

# Server Client

Simanta Mitra

# SERVER

- Program that **provides SERVICES** (i.e. useful functionality). Typically, keeps running forever. Typically, *the computer* that runs the server program is called a server. Many server programs can be running on a single computer.
- Examples of services:
  - database services
  - runs a web site

# DAEMON

- a program that runs in the background (not interactive)
- keeps running (in a loop) waiting for services to be requested and then providing a service
- usually built for a very specific purpose
- Servers are usually run as daemons

# CLIENT

- Program that connects to a SERVER computer - and then to a program that provides services and **USES those services**. Typically, the computer that runs the client program is called a client!
- Multiple clients can typically connect to a server
- Examples:
  - Web browsers on a computer connect to web servers on other computers and is provided with web pages.

# MACID, IP ADDRESS, HOSTNAME

- **MACID** is a unique id that is HARDCODED on every computer (or internet capable device). Already there when you buy the device.
- Example: c8:bc:c8:9b:c4:0f for ethernet card of a computer.
- Used by lower protocols to uniquely identify a device.
- **IP ADDRESS** is an address assigned to **computers connected to the internet**. Typically assigned when connecting to the internet.
- Example: 129.186.252.23
- **unlike IP address, HOSTNAME** is a human-readable address (like [www.google.com](http://www.google.com)). Servers typically have hostnames. Ask SSG to create hostnames for your computer.

# DNS, localhost

- **DNS (Domain Name Server)** - is like a phone book.
  - Maps Hostnames to IP addresses.
  - Can map multiple hostnames to the same IP address.
  - When you want to connect to a website by typing in a hostname, your computer will find the IP address by asking the DNS.
- **Localhost** - each computer uses the hostname *localhost* to refer to itself!

# PORT

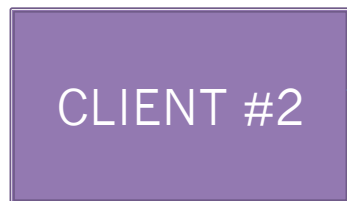
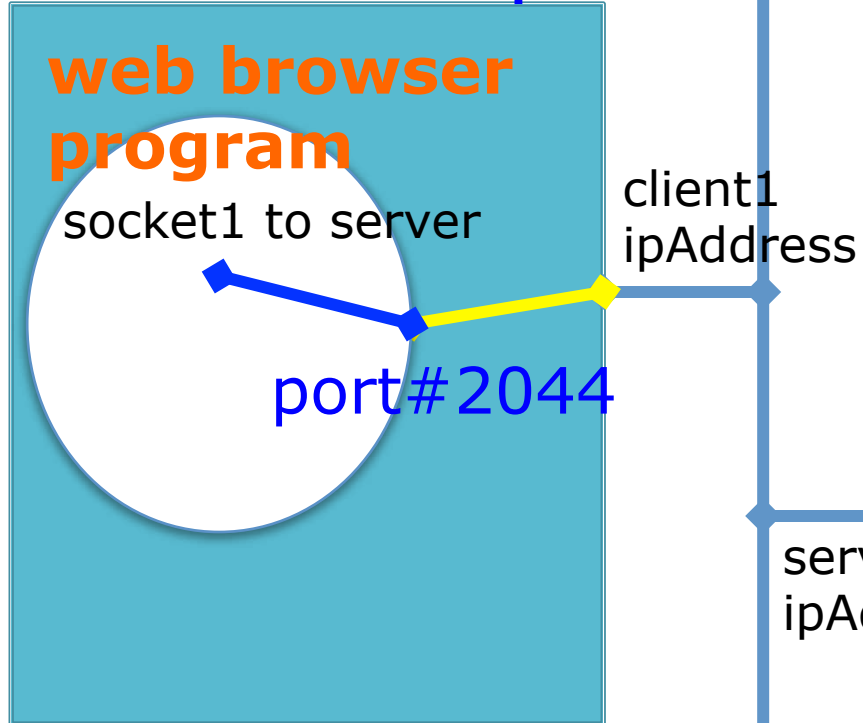
- This is a **NUMBER** that refers to a **specific program** running on the computer.
- Many port numbers are reserved.
  - 80: http
  - 23: telnet
  - 110: pop3 (for email delivery)
- You will be able to create ports only from 1024 onwards.
- Once a port is being **used by a server**, you cannot use that same port for other programs.
- Multiple clients can talk to a server through that port.

