



SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore – 641 107

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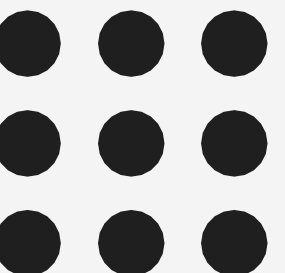
Department of Information Technology

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

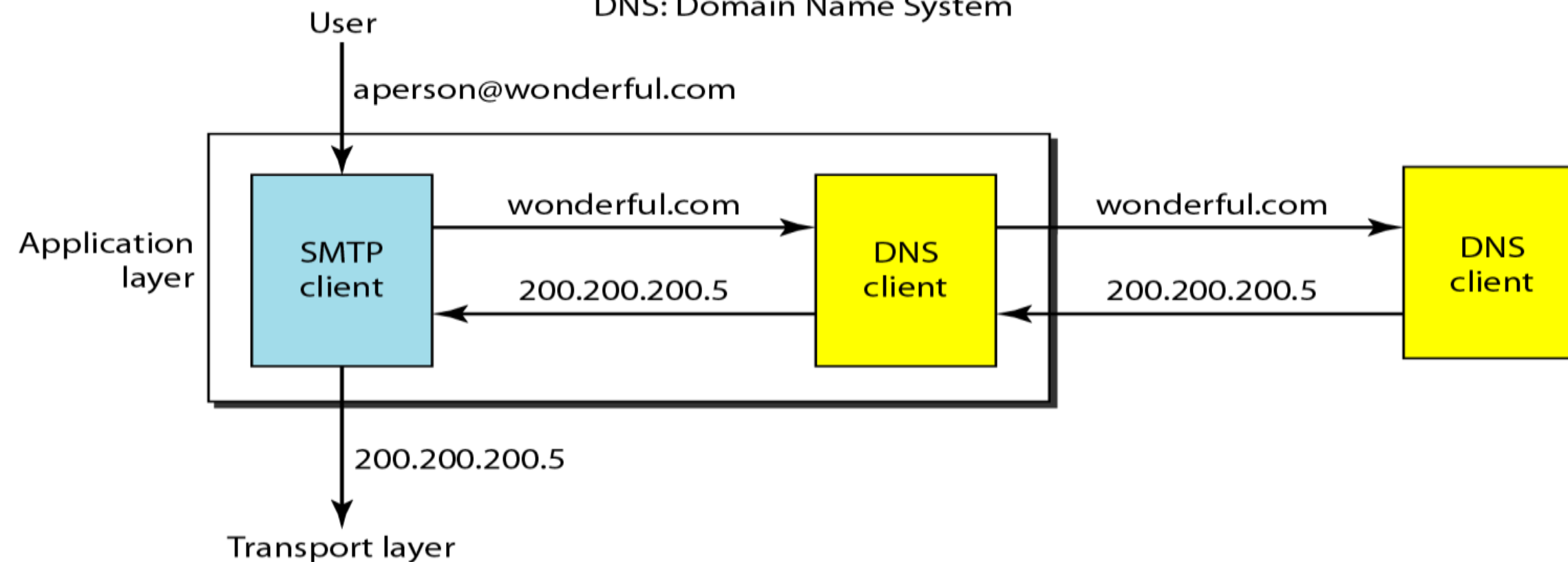
Why is needed?

E.g. akami.

