Overview of Client-Side and Server-Side Interactivity

CGT 356

Web Programming, Development, & Database Integration

Server-Side Technologies

- Client – Side
- Server – Side

Client-Side

- *Def:* Applications that run on a user's machine and need a server to do some processing
- Typically refer to a ***user's*** computer as the client
  - A student browsing the web is an example
- Any web browser, such as Chrome, is a client application that runs on a client machine
  - Chrome interprets HTML on the client machine, thus HTML is a client-side technology

Client-Side

- Prerequisite for this course dealt primarily with client-side technologies
- Other client-side technologies
  - HTML & HTML5
  - JavaScript & jQuery (anything JavaScript based)
  - VBScript
  - Jscript
  - Java
  - XML & XSL
  - ActiveX
  - Flash
  - Sound
  - There are more

Server-Side

- *Def:* Some **event** that occurs on the server of a client-server system.
- Servers typically reside in a dungeon deep below the earth's surface with guys like Egor monitoring them.
  - Yes Master, Yes Master… I'll install the ISAPI filter to enrich our web content so that it will be dynamically driven… Yes Master
    But Egor has geek glasses, you know those thick black frames with tape in the middle… And he's walkin around like Yes Master… Look for him on campus

Server-Side (cont.)

- Servers reside in a room and are usually not seen
  - Temperature regulated
  - Cables galore
- Usually do not ‘use’ a server once it is set up

Server-Side (cont.)

- Typically referred to as back-end technologies
  - Depends on the context
    - HTML could be the front end generated by an PHP back-end
    - PHP could be the front-end with a database backend
      - When you say this, you are typically talking about PHP generating the HTML front-end
- Other Server-Side Technologies
  - PHP
  - ASP.NET
  - JSP
  - CGI
  - ISAPI (Microsoft)
  - Databases
  - There are many, many, many more…

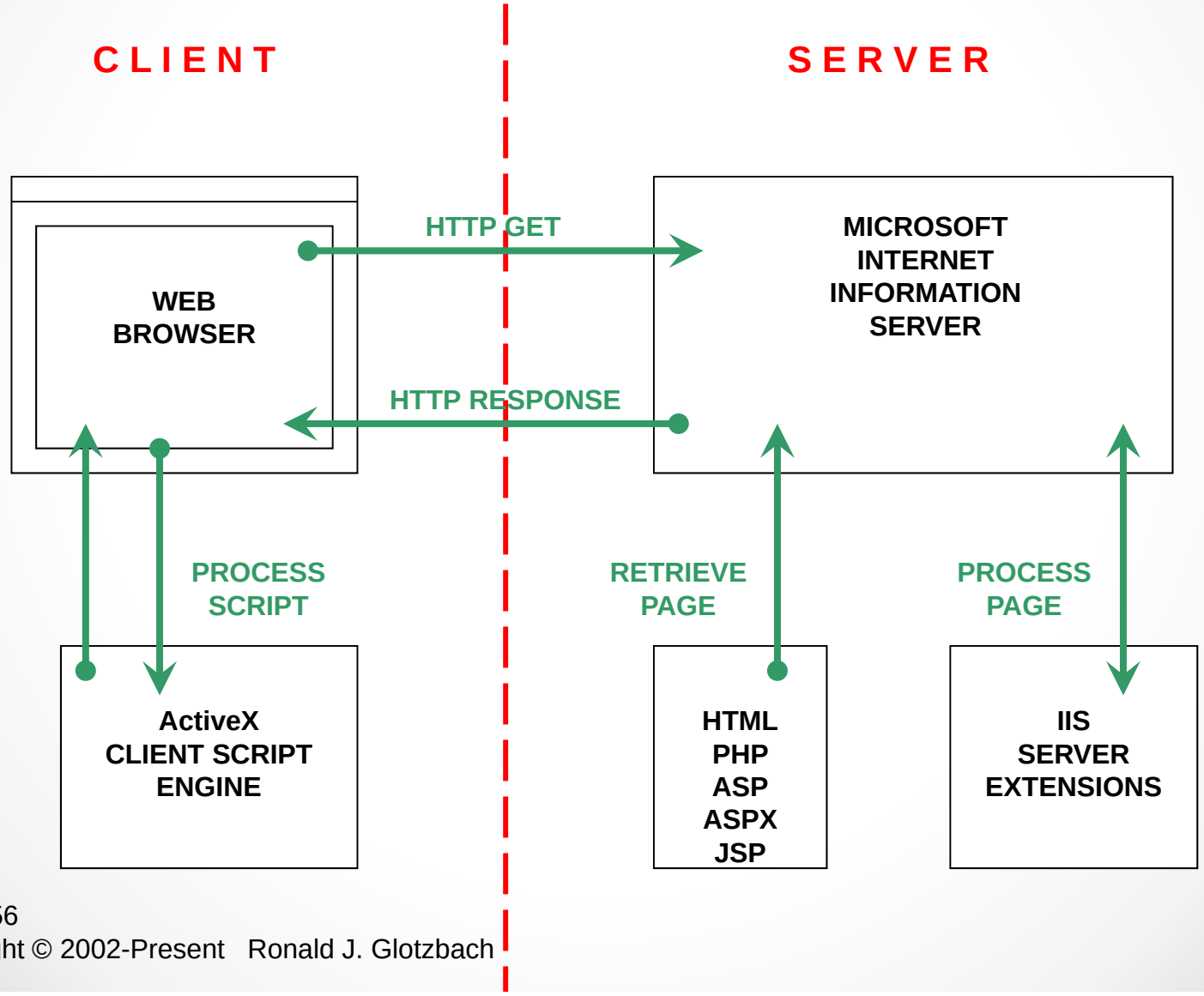
Server-Side (cont.)

