Course: Computer and Communication Networks

Topic: Domain Name System (DNS)

Presentation by

Ajay Kakkar

Assistant Professor

Department of Electronics and Communication Engineering,

Thapar Institute of Engineering & Technology
(Deemed to be University)
Bhadson Road, Patiala, Punjab, Pin-147004
Contact No. : +91-175-2393201
Email : info@thapar.edu

THAPAR INSTITUTE
OF ENGINEERING & TECHNOLOGY
(Deemed to be University)

DOMAIN NAME SPACE

To have a hierarchical name space, a domain name space was designed. In this design the names are defined in an inverted-tree structure with the root at the top. The tree can have only 128 levels: level 0 (root) to level 127.

Label
Domain Name
Domain

Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication. 3. https://ieeexplore.ieee.org

NAME SPACE

The names assigned to machines must be carefully selected from a name space with complete control over the binding between the names and IP
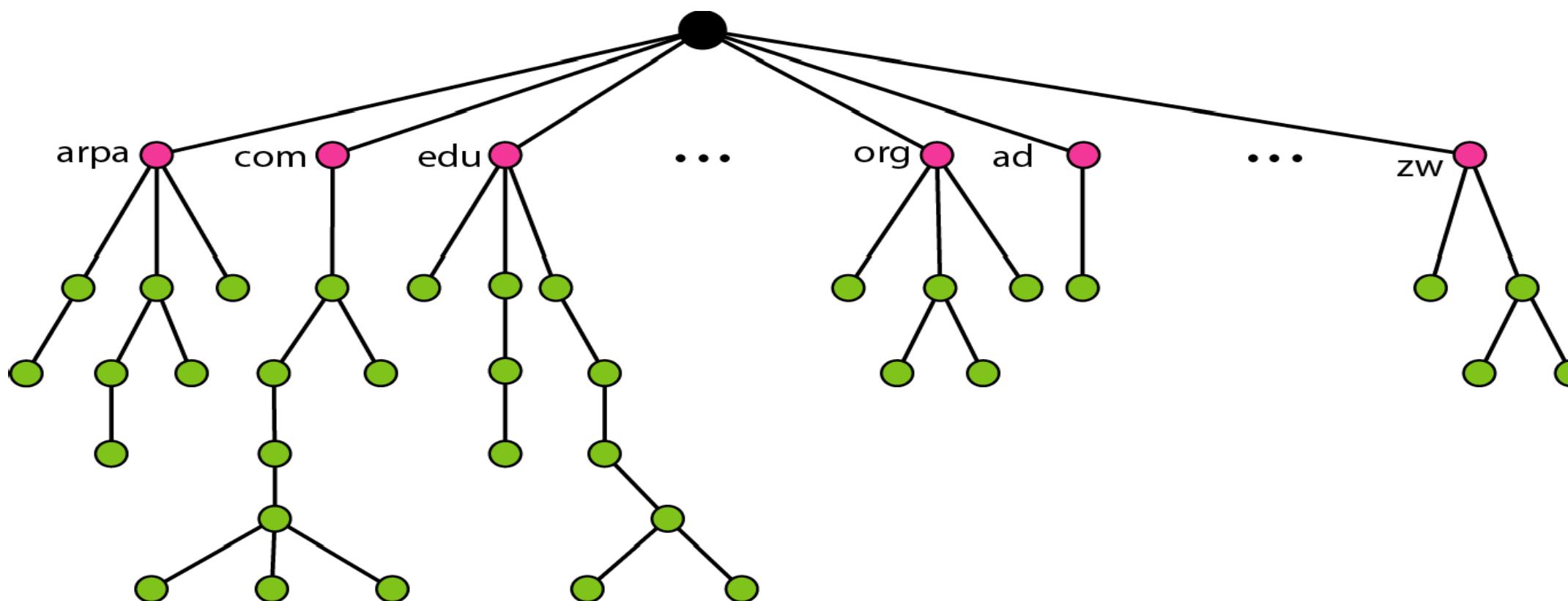
• **DNS database: each node and leaf in the name space tree structure** names a set of information (e.g., IP address, type of resource) that is contained in a resource record (RR).The collection of all RRs is organized into a distributed database.

