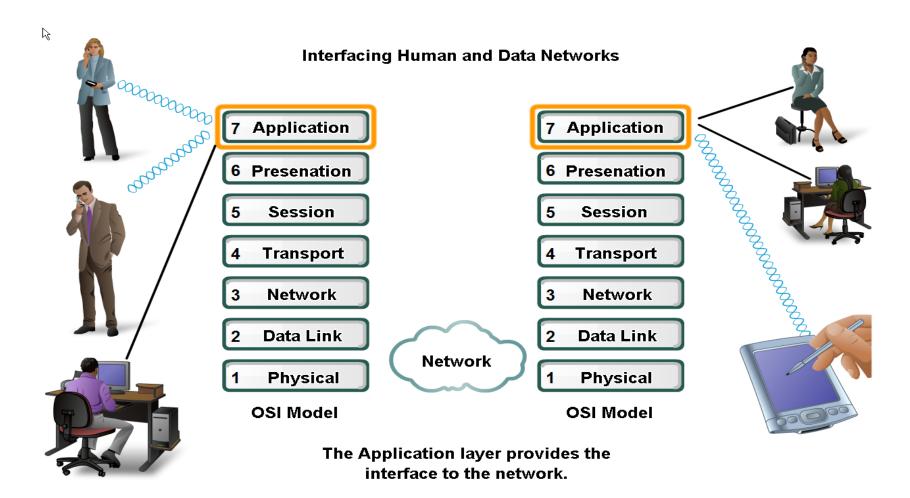
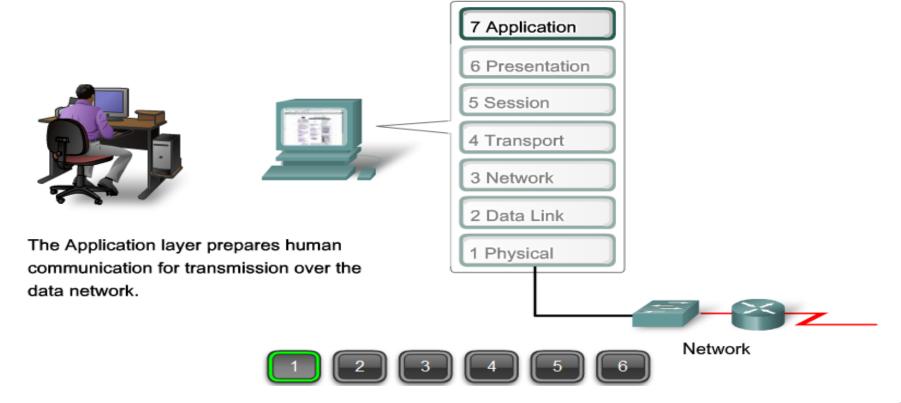


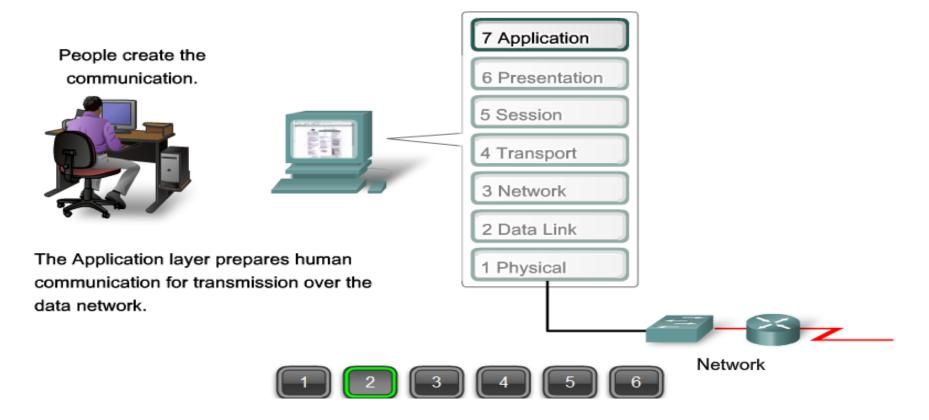
Application Layer Functionality and Protocols

