Java script

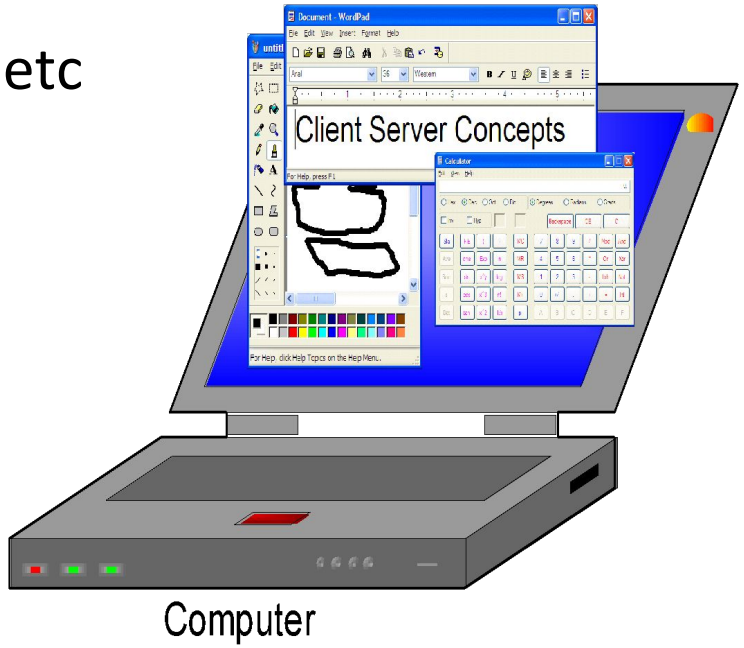
Day-1

Agenda

- Basic of computer
- Standalone system
- Client server architecture
- Web technologies
- Constituents of World Wide Web
- QnA
- Assignment

Evolution

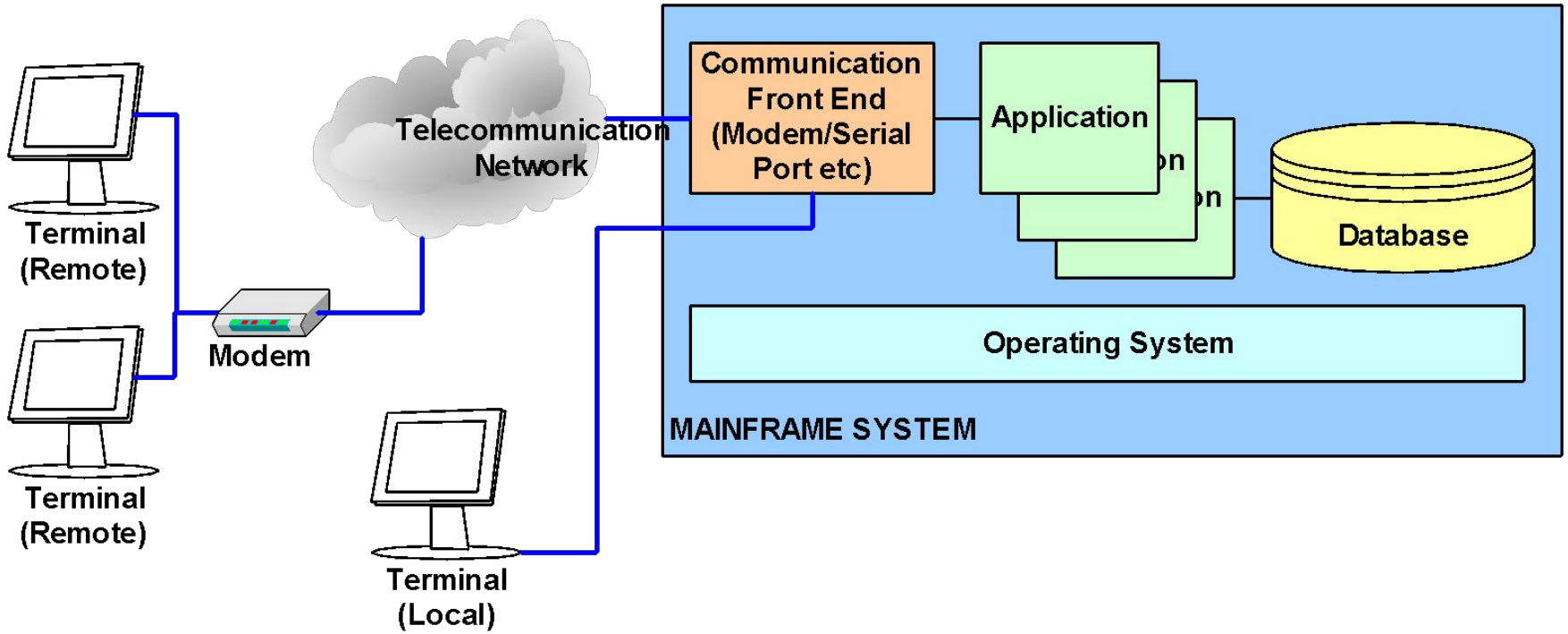
- Standalone – Single User
  - Applications and Data reside on the same computer
  - Dedicated for single user
  - Powerful and economical
  - Examples: Calculator, MS Word, etc
  - Drawback
    - Resources cannot be shared !!!