Variable-depth hierarchy for names: DNS allows essentially unlimited levels and uses the period (.) as the level delimiter in printed names, as described earlier.
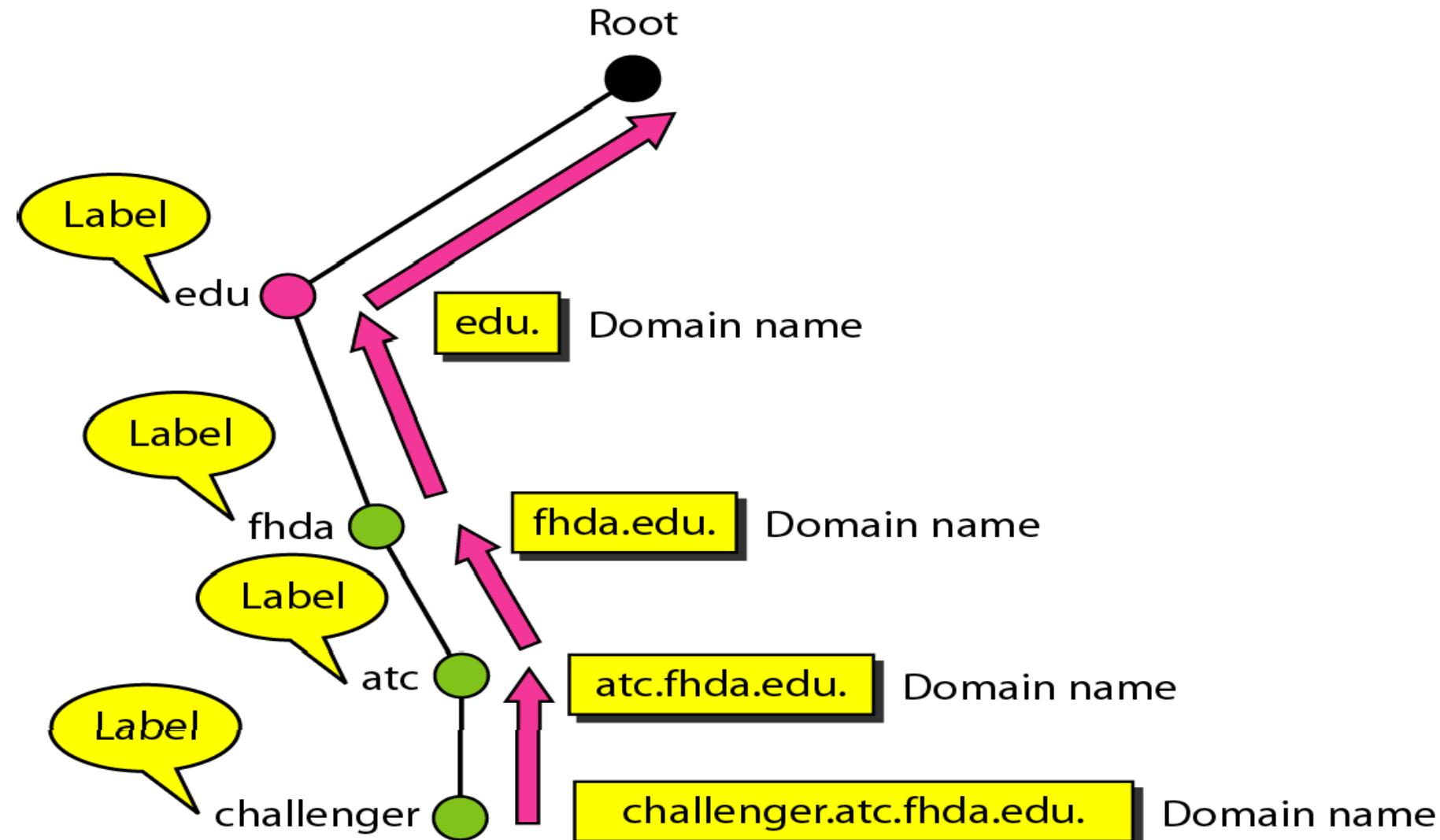
• **Distributed database: The database resides in DNS servers scattered throughout** the Internet and private intranets.