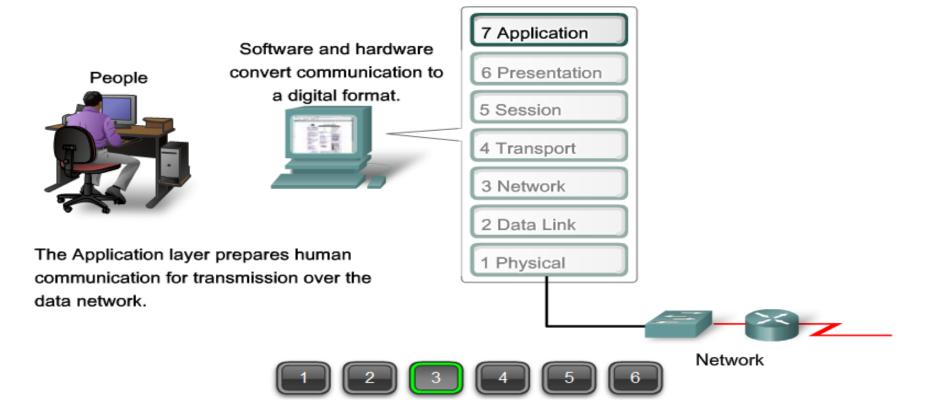


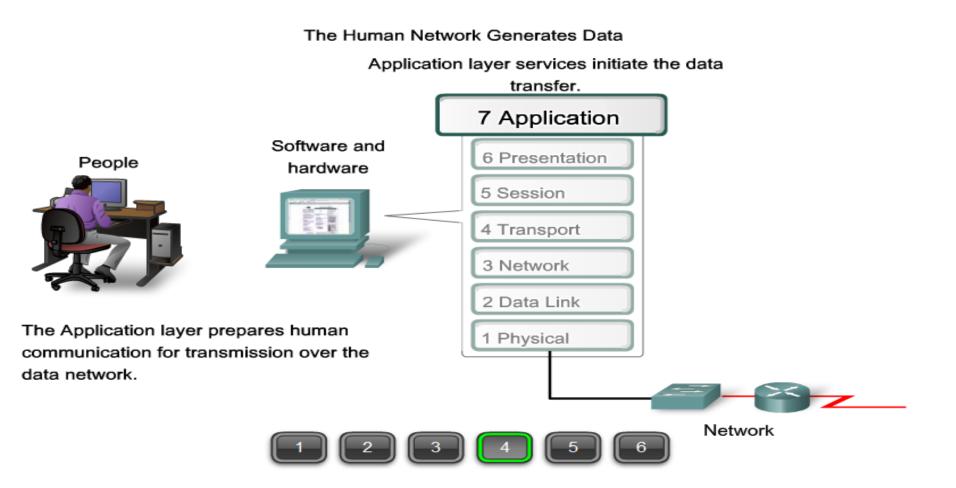
The Interface Between Human and Data Networks



