Simple Mail Transfer Protocol (SMTP)

SMTP

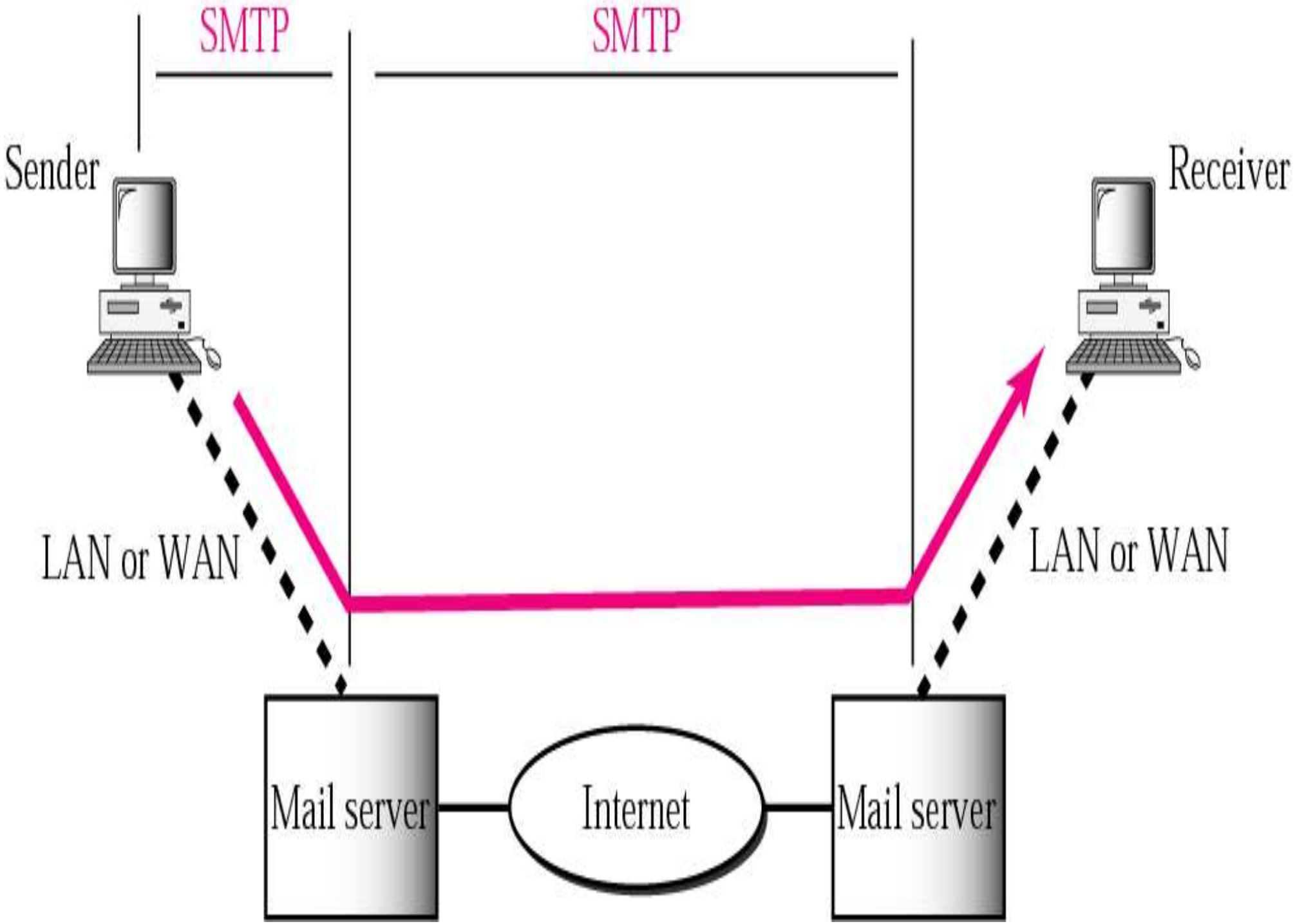
- SMTP stands for Simple Mail Transfer Protocol.

- When an e-mail is sent from the sender to receiver, in most cases this involves, the sender machine sends the email to local SMTP sever, which in then sends mail to recipients local SMTP sever, and finally to recipients local machine.