# SOCKET

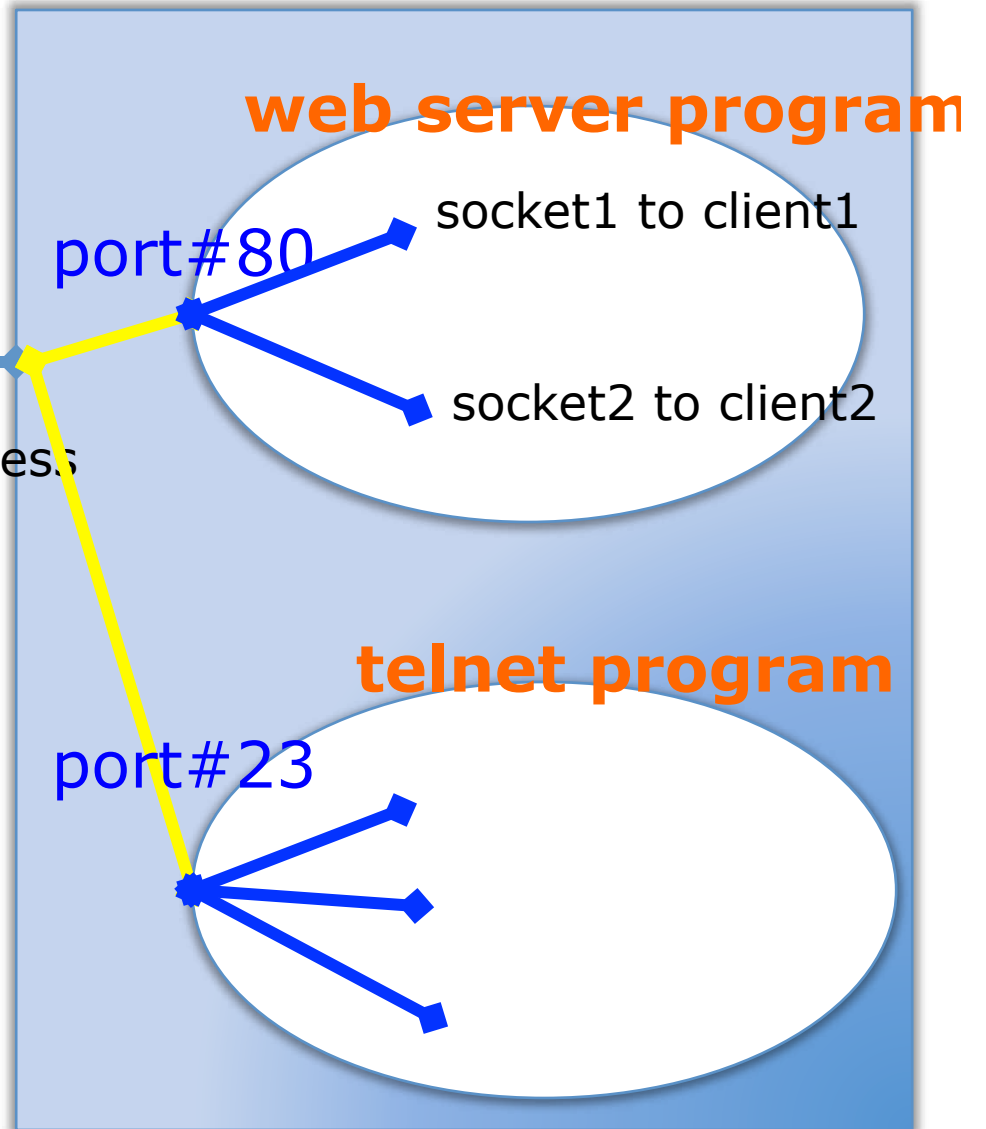
- A socket contains **connection information** between two computers
  - LOCAL ADDRESS
    - local computer's IP address
    - local program's port#
  - REMOTE ADDRESS
    - remote computer's IP address
    - remote program's port#
  - PROTOCOL
    - this means the "LANGUAGE" or "RULES" that the two computers will use to communicate.
    - typically this is TCP/IP protocol.



