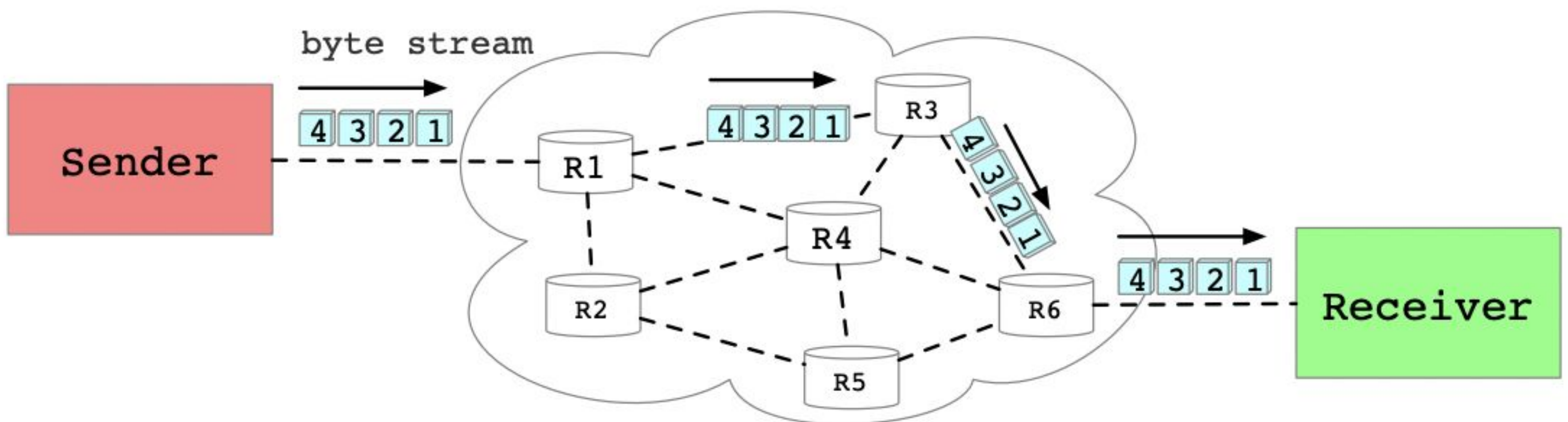
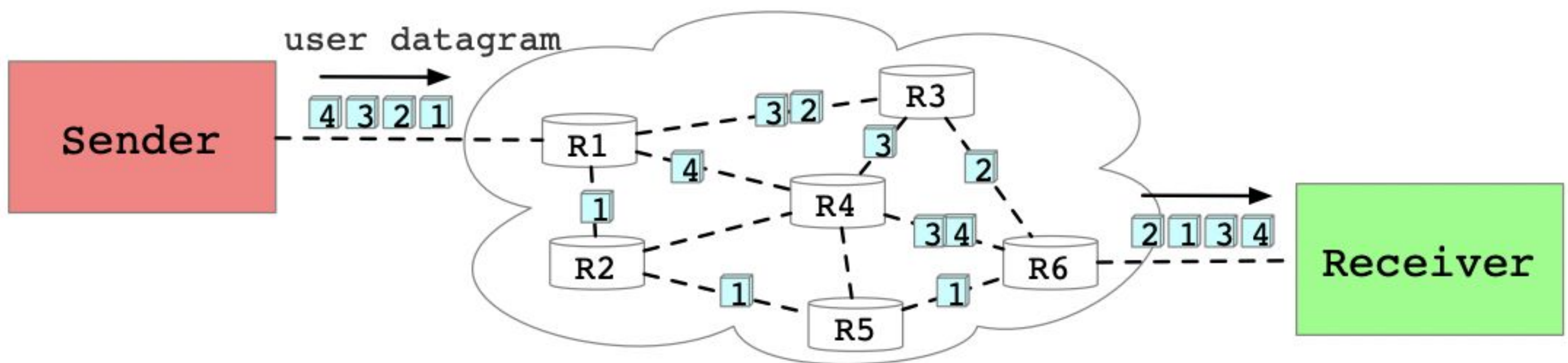