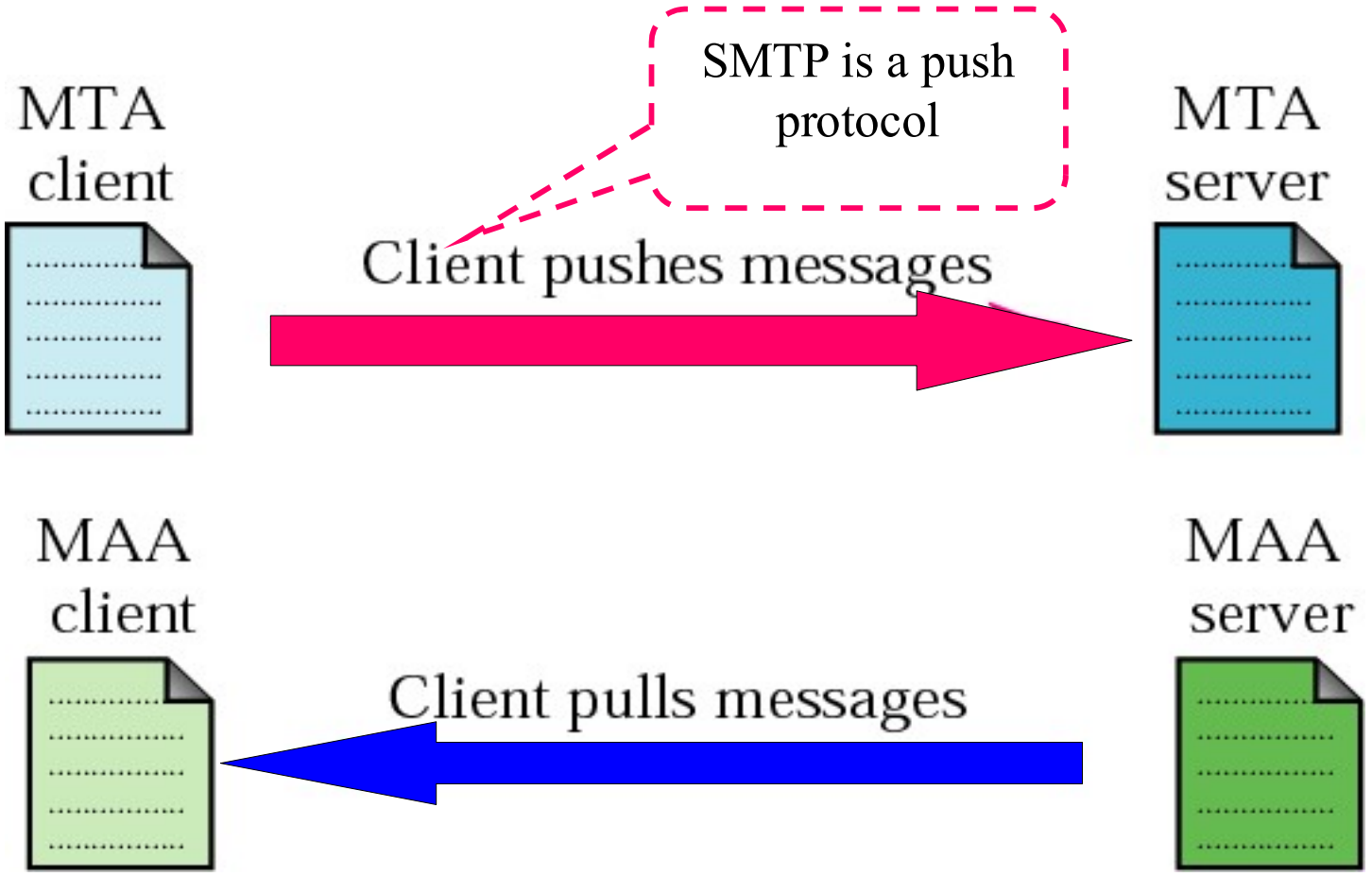
SMTP

- Actual mail transfer requires MTA (Message transfer agents).

