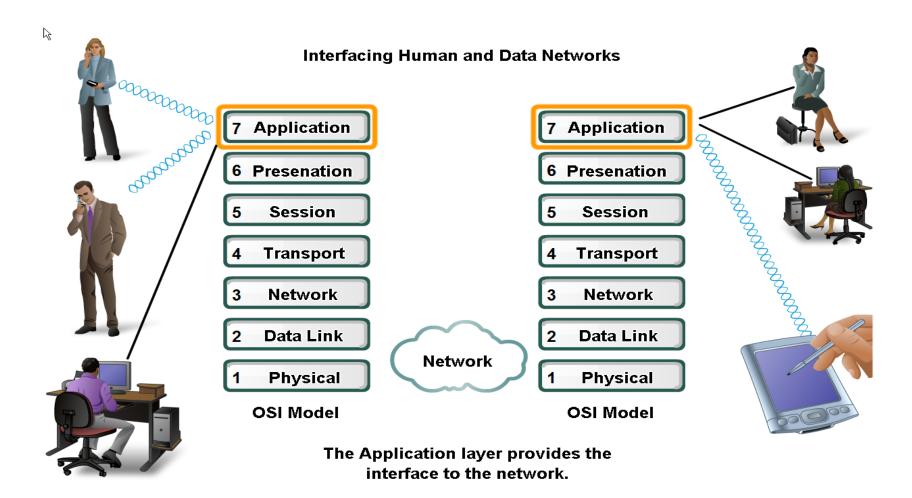


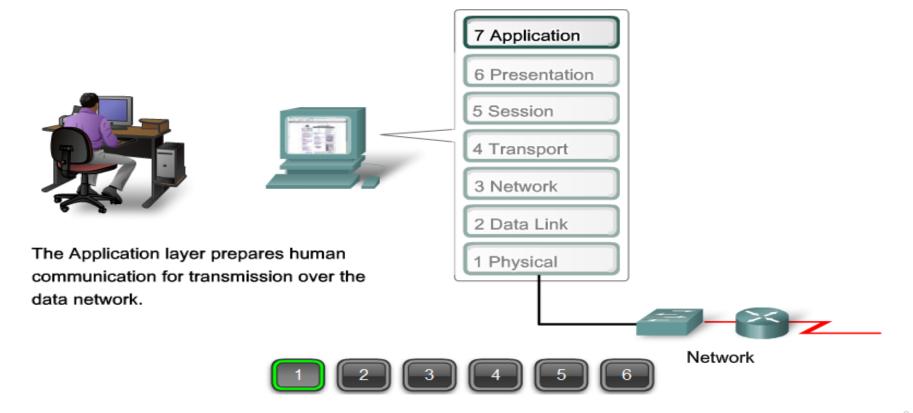


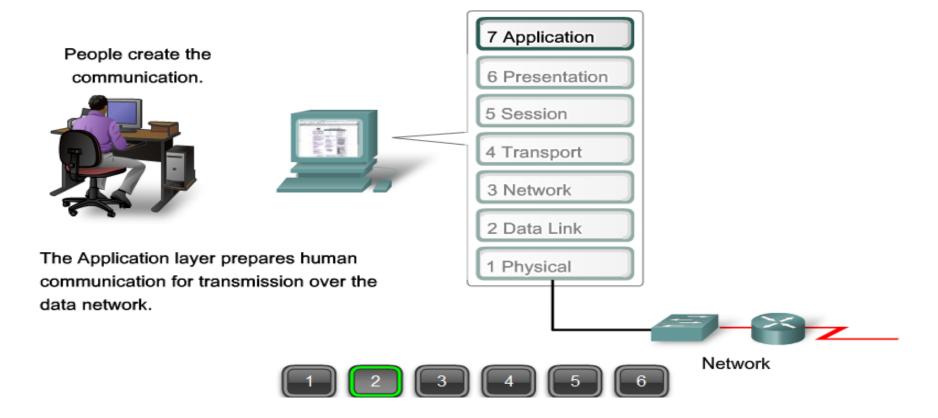
Application Layer Functionality and Protocols