Computer

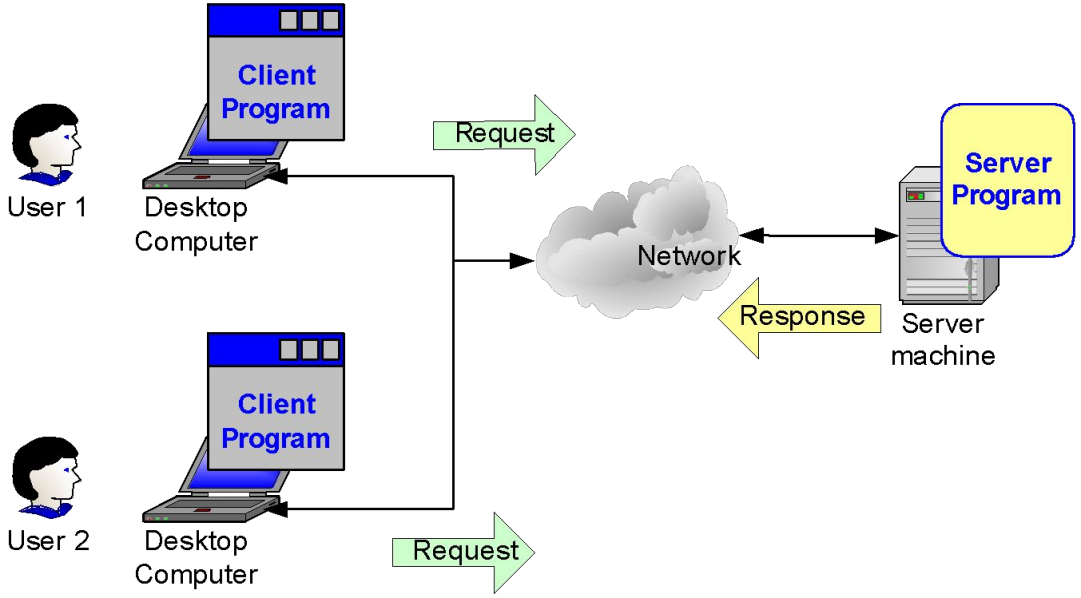
Evolution (Contd…)

- Host Centric approach
  - Applications and data components reside and execute on one centralized platform
  - Multiple users access the same application on this central platform
    - Examples: Mainframe
  - Proprietary Technology



Client Server Architecture

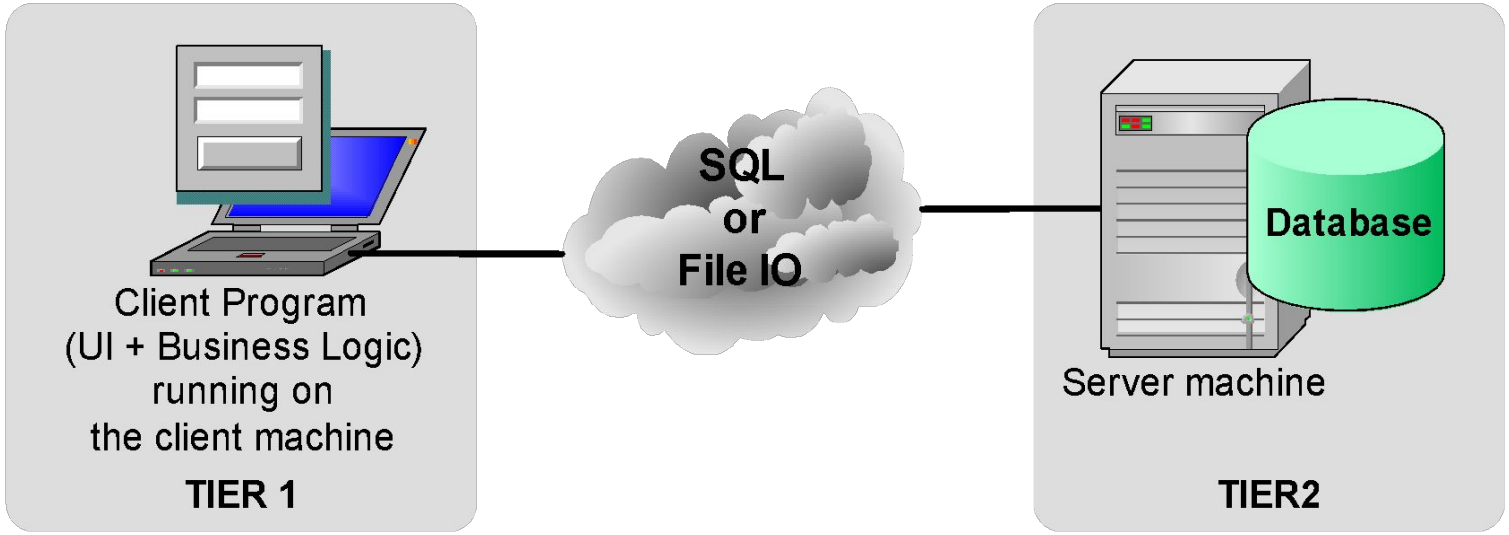
- Client/Server technology involves the client and server, both having processing capabilities.
- The client request for a service and the server processes this request and sends a reply