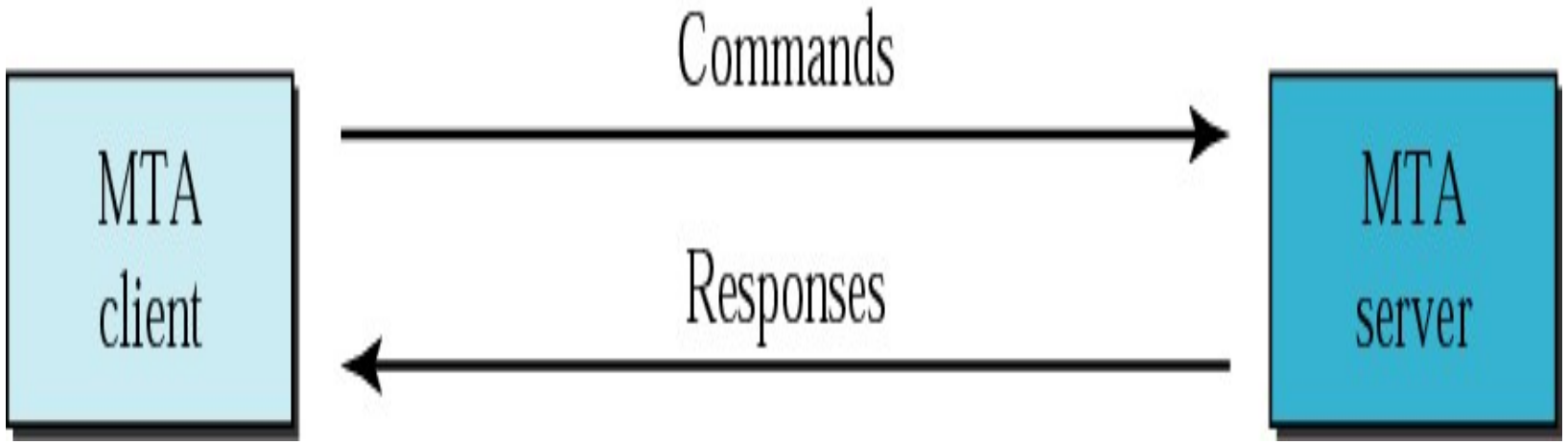
- Sender MTA and Receiver MTA.


SMTP
SMTP
Sender
Receiver
LAN or WAN
LAN or WAN
Mail server
Internet
Mail server

Message transfer…



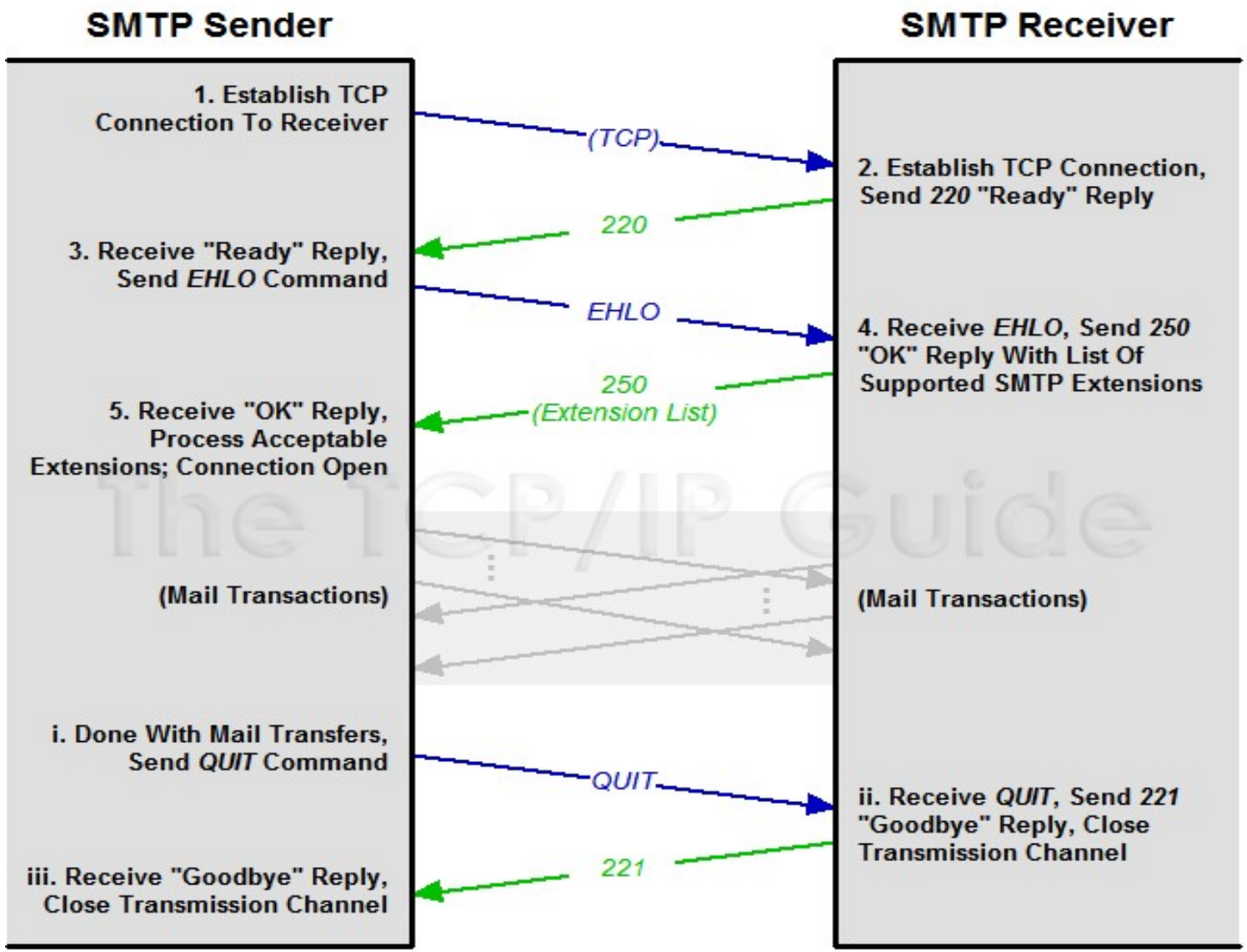
How SMTP works?