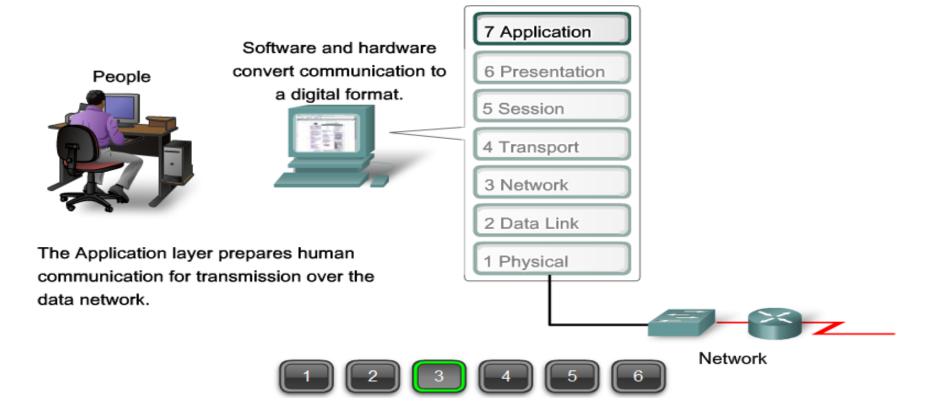


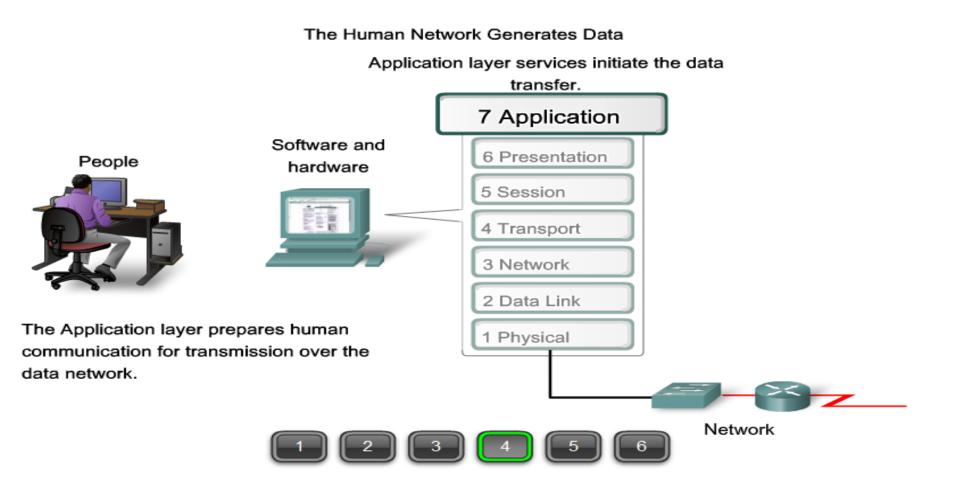
The Interface Between Human and Data Networks



