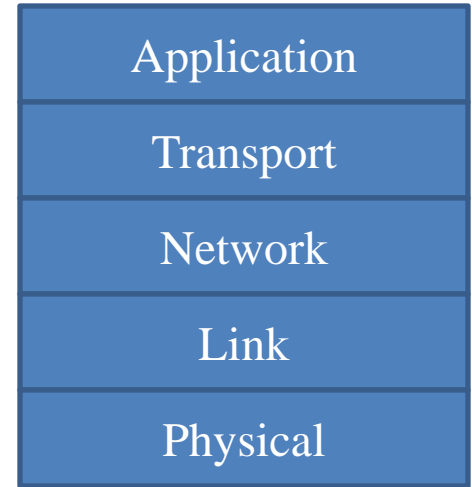
Kameswari Chebrolu

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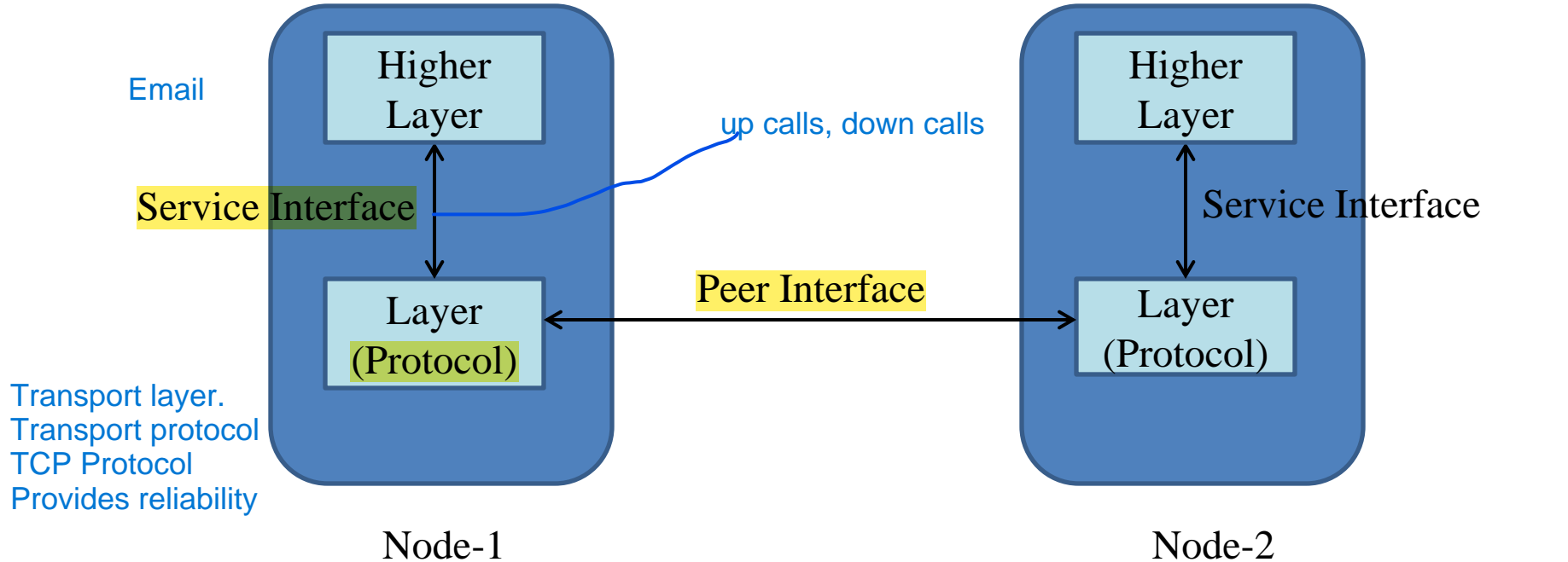
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Recap: Internet Protocol Stack

- Application
 - Supports application processes which generate messages
 - E.g. Email, Web, File-transfer
- Transport
 - Supervises process to process communication (multiplexing/demultiplexing messages, reliability)
 - E.g. TCP, UDP
- Network
 - Enables end-to-end routing of messages (from source to destination hosts)
 - E.g. IP
- Link
 - Enables hop-to-hop message transfer (between neighbors)
 - E.g. Ethernet, 802.11
- Physical
 - Enables bit transmissions on media (wire/air)
 - E.g. 10Base-T, OFDM



