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**What is the relationship between Physical Layer and Data Link Layer**

The Physical Layer and data link layer are two key components of how data is transmitted over networks, but they perform different roles and work together to ensure smooth communication. While the Physical layer and Data Link Layer perform different functions, they depend on each other to make sure that data is successfully transmitted. think of it this way: the Physical Layer is like the road, and the data link layer is the traffic system that manages how cars (data) move along that road.

when you send data over a network, the data link layer first organizes it into frames and then passes these frames down to the physical layer. the physical layer then turns those frames into signals that travel over the network’s medium whether that’s a copper wire, fiber-optic cable, or through the air in a wireless network. once the signals reach the destination, they’re passed back up to the receiving device’s Physical Layer, where the signals are converted back into data. then, the data link layer checks for errors, makes sure everything is in order, and passes the data along to the next layer.

If there are any issues with the data during transmission like if some bits get lost or corrupted the data link layer will notice and ask for the data to be sent again. the physical layer doesn’t handle errors; its job is simply to get the bits across. It’s the data link layer’s responsibility to make sure the data is intact and correctly delivered. so, while the physical layer and data linklayer have distinct jobs, they’re both essential for making sure data moves across networks smoothly. the physical layer gets the data moving by sending raw bits as signals, while the data link layer organizes those bits into frames, checks for errors, and ensures the data gets to the right place without any hiccups. together, they form a powerful team that enables the reliable transfer of data, ensuring that our devices can communicate effectively in any network.