

Characteristics of TCP and UDP

By:

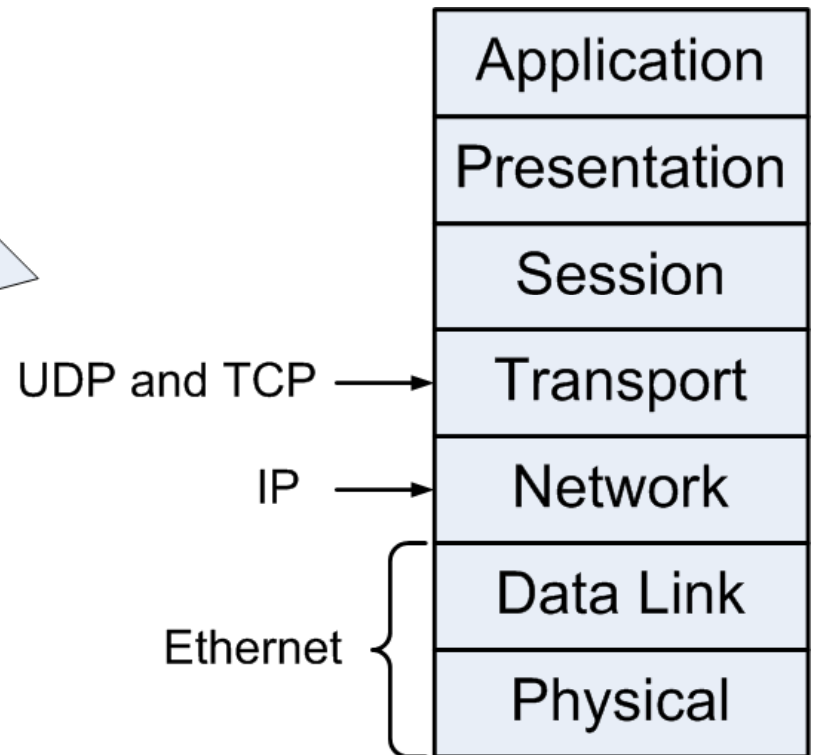
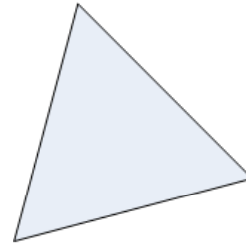
Engr. Joseph Ronald Cañedo

Outline

- Overview
- Transport Layer Functions
- Reliable vs. Best Effort
- UDP and TCP
- UDP and TCP Port Numbers
- UDP and TCP Header Formats