Layers and Interfaces

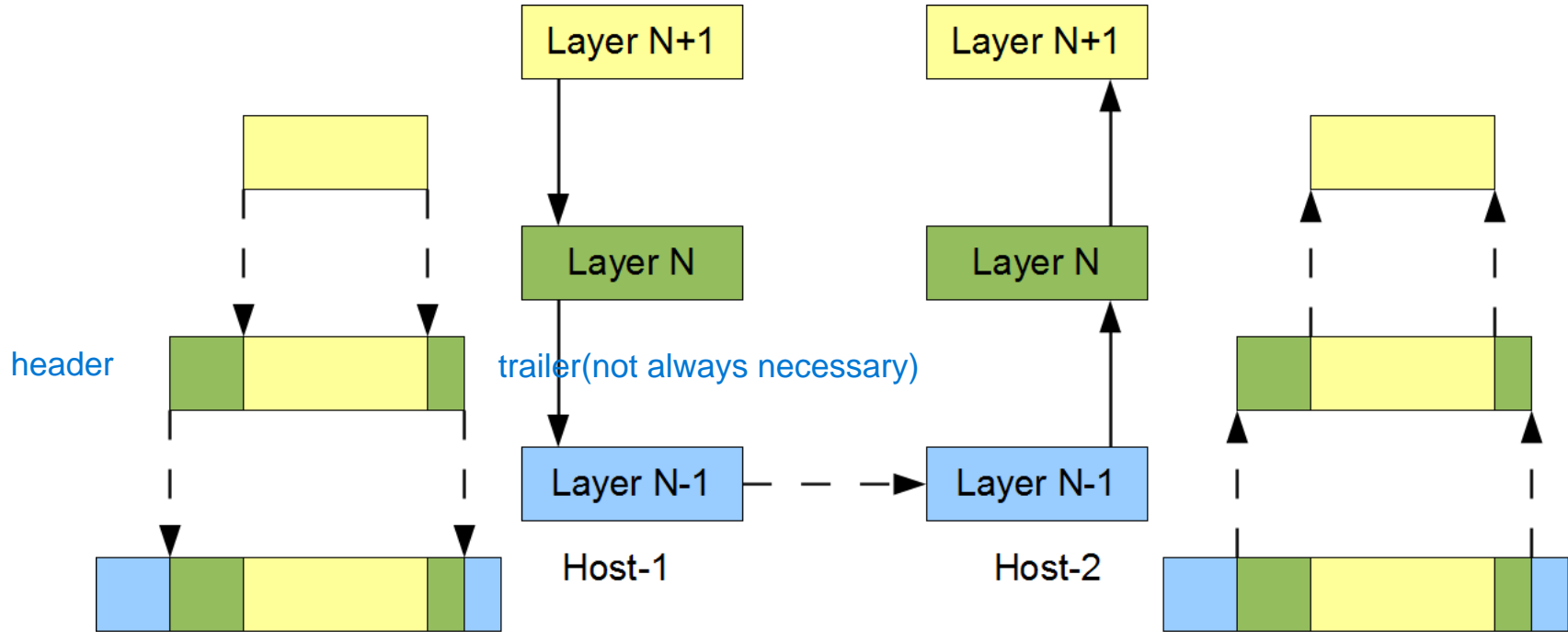


A layer (protocol) provides certain functionality.

Service Interface: Interface for users of the functionality provided by the layer