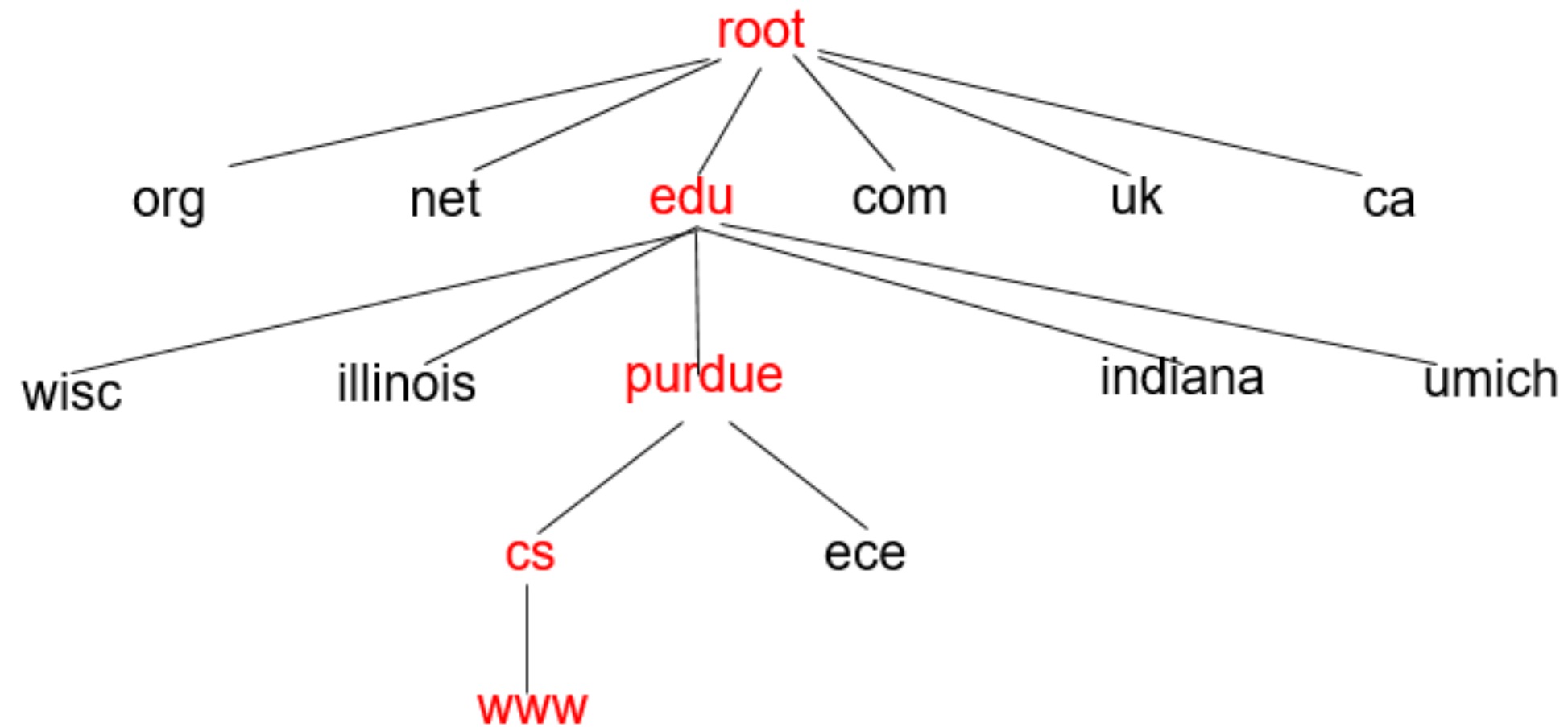
And back

From IP addresses to DNS name

SMTP: Simple Mail Transfer Protocol (e-mail)
DNS: Domain Name System



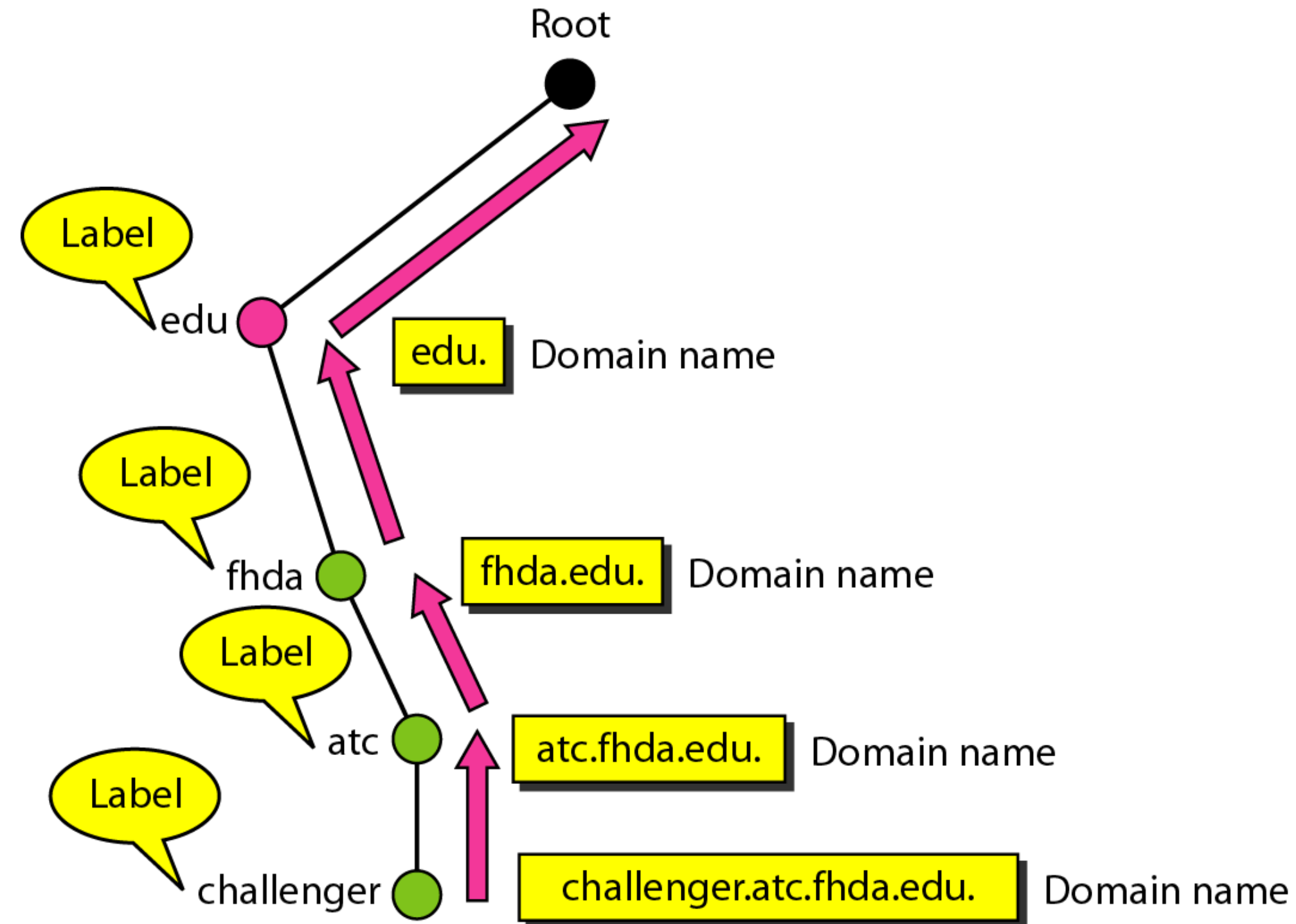