Client Server Application

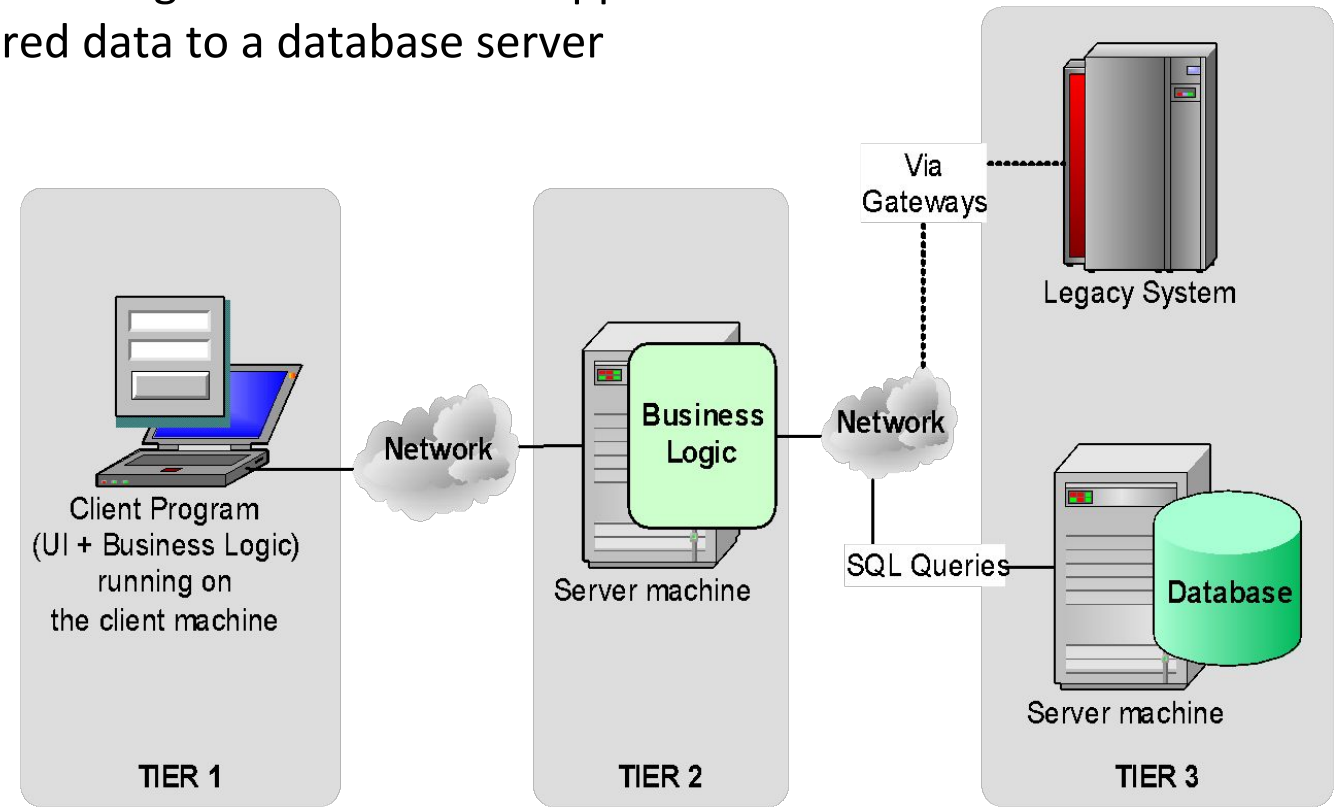
- Might be a 2-tier application, 3-tier or multi-tier application

- 2-tier Application
  - The entire application is decomposed into two sets of services
  - The client combines UI services + business services and the other data services



Client Server Application

- 3-tier Application
  - Decomposes an application into three sets of services: UI, business, and data
  - Business logic is moved to an application server
  - Shared data to a database server