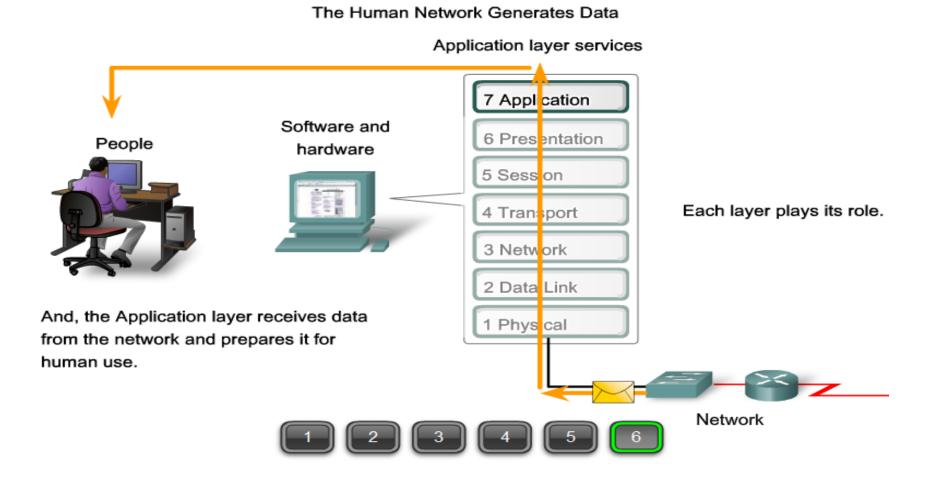




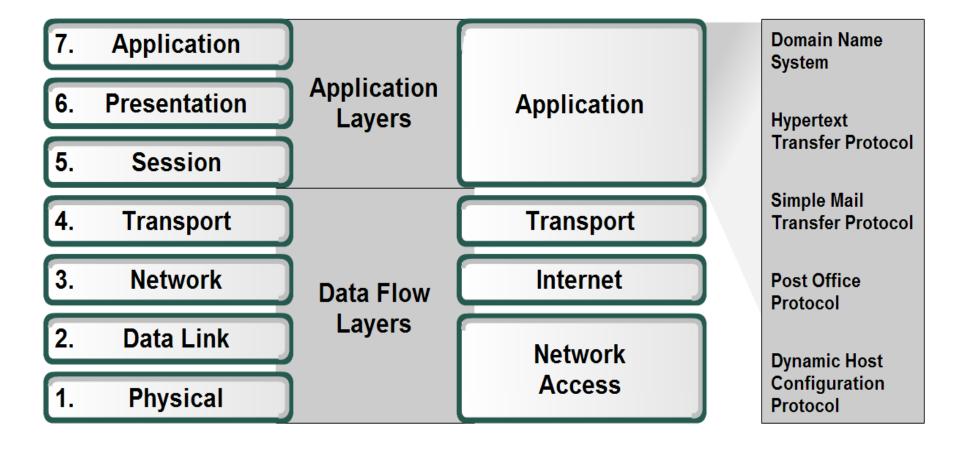


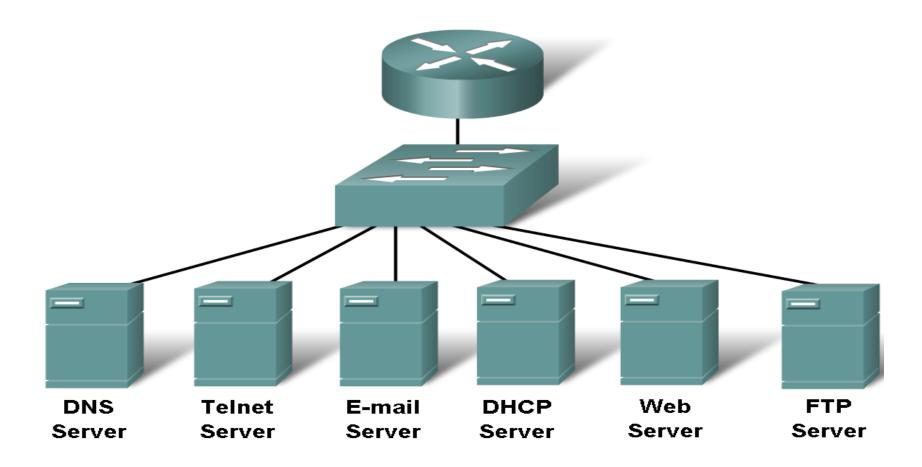


#### Application layer services 7 Application Software and 6 Presentation People hardware 5 Sess on Each layer plays its role. 4 Transport 3 Network 2 Data Link The Application layer prepares human 1 Phys cal communication for transmission over the data network. Network

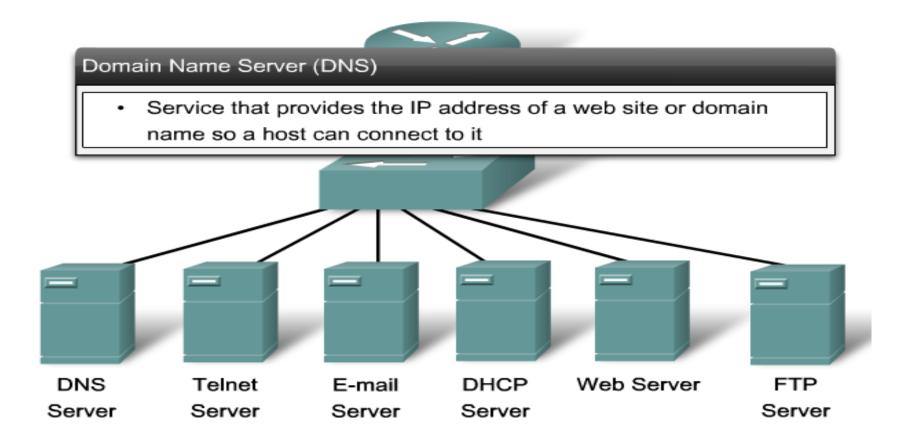


Nodel TCP/IP Model



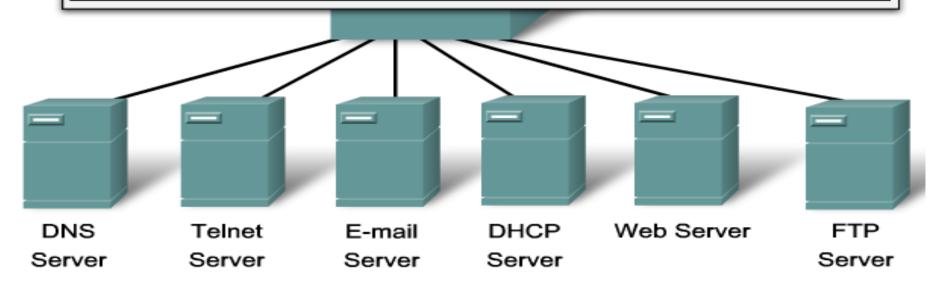


**Server Farm** 



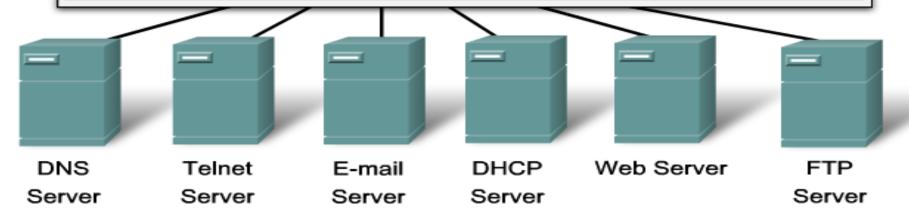
#### Telnet Server

 Service that allows administrators to login to a host from a remote location and control the host as though they were logged in locally



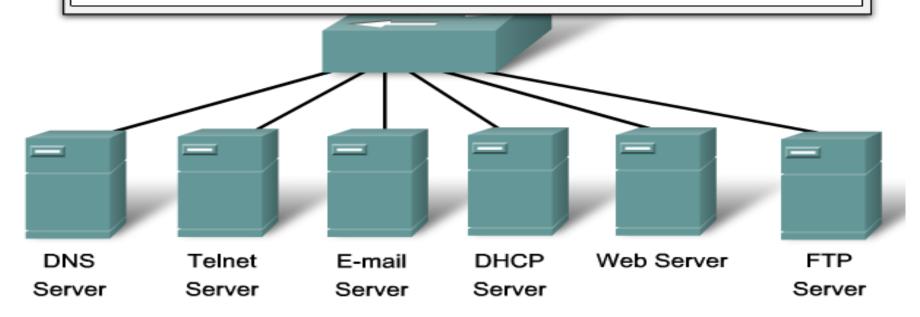
#### E-mail Server

- Uses Simple Mail Transfer Protocol (SMTP) Post Office Protocol (POP3) or Internet Message Access Protocol (IMAP)
- Used to send e-mail messages from clients to servers over the Internet
- Recipients are specified using the user@xyz format