TCP vs. UDP: 7 Differences You Should Know

In-order vs. out of order

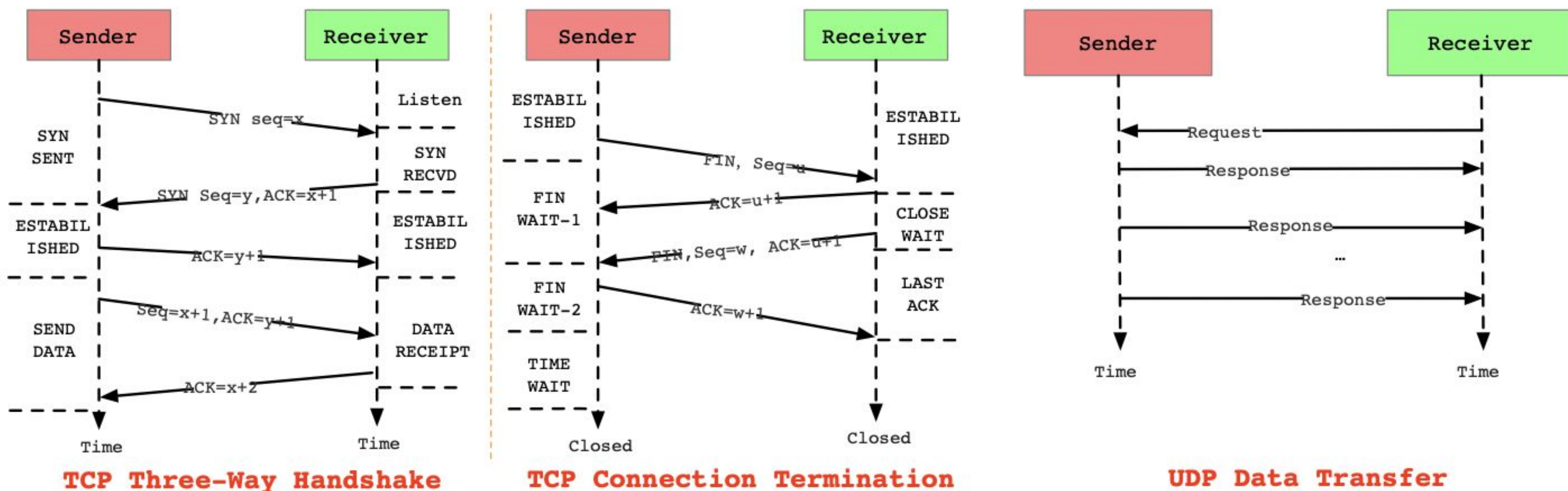


TCP connection-oriented
Data arrives in-order



UDP connectionless
Data could be out of order

Three-way handshake vs. No Handshake



TCP vs. UDP: 7 Differences You Should Know

header (20 bytes) vs. header (8 bytes)