- Languages that can be used on server-side technologies
  - Java
  - PHP
  - VB
  - VBScript
  - XML / XSL
  - JavaScript
  - C
  - C++
  - SQL
  - C#
  - Perl
  - Many many more

Server-Side (cont.)

- This class will focus primarily on
  - PHP (the pages you create)
  - Databases (SQL) (the data you deliver to the browser)
    - MySQL (the specific database management system we use)
  - XML (a ubiquitous transfer language for Web and other means

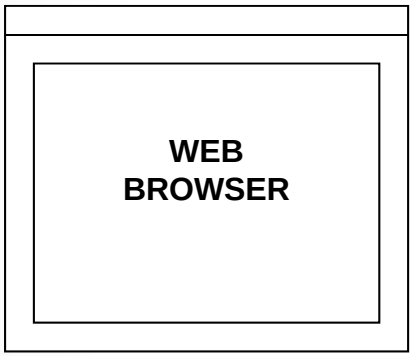
Server-Side (cont.)



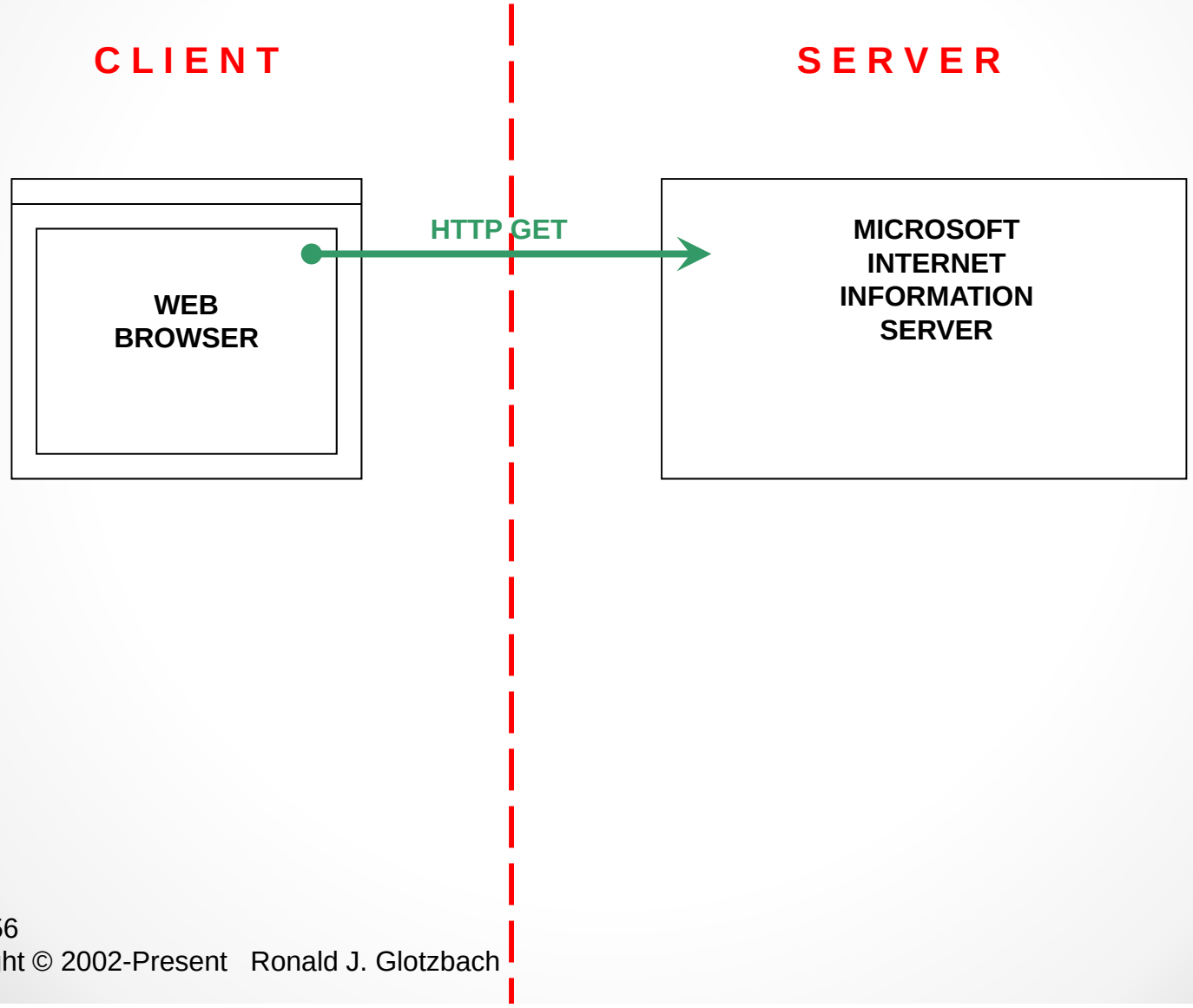
Server-Side (cont.)