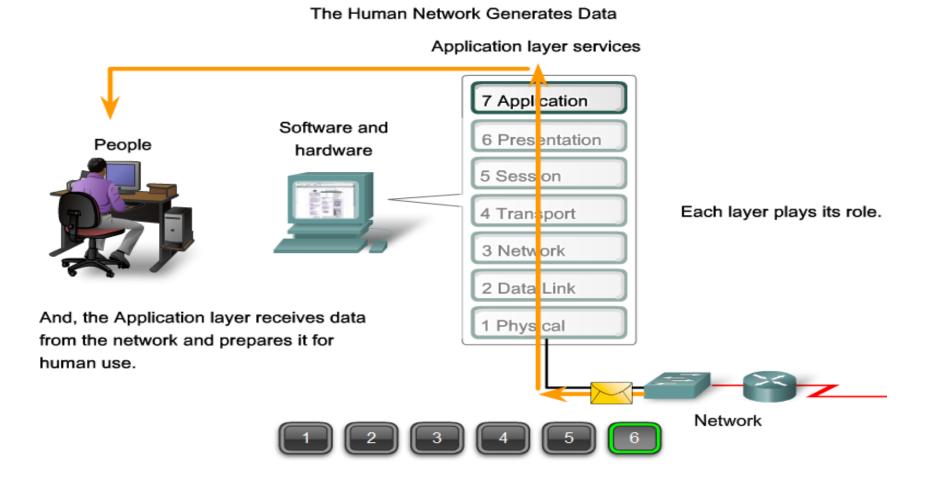




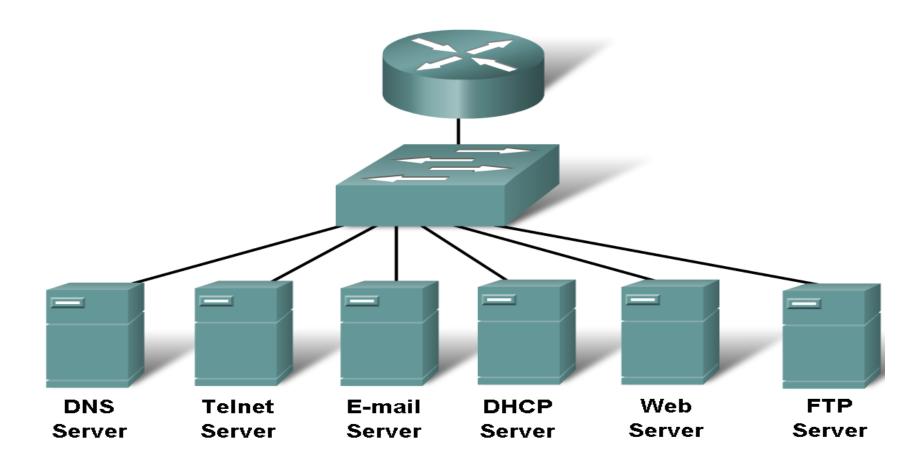




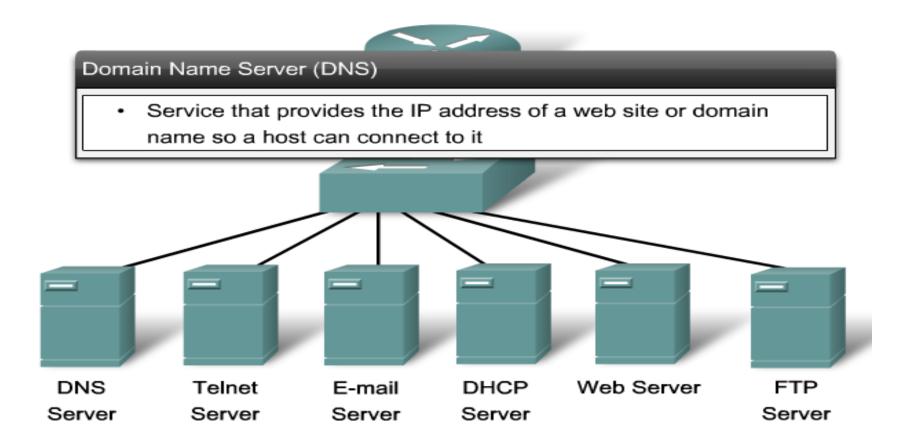
Application layer services 7 Application Software and 6 Presentation People hardware 5 Sess on Each layer plays its role. 4 Transport 3 Network 2 Data Link The Application layer prepares human 1 Phys cal communication for transmission over the data network. Network



Domain Name Application System **Application Presentation Application** Layers **Hypertext Transfer Protocol** 5. Session Simple Mail 4. **Transport Transport** Transfer Protocol 3. Network Internet Post Office **Data Flow Protocol** Layers **Data Link Network Dynamic Host** Configuration Access **Physical Protocol**

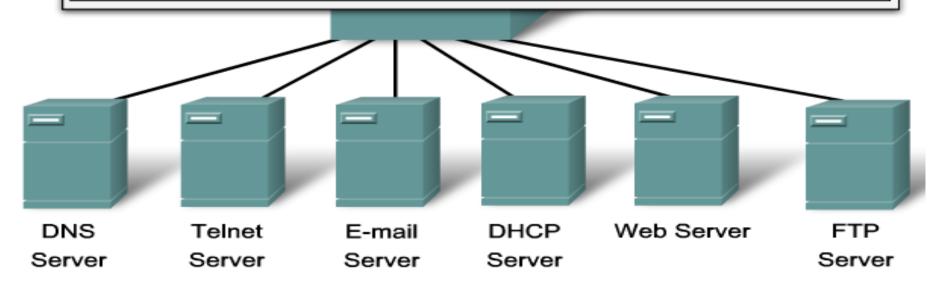


Server Farm



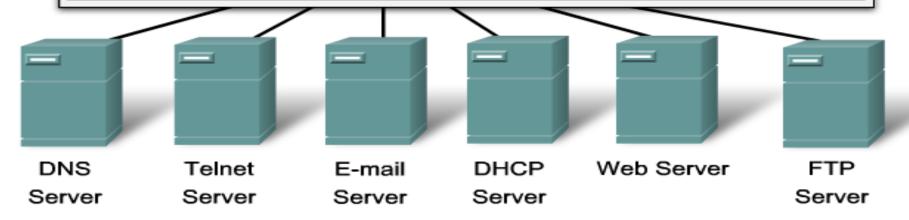
Telnet Server

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



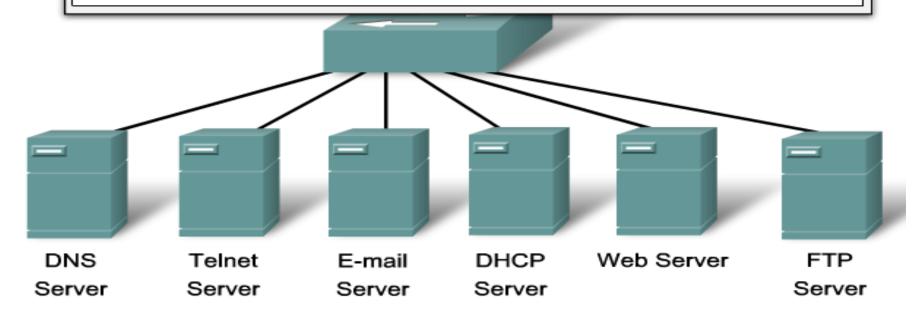
E-mail Server

- 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



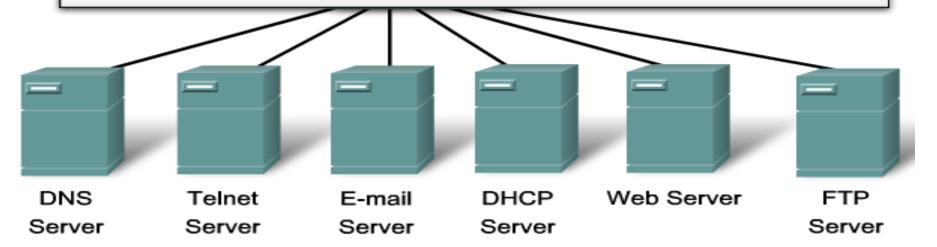
Dynamic Host Configuration Protocol (DHCP) Server