• **Distribution controlled by the database: The DNS database is divided into thousands** of separately managed zones, which are managed by separate administrators. The database software controls distribution and update of records.

Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication. 3. https://ieeexplore.ieee.org
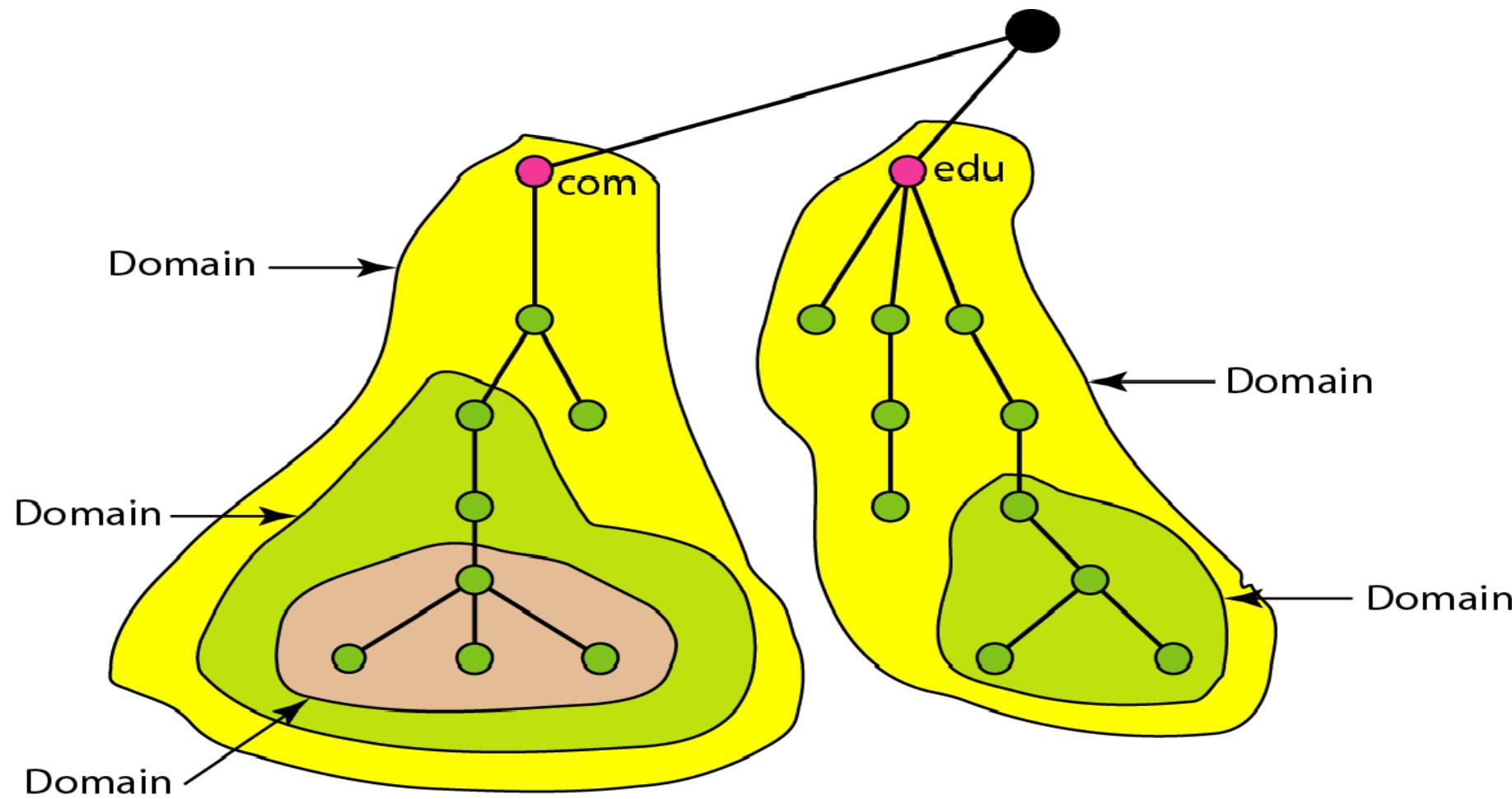
Distribution: Domain name space