CLIENT

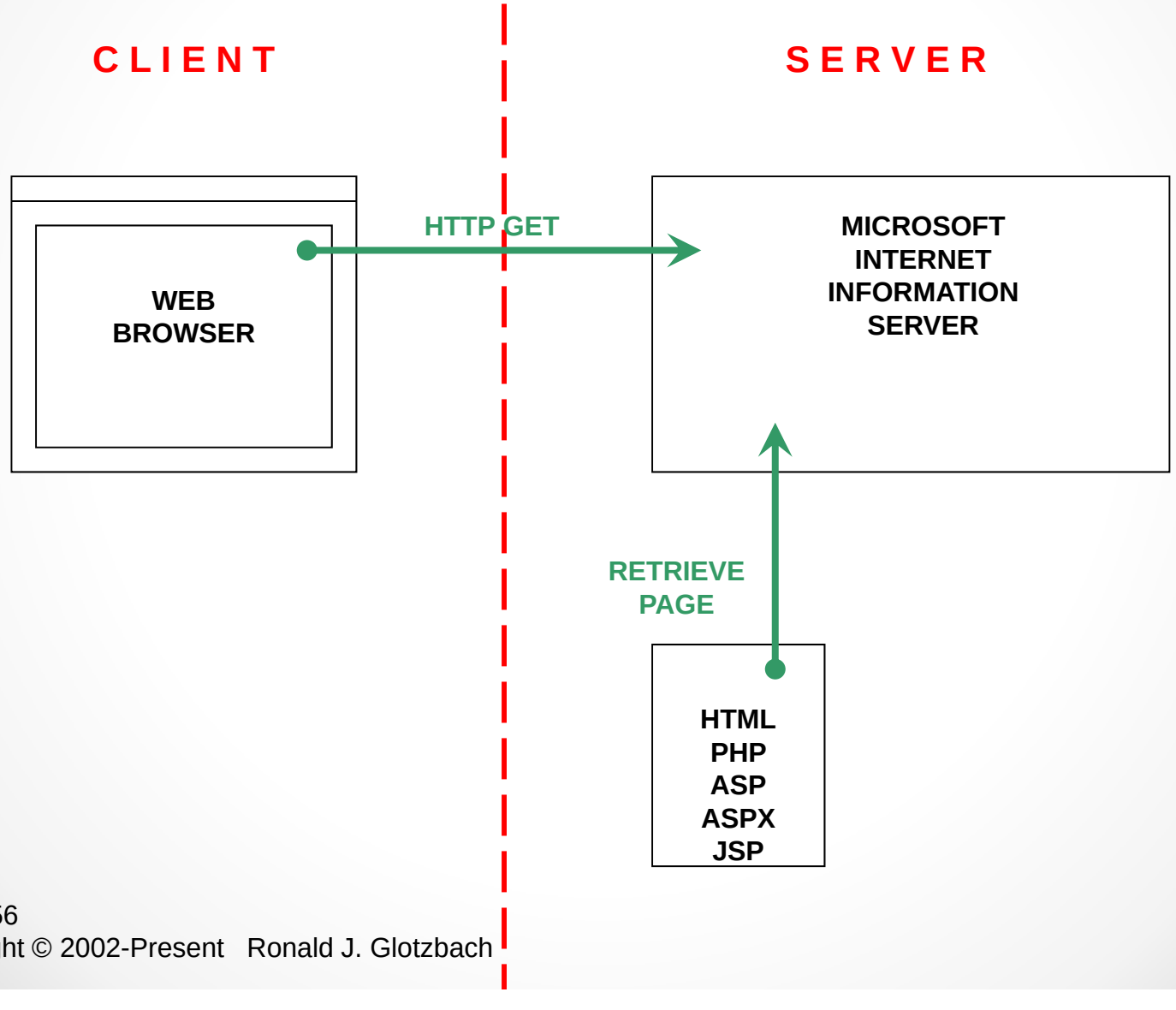
SERVER



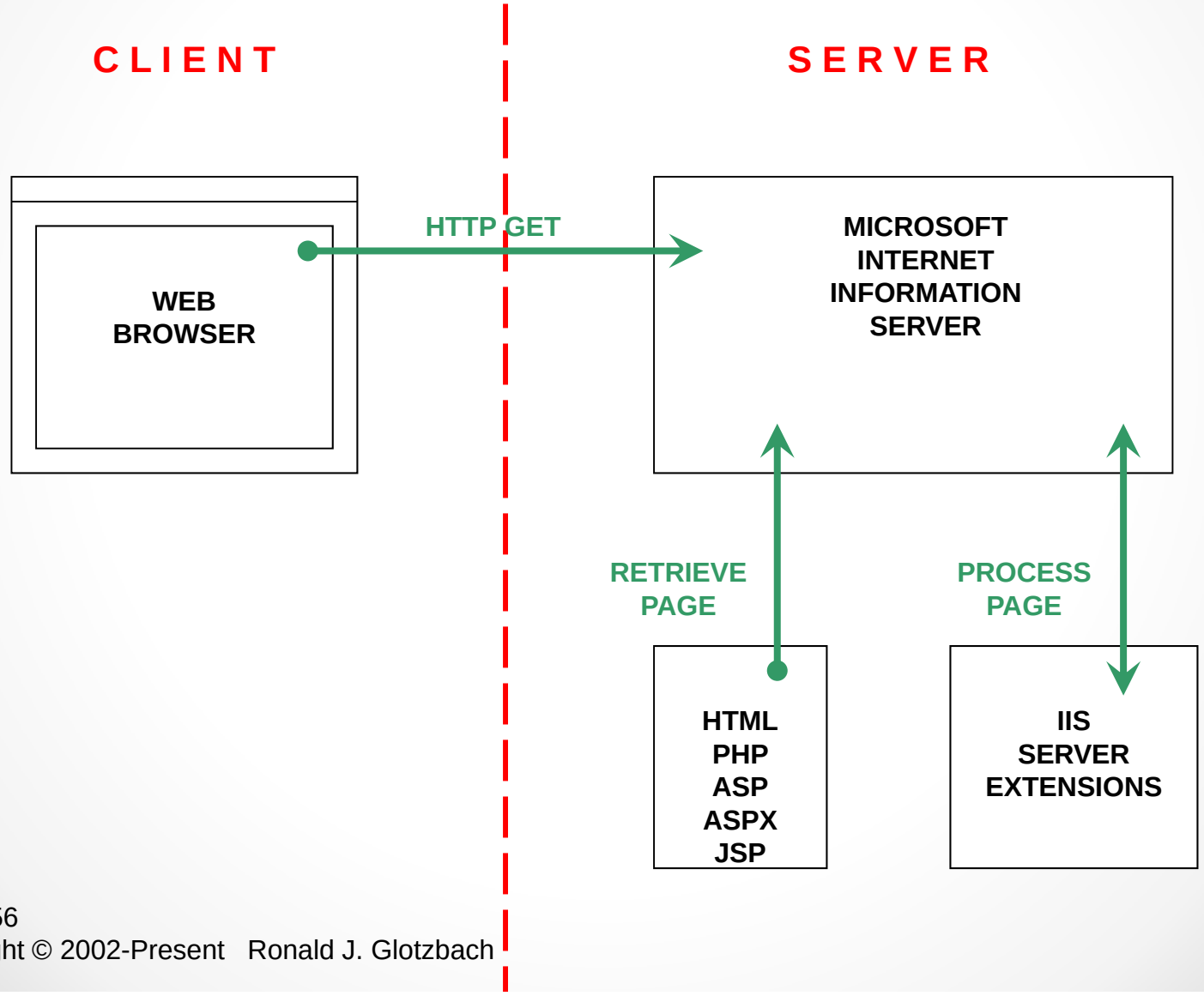
