

# TCP/IP & THREADS

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- Uses IP addresses for addressing (IPv4 and IPv6)
- Stream based
- Reliable:
  - Messages cannot be reordered
  - Messages are delivered exactly once



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- **close()** - end the communication



# Server workflow



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data = client.recv(512)
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data = client.recv(512)
client.close() # close connection
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# Gotchas

## Stream based

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# Client
client.sendall("msg1\n")
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# but also b"ms", b"msg1", ...
# => you have to delimit messages by yourself
```

# How to recognize disconnect

```
data = sock.recv(512)
if data == 0:
    # error during transmission, disconnect
```

# Operations are blocking by default

```
sock.accept()           # blocks until a client connects  
sock.sendall(b"...")    # blocks until all data is sent  
sock.recv(512)          # blocks until (some) data is received
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- You have to use processes to get parallelism

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    t.start()  
    threads.append(t)  
  
for t in threads:  
    t.join() # block until thread ends
```