# Domain names and labels
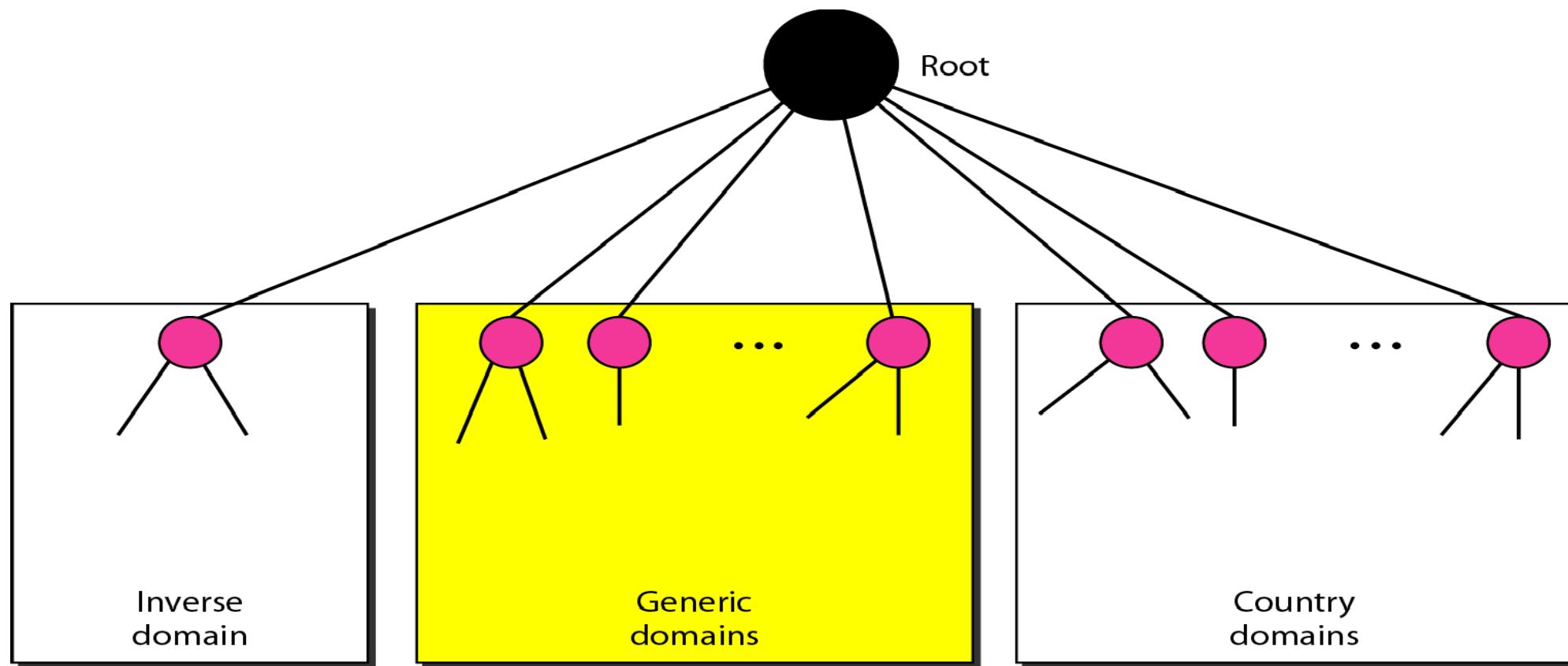