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



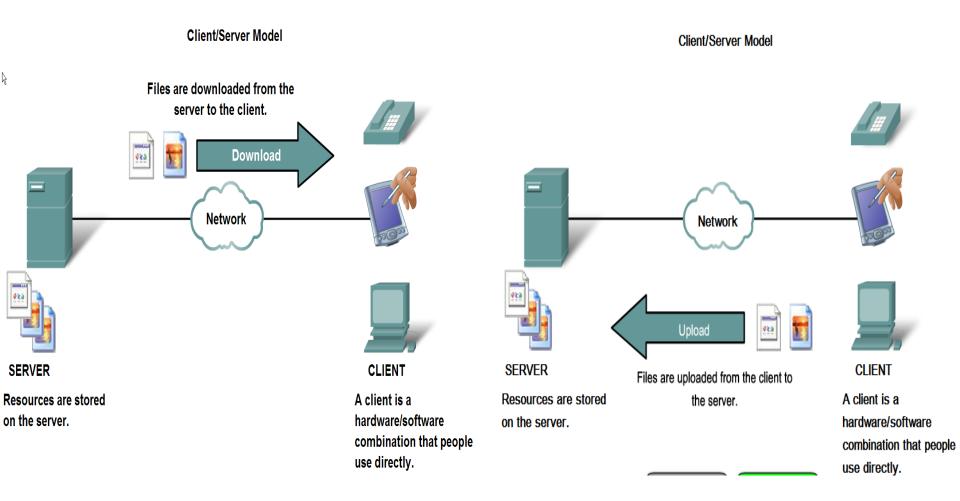
Web Server

- 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

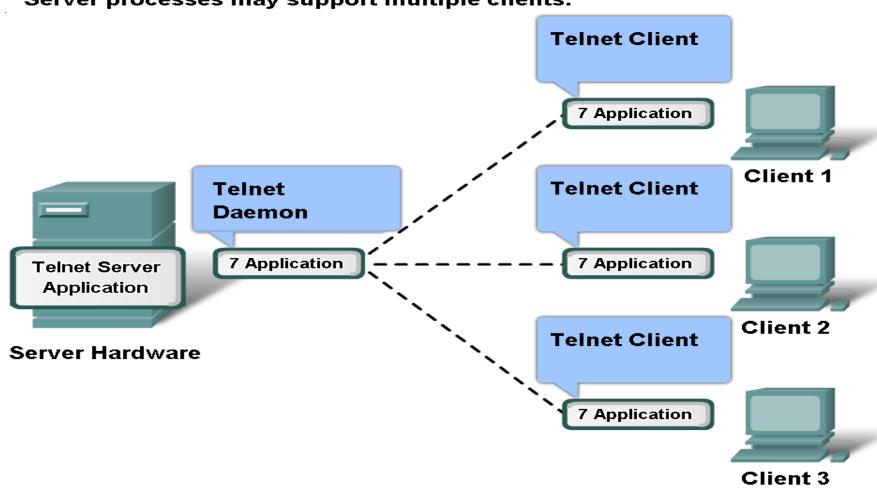
Client/Server Model



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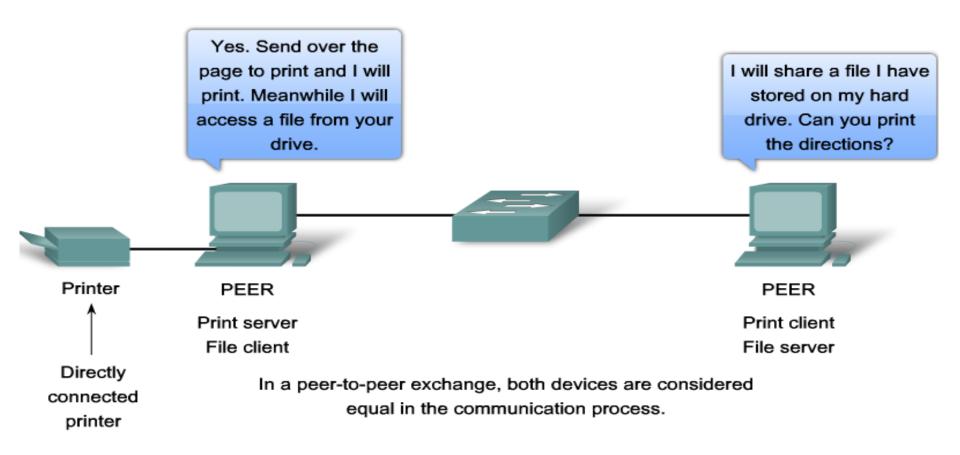
Client/Server Model