Server-Side (cont.)



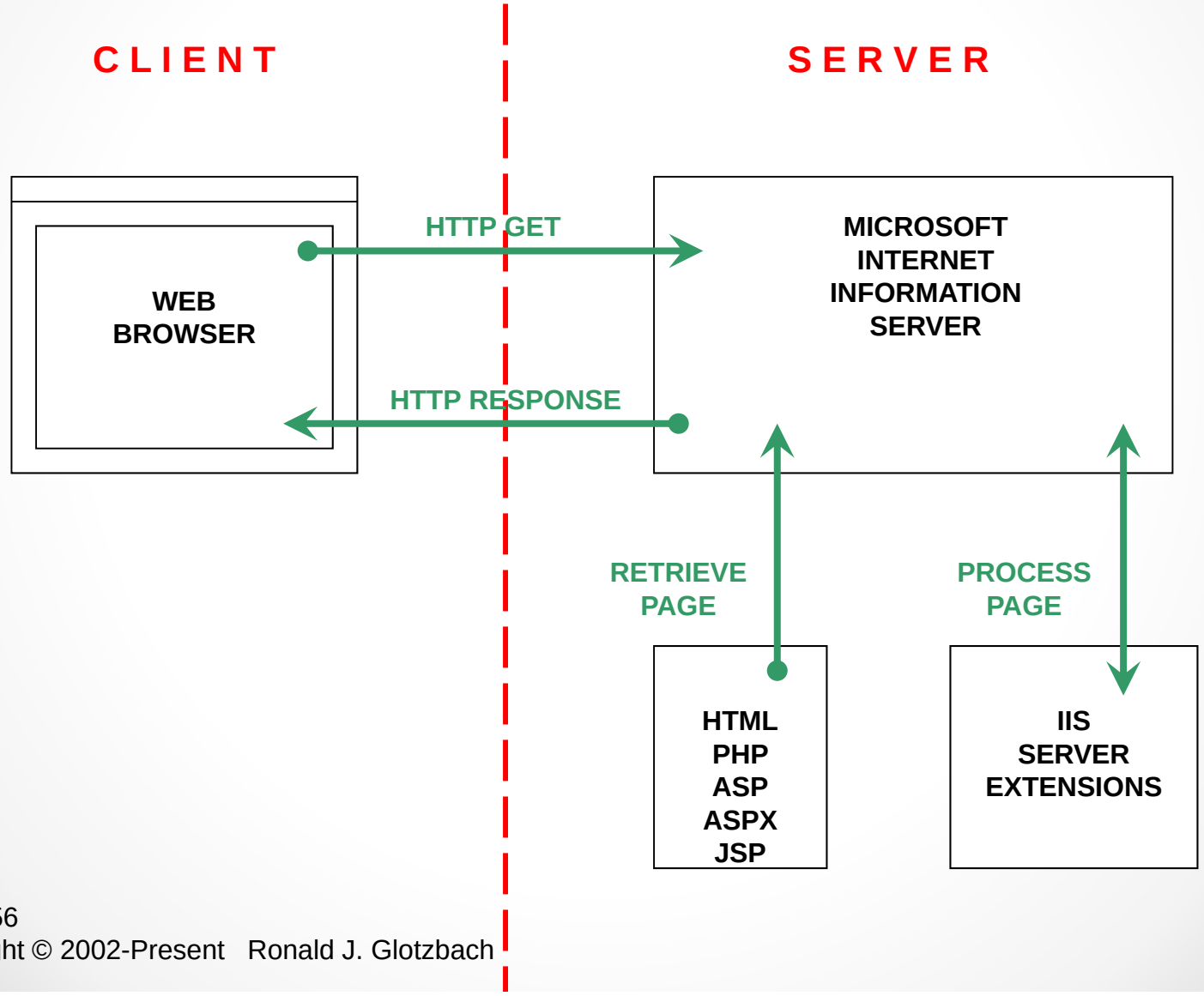
Server-Side (cont.)