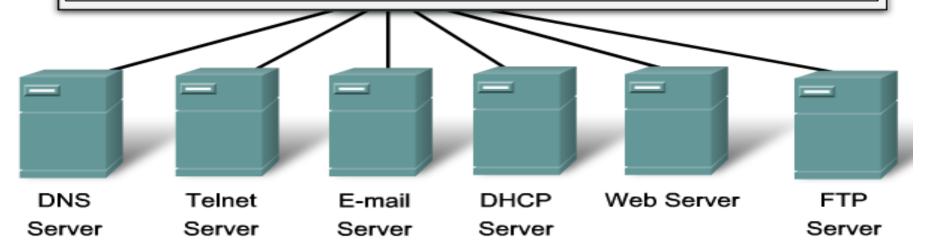
#### Dynamic Host Configuration Protocol (DHCP) Server

Service that assigns the IP address subnet mask default gateway and other information to clients



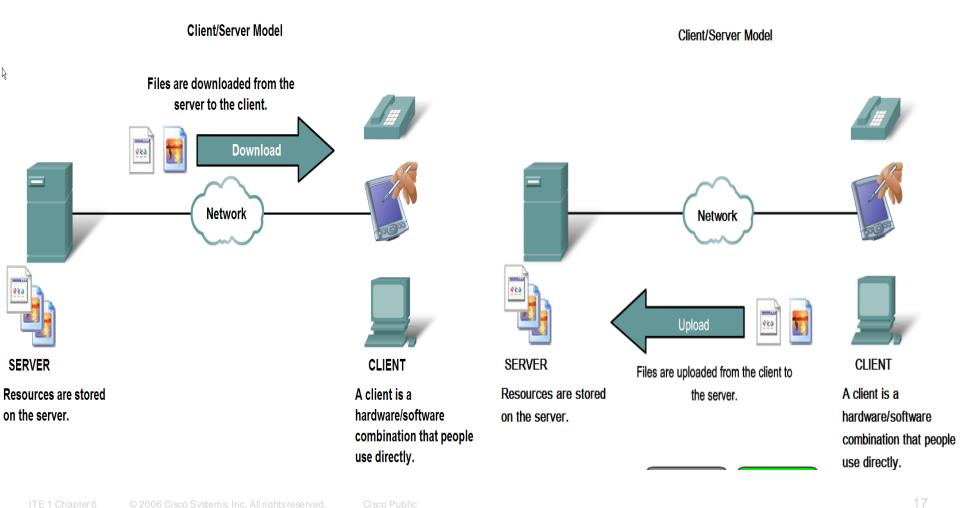
#### Web Server

- Hypertext Transfer Protocol (HTTP)
- Used to transfer information between web clients and web servers
- Most web pages are accessed using HTTP



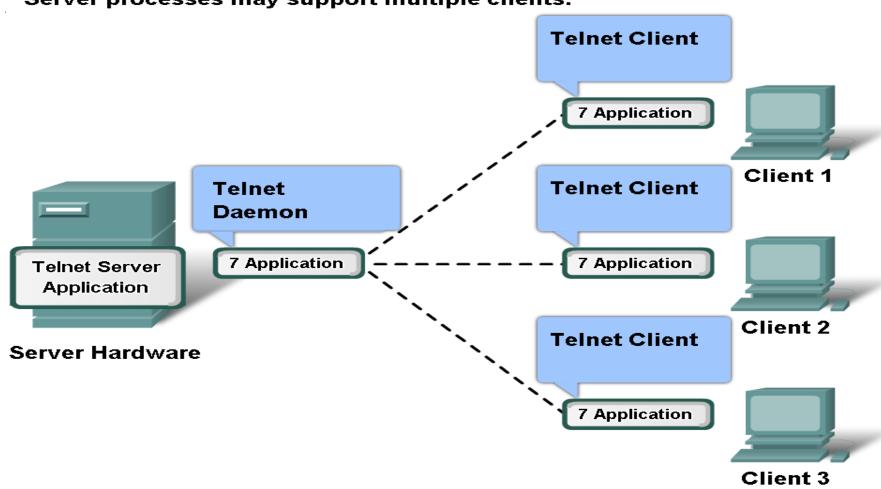
### File Transfer Protocol (FTP) Server Service that allows for the download and upload of files between a client and server DNS Telnet E-mail DHCP Web Server FTP Server Server Server Server Server