Transport Layer

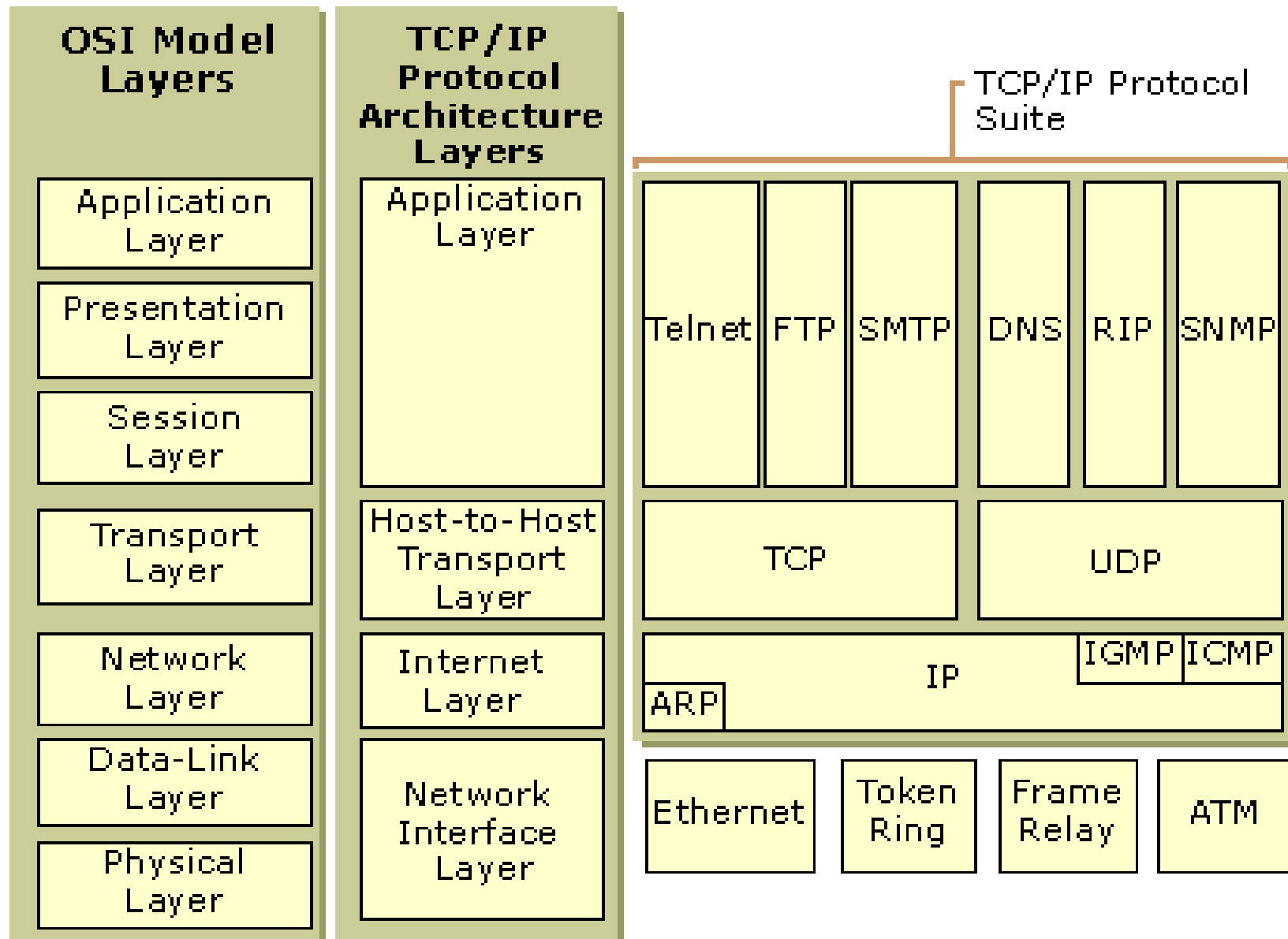
- Session Multiplexing
- Segmentation
- Flow control (when required)
- Connection-oriented (when required)
- Reliability (when required)



Reliable vs. Best Effort Comparison

	Reliable	Best Effort
Connection Type	Connection-oriented	Connectionless
Protocol	TCP	UDP
Sequencing	Yes	No
Uses	<ul style="list-style-type: none">• Email• File Sharing• Downloading	<ul style="list-style-type: none">• Voice Streaming• Video Streaming

