

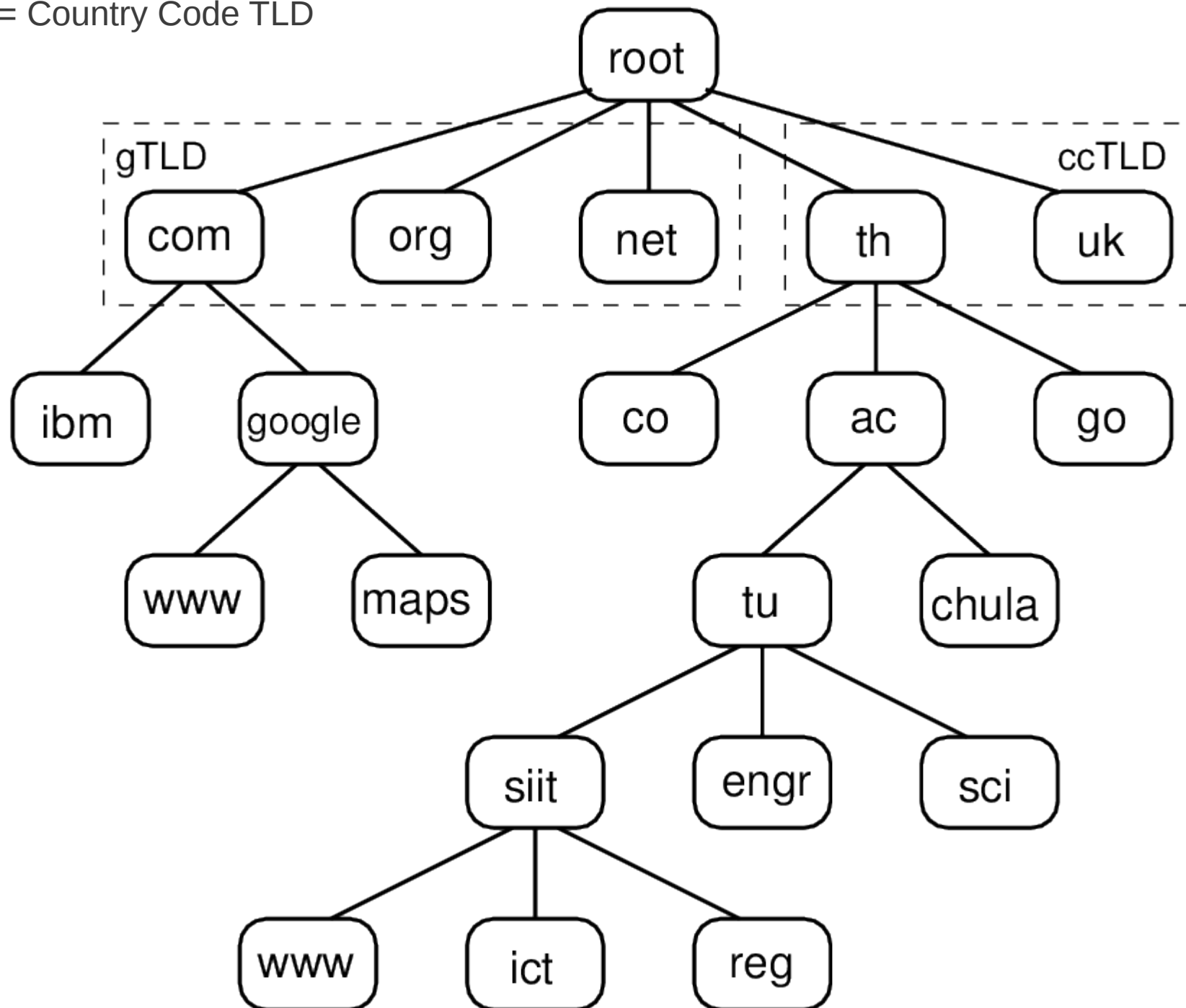
# DNS Basics

# Computers use IP Addresses

- To send an IP datagram to another computer on Internet (e.g. a web server), must know its IP address
- What is the IP address of the computer running ICT website? Registration? Facebook?
- Humans prefer words (compared to numbers)
- Domain names identify computers in Internet
- What is domain name of ICT website? Registration? Facebook?
- All computers in Internet have IP address; some (usually servers) also have domain name