# Client1 computer

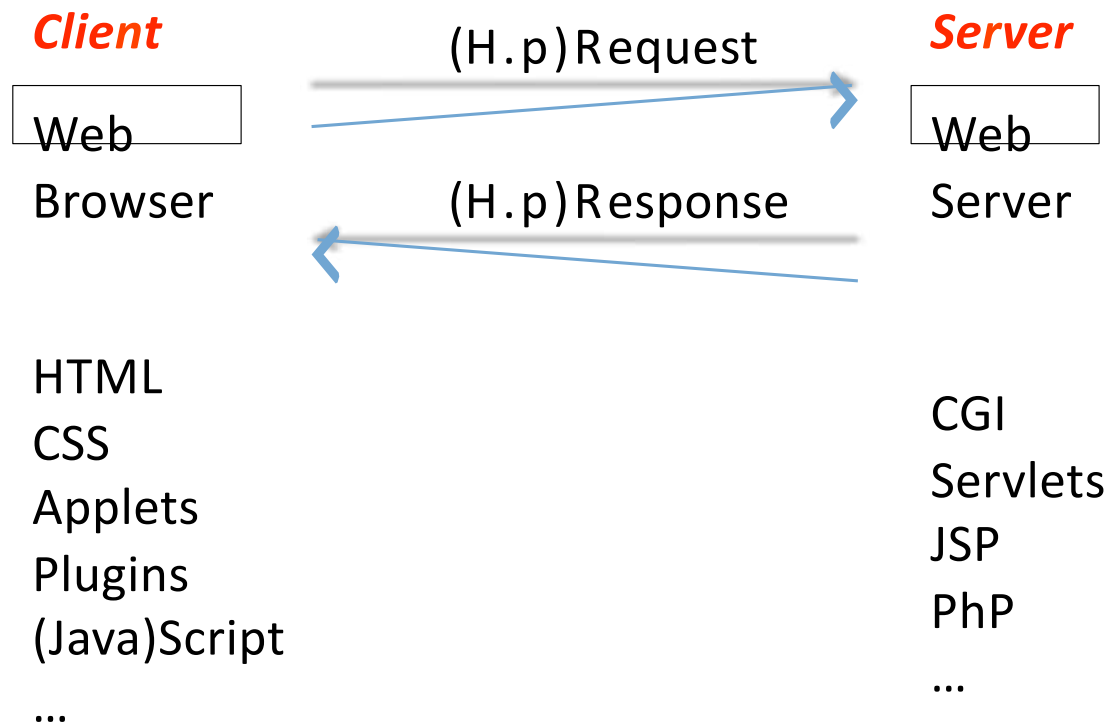


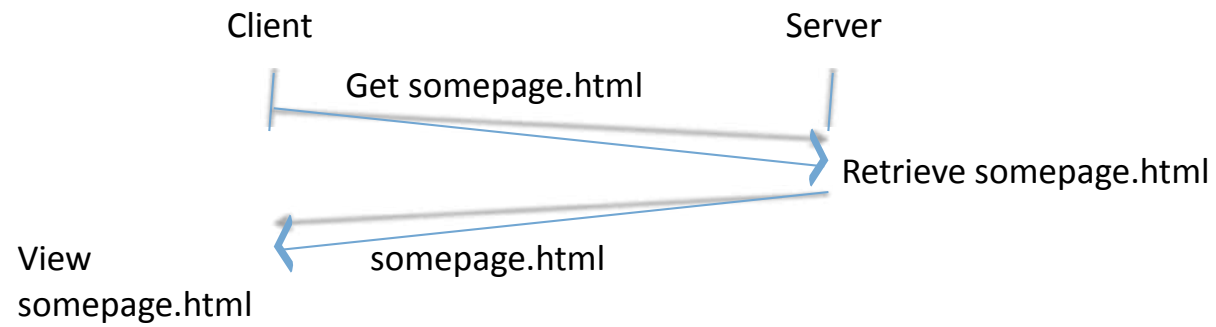