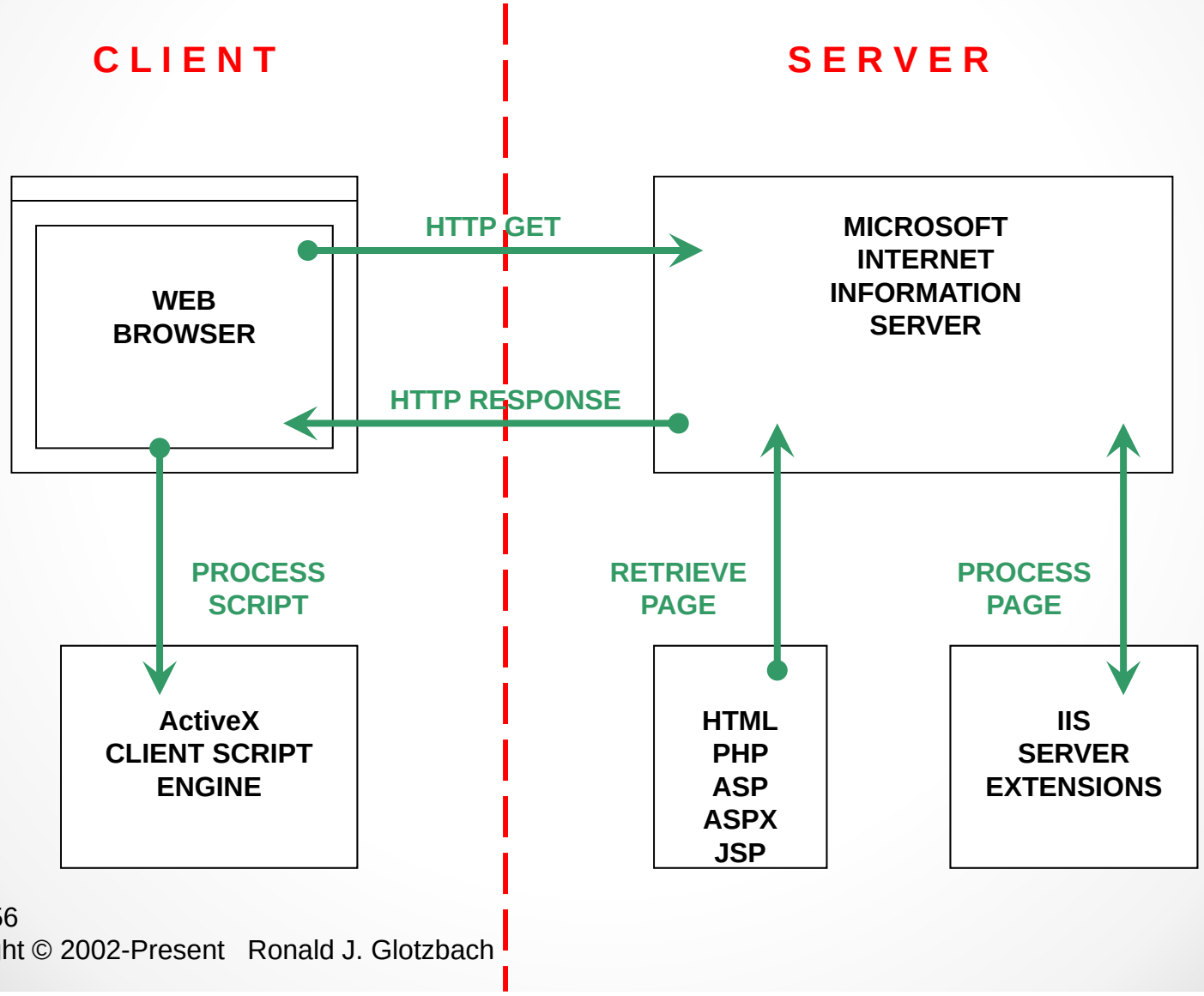
Server-Side (cont.)