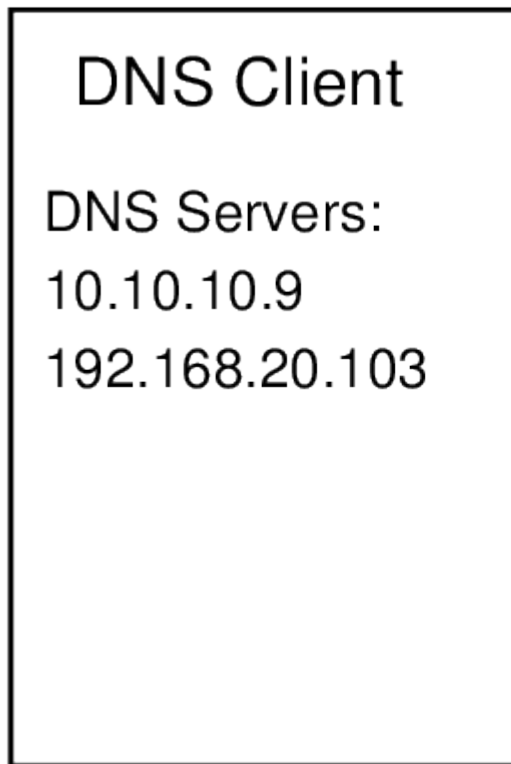
gTLD = Generic Top Level Domain

ccTLD = Country Code TLD

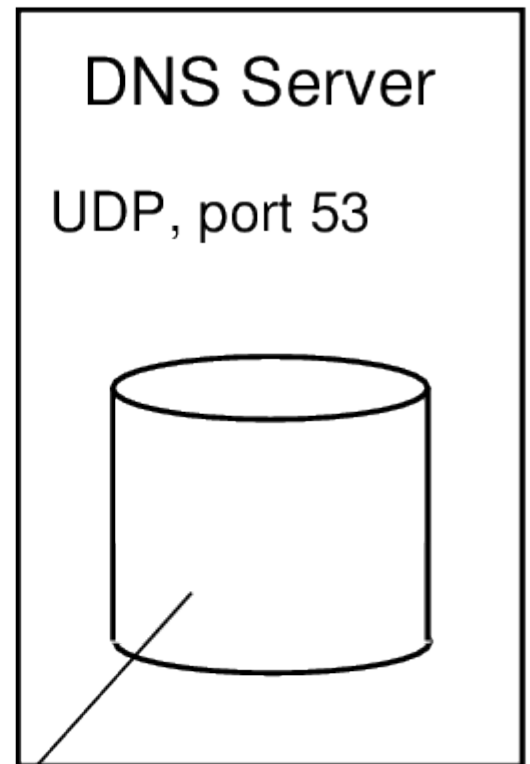


# Domain Name System (DNS)

- Map domain names to IP addresses
- Clients have DNS Resolver, configured with IP address of 1 or more DNS Servers
  - `/etc/resolv.conf`
- DNS servers store mappings from domain to IP
  - Server operators register their domain/IP with DNS server
- DNS protocol
  - Request/Response
  - UDP, Server port 53
- Hierarchy of DNS servers
  - Authoritative server is where domain/IP originally registered
  - Caching used in resolvers and DNS Servers