# Server computer

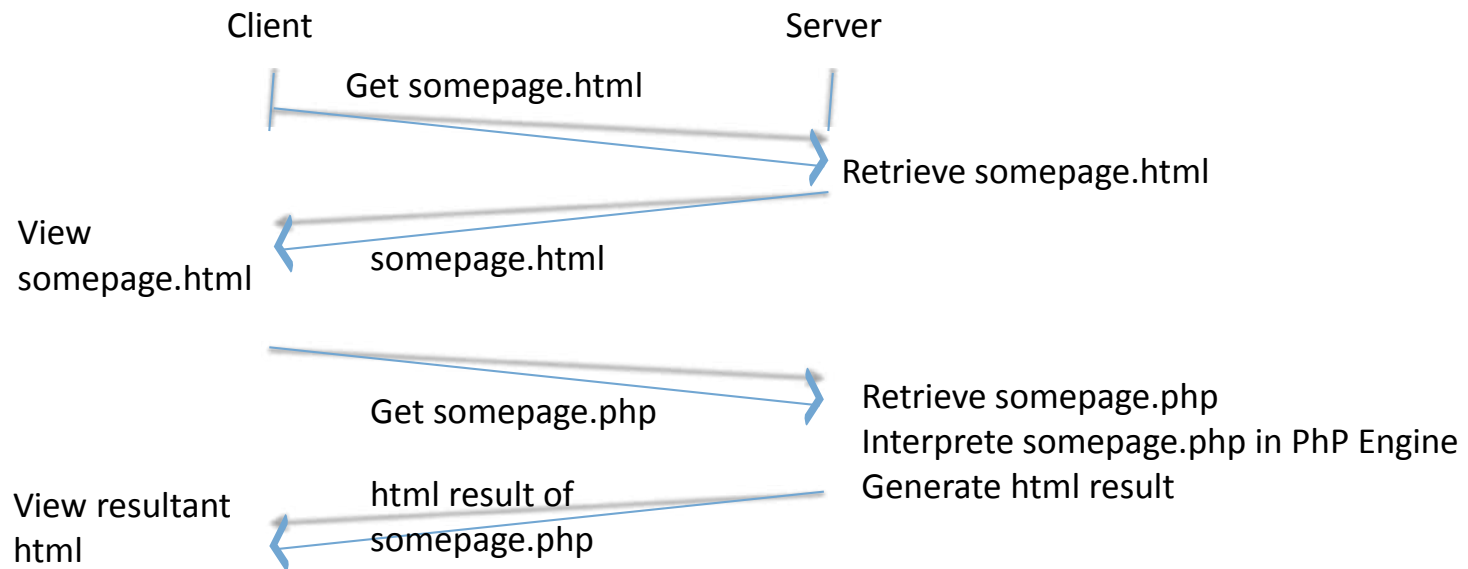