## **Client/Server Model**



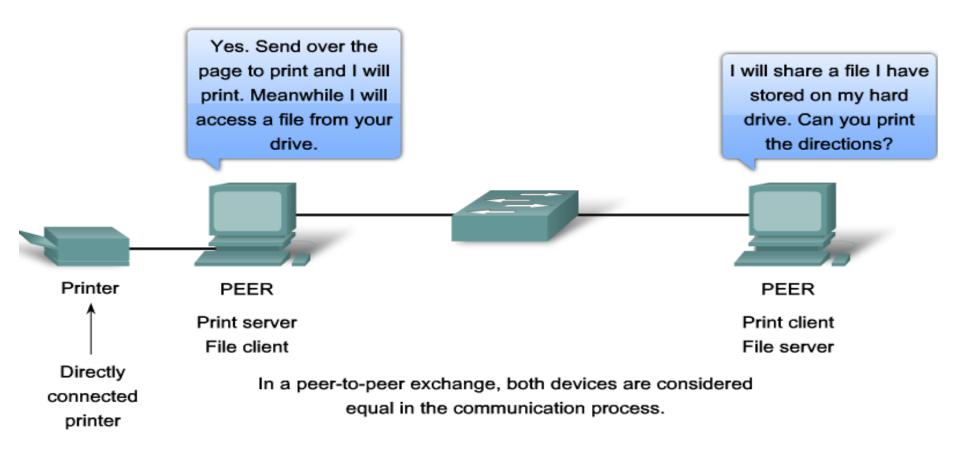
## **Client/Server Model**

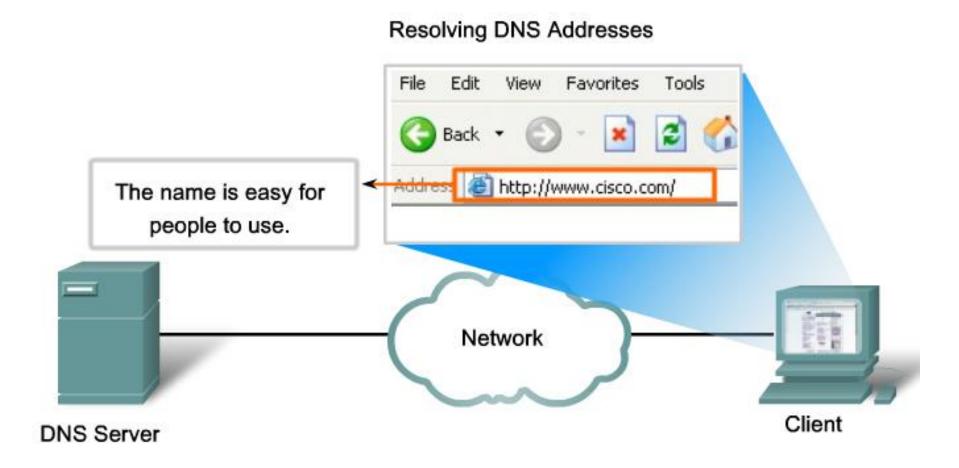
Server processes may support multiple clients.



# **Peer to Peer Applications**

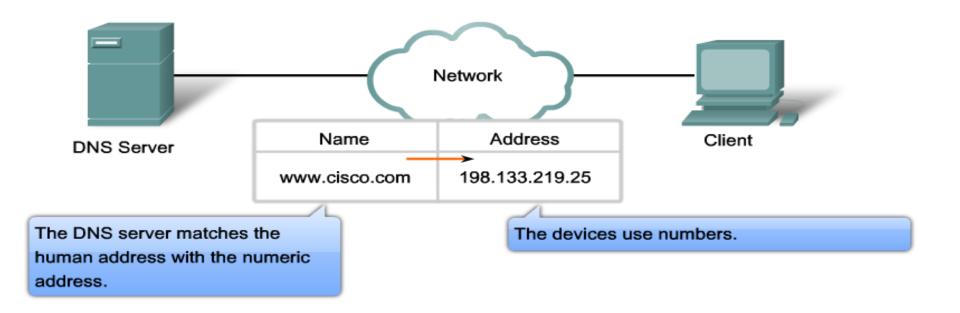
Peer-to-Peer Networking



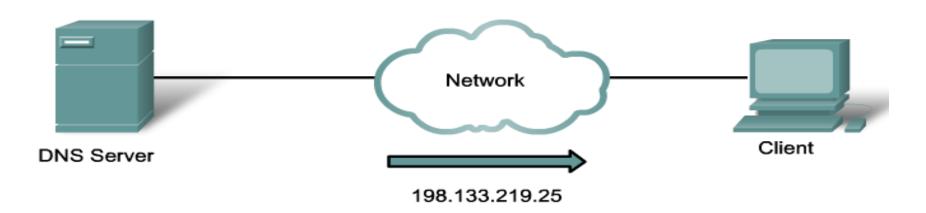


# Resolving DNS Addresses File Edit View Favorites Tools Address 🎒 http://www.cisco.com/ www.cisco.com Network Client **DNS Server**

#### Resolving DNS Addresses

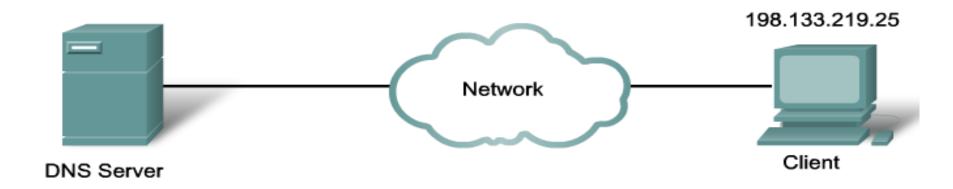


#### Resolving DNS Addresses



The number is returned back to the client for use in making requests of the server.