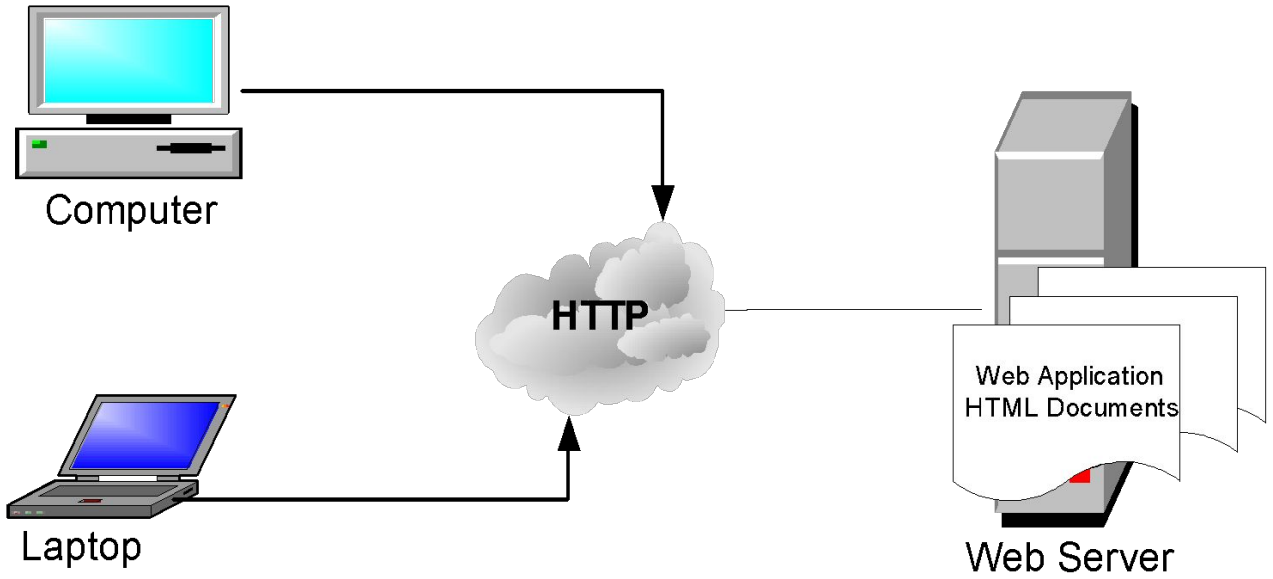


2 Tier Vs 3 Tier

	2Tier	**3 Tier**
System Administration	Complex	Less Complex
Security	Low	High
Encapsulation of Data	Low	High
Performance	Poor	Good
Scalability	Poor	Excellent
Application Reuse	Poor	Excellent
Legacy Application Integration	Difficult to implement	Yes (Via Gateways)
Hardware Architecture Flexibility	Limited	Excellent

Web Technologies

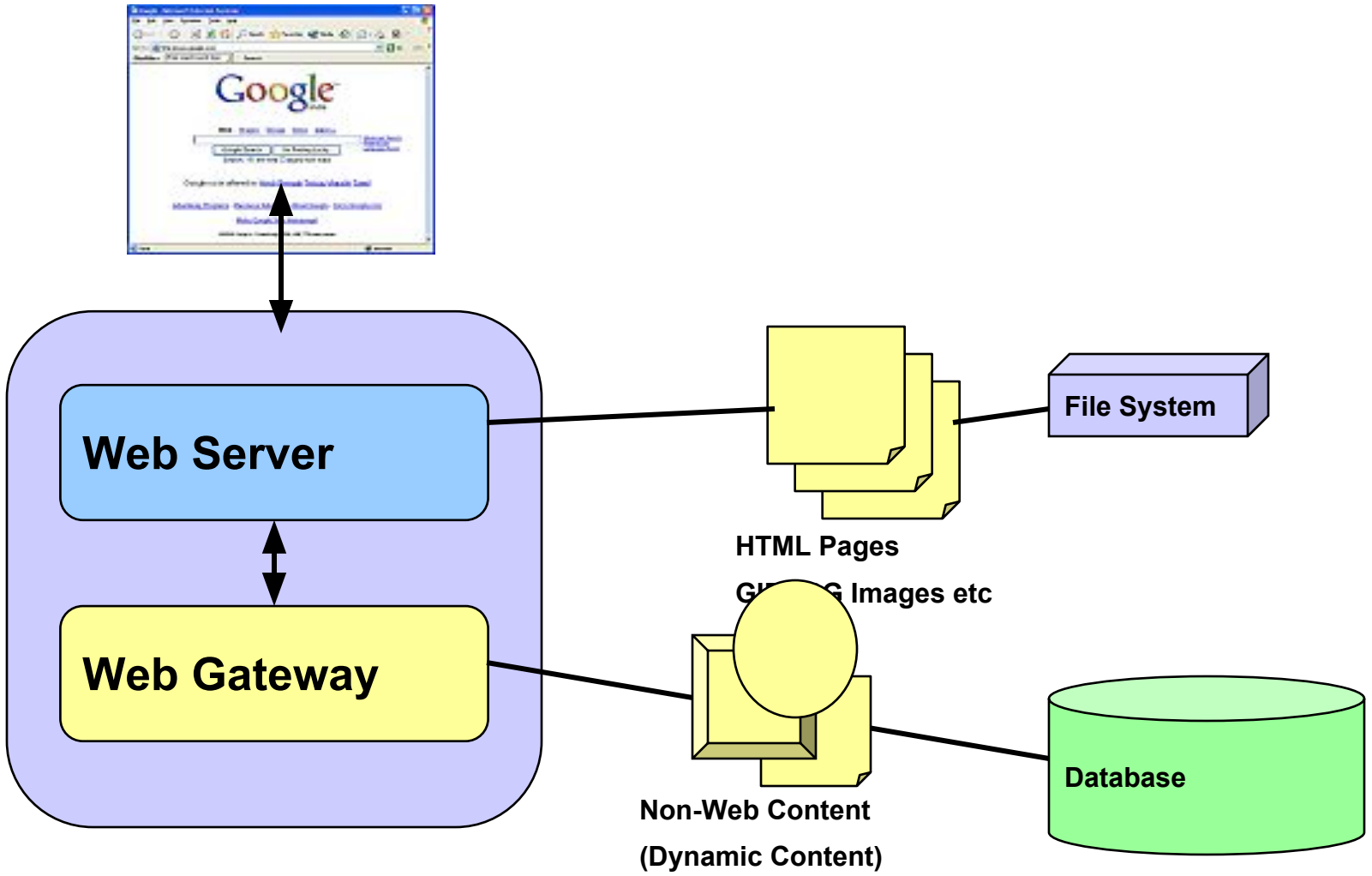
- World Wide Web is based on Client-Server technology
  - One of the most popular and dominant client server technologies today