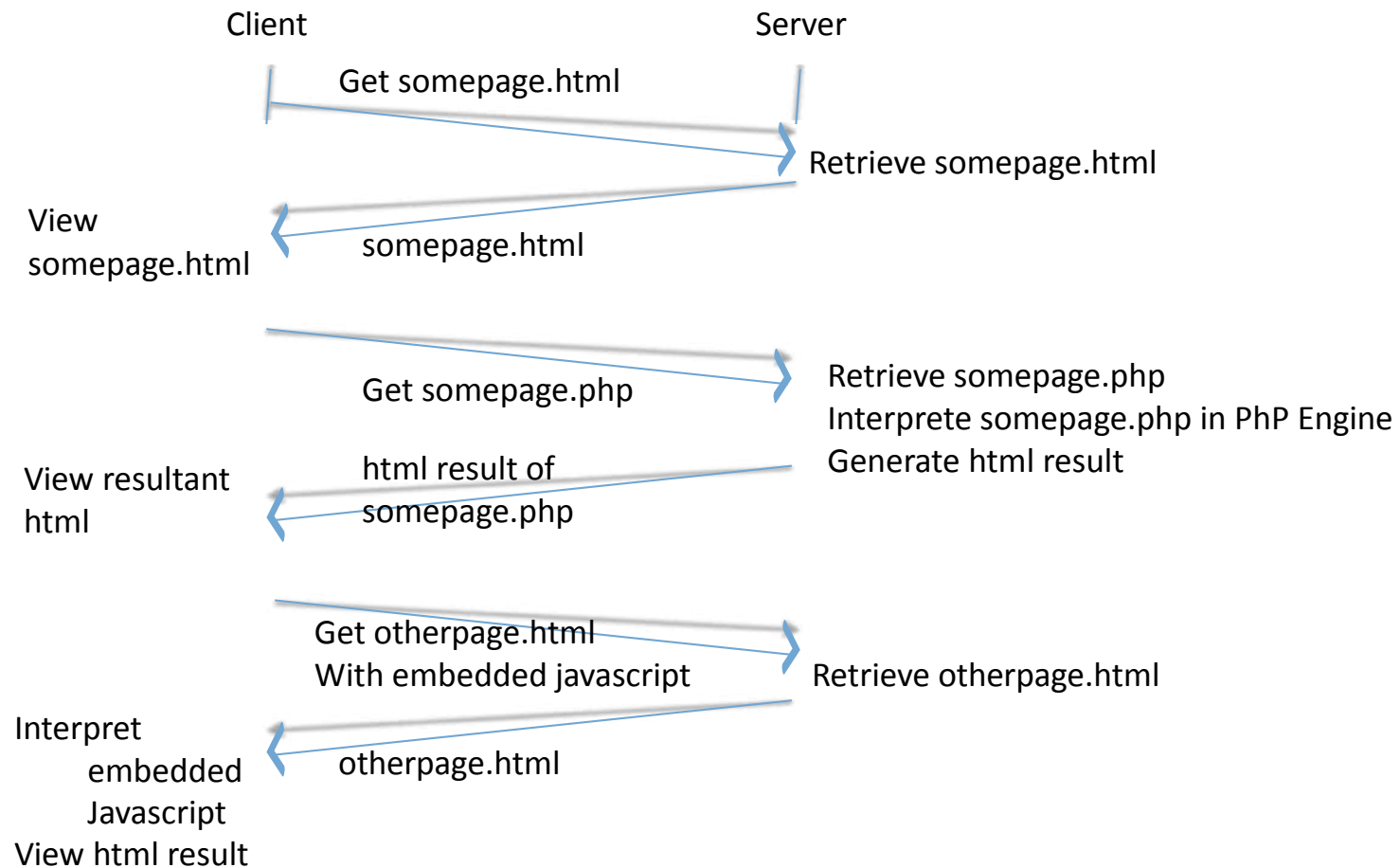
SHOW EXAMPLES

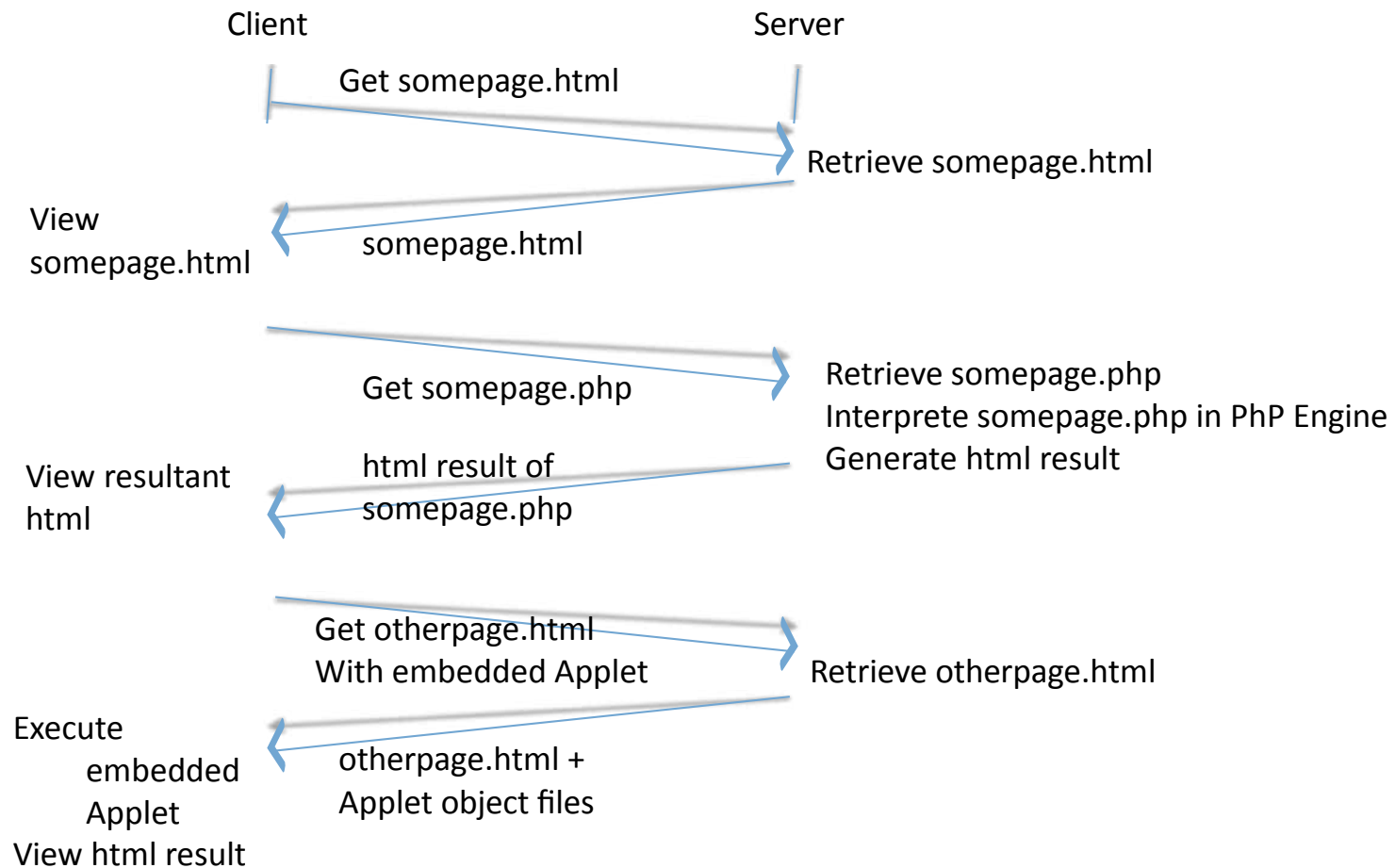
# **WEB SERVER AND CLIENTS**













# misc

- HTML
- DOM
- SHOW SAFARI AND HTML AND DOM ETC