Hierarchical Name Space



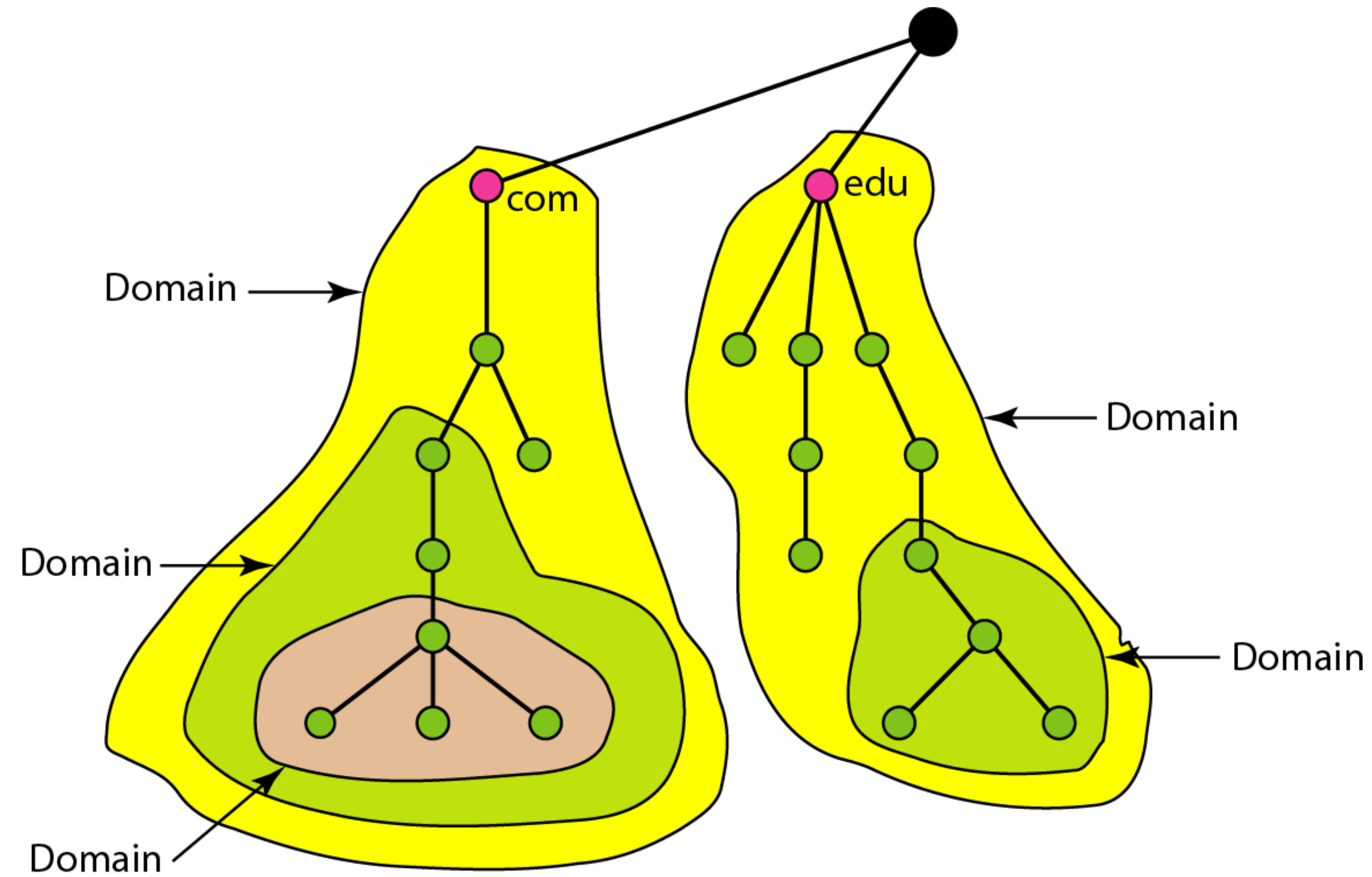
Domain Name System



Domain names and labels



Domains



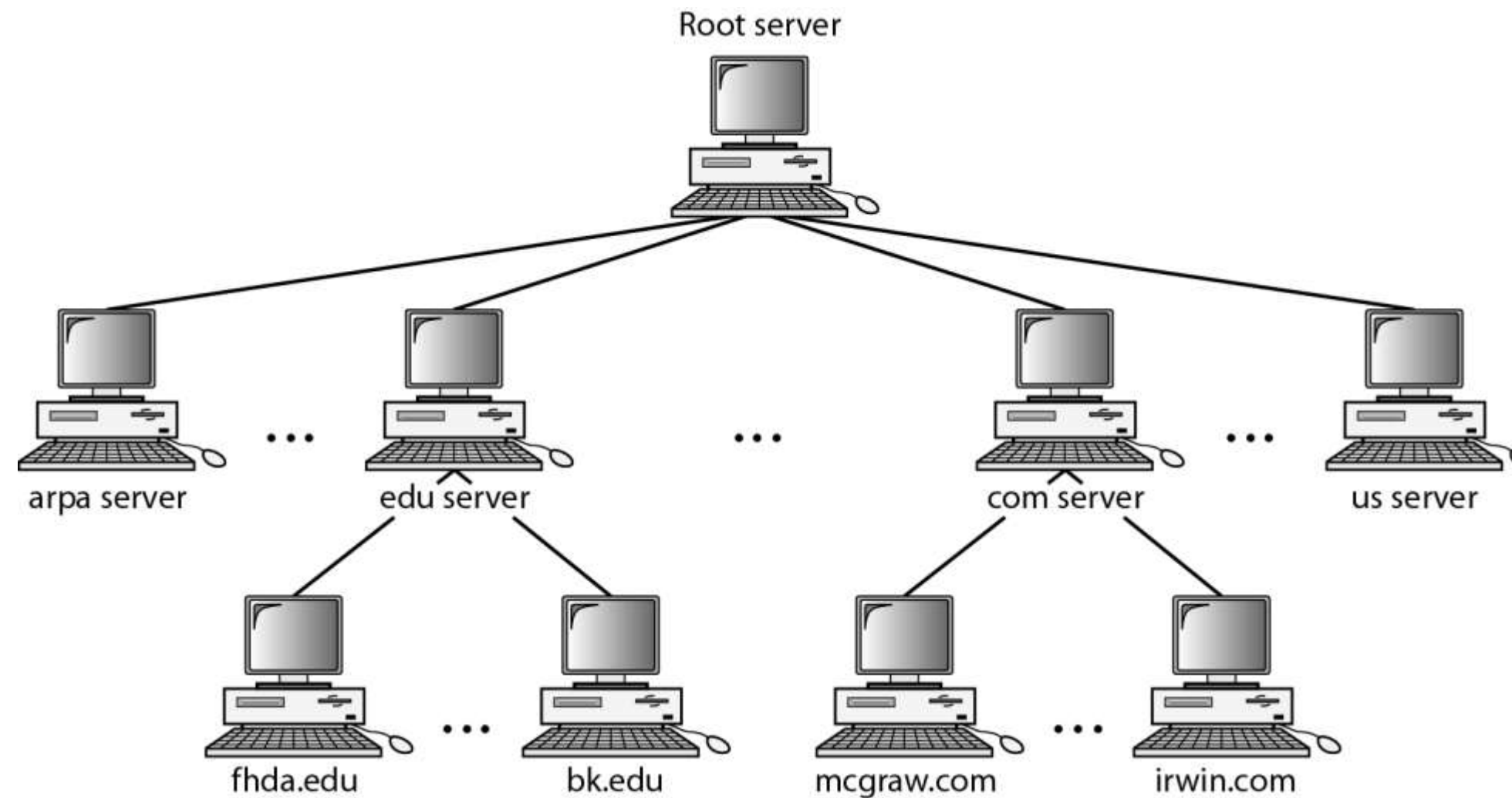


DNS Resolving