Commands of SMTP

HELO : Request to initiate SMTP session
MAIL FROM : Sender's E-Mail address
RCPT TO : Receiver's E-Mail address
DATA : Body of message
QUIT : Terminates SMTP connection
RSET : Aborts mail transaction
VRFY : Asks receiver to verify the validity of the mailbox
EXPN : Asks receiver to identify mailing list
HELP : Causes receiver to send help information
NOOP : Forces server to verify the communication with SMTP receiver

Session Establishment and Termination



SMTP Mail Transaction Process

1. Transaction Initiation and Sender Identification

   S: HELO sjsu.edu

   R: 250 Hello sjsu.edu
   S: MAIL FROM:<cooldd10@yahoo.com>
   R: 250 Ok

2. Recipient Identification

   S: RCPT TO:<jainip_1983@gmail.com>
   R: 250 Ok

3. Mail Transfer

   S: DATA
   R: 354 End data with <CR><LF>.<CR><LF>
   S: <The message data>

   S:.
   R: 250 Ok, message accepted for delivery: queued as 12345
   S: QUIT
   R: 221 Bye

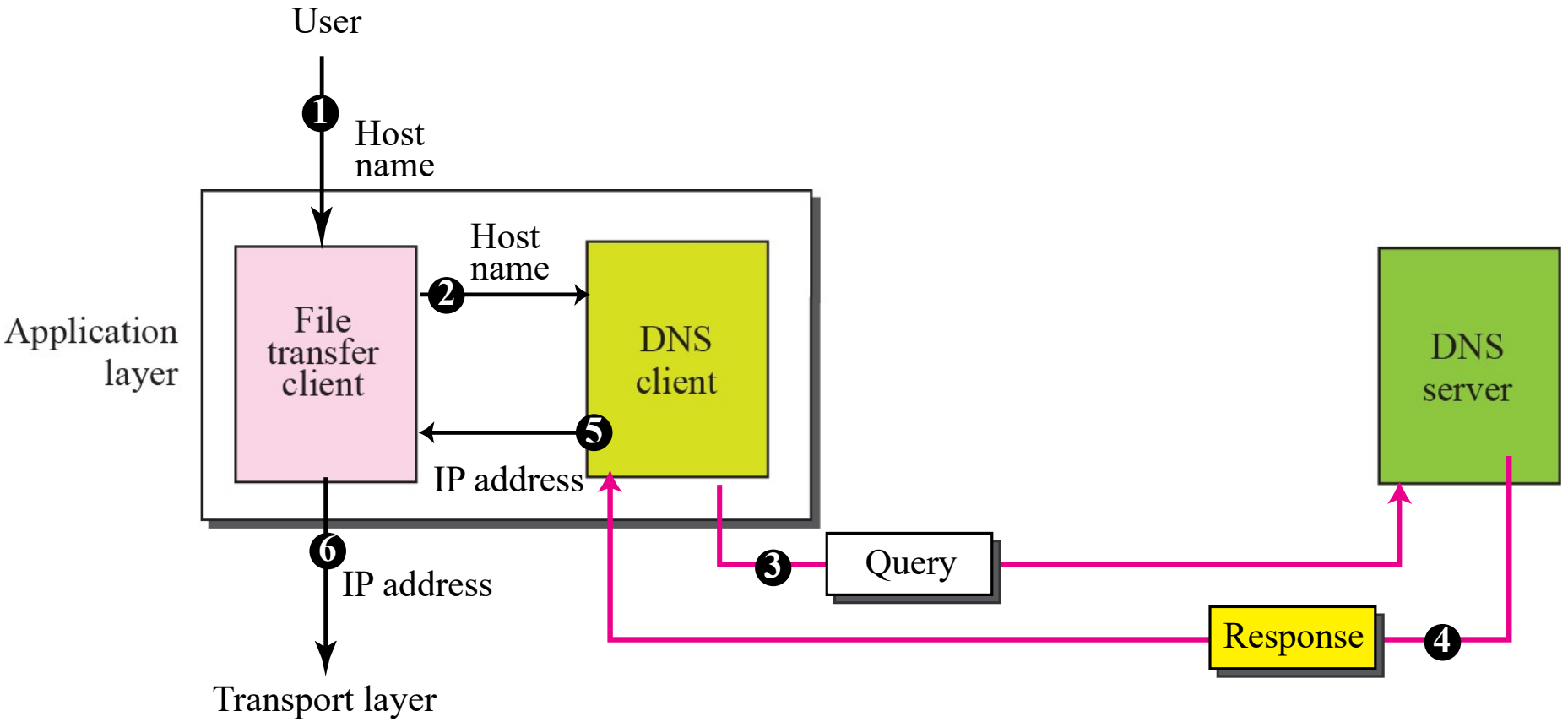
Domain Name Server (DNS)

