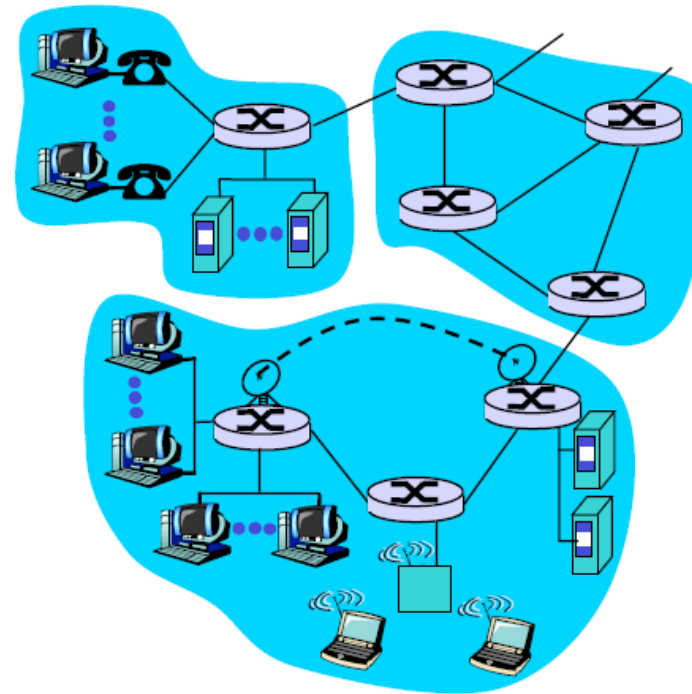# A closer look at network structure:

☐ network edge:
applications and hosts

☐ network core:
- routers
- network of networks

☐ access networks,
physical media:
communication links

Network edge: connection-oriented service
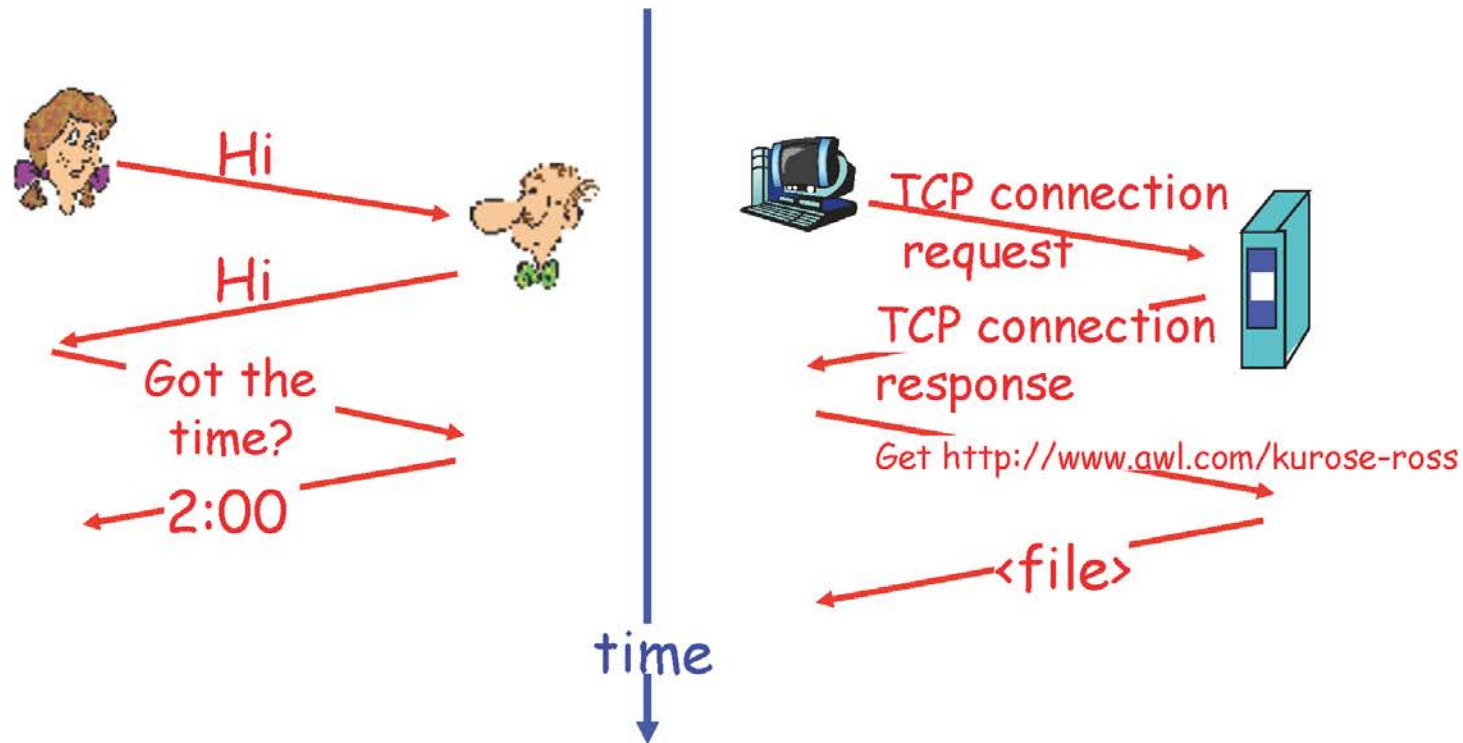
Goal: data transfer between end systems

❑ **Connection***: prepare for data transfer ahead of time*
  ▪ Request / Respond
  ▪ *set up "state" in two communicating hosts*

❑ TCP - Transmission Control Protocol
  ▪ Internet's connection-oriented service

TCP service [RFC 793]

❑ *reliable, in-order byte-stream data transfer*
  ▪ loss: acknowledgements and retransmissions
❑ *flow control:*
  ▪ sender won't overwhelm receiver
❑ *congestion control:*
  ▪ senders "slow down sending rate" when network congested

What's a protocol?

a human protocol and a computer network protocol:

Hi

Hi

Got the time?

2:00

TCP connection request

TCP connection response

Get http://www.awl.com/kurose-ross

<file>

time

❑ All communication in Internet coordinated by protocols