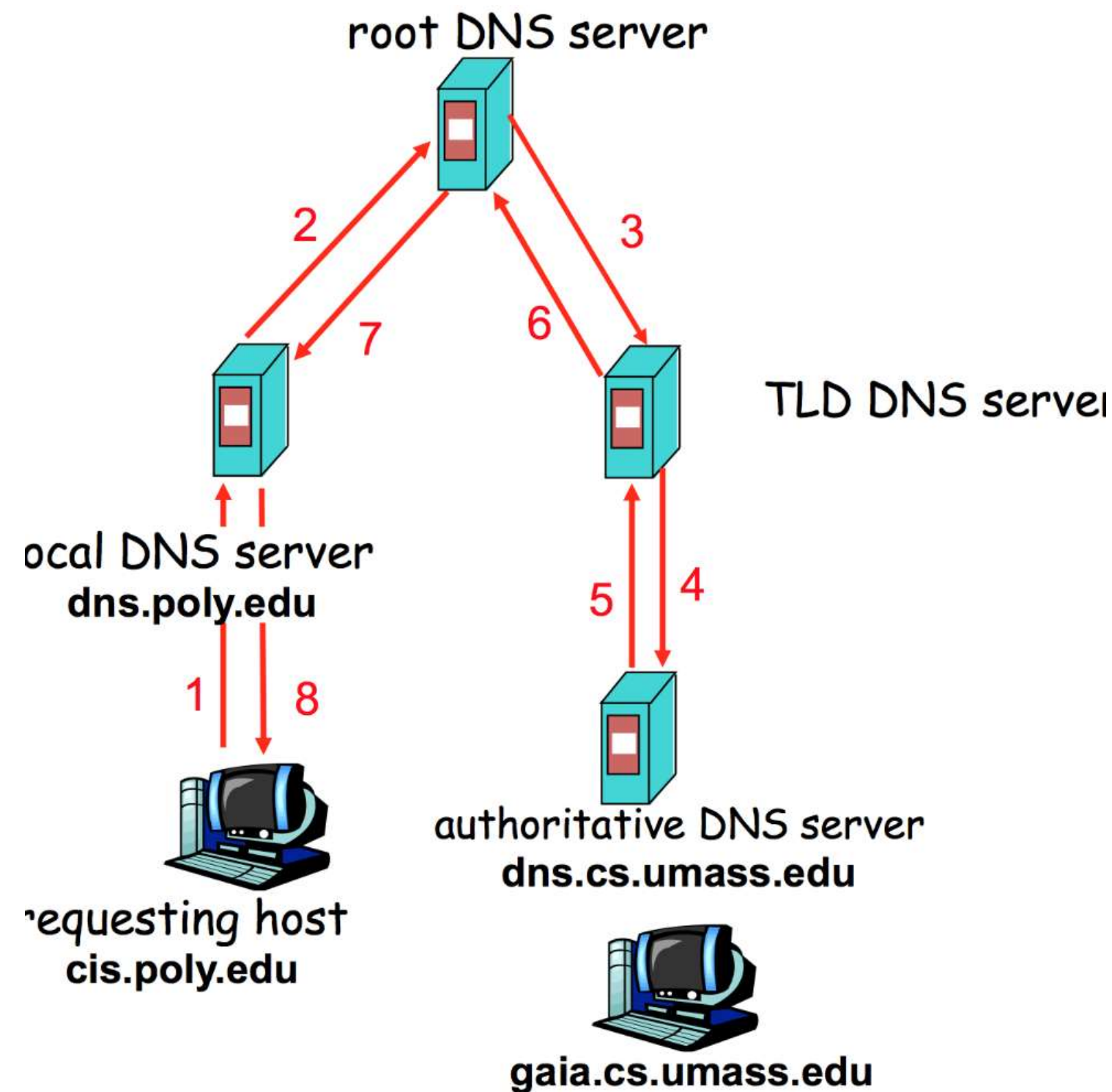
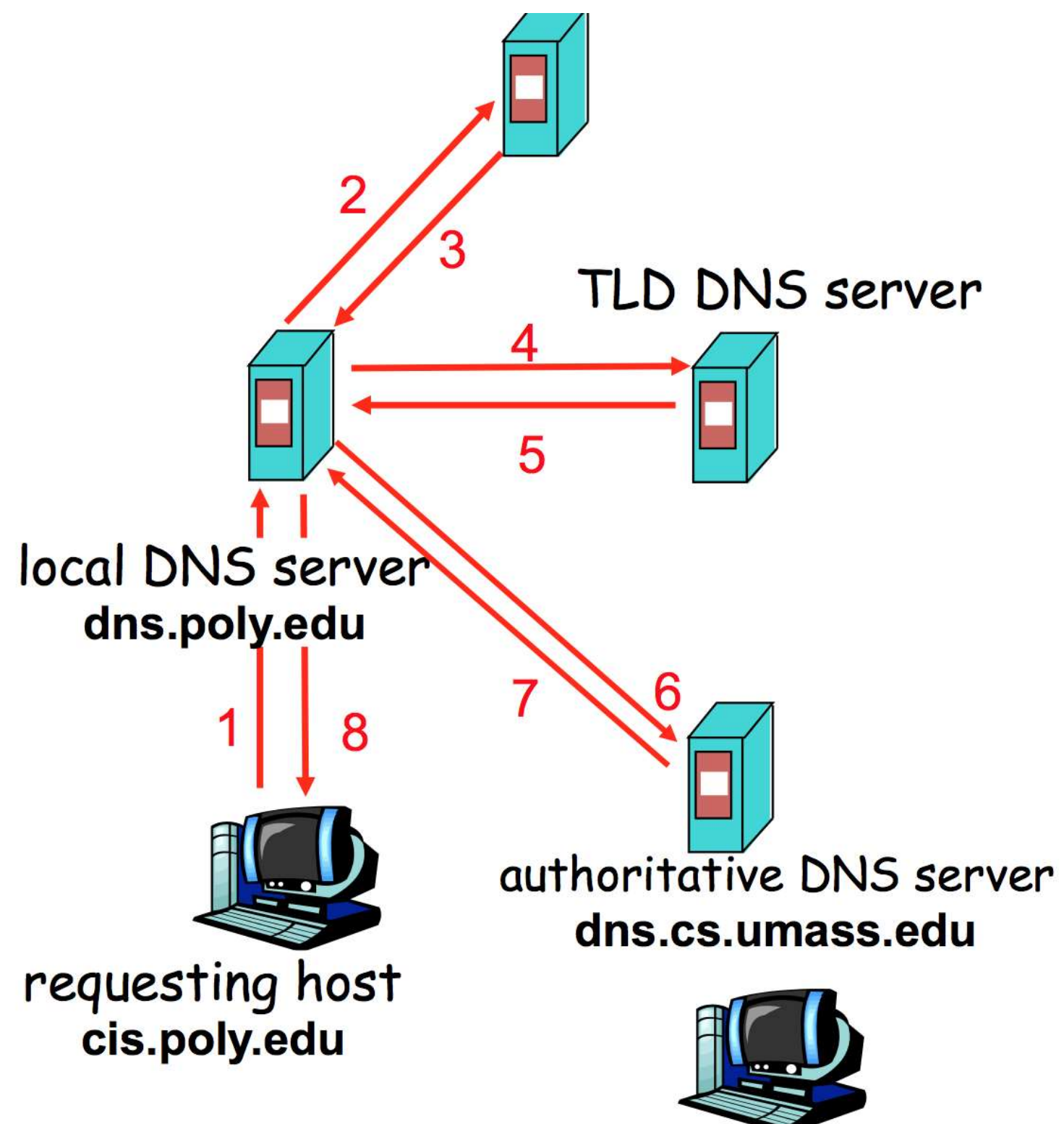
When host makes DNS query, query is sent to its local DNS server.
acts as proxy, forwards query into hierarchy.