- NEED FOR DNS

To identify an entity, TCP/IP protocols use the IP address, which uniquely identifies the connection of a host to the Internet. However, people prefer to use names instead of numeric addresses. Therefore, we need a system that can map a name to an address or an address to a name.

- The names must be unique because the addresses are unique

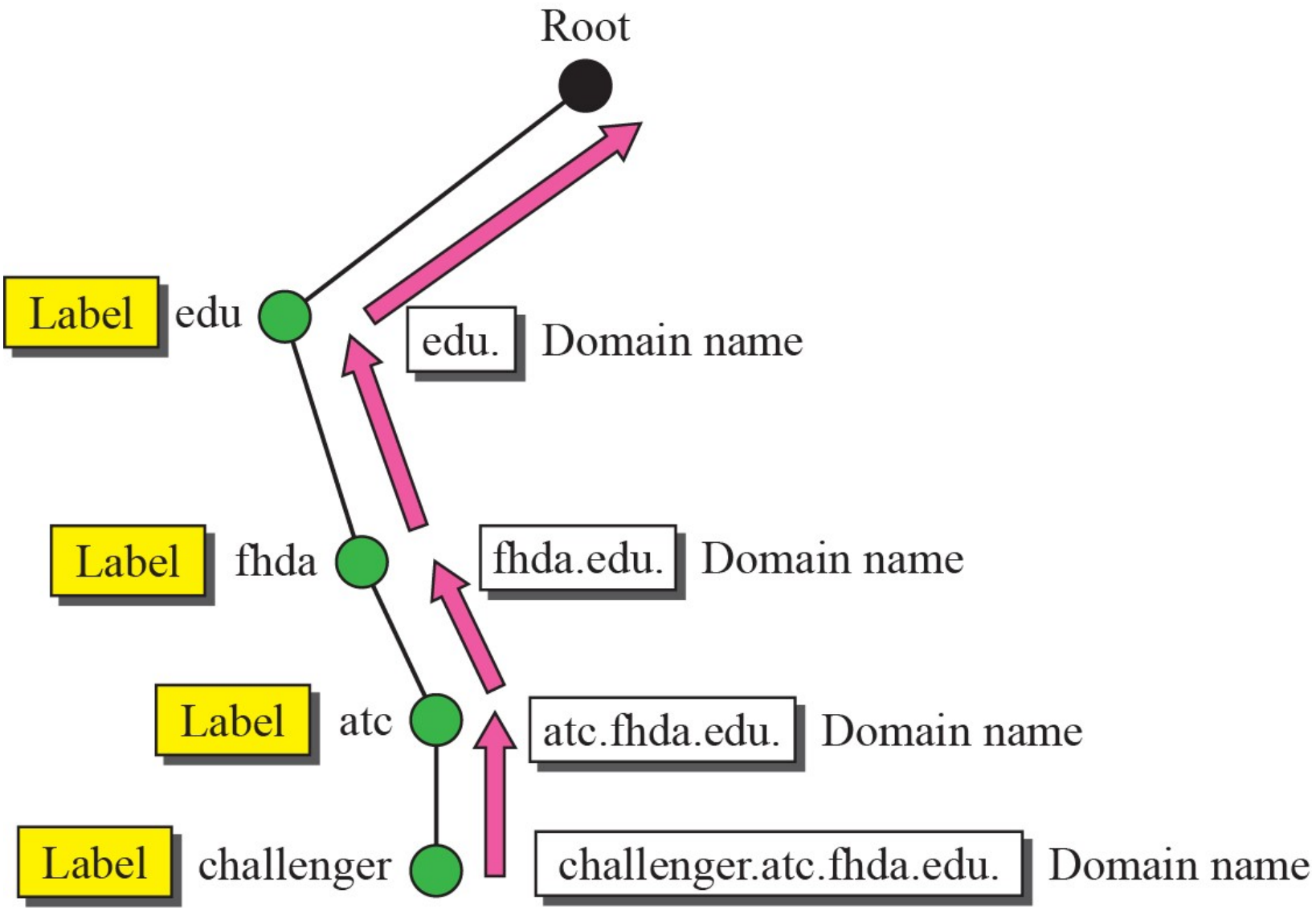
Figure 19.1 *Purpose of DNS*



NAME SPACE

- **Flat Name Space**
- Series of characters without any structure.
- Cannot be used for large systems like internet.
- **Hierarchical Name Space**
- First part defines nature of organization
- Second part defines name of organization
- Third part defines department of organization and so on.

Domain names and labels



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:

