SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore – 641 107

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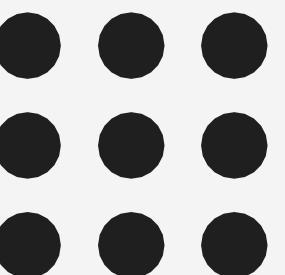
Department of CSE-IOT

Course Name – 23ITT204 & Computer Networks

II Year / IV Semester

Unit 1 – Application Layer

Topic 9 – DNS

Domain Name System

Translate host names to IP addresses
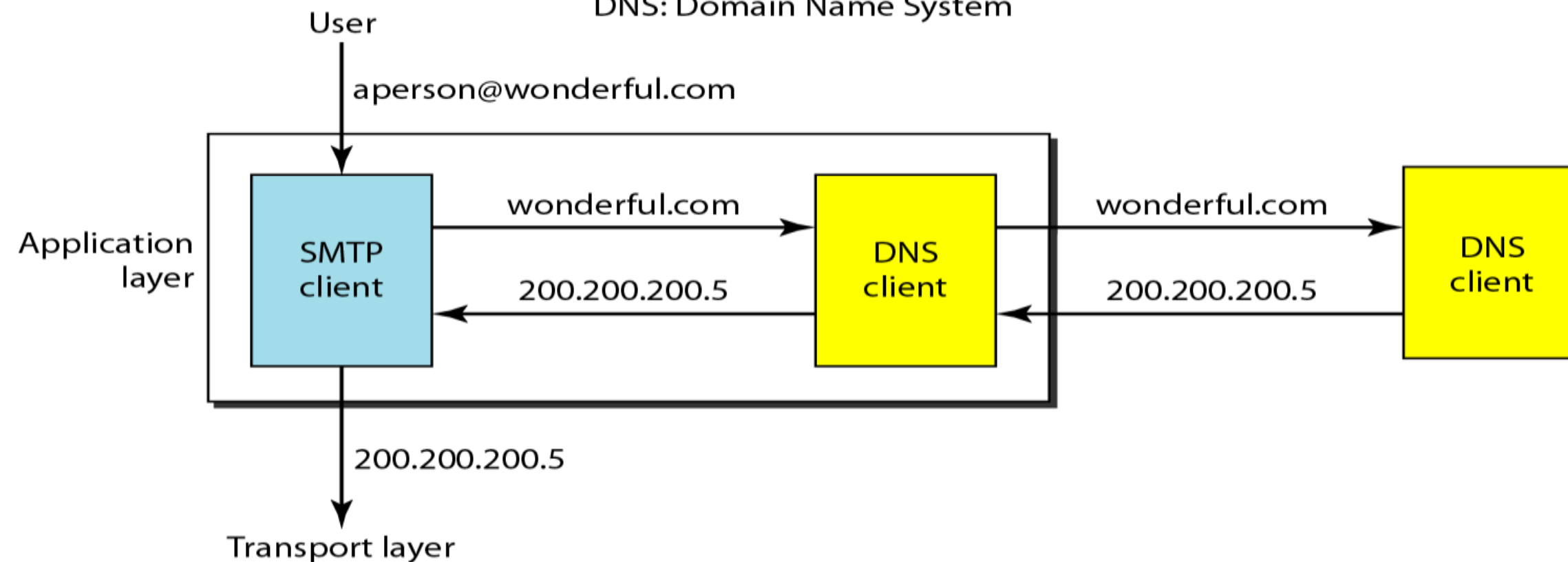
    E.g., www.xyz.com ➜ 74.125.91.103

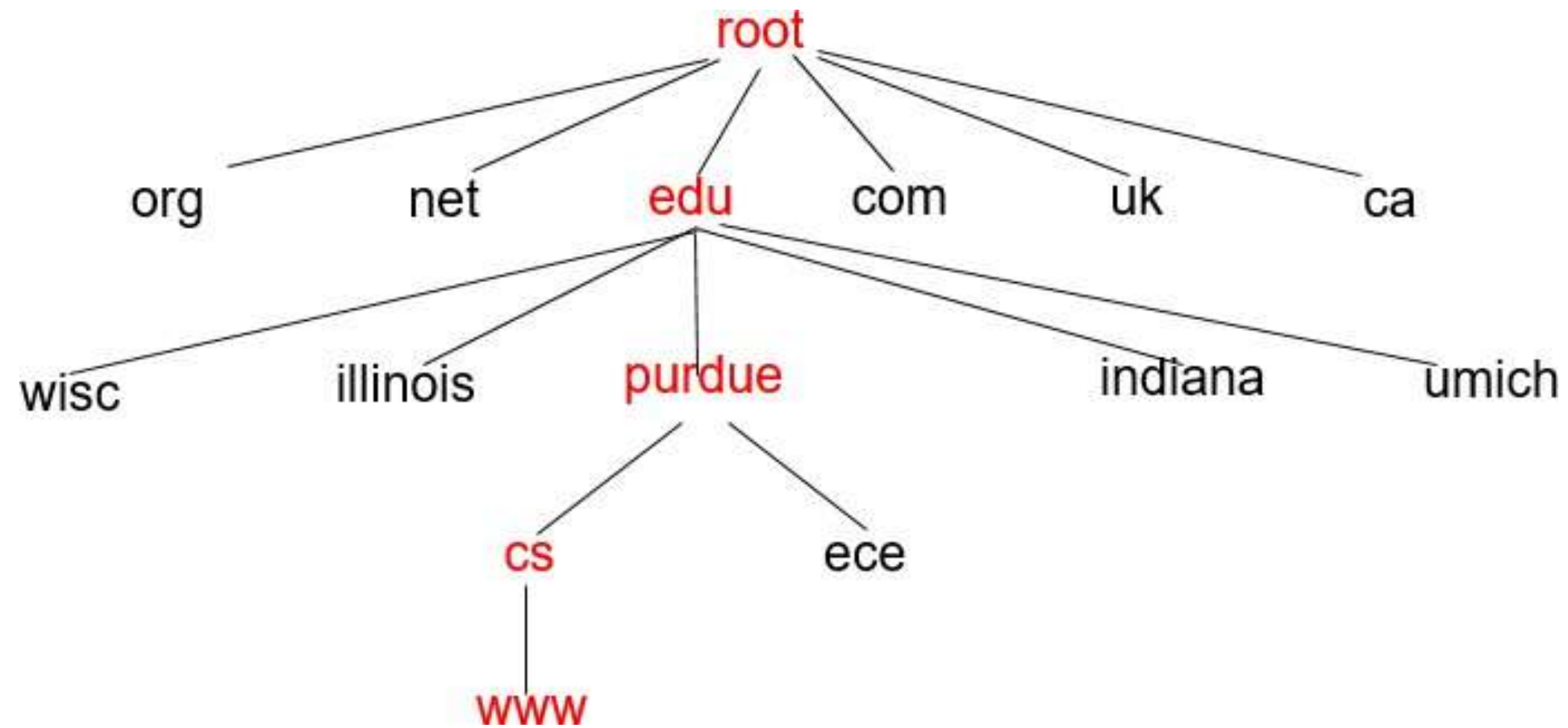   Why is needed?

