Introduction

Chap. 1

Networks, Packets, and Protocols (1)

- **Computer network**
  - consists of <u>machines</u> interconnected by <u>communication channel</u>s
  - Host
  - Router(Gateway)
    - forward
- **Information**
  - sequence of bytes that are constructed and interpreted by programs
- **Packet**
  - control information
  - user data

Networks, Packets, and Protocols (2)

- Protocol
  - agreement about the packets and what they mean
  - designed to solve specific problem
  - ex: HTTP(Hyper Text Transfer Protocol)
- Protocol Suite
  - solving different sets of problems
  - TCP/IP

Networks, Packets, and Protocols (3)

- OSI 7 Layers
  - Application layer
  - Presentation layer
  - Session layer
  - Transport layer
  - Network layer
  - Data link layer
  - Physical layer
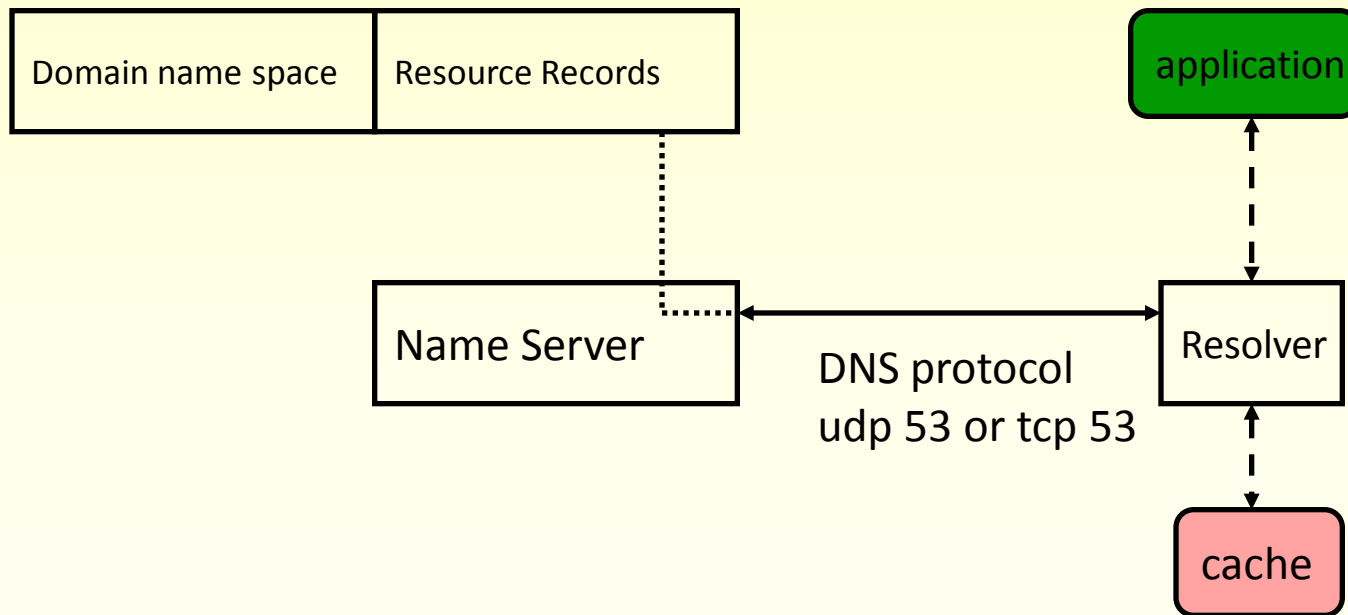
Networks, Packets, and Protocols (4)

- TCP/IP network
  - Application
  - TCP/UDP
  - IP
  - subnetwork
- Connection-oriented / Connectionless
- Best-effort

About Addresses

- Address
- IPv4 / IPv6 Address
    - dual-stack
    - IPv4 mapped address
- Port numbers
- Special Addresses
    - loopback address
    - private address
    - link-local (autoconfiguration)
    - multicast

About Names

- name
- resolve
- DNS(Domain Name System)

Domain name space	Resource Records

application

Name Server

DNS protocol
udp 53 or tcp 53

Resolver

cache

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Clients and Servers

- Client
- Server
- peer
- URL(Universal Resource Locator)
  - URI
- www.iana.org

What is a socket ?

- Socket
- stream / datagram

Applications

TCP Sockets

UDP Sockets

descriptor reference

sockets bound to ports

TCP Ports

UDP Ports

TCP

UDP

IP

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