1. Generic domains
2. Country domains
3. Inverse domain

Generic domains

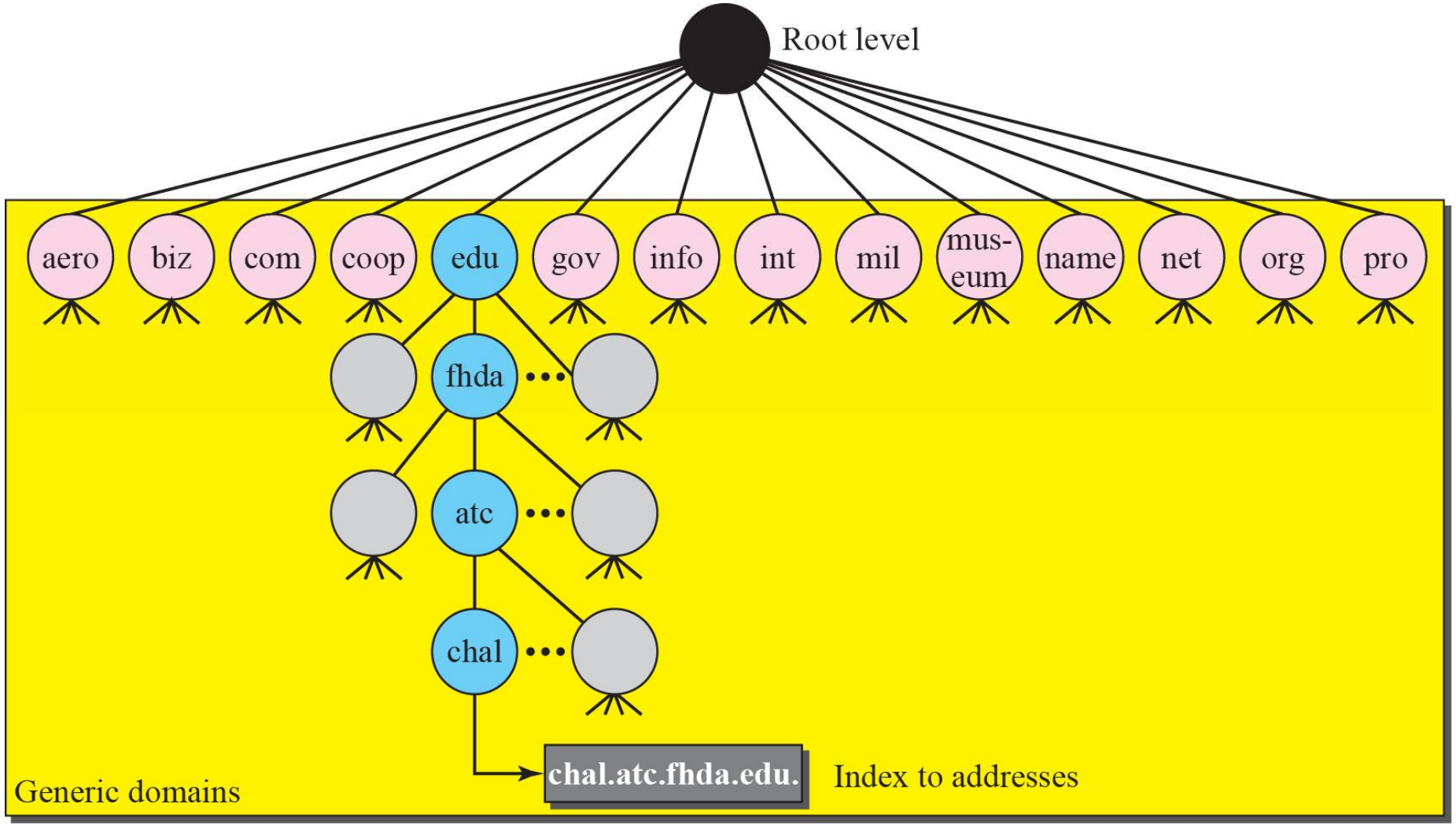
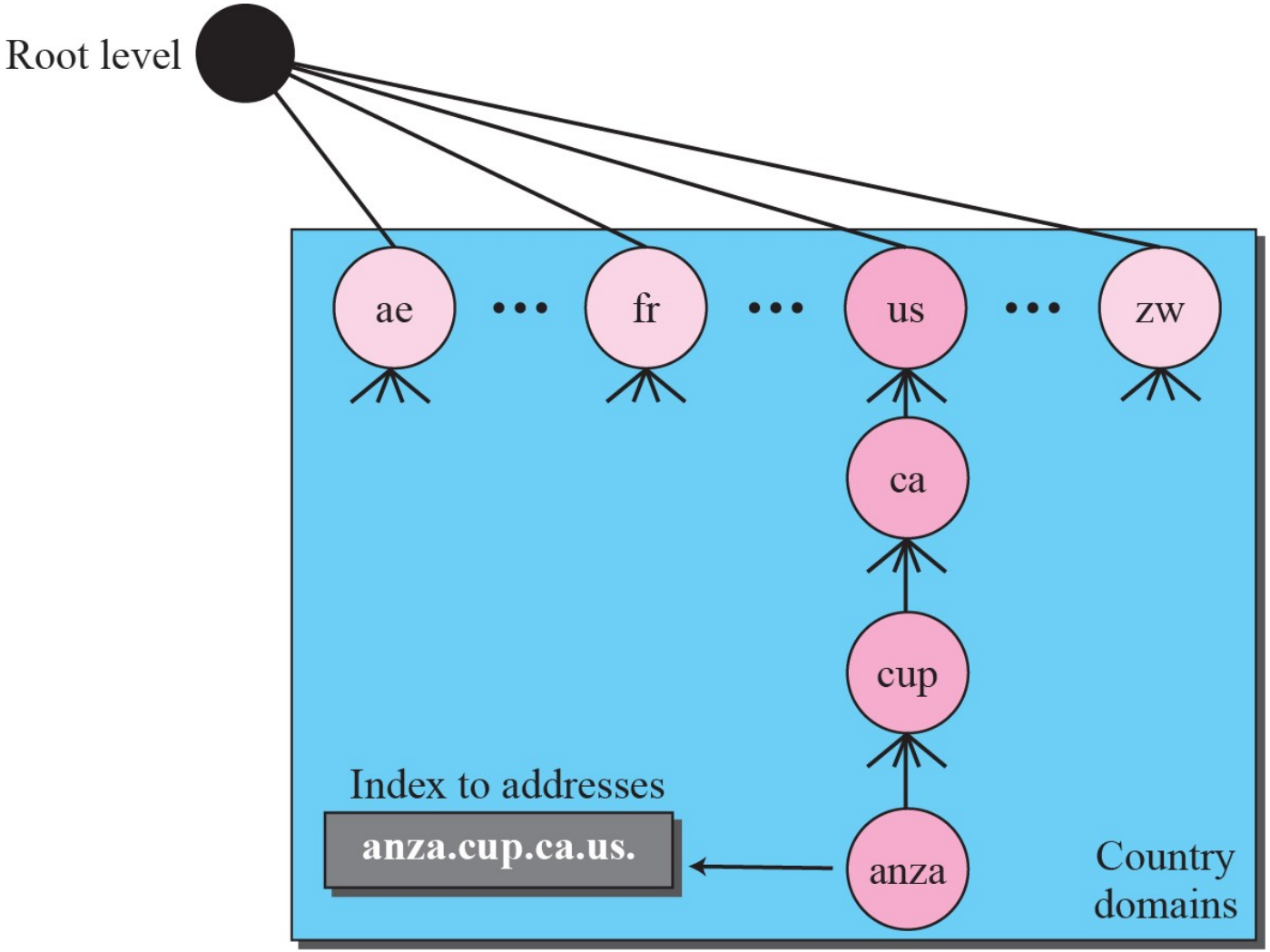