TCP/IP Protocol Suite



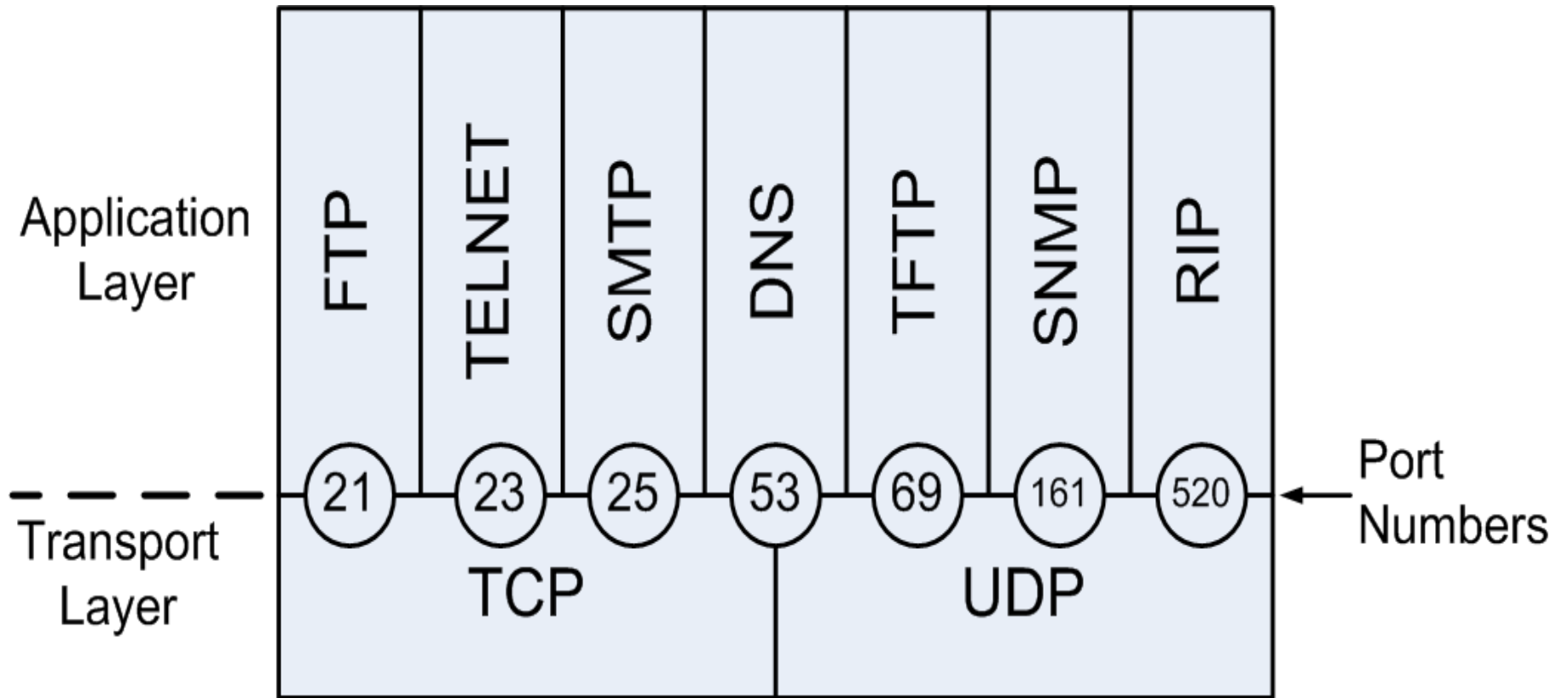
UDP Characteristics

- Packets are treated independently
- Packet delivery is not guaranteed
- Lost or corruption packets are not recovered

TCP Characteristics

- Connection-oriented protocol
- Full-duplex operation
- Error checking
- Sequencing
- Acknowledgements
- Flow control
- Packet recovery