       E.g. akami.

And back

    From IP addresses to DNS name

Hierarchical Name Space

Domain Name System

a Verisign, Dulles, VA
c Cogent, Herndon, VA (also Los Angeles)
d U Maryland College Park, MD
g US DoD Vienna, VA
h ARL Aberdeen, MD
j Verisign, (11 locations)

k RIPE London (also Amsterdam, Frankfurt)

i Autonomica, Stockholm (plus 3 other locations)
m WIDE Tokyo

e NASA Mt View, CA
f Internet Software C. Palo Alto, CA (and 17 other locations)

b USC-ISI Marina del Rey, CA
l ICANN Los Angeles, CA
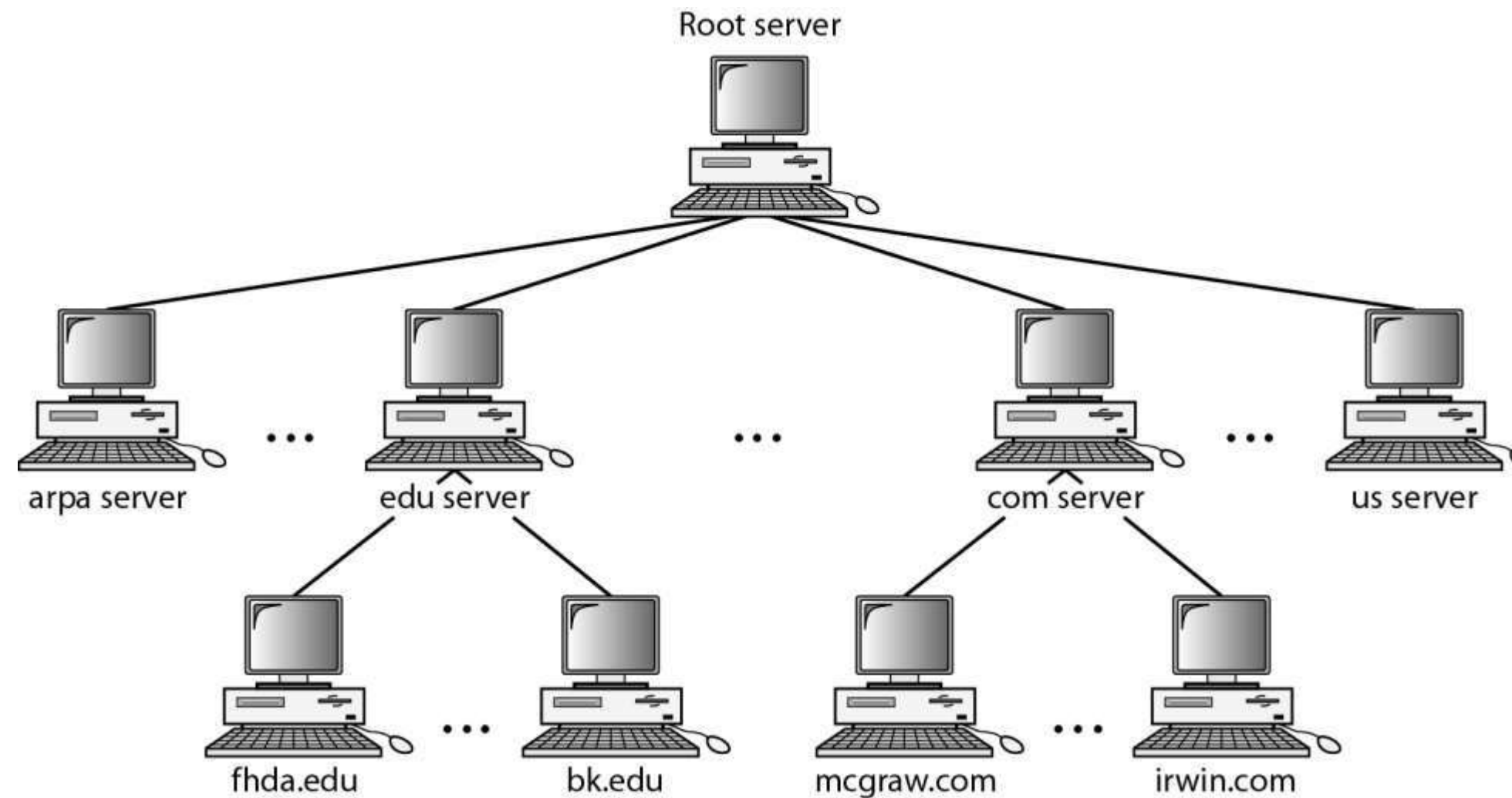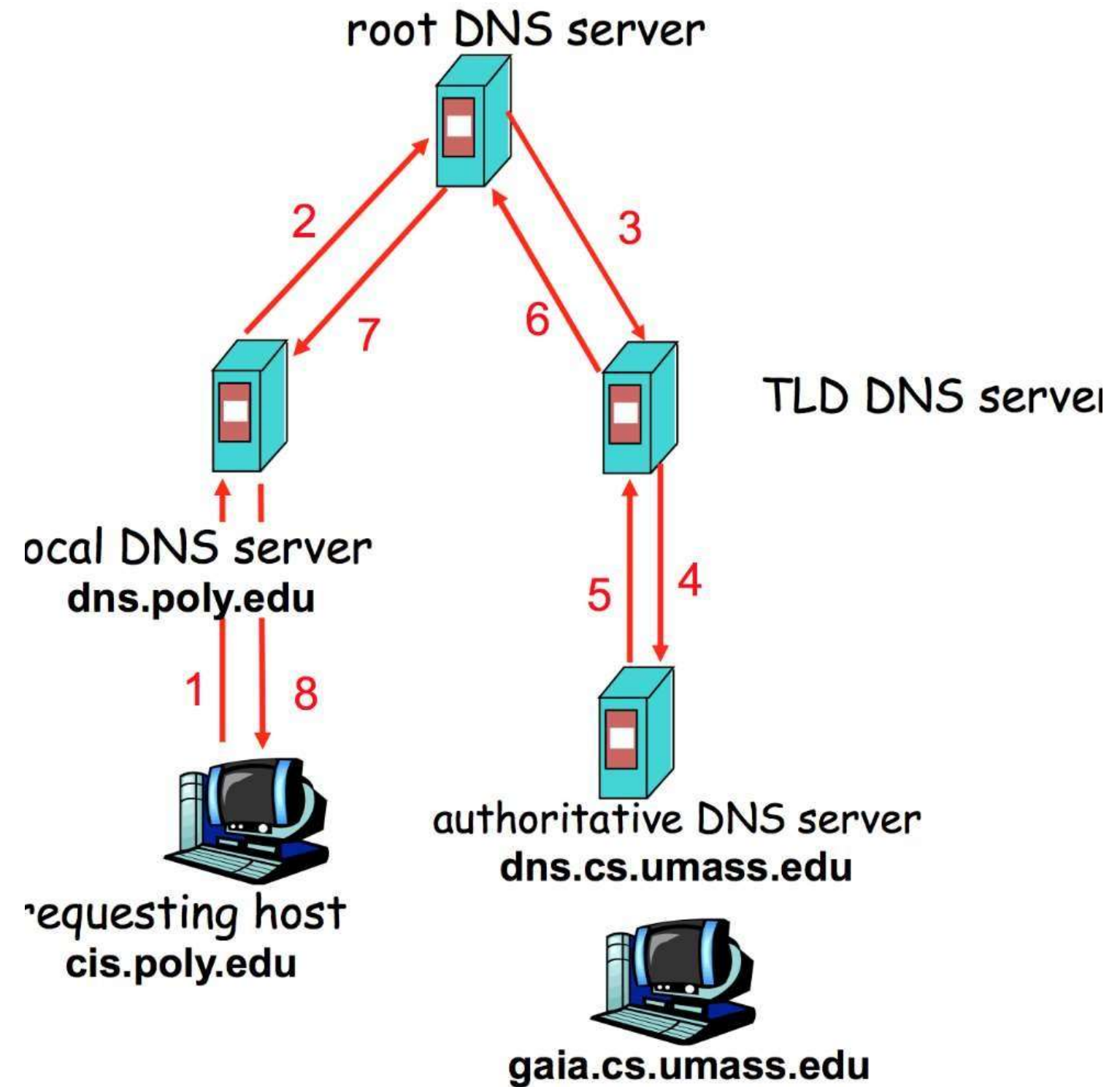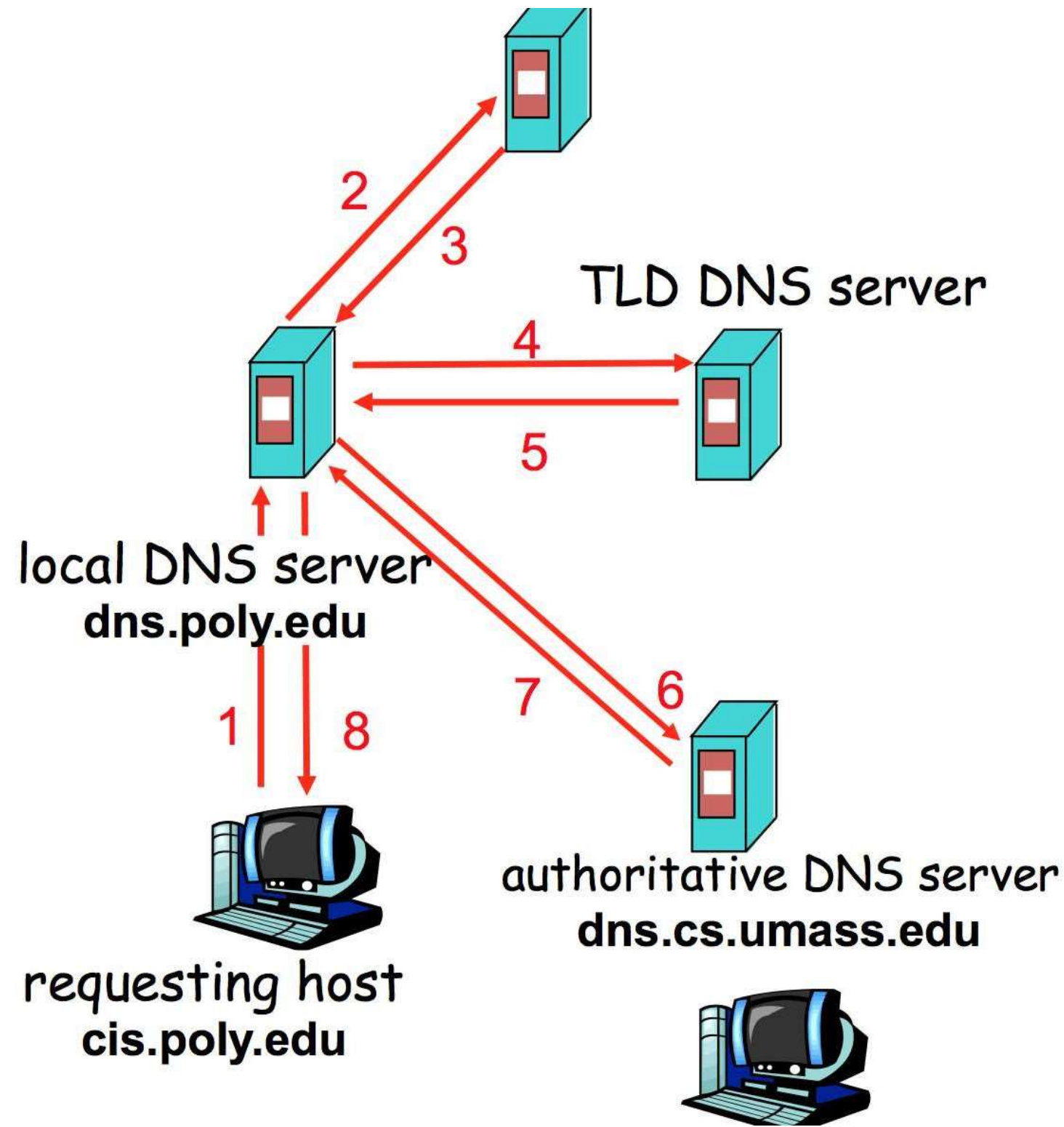
Domain names and labels
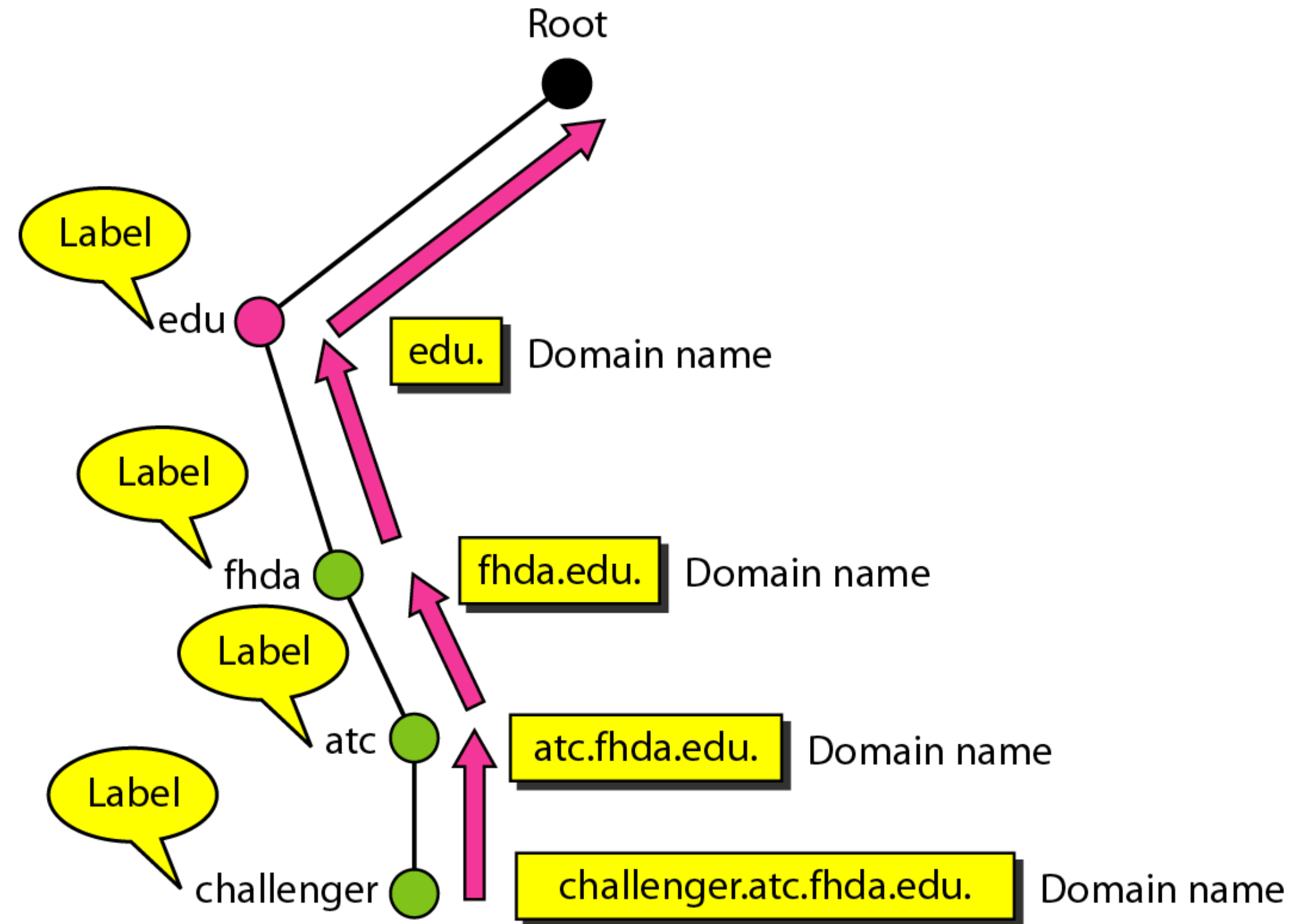
Domains
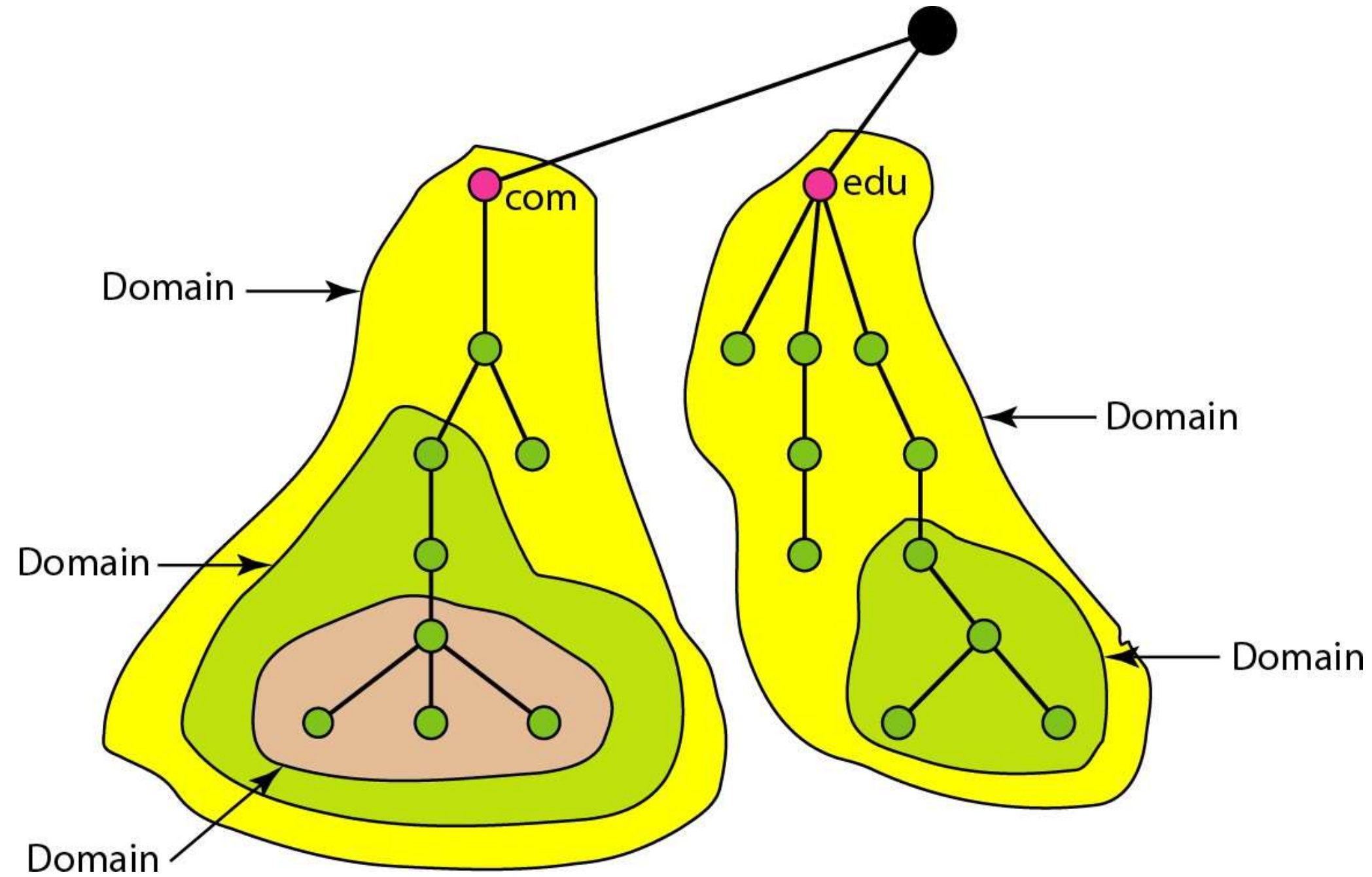
DNS Resolving