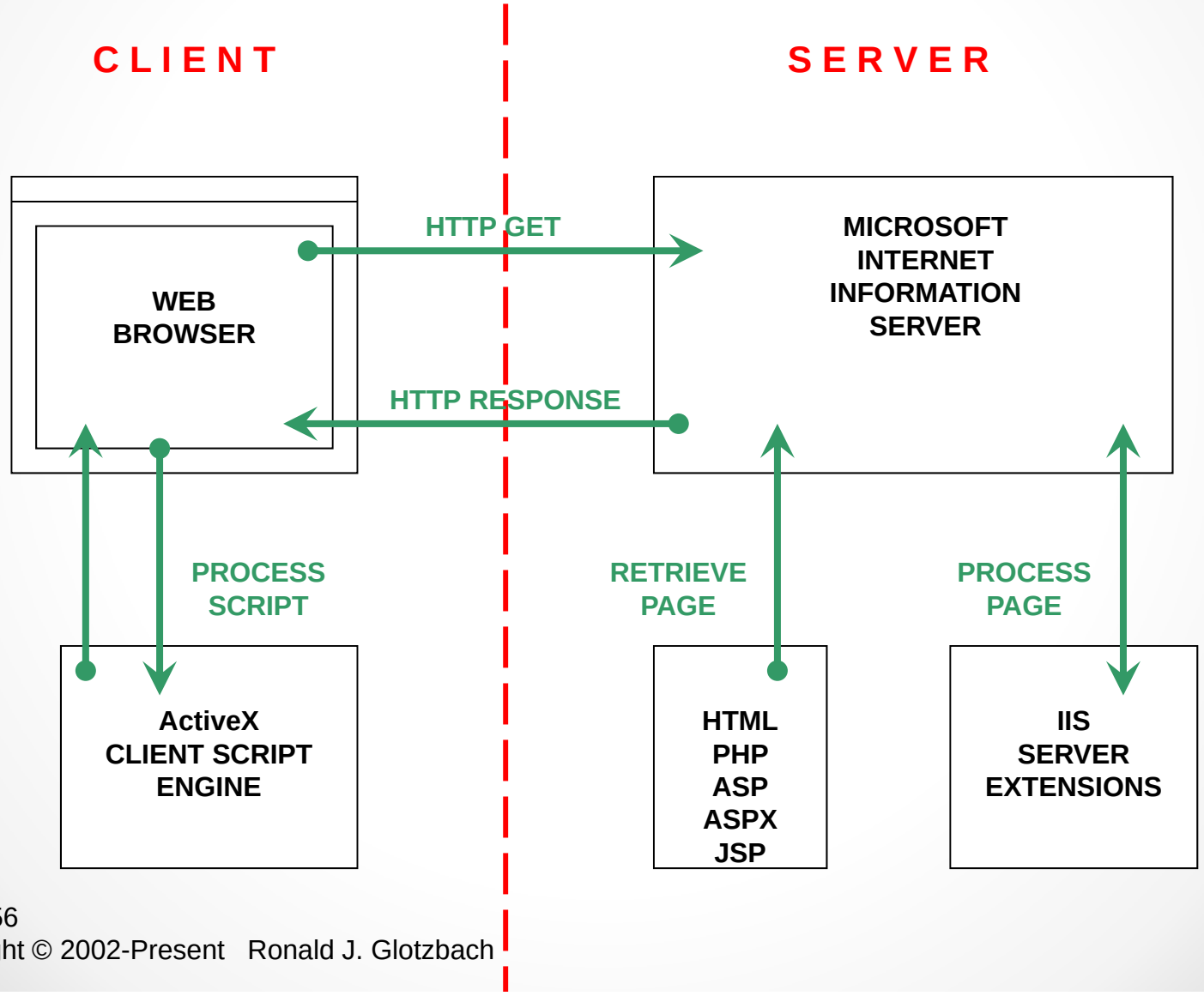
Server-Side (cont.)



Server-Side (cont.)



Server-Side (cont.)