Constituents of World Wide Web

- Web Browsers
- Web Content
- Web Site
- URL – Uniform Resource Locator
- HTTP – Hyper Text Transfer Protocol
- HTML – Hyper Text Markup Language
- Gateway to Non-Web Resources

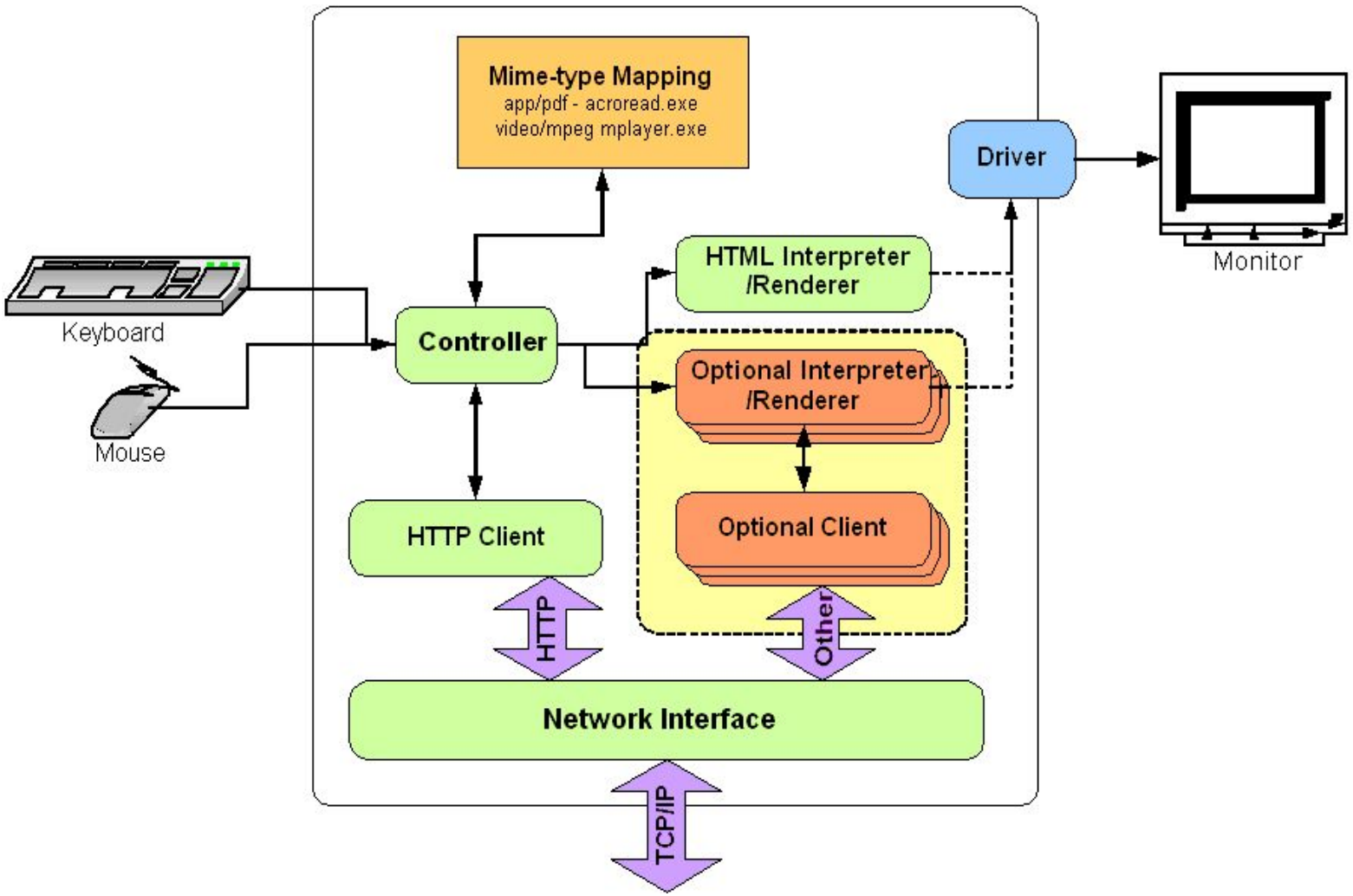
Overview


Google
Web Server
Web Gateway
File System
HTML Pages
Images etc
Non-Web Content
(Dynamic Content)
Database

MIME-Type

- Defined in 1992 by IETF
- MIME – Multipurpose Internet Mail Extensions
- Originally designed for formatting non-ASCII messages so that they can be sent over the internet via mail
- Browsers and Web Servers also rely on mime-type to determine the type of content
- Examples
  - text/plain – Plain text
  - text/html – HTML data
  - app/pdf – Adobe Acrobat Document
  - video/mpeg – MPEG format video file
- A new version called S/MIME supports encrypted messages

Web Browser Architecture



URL

- Uniform Resource Locator
- String of characters that uniquely identifies a resource

Protocol:// Host :Port/ Path

Protocol: The protocol to be used (http, ftp, gopher...)
Host: Domain Name/IP Address that identifies the host
Port: Optional port (if not specified assumes default port for protocol)
Path: Path of the resource on the specified host

Example:
http://server1.mydomain.com/about.html

Protocol = http
Host = server1.mydomain.com
port = (default for http) 80
Path = /about.html

Hyper Text Markup Language (HTML)

- Hyper Text Markup Language
  - Uses markup tags to format text and graphics
  - Allows creating of hyper links
  - Allows users to navigate through the documents on the web
  - All browsers can understand HTML and render it