When host makes DNS query, query is sent to its local DNS server.
acts as proxy, forwards query into hierarchy.

Two resolving schemes:
Iterative, and
Recursive.

Hierarchy of name servers

DNS Resolving - 2

Caching

DNS responses are cached
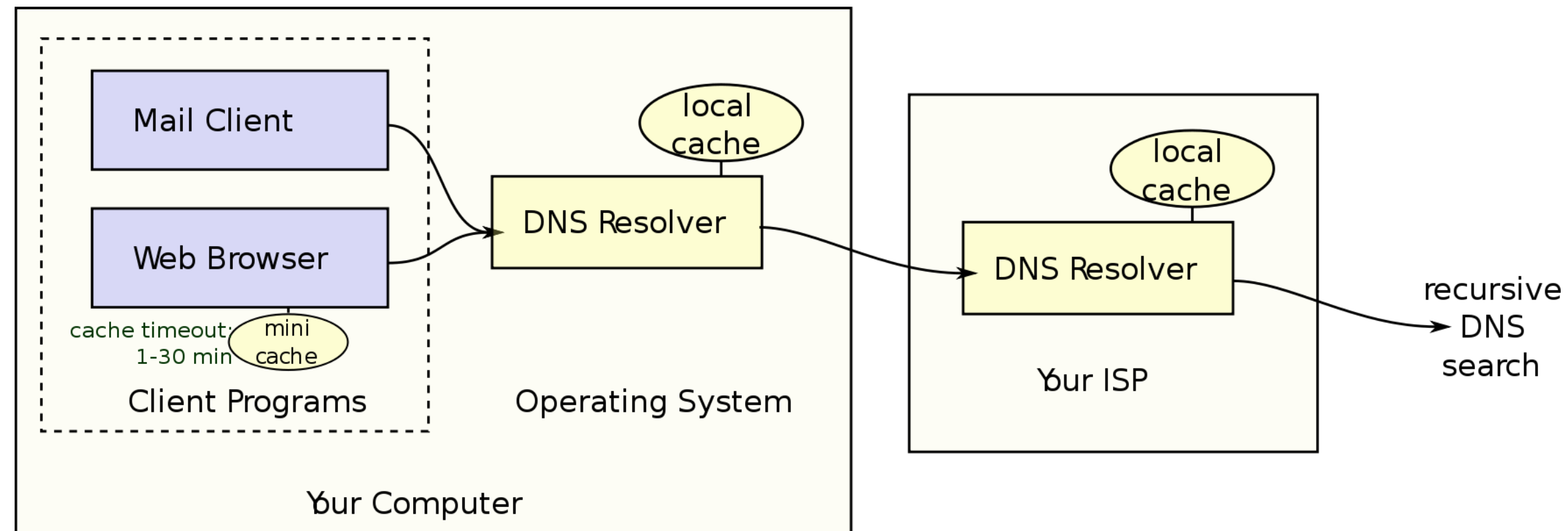   Quick response for repeated translations

Negative results are also cached
    Save time for nonexistent sites, e.g. misspelling