20→60 bytes

TCP Header

TCP Data

Source Port
16 bits

Destination Port
16 bits

Sequence Number
32 bits

Acknowledgement Number
32 bits

(Other header fields)
64 bits

Options and Padding
Up to 40 bytes

8 Bytes

UDP Header

UDP Data

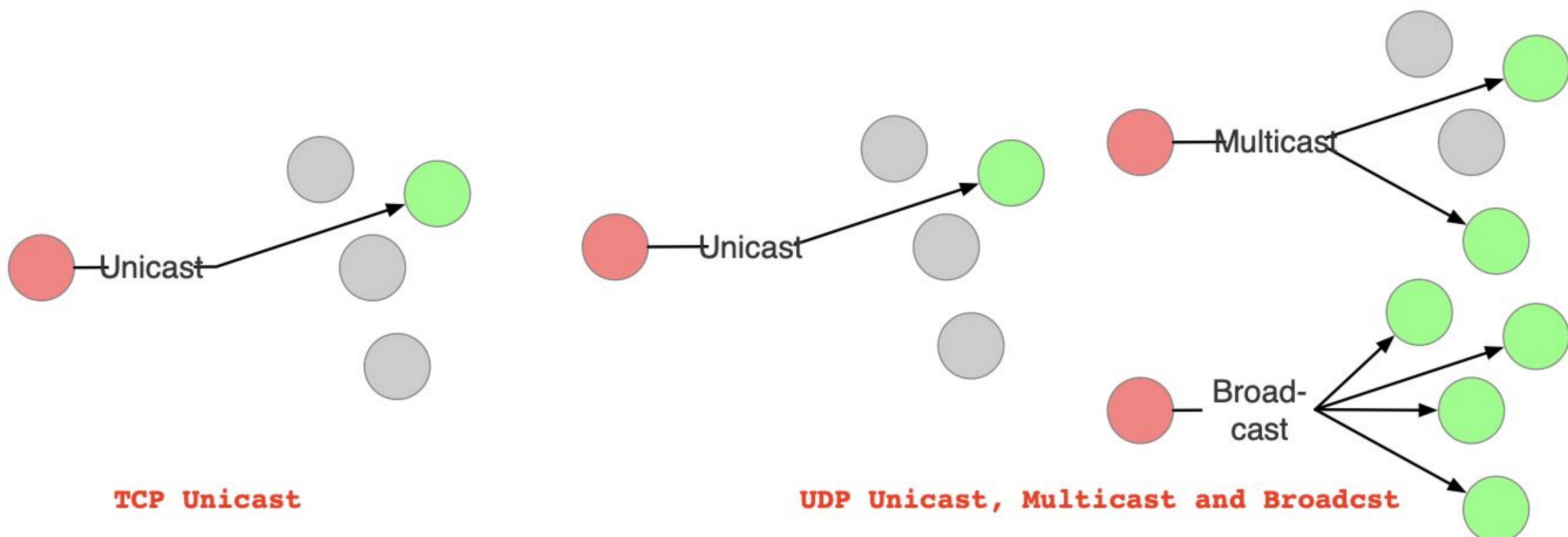
Source Port
16 bits

Destination Port
16 bits

Length
16 bits

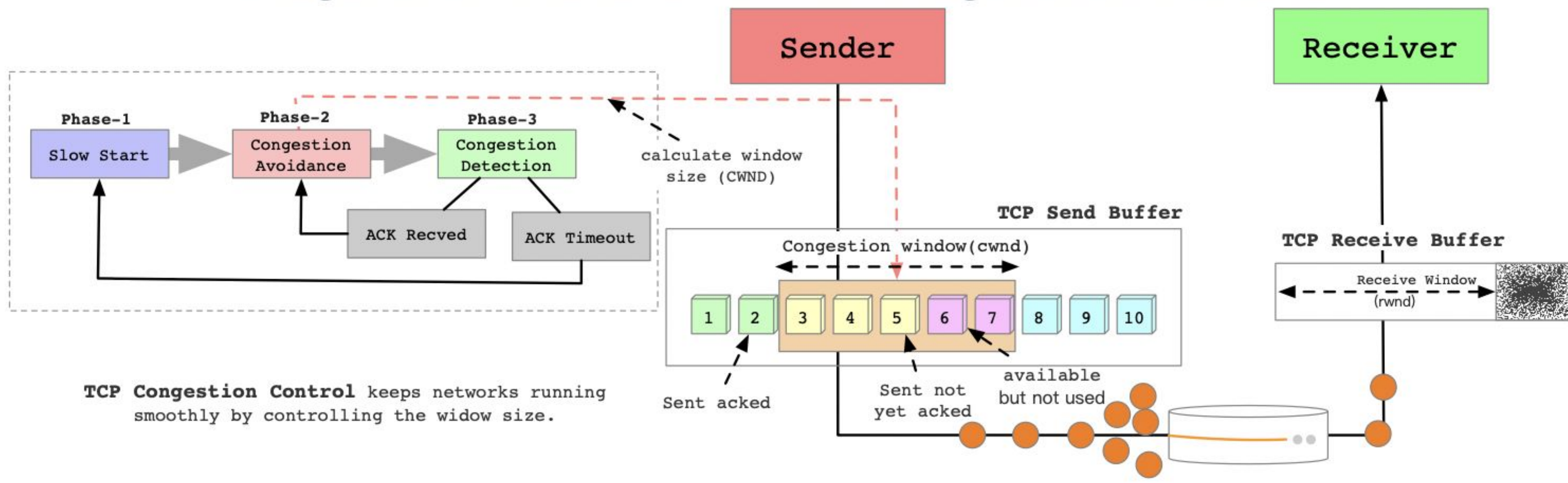
Checksum
16 bits

Point to point vs. Unicast & Multicast & Broadcast