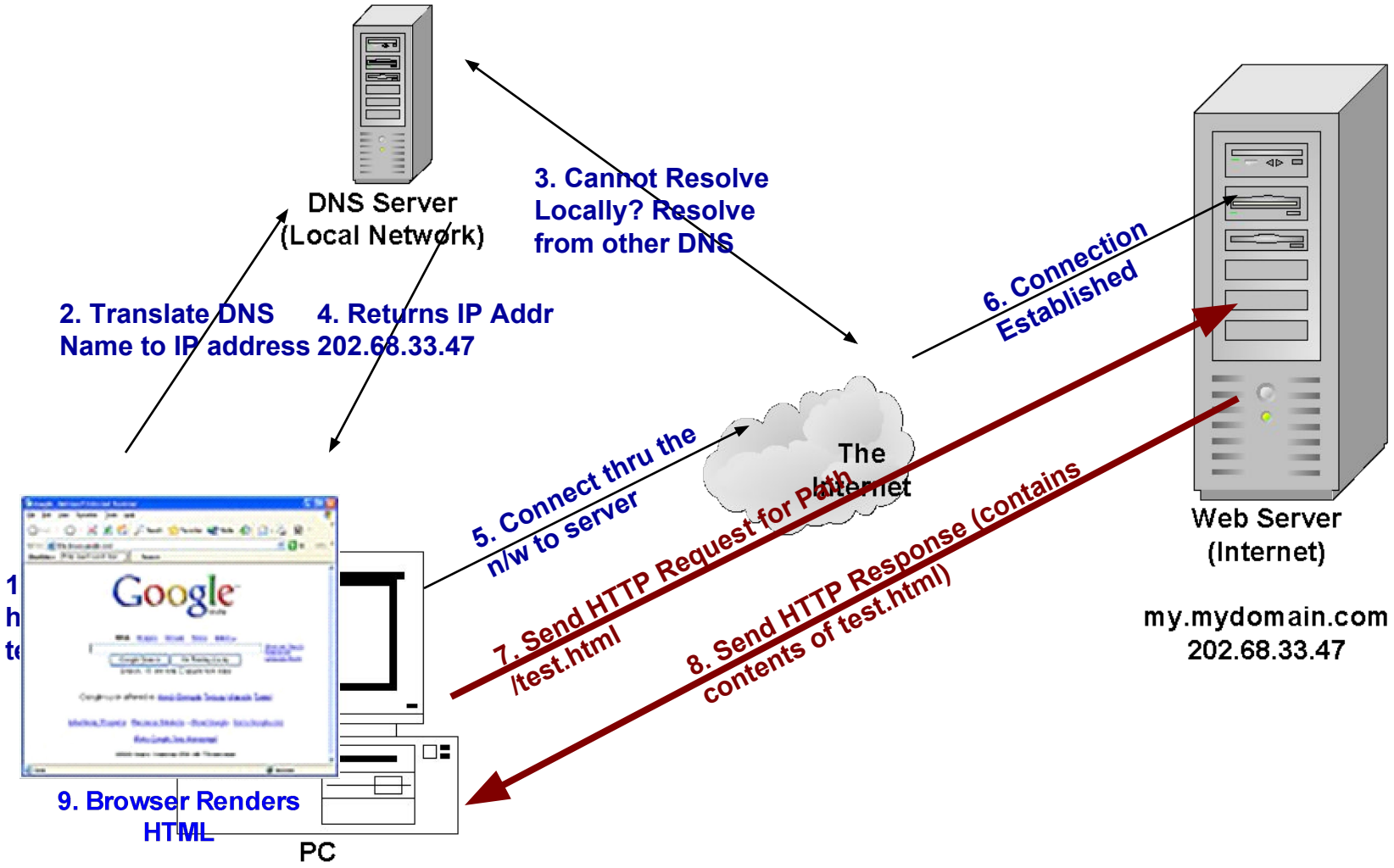
Web Content - Types of Content

- **Static Content**
  - Content resides in a file
  - Author determines the content at the time of creation
  - Each request will return exactly the same data (Content doesn’t change)
  - Example: HTML files, gif/jpeg files
  - Disadvantage: Not possible to implement applications
- **Dynamic Content**
  - Created on the fly by a web server upon a request to reflect the current info
  - Content may vary for each request
  - Example: A typical web application (Banking etc)
  - Disadvantage: More processing power required on the server
- **Active Content**
  - Server returns a run-able copy of the program
  - Browser executes the program locally on the client machine
  - May need continuous information feed
  - Examples: Java Applets, Active-X controls for IE
  - Disadvantage: Possible Security risks

