02:31

## TRANSMISSION DELAY

Time it takes to place the complete data packet on the transmission medium.

$$Transmission Time = \frac{Message size}{Bandwidth}$$

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03:38

## PROPAGATION DELAY

Time it takes for a bit to go from device A to device B.

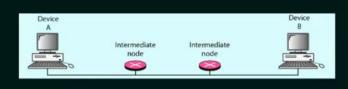
The propagation time is calculated by dividing the distance by the propagation speed.

$$Propagation Time = \frac{Distance}{Propagation speed}$$

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## QUEUING DELAY

- ★ The third component in latency is the queuing time, the time needed for each intermediate or end device to hold the message before it can be processed.
- ★ The queuing time is not a fixed factor; it changes with the load imposed on the network.
- ★ When there is heavy traffic on the network, the queuing time increases.



05:46

## PROCESSING DELAY

★ How much time the node takes to process the message?



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