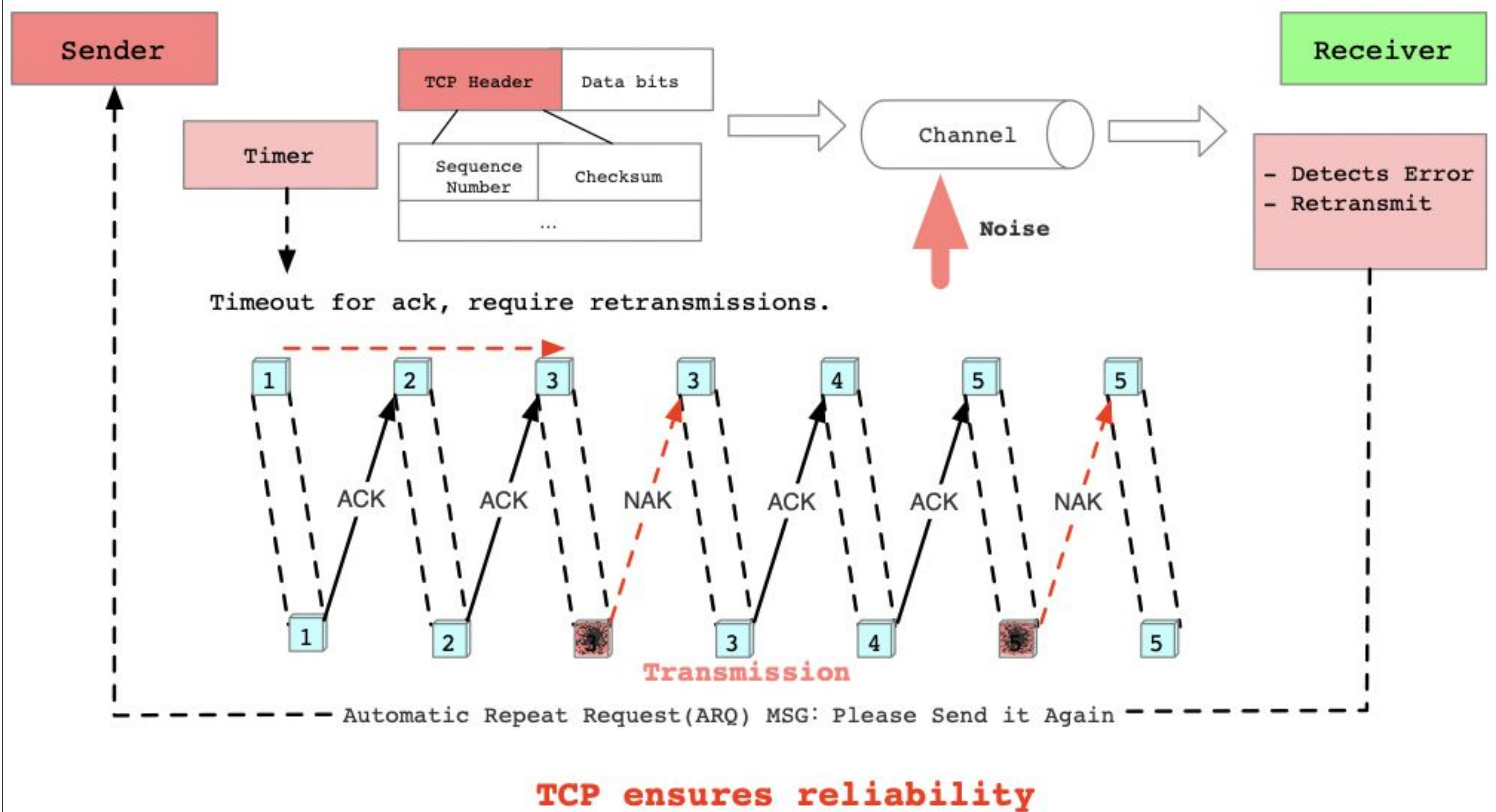


TCP vs. UDP: 7 Differences You Should Know

Congestion control vs. No congestion control

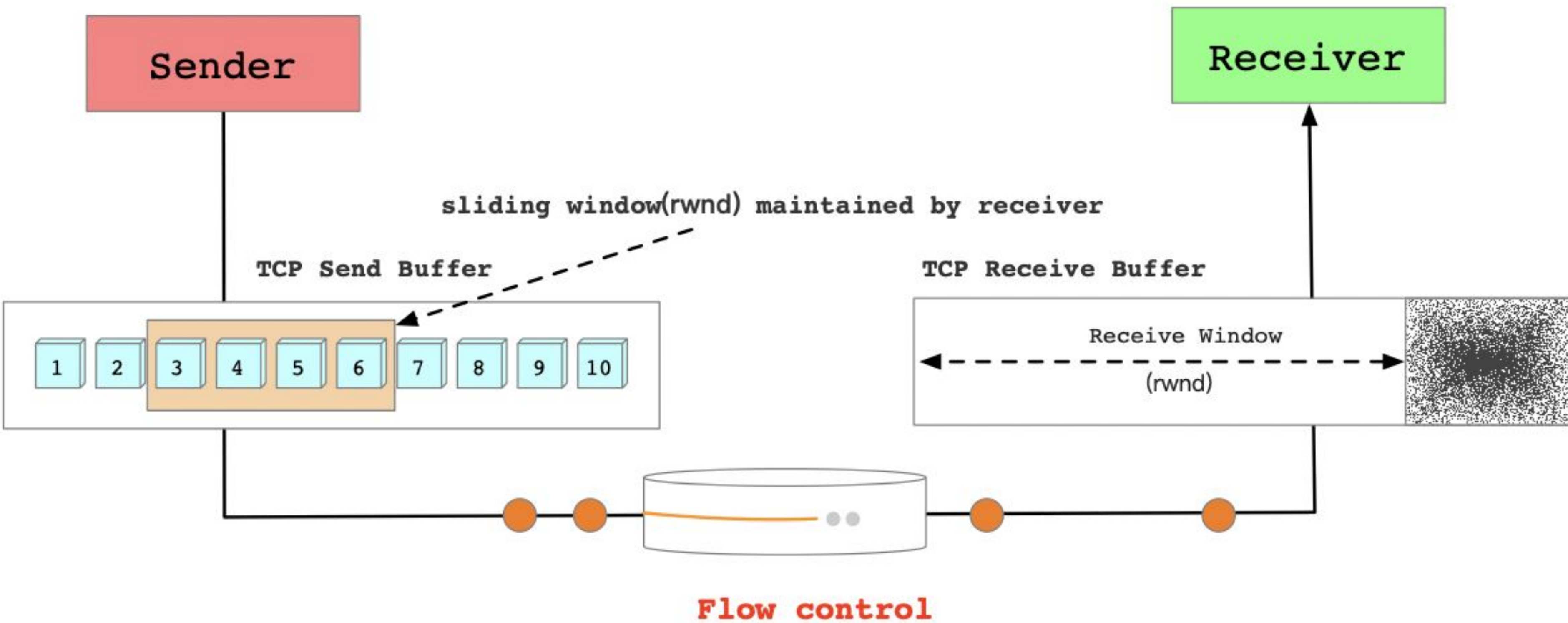


Reliable vs. Lossy



TCP vs. UDP: 7 Differences You Should Know

Flow control vs. No flow Control



Typical Use Cases

TCP is commonly used for:

- Serving up a web page using **HTTPS**
- Downloading a file via **FTP**
- Sending an email report using **SMTP**
- Connecting a service technician via **Telnet**
- Machine-to-Machine via **DDS**
- Sensor data flow via **MOTT**

UDP is commonly used for:

- Resolving a domain name using **DNS**
- Automating configuration of a local network with **DHCP**
- Quick and lightweight data file transfer with **TFTP**
- Network management with **SNMP**
- Internet routing with **RIP**
- Telephony using **VOIP**
- **M2M** via **DDS**

TCP vs. UDP: 7 Differences You Should Know

A timeline for the development of TCP and UDP