Two resolving schemes:
Iterative, and
Recursive.

Hierarchy of name servers



DNS Resolving - 2





Caching

DNS responses are cached

Quick response for repeated translations

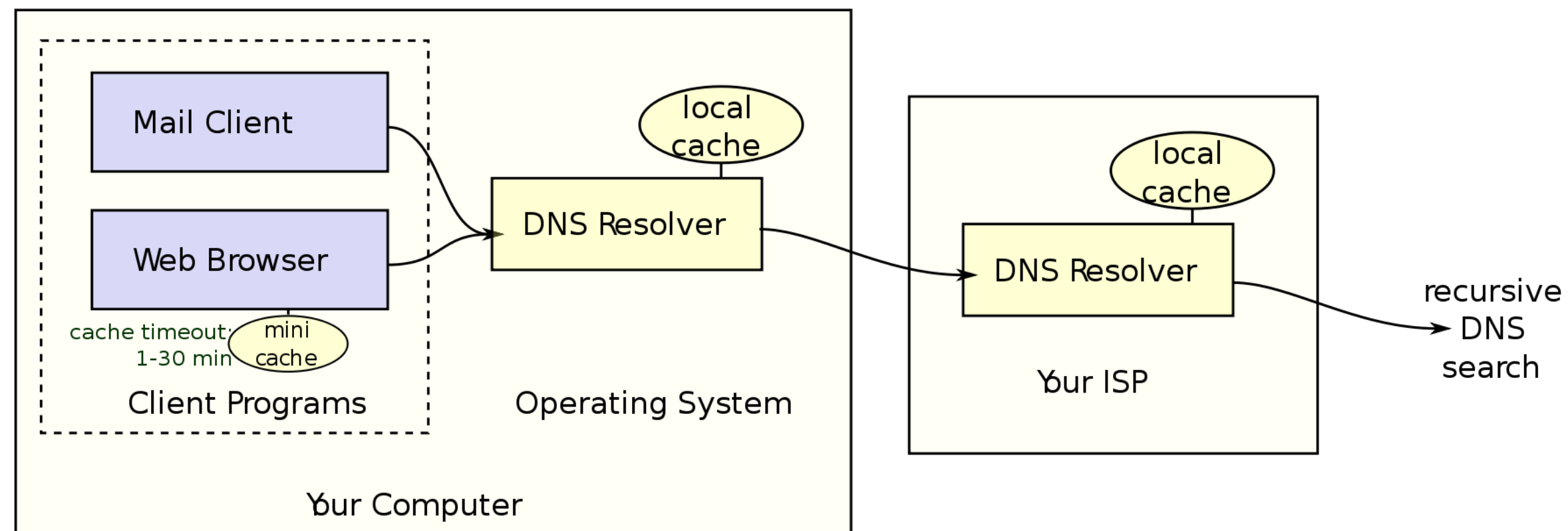
Negative results are also cached

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?