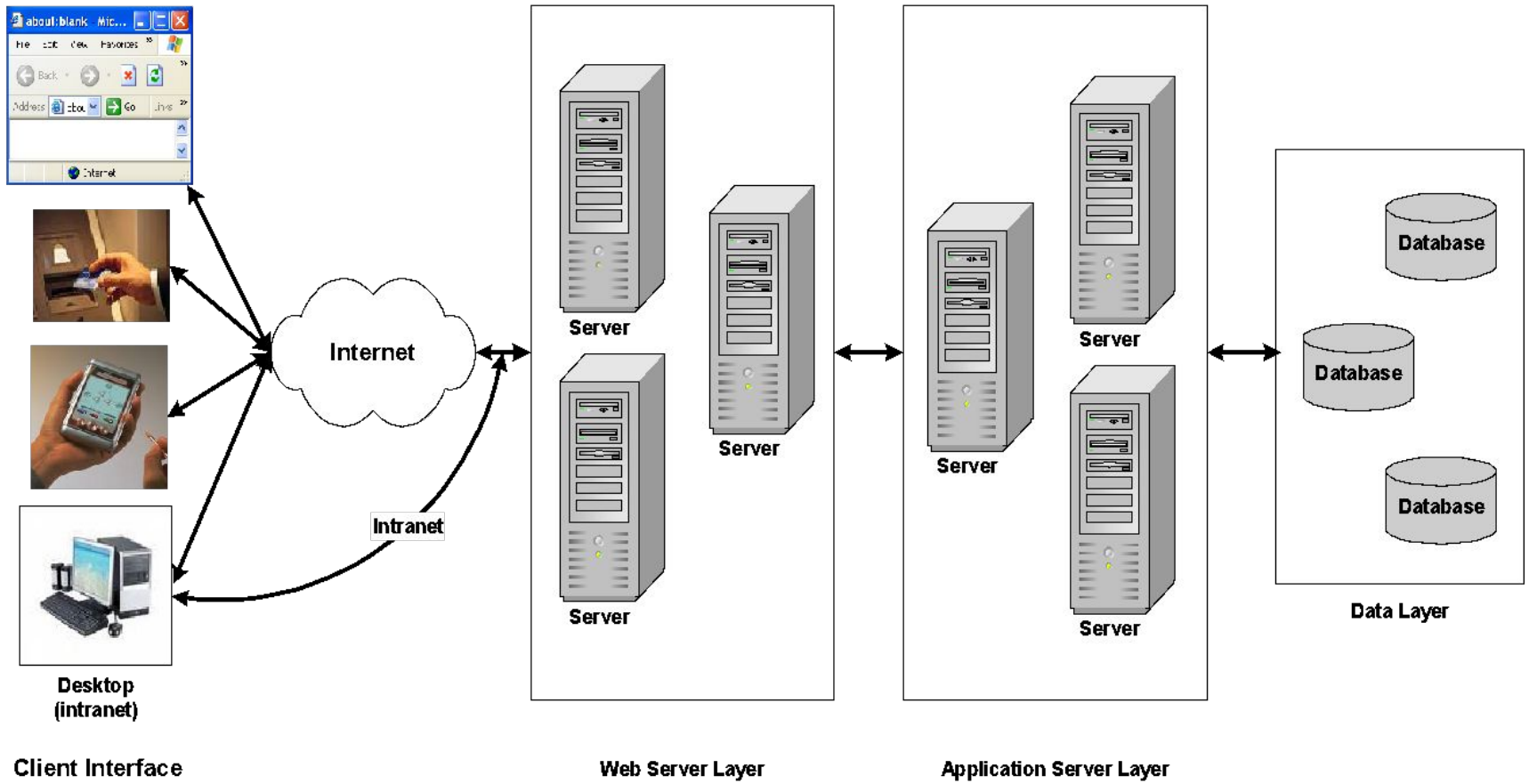
Web Server

- Understands HTTP Protocol
- It intercepts HTTP request from the client
- Built on similar architecture as a classic client -server architecture
- Offers different HTTP services like GET, POSTetc.
- Uses thread pools to service multiple concurrent requests

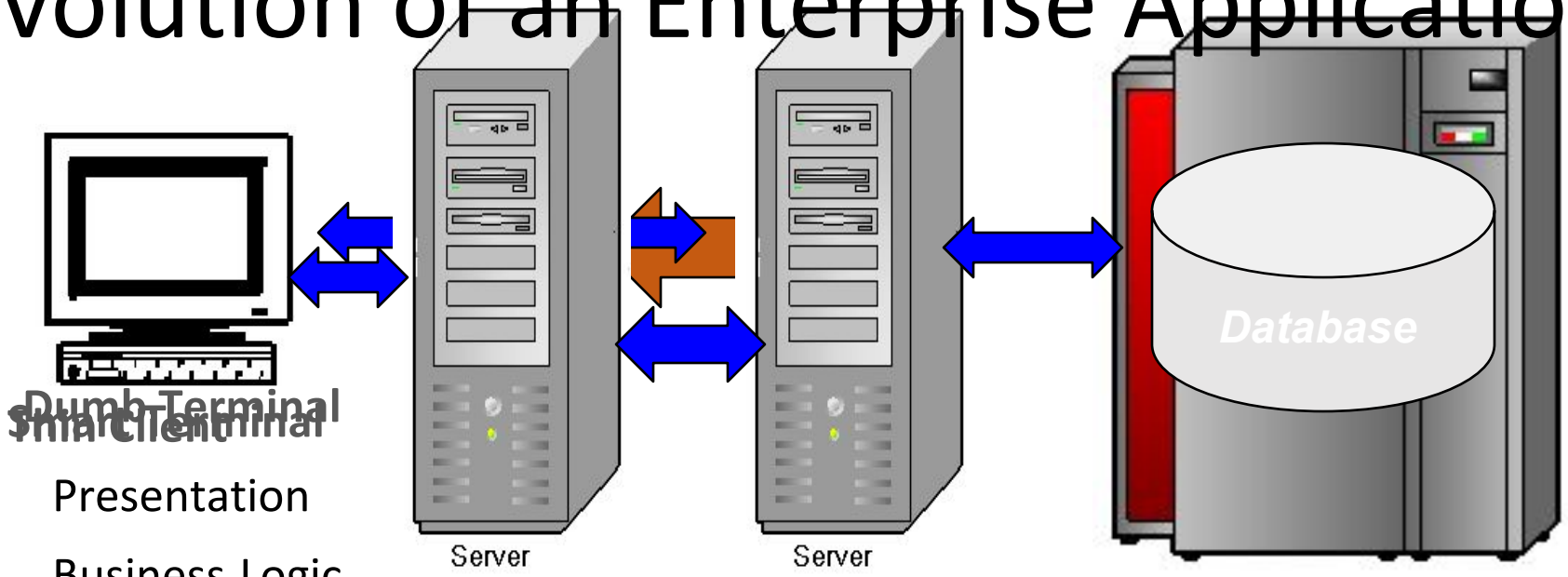
Working of a Web Server



Web Application – A Big Picture



Evolution of an Enterprise Application



N-Tier

- Example- Wep Apps on Sparsh, like Leave System / Performagic
- Order fulfillment Application accessing Customer Information
- Advantages
  - More loosely coupled
  - More reusable
  - Business dependence more easily
  - Zero client management
- Disadvantages
  - Complexity introduced in the middle tier
  - Difficult to maintain and upgrade

Any Questions ?

Thank you

Assignment

- What is standalone application
- What is web application
- What is client-server architecture
- What is MVC architecture
- What is web server
- What is application server