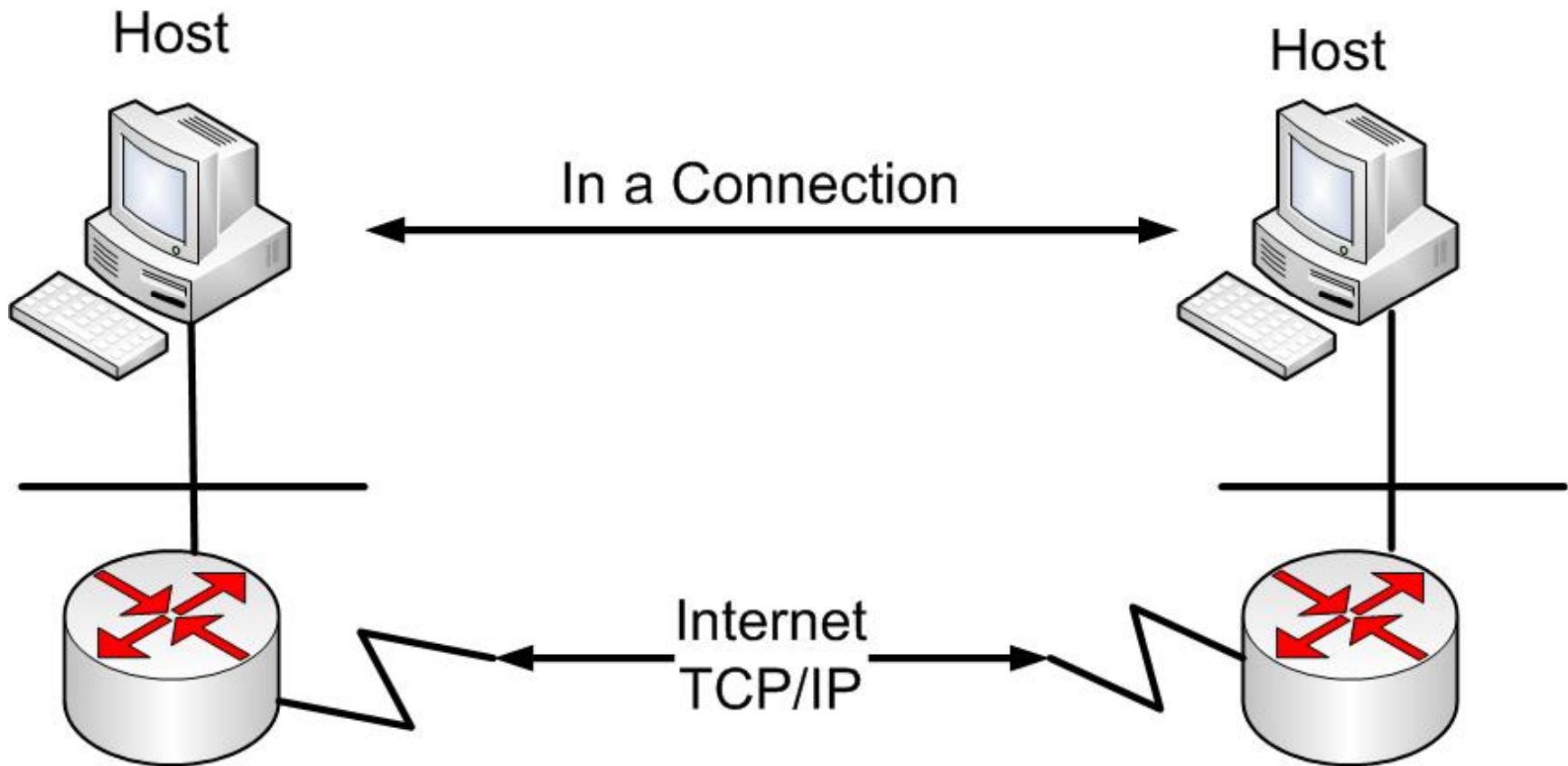
Port Numbers



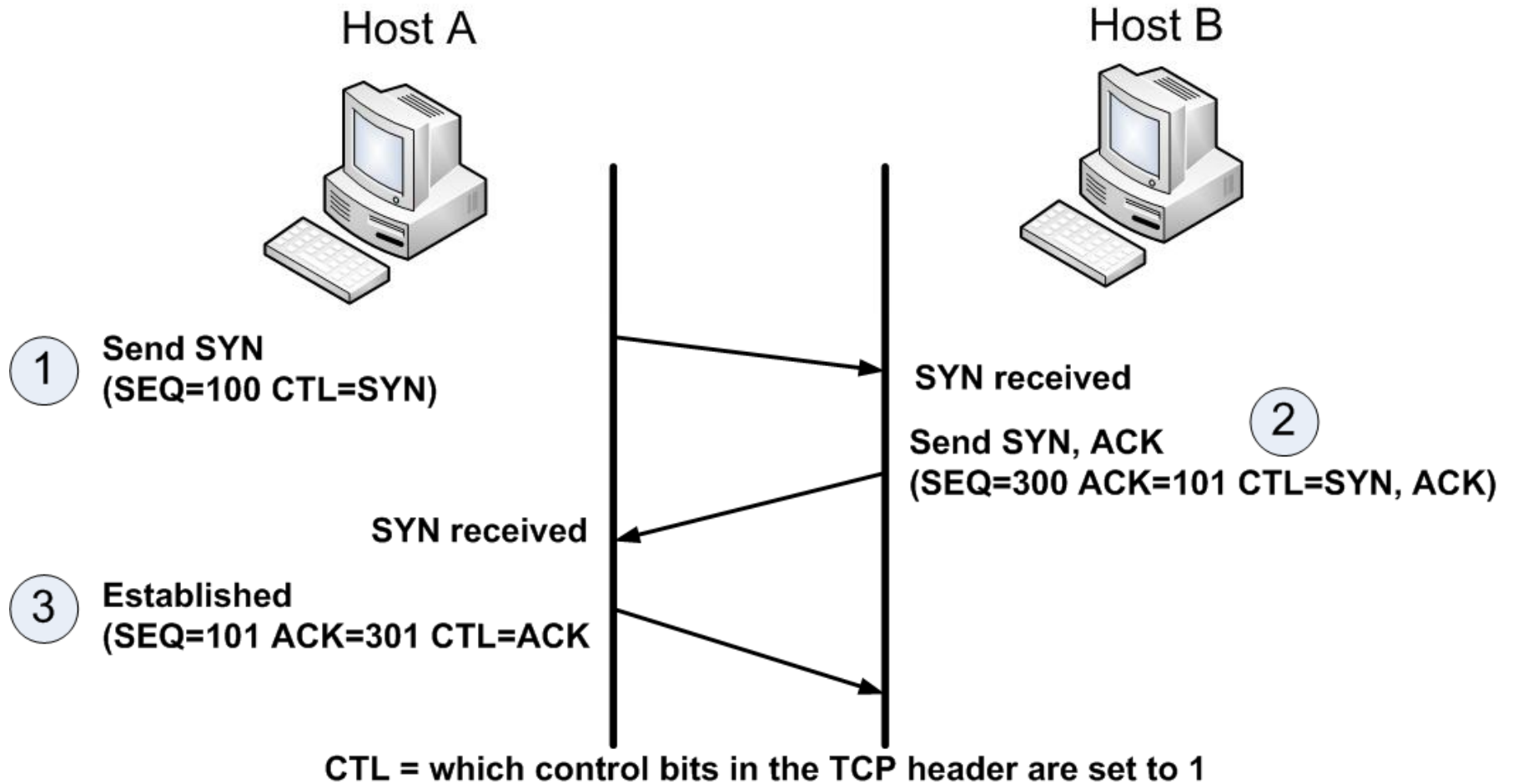
UDP Header

16 – bit source port	16-bit destination port
16 – bit UDP length	16-bit UDP Checksum
Data	