#### Resolving DNS Addresses

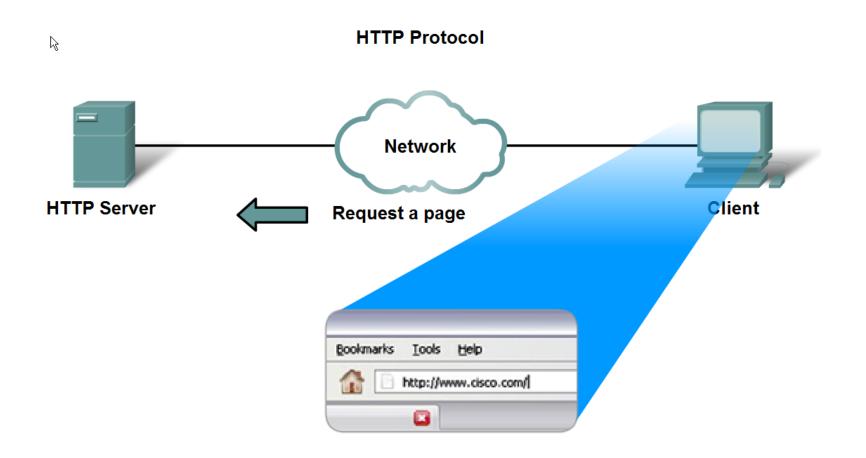


A human legible name is resolved to its numeric network device address by the DNS protocol.

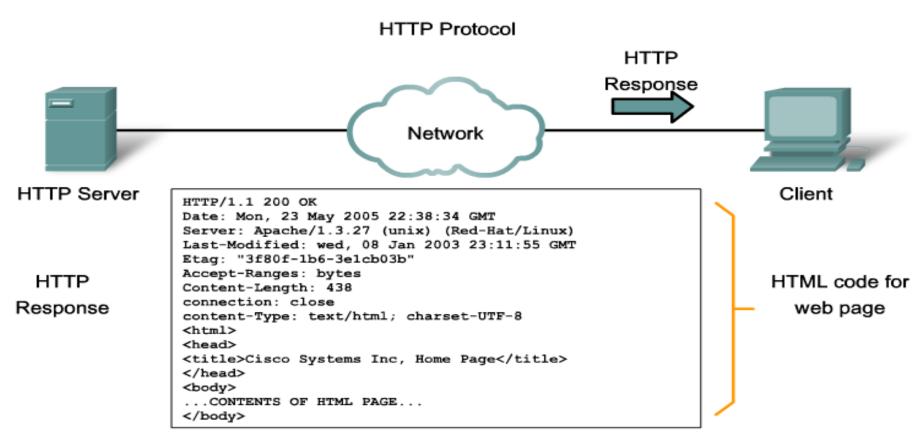
#### Using nslookup

```
C:\WINDOWS\systen 22\cmd.exe - nslookup
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\bradfjoh>cd..
C:\Documents and Settings>nslookup
Default Server: dns-sj.cisco.com
Address: 171.70.168.183
> www.cisco.com
Server: dns-sj.cisco.com
Address: 171.70.168.183
        www.cisco.com
Name:
Address: 198.133.219.25
> cisco.netacad.net
Server: dns-sj.cisco.com
Address: 171.70.168.183
Non-authoritative answer:
        cisco.netacad.net
Address: 128,107,229,50
```

# **HyperText Transfere Protocol HTTP**

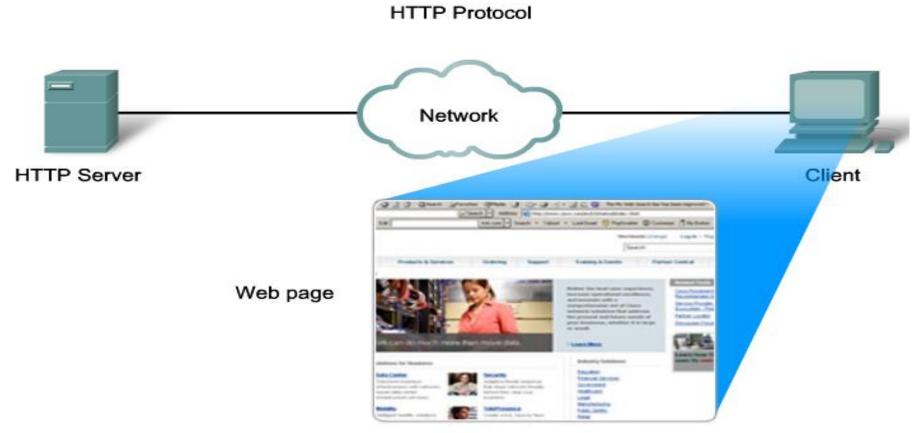


# HyperText Transfere Protocol HTTP



In response to the request, the HTTP server returns code for a web page.