Cached data periodically times out
    Each record has a TTL field

Caching - 2

Inherent DNS Vulnerabilities

Users/hosts typically trust the host-address mapping provided by DNS
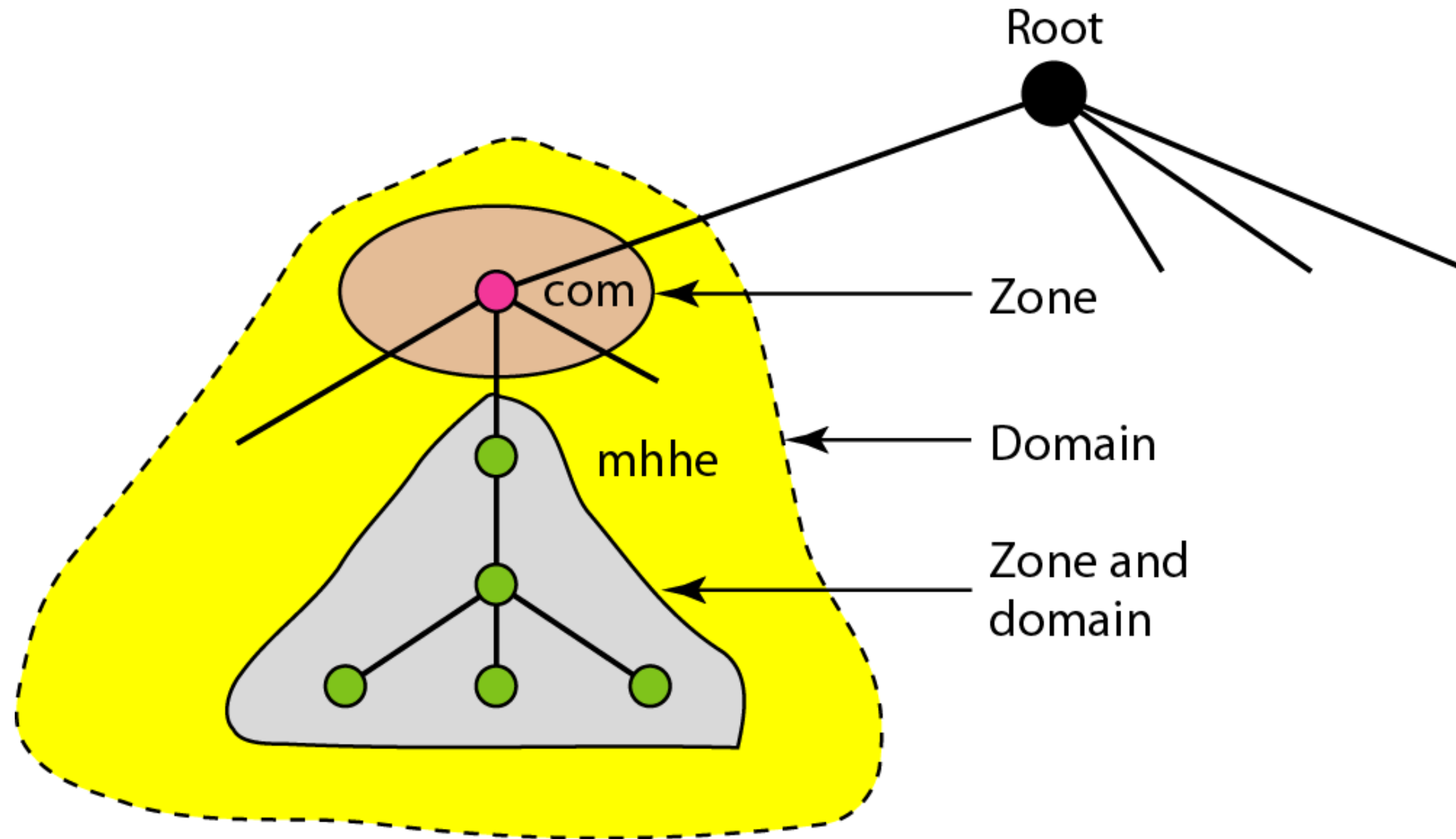
What bad things can happen with wrong DNS info?

DNS resolvers trust responses received after sending out queries.

How to attack?