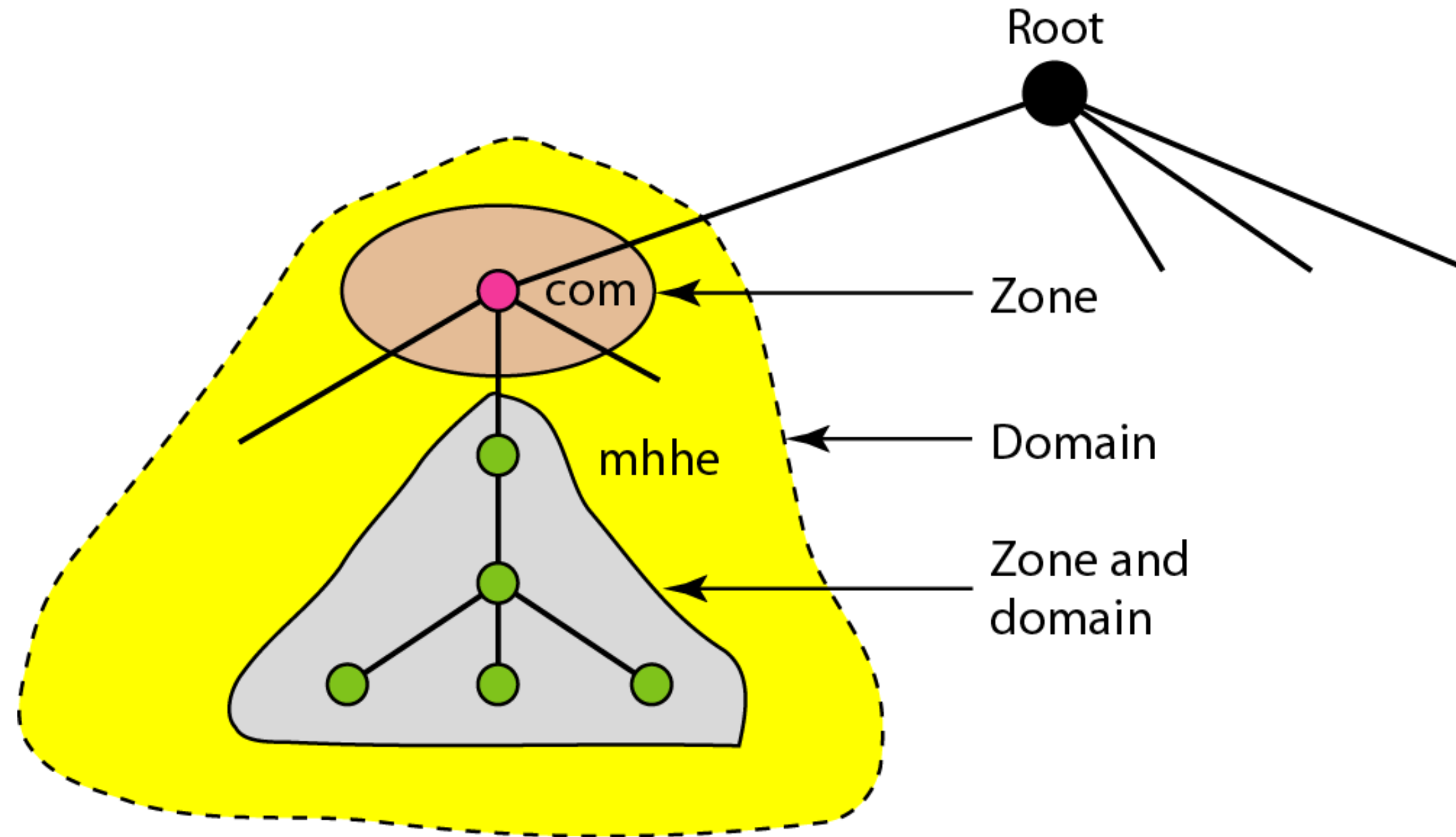
DNS resolvers trust responses received after sending out queries.

How to attack?