Domains
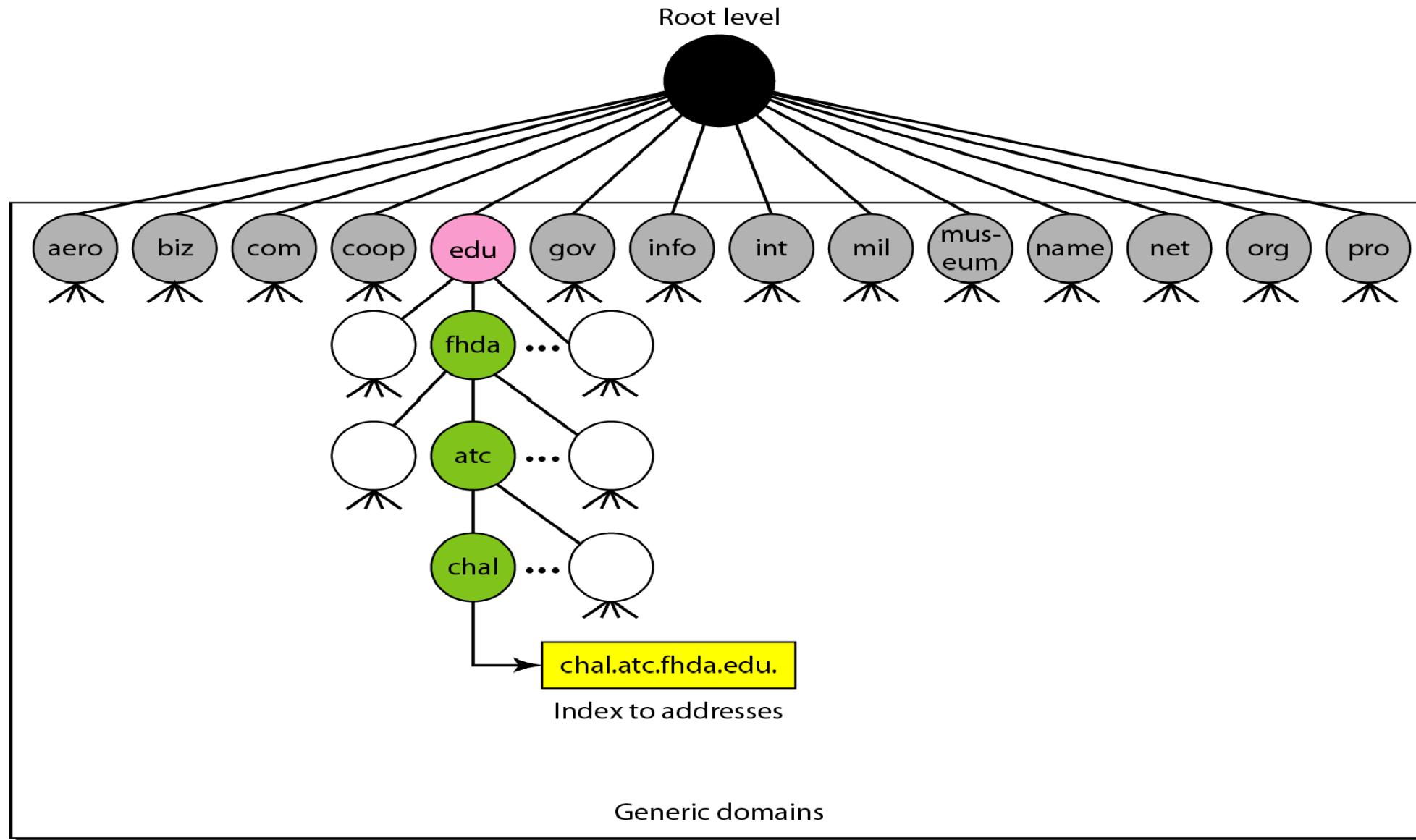
DNS IN THE INTERNET