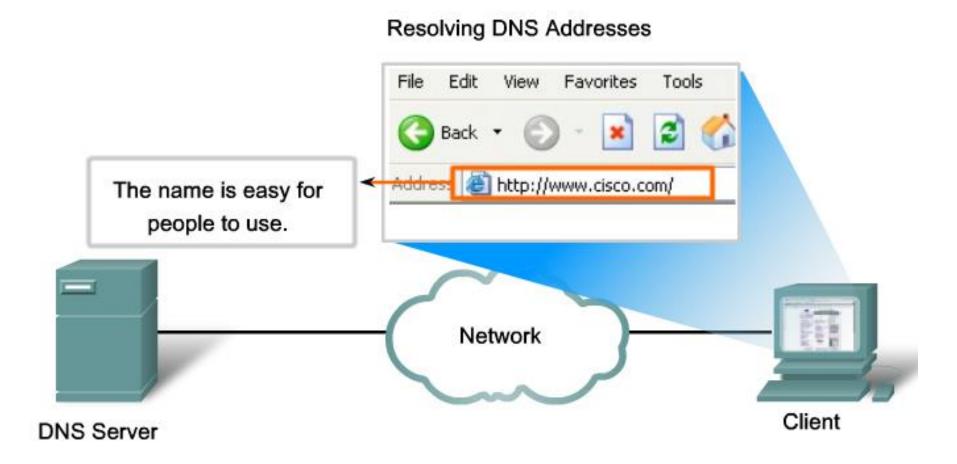
Server processes may support multiple clients.