Obvious problem

No authentication for DNS responses

Zones and domains

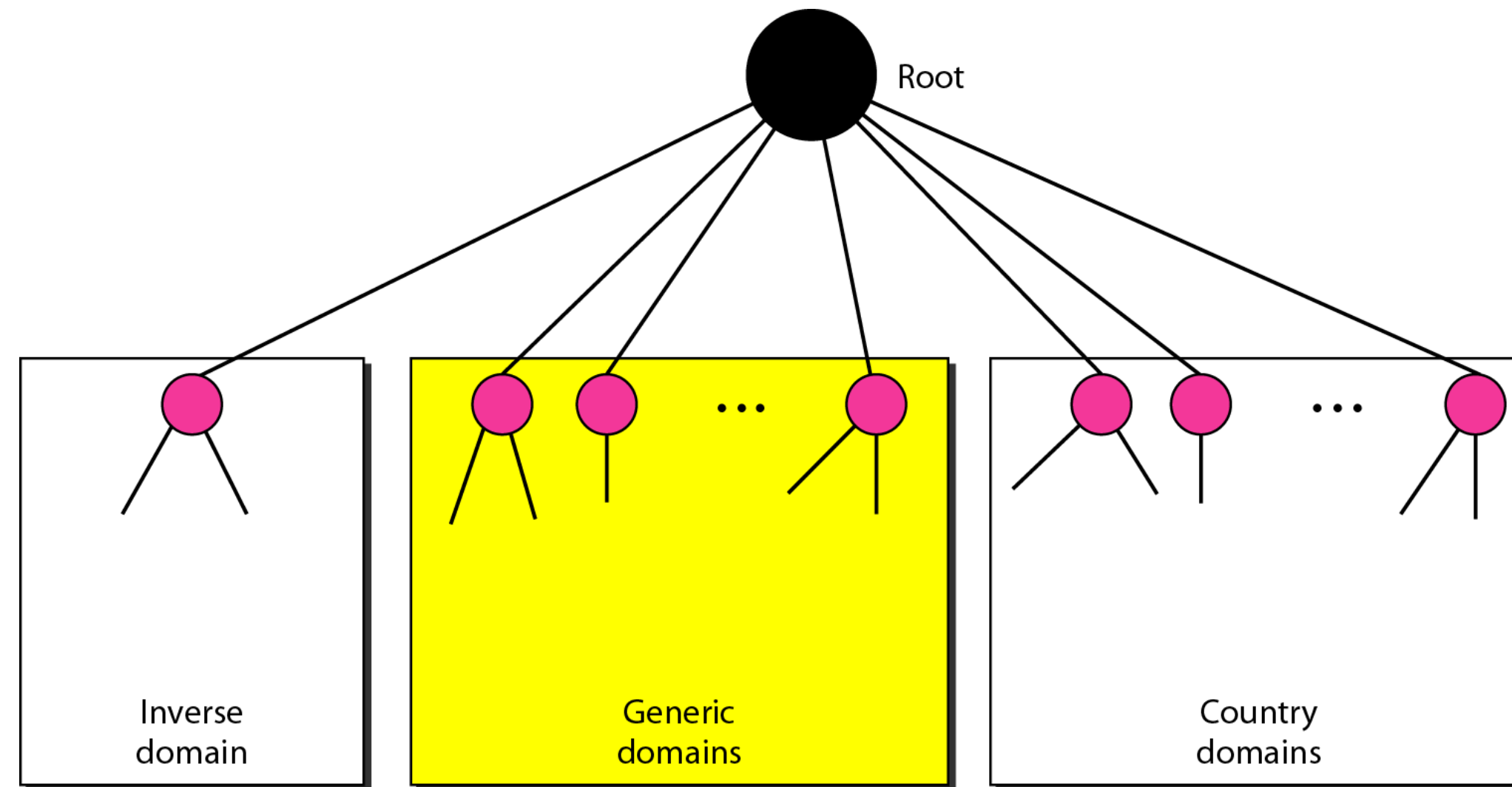




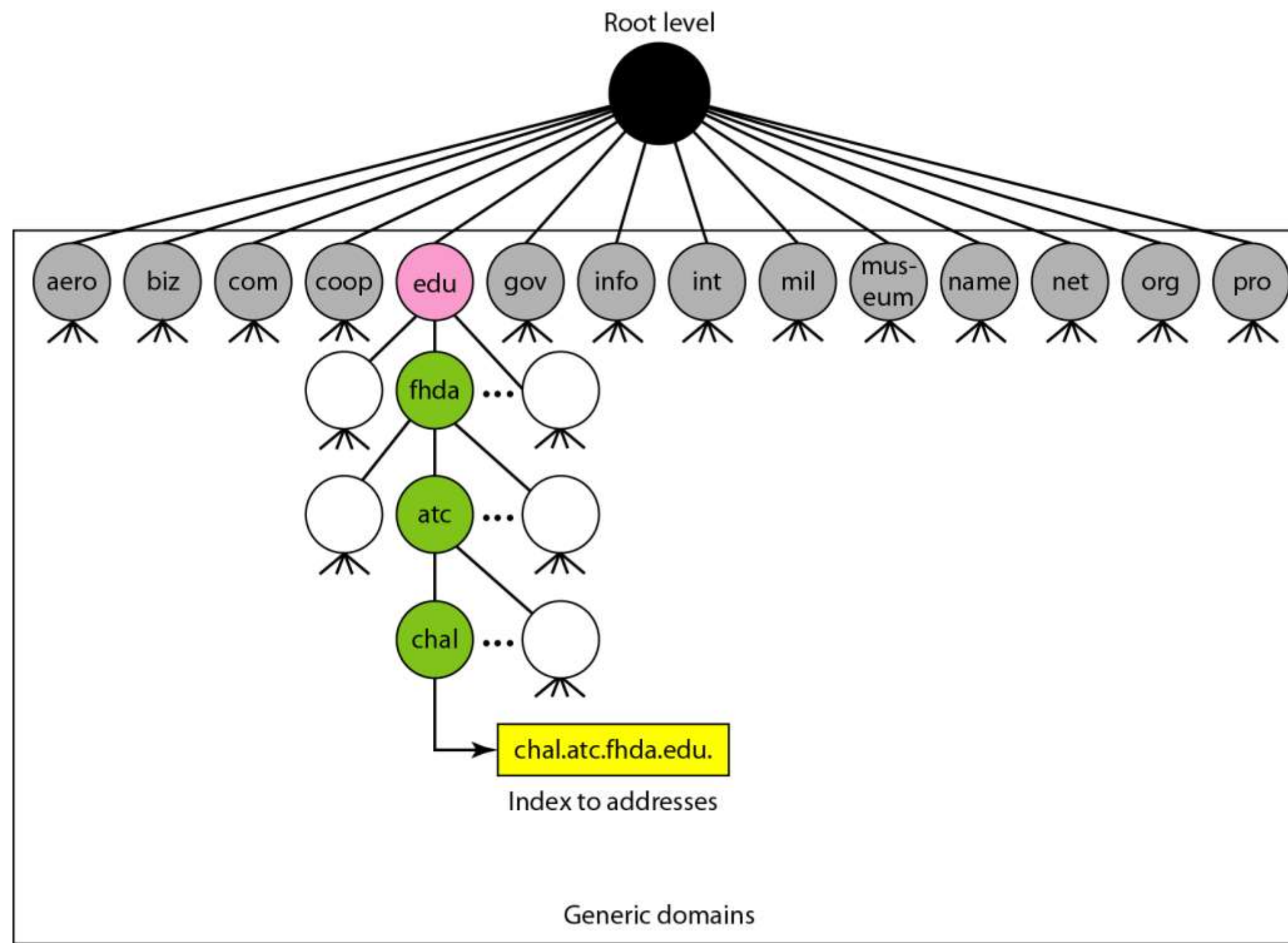
DNS IN THE INTERNET

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