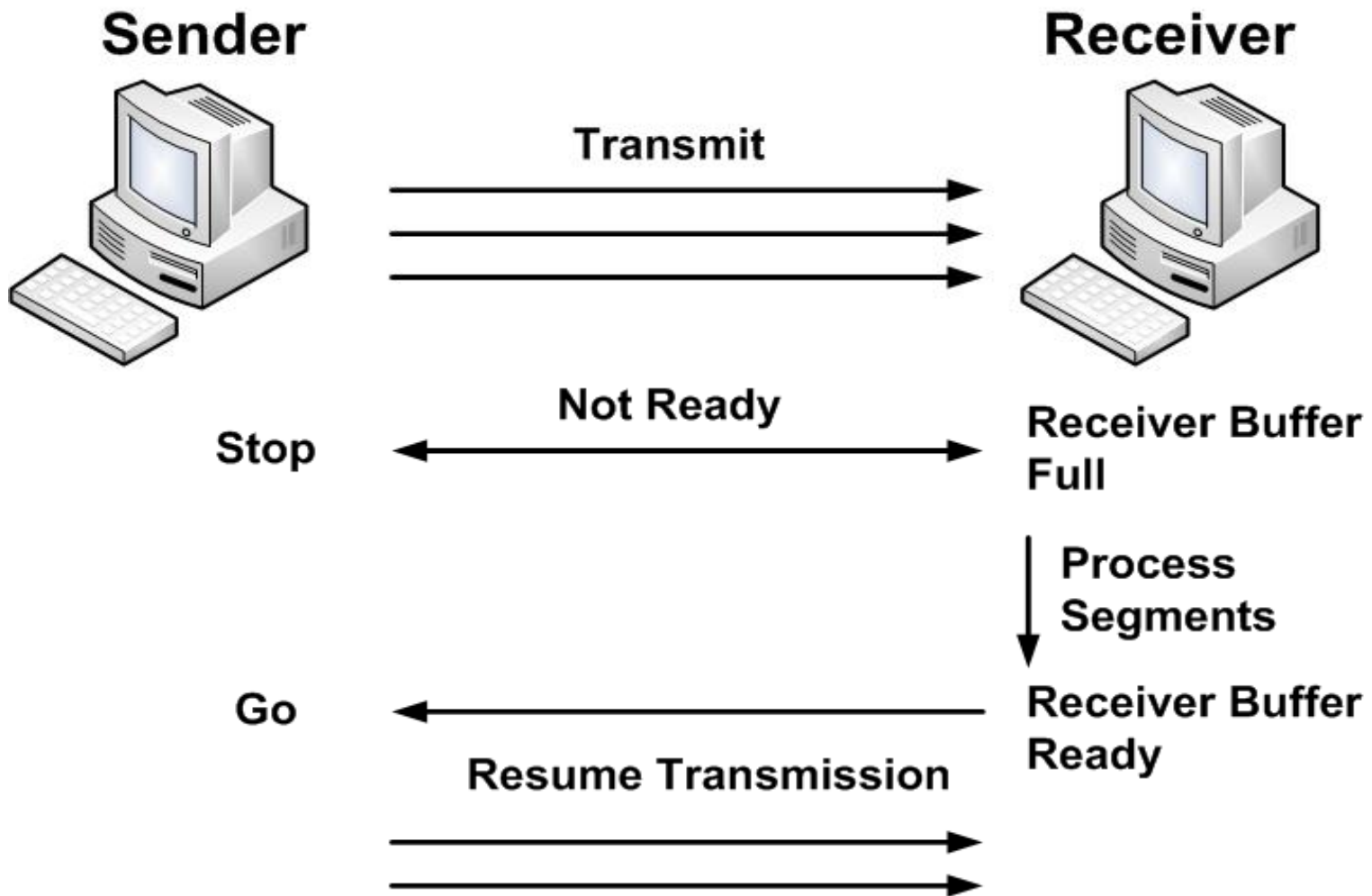
Establishing a Connection



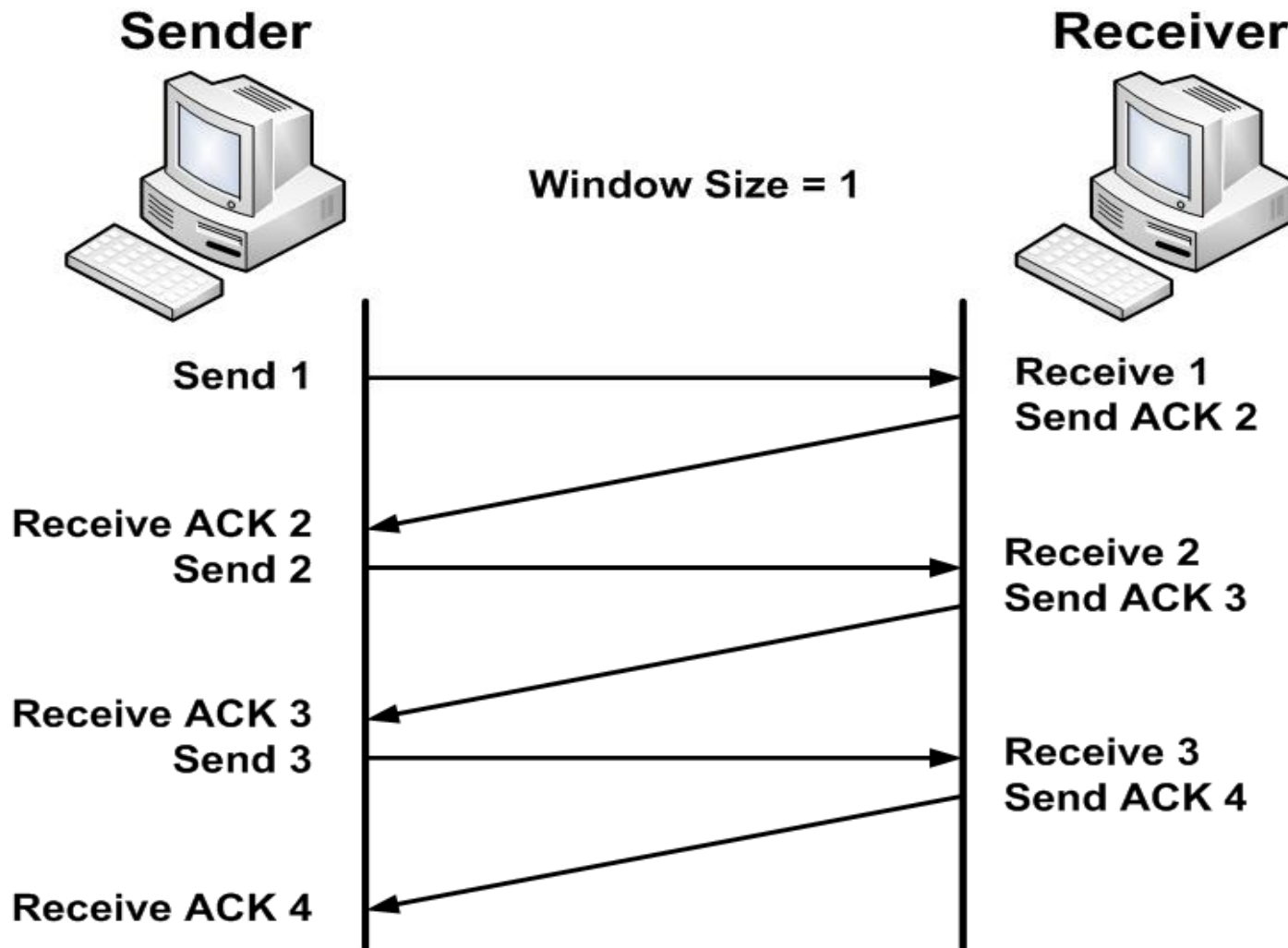