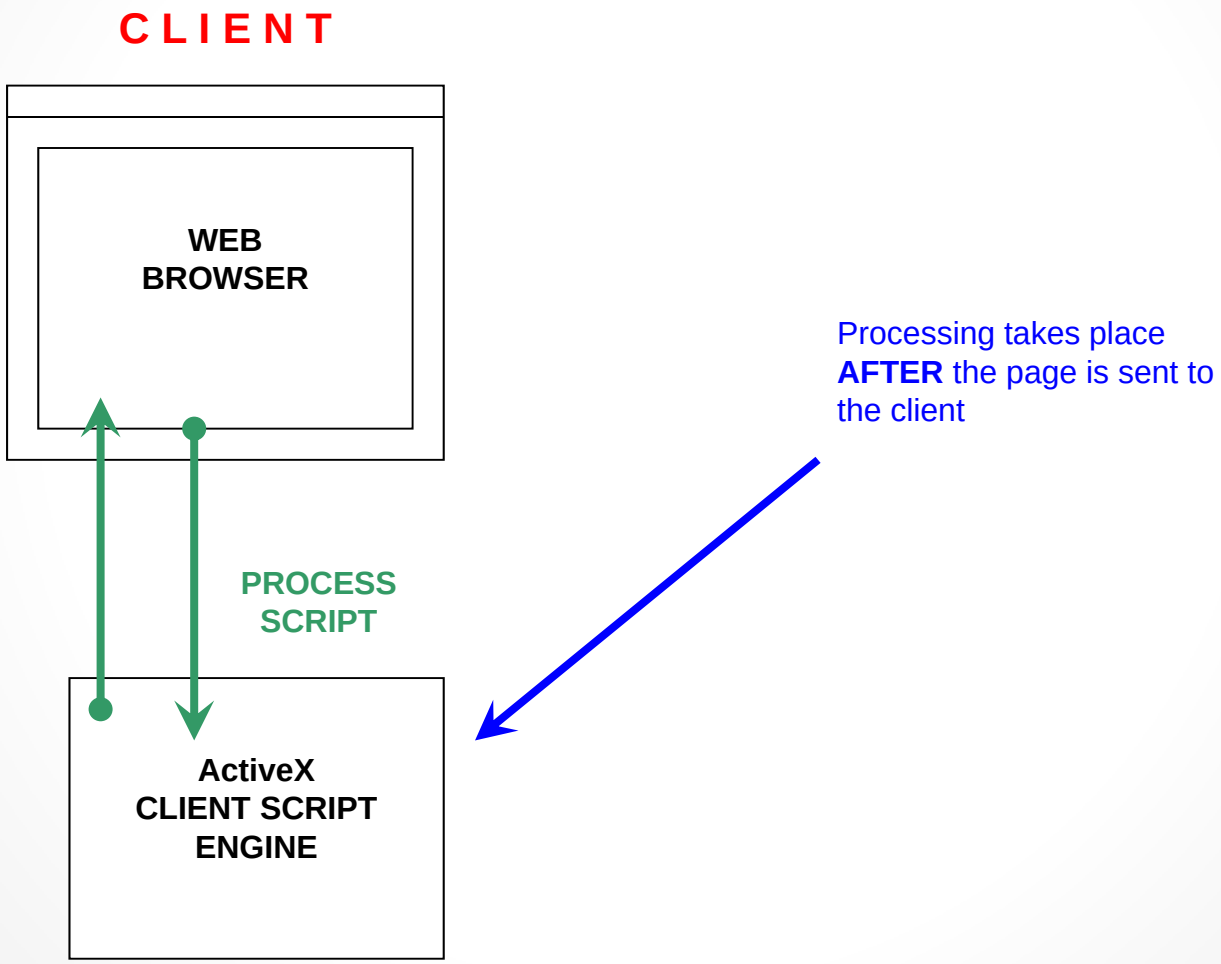
Prerequisites

- In the prerequisite course, we dealt with some JavaScript

- Client-Side

  <script type="text/javascript“>

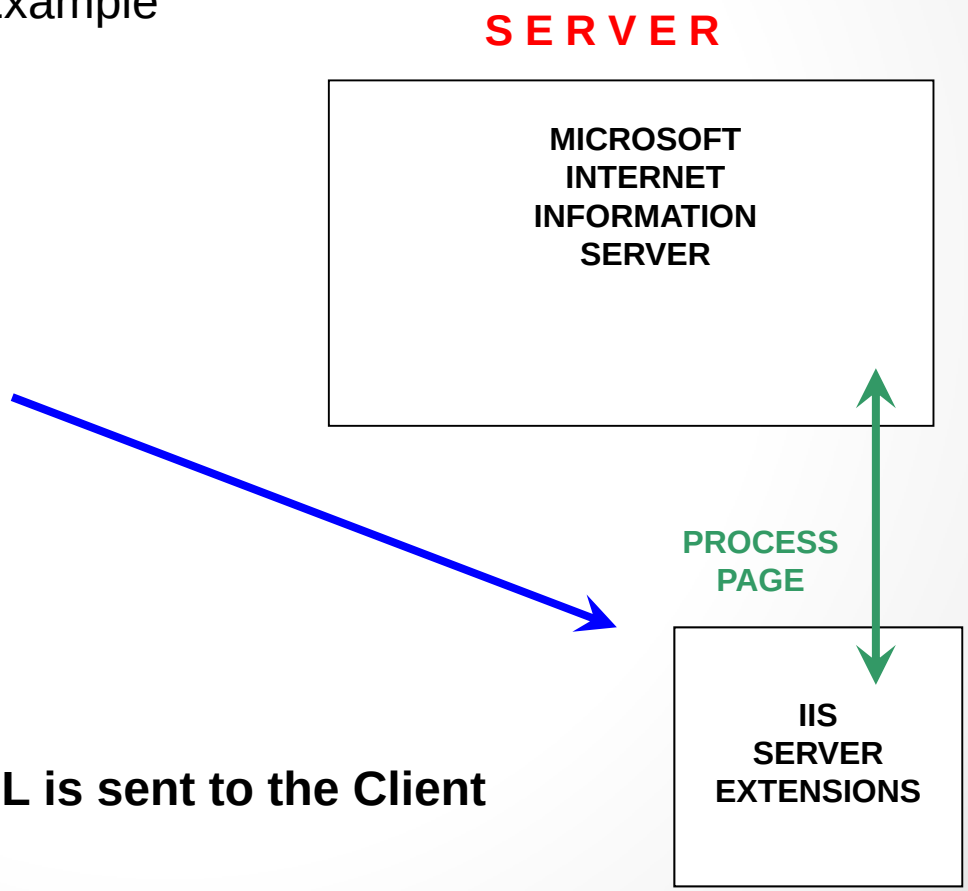
Prerequisites (cont.)