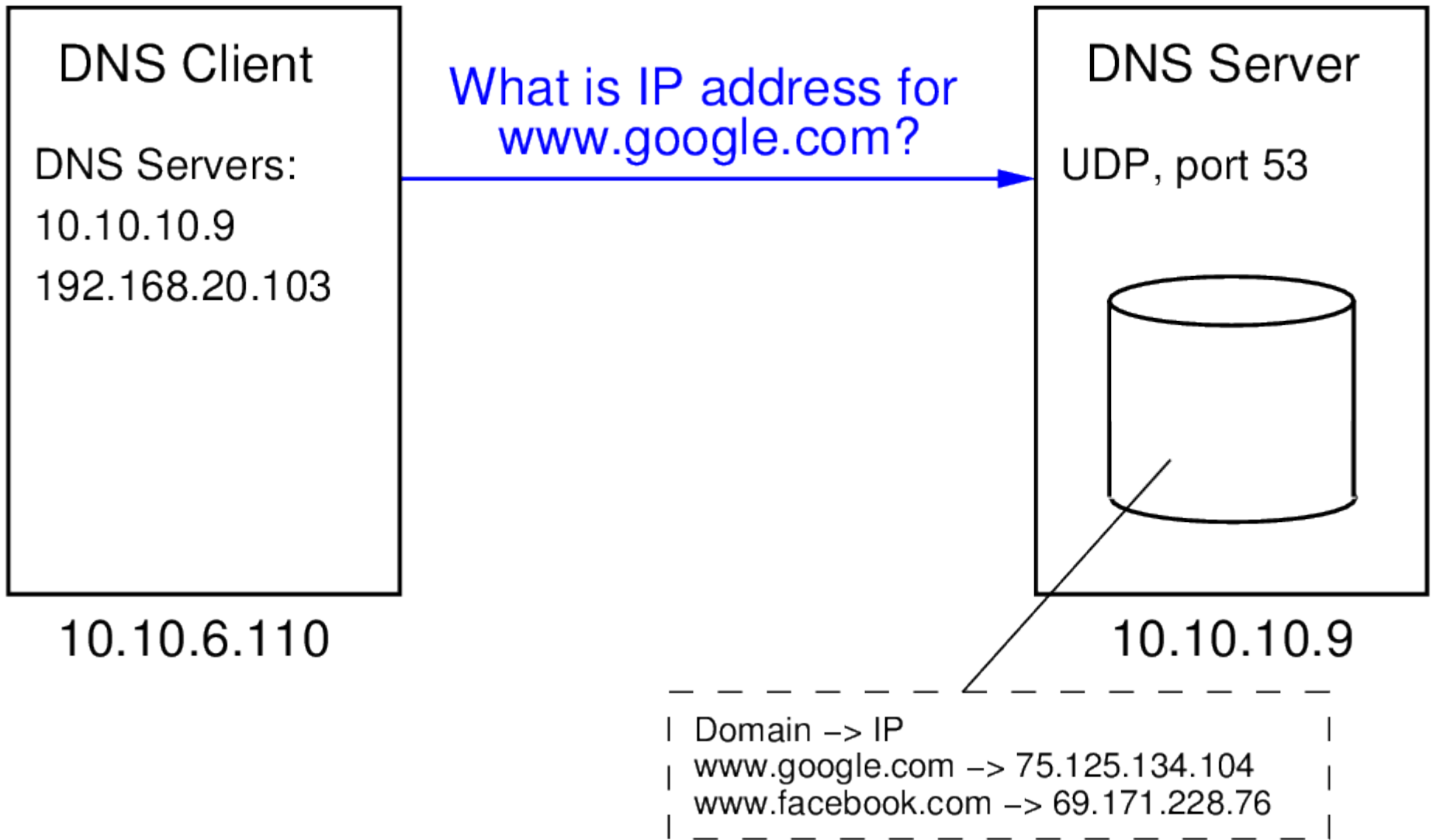


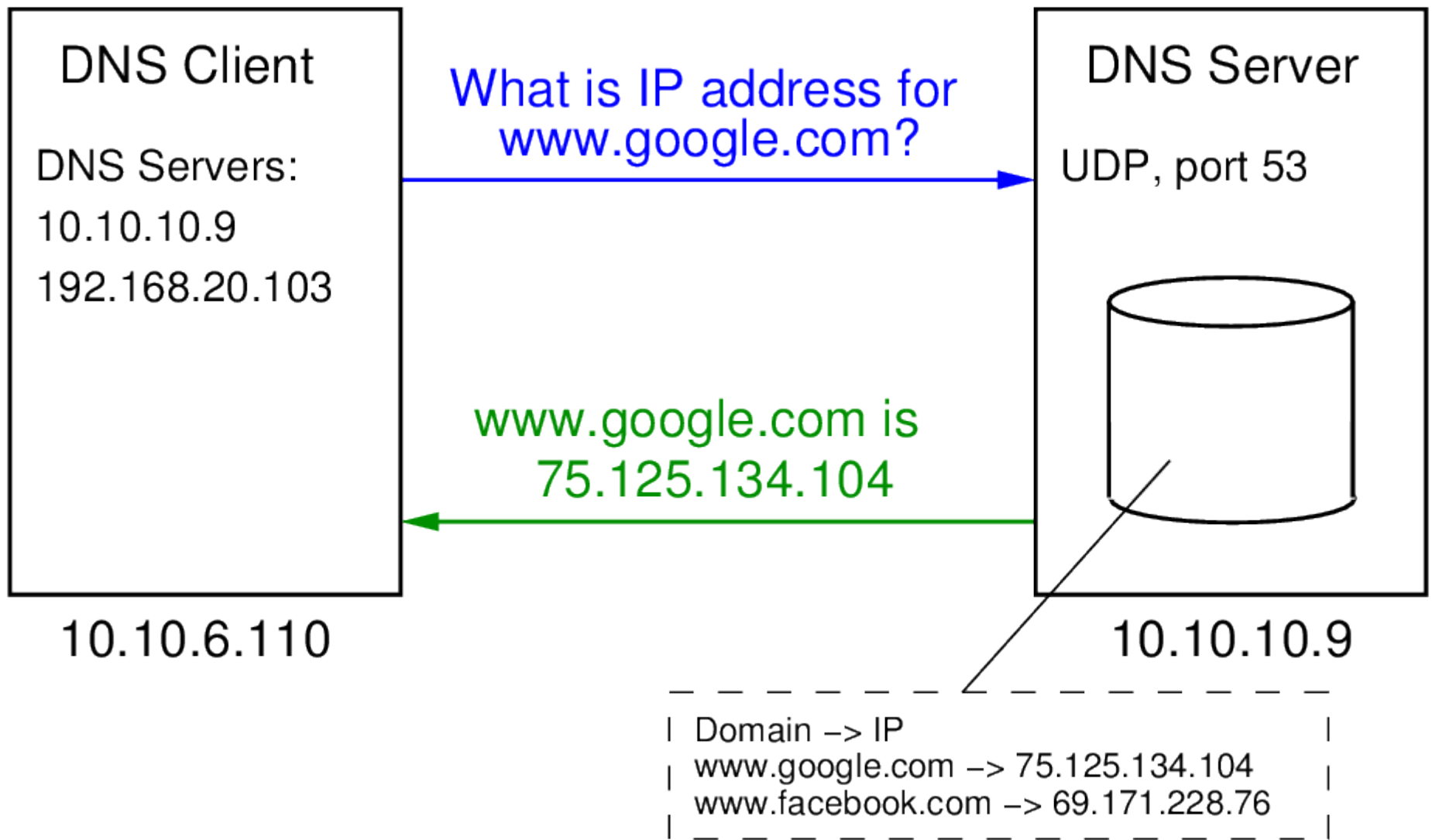
10.10.6.110



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| Domain -> IP |  
| www.google.com -> 75.125.134.104 |  
| www.facebook.com -> 69.171.228.76 |





# Hosts file

- /etc/hosts
- List of local mappings of hostname to IP
- Used in addition to DNS