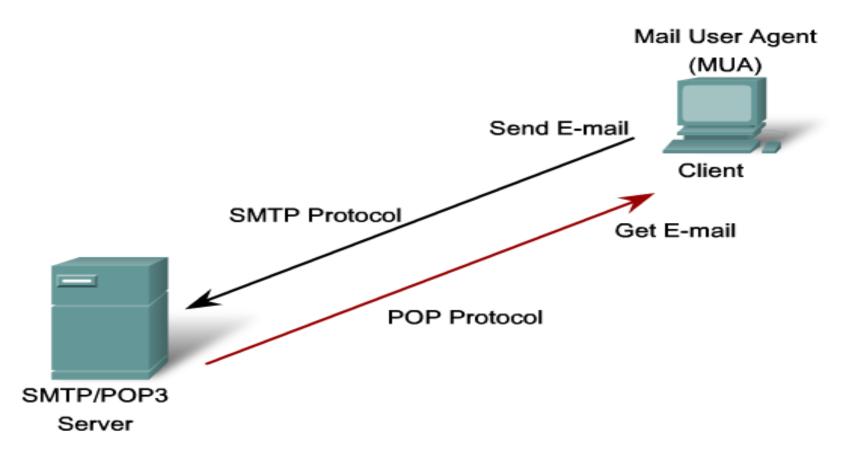
# **HyperText Transfere Protocol HTTP**



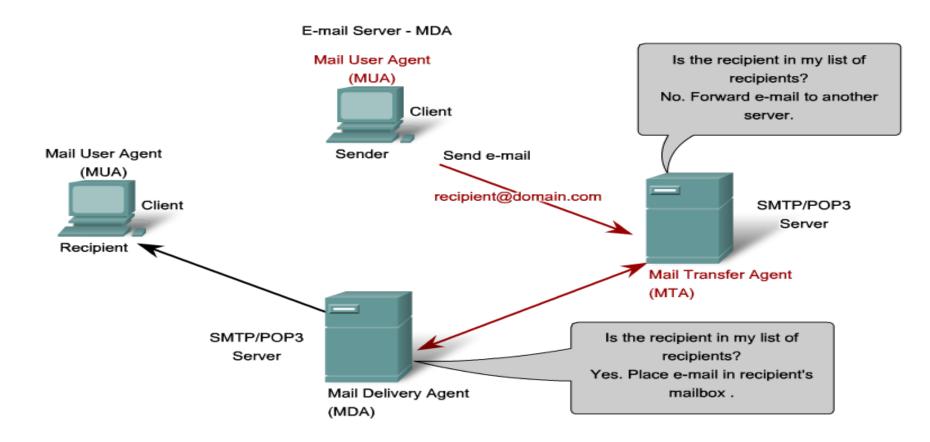
The browser interprets the HTML code and displays a web page.

# Post Office Protocol POP / Simple Mail Transfer Protocol SMTP

E-mail Client (MUA)

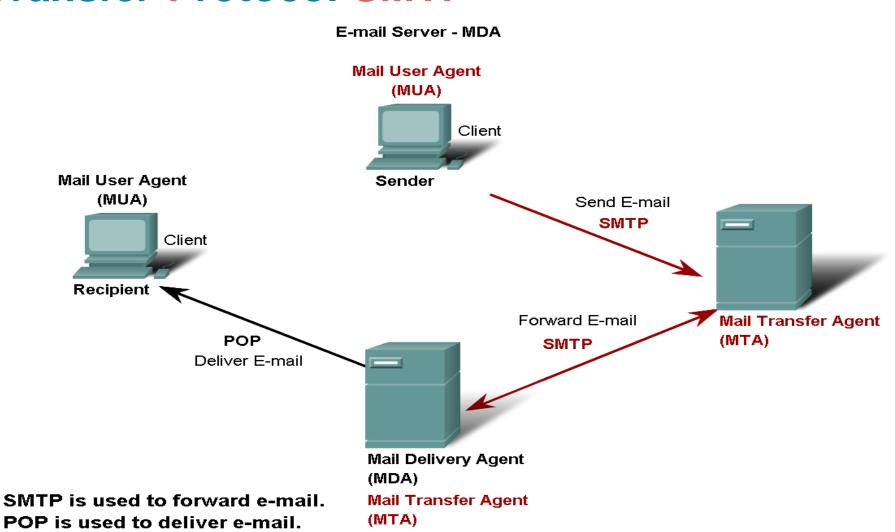


# Post Office Protocol POP / Simple Mail Transfer Protocol SMTP

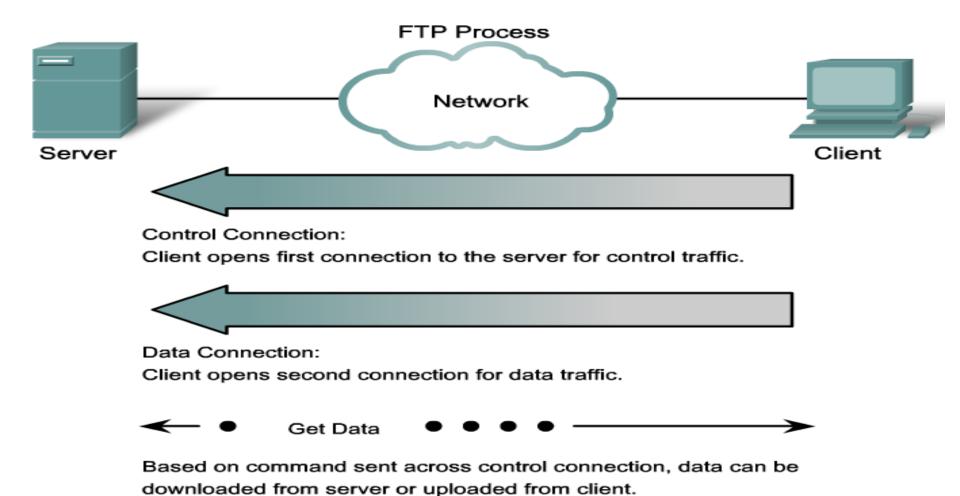


The Mail Delivery Agent process governs delivery of e-mail between servers and clients.