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.

Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication. 3. https://ieeexplore.ieee.org

Generic domains

Generic domains

Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication. 3. https://ieeexplore.ieee.org
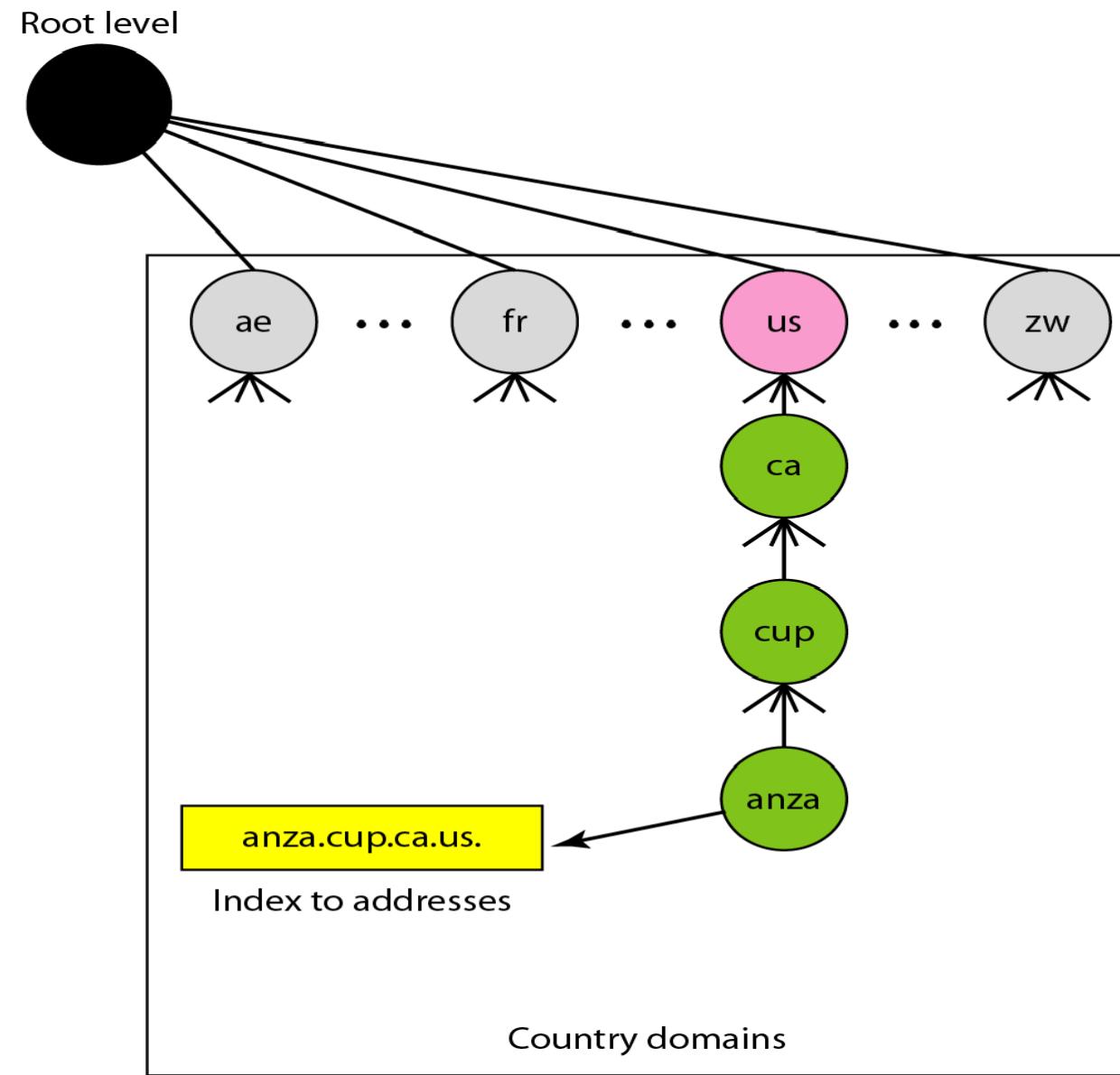
Generic domain labels

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

Country domains

Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication. 3. https://ieeexplore.ieee.org

Inverse domain

Reference: 1. Ferouzan, Behrouz A., Data Communications and Networking, 2. Stallings William, Data and Computer Communication. 3. https://ieeexplore.ieee.org