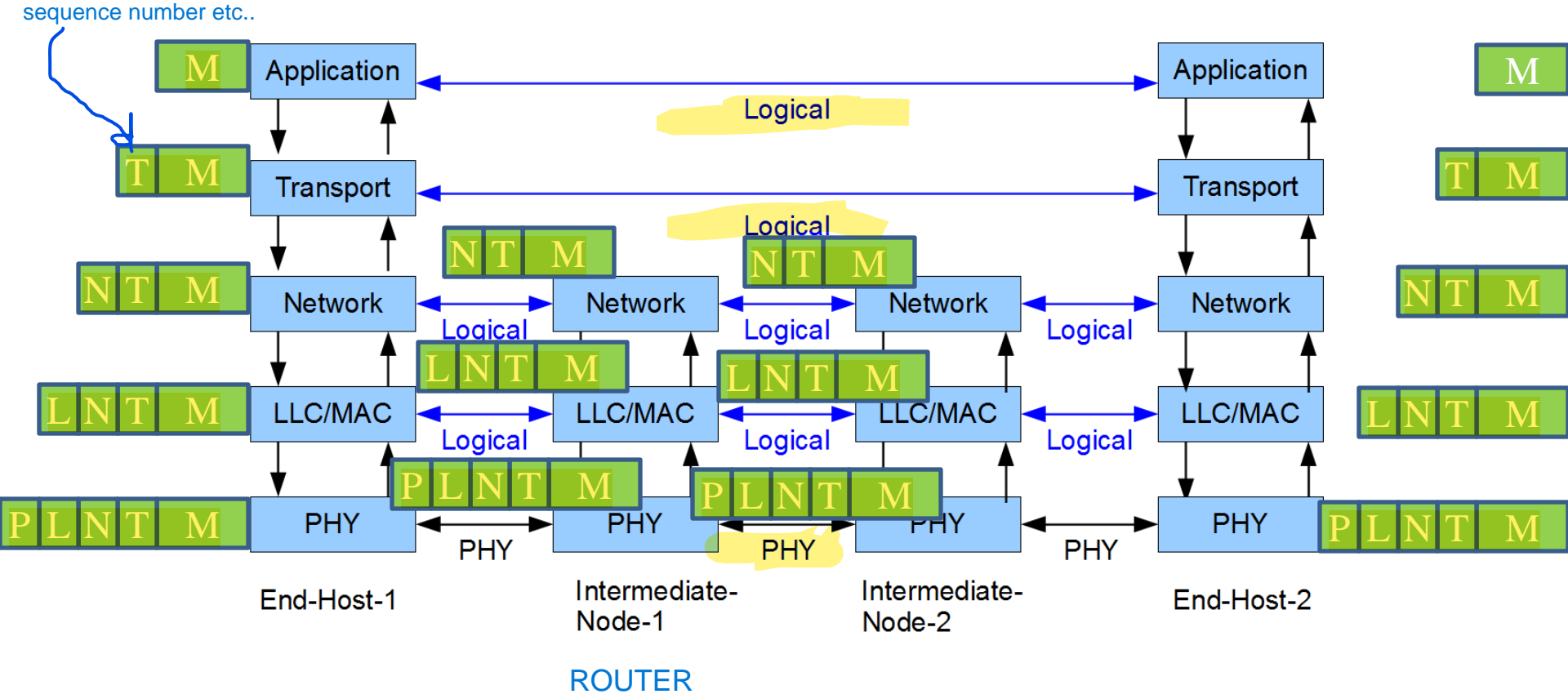
Peer Interface: Interact with peer (counterpart) to implement needed functionality