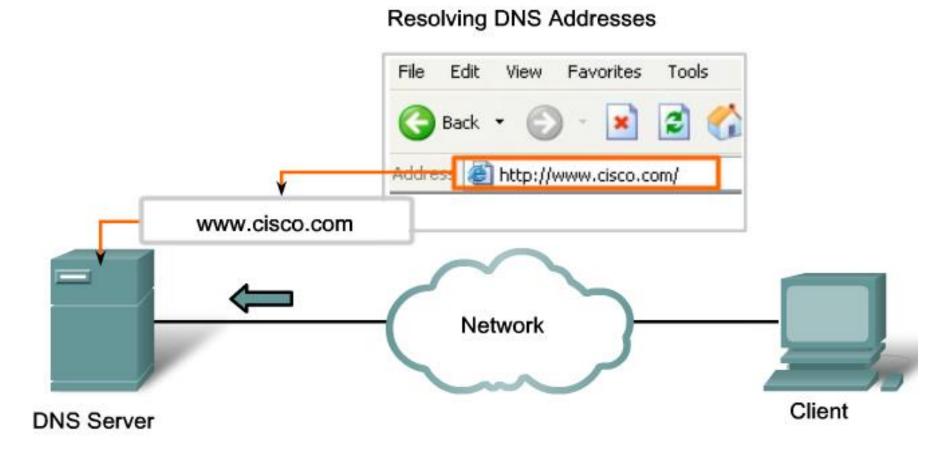


Peer to Peer Applications

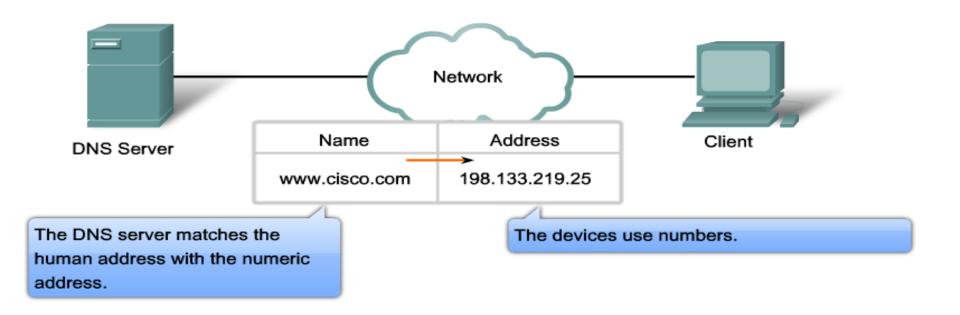
Peer-to-Peer Networking



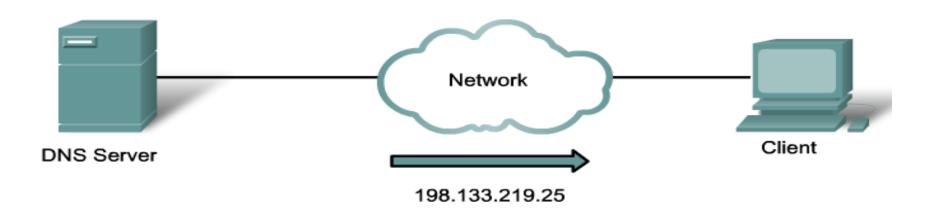




Resolving DNS Addresses

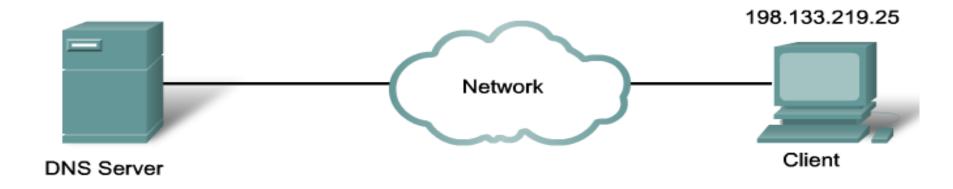


Resolving DNS Addresses



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

Resolving DNS Addresses

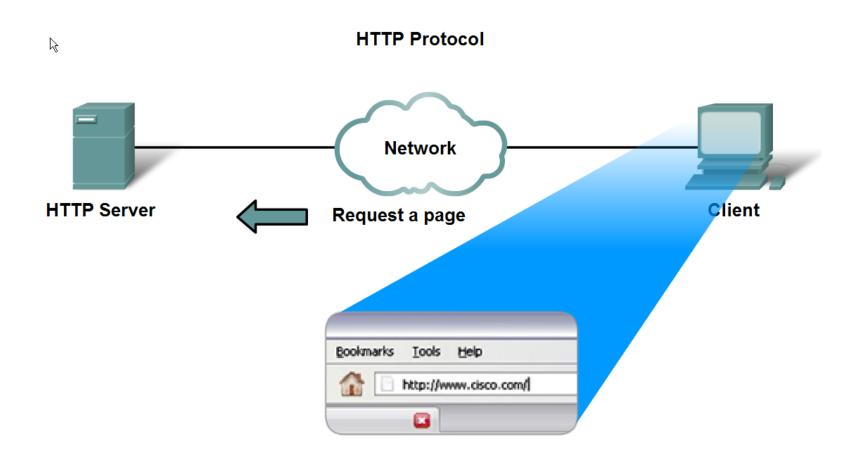


A human legible name is resolved to its numeric network device address by the DNS protocol.

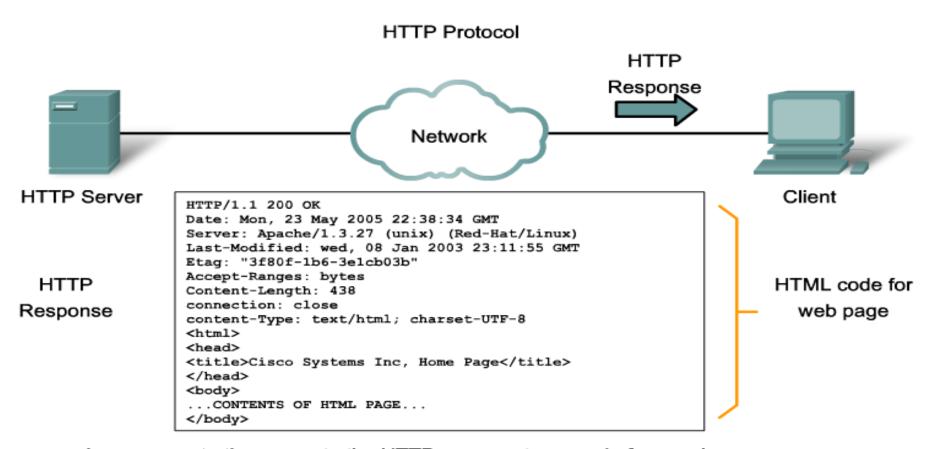
Using nslookup

```
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:
Name:
        cisco.netacad.net
Address: 128.107.229.50
```