In contrast, on the Server-Side

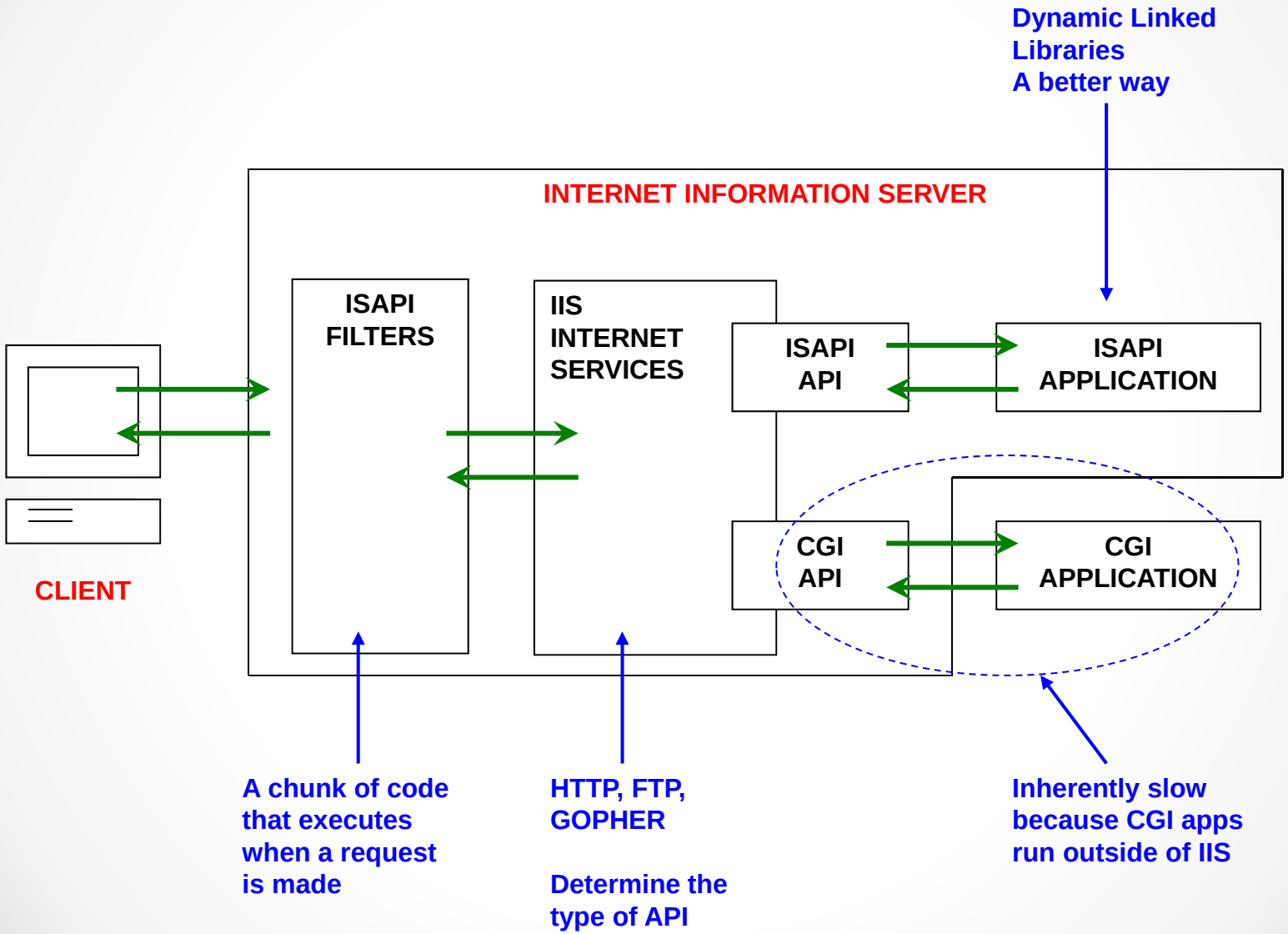
Using the same JavaScript Example

<script type="text/javascript"
runat="server" >



Then the resulting HTML is sent to the Client

A Closer Look at the Server-Side



ISAPI

- Internet Server Application Program Interface
- Enables programmers to build Web applications that run much faster than conventional CGI applications because they are more tightly integrated with the Web server.

API

- Application Program Interface

- A set of stored routines, protocols, and tools for building software applications. (The building blocks for software development)

CGI Disadvantages

- If your web server is Windows:
  - CGI applications are a separate process from IIS
  - A new CGI application process is started each time a request is made for its service
  - Data cannot be shared between requests
  - Because of this, CGI is *slow*

Advantages of PHP

- Data can be persisted and shared between requests
- It has a low learning curve and is easy to program
- Not constrained by client-side applications
- ODBC can link to any data source
  - ODBC: Open Database Connectivity

Disadvantages of PHP

- It is an *interpreted* language, which means there is no compilation of code
- Debugging can be trial and error, but web browsers are pretty good about displaying messages
- It uses a scripting language, and does not use an OO programming language (although it is possible to write object oriented scripts)