Beej's Guide to Network Programming Nots

Chapter 3: Socket Communication

Steps for Client and Server

- Client: `socket()`, `connect()`
- Server: `socket()`, `bind()`, `listen()`, `accept()`

Questions

- What does `bind()` do?
- What does `accept()` do?
- Why do we need a port?
- What is a socket?

Chapter 4: Layered Network Model

Layered Model

- HTTP request -> TCP -> IP -> Ethernet
- Each layer encapsulates the previous one.

Protocol Encapsulation

- Ethernet frame contains IP packet.
- IP packet contains TCP segment.
- TCP segment contains HTTP data.

Routers

- Routers forward packets based on IP addresses.

Internet Layer Model

- Application
- Transport
- Internet
- Link

OSI Model

- Application
- Presentation
- Session
- Transport
- Network
- Data Link
- Physical

Questions

- How does routing work?
- Why is IP address space limited?
- How are protocols encapsulated?
- What is the difference between UDP and TCP?

Definitions

TCP Transmission Control Protocol, reliable, connection-oriented.

UDP User Datagram Protocol, unreliable, connectionless.

IPv4 Internet Protocol version 4, 32-bit addresses.
IPv6 Internet Protocol version 6, 128-bit addresses.
NAT Network Address Translation.
Router Device that forwards packets between networks.
IP Internet Protocol, addressing and routing.
LAN Local Area Network.
Interface Network connection point.
Header Metadata at the start of a packet.
Network Adapter Hardware for network connectivity.
MAC Address Unique hardware address.
Host Device on a network.