HyperText Transfere Protocol HTTP

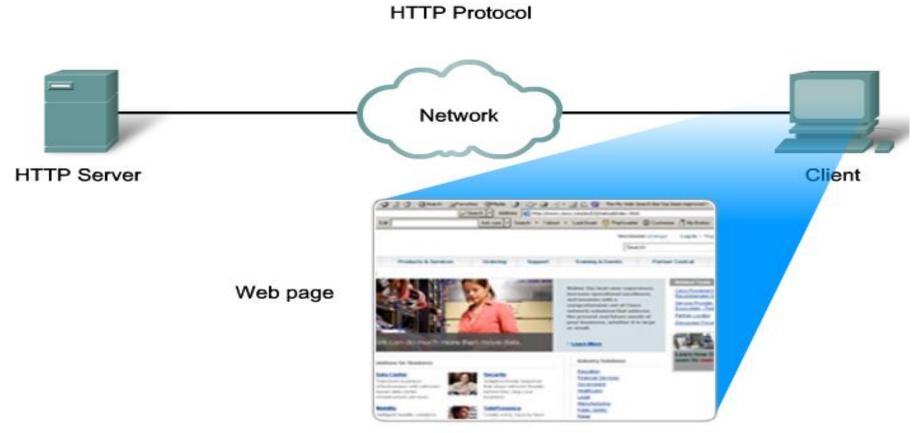


HyperText Transfere Protocol HTTP



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

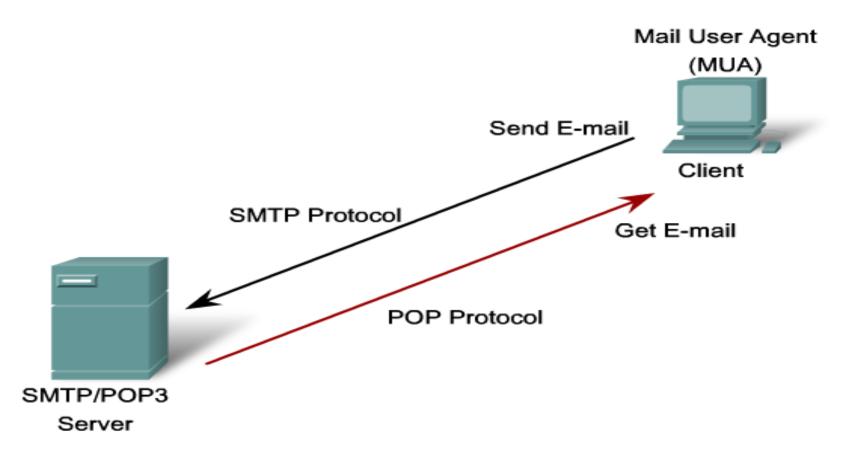
HyperText Transfere Protocol HTTP



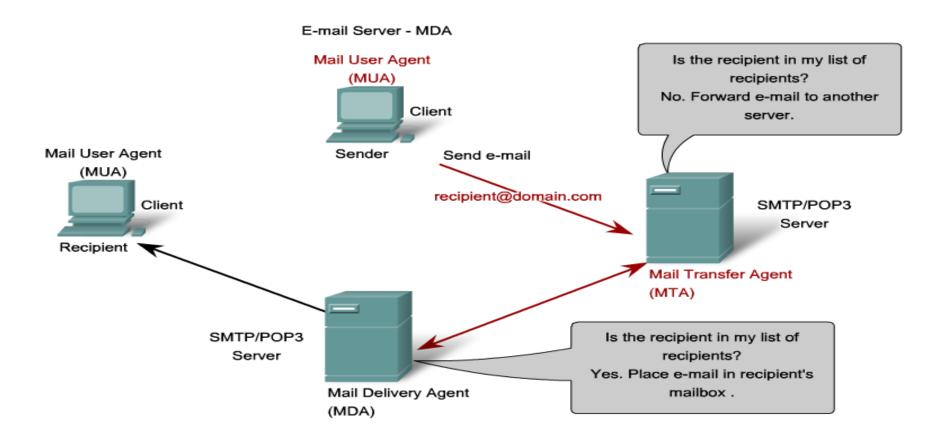
The browser interprets the HTML code and displays a web page.

Post Office Protocol POP / Simple Mail Transfer Protocol SMTP

E-mail Client (MUA)



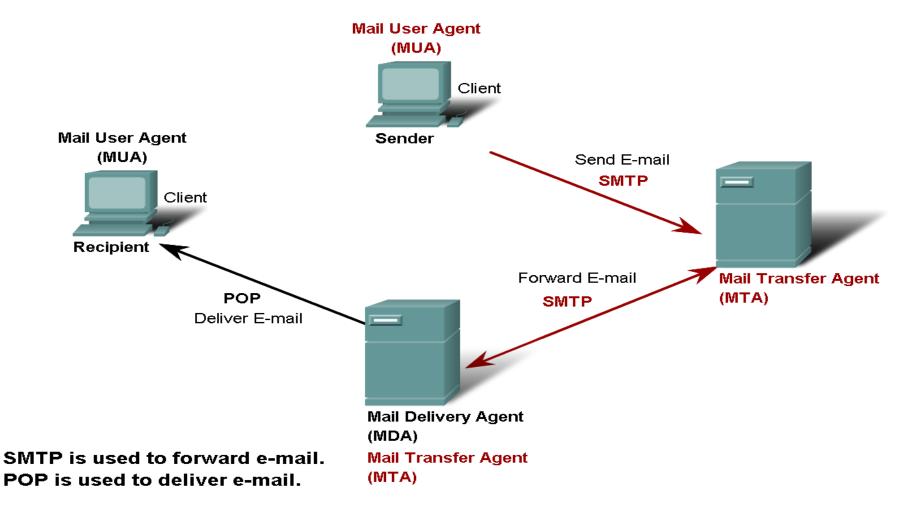
Post Office Protocol POP / Simple Mail **Transfer Protocol SMTP**



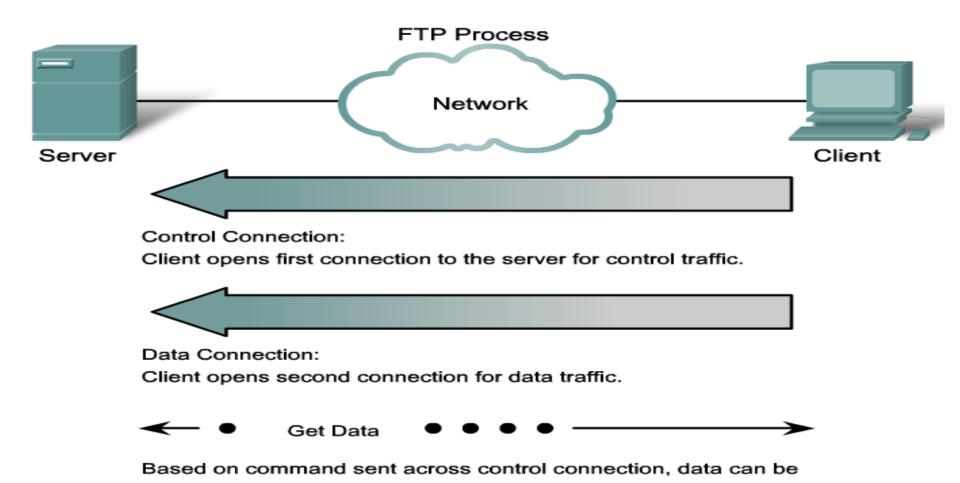
The Mail Delivery Agent process governs delivery of e-mail between servers and clients.