Obvious problem

No authentication for DNS responses
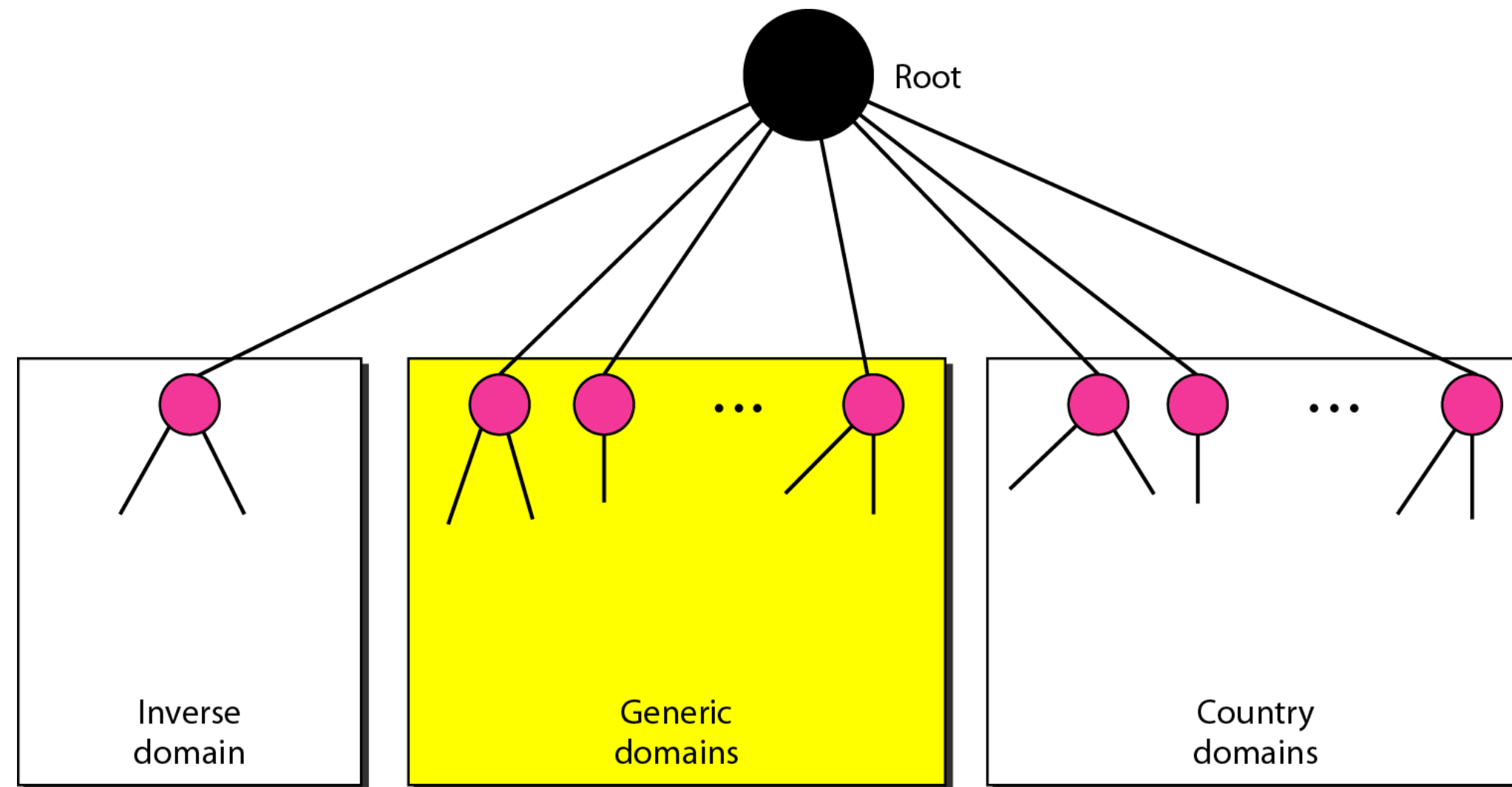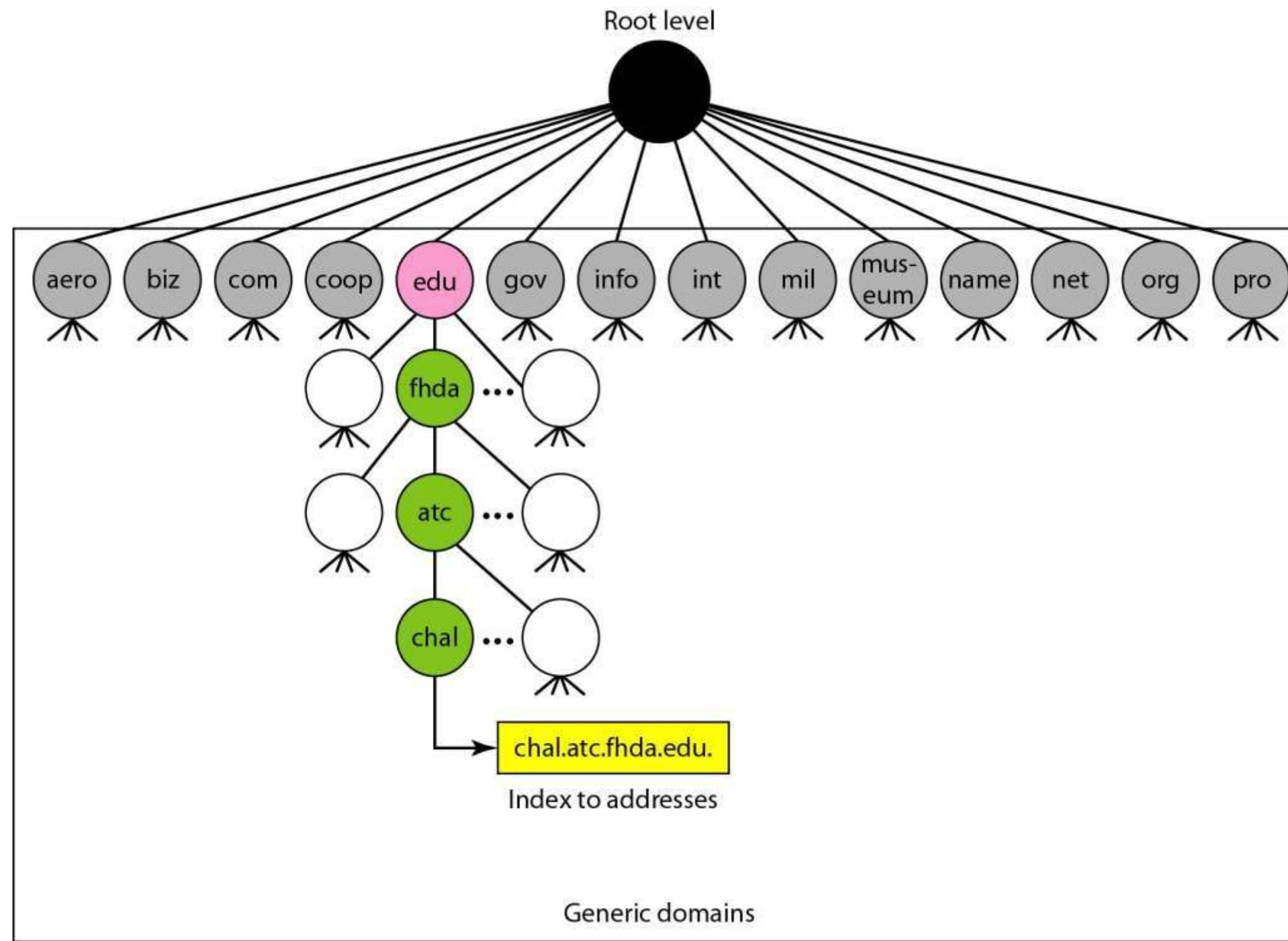
Zones and domains