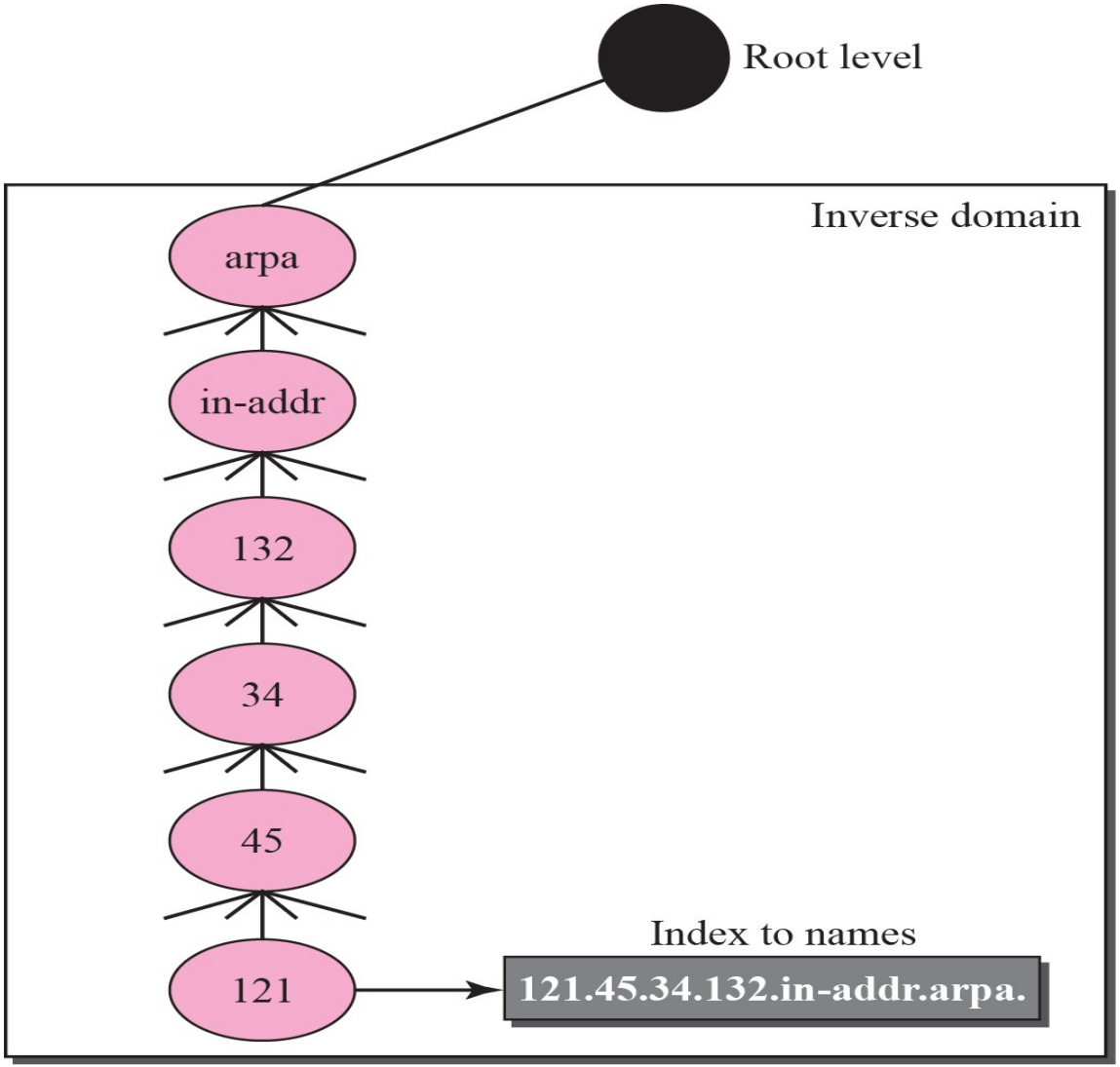
Table 19.1 *Generic domain labels*

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 non-profit organizations
name	Personal names (individuals)
net	Network support centers
org	Nonprofit organizations
pro	Professional individual organizations

Country domains



Inverse domain



DNS Messages

- Query Messages
- Response Messages

TELNET

- TELNET is standard TCP/IP protocol that lets user access any application program on remote computer.
- TELNET – Terminal Network
- Standard protocol for virtual terminal service proposed by ISO.
- TELNET enables establishment of connection to remote system such that local terminal appears to be terminal at remote system.
- TELNET is a general-purpose client-server application program