Post Office Protocol POP / Simple Mail **Transfer Protocol SMTP**

E-mail Server - MDA

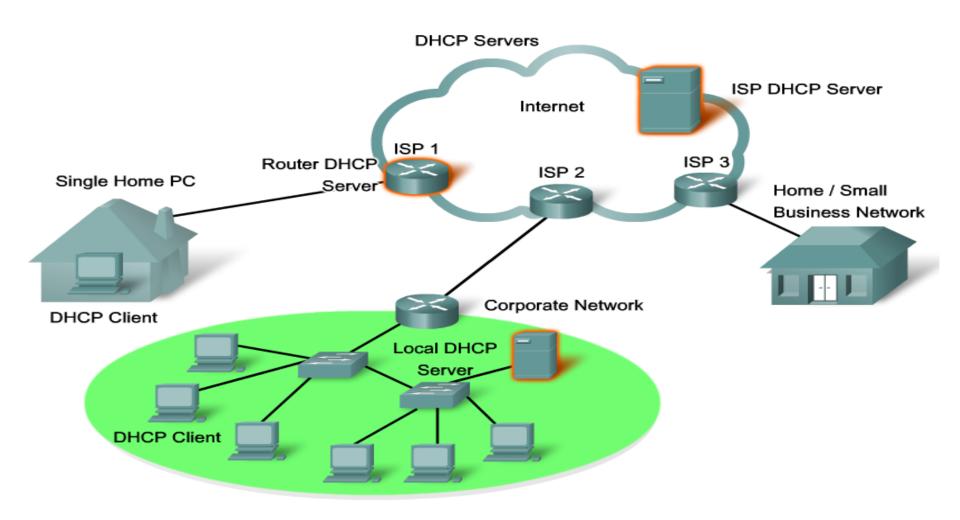


File Transfer Protocol FTP

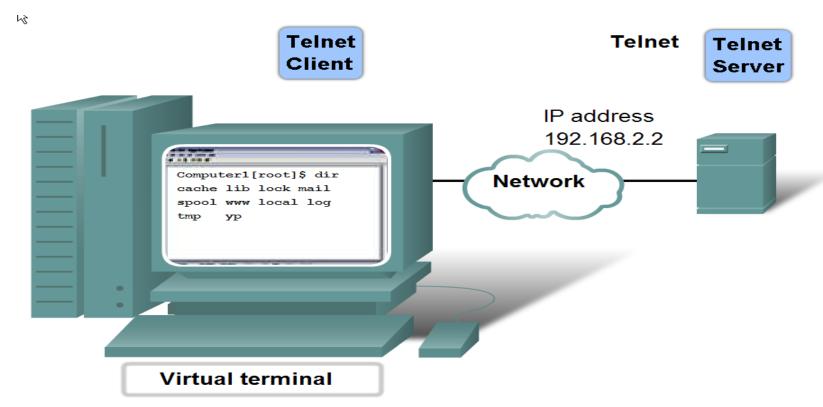


downloaded from server or uploaded from client.

Dynamic Host Configuration Protocol DHCP

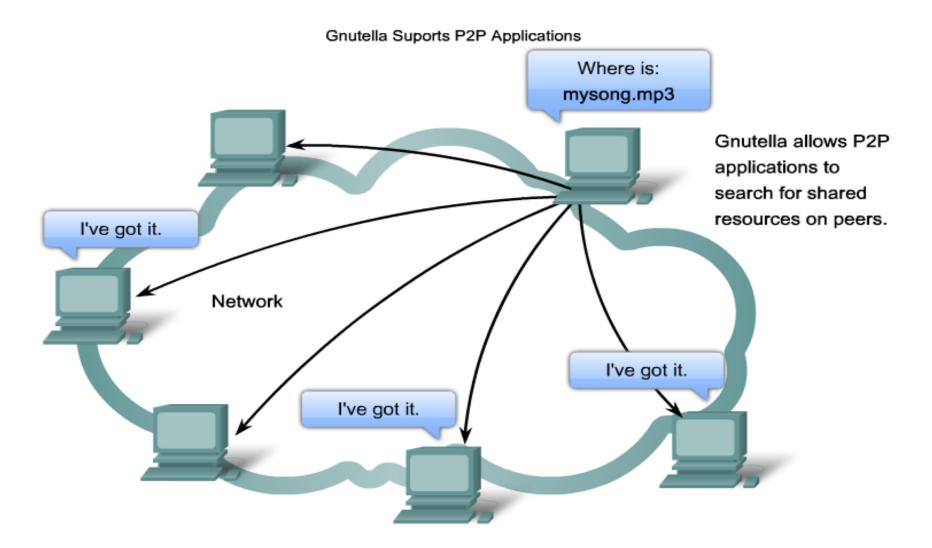


Telecommunication Network Telnet



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