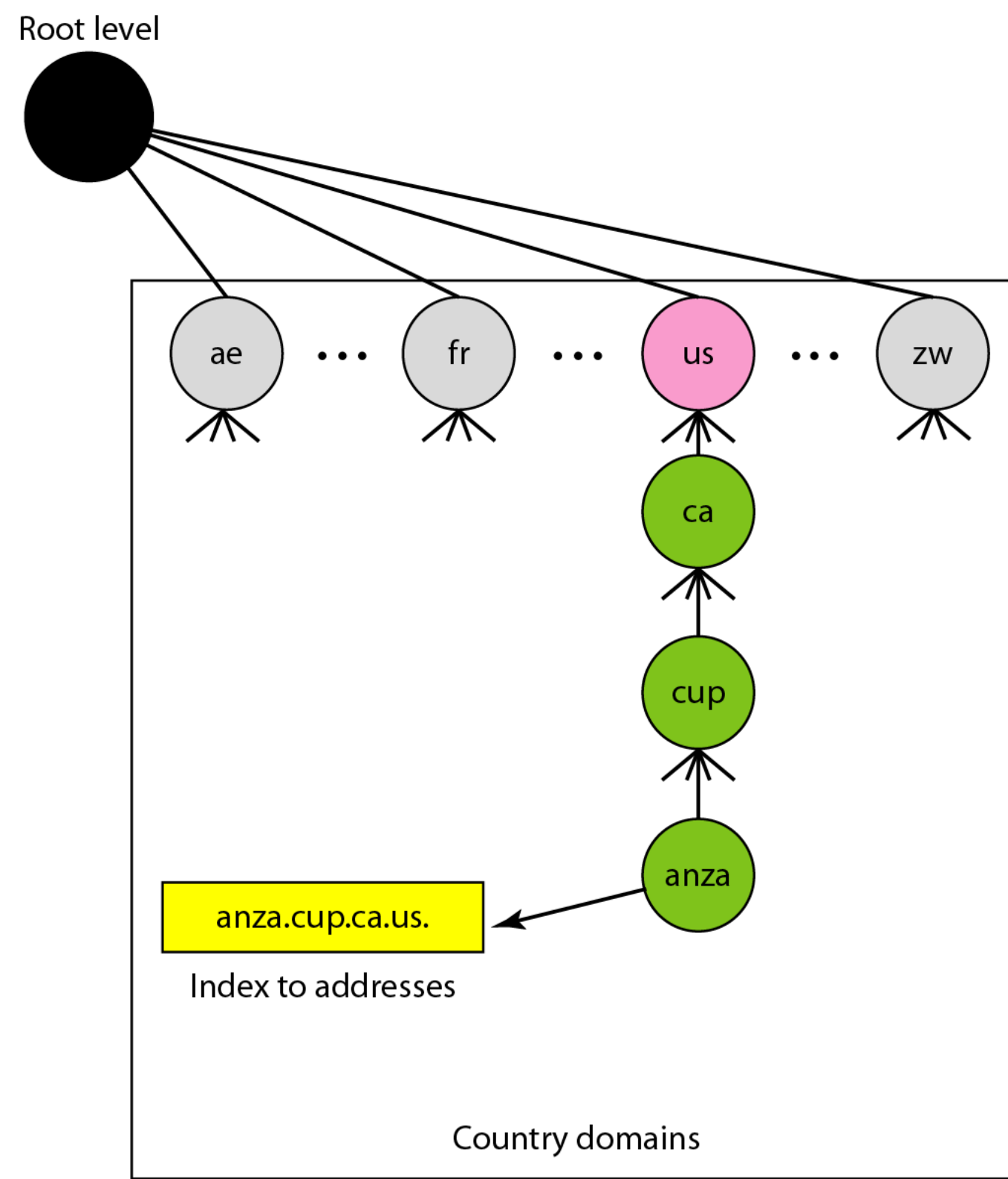
Generic domains



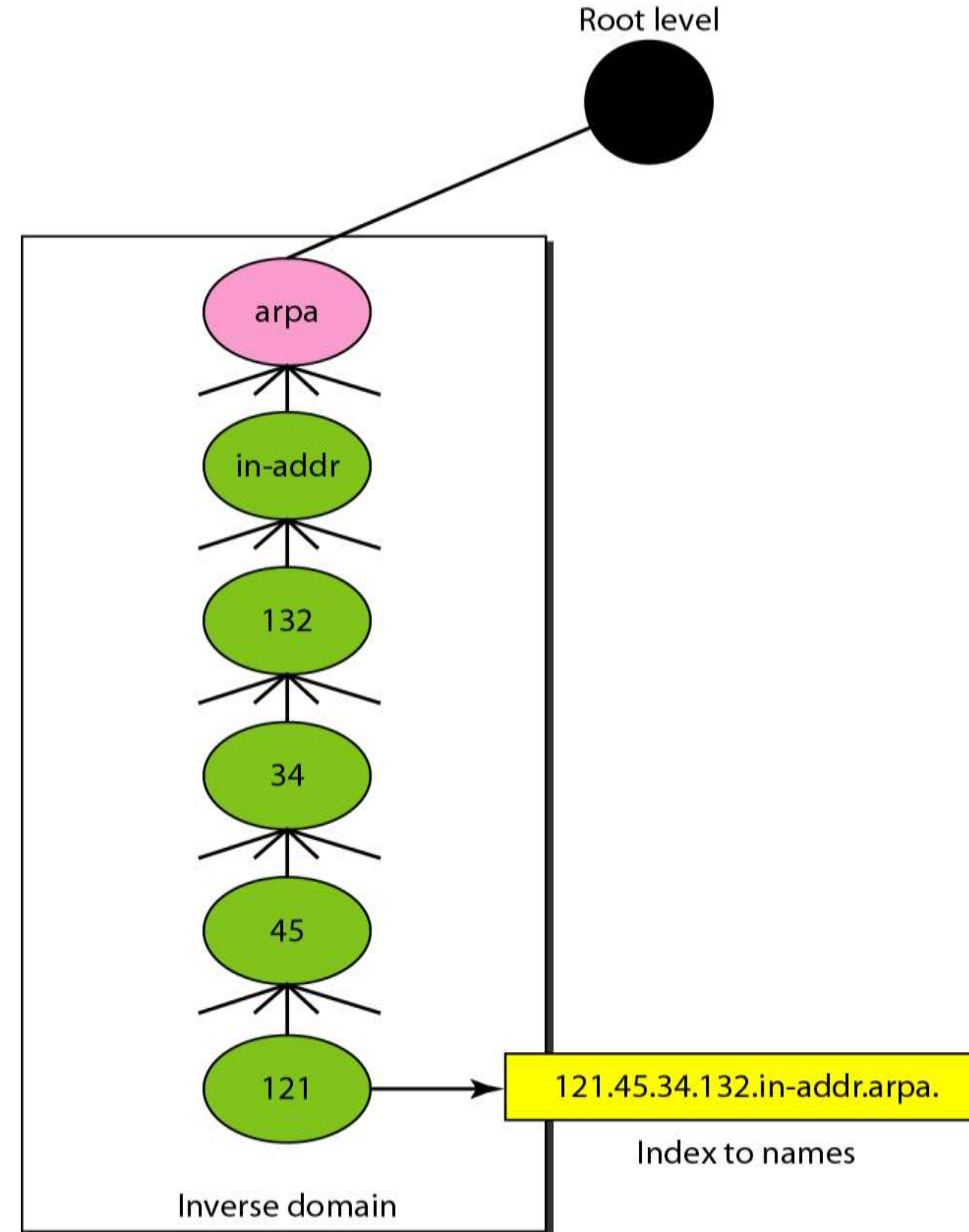
Generic domain labels

<i>Label</i>	<i>Description</i>
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





DNS MESSAGES





THANK YOU