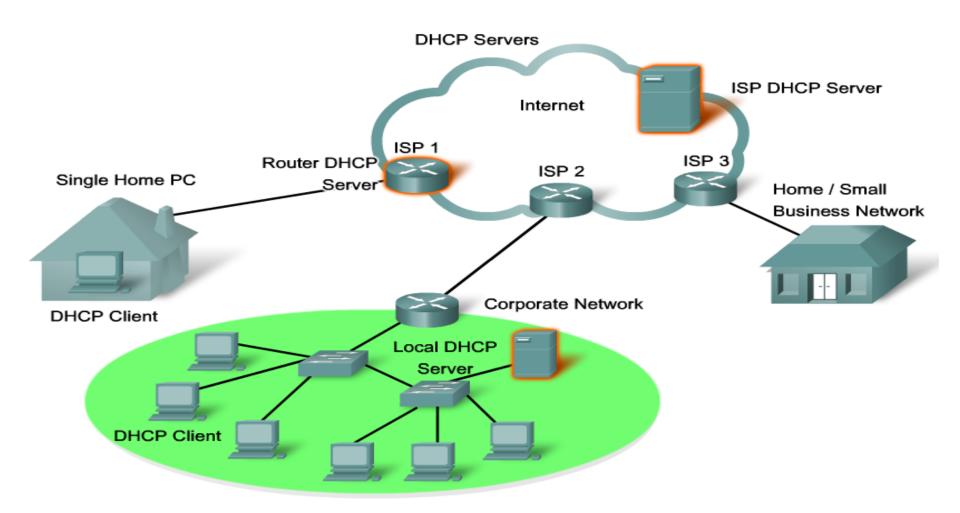
# Post Office Protocol POP / Simple Mail Transfer Protocol SMTP



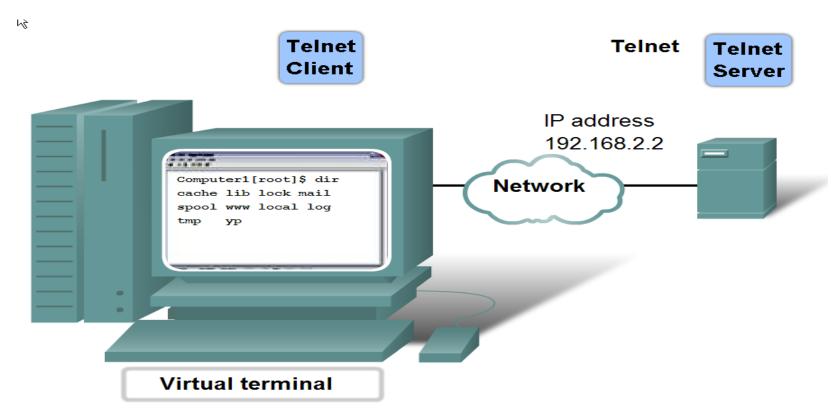
### File Transfer Protocol FTP



# **Dynamic Host Configuration Protocol DHCP**

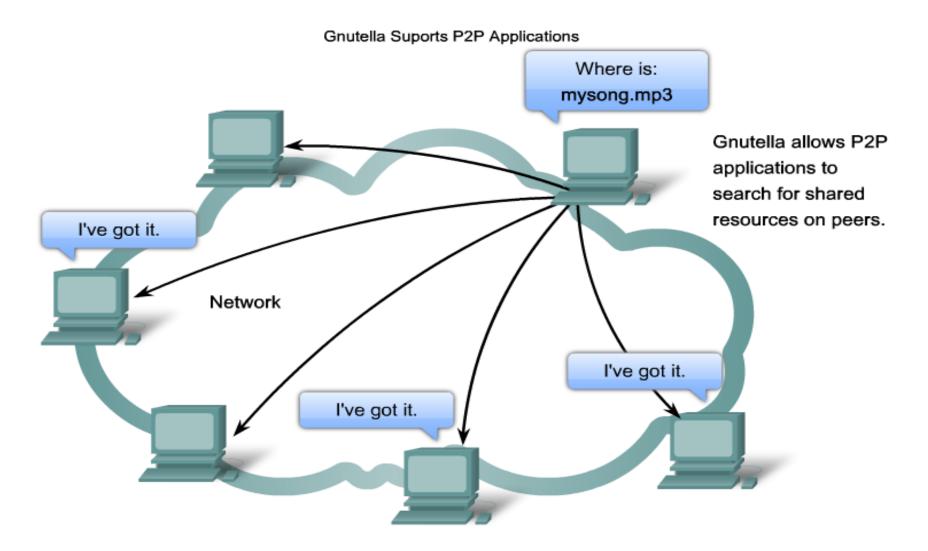


## **Telecommunication Network Telnet**



Telnet provides a way to use a computer, connected via the network, to access a network device as if the keyboard and monitor were directly connected to the device.

# Peer-To-Peer Application P2P



# Features, Operation, and Use of TCP/IP Application Layer Services

 Describe the features of the Gnutella protocol and the role it plays in supporting P2P services