DNS is a protocol that can be used in different platforms. In the Internet, the domain name space (tree) is divided into three different sections: generic domains, country domains, and the inverse domain.
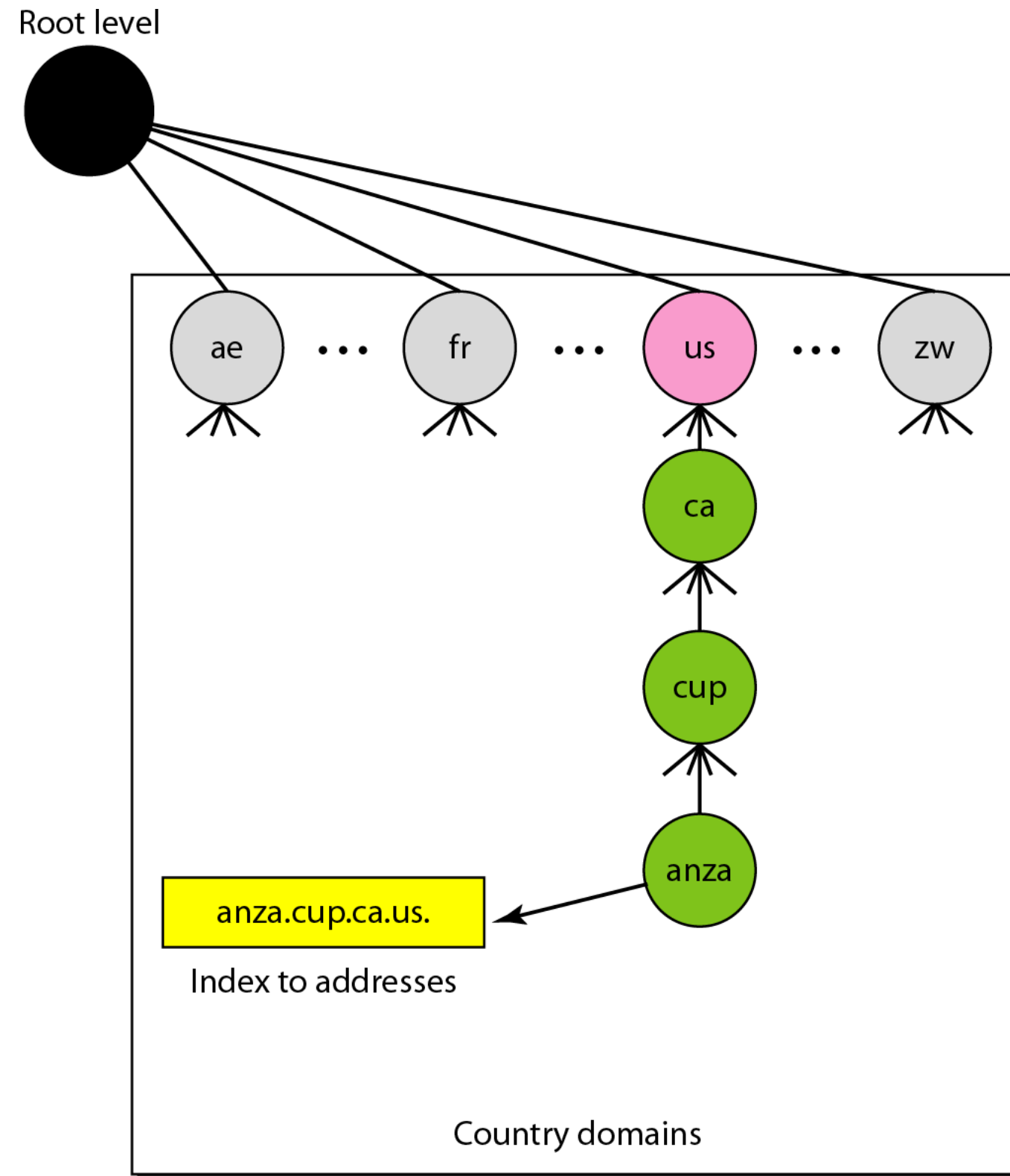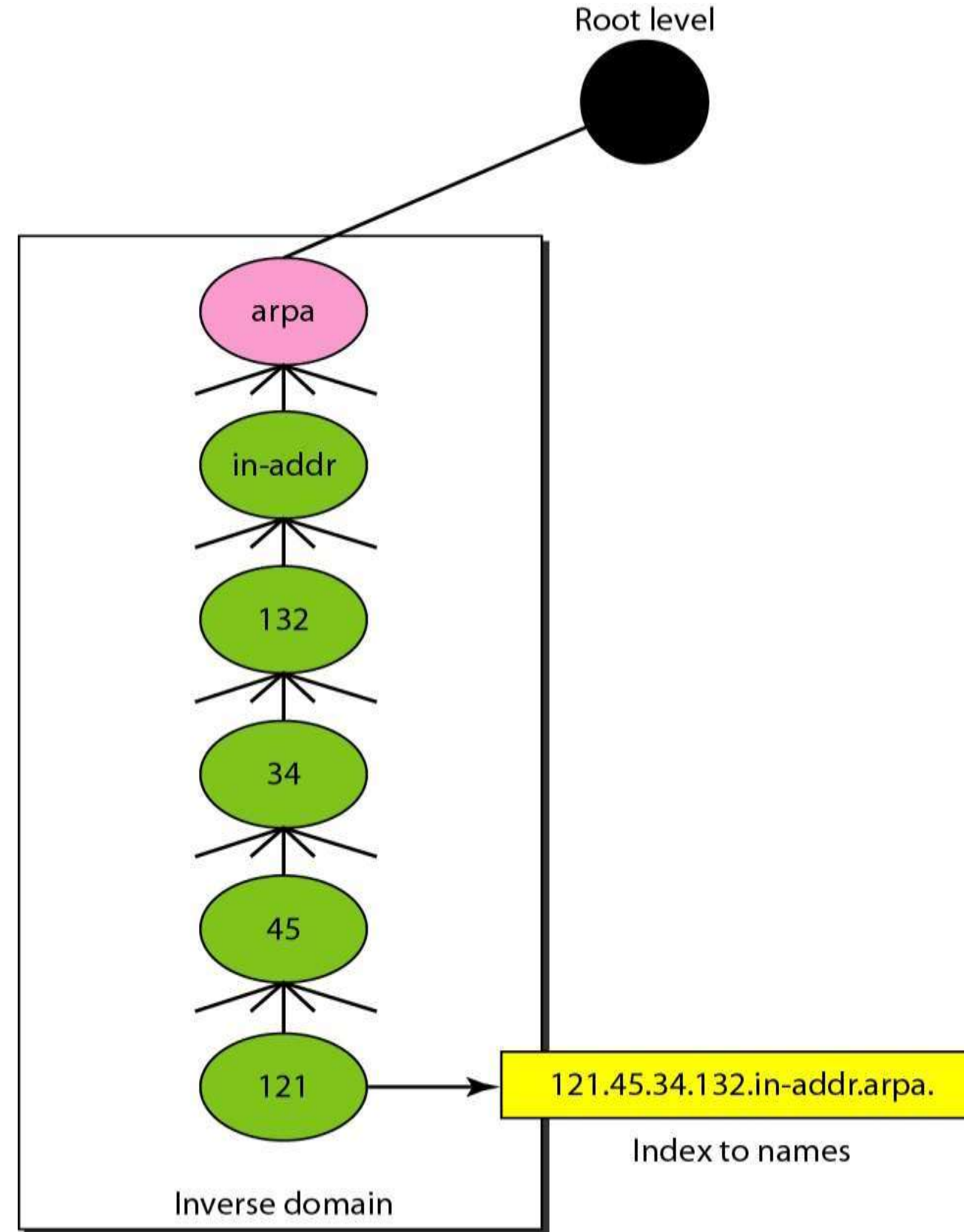
DNS IN THE INTERNET

Generic domains

Generic domains

Generic domain labels

Label	Description
aero	Airlines and aerospace companies
biz	Businesses or firms (similar to "com")
com	Commercial organizations
coop	Cooperative business organizations
edu	Educational institutions
gov	Government institutions
info	Information service providers
int	International organizations
mil	Military groups
museum	Museums and other nonprofit organizations
name	Personal names (individuals)
net	Network support centers
org	Nonprofit organizations
pro	Professional individual organizations

Country domains

Inverse domain

Application Layer Protocol-DNS/ Computer Networks/Dr.K.Sangeetha,AP/IOT / SNSCE

THANK YOU