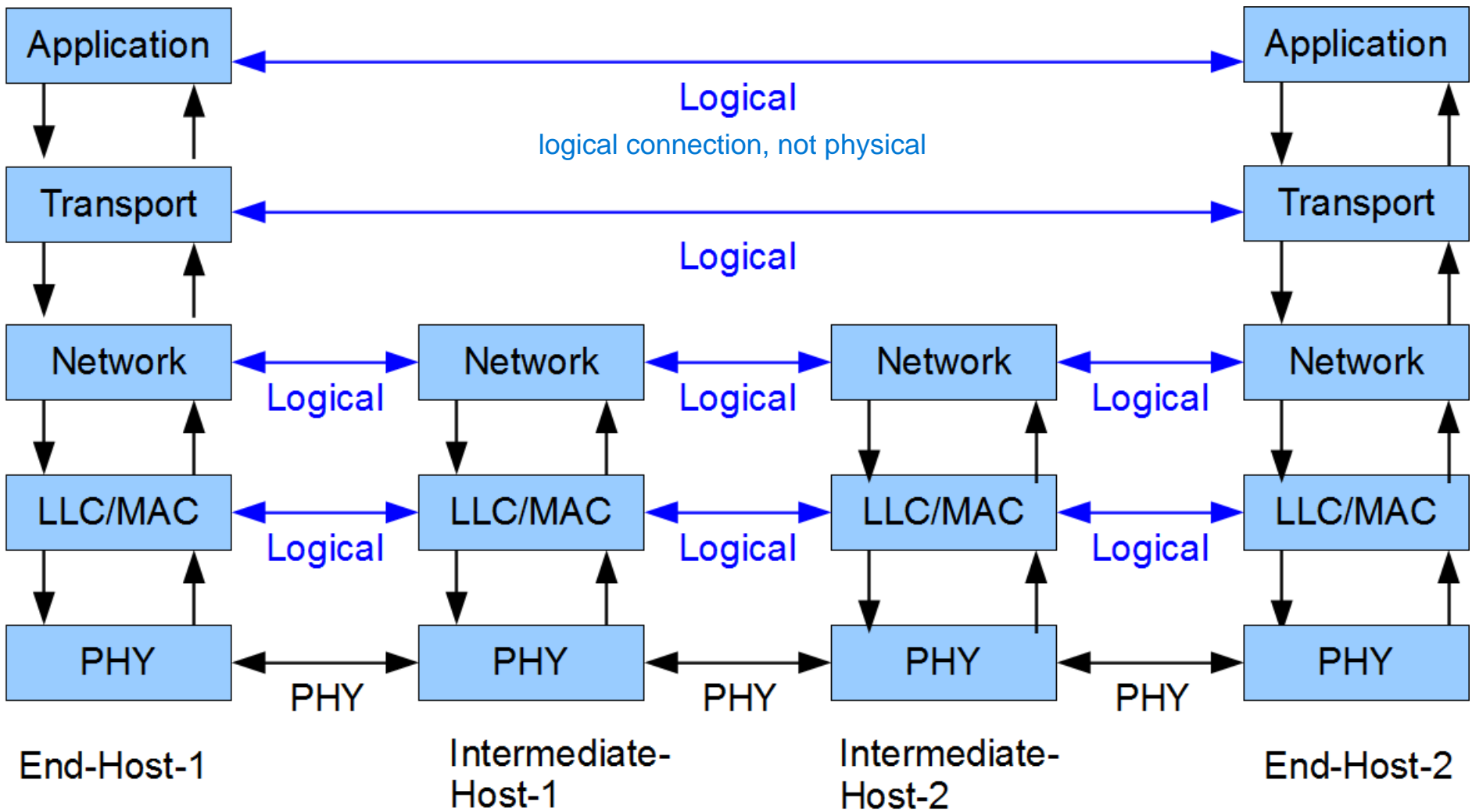
Encapsulation/Decapsulation



Each layer adds/removes its header

End to End vs Hop to Hop





Protocols in Different Layers

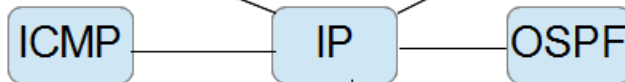
Application Layer



Transport Layer



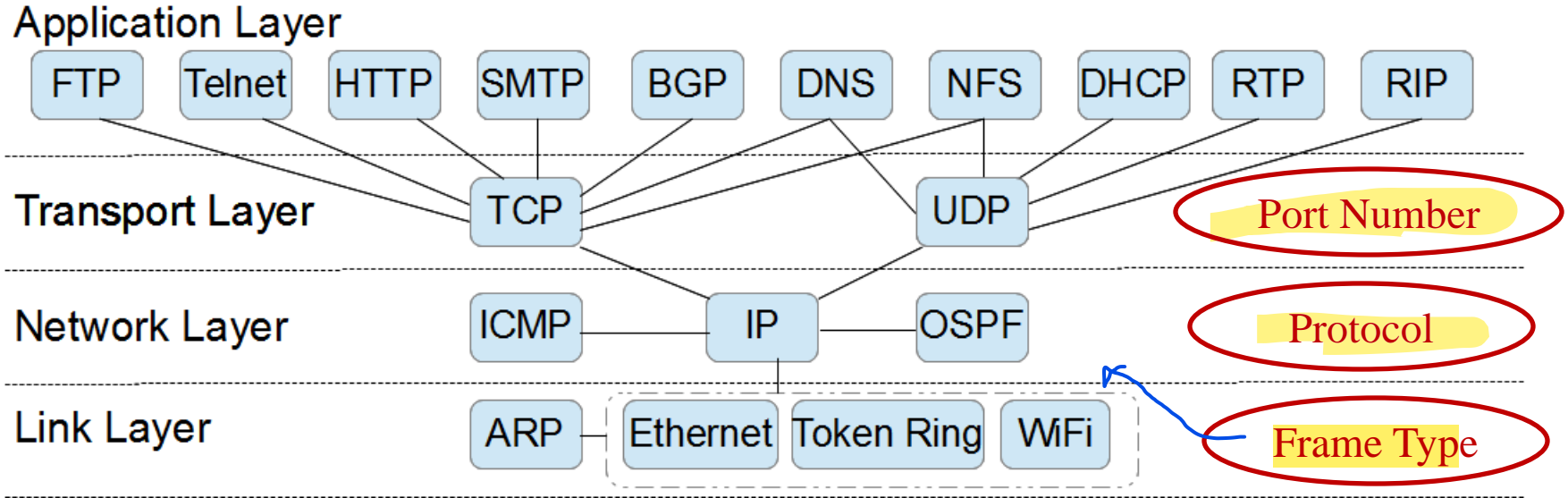
Network Layer



Link Layer



Multiplexing/Demultiplexing



fields within headers. link layer header has a frame type

demultiplexing key is embedded inside the header.

Summary

- Layers implement protocols
- To achieve above, layers need to communicate
 - Two interfaces: service and peer
- Peer interface communication via encapsulation/decapsulation
- Passing message to right protocol/process via demultiplexing key