Three-Way Handshake



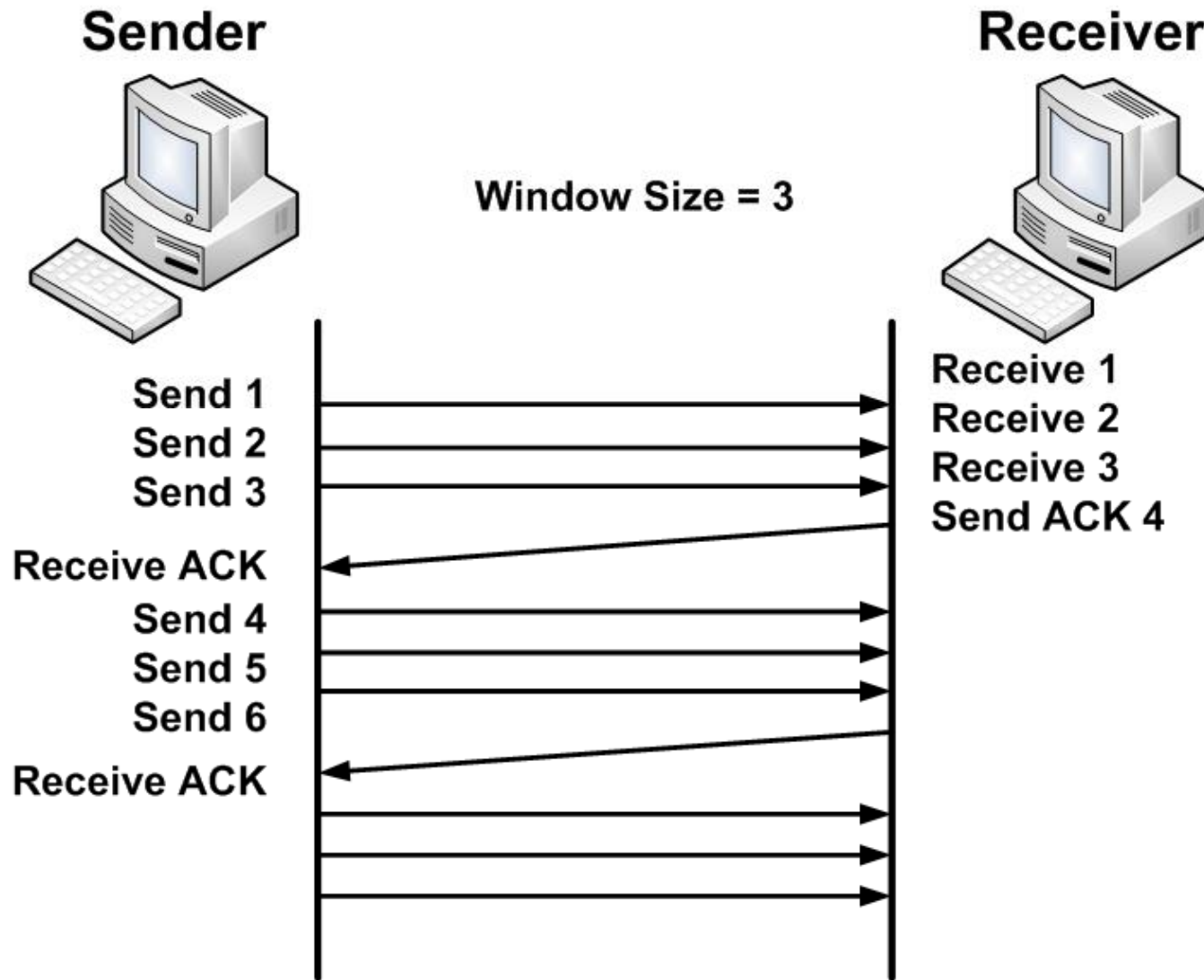
Flow Control



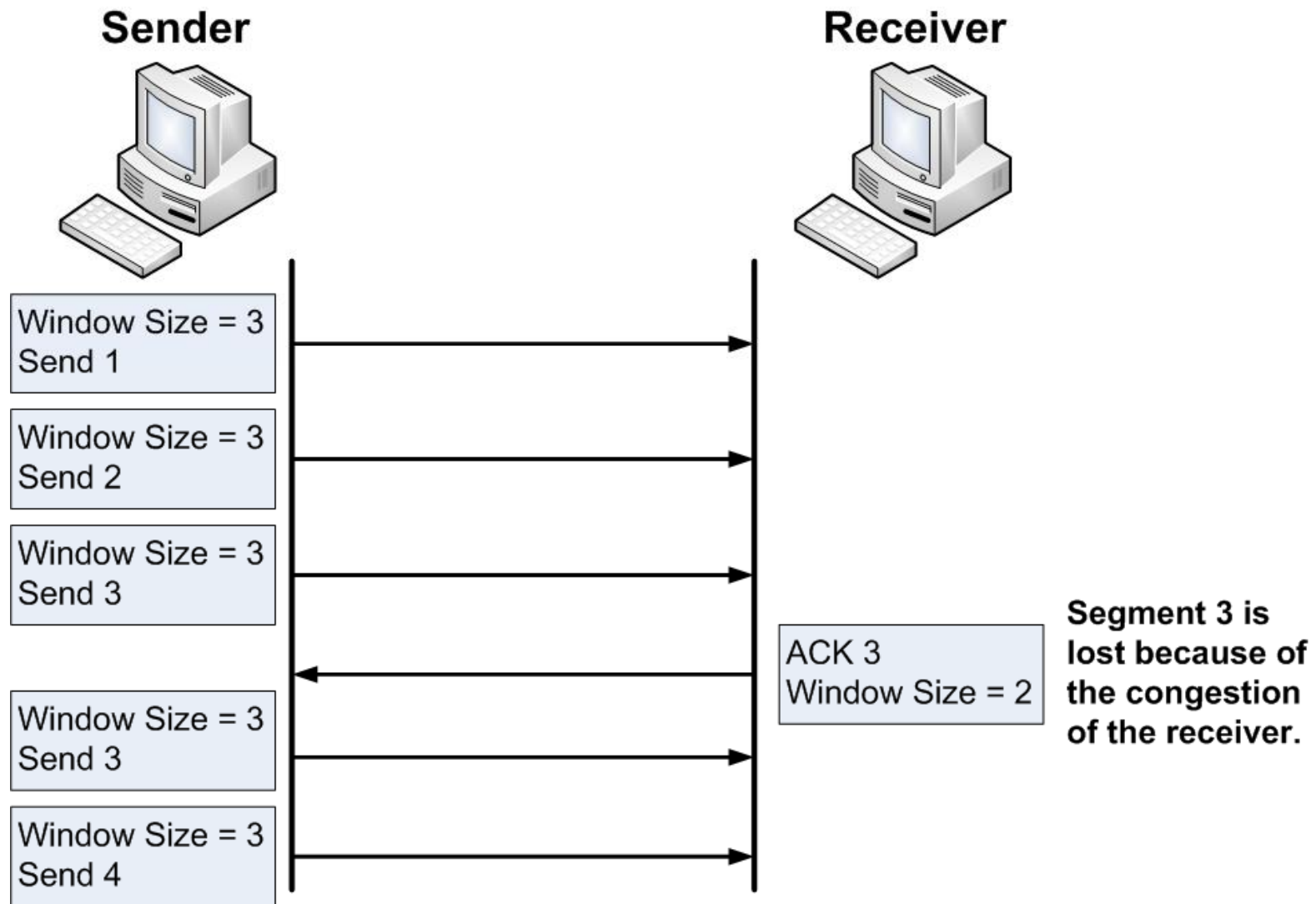
TCP Acknowledgement



Fixed Windowing



TCP Sliding Windowing



TCP Sequence